Draft Revised Working Plan

of

Kalahandi North Forest Division

for the period

2021-2022 to 2030-31

Prepared by

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ACF, Kalahandi North Division

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ACF, Kalahandi North Division

Under the guidance of

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Divisional Forest Officer,
Kalahandi North Division

Rabandara *Waterfall*

PREFACE

The method of scientific management of forests through Working Plan was adopted quite a long back. Before merger of Princely States with the State of Orissa during the British period, Kalahandi was known as Kalahandi State and the forests were under the administration of Princely State. Kalahandi Forest Division came in to the control of the State of Orissa during the year 1948 on merger of Kalahandi State with the State of Orissa. Though the first Working Plan of Kalahandi was initiated by Dr. H.F.Mooney, the same was completed by Mr. F.A.A.Hart which became effective from 1934-35. The first revision of the Working Plan of Kalahandi Division after independence of our country was taken up by Sri S.R.Choudhury (1962-63 to 1981-82) followed by Sri D.S.Pattnaik(1983-84 to 1992-93), Sri K.R.Singh (1997-98 to 2006-07). On reorganization of Forest Divisions w.e.f. 01.10.2003, Kalahandi Forest Division has been bifurcated in to Kalahandi North Division and Kalahandi South Division. The Working Plan of Kalahandi North Dkivision for 10 years i.e. from 2007-08 to 2016-17 was prepared by Sri Jitasatru Mohanty. On expiry of the same, Working Schemes were prepared from 2017-18 to 2020-21. As there is acute necessity of revision of the Working Plan of Kalahandi North Division for the next 10 years, this present Working Plan is prepared for the period from 2021-22 to 2030-31. The main emphasis of this Working Plan is on protection, eco-restoration, afforestation and conservation. For revision and preparation of Working plan of this Division, the Preliminary Working Plan Report (PWPR-I) has been approved by the State Level Committee (SLC) vide memo No. 13331/11F.(SFM) dated. 08.07.2016 of the Addl. Pr.C.C.F.(P & SM) O/O. the Pr. C.C.F., Odisha.

Management of forests is the most challenging job in view of dwindling resources coupled with galloping rise in demand, dearth of working force and acute man animal conflict. Meeting the requirement of the local people with simultaneous maintenance of adequate forest cover for ecological balance and environmental stability has the great challenge to the managers of the forests. Peoples participation in the management of forests in Joint Forest Management mode is at the peak and the role of forest manager have changed significantly. The difficulties encountered during implementation has well taken care of to make the plan pragmatic and convenient for the grass root level field functionaries to execute the prescription smoothly.

Implementation of this working plan would enhance productivity of forests, it will contribute to environmental stability, protection of soil and water regime, conservation of plant diversity and wildlife. Various forestry operations implemented under this Working Plan would provide employment to local tribals and people below poverty line. There will also be availability of considerable timber and firewood through the harvesting operations.

In order to ensure better results and also to encourage existing native root stock, the present plan lays emphasis on taking up SMC works for more availability of moisture in the forest soil, along with preventing the soil from erosion. Encouragement of native vegetation through SMC measures and effective closure over a period is given the top priority, as far as management inputs are concerned. Rills/gullies on hill sides need more such structures which should form the first green pockets in the

area of treatment. As the number of rainy days in the region is small and the rainfall is itself low, the plan has stressed upon strengthening all such SMC structures with vegetative means to take full benefit of available moisture.

I express my sincere thanks to **Sri Sisir Kumar Ratho,** IFS, Principal Chief Conservator of Forests and Head of Forest Force, Odisha Forest Department for providing all the guidance during the preparation of this Working Plan Report. The constant guidance provided by Sri Amaresh Kumar Jaiswal, IFS, Chief Conservator of Forests(P & SM), I/C. Conservator of Forests (Working Plan) O/O the Pr.C.C.F., Odisha during the entire period of this revision is thankfully acknowledged.

I also express my sincere thanks to **Shri P K Mallick**, IFS, Additional Chief Conservator of Forests, and Chief Executive, ORSAC for his guidance and superior level of support provided from time to time. He did not leave any stone unturned to provide all the support for collection of all the sample plot data through GPS PDA and then providing the processed data from NRSC, Hyderabad.

I am grateful to **Shri Suresh Pant**, IFS, (Ex-Regional Chief Conservator of Forests, Bhawanipatna Circle) now Additional Principal Chief Conservator of Forests, O/O. the Pr.C.C.F., Odisha, Shri Abhiram Naik , IFS (Regional Chief Conservator of Forests, Bhawanipatna Circle, Bhawanipatna,Retd.), Shri Sudipta Dash, IFS., and Shri Aswini Kumar Kar, IFS, I/c-Regional Chief Conservator of Forests, Bhawanipatna Circle, Bhawanipatna for their kind support and timely guidance during the various stages of the preparation of this Plan.

I am also grateful to **Shri Lalitendu Jena,OFS-I**, the previous Divisional Forest Officer, Kalahandi North Division who was in charge of this Division during preparation of PWPR.

I sincerely thanks the **Shri S. Samantary, OFS-I**, Ex Asst. Conservator of Forests, Kalahandi North Division (Now Divisional Forest Officer Subarnapur Forest Division), **Shri B.D Swain OFS-I,** Asst. Conservator of Forsts (Retd), **Shri Lade Gajanan Dayanand, IFS (Prob.),**Asst. Conservator of Forests, Kalahandi North Division, **Shri M.R Kalo OFS-I,** Asst. Conservator of Forests, Kalahandi North Division and **Shri Jitendra Sahoo**, **OFS-I,** Asst. Conservator of Forests, Kalahandi North Division who took personal pain to help write and compile different chapters of the Working Plan. Their active involvement during the conduct of field exercise during the initial phase as well as writing and finishing of this plan was very crucial.

I express my sincere thanks to **Sri U.S.N.Murty, Head Clerk (Retd.), Sri P.K.Patra, Head Clerk(Retd.), Sri G.S.Sabar, Head Clerk**, **Smt. Maushumi Dash**, **Forester** and **Miss. Alisa Panda, DEO** for their day and night services for revision of this Working Plan. Besides, thanks to all the officials and staff who put in a great deal of effort to carry out field exercise during sample plot survey and helped in timely completion of field exercise.

I hope, this plan will be a guiding mirror for the manager of the forest during the plan period in Kalahandi North Forest Division.

(Nitish Kumar, IFS)
Divisional Forest Officer,
Kalahandi North Division

Bhawanipatna

ADMINISTRATIVE MAP OF
KALAHANDI NORTH FOREST DIVISION
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SURUJULI
ANLATARA
GOCHHADENGEN
PANDAPADAR
MOHANGIRI
TUNDLA
KASHRUPADA
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THAPEN
PALAM
JAMUNAPUR
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BORDA
JAYANTPUR
BAGMUNDA
SIKUAN
DUMURIA
BALIPATI
KUNDABANDHA
PODHKHAMAN
KARLAPADA
DEGAON
RUPRA ROAD
KEGAON
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TURECHADA
KHALIAPALI
SIALJODI
GARGAB
GOLAMUNDA
NUAGAON
GARGAB
RAMCHANDRAPUR
DUDKEL
KENDUPANI
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DAMBARUPADAR
DHAMANPUR
ANTARLA
GOLAMUNDA
DASPUR
SANKRIPALI
KARMATH
KARPA
KIRKAKANI
DASPUR
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TIKRAPADA
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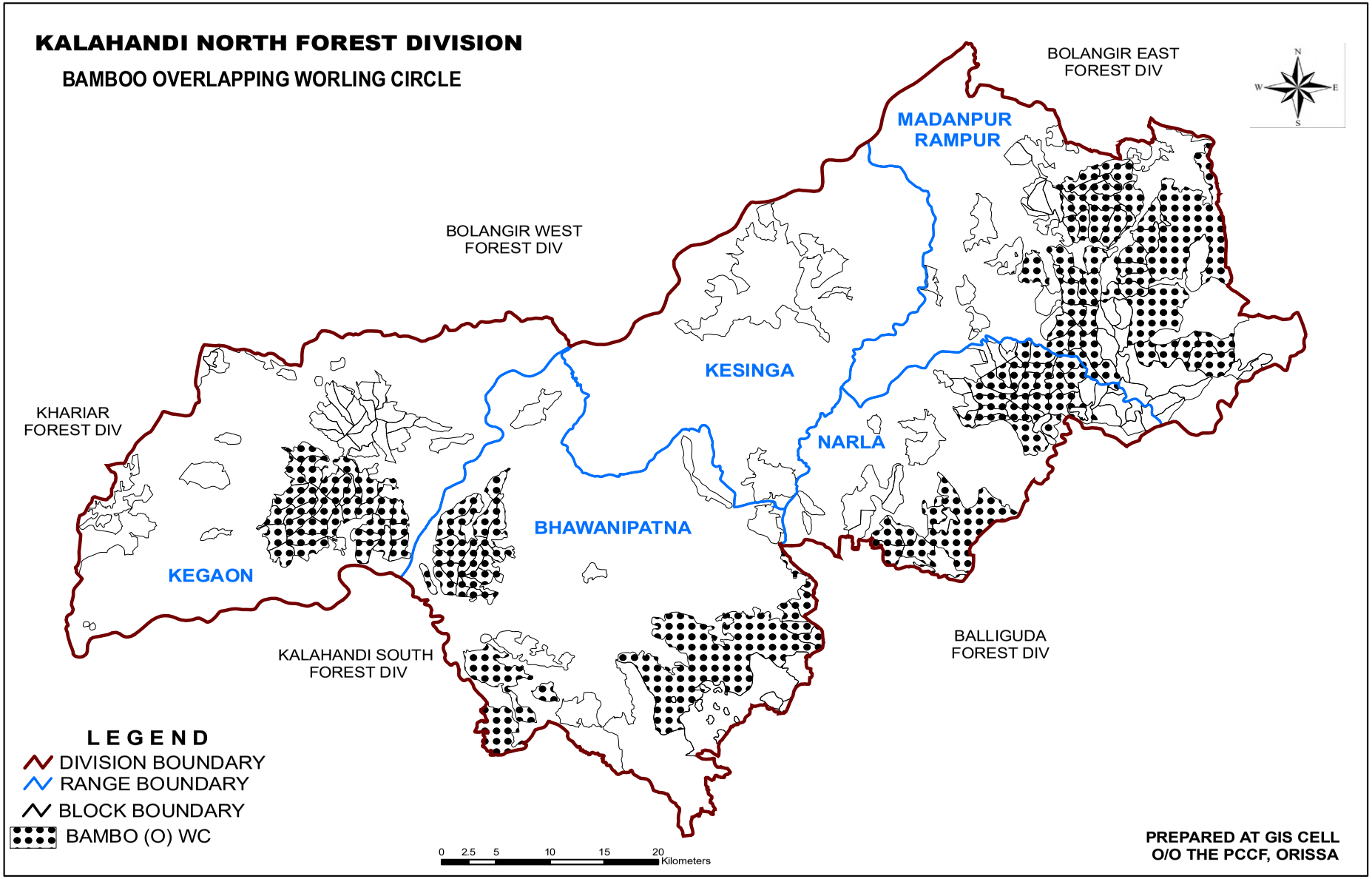
MACHUL
BHAWANIPATNA
BHATANGAPADAR
SIRLIGUDA
SURLI
SULIA
NUAGAON
DIVISION BOUNDARY
RANGE BOUNDARY
SECTION BOUNDARY
BEAT BOUNDARY
Prepared at GIS Cell
O/o the PCCF, Orissa


KALAHANDI NORTH FOREST DIVISION
BAMBOO OVERLAPPING WORLING CIRCLE
BOLANGIR EAST FOREST DIV
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BOLANGIR WEST FOREST DIV
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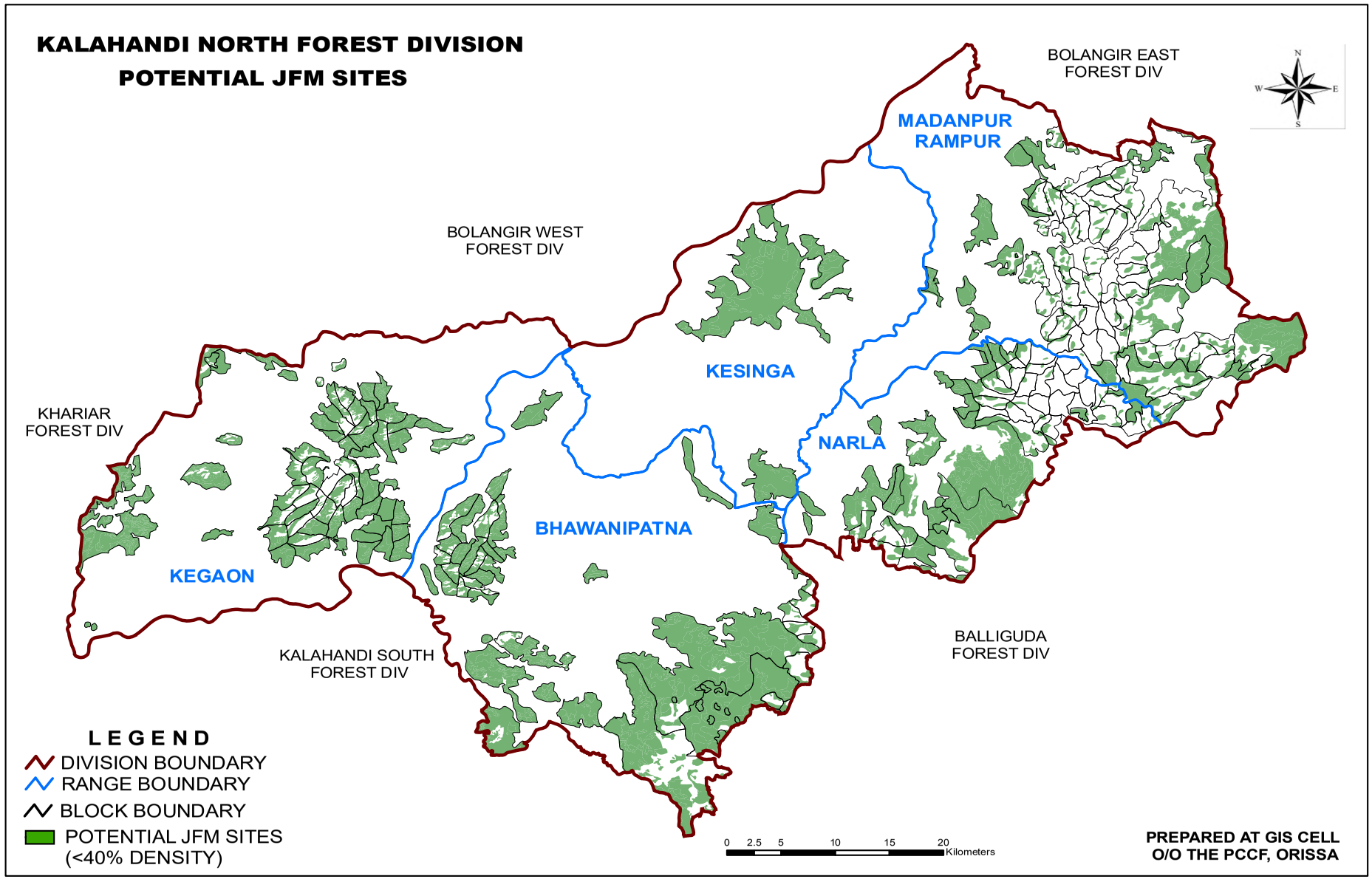
O/O THE PCCF, ORISSA


KALAHANDI NORTH FOREST DIVISION
POTENTIAL JFM SITES
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BHAWANIPATNA
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BLOCK BOUNDARY
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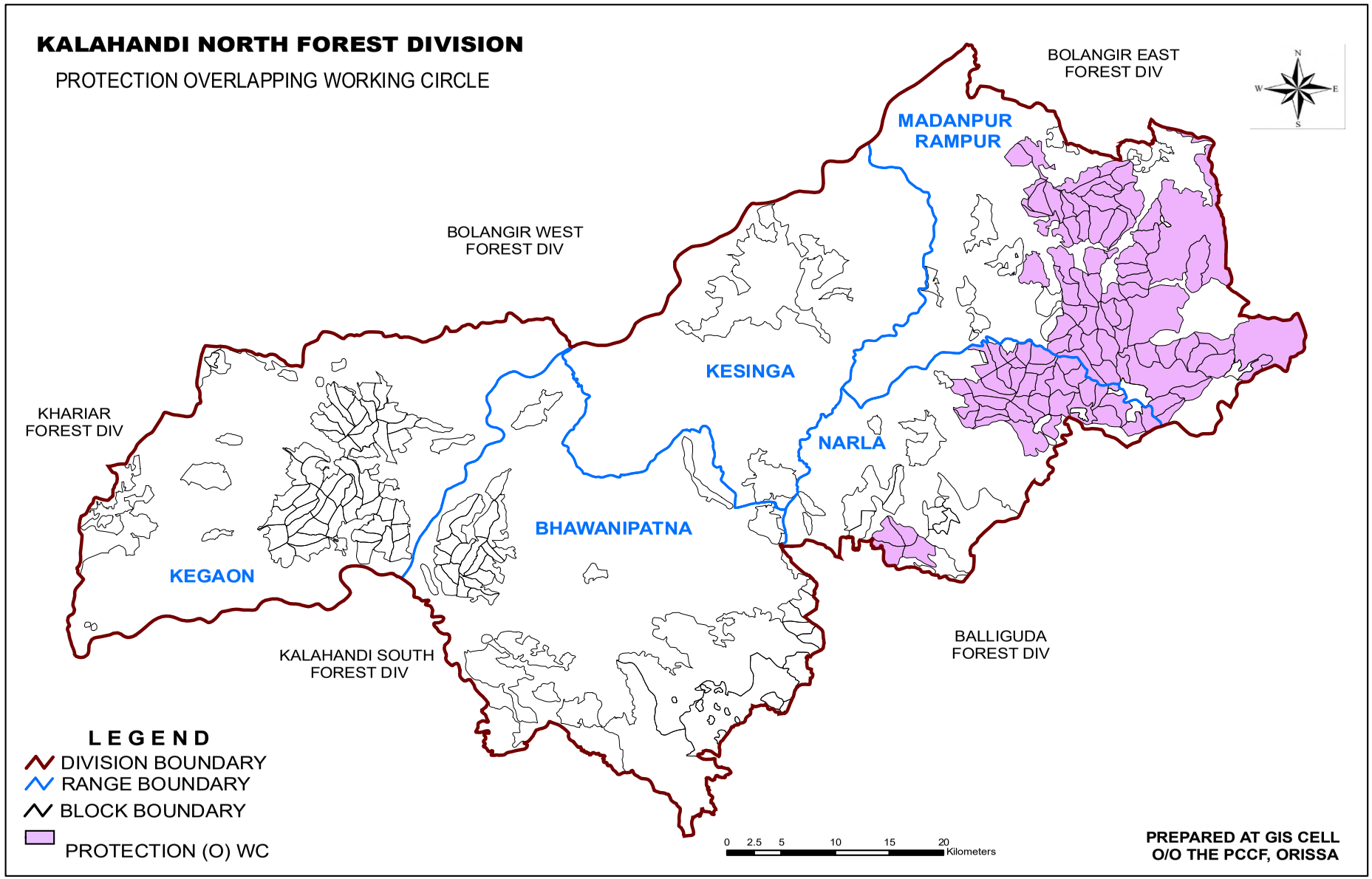
KALAHANDI NORTH FOREST DIVISION
PROTECTION OVERLAPPING WORKING CIRCLE
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MADANPUR RAMPUR
BOLANGIR WEST FOREST DIV
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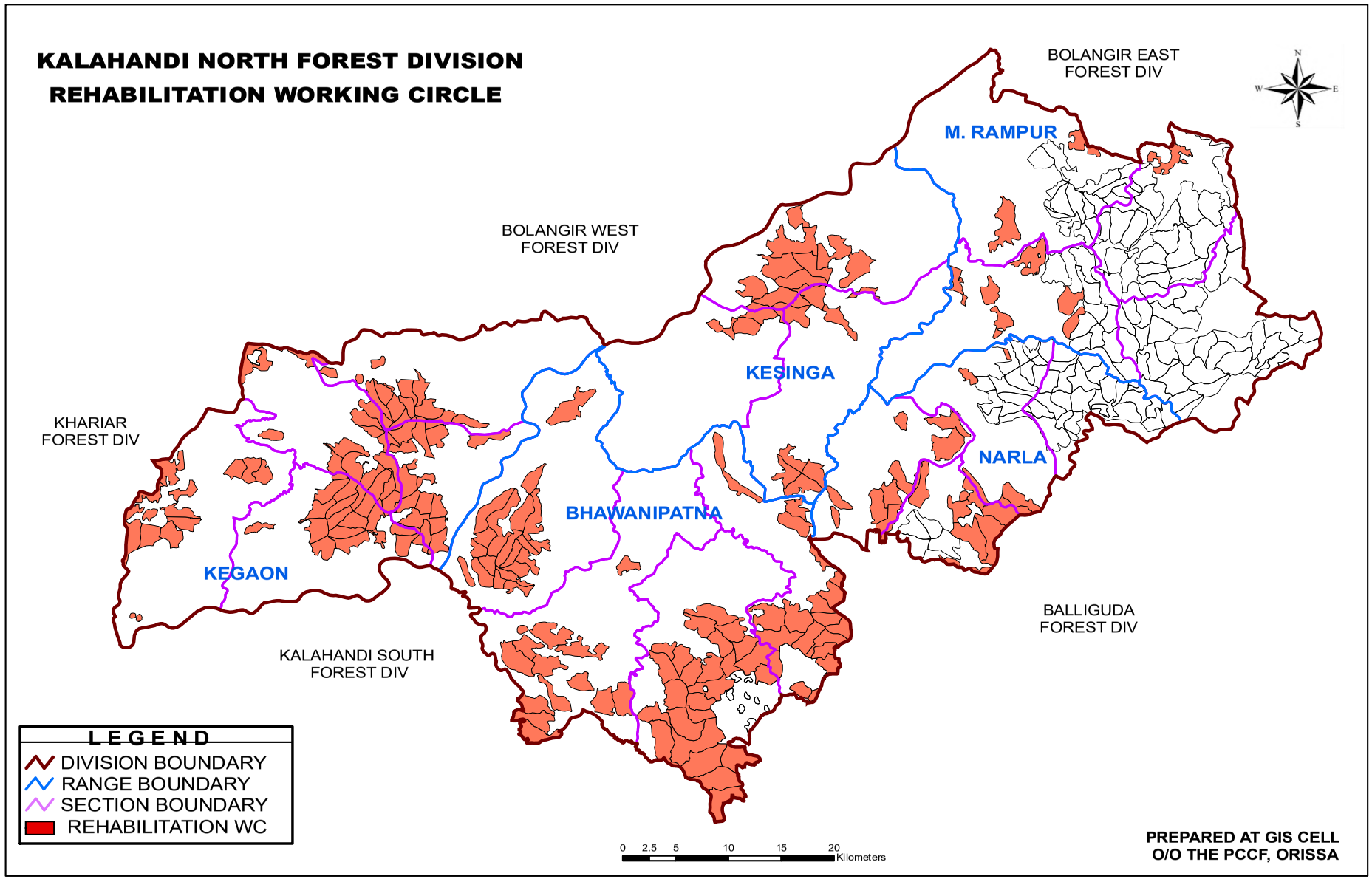
KALAHANDI NORTH FOREST DIVISION
REHABILITATION WORKING CIRCLE
BOLANGIR EAST FOREST DIV
M. RAMPUR
BOLANGIR WEST FOREST DIV
KESINGA
KHARIAR FOREST DIV
NARLA
BHAWANIPATNA
KEGAON
BALLIGUDA FOREST DIV
KALAHANDI SOUTH FOREST DIV
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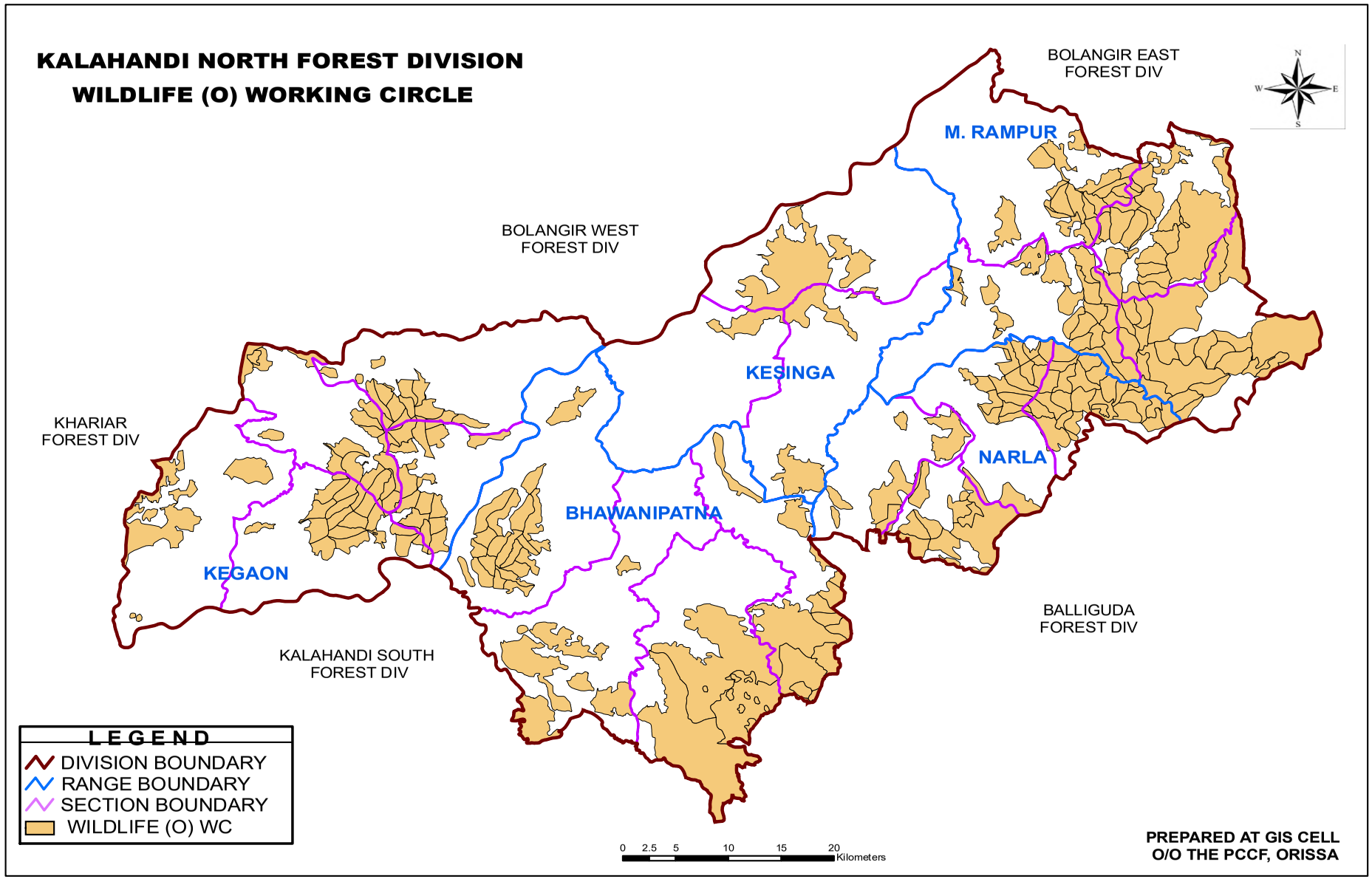
O/O THE PCCF, ORISSA


KALAHANDI NORTH FOREST DIVISION
WILDLIFE (O) WORKING CIRCLE
BOLANGIR EAST FOREST DIV
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BOLANGIR WEST FOREST DIV
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KEGAON
BALLIGUDA FOREST DIV
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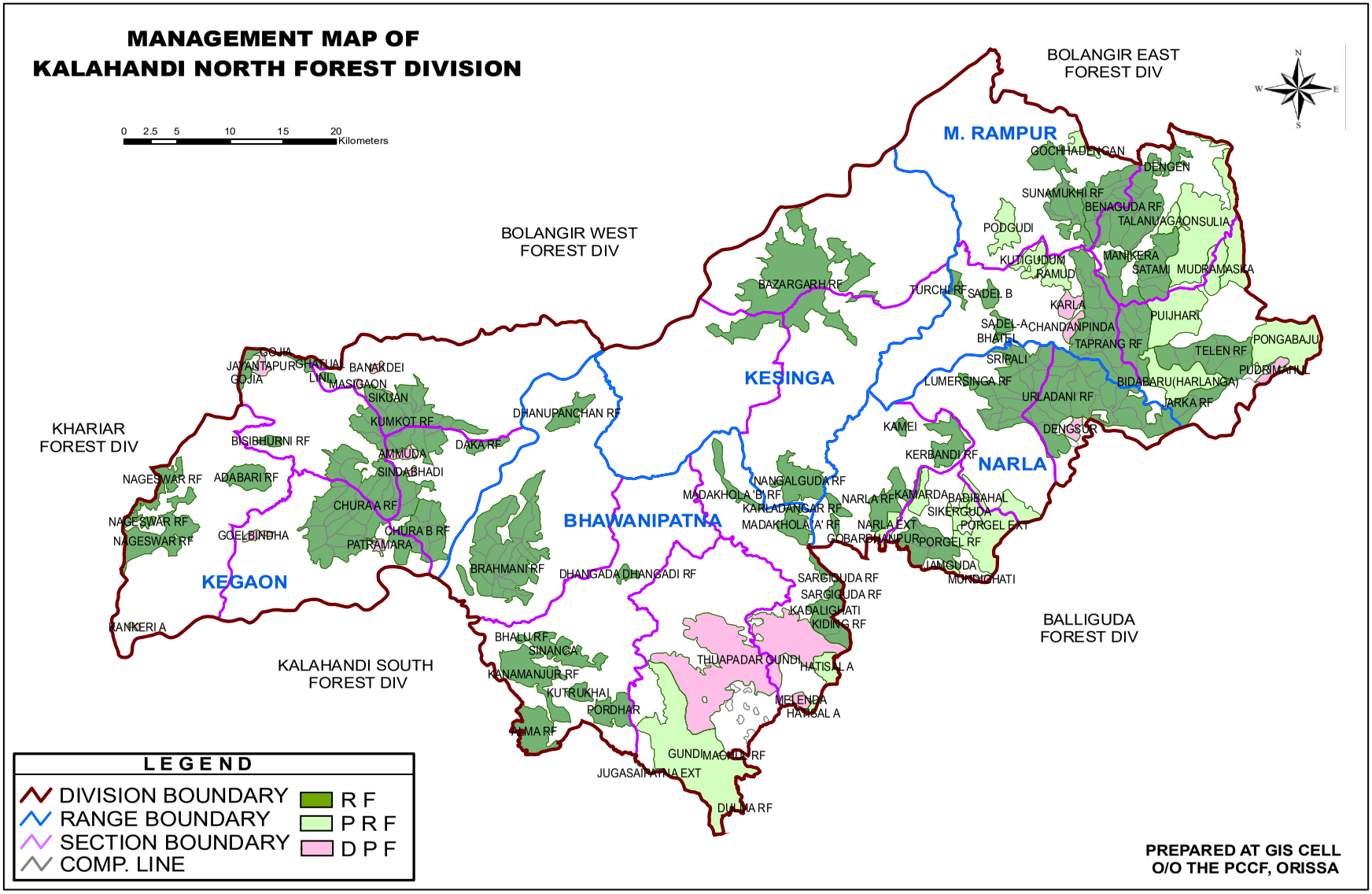
PREPARED AT GIS CELL
O/O THE PCCF, ORISSA


MANAGEMENT MAP OF
KALAHANDI NORTH FOREST DIVISION
0 2.5 5 10 15 20 Kilometers
BOLANGIR EAST FOREST DIV
BOLANGIR WEST FOREST DIV
KHARIAR FOREST DIV
KALAHANDI SOUTH FOREST DIV
BALLIGUDA FOREST DIV
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KESINGA
BHAWANIPATNA
KEGAON
NARLA
GOCHHADENGAN
DENGEN
SUNAMUKHI RF
BENAGUDA RF
TALANUAGAONSULIA
PODGUDI
KUTIGUDUM
RAMUD
MANIKERA
SATAMI
MUDRAMASKA
BAZARGARH RF
TURCHI RF
SADEL B
KARLA
SADEL-A
CHANDANPINDA
PUJHARI
BHATEL
TAPRANG RF
PONGABAJU
TELEN RF
SRIPALI
PUDIMATHU
LUMERSINGA RF
BIDABARU(HARLANGA)
URLADANI RF
ARKA RF
DENGSUR
KAMEI
KERBANDI RF
NANGALGUDA RF
MADAKHOLA 'B' RF
KARLADANGAR RF
MADAKHOLA 'A' RF
NARLA RF
KAMARDA
BABABAHAL
SIKERGUDA
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NARLA EXT
GOBARDHANPUR
PORGEL RF
LAMGUDA
MUNDIGHATI
SARGIGUDA RF
SARGIGUDA RF
KADALIGHATI
KIDING RF
THUAPADAR GUNDI
HATISALA
MELENDA
HATIBALA
GUNDIMAGUNDI RF
JUGASAIPATNA EXT
DULUMA RF
BHALU RF
SINANGA
KANAMANJUR RF
KUTRUKHAI
PORDHAR
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JAYANTAPUR
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PATRAMARA
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RANGE BOUNDARY
SECTION BOUNDARY
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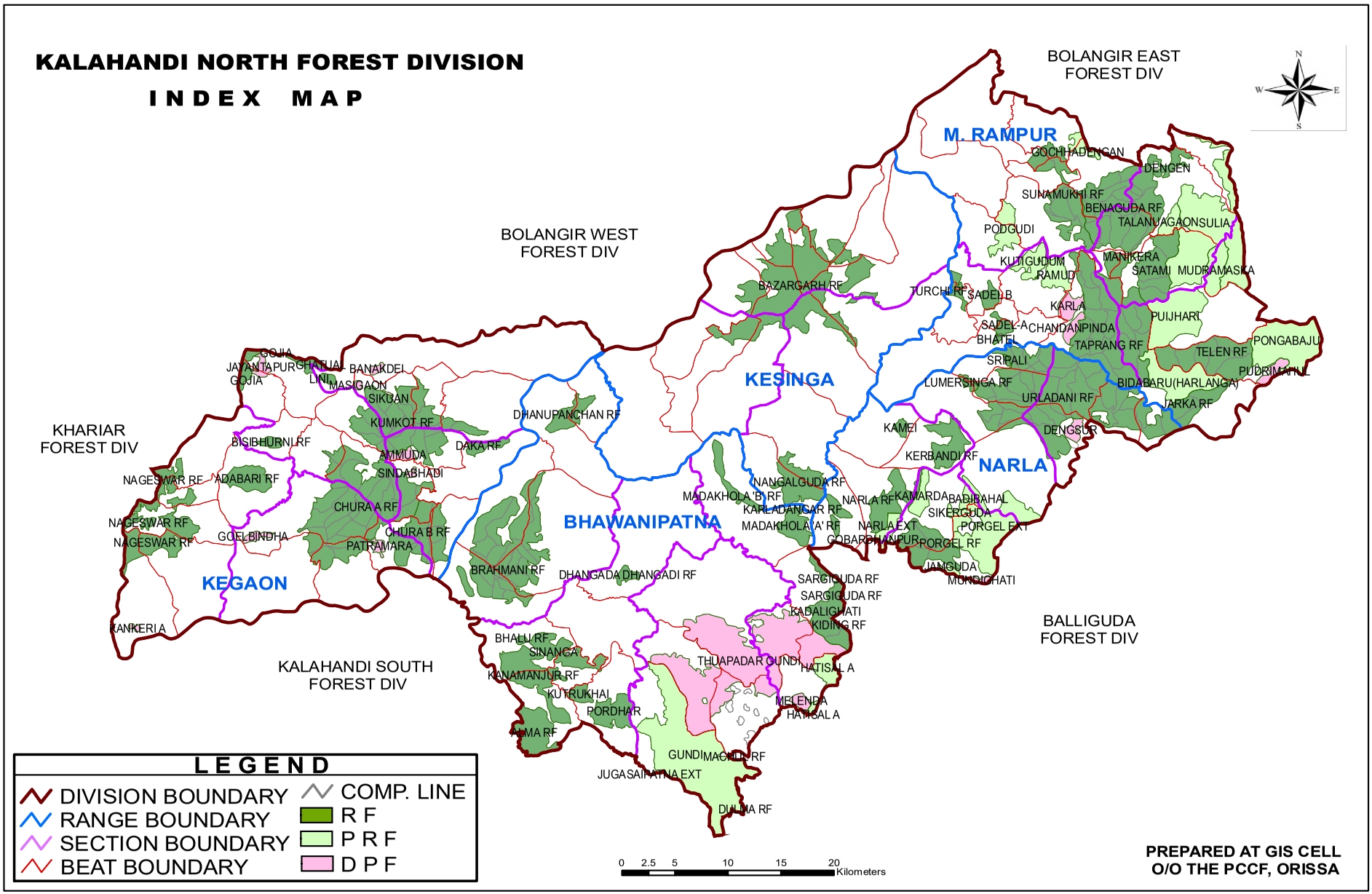
PREPARED AT GIS CELL
O/O THE PCCF, ORISSA

KALAHANDI NORTH FOREST DIVISION

INDEX MAP



LEGEND

- DIVISION BOUNDARY
- RANGE BOUNDARY
- SECTION BOUNDARY
- BEAT BOUNDARY
- COMP. LINE
- R F
- P R F
- D P F

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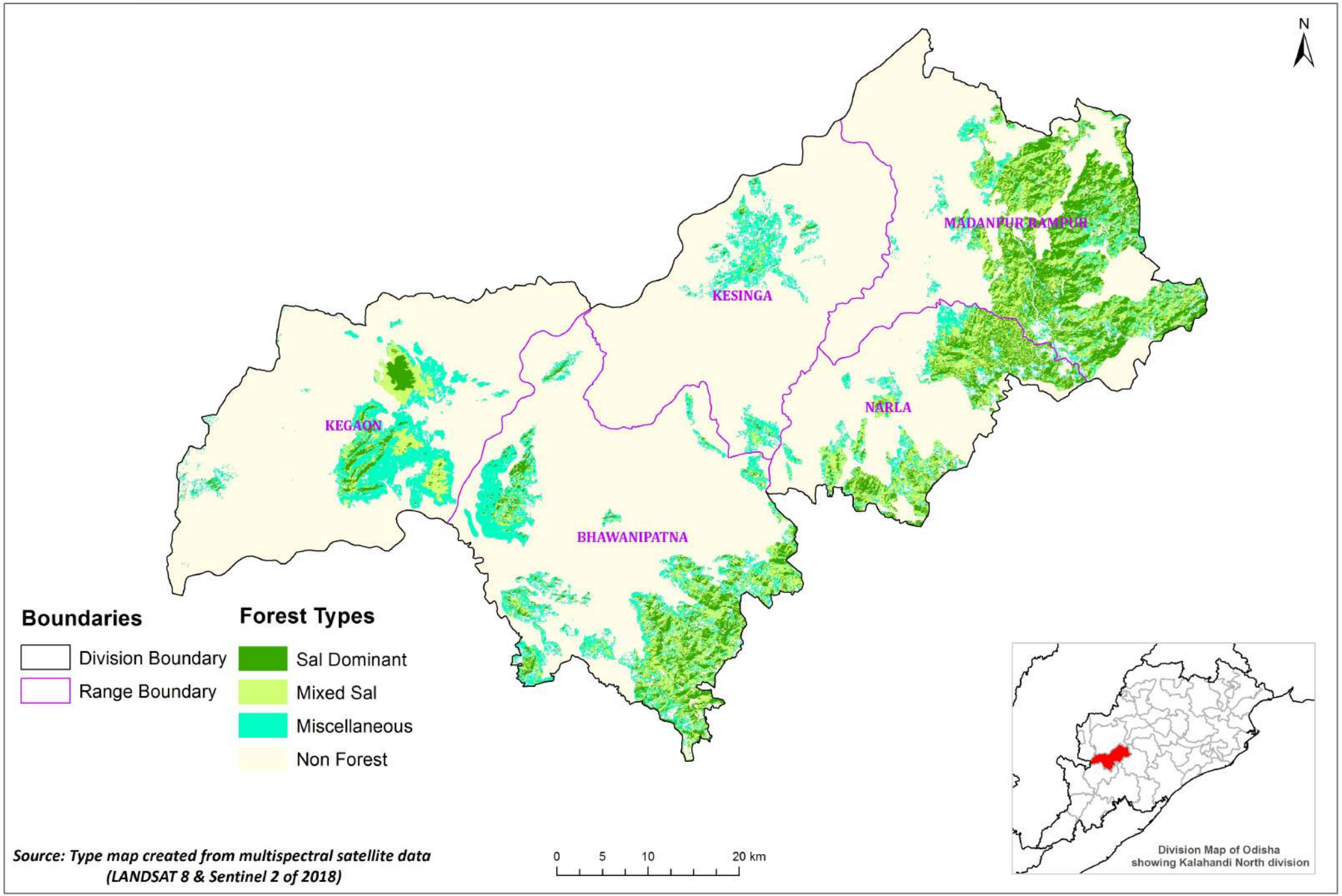
Forest Type Map of Kalahandi North Forest Division, Odisha



Source: Type map created from multispectral satellite data (LANDSAT 8 & Sentinel 2 of 2018)

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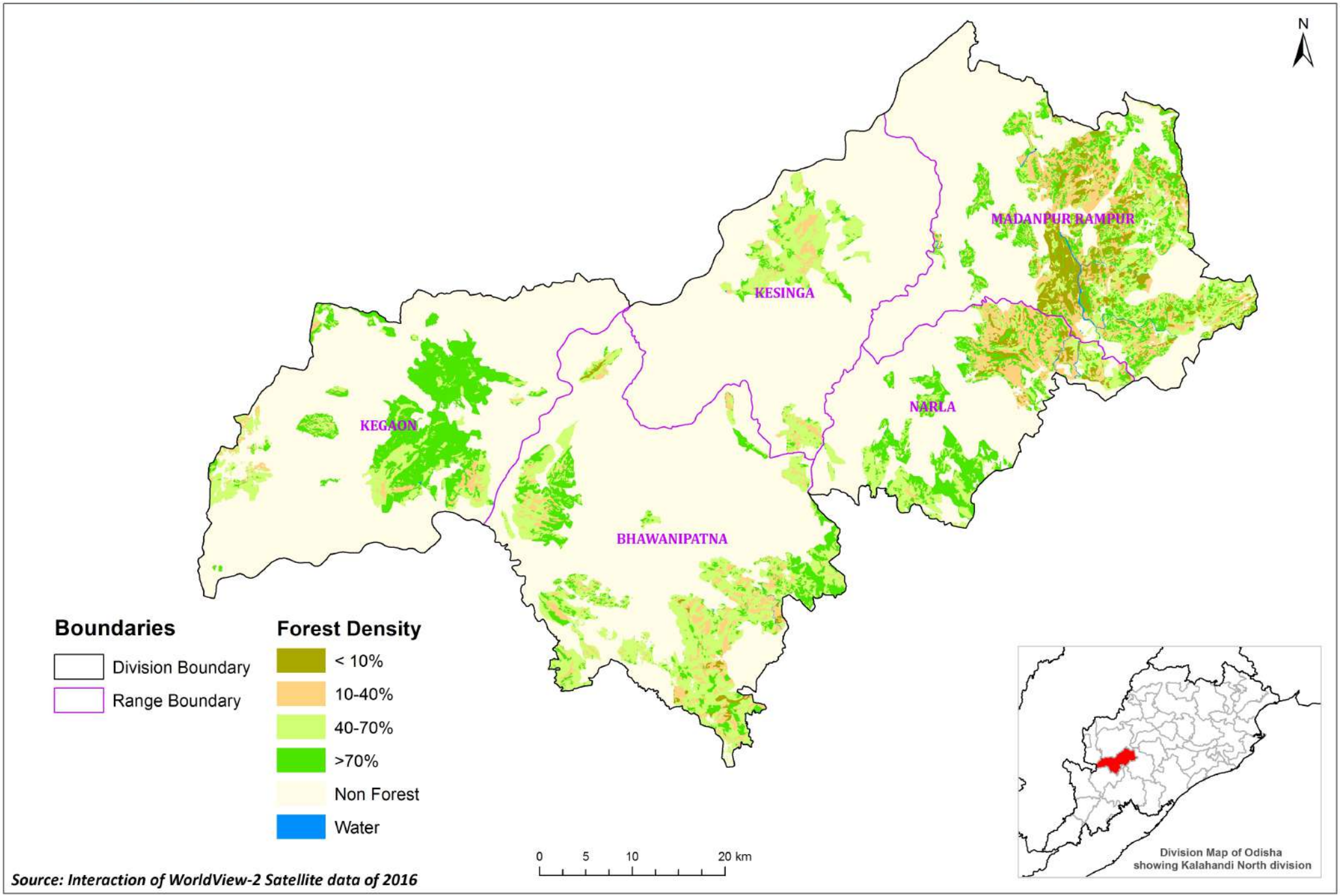
Forest Density Map of Kalahandi North Forest Division, Odisha



Source: Interaction of WorldView-2 Satellite data of 2016

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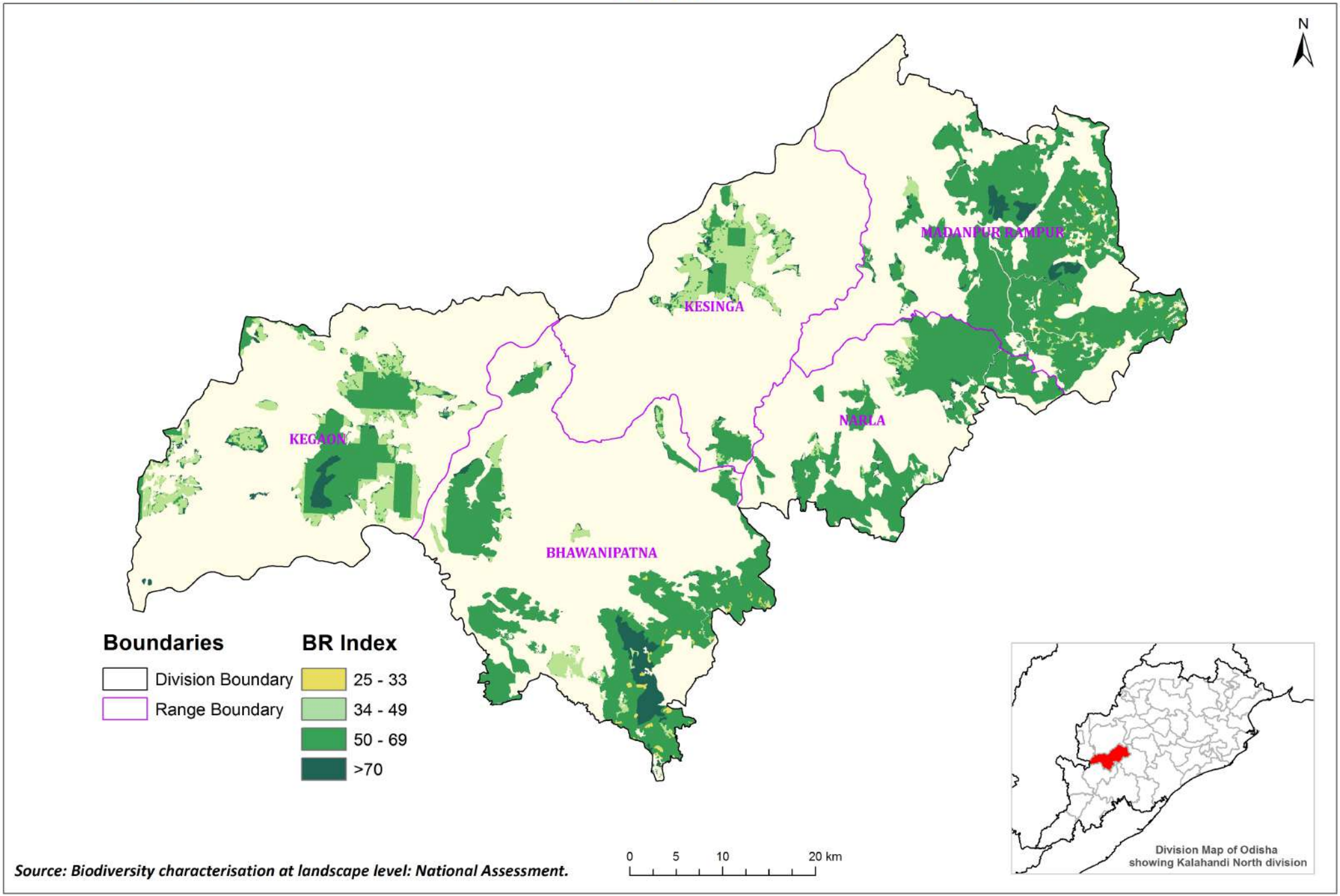
Biological Richness Map of Kalahandi North Forest Division, Odisha



Source: Biodiversity characterisation at landscape level: National Assessment.

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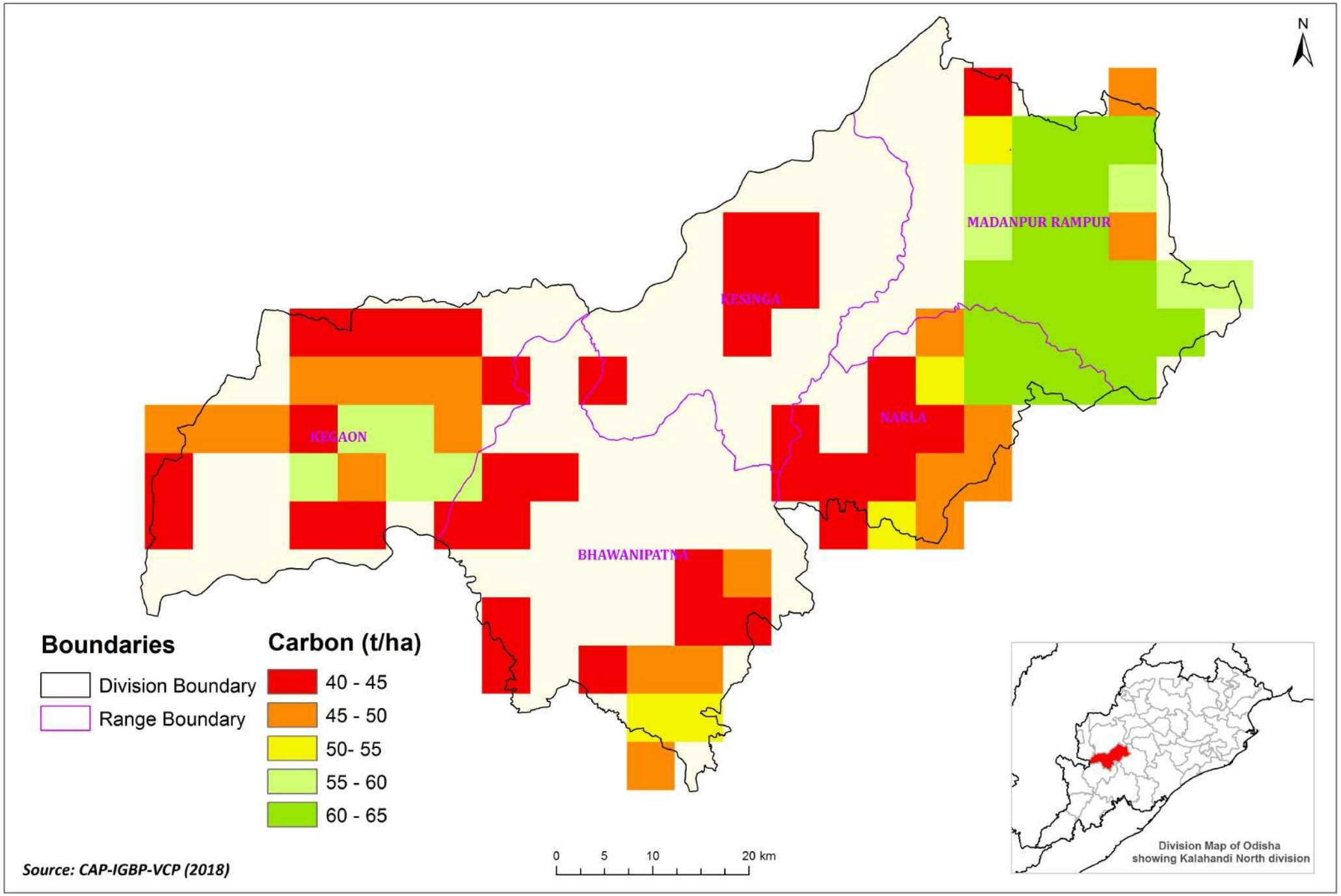
Carbon Map of Kalahandi North Forest Division, Odisha



Source: CAP-IGBP-VCP (2018)

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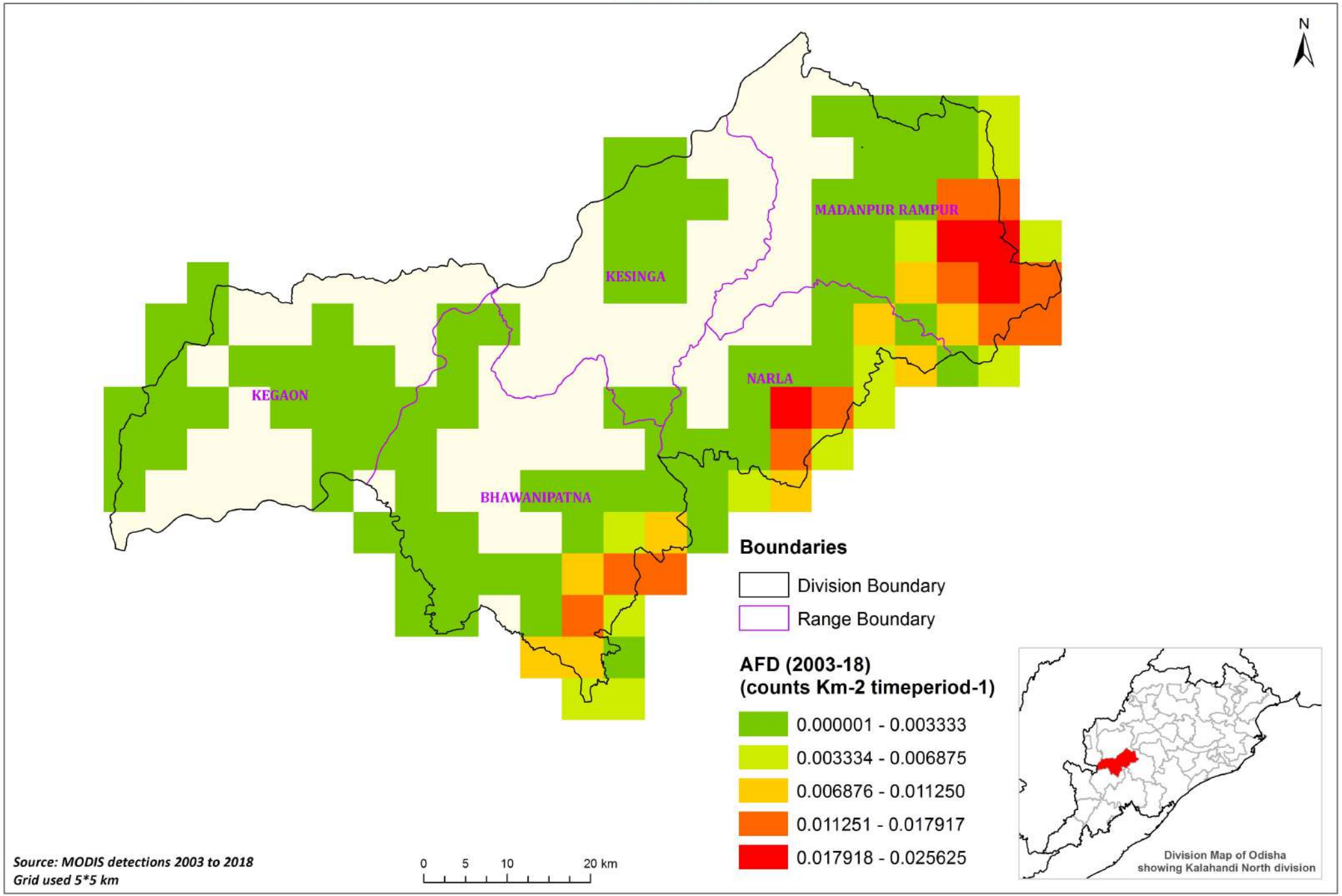
Average Fire Density Map of Kalahandi North Forest Division, Odisha



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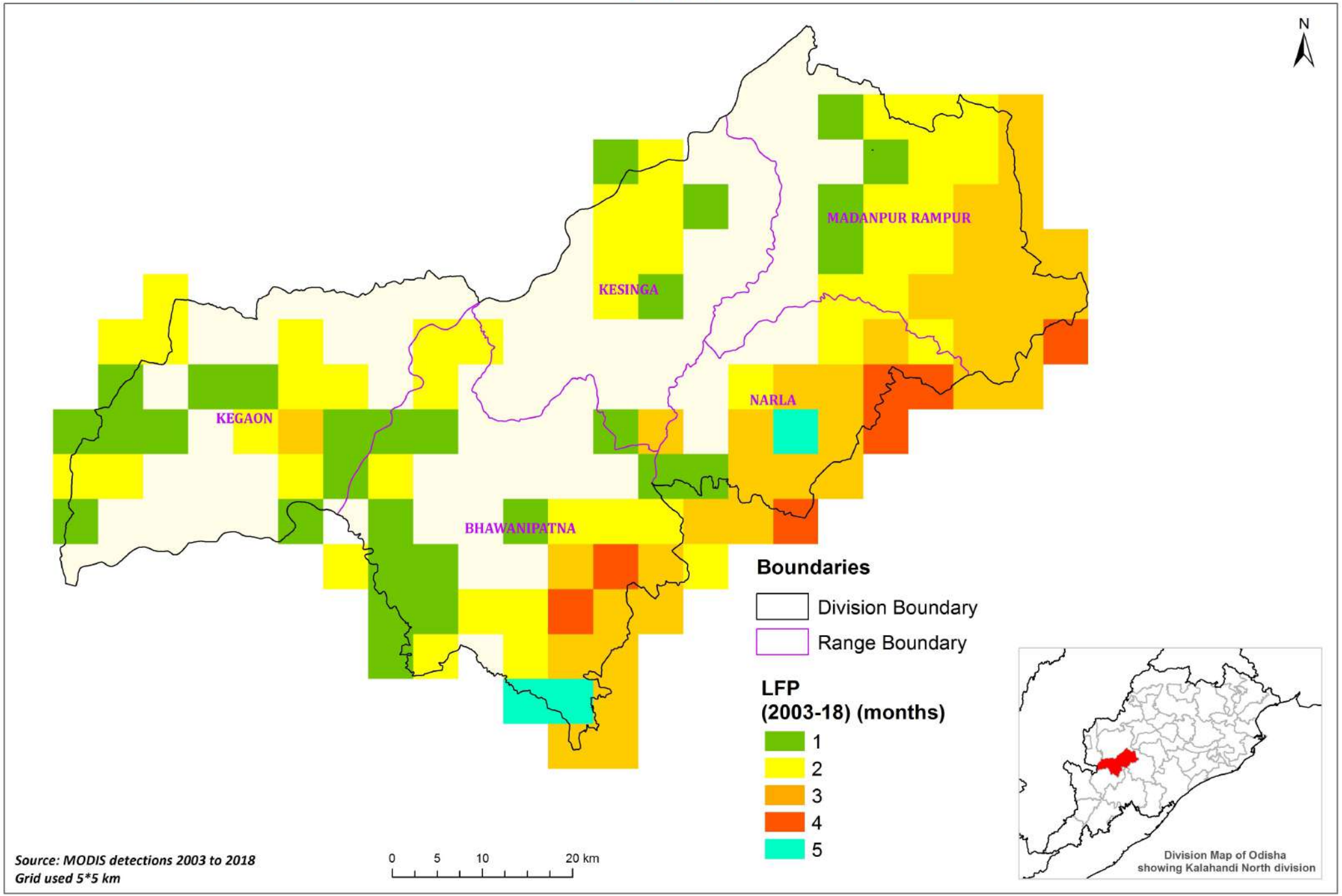
Length of Fire Period Map of Kalahandi North Forest Division, Odisha



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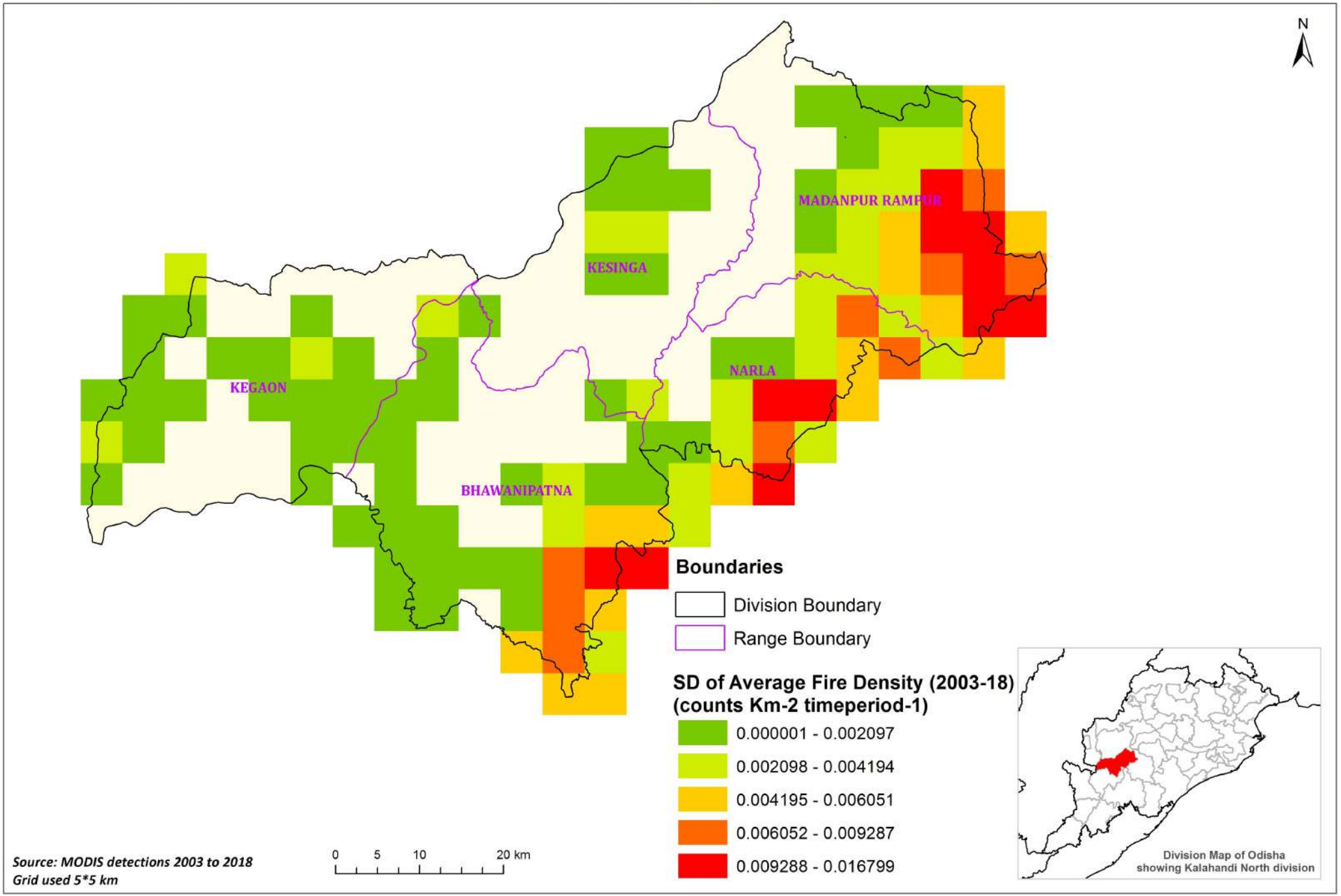
Standard Deviation AFD Map of Kalahandi North Forest Division, Odisha



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EXECUTIVE SUMMARY ALONG WITH THE CONSTRAINTS FACED DURING WRITING OF THE PLAN

I. INTRODUCTION

Consequent upon reorganization , Kalahandi North Forest Division was created on 01.10.2003 vide Govt. of Odisha, Forest & Environment Department Notification **No.1F (A) 100/2003/13228/F&E dated 08.08.2003**.The erstwhile Kalahandi Forest Division is bifurcated into two Forest Divisions namely Kalahandi North Division and Kalahandi South Division. There are five Ranges namely Bhawanipatna Range Headquarter at Bhawanipatna town, Kegaon Range headquarter at Kegaon town, Kesinga Range headquarter at Kesinga town, Madanpur Rampur Range and Narla Range both headquarter at Madanpur Rampur town, 20 nos. of sections and 94 nos. of beats. The proposed plan period is for 10 years i.e. from 2021-22 to 2030-31.

a) **Vision Statement:** The present working plan has been drafted with a vision to achieve different goals on various parameters by the end of this Plan period i.e. 2030. The parameters are

- ❖ Increasing green cover by encouraging outside forest plantation like farm forestry, agroforestry, avenue plantation etc.
- ❖ Creation of Soil and Water Conservation structures inside degraded forest with watershed approach.
- ❖ Qualitative Improvement of areas under Bamboo working Circle. The demand of bamboo met by the farmers having bamboo plantation thus reducing biotic pressure on bamboo inside the forest.
- ❖ Secured forest boundary with real time change analysis using RS and GIS and monitoring of fresh encroachment.
- ❖ Improving People's participation towards management of forest.
- ❖ Adoption of Modern Technology like Remote sensing, GIS, Drone in Forestry.
- ❖ Conservation and propagation of Wildlife
- ❖ Maintaining and restoring biodiversity in forests and safeguarding humans from climate change.

b) **Goals and Objectives of management:**

1. To maintain environmental stability and ecological balance by protecting, preserving and enriching the existing natural forests.
2. To ensure protection of the soil by checking soil erosion.

3. To carry out sustainable harvesting of forest produce scientifically and by encouraging natural regeneration and planting of indigenous species.
4. Meeting the requirement of fuel wood, fodder, non-wood forest produce and small timber of the rural and tribal populations. Salvaging of the available dead and fallen trees in order to cater the needs of the population to the extent possible.
5. The Non-Timber Forest Produce resources will be managed in a sustainable manner by the JFM.
6. To involve people in protection, management and development of forests. Joint Forest Management (JFM) programmes will be an integral part of management and protection of forests.

c) **SWOT Analysis for preparation of strategies for achieving the goals and objectives:**

In the preparation of working plans with the objectives for achieving sustainable forest management, Strengths, weakness, Opportunities and Threats are identified. Based on the SWOT analysis alternative strategies are developed for the division.

Strength

- Ability to maintain forest cover.
- Trained Staff.
- Area of the forest department is well spread.
- Infrastructure of nurseries, offices and quarters are good.

Weakness

- Lack of innovation and motivation.
- Inability to maintain dense forest.
- Lack of legal awareness and implementation.
- Lack of intelligence networking in Forest department.
- Rate of Conviction in Forest offence cases is very rare.
- Involvement of people in forest management.

Opportunity

- Training in new technology and exposures to staff.
- Creation of assets and infrastructures.
- Involvement of people and NGOs in conservation of Biodiversity.

- Increasing the scope of Ecotourism, creating new tourist points, as areas under Kalahandi North Division has a nos. of unexplored places.

Threats

- Lack of control over encroachment, shifting cultivation, over grazing, illicit felling, etc.
- Forest Fire.
- The Interstate Wildlife trade is a major threat.
- Misusing of Community Forest Rights

External and Internal factors of environment are considered to achieve the expected outcome.

d) **Expected outcome:**

(i) Increase in productivity of the forest ecosystem and maintenance of the vitality

(ii) Reduction in soil erosion, enhancement of fertility of the soil and ensured stability of the forest ecosystem

(iii) Enhancing water conservation capacity of the forest ecosystem

(iv) Mitigation/carbon sequestration capacity of the forests and adaptation with change in climate.

(v) Meeting the fuel wood, fodder and timber requirements of the local communities, enhancing livelihood and employment opportunities, ensuring usufruct/ benefit sharing and protection of their traditional knowledge and traditional/cultural practices, etc.

e) **Abstract of plan prescriptions**

Chapter No	Para No./ Sub para No.	Prescribed activity	Remarks
A	**B**	**C**	**D**
2. Selection working circle	**2.4**	Felling of mature trees as per Annual Coupes.	Marking of Trees should be conservation oriented rather than commercial harvesting.
	2.6.2	The silvicultural system prescribed is Selection System. Only silvicultural available trees above the exploitable	

		diameter shall be removed.	
	2.6.9 and 2.6.10	Execution of felling is done by demarcation of Annual Coupes, Marking of trees and felling.	
	2.6.11	The Subsidiary Silvicultural Operations i.e. tending operations like singling of coppice shoots, cutting of High stump, climbers, angiosperm parasites, Lantana and Eupatorium species should be done.	When the climbers and weeds dry, it may cause forest fire. The weeding and tending operations are to be carried out in these forest areas to encourage growth of natural seedlings.
	2.6.13	Associated regulations like Fire protection, grazing, Rights & concession are to be taken in to account.	For Protection point of view.
3. Rehabilitation Working Circle	**3.2**	Site specific treatment plan is carried out which is area oriented, site-specific approach to check degradation of Rehabilitation areas.	For restoration of Forest cover.
	3.6	Objective is to Restrict the degradation, develop the forest and facilitate the natural regeneration.	
	3.6.14	In each block, soil and moisture conservation works like gully plugging, contour bunds, palisading and Water Harvesting Structures are to be taken up.	To increase the moisture retaining of soil, and to control soil erosion.
4. Plantation working circle	**4.6**	Afforest the barren and degraded areas with suitable species.	To restock the degraded Forests.
	4.6.2.1	Artificial Regeneration is to be followed in blank patches under Planting Series.	To enhance the growing stock.
	4.6.2.4	Tending operation of those plantations having more than 40% survival	To improve the forest qualitatively.
	4.6.2.5	Restocking of those plantation sites whose survival is less than 40% under Restoration series	To restore the degraded land
	4.6.2.6	Eviction from encroachment and area under FRA rejected claims and followed by demarcation and plantation	To stop the illegal encroachment and to retain the lost forest area.

	4.10	Plantation method of execution includes demarcation of annual coupes, preparation of treatment plan and map, raising of nursery, site preparation, stacking, pitting, planting, post planting operations and protection to the plantations.	
5. Protection (O) Working Circle	**5.2**	The Blocks which are subjected to heavy forest fire, illicit felling, and encroachment, shifting cultivation, poaching and ecologically fragile areas have been taken in this working circle.	
	5.6	Other Protection measures like Controlling shifting cultivation, Boundary maintenance, grazing control, Development of forest road network and communication system & mobility are to be implemented.	To protect the forest from further degradation and to maintain adequate forest cover.
6. Bamboo (O) Working circle	**6.6.10**	Method of execution includes the demarcation of annual coupes, preparation of treatment map, estimation of yield, fixation of target and working of bamboo.	To ensure systematic & scientific exploitation of bamboo to prevent further degradation.
	6.6.11	Subsidiary silvicultural operation like removal of debris, removal of dead & high stumps, pruning and climber cutting etc, treatment of exposed rhizomes by covering soil on it, half-moon trenches on uphill sides of the clump.	To rehabilitate the degraded bamboo clumps with suitable tending operation and soil moisture conservation works.
7. NTFP (O) Working Circle	**7.6**	To **N**urture the crops having the potentiality of N.T.F.P including medicinal plant species, To **T**ake up measures on priority basis to prevent destructive harvesting method, To **F**acilitate the marketing of the products collected by the local people, to **P**romote the local skill for value addition, processing and marketing of some major products to enhance the income.	

	7.6.1.1	The major NTFPs in Kalahandi North Division are Tamarind, Kenduleaves, Myrobalans, Char seeds, Hill brooms.	
8. Wildlife (Overlapping) Working Circle	**8.6**	To ensure the protection and improvement of wildlife habitat and natural eco-system, to lessen elephant depredation and human-wildlife conflict to the maximum possible extent.	To conserve, protect and improve the wildlife habitat.
	8.7	Other WL protection measures like deployment of anti-poaching staff, installation of VHF and other communication infrastructure, Collection of information on Wildlife Crime, other activities etc.	
9. JFM (Overlapping) Working Circle	**9.6.**	To **J**ointly shoulder the responsibility of management of forest by the VSS, To **F**oster the degraded forest for speedy and steady restoration of the vegetation with active participation of the local people, To **M**otivate the local people for inculcating the attitude of both producer and consumer of the forest produce and becoming self-reliant through rational use of renewable natural community resource	Peoples participatory approach towards Forest Management
	9.6.13.1	Method of Execution, the existing VSSs shall be encouraged in forest protection and where ever there is no VSS, action shall be taken to form new VSS.	
10. Soil and Water Conservation (O) Working Circle	**10.4**	To improve water regimes and natural regeneration, Prioritization of critical areas with an aim to effective preventive as well as remedial soil and water conservation measures etc.	Soil and water conservation
	10.5.3	Technical intervention in site selection	Better scientific management

f) **Works prescribed during the Plan period:**

Chapter No.	Para No./ Sub Para No.	Prescribed activity	Year wise (year 1-10) distribution of physical target (HA)
A	**B**	**C**	**D**
2. Selection working circle	**2.5**	Entire Area has been divided into 8 felling series with 10 Annual coupes in each. There are whole/ part of 8 nos. of RFs, 8 nos. of PRFs and 2 nos. of DPFs allotted.	45478.81 Ha over 10 Years
3.Rehabilitation Working Circle	**3.6.7**	Entire Area has been divided into 16 Rehabilitation series with 10 Annual coupes in each. There are whole/ part of 35 nos. of RFs, 10 nos. of PRFs and 36 nos. of DPFs allotted	72593.40 Ha over 10 Years
4. Plantation working circle	**4.2**	Entire Area has been divided into 4 series namely Plantation series, Tending series, Restoration series and Eviction series, with 10 Annual coupes in each. There are whole/ part of 31 nos. of RFs, 06 nos. of PRFs, 09 nos. of DPFs, 04 nos. of Proposed DPFs, 01 no. of CA plantation, 30 nos. of VFs and 19 nos. of Proposed VFs allotted.	For 10 Years Plantation series-250 Ha Tending Series- 6020 Ha. Restoration Series- 817.652 Ha. Eviction Series- 45.50 Ha **Total-7133.15 Ha**
5. Protection (O)Working Circle	**5.5**	Entire Area has been divided into 9 protection series with 10 Annual coupes in each. There are whole/ part of 09 nos. of RFs, 08 nos. of PRFs and 02 nos. of DPFs allotted.	47895.30 Ha over 10 years

6. Bamboo (O) Working circle	**6.4.1**	Entire Area has been divided into 23 felling series with 4 years cutting cycle has been prescribed. There are whole/ part of 14 nos. of RFs, 08 nos. of PRFs and 03 nos. of DPFs allotted.	66152.07 Ha over 10 years.
7. NTFP (Overlapping) Working Circle	**7.5**	This Working circle covers the entire plan area: i.e. 153 Forest blocks.	125205.36 Ha over 10 years.
8.Wildlife (Overlapping) Working Circle	**8.5**	Range wise blocks have been allotted. There are whole/part of 34 nos. of RFs, 18 nos. of PRFs and 25 nos. of DPFs allotted.	119818.97 Ha over 10 years.
9. JFM (O) Working Circle	**9.2**	Area of 593 nos of VSS (42679.97 Ha) under different forest blocks of this plan and revenue forests, 170.45 Ha form notified VF and 303 Ha from proposed VF were added to this working circle.	43153.42 Ha over 10 years
10. SWC(O) Working Circle	**10.5**	There are whole/part of 34 nos. of RFs and 10 nos. of PRFs allotted.	7975 Ha over 10 years

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2. GLOSSARY OF TERMS

A. TREES

VERNACULAR NAME/ LOCAL NAME	BOTANICAL NAME	FAMILY
AKASIA	*Acacia auricluliformis*	Mymosaceae
AMBA	*Magifera indica*	Anacardiaceae
AMADA	*Spondias pinnata*	Anacardiaceae
AMTHI	*Bauhinia malabarica*	Caesalpiniaceae
ANCHHU	*Morinda pubescens*	Rubiaceae
ANKULA	*Alangium salvifolium*	Alangiaceae
AINLA	*Emblica officinalis*	Euphorbiaceae
ARJUN	*Terminalia arjuna*	Combretaceae
AHOKA	*Saraca ashoka*	Caesalpiniaceae
ASWASTH	*Ficus religiosa*	Moraceae
BABUL	*Acacia nilotica*	Mymosaceaec
BAHADA	*Terminalia belirica*	Combretaceae
BALADIA	*Erythrina suberosa*	Fabaceae (Papilionaceae)
BANAKAPASIA	*Kydia calycina*	Malvaceae
BANDHAN	*Ougenia oojeinensis*	Fabaceae (Papilionaceae)
BARA	*Ficus bengalensis*	Moraceae
BARAKOLI	*Ziziphus mauritiana*	Rhamnaceae
BARABAKULIA	*Dalbergia paniculata*	Papilionaceae
BARUNA	*Crateva religiosa*	Capparidaceae
BATRA	*Melia dubia*	meliaceae
BEHENTA, KAITHO	*Limonia acidissima*	Rutaceae
BEL	*Aegle marmelos*	Rutaceae
BENTA	*Naringi crenulate*	Rutaceae

VERNACULAR NAME/ LOCAL NAME	***BOTANICAL NAME***	**FAMILY**
BHALIA	*Semicarpus anacardium*	Anacardiaceae
BHERU	*Chloroxylon swietiana*	Rutaceae
BIJA, PIASAL	*Pterocarpus marsupium*	Fabaceae (Papilionaceae)
CHADHEIGODI	*Vitex peduncularis*	Verbenaceae
CHAKUNDA	*Cassia siamea*	Caesalpiniaceae
CHAMPA	*Michelia champaca*	Annonaceae
CHANDAN	*Santalum album*	Santalaceae
CHAR	*Buchanania lanzan*	Anacardiaceae
CHAULDHUA	*Aerva sanguinolenta*	Amaranthaceae
CHAULI	*Cassine glauca*	Celastraceae
CHATIAN	*Alstonia scholaris*	Apocynaceae
CHOWALDUA	*Glycosimis pentaphylla*	Rutaceae
CHUPATALI	*Stereospermum colais*	Bignoniaceae
CHIKANIKAL (CHIA)	*Glochidion zeylanicum*	Euphorbiaceae
RAI (CHOTARAI)	*Dillenia aurea*	Dilleniaceae
DAMAKURUDU	*Gardenia latifolia*	Rubiaceae
DAMBALU (TAMBALU)	*Ehretia laevis*	Ehretiaceae
DHALASIRIS (TENTRA)	*Albizia procera*	Mimosaceae
DHALASINGA	*Canthium dicoccum*	Rubiaceae
DHAMAN	*Grewia tiliofolia*	Tiliaceae
DHAURA	*Anogeissus latifolia*	Combretaceae
DHAURANJO	*Holoptelia integrifolia*	Ulmaceae
DHOBEN	*Dalbergia paniculata*	Fabiceae (Papilionaceae)
DIMIRI (DUMER)	*Ficus racemosa*	Moraceae
EUCALYPTUS	*Eucalyptus species*	Myrtaceae

VERNACULAR NAME/ LOCAL NAME	BOTANICAL NAME	FAMILY
GAIGUTIA	*Dimorphocalyx glabellus*	Euphorbiaceae
GAMBHARI	*Gmelina arborea*	Verbenaceae
GANDHAPALAS	*Myliusa velutina*	Annonaceae
GANIARI	*Cochlospermum religiosum*	Cochlospermaceae
GARKHAIR	*Acacia ferujinea*	Mimosaceae
GHONTOL	*Zizyphus glaberrima*	Rhamanaceae
GHORALANJIA (KALASIRIS)	*Albizia chinensis*	Mimosaceae
GANGASEULI	*Nyctanthes arbortristis*	Oleaceae
GIRDHINI (GENDULI)	*Sterculia urens*	Sterculiaceae
GIRINGA	*Pterospermum xylocarpum*	Sterculiaceae
GOHIRA	*Acacia leucophloea*	Mimosaceae
GURUDU	*Gardenia gummifera*	Rubiaceae
HALDA	*Diospyros montana*	Ebenaceae
HALAND (HALDU, KURUM)	*Adina cordifolia*	Rubiaceae
HANTALA	*Licuala peltata*	Arecaceae
HARIDA	*Terminalia chebula*	Combretaceae
HINJAL	*Barringtonia acutangula*	Battingtoniaceae
JAISANDA	*Litsea glutinosa*	Lauraceae
JAMBU (JAMU)	*Syzygium cumini*	Myrteaceae
JARI (KUA JARI)	*Ficus virens*	Moraceae
JAUTHA	*Artocarpus lacucha*	Moraceae
JAMBIRA	*Citrus medica*	Rutaceae
KADAMBA	*Anthocephalus kadamba*	Rubiaceae
KAITHO	*Limonia acidissima*	Rutaceae
KAKAT (KENKAT)	*Garuga pinnata*	Burseracae

VERNACULAR NAME/ LOCAL NAME	***BOTANICAL NAME***	**FAMILY**
KALCHUA	*Glochidion lanceolarium*	Euphorbiaceae
KAMALAGUNDI	*Mellotus phillippensis*	Euphorbiaceae
KANSA	*Hymendictyon orixense*	Rubiaceae
KARADA (KARLA)	*Cleistanthus collinus*	Euphorbiaceae
KARADHA (KURUDU)	*Ceriscoides turgida*	Rubiaceae
KARAKENDU (MANKARKENDU)	*Diospyros malabarica*	Ebenaceae
KARANJ	*Pongamia pinnata*	Fabiceae (Papilionaceae)
KASI	*Bridelia retusa*	Euphorbiaceae
KATAKA (KATKOL)	*Strychnos potatorum*	Longaniaceae
KANCHIA (KALICHA)	*Diospyros sylvatica*	Ebenaceae
KENDU	*Diospyros melanoxylon*	Ebenaceae
KHAIR	*Acacia catchu*	Mimosaceae
KHAKADA	*Homalium nepalense*	Flacourtiaceae
KHAKADA	*Casearia elliptica*	Flacourtiaceae
KHAKADA	*Suregada multiflora*	Euphorbiaceae
KOCHILA	*Strychnos nuxvomica*	Strychnaceae
KODALA	*Sterculia villosa*	Sterculiaceae
KONGARA (TANGINI)	*Xylia xylocarpa*	Mimosaceae
KUMBHI	*Careya arborea*	Lecythidaceae
KUREI	*Holarrhena pubescens*	Apocynaceae
KURUDU	*Gardenia gummifera*	Rubiaceae
KUSUM	*Schleichera oleosa*	Sapindaceae
LODHA	*Symplocos racemosa*	Styraceae
MAHALIMBA (MAHANIM)	*Aelanthaus excelsa*	Simaroubaceae
MAHUL	*Madhuca indica*	Sapotaceae

VERNACULAR NAME/ LOCAL NAME	BOTANICAL NAME	FAMILY
MAI (MOHI)	*Lannea coromandelica*	Anacardiaceae
MAMURI	*Antidesma accidum*	Euphorbiaceae
MANDA	*Macarnga peltata*	Euphorbiaceae
MARANGA (TENTRA)	*Albizia procera*	Mimosaceae
MIRIGACHARA	*Grewa elastica*	Tilaceae
MUKTAMANJA (RITHA)	*Sapindus emarginatus*	Sapindaceae
MUNDI	*Mitragyna parvifolia*	Rubiaceae
NEEM	*Azadirachta indica*	Meliaceae
NIMBURMOI	*Protium serratum*	Borseraceae
PADHEL (PATULI)	*Sterospermum chelonoides*	Bignoniaceae
PALAS	*Butea monosperma*	Fabiceae (Papilionaceae)
PALDHUA	*Erythrina variegata*	Fabiceae (Papilionaceae)
PANASA	*Artocarpus heterophyllus*	Moraceae
PANIGAMBHARI	*Trewia nudiflora*	Euphorbiaceae
PANIKODALA	*Firmiana corolata*	Sterceuliaceae
PANIKUSUMA (PITAKUSUMA)	*Aphanamixix polystachya*	Meliaceae
PANIPATULI	*Lagerstroemia speciosa*	Lythraceae
PATKULI (PODEL)	*Ficus cunia*	Moraceae
PATMOSSU	*Polyalthia cerasoides*	Annonaceae
PHASI	*Anogeissus acuminata*	Combretaceae
PIPAL	*Ficus religiosa*	Moreaceae
PITAKARICHIO (PHADCURAAN)	*Wrightia arborea*	Apocynaceae
PITAMOI	*Garuga pinnata*	Burseraceae
POIJAMU (CHOTJAMU)	*Syzygium caryophyllifolium*	Myrtaceae
POICHANDIA	*Dryptes roxburghii*	Euphorbiaceae

VERNACULAR NAME/ LOCAL NAME	***BOTANICAL NAME***	**FAMILY**
PURHEI (DUMRI)	*Ficus semicordata*	Moreaceae
RAI	*Dillenia pentagyna*	Dilleniaceae
RAJMOHI	*Lannea coromandelica*	Anacardiaceae
RIMILI	*Bursera serrata*	Burseraceae
ROHINI	*Soymida febrifuga*	Meliaceae
SACHUA (CHATIAN)	*Alstonia scholaris*	Apocynaceae
SAGUAN	*Tectona grandis*	Verbenaceae
SAHADA	*Stereblus asper*	Moreaceae
SAJANA	*Moringa oleifera*	Morengaceae
SAL (SARGI, RENGAL)	*Shorea robusta*	Dipterocarpaceae
SALAI	*Boswellia serrata*	Burseraceae
SALAPA	*Caryota urens*	Arecaceae
SALARA	*Catunaregam spinosa*	Rubiaceae
SANGAMARI	*Callicarpa macrophylla*	Verbinaceae
SIMAL	*Bombax ceiba*	Bombacaceae
SIDHA (SINHA)	*Lagerstroemia parviflora*	Lythraceae
SILVEROAK	*Grevillea robusta*	Proteaceae
SIRISA	*Albizia lebbeck*	Mymosaceae
SISSOO	*Dalbergia sissoo*	Fabaceae (Papilionaceae)
SISSOO (PAHADI ROSEWOOD)	*Dalbergia latifolia*	Fabaceae (Papilionaceae)
SUNARI	*Cassia fistula*	Ceasalpiniaceae
TAL	*Borassus flabellifer*	Arecaceae
TAMBAL (DIMIRI)	*Ficus hispida*	Moreaceae
TANGAN CHAMPA	*Ochna obtusata*	Ochnaceae
TELKURUMA	*Ixora pavetta*	Rubiaceae

VERNACULAR NAME/ LOCAL NAME	BOTANICAL NAME	FAMILY
TENTULI (TETEL)	*Tamrindus indica*	Ceasalpiniaceae
THELKO	*Tamilnadia uliginosa*	Rubiaceae
TELEI	*Wendlandia tinctoria*	Rubiaceae
TOON	*Toona ciliata*	Meliaceae

B. SHRUBS

VERNACULAR NAME/ LOCAL NAME	BOTANICAL NAME	FAMILY
ANANTAMULA	*Hemidesmus indicus*	Perioplocaceae
ANGIJALAL	*Vernonia aspera*	Asteraceae
ANKHUKOLI	*Carissa opaca*	Apocynaceae
ARAKHA	*Calotropis gigantea*	Asclepiadaceae
ARGUNA (ORGUNA)	*Cycas ciricinalis*	Cycadaceae
ASSADHUA	*Capparis hervispina*	Capparaceae
ASSAMLATA (GANDHURI)	*Eupatorium odoratum*	Asteraceae
ATA	*Anona squamosa*	Annonaceae
BADICHANG	*Symphorema polyandrum*	Verbenaceae
BAIKHUJRI	*Tragia envolucrata*	Euphorbiaceae
BAINCHA	*Flacourtia indica*	Flacourtiaceae
BAN TULSI	*Ocimum gratissimum*	Lamiaceae
BAN MALLI	*Jasminum arborescens*	Oleaceae
BAN CHANDA (BAN KAPAS)	*Fioria vitifolia*	Malvaceae
BAN CHIREITA	*Leea asiatica*	Vitaceae
BAN KHAJURI	*Phoenix acaulis*	Arecaceae
BASANGA (BASAK)	*Justicia adhatoda*	Acanthaceae

VERNACULAR NAME/ LOCAL NAME	***BOTANICAL NAME***	**FAMILY**
BEGUNIA	*Vitex negundo*	Verbenaceae
BHEJRI (TUTGUNA)	*Solanum nigrum*	Solanaceae
BUDEL	*Spatholo burghii*	Leguminoceae
CHAKUNDI	*Casia obtusifolia*	Ceasalpiniaceae
CHHANAPATA	*Crotolaria junceae*	Fabaceae (Papilionaceae)
DALSINGHA	*Canthium dicoccum*	Rubiaceae
DASKERINTA	*Barleria prionitis*	Acanthaceae
DHATUK (DHATUKI)	*Woodfordia fruticosa*	Lythraceae
GANGAI	*Melastoma malabarthicum*	Melastumaceae
GENGUTHI	*Clerodendrom infortunatum*	Verbenaceae
GIRDI	*Indigoferra cassioides*	Fabiceae (Papilionaceae)
GUAKOLI	*Diospyros ferrea*	Pbenaceae
ISWARAJATA	*Pogostemon benghasensis*	Euphorbiaceae
JARI	*Schefflera venulosa*	Araliaceae
JHUNKA	*Crotalaria spectabilis*	Fabiceae (Papilionaceae)
JHUMPURI	*Streblus taxoides*	Moraceae
JOJOKA	*Tarenna asiatica*	Rubiaceae
KAKUSIA	*Strobilanthes scaber*	Acanthaceae
KALUCHIA	*Glochidion lanceolarium*	Euphorbiaceae
KAMINI (BAN MALIKA)	*Murraya paniculata*	Rutaceae
KNATAKOLI	*Ziziphus oenoplia*	Rhamnaceae
KASKASI JHARI (JHORI)	*Ficus tinctoria*	Moraeceae
KHIRKOLI	*Manikara hexandra*	Sapotaceae
KIRKICHIKANTA	*Mimosa himalayana*	Mimosaceae
KUKURCHATIA	*Pavetta crassicaulis*	Rubiaceae

VERNACULAR NAME/ LOCAL NAME	BOTANICAL NAME	FAMILY
KUNTI (TELGUNIA)	*Clerodendrum viscosum*	Verbenaceae
KUREI	*Holarrhena pubescens*	Apocynaceae
LAJWANTI (LALKULILATA)	*Mimosa pudica*	Mimosaceae
LANTANA (NAGAIRI)	*Lantena camara*	Verbenaceae
MADANGA (EPIPHYTE)	*Dendrophthoe falcata*	Loranthanceae
MANMURI	*Antidesma acidum*	Euphorbiaceae
MURAPHAL (MURMURI)	*Helicteres isora*	Strculiaceae
MALBALI (RANBALI)	*Cipadassa baccifera*	Miliaceae
NARSINGHAKARA	*Ardisia solanacea*	Myrsinaceae
NARGUNDI	*Atalantia monophyla*	Rutaceae
PATAL GARUDA	*Rauwolfia serpentina*	Appocynaceae
PHANPHANA (PHAPUNDI)	*Oroxylum indicum*	Bignoniaceae
PHIRKO	*Catunaregam nutans*	Rubiaceae
POKSUNGHA	*Pogostemon bengalensis*	Labiatae
POTUAA	*Catunaregam nutans*	Rubiaceae
PANIDANTURI	*Desmodiremo tringulare*	Fabaceae (Papilionaceae)
RANIDANTUN (RANIKATHI)	*Flemingia chappar*	Fabaceae (Papilionaceae)
SANMORAI (TUNADAPODA)	*Janthoxylum armatum*	Rutaceae
SARU	*Colocasia esculenta*	Araceae
SATABARI	*Asparagus racemosus*	Liliaceae
SIJU	*Euphorbia nivulia*	Euphoribiacae
SONARAGODA	*Grella helicterifolia*	Tiliaceae
TEKKORUAN (TELKURMA)	*Ixora parvatta*	Rubiaceae
TULSI	*Ocimum sanctum*	Lamiaceae

C. BAMBOOS

VERNACULAR NAME/ LOCAL NAME	***BOTANICAL NAME***	**FAMILY**
BANS (BADI)	*Bambusa nutans*	Poaceae
BANS (BOLANGI, PANI)	*Gigantochloa hasskarliana*	Poaceae
BANS (KANTA, DABA)	*Bambusa arundinacea*	Poaceae
BANS (SALIA)	*Dendrocalamus strictus*	Poaceae

D. CLIMBERS

VERNACULAR NAME/ LOCAL NAME	BOTANICAL NAME	FAMILY
AKANBINDU	*Cissampelos pareira*	Menispermaceae
ANANTAMULA	*Hemidesmus indicus*	Periplocaceae
ATUNDI	*Combretum decandrum*	Combretaceae
ARKALA	*Millettia extensa*	Papilionaceae
ASADHUA	*Cappris zeylanica*	Capparaceae
BAGHCHAAR	*Argyreia setosa*	Convolvulaceae
BAGHMARI	*Bauhinia roxburghiana*	Caesalpinaceae
BAIDANKA	*Mucuna pruriens*	Fabiceae (Papilionaceae)
BANA ALU	*Dioscorea hispada*	Dioscoreaceae
BANAKUNDURI	*Trichosanthes cumumerina*	Cucuribitaceae
BANKOLTHI	*Atylosia scarabaeoides*	Fabiceae (Papilionaceae)
BHADALIA	*Opilia amentacea*	Opiliaceae
BICHUATI	*Tragia involurata*	Euphoribiaceae
BUDLI	*Butea monosperma*	Fabiceae (Papilionaceae)
DANTRI (SIKAI)	*Acacia sinuta*	Mimosaceae
GIREDI	*Entada rheedii*	Mimosaceae
GAJ (GAUDHUNI)	*Milletia ariculata*	Fabiceae (Papilionaceae)
GHAYA (GHA)	*Marsdenia tenacissima*	Asclepiadaceae
GILA	*Caesalpinia bigyna*	Caesalpinaceae
GOPKANU	*Cryptolepis buchanani*	Periplocaceae
GULMARI	*Gymnema sylvestre*	Asclapidaceae
HANDIPHUTA (BHUI KAKHARU)	*Pueraria tuberosa*	Fabiceae (Papilionaceae)
KABRA ALU	*Discrorea pentaphylla*	Dioscoreaceae

VERNACULAR NAME/ LOCAL NAME	BOTANICAL NAME	FAMILY
KAICHA	*Abrus precatorius*	Fabiceae (Papilionaceae)
KANTA ALU	*Dioscrorea glabra*	Dioscoreaceae
KANTA BET	*Calamus guruba*	Arecaceae
KEUTI	*Ventilago madraspatana*	Rhamnaceae
KHAMBA ALU	*Dioscorea alata*	Dioscoreaceae
KHAKUNDIA	*Calycopteris floribunda*	Combretaceae
KONTEIKULI	*Zizyphus oenoplia*	Rhamnaceae
KORONDI ALU	*Dioscorea belophylla*	Dioscoreaceae
KOSA ALU	*Dioscorea puber*	Dioscoreaceae
LATA PALAS	*Butea superba*	Fabiceae (Papilionaceae)
LATANAGESWAR (NATANAGESWAR)	*Hiptage benghalensis*	Melpighiaceae
MAHARATA	*Canavalia gladiata*	Fabaceae (Papilionaceae)
MAKIRIA	*Trichosanthes tricuspidata*	Cucurbitaceae
MALATI	*Aganosma caryophyllata*	Apocynaceae
MARADA (GARUL)	*Millettia extensa*	Fabaceae (Papilionaceae)
MATKA	*Solena amplexicaulis*	Cucurbritaceae
MRIGALENDI	*Gnetum ula*	Gnetaceae
MUTURI	*Smilax zeylanica*	Smilaceae
PALASILOI (GACH PALAS)	*Butea parviflora*	Fabiceae (Papilionaceae)
PANI ALU	*Dioscorea oppositifolia*	Dioscoreaceae
UTURUDI	*Pergularia daemia*	Asclepiadaceae
PANI BET	*Calamus viminalis*	Arecaceae
PANKANCH	*Cissus assamica*	Vitaceae
PICHHULI	*Gouania laptostachya*	Rhmnaceae
PENGU	*Pavetta crassicaulis*	

VERNACULAR NAME/ LOCAL NAME	BOTANICAL NAME	FAMILY
PITA ALU	*Dioscorea foetida*	Dioscoreaceae
PRASARINI	*Paederia scandens*	Rubiaceae
SATABARI	*Asparagus racemosus*	Liliaceae
SUAM NOI	*Ichnocarpus frutescens*	Apocynaceae
TUNGA ALU	*Dioscorea wallichil*	Dioscoreaceae

E. GRASSESS

VERNACULAR NAME/ LOCAL NAME	BOTANICAL NAME	FAMILY
BALUNGA	*Oryza rufipogon*	Poaceae
BASANA	*Bethriochlooa pterma*	Poaceae
CHHANA	*Imperata arundinaceae*	Poaceae
DUBA	*Cynodon dactylon*	Poaceae
DHANWANTARY	*Cymbopogon martini*	Poaceae
GHODALANJI	*Aristida setacecea*	Poaceae
KHUSKHUS	*Vetiveria zizaniodes*	Poaceae
KUTI	*Eragrostis coaretata*	Poaceae
PHULBADUN (PHUL JHADU)	*Thysanolaena maxima*	Poaceae
PHURIPHURI	*Eragrostis unioloides*	Poaceae
SABAI	*Eulaliopsis binata*	Poaceae
SINKULIA	*Heteropogon contortus*	Poaceae
TENDA	*Sacharrum spontaneum*	Poaceae

F. HERBS

VERNACULAR NAME/ LOCAL NAME	***BOTANICAL NAME***	**FAMILY**
AMARPOI	*Kalanchoe pinnata*	Crassulaceae
ANKARANTI	*Solanum virginianum*	Solanaceae
BANA HALDI	*Curcuma aromatica*	Zingiberaceae
BANMETHI	*Crotlaria epunctata*	Fabaceae
BHUIN CHAKUNDA	*Cassia obtusifolia*	Ceasalpinaceae
BRHMI	*Centlla asiatica*	Apiaceae
BANA KADALI	*Musa ornata*	Musaceae
BANSI GOPAL	*Peucedanum nagpurenrse*	Apiaceae
BHUMI POKSUNGA	*Tridax procumbens*	Asteraceae
BAN ADA	*Zingiber purporeum*	Zingiberaceae
GAI GOBRA	*Costus speciosus*	Zingiberaceae
GANGA TULASI (BAN TULASI)	*Hyptis suaveolens*	Lamiaceae
JHINKA	*Chlorophytum Arundinaceum*	Liliaceae
JALJALI	*Stachytarpheta jamanicemsis*	Verbenaceae
KHET PAPRA	*Kommelina benghalensis*	Commelinaceae
LAJKULI	*Mimosa pudica*	Mymosaceae
MURGA	*Sansevieria roxburghiana*	Agavaceae
POKSUNGA	*Ageratum conyzoides*	Asteraceae
PANGIRI	*Aristolochya indica*	Aristolochiaceae
PALGUNDA (PALUA)	*Curcuma angustifolia*	Zingiberaceae
PAINKI MIRCHA	*Canscora decussta*	Gentianaceae
PANINOI	*Merremia umbellata*	Convolvulaceae
PIPALI (CHER PIPALI)	*Piper longum*	Piperaceae

VERNACULAR NAME/ LOCAL NAME	**BOTANICAL NAME**	**FAMILY**
RAMDUNI	*Rammannia baccifera*	Lythraceae
RASANA	*Lapidagathis fasciculata*	Acanthaceae
SARPUNI (DENGIBIFULL)	*Argemone mexicana*	Pavoreraceae
SALPORNI	*Desmodium gangticum*	Fabaceae
TUTAMULI	*Elephantopus scaber*	Asteraceae

G. FERNS

BOTANICAL NAME	FAMILY
Adiantum caudatum	Adiantaceae
Actinopteris radiatama	Aciniopteribaceae
Adiantum philippense	Adiantaceae
Angiopteris evecta	Angiopteriodaceae
Alsophila gigantea	Cytheaceae
Alsophila spinulosa	Cytheaceae
Asplenium perakense	Aspleniaceae
Athyrium hohenackerianum	Athyriaceae
Athyrium falcatum	Athyriaceae
Athyrium parasnathense	Athyriaceae
Azolla pinnata	Azollaceae
Blechnum orientale	Blechnaceae
Bilbitis costata	Lomariopsidaceae
Bilbitis contaminans	Lomariopsidaceae
Ceratopteris thalictroides	Parkeriaceae
Chilanthes tenuifolia	Cheilanthaceae
Christella parasitica	Thelypteridaceae
Diplazium esculentum	Anthyriaceae
Drynaria querfolia	Drynariaceae
Dryoptries sparsa	Dryopteridaceae
Dryoptries cochleata	Dryopteridaceae
Eqsuisetum rammossissimum	Equisetaceae
Heminotis arifolia	Hemiontidaceae
Lygodium flexuosum	Lygiodiaceae

BOTANICAL NAME	**FAMILY**
Macrothelyptris torresiana	Thelypteridaceae
Marsilea quadrifolia	Marsileaceae
Microlepia speluncae	Dennstaedtiaceae
Ophioglossum reticulatum	Ophioglossaceae
Paraleptochilus decurrens	Polypodiaceae
Pneumatopteris truncata	Thelypteridaceae
Pronephrium nudatum	Thelypteridaceae
Pteris biaurita	Peteridaceae
Pteridium aquilinum	Dennstaedtiaceae
Pyrrosia mollis	Polypodiaceae
Selaginella nairrie	Selaginellaceae
Selaginella indica	Selaginellaceae
Sphenomeris chinensis	Lindsaeaceae
Tectaria citutaria	Aspidiaceae
Nephrolips brisesrata	Nephrolepidaceae

H. ORCHIDS

BOTANICAL NAME

Acampe carinata

Aerides maculosum

Bulbophyllum cariniflorum

Cottonia peduncularis

Cymbidium aloifolium

Dendrobium bicameratum

Dendrobium herbaceum

Dendrobium macrostachyum

Dendrobium regium

Eulophia nuda

Gastrochilus inconspicum

Geodorum densiflorum

Goodyera procera

Habnaria commelinfolia

Luisia trichorhiza

Malxix densiflora

Oberonia densiformis

Pachystoma senile

Pecteilis gigantea

Pelatantheria Insectifera

Peristylus constrictus

Philodota pallida

Rhynchostylis retusa

Vanda roxburghii

Vanda tessellata

Zeuxine strateumitica

3. LIST OF COMMON ANIMALS & BIRDS

A. MAMMALS

LOCAL NAME	ENGLISH NAME	ZOOLOGICAL NAME
Badudi	Shortnosed-fruitbat	*Cynopterus sphinx*
Badudi	Flying fox bat	*Pteropus giganteus*
Bagh	Tiger	*Panthera tigris*
Bajrakapta	Pangolin	*Manis crassicaudata*
Balia Kukur	Wild dog	*Cuon alpinus*
Bana Biradi (Katas)	Jungle cat	*Felis chaus affinus*
Barha	Wild boar	*Sus scrofa cristatus*
Belermusa (Napali)	Indian giant squirrel	*Ratufa indica*
Bhalu	Sloth bear	*Melursus ursinus*
Bilua	Jackal	*Canis aures*
Cheetah Biradi	Leopard cat	*Felis bengalensis*
Chemgha	Bearded sheath tailed bat	*Taphozous melanopogon*
Chira Bagha (Karlapatria)	Leopard	*Pathera pardus*
Chital (Harin)	Spotted deer	*Axis axis*
Chuchudra	Grey musk shrew	*Suncus murinus*
Gada Bhalu	Ratel/Honey Badger	*Mellivora capensis*
Gayal	Bison/Gaur	*Bos gaurus*
Gunduchi Musa	3 Striped palm squirrel	*Funambulus palmarum*
Gunduchi Musa	5 Striped palm squirrel	*Funambulus pennanti*
Hati	Elephant	*Elephas maximus*
Heta Bagha	Striped Haeyna	*Hyaena hyaena*

LOCAL NAME	ENGLISH NAME	ZOOLOGICAL NAME
Jhinka	Porcupine	*Hystrix indica*
Kharia (Thekua)	Hare	*Lepus nigricollis,*
		L.n.ruficaudatus
Kokisiali	Fox	*Vulpes bengalensis*
Kutura	Barking deer	*Muntiacus muntijak*
Mankad (Pati)	Rhesus macaque	*Macaca mullata*
Mankada (Hanu)	Monkey/Langur	*Presbytis entellus*
Musa	Rat	*Rattus rattus*
Musa	White tailed wood rat	*R. blanfordii*
Neula (Kuji)	Small Indian mangoose	*H. auropunctatus*
Neula (Harla)	Common Mangoose	*Herpestes edwardsi*
Odha	Smooth India otter	*Lutra perspicillata*
Odha	Common otter	*Lutra lutra*
Ramsiali	Wolf	*Canis lupus*
Saliapatani	Toddy cat	*Paradoxurus hermaphroditus*
Saliapatani	Small India cerivet	*Viverricula indica*
Sambar	Sambar	*Cervus unicolor*

B. REPTILES AND AMPHIBIANS

LOCAL NAME/ ENGLISH NAME	ZOOLOGICAL NAME
Ahiraj (King Cobra)	*Naja Hannah (old name)* *Ophiophagus hannah (new name)*
Ajagarh (Indian Python)	*Python molurus*
Graden geeko/Garden lizard	*Calotes versicolor*
Bahurupi (Indian Chameleon)	*Chameleon zeylanicus*
Baila jhitipiti	*Hemidactylus leschenaulti*
Bamhuni/Kandanala/Matibiradi	*Natrix stolata*
Banded geeko	*Crytodoctylus species*
Boda (Common boa)/Sand Boa	*Eryx johni*
Champainoli (Skink)	*Mabuya bibro*
Chiti (Common Indian Krailt)	*Bungarus caeruleus*
Copper Head	*Elpha radiata*
Dehandaboda (Russel's Viper)	*Viper russelli*
Dhamana	*Ptyas mucosus or* *Zamenis mucosus*
Dhanda/Water Snake/Checkered Keel Back	*Natrix piscator*
Dhulinaga (Saw scaled viper)	*Echis carinatus*
Domundia (Russel's Earlt Boa)	*Eryx conicus*
Endua (Rock greeko, Fattailed greeko)	*Eublephari hardwickii*
Godhi	*Varanus salvator*
Godhi (Land monitor)	*Varanus bengalensis*
Kandanala/Bamhuni/Matibiradi	*Natrix stolata*
Green keel back	*Macropisthodon plumbicolor*
Indian Cobra (Naga)	*Naia naja naja*

LOCAL NAME/ ENGLISH NAME	ZOOLOGICAL NAME
Jhitipiti (House lizard)	*Hemidactylus flaviviridis*
Khons' sand boa	*Eryx stolata*
Kaincha	*Kachuga tectum tentoria*
Tree snake	*Ahaetulla tristis*
Laudonkia (Common green whip snake)/Common Tree Snake	*Dryophis nasutrus*
Panidhanda (Checkered keel back)	*Natrix piscator*
Panigodhi (Water monitor)	*Varanus Salvador*
Renn rock agma	*Fsammophilus dorsalis*
Rohela endua	*Chameleon zeylanicus*
Rana (Banded krait)	*Bungarus fasiatus*
Tampa/Monocillate Cobra	*Naja naja kauthia*
Vellia sapa/Blind Sanke/Telisapa	*Typhlops brahminus*

C. BIRDS

LOCAL NAME/ ENGLISH NAME	ZOOLOGICAL NAME
Babbler Common	*Turdoides caudatus*
Babbler Jungle	*T. striatus*
Babbler rufous	*T. subrufus*
Bajapakhi/Indian Shikara	*Astur badius/Accipiter badius*
Bani (Indian Common Myana)	*Acridotheres tristis*
Barbet crimson (Copper smith)	*Megalaima haemacephala*
Barbel (Large green)	*M. Zeylanica*
Bayachadhei (Baya weaver bird)	*Ploceus philippinus*
Bee eater blue tailed	*Merops phillippinus*
Bee eater small green	*M.orientalis*
Bhadabhadalia/Blue jay/ Indian Roller	*Coracias benghalensis*
Bhungaraj (Racket tailed drong)	*Dicrurus paradisens*
Bittern	*Ioxbrychus spp.*
Bulbul (Bulbul Red vented)	*Pycnonotus cafer*
Butings (Red headed)	*Emberiza bruniceps*
Cormorant little (Panikua)	*Phalacrocorax niger*
Chakua chaki (Brahminyduck)	*Tadorna ferruginea*
Chattak (Pied crested cuckoo)	*Clamator jacobinus*
Chilla (Indian kite)/Pariah Kite	*Milvus migrans*
Chloropsis (Gold mantled) Chloropsis (Green bulbul)	*Chloropsis aurifrons*
Crow pheasant (Kumbhatua)	*Centropus pinensis*
Little Green Bittern	*Butorides striatus*
Chestnut Bittern	*Ixobrychus cinnamomeus*

LOCAL NAME/ ENGLISH NAME	ZOOLOGICAL NAME
Crow house (Kau)	*Corvus splendens*
Jungle Crow	*Corvus macrorhynchos*
Cuckoo (Indian Koili)	*Eudynamys scolopacea*
Cuckoo common Hawk (Koili)/ Brain fever bird	*Cuculus varius*
Cuckoo pied crested (Chataka)	*Clamator jacobinus*
Darter (Snake bird)	*Anhinga rufa melanogaster*
Deuliapara (Blue Rock pigeon)	*Comumba livia*
Dhauka (Coucal)	*Amaurornis phoenicurus*
Dove (Spotted)	*Stereptopelia chinensis*
Ring Dove	*S.decaocto*
Eagle crested Hawk	*Spizaetus cirrhatus*
Crested Sepent Eagle	*Spilornis cheela melanotis*
Eastern golden plover	*Pluvialis dominica fulcus*
Cattle Egret (Baga)	*Babulcus ibis coromandus*
Rosy Paster/Rose colour starling	*Sturnus roseus*
Egret little	*Egretta garzetta garzetta*
Finches (Common Rose finch)	*Carpodacus erythrinus*
Verditer-Fly catcher	*Muscicapa thalassina*
Gendalia (Open bill stork)	*Anastomus oscitans*
Gharchatia (House sparrow)	*Passer domesticus*
Ghukika/Bank Myna	*Acridotheres ginginianus*
Grebe little or Dab chick	*Podiceps ruficollis capensis*
Great black headed gull	*Larus icthyaetus*
Grey horon	*Ardea cinerea*
Haladi basanta (Oriole black headed)	*Oriolus xanthornus*

LOCAL NAME/ ENGLISH NAME	ZOOLOGICAL NAME
Harada chadhei (Common Gree Pigeon)	*Treron phoenicoptera*
Heron night	*Nycticorax nycticorax*
Heron pond (Kantiabaga)	*Ardeola grayii grayii*
Hoopoe	*Upupa epops*
Indian Roller/Bhadabhadalia/Nilakantha	*Coracias benghalensis*
Jungle Fowl Grey (Bana Kukuda)	*Gallus sonneratii*
Jungle Fowl Red (Ban Kukuda)	*Gallus gallus*
Jungle bush quail (Teetri)	*Perdicula asiatica*
Kajalpati (Common Black Drongo)/King Crow	*Dicrurus adsimilis*
Kaligoduni	*Dissoura episocopus*
Kathakumper (Wood pecker pigmy)	*Picoides nanus*
Kau (Damra) / Jungle Crow	*Corvus macrorhynchos*
Kau (Pati) / House Crow	*Corvus splendens*
Kochilakhai (Malabar Pied Hornbill)	*Anthracoceros coronatus*
Koili	*Eudynamys scolopaceas*
Kumbhatua	*Centropus sinensis*
Kundachadei / Seven pisters	*Turdoides orissae*
Larks (Easter skylark) / Indian small skylark	*Alauda gulgula*
Larks (Bengal Bush)	*Mirafra assamica*
Red winged bush lark	*M.erythroptera*
Macharanka (Lesser pied king fisher)	*Ceryle rudis*
Magpie robin (Lesser pied)	*Copsychus saularis*
Mayura (Peacock) / Pea fowl	*Pavo cristatus*
Munias (Easter Black-headed)	*Lonchura Malacca*
Myna (Common)	*Acridotheres tristis*

LOCAL NAME/ ENGLISH NAME	ZOOLOGICAL NAME
Night jar	*Carprimulgus asiaticus*
Nilakanta (Robin magpie)	*Copsychuss aularis*
Owl Forest Eagle	*Bubo nipalensis*
Owl grass	*Tyto capensis*
Owl (Indian Barn Owl)	*Tyto-alba stertens*
Owlet Scops	*Otus bakkamoena*
Pahadi Bulbul	*Pycnonotus jocosus*
Painted supurfowl	*Galloperdix lunulata*
Parakeet roseringed (Sua)	*Psittacula krameri*
Patridge Black	*Francolinus francolinus*
Patridge Painted	*F.pictus*
Pecha (Spotted Owlet)	*Athene brama*
Phutki (Tailor bird)	*Orthotonus sutorius*
Quaker babbler	*Alcippe poioicephala*
Ramchadhei	*Burhinus oedicnemus*
Red wattled lapwing	*Vanellus indicus*
Sandpiper common	*Tringa hypoleucos*
Sari (Hill Myana)	*Gracula religiosa*
Shrikes (Indian Grey strike)	*Lanius excubitor*
Snipe common / Fan Tail Snipe	*Gallinago gallinago*
Soguna (King Vulture)	*Sarcogyps calvus*
Spotted babbler	*Pellorneum ruficeps*
Sua (parakeet large India)/Alexandrine parakeet	*Psittacula eupatria*
Sun Bird (Purple)	*Nectarinia asiatica*
Swifts crested Tree	*Hemiprocne longipennis coronata*
Thrushes (White throated ground)	*Zoothera citrina*

LOCAL NAME/ ENGLISH NAME	ZOOLOGICAL NAME
Warbler Wren ashy	*Prinia socialis*
Warbler Wren Rufous	*Prinia rufescens*
Warbler Wren Indian	*Prinia subflava*
Whistilling teal	*Dendrocygna javanica*
White brested King Fisher	*Halcyon smyrnensis fusca*
White browded bulbul	*Pycnonotus luteolus*
Black Headed Gull	*Larus ridibundus*
Woodpecker pigmy	*Picoides nanus*
Yellow cheeked tit	*Parus xanthogenys*

D. FISHES

LOCAL NAME/ ENGLISH NAME	ZOOLOGICAL NAME
Balia	*Wallago attu*
Baligarada	*Glossogobius giuris*
Banspati	*Ailla coha*
Bhakura	*Catla catla*
Chenga	*Ophicoephalus gachua*
Chitala	*Notopterus chitala*
Dandkhiri	*Esomus dandrica*
Denga / Bata	*Labeo bata*
Gadisa	*Ophiocephalus punctatus*
Illisi	*Hilsa ilisa*
Jalanga	*Pangasius pangasius*
Jallah	*Chela argentea*
Kantia	*Mystus cavasius*

LOCAL NAME/ ENGLISH NAME	ZOOLOGICAL NAME
Kerandi	*Barbus ambassis*
Kou	*Anabas testudineus*
Magura	*Clarias batrachus*
Mahaseer	*Tor tor*
Mirkali	*Cirrhina mrigala*
Mohurali	*Amblypharyngodon mola*
Neuli	*Gobiopterus chuno*
Pabata	*Callichrous bimaculatus*
Phali	*Notoptorus notoptorus*
Pohel (Chuna)	*Cirrhina reba*
Rohi	*Labeo rohita*
Serana	*Barbus serana*
Seula	*Ophiocephalus striatus*
Singi	*Heteropneustes fossillis*
Todi	*Mastacombelus armatus*

PART-I

SUMMARY OF FACTS ON WHICH PROPOSALS ARE BASED

CHAPTER-1

1.1 Name and situation

1.1.1 Geographical Location:-

1.1.1.1 Consequent upon reorganization of Forest Department since 01.10.2003 vide Govt. in Forest and Environment Department Notification No.1F(A)-100/2003/13228/F&E dt.08.08.2003, the erstwhile Kalahandi Forest Division is bifurcated into two Forest Divisions namely Kalahandi North Division and Kalahandi South Division. The geographical situation of old Kalahandi Forest Divisionis given below :-

1.1.1.2 Latitude is from **19° 43′ 14.6″** to **20° 27′ 8.1″North** and Longitude is **82° 42′ 29.7″**to **83° 47′ 46.7″East**. It is bounded by Bolangir Forest Divison of Bolangir District on North; Baliguda Forest Division of Kandhamal District on East; Rayagada Forest Division of Rayagada District and Kalahandi South Division of Kalahandi District is on South, Khariar Division of Nuapara District and Udanti Forest Division of Chhatisgarh State on West.

1.1.2 Demographic Details:-

Table No. 1.1

Particular		Odisha	Kalahandi District	Kalahandi North Division
Area in sq. Km		155707	7920	3850
Population		41974000	1576869	763072
Male		21212000	787101	383509
Female		20762000	789768	379563
Sex ratio (No. Of Females per '000' males		979	1003	989
Schedule tribe	Male	NA	221171	98791
	Female	NA	228285	100606
	Total	9590756	449456	199397
	Sex ratio (no of females per '000' males)	NA	1032	1981
	% of population	22.8	28.5	26
Scheduled caste	Male	NA	142133	68125
	Female	NA	144447	68486
	Total	7188463	286580	136611
	Sex ratio (no of females per '000' males)	NA	1016	1005
	% of population	17.1	18.17	18
Rural population		34971000	1454882	660741
Urban population		7003000	121987	102331
Rural -urban population		83:17	93:7	87:13
Population density per Sq. Km		270	199	198
Literacy rate		72.9	59.22	NA

1.1.3 Administrative set-up

There are 5 nos. of Ranges, 20 nos. of Sections and 94 nos. of forest beats in Kalahnadi North Division as tabulated below -

Table No. 1.2

LIST OF RANGES, SECTIONS & BEATS OF KALAHANDI NORTH DIVISION				
Name of Range	**Name of Section**	**Sl. No.**	**Name of Beat**	**Area in Ha.**
1	**2**	**3**	**4**	**5**
Bhawanipatna	Bhawanipatna	1	Purunapada	5048.93
		2	Dambarupadar	9479.51
		3	Tikrapada	1457.69
		4	Surli	3991.79
		5	Kutrukhamar	4048.00
		6	Sirliguda	4207.47
TOTAL BHAWANIPATNA SECTION AREA				**28233.39**
	Karlapada	7	Karlapada	5269.69
		8	Kundabandh	2599.86
		9	Kurmachuan	9459.73
		10	Turpi	5301.92
		11	Tiljodi	4632.99
TOTAL KARLAPADA SECTION AREA				**27264.19**
	Bhatangpadar	12	Bhatangpadar	4337.35
		13	Sulia	3868.16
		14	Nuagaon	9559.83
		15	Sarlanji	11632.96
TOTAL BHATANGPADAR SECTION AREA				**29398.30**
	Santpur	16	Santpur 'A'	4560.07
		17	Santpur 'B'	2739.14
		18	Burat	8050.00
TOTAL SANTPUR SECTION AREA				**15349.21**
TOTAL BHAWANIPATNA RANGE AREA				**100245.09**
Kesinga	Kesinga	19	Kesinga	3041.90
		20	Podhkhaman	6316.46
		21	Dumermunda	3481.59
		22	Degaon	9198.42
TOTAL KESINGA SECTION AREA				**22038.37**
	Kasrupada	23	Kasrupada	2848.50
		24	Singjharan	2165.10
		25	Bijkhaman	1291.75
		26	Palam	9312.87
		27	Tundla	3492.45
		28	Amath	1688.44
		29	Thapen	2823.39
TOTAL KASRUPADA SECTION AREA				**23622.57**

	Rupra Road	30	Rupra Road	5997.02
		31	Dampadar	5614.66
		32	Gigina	5669.24
		33	Gadebandh	3197.21
TOTAL RUPRA ROAD SECTION AREA				**20478.13**
TOTAL KESINGA RANGE AREA				**66139.00**
Kegaon	Kegaon	34	Kegaon	2447.62
		35	Nuagaon	3155.22
		36	Khaliapali	2196.08
		37	Tureichhada	1842.34
		38	Bagmunda	1904.17
		39	Jayantpur	2837.78
TOTAL KEGAON SECTION AREA				**14383.21**
	Gargab	40	Gargab	3723.33
		41	Ramchandrapur	1802.13
		42	Sialjodi	2583.53
		43	Karmat	2121.21
		44	Sankripali	893.55
TOTAL GARGAB SECTION AREA				**11123.75**
	Golamunda	45	Golamunda	3544.80
		46	Kendupati	1303.73
		47	Dudkel	4317.33
		48	Antarla	3255.77
		49	Bokrasil	4542.37
		50	Kirkakani	5587.32
TOTAL GOLAMUNDA SECTION AREA				**22551.32**
	Daspur	51	Daspur	6097.75
		52	Dhamanpur	6337.81
		53	Putiachura	3826.13
		54	Karpa	2231.20
TOTAL DASPUR SECTION AREA				**18492.89**
	Borda	55	Borda	10390.74
		56	Balipati	4853.86
		57	Sikuan	2539.05
		58	Dumuria	1872.13
TOTAL BORDA SECTION AREA				**19655.78**
TOTAL KEGAON RANGE AREA				**86206.95**
Narla	Narla	59	Narla	4244.35
		60	Kerbandi	3137.25
		61	Kamei	3464.89
		62	Sargiguda	2831.39
TOTAL NARLA SECTION AREA				**13677.9**

	Belgaon	63	Belgaon	6719.70
		64	Gunangbeda	3930.21
		65	Sripali	2258.61
		66	Chochobahali	2047.86
TOTAL BELGAON SECTION AREA				**14956.4**
	Kamarda	67	Kamarda	4336.41
		68	Bhurti	4276.54
TOTAL KAMARDA SECTION AREA				**8612.95**
	Harlanga	69	Harlanga 'A'	1350.82
		70	Harlanga 'B'	2008.81
		71	Urladani 'A'	2755.87
		72	Urladani 'B'	2917.03
TOTAL HARLANGA SECTION AREA				**9032.53**
TOTAL NARLA RANGE AREA				**46279.78**
M.Rampur	M.Rampur	73	M.Rampur	6065.36
		74	Pandakamal	762.12
		75	Gourkela	5466.43
		76	Ramud	3909.11
		77	Kachharpali	1611.07
		78	Ainlapali	1980.44
TOTAL M.RAMPUR SECTION AREA				**19794.5**
	Madanpur	79	Madanpur	5080.05
		80	Pramanandapur	6726.25
		81	Ainlatara	1335.35
		82	Gochhadengen	3311.51
		83	Jamunapur	3067.82
		84	Surujuli	5127.68
		85	Kumerpeta	2966.07
TOTAL MADANPUR SECTION AREA				**27614.7**
	Mohangiri	86	Mohangiri	6580.10
		87	Manikera	5159.20
		88	Pandapadar	1890.99
		89	Araskupa	886.12
		90	Juger	2114.53
TOTAL MOHANGIRI SECTION AREA				**16630.9**
	Jurakhaman	91	Mudis	1847.12
		92	Pongabaju	5386.25
		93	Taparang	7266.19
		94	Pudrimahul	6032.50
TOTAL JURAKHAMAN SECTION AREA				**20532.1**
TOTAL M.RAMPUR RANGE AREA				**84572.2**

1.1.4 Geographical Area:-

1.1.4.1 The total geographical area of Kalahandi Revenue District is 7920 sq. kms which is apportioned between both Kalahandi North and South Division having approximately 3850 sq.kms and 4070 sq.kms respectively. Both the forest divisions cover the area of two revenue sub-divisions namely Bhawanipatna and Dharmagarh. But most of the area of Bhawanipatna sub-division and a small portion of Dharmagarh sub-division constitute

Kalahandi North Forest Division and the rest area i.e. most of Dharmagarh sub-division and a small portion of Bhawanipatna sub-division is coming under the Kalahandi South Division. Bhawanipatna being the District Head Quarter is also the head quarters of both the Forest Divisions.

1.1.5 Forest Roads:-

There are 8 nos. of Forest Roads in the Division having length of 133.40 kms, the details of which are enclosed in **Appendix-I .**

1.1.6 Forest Buildings:-

There are 92 nos. of Govt. buildings in the Division, details of which are enclosed in **Appendix-II.**

1.1.7 Forest Rest Shed:-

At present there is one Forest Rest Shed at Jurakhaman coming under M. Rampur Range, a Rest Shed in Kesinga range and a new Rest shed constructed in Bhawanipatna range. The old forest rest shed at Bhawanipatna is being used as the Office of the Working Plan Officer, Bhawanipatna.

1.1.8 Fire line creation & maintenance:-

Efforts have been made to tackle this menace by taking different measures like maintenance of existing fire line, creation of new fire line, engagement of fire watchers, deployment of fire fighting squad, supply of fire fighting tools, incentive to VSS etc. The expenditure for the same during the last plan is furnished in the table given below in table no. 1.3

Table No. 1.3

Year	Expenditure							
	Allotment	**Fire watcher no.s& amount**	**Fire fighting squad no.s& amount**	**Purchase of fire fighting tools**	**Maintenance of fire line Kms, amount**	**Creation of fire line**	**Incentive to VSS**	**Misc.**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
2007-08	373500/-	10nos. 12500/-	--	25000/-	32.42Rkm 60000/-	88.17Rkm 200000/-	46000/-	30000/-
2008-09	546000/-	10 nos. 126000/-	--	100000/-	30.35 Rkm 30000/-	42.00Rkm 30000/-	200000/-	50000/-
2009-10	140000/-	08 nos. 20000/-	10 nos. 25000/-	--	--	13.4 Rkm 31870/-	50500/-	12630/-
2010-11	279800/-	--	10 nos. 64800/-	215000/-	--	--	--	--
Year	**Expenditure**							
	Allotment	**Fire watcher nos & amount**	**Fire fighting squad nos & amount**	**Purchase of fire fighting tools**	**Maintenance of fire line Kms, amount**	**Creation of fire line**	**Incentive to VSS**	**Misc.**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
CAMPA	1074740/-	--	20 nos 270000/-	108000/-	498.10Rkm 496758/-	--	59608/-	140374/-
2011-12								
CAMPA	911961/-	--	20 nos 243000/	--	500Rkm 500000/-	--	--	168961/-
2012-13								
	495000/-			80000/-	45Rkm 45000/-	--	70000/-	300000/-
CAMPA	2004000/-	--	30 nos 675000/-	54000/-	500Rkm 825000/-	--	--	450000/-
2013-14								

	1145000/-	--	40 nos 720000/-	--	50Rkm 100000/-	--	130000/-	19500/-
CAMPA	2620000/-	--	40nos 900000/-	280000/-	500Rkm 825000/-	--	--	599884/-
2014-15								
	482353/-	--	10 nos 180000/-	50000/-	50Rkm 100000/-	--	50000/-	102353/-
CAMPA	2950000/-	--	50 nos 555000/-	70000/-	900Rkm 990000/-	--	--	385000/-
2015-16								
CAMPA	3730000/-		50 Nos & 2325000/-	210000/-	590 Km 1180000/-	--	--	15000/-
2016-17								
CAMPA	4435000		50 Nos & 2325000/-	915000/-	590 Km 1180000/-	--	--	15000/-
2017-18								
CAMPA	4960000	-	50 nos. & 2425000	1355000/-		590 KM & 1180000	-	-
2018-19								
GENERAL	3136293		30 nos. & 1261800	1194960		619533	60000	
2019-20								
GENERAL	3121822		30 nos. & 1528680	820517/-		100 KM & 200000	570000	
CAMPA	4265000	-	50 nos. & 3000000	425000/-		300 KM & 840000		
2020-21								
GENERAL	1981362		20 nos & 447000	-	-	163 Km & 571454	630000	332908
CAM PA	5707000		50 nos & 3285000	425000	-	600 Km & 1788000	-	209000

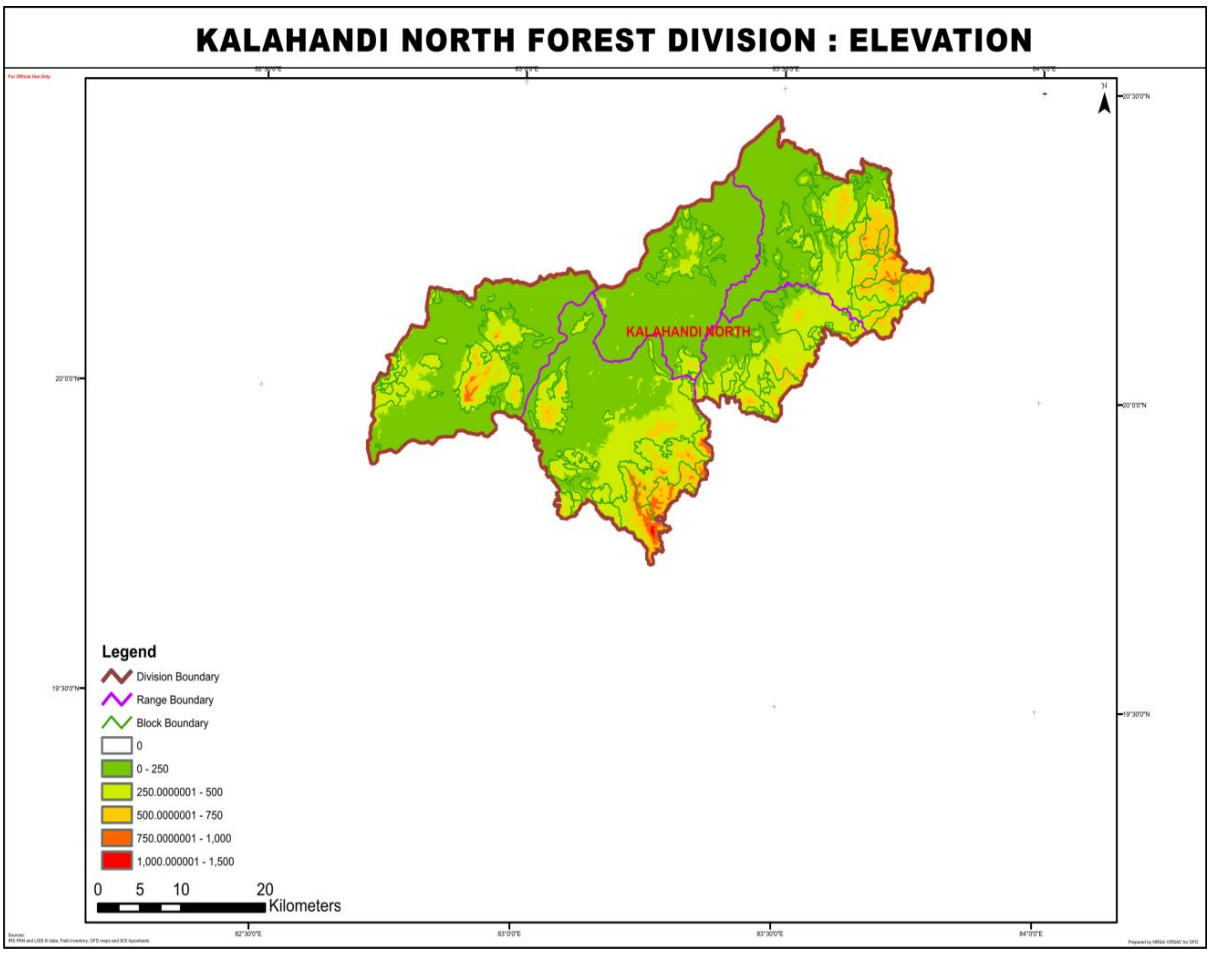
1.2 Configuration on the ground:-

1.2.1 The topography is rugged and undulating with high hillocks, plateaus and valleys. It can be broadly divided into two distinct natural parts i.e. hill tract and the plain country. The hill tract mainly runs from northeast to southwest of the district whereas the plain countries are mainly the river valleys of Tel and its tributaries. The hill tracts are locally called as Dongarla and the plain is known as Pahilpar. The altitude of the district varies from 150 mtrs. to 1226 mtrs. above mean sea level. The District has a sloping trend towards northeast direction. The elevation map of erstwhile Kalahandi Forest Division as a whole and that of Kalahandi North and South Division separately are furnished at figure-I, II & III respectively.

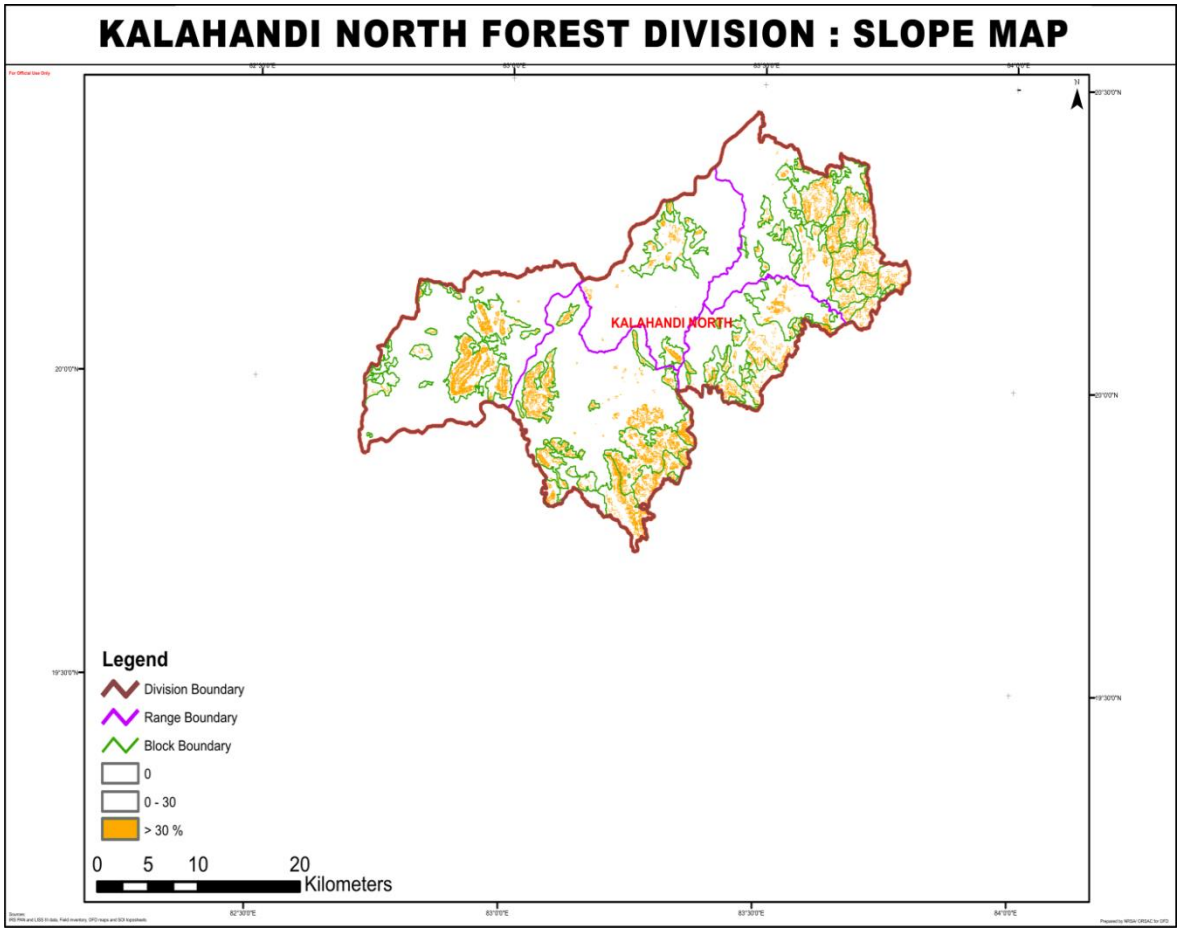
1.2.2 Physiographically it is coming under both Eastern Ghat and East Deccan zone. The hill ranges i.e. Dongarla area is mostly the part of Eastern Ghat. It extends over mainly the eastern and southern part of the District. These hill tract exhibits panoramic scenic view being rising from plains like a vast wall running over a considerable linear distance and at some places having main plateaus namely Karlapat, Thuamul Rampur and Mahulpatna. There are also some flat hilltops locally called as Malis which are mini plateaus. Different names have been assigned to hills after the name of the villages at their bases. The main peaks are Tangridongar (1229 m.) in Th.Rampur area and Karlapat (1213 m.) in Karlapat area. Thuamul Rampur North, Thuamul Rampur South, Madanpur Rampur, Biswanathpur, Jaipatna ranges are mostly coming under this zone.

1.2.3 The other portion i.e. plain area extends over mainly Junagarh, Kesinga, Bhawanipatna, Kegaon, Dharmagarh, Narla Ranges. This is undulating but contains a large area of cultivated land. Mostly occupying the valleys of Tel and its tributaries. Intermittent hill ranges and isolated ridges are also found scatteredly in this portion. Some important ones are Kumkot, Chura, Brahmani, Bazargarh, Nageswar etc. The cultivated tract is mostly found to occur between the altitude of 186 mtrs. to 350 mtrs. above mean sea level.

The elevation map of erstwhile Kalahnadi Forest Divison as a whole and that of Kalahandi North furnished at figure I,II respectively.



1.2.4 The river Tel and its tributaries like Udanti, Raul, Utei, Hati, Ret, Sagada etc. serve the important drainage system of the district. Though the rivers like Indravati, Nagavalli and Vansadhara originate in south and southeastern part of the district but they pump out their water to the neighboring district of Rayagada and Nawrangpur. The drainage pattern represented by these rivers and also some important nalas is of dendritic type. The district has a sloping trend towards northeast direction. The slope map of erstwhile Kalahandi Forest Division as a whole and that of Kalahandi North and South Division separately are furnished at figure-I, II & III respectively.



1.2.5 This district forms the part of two river basin namely Mahanadi and Godavari. Mahanadi basin is covering most parts of the district having the feeders like Tel, Hati and their tributaries whereas Indravati originating from a place called Mardiguda in Thuamul Rampur range flows about 13 kms south-western direction, then descend to Nawrangpur district and the State of Chhatisgarh where finally joins the river Godavari to become a part of its basin. Nagavalli and Vansadhara descend to Rayagada district and finally join the Bay of Bengal after passing through Srikakulam district of Andhra Pradesh. One remarkable feature is the transbasin diversion of water i.e. from river Indravati of Godavari basin to river Hati of Mahanadi basin in this district.

1.2.6 The drainage pattern is almost satisfactory causing practically no havoc. Though the rivers carry strong stream of water in their upper and middle reaches, but lose the same while descending to the plains. High floods are rarely seen in these rivers. The river Hati intermittently over flows in its lower reaches during rainy season causing some damage in surrounding area particularly the disruption in road communication with Nawrangpur District. During July 2006 only high flood has been experienced in the Kalahandi District causing damage to a considerable extent by the rivers of Tel, Hati and others.

1.3 Geology, Rock and Soil: -

1.3.1 Geology: -

Two distinct groups of geological formations are found to occur in Kalahandi District. These are (1) The Eastern Ghat group and (2) The Purana group. Major portion of the District has been occupied with the Eastern Ghat facies comprising of Khondalites, Charnockites, Granites, Porphyroblastic granite gneisess, vein quartz, Dolerites, Amphibolites and Nepheline syenites. The Purana group of rocks like shales, phyllites are scanty and only seen in Koksara Block. Laterites are found to occur as capping over these

formations at places. Discontinuous patches of Alluvium are found to occur along the banks of major rivers. The general stratigraphical sequences of Kalahandi is given below.

Recent to Sub recent			Soil, alluvium with bauxite laterite
……		Unconformity	……
Gondwana Sequence			Pebbly and gritty sand stone.
Purana group Vindyan (?)			Upper Quartzite Purple shale Sub-arkosic Quartzite
……		Unconformity	……
A: R: C: H: E: A: N:	Intrusive Eastern Ghat Super Group	 Charneckite suite Khondalite suite	Nepheline, hornblende Syenite Anorthosite Metadolerite (amphibelite) Pegmatite and quartz vein. Granite and granitoid Gneiss Leptynite Charnockite Impure limestone, Calc granulite and calciphyre, Quartz-garnet-sillimanite- Graphite schist, sillimanite quartizite and quartzite

1.3.2 *Rock:* -The mineral and associated rocks of Kalahandi is furnished below.

Table No.1.4

Minerals	**Associated Rocks**
Bauxite	Khondalite, Granite & Laterite
Graphite	KhondaliteGranitegness
Quartz	Granite, Feldspar, Pabbles
Gem Stone	Quartzite, Pegmatite, Granite & Mica
Iron	Granite, Quartzite & Laterite
Manganese	Mangeferous Laterite, Khondalite& Quartzite
Galena	Charnochite, Khondalite, Pegmatite &Granitegness.

The description regarding important types of rocks are furnished in succeeding paras.

KHANDOLITE SUIT:-

1.3.2.1 The Khandolite suits of rocks contains graphite-sillimanite-schist and gneiss, calciphyre, calc granulite, quartzite and sillimanite quartzite. They are inter banded with charnockite and gneiss and occur mostly in the form of bands of lenses. Quartzite amphibolite bands with the khandolite are common. Usually feliated these consists of minerals like quartz, garnet, sillimanite and graphite. The trend of foliation in these is NE-SW.

CHARNOCKITE SUITE:-

1.3.2.2 The Charnockite suits of rocks is well exposed near Bhawanipatna, Dharmagarh and Mahulpatna. The members of this group are hypersthenes bearing rocks of acid and basic composition. They vary in colour from brownish black to grey, usually coarse grained, showing frequent occurrence of porphyritic feldspars and garnet. Lenses and bands of pyroxene granulite occur in charnockite.

LEPTYNITE:-

1.3.2.3 The garnetiferous granite (lephynite) occurs as lenses and bands withing the charnockite and khondalite suites of rocks in the hilly tract of Kalahandi Division. Leptynite contains prophyroblasts of feldspars with biotite, quartz and garnet and is weathered at places.

INTRUSIVES:-

GRANITE GNEISS:-

1.3.2.4 This rock is exposed in the western part of Kalahandi Division. West of the out crop of Eastern Ghat rocks. The rocks are pink and grey in colour and gneissise in texture and are composed of minerals like feldspar, biotite, hornblende and pyroxene. Bends of amphibolite, mica schist and quartzite occur in this rock. Biotite granite gneisses are sheared at places. Pegmatites and quartz veins intrusive into the khondalite possess muscovite.

ANORTHOSITE:-

1.3.2.5 The Khendalite and charnockite have been intruded by anorthosite near Jugsaipatna, Bandpani, Dharmagarh, Ghatikundru and east of Kundru. In composition it range between norite and gabber. It consists of plagioclase feldspare having 65& of anorthite, garnet and pyroxene.

NEPHELINE SYENITE:-

1.3.2.6 Along the western margin of the rocks of Eastern Ghat Super group hornblends and nephelonesyenites and nephelinite occur as discontinuous bands.

PURANA GROUP:-

1.3.2.7 Unconformable overlying the rocks of Eastern Ghat Super group there is a less deformed and less metamorphosed rock sequent with characteristic argillaceous, arenaceous and calcareous members of the 'Platform facies'. These rocks are considered to represent the Vindhyans, which are co relatable with the rocks of Chhatisgarh basin. The boundaries of these rocks with the other rock units of the area are usually marked by highly feldspathic arkose and char. The rocks comprise sub-arkosic quartzite, purple shale and upper quartzite. These occur as detached and discontinuous outcrops extending between Ampani and the Khariar plateau. There are a few lanticular bonds of limestone (dolemite) within the purple shale.

GONDWANA GROUP:-

1.3.2.8 To the southern bank of the Tel river, there are small and detached outcrops of gritty and pebbly sandstone lithologically similar to the rocks of Talchers of the Gondwana sequence. The sandstone is unfossilliferous coarse grained and contains pebbles of gneiss.

1.3.2.9 Apart from this, laterite, soil and alluvium constitute recent to sub recent formations. Laterite occurs as outcrops in the rocks in iron and manganese ore

(manganiferous laterite). Soil and alluvium are noticed in the plain south of Sinapali where calcareous soil occurs with abundant line pebbles (kankar). The soil over the shale is clayey. Red and black soils derived from shales support vegetation in the forests. Loamy soil derived from gneisses and khandolites are good in cultivable lands supporting paddy, pulses and oil crops. Soil derived fromnephelinesuenite support bushy throny growth. Loamy soil derived from charnockites and associated gneisses support good teak forests. Sandy alluvium is confined to river and stream courses and it is derived from the granite terrain of Madhya Pradesh.

BAUXITE:-

1.3.2.10 Good quality Bauxite along with laterite occurs as disconnected blankets and lenses lying above 1000 MSL. Over cuddapah shales of Khariar Highland and khondalite group of rocks of Karlapat, Khalguda and Lakharisi areas. The bauxite is pisolitic to massive in nature. The primary aluminous mineral is gibbsite associated with goethite haematite, beehemite and anatase. The alumina percentage varies from 1 to 50% and sillica 5%.

GRAPHITE:-

1.3.2.11 Small deposits of graphite occur as veins and lenses varying in strike and length from a few metres to 200metres and thickness from a few cm. to 3 metres with carbon content ranging from 30 to 80%. Graphite occurs in hybridised zone of granite and khondalite.

MANGANESE:-

1.3.2.12 Manganese ore occurs associated with Kaolinised khondalite stretching from Berriputta (Koraput district) to Minakhunli in a 27 Km. long belt.

ROAD AND BUILDING MATERIALS:-

1.3.3 Khondalites, massive quartzite and charnockite are being used for building materials and Road blasts.

1.3.3.1 Rock type Khondalite is named after the tract khond where it is found extensively. It is composed of quartz, granite, sillimanite and graphite. In the hand specimen it looks greyish to reddish and often shows small particulars of red garnet in a very much crushed ground mass. The clear stratification in it suggests its origin as a sedimentary rock. Often a weathered specimen is mistaken for sandstone.

1.3.3.2 The occurrence of khondalite is found confined to the hills or groups of hills in the prevalent mass of Gneiss which are found to be main rock type. It is coarse grained composed of well developed crystals of quartz and feldspar crystals and broken red garnets in a dark ground mass. In the higher plateau it is often seen to be composed of silimanite garnet schist.

1.3.3.3 The southeastern side of plateau contains charnokite interspersed with laterite. Khondalite in the part forms the hills which are capped with charnokite and laterite. Charnokite in this part is a coarse grained rock composed of well developed crystals of feldspar and garnet. This rock type yield calcareous soil which is infertile. But where this rock type is found associated with khondalite and gneiss granite it produces loamy soil which supports good Sal forests.

1.3.3.4 But further towards south and Southeast charnokite are found in the valleys and on the foothills where as the upper reaches are of sillimanite or Garnet schist.

1.3.3.5 The Western scrap of the plateau is replaced by Hornblende schist, which is akin to charnokite. It gives rise to clayey soil but in combination with weathered soil of khondalite, good forest soils are formed.

1.3.3.6 The entire Pahilpar plains are underlined by rocks of crystalline complex composed principally of un-separated gneisses and schists usually granitiferous. The chief rock of this complex is pink, fairly felspathic biotite gneiss with hornblends and frequently monoclinic pyroxene with usually distinct foiliation or banding. Subordinate band of mica schist, amphidorite and quartizite also occur. The crystalline complex yield sandylome on disintegration.

1.3.3.7 To the west of this plain, in the hills in Sahajkhol block, the main rock is Cuddapah, represented by grey and chocalatecolour slates and white and buff quartizites. This rock system produces on disintegration, very poor soil, generally heavy clay. In between river Tel and it s tributary Udanti, the valley forms the northern limit of crystalline complex with some large masses of Khondalite in Chura 'A', Chura 'B' and Kumkot forest blocks. The mass of hills in Bazargarh forest block alongwith few outlying smaller ones to the western border of this plain are composed mainly of Khondalite.

TYPES OF AQUIFER AND ITS DISTRIBUTION:

1.3.4 The aquifer, which are water bearing horizons occurs in unconfined condition above base rock different types of aquifer are encountered in different area of the district. As the district comes under hard rock terrain, the water holding zones encountered within the district can be broadly put under the following categories.

(a) The fissured formation

(b) The porous formation

(a) Fissured Formation:

1.3.4.1 The weathered and the fractured zones of the hard rocks constitute the main water bearing horizons. The open joints in hard rocks facilitate the movement of ground water. The weathered zone acts as ground water reservoir for the underlying fractured zone and facilitates the movement of ground water. In this hard rock terrain, the water yielding capacity of an aquifer formation largely depends upon the extent of joints and fractures present and the nature of their interconnection. A significant quantity of water occurs when two or more sets of fractures or joints are interconnected.

1.3.4.2 The weathered zone in Khonadalites is extensive and its thickness ranges from 18 to 25 mtrs. The weathering in granitic rocks ranges from 8 to 15 mtrs. depth in general. In comparison to these rocks, the charnockites are less weathers jointed and fractured. Above formation is suitable for shallow tube wells.

1.3.4.3 In general, two or three major sets of water bearing fractures occur within 100 mtrs. of depth in this district and the yield capacity of the fractures depends on the extent of fracturing, size of opening and the nature of their interconnection. In the fractures rocks the ground water occurs under unconfined to semi-confined condition. Above formation is suitable for dug-cum bore wells.

(b) Porous Formation:

1.3.4.4 The laterites and the alluvium of sub-recent to recent origin comprise the porous formation.

1.3.4.5 Laterite generally occurs as capping over the older formations. The weathered laterites are highly porous and act as good aquifer. Alluvium of recent origin occurs as thin discontinuous patches in the flood plains of the major rivers like Tel, Udanti, Ret etc. in limited area. In the alluvial formation, where the thickness of sandy zone is significant, the water table both during monsoon and non-monsoon period occurs at a shallow depth the yield of wells installed in such areas have been found to be good.

1.3.4.6 Along the flood plain of river Hati and Tel granular zone aquifer has been encountered. The area extends along the flood plain of Hati from Junagarh block to Kalampur block and in limited places in Dharmagarh, Golamunda and Koksara blocks. The medium to coarse-grained sand occurs within 60 ft. from ground level. The thickness of granular zone varies from 10 to 20 feet. In said area shallow tube wells are feasible. The wells have moderate to high yielding capacity ranging from 5000 to 10000 gal./hour.

1.3.4.7 The ground water potentiality of Kalahandi is quite high in view of less utilization of the ground water. This source can be tapped to avail the surplus resource for irrigation and other purposes.

1.3.5. Soil:

It is an important factor for controlling the patter of vegetation in locality. Rock is a basic ingredient of the soil. The disintegration of underlying rock produce soil. On the hill slope it is difficult to attend the soil climax, however the soil retain some of the lithological feature of parent rock, which therefore exert a considerable influence on the nature of vegetation.

1.3.5.1 Soil Types:

Physiographically the district comprises diverse landforms consisting of rugged hill ranges, plateaus, undulating plains dotted with residual hills and mounds and fertile erosional plains and valleys. A gently undulating terrain with a vast stretch of cultivable land characterizes the major parts west of Bhawanipatna in the district. The elevation of the hills located in the southeastern and southern parts ranges from 953 to 1229 m above mean sea level. In Arupani – Koksara – Junagarh tract the elevation of land surface varies from 220 m to 325 m above MSL. In Bhawanipatna – Utkela – Kesinga tract the elevation of land surface ranges from 186 m to 350 m above MSL. In the undulating plains the general topographic slope is towards northeast. The distribution of different soil types in the district depends much on its physiographic and lithologic variations. Based on the physical and chemical characteristics, mode of origin and occurrence, soils of the district may be classified into three groups namely Inceptisols, Alfisols, Vertisols, Histosols and Entisols. The detail description is given below:

1.Inceptisols:

Red soils are the most predominant soil type in Kalahandi district covering about 45 % of the total area. These soils occur in foothills terrain and as capping over the hillocks. These soils are poor in nitrogen, phosphate, potassium and organic matters. These soils are light textured and the pH ranges from 4.5 to 6.0.

2. Alfisols:

The Alfisols include red sandy soils, red loamy soils mixed red and black soils. These soils cover about 27 % of the total area of the district and occur at lower elevations with undulating topography. These soils are neutral to slightly alkaline in nature (pH varies from 5.5 to 8.5). The characteristic features of red soils are

I. light texture, porous and friable structure,

II. absence of lime kankar and free carbonates and

III. soluble salts in small quantity usually not exceeding 0.05%. These are usually deficient in nitrogen, phosphate, organic matter and lime. These soils are suitable for cultivation of paddy and other crops.

3. Histosols:

Black soil is an important soil type in the district occupying parts of Bhawanipatna, Narla, Kesinga, Dharamgarh, Golamunda and Koksara blocks. These soils are rich in potassium and nitrogen but poor in phosphorus. These soils are most favourable for cotton cultivation which is a generally draught resistant, labour intensive but a highly remunerative crop.

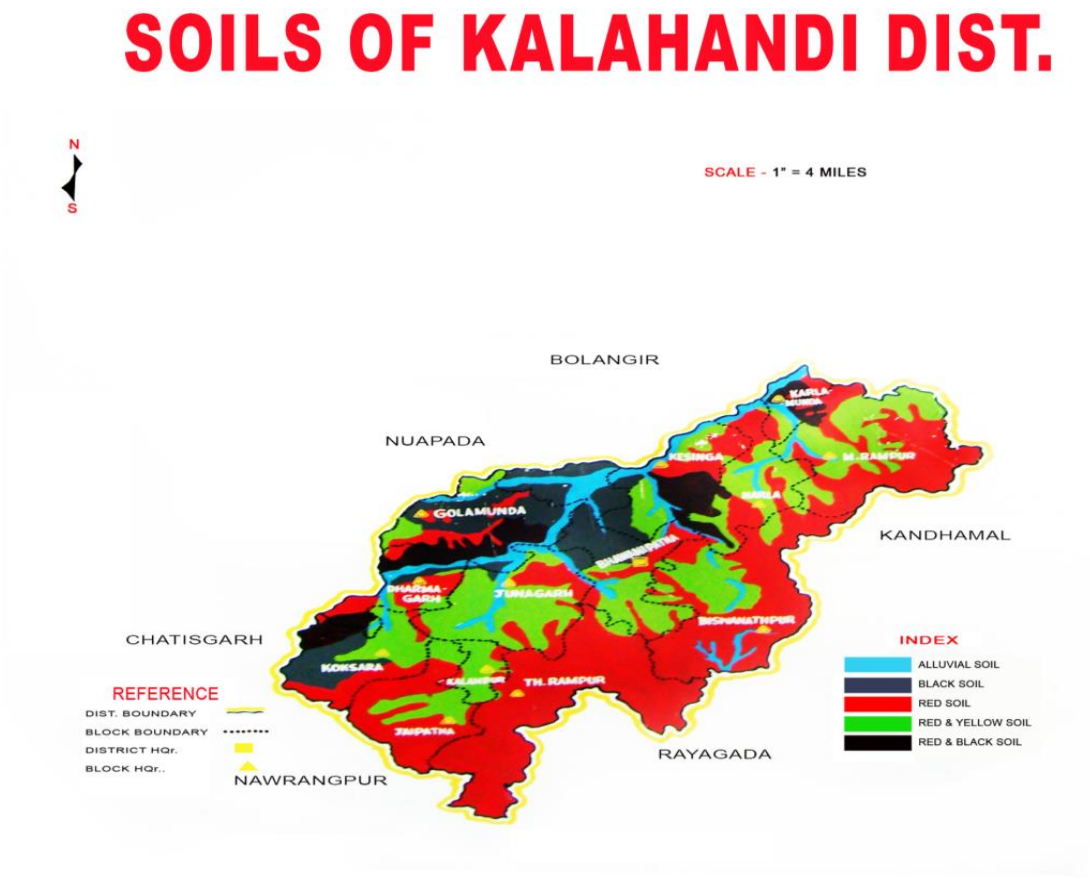
4.Vertisols :

These are medium black soils found around the course of Tel river and its tributaries. These soils are highly argillaceous and contain high amount of iron, calcium and magnesium. These are usually poor innitrogen, phosphate and organic matter but rich in potash and lime. The pH varies from neutral to alkaline and texture varies from loam to clay loam. These are quite fertile soils and suitable for paddy cultivation.

5. Entisols:

These consist of alluvial soil occupying the flood plains of major rivers and streams in the district. These are deficient in nitrogen, phosphoric acid and lumbers but not in potash and lime. These soils are alkaline in nature and fertile.

Five important types of soil namely Alluvial, Black soil, Red soil, Red & Yellow and Red & Black are available in Kalahandi. Red soil also called as Laterite soil is the most prevalent soil of the District. It occupies the high lands capping over the hillocks as well as in the foothill. Whereas Alluvial soil which is generally available on the banks of major rivers and mostly in plain areas are occurring in lowest proportion. Black soil otherwise known as Black Cotton soil are mostly available in depressions. Soils are moderately deep in low and sloping land having depth more than 1.5 meters. to 6 meters. whereas in high lands the thickness of top mental varies from 0.5 meters. to 4 meters. No hard pan is encountered within 2 meters depth below the ground level. The soil in general moderate to good for internal drainage. The soil map of the District with its relative proportion is furnished below. On the whole the soil is fertile and support luxuriant vegetation.



1.3.5.2 Most of the Forest Blocks of Madanpur Rampur, Narla, Kesinga, Biswanathpur, Thuamul Rampur North and South, Jaipatna are existing over the laterite or red soil. This is very important for supporting the vegetation. Sunamukhi, Benaguda and Taparang forest block of Madanpur Rampur range and Urladani forest block of Narla range are having the combination of red and sandy loam soil in the flat portion whereas the hilly portion of these forest blocks having soil calcarious in nature for which the vegetation is of poor and dry type. The soil derive from Khondalite and Charnocites support the rich forests of Bori, Machul, Raul, Dulma, Jhimiri, Jalkrida and Nachiniguda forest blocks of Biswanathpur range. This is due to presence of higher percentage of felspar and some proportion of iron. Porgel, Kidding, Samajhola, Kadalighati blocks are situated on Gniess and Granite type of rocks which product better soil. The vegetation on these blocks is better. The foothills in the sheltered aspects carry good forests. The plain forest in this reason are Dhepguda, Champadeipur and Patraguda which supports a good Sal forests.

1.3.5.3 Bazargarh forest block contain some portion of plain land, which is clayey in nature and at some places badly eroded except a few isolated pocket, which contains red loam soil. So the vegetation in this forest block is variable. The major portion of Sahajkhol forest block is having clayey soil except the plateaus and upper riches where is soil clayey loam as a result of which good forests are seen in those pockets. The isolated hilly forest blocks such as Sinang, Kanamanjur, Ghana, Garjan, Panigaon, Pariagarh, Brahmani, Chura ‘A’ & ‘B’, Kumkot, Dhanupanchan are located on Khondalites. Soil on the slope have washed away and thus the vegetation is poor on these localities. But the plain lands on its foothills contain good depth of soil for which crop is found to be better in comparison to the slope.

The black cotton soil are available in Bhawanipatna, Kesinga, Kegaon, Junagarh and Dharmagarh ranges but it is mostly confined to the area outside the major forest blocks. This is supporting main cash crop of the district i.e. cotton at present.

1.3.5.4 **Soil Erosion:** Due to presence of number of nallas originating from hill ranges of the forest block, the velocity of water during rainy season is quite high leading to soil erosion. Starting from sheet erosion to gully erosion, sometimes landslips are met. Landslides are very uncommon. The most prevalent type is the gully erosion as observed in different parts of the Forest Division. The construction of loose boulders check dams in different forest blocks under soil and moisture conservation measure as the integral part of plantation and other schemes has some initiative to curb this problem while there is still a lot to be tackled.

1.4 Climatic parameters:

General Climate:

1.4.1 On the basis of distribution of rainfall, temperature and location, Kalahandi comes under tropical monsoon-continental type of climate. The main characteristic of this climate is summers are very hot along with occasional conventional rainfall that comes with thunder and lightening. Such kind of rainfall normally occurs in the afternoon. The winters are very cold but mostly dry except few rains occurred due to depression. Rainfall is normally received from Bay of Bengal branch of Southwest Monsoon.

1.4.2 Three distinct seasons are felt in Kalahandi. They are: -

(a) Summer season- Mid February to Mid June.

(b) Rainy season- Mid June to October.

(c) Winter season- November to Mid February.

1.4.3 There is some variation between the hill portion and plain area of the District with regard to the climate. The hill portion receives more rainfall than the plain tract due to the perpendicular position of the hills to the direction of southwest monsoon wind. With receding of monsoon, the temperature increases during the day while decreases in the night. The winter is experienced earlier in the hill portions than the plains. The Dongarla portion i.e. hill area has both more rainfall and severity of winter in comparison to the plain portion whereas the rise of mercury is reverse.

1.4.4 The main elements of the climates are rainfall, temperature, humidity, wind, cloud and sunlight. These ingredients play a deciding role in shaping the climate of an area. While these parameters has been described in details in the succeeding paras, the climate of Kalahandi is by and large good except the hazard of Malaria. Though the entire District is prone to Malaria, but its severity is felt in both Thuamul Rampur North and South Range, Madanpur Rampur Range, Biswanathpur Range and part of Narla Range pertaining to the portion of Madanpur Rampur Block. Madanpur Rampur area has become resistant to chloroquine tablets for which Health and Family Welfare Department has taken special step to tackle the problem. Another infectious disease borne by a bacteria called *Bacillus anthraci*s is Anthrax and the same has been reported recently in some pockets of Biswanathpur Range.

Rainfall:

1.4.5

The rainfall of Kalahandi is very erratic and uneven in distribution. The normal rainfall is 1378.20 mm. per annum. During last ten years the average rainfall is more than the normal rainfall in six years and slightly less in three years with the exceptionally lowest rainfall in

2011 as revealed from the data given below. The block wise and month wise average rainfall and rainy days has been furnished in tabular form. It is seen that the highest rainfall is recorded in Thuamul Rampur block whereas Dharmagarh block is having the lowest rainfall. Similarly highest numbers of rainy days and lowest numbers of rainy days have been recorded in Thuamul Rampur and Dharmagarh block respectively. Further, the year wise highest and lowest rainfall recorded during last ten years is 2130 mm in 2006 and 1016 mm in 2011 respectively. The distribution of area wise rainfall is mainly attributed to both the physiographic condition and vegetal cover. Though the rainy season is from Mid June to October as narrated earlier but the maximum quantum of rainfall is confined to both the months of July and August so also the number of rainy days. Year wise and Month wise Rainfall in Millimetre and Rainy days in Numbers from 2005 to 2020 in respect of individual blocks of the District covering this Division is furnished in a Tabular statement below table no.1.5

Table No.1.5

Rain Fall Data												
Bhawanipatna Block												
Year	January		February		March		April		May		June	
	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD
2005	24.00	4	2.00	1	0	0	0	0	4.00	1	106.00	8
2006	0	0	0	0	49.00	4	0	0	47.00	5	52.00	5
2007	0	0	0	0	0	0	0	0	35.00	2	321.00	9
2008	41.00	3	0	0	0	0	0	0	0	0	140.00	13
2009	0	0	0	0	0	0	0	0	0	0	14.20	4
2010	0	0	0	0	0	0	0	0	55.00	5	20.00	4
2011	0	0	5.00	2	0	0	3.00	1	6.00	2	100.00	11
2012	4.00	1	0	0	2.00	1	2.00	1	0	0	178.00	6
2013	10.00	1	0	0	0	0	5.00	1	61.00	4	304.00	8
2014	0	0	10.00	1	29.00	5	3.00	1	181.00	4	25.00	3
2015	4.00	1	0	0	5.00	1	26.00	7	14.00	3	245.00	13
2016	0	0	7	1	8	2	0	0	36	5	137	5
2017	0	0	0	0	17	4	1	1	17.2	5	189	9
2018	0	0	0	0	0	0	33.8	3	23.4	4	67.4	5
2019	1	1	4	1	12.4	1	12.2	1	4.2	2	133	8
2020	11	1	36	3	57	5	40.6	3	15	4	316	13

Year	July		August		September		October		November		December	
	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD
2005	240.00	12	188.00	11	527.00	12	57.00	6	0	0	0	0
2006	676.00	12	791.00	30	309.00	11	17.00	1	45.00	3	0	0
2007	188.00	8	592.00	8	263.00	17	78.00	5	0	0	0	0
2008	300.00	19	510.00	20	423.00	8	0	0	0	0	0	0
2009	856.50	20	207.00	10	126.00	10	17.50	5	13.00	1	0	0
2010	342.00	14	326.00	5	174.00	9	142.00	6	3.00	1	4.00	3
2011	94.00	11	370.00	19	276.00	14	18.00	2	0	0	0	0
2012	293.00	13	289.00	15	368.00	15	68.00	4	11.00	1	0	0
2013	309.00	13	195.00	15	162.00	12	216.00	10	0	0	0	0
2014	611.00	14	259.00	10	244.00	10	71.00	4	2.00	2	0	0
2015	242.00	18	211.00	20	222.00	10	0	0	0	0	32.00	1
2016	379.72	18	204.80	16	356	21	94	8	0	0	0	0
2017	532	17	298	18	143	11	163.7	10	1.6	1	0	0
2018	670.5	23	839.1	22	174.4	13	68.8	2	0	0	83.8	3
2019	327	19	368.6	20	130	12	80.4	8	17.4	1	0	0
2020	280.4	17	236.9	21	172.2	10	117.8	13	0	0	0	0

Rain Fall Data												
Kesinga Block												
Year	**January**		**February**		**March**		**April**		**May**		**June**	
	RF	**RD**	**RF**	**RD**	**RF**	**RD**	**RF**	**RD**	**RF**	**RD**	**RF**	**RD**
2005	57.00	2	9.00	1	0	0	0	0	20.00	1	127.00	7
2006	0	0	0	0	19.00	4	12.00	2	120.00	6	225.00	11

2007	0	0	0	0	0	0	0	0	37.00	2	305.00	12
2008	47.00	2	11.00	2	11.00	1	0	0	0	0	224.10	16
2009	0	0	0	0	0	0	0	0	0	0	49.50	6
2010	11.00	1	0	0	0	0	0	0	106.00	10	34.00	7
2011	0	0	0	0	0	0	25.00	3	31.00	2	125.00	13
2012	1.00	1	0	0	0	0	25.00	3	10.00	2	365.00	12
2013	0	0	1.00	1	0	0	44.00	2	29.00	5	419.00	13
2014	0	0	12.00	1	9.00	3	0	0.00	333.00	3	60.00	5
2015	13.00	1	0	0	0	0	48.00	4	59.00	4	134.00	10
2016	0	0	0	0	14	2	2	1	5	2	30	5
2017	0	0	0	0	13	4	10	1	9	1	103	8
2018	0	0	0	0	0	0	33.8	3	23	4	67.4	5
2019	0	0	12	2	7	1	2	1	0	0	187.8	8
2020	8	1	26	4	67.6	6	13.2	2	43.2	3	335.8	9

Year	July		August		September		October		November		December	
	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD
2005	315	16	100	13	343	12	28	3	0	0	0	0
2006	661	16	557	15	176	8	12	2	2	1	0	0
2007	174	11	399	9	274	18	38	3	0	0	0	0
2008	233	18	578	25	555	12	0	0	0	0	0	0
2009	1070	21	326	19	141	8	46	5	54	2	0	0
2010	452.3	15	262	14	224	12	73.2	6	2	1	19.5	5
2011	142	15	554	22	248	14	0	0	0	0	0	0
2012	599	18	213	13	299	10	28	4	16	2	0	0
2013	385	16	204	14	187	8	218	14	0	0	0	0
2014	600	21	326	15	389	14	23	3	0	0	0	0
2015	304.00	16	175.00	10	281	7	0	0	0	0	0	0
2016	401	11	245	9	417	13	140	4	0	0	0	0
2017	249	17	348	20	233	8	86	7	0	0	0	0
2018	670.5	23	839.1	22	174.4	13	6838	2	0	0	83.8	3
2019	306.8	18	410.4	11	318	11	116.2	4	0	0	0	0
2020	376.6	12	277.8	13	126.6	5	91.2	10	0	0	0	0

Rain Fall Data

Narla Block

Year	January		February		March		April		May		June	
	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD
2005	60.00	5	3.00	1	0	0	0	0	6.00	1	126.00	8
2006	0	0	0	0	15.00	2	35.00	2	65.00	4	79.00	3
2007	0	0	0	0	0	0	0	0	54.00	5	247.00	9
2008	47.00	2	12.00	2	0	0	0	0	0	0	239.00	12
2009	0	0	0	0	0	0	0	0	0	0	49.00	2
2010	0	0	0	0	0	0	0	0	25.00	4	94.00	7
2011	0	0	3.00	1	0	0	18.00	1	24.50	4	170.00	13
2012	24.00	3	2.00	1	2.00	1	28.00	4	2.00	1	174.00	9
2013	2.00	1	10.00	2	0	0	24.00	2	36.00	4	407.00	12
2014	0	0	9.00	1	0	0	0	0	230.00	3	9.00	2
2015	10	1	0	0	0	0	47.00	3	52.00	3	150.00	13
2016	0	0	0	0	0	0	0	0	5	2	103	7
2017	0	0	0	0	64	3	0	0	30.5	2	264.55	10
2018	0	0	0	0	0	0	0	0	33.5	3	132.6	11
2019	0	0	0	0	31.8	2	0	0	51	2	124	9
2020	12	1	33	5	57	5	3	1	6	1	312	9

Year	July		August		September		October		November		December	
	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD
2005	372	15	106	10	346	12	29	3	0	0	0	0
2006	665	12	745	16	326	15	16	1	0	0	0	0
2007	111	7	564	11	437	16	25	3	0	0	0	0
2008	206	13	870	24	479	13	0	0	0	0	0	0
2009	1027	17	217	8	101	6	37	3	18	1	0	0
2010	403	17	251	8	199	13	139	7	0	0	41	4
2011	217	14	371	14	264	16	18	1	0	0	0	0
2012	195	16	314	12	372	14	21	2	13	3	0	0
2013	371	14	211	14	100	7	247	11	0	0	0	0

2014	595	19	273	14	384	12	40	4	0	0	0	0
2015	291.00	16	180.00	12	355	8	0	0	0	0	8.50	2
2016	291	14	342.30	18	315.10	18	146	7	0	0	0	0
2017	665.1	14	342.21	12	216	3	143.6	5	0	0	0	0
2018	426	15	732.3	13	190	10	81	2	0	0	71	3
2019	283	15	548	13	282	11	133	5	0	0	0	0
2020	207	6	252	11	187	8	214	8	0	0	0	0

Rain Fall Data

M.Rampur Block

Year	January		February		March		April		May		June	
	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD
2005	35.00	2	0	0	0	0	3.00	1	38.00	2	133.00	8
2006	0	0	0	0	24.00	3	0	0	167.00	4	136.00	10
2007	0	0	0	0	0	0	11.80	4	91.20	9	291.20	13
2008	43.00	2	0	0	0	0	0	0	0	0	342.40	17
2009	0	0	0	0	6.30	1	0	0	48.00	3	88.20	9
2010	15.40	2	0	0	0	0	0	0	147.20	9	107.60	10
2011	0	0	2.00	1	0	0	24.00	4	17.00	5	281.00	16
2012	69.00	6	0	0	7.00	1	24.00	3	22.00	1	344.00	9
2013	0	0	15.00	2	7.00	1	40.00	1	52.00	4	350.00	11
2014	0	0	0	0	13.00	2	0	0	134.00	3	42.00	3
2015	39.00	1	0	0	15.00	1	105	10	15.00	3	196.00	10
2016	0	0	0	0	23.00	2	4	1	27	1	166	9
2017	0	0	0	0	17.20	2	0	0	0	0	233.3	10
2018	0	0	0	0	0	0	29	2	14	2	72	10
2019	2	1	8	1	13	1	5	1	36	2	111	10
2020	14.2	2	34	4	77	7	42	5	64	3	314	15

Year	July		August		September		October		November		December	
	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD
2005	379	16	116	14	360	9	37	4	0	0	0	0
2006	664	15	916	18	248	10	0	0	2	1	0	0
2007	176	10	489	16	408	20	45.6	5	0	0	0	0
2008	330	21	787	25	589	10	0	0	0	0	0	0
2009	1086	19	264	15	101	11	17.6	3	59	2	0	0
2010	496	22	341	13	284	11	107	4	14.6	4	33	5
2011	121	15	405	22	365	20	0	0	0	0	0	0
2012	247	17	571	15	277	15	15	2	7	2	0	0
2013	399	15	301	13	268	13	261	12	0	0	0	0
2014	619	19	373	19	407	11	40	4	0	0	0	0
2015	230.00	14	278	11	284	9	10	1	0	0	13	2
2016	363.90	16	459.7	21	344.9	18	111.2	7	0	0	0	0
2017	396	15	354.2	21	191	10	138	10	2	1	0	0
2018	744	18	1008	22	325.2	12	114	3	0	0	118	3
2019	382	21	977	21	358	18	124	9	0	0	0	0
2020	294	13	423	18	156	12	168	8	0	0	0	0

Rain Fall Data

Karlamunda Block

Year	January		February		March		April		May		June	
	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD
2005	40.00	2	7.00	1	0	0	0	0	11.00	1	251.00	12
2006	0	0	0	0	22.00	3	0	0	143.00	3	174.20	9
2007	0	0	0	0	0	0	0	0	0	0	389.00	12
2008	29.00	1	0	0	0	0	0	0	0	0	299.00	11
2009	0	0	0	0	0	0	0	0	0	0	67.00	4
2010	15.00	1	0	0	0	0	0	0	94.00	7	75.00	7
2011	0	0	2.00	1	0	0	8.00	2	34.00	3	181.00	11
2012	47.00	3	0	0	0	0	18.00	1	0	0	284.00	6
2013	0	0	0	0	0	0	42.00	2	18.00	1	284.00	13
2014	0	0	17.00	1	0	0	0	0	116.00	3	80.00	4
2015	0	0	0	0	0	0	62	5	21	5	176	11
2016	0	0	0	0	0	0	3	1	43.50	3	89.50	8
2017	0	0	0	0	37.60	3	0	0	0	0	178	11
2018	0	0	0	0	0	0	0	0	2.1	1	64.8	7
2019	0	0	24	2	33.6	2	9.2	1	0	0	126.4	9
2020	17.4	2	44.4	3	57.6	4	54.2	1	0	0	240	11

Year	July		August		September		October		November		December	
	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD
2005	652.00	18	269.00	16	618.00	11	119.00	4	0	0	0	0
2006	1285.00	14	1175.20	21	144.00	9	0	0	8	2	0	0
2007	106.00	5	375.00	9	393.00	14	15.00	2	0	0	0	0
2008	341.00	16	583.70	21	596.00	6	0	0	0	0	0	0
2009	997.00	18	267.00	15	108.00	8	36.00	2	14.00	1	0	0
2010	473.00	19	353.00	12	258.00	10	71.00	4	8.00	1	30.0	4
2011	240.00	11	443.00	19	498.00	14	0	0	0	0	0	0
2012	180.00	17	446.00	19	248.00	13	75.00	4	12.00	2	0	0
2013	752.00	16	337.00	15	202.00	9	325.00	10	0	0	0	0
2014	467.00	19	450.00	18	310.00	11	14.00	3	0	0	0	0
2015	244	12	367	11	229	9	0	0	0	0	3	1
2016	246.90	17	324.50	15	484.10	16	61.50	5	0	0	0	0
2017	306.5	17	198.5	16	147	7	48.1	5	0	0	0	0
2018	458	15	672.87	16	311.4	11	83	1	0	0	74.6	3
2019	275.4	15	1172.4	11	320.8	14	49.2	4	0	0	0	0
2020	178.2	15	293.8	17	146.4	5	82.2	2	0	0	0	0

Rain Fall Data

Golamunda Block

Year	January		February		March		April		May		June	
	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD
2005	48.40	5	14.60	1	0	0	36.40	2	23.60	3	131.20	7
2006	0	0	0	0	13.00	2	2.00	1	48.00	4	125.00	6
2007	0	0	0	0	0	0	0	0	2.00	1	344.00	12
2008	0	0	0	0	0	0	0	0	0	0	124.00	8
2009	0	0	0	0	0	0	0	0	0	0	46.20	2
2010	0	0	0	0	0	0	16.00	1	78.00	8	33.00	4
2011	0	0	0	0	0	0	23.00	3	14.00	3	86.00	8
2012	0	0	0	0	0	0	2.00	1	0	0	69.00	8
2013	0	0	4.00	2	0	0	1.00	1	30.00	4	181.00	10
2014	0	0	2.00	1	47.00	3	84.00	3	130.00	4	206.00	6
2015	0	0	0	0	0	0	133	12	57	2	227	15
2016	0	0	5	1	9	2	18	1	19	3	71	6
2017	0	0	0	0	0	0	0	0	0	0	178.8	9
2018	0	0	0	0	0	0	4	1	85.8	5	120.1	7
2019	15.5	1	7.4	1	8.4	1	7.4	1	16.2	1	231.7	11
2020	17	2	45.7	4	42	3	17	1	42	3	383.3	12

Year	July		August		September		October		November		December	
	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD
2005	372.70	16	178.60	16	405.00	11	25.00	3	0	0	0	0
2006	689.00	15	839.20	19	219.60	13	5.20	1	14.40	2	0	0
2007	364.00	15	561.00	11	394.60	19	26.00	2	0	0	0	0
2008	199.00	14	282.00	17	345.00	11	4.00	2	0	0	0	0
2009	551.00	20	262.00	14	5.00	1	0	0	0	0	0	0
2010	152.00	13	211.00	9	173.00	9	47.00	3	0	0	20.00	3
2011	51.00	11	120.00	17	99.00	15	0	0	0	0	0	0
2012	98.00	15	185.00	13	113.00	11	14.00	3	5.00	1	0	0
2013	376.00	16	223.00	15	214.00	12	196.00	10	0	0	0	0
2014	335.00	14	378.00	17	272.00	11	47.00	2	0	0	0	0
2015	200	12	169	11	301	8	0	0	0	0	0	0
2016	248.40	15	228.10	13	234.80	12	119.20	6	0	0	0	0
2017	320.4	16	177	13	295.6	10	182.2	6	0	0	0	0
2018	333.8	13	684.3	14	177.7	8	1	1	0	0	44	2
2019	476.9	15	455.5	18	162.6	12	126.8	6	0	0	0	0
2020	250.9	12	317.2	15	155.1	10	102.2	11	0	0	0	0

Rain Fall Data

Lanjigarh Block

Year	January		February		March		April		May		June	
	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD	RF	RD
2005	35	2	0	0	0	0	0	0	36	3	171	6
2006	0	0	0	0	47.4	4	35.8	3	102	9	112.8	7
2007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2008	58.4	4	6	2	25	2	20	3	0	0	270.4	19
2009	0	0	0	0	0	0	0	0	0	0	131.2	7
2010	0	0	0	0	0	0	0	0	120.2	9	224	10
2011	0	0	7	1	0	0	120.4	8	34	4	189.6	16
2012	34	3	0	0	0	0	109	4	30	3	153	9
2013	0	0	0	0	0	0	62	3	90	4	379	15
2014	0	0	13	2	18	4	4	1	259	9	12	1
2015	19	1	0	0	19	1	65	7	94	5	213	15
2016	0	0	9	2	18	3	0	0	48	6	101	11
2017	0	0	0	0	47	2	0	0	69.4	4	219.6	16
2018	0	0	0	0	0	0	20	2	73.9	5	132.2	12
2019	0	0	2	1	31.8	2	25.8	2	39.2	4	105.2	9
2020	0	0	43.6	4	54.8	4	98.2	6	23	3	284.4	16

Year	**July**		**August**		**September**		**October**		**November**		**December**	
	RF	**RD**	**RF**	**RD**	**RF**	**RD**	**RF**	**RD**	**RF**	**RD**	**RF**	**RD**
2005	314	16	105	11	476	11	168	7	0	0	0	0
2006	442	12	644.6	19	386.6	13	33	3	16	1	0	0
2007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2008	130.2	19	716.8	24	552.2	16	22	4	0	0	0	0
2009	798	21	286.10	17	158.4	12	71.6	6	18	2	0	0
2010	431	20	240	12	371	9	185	11	26.8	6	39.4	6
2011	184	14	414.6	22	289	18	26	2	0	0	0	0
2012	40.3	17	325	18	228	20	14	2	96	4	0	0
2013	407	21	150	15	87	9	254	13	0	0	0	0
2014	638	17	377	20	301	14	87	4	11	2	0	0
2015	160	16	262	17	271	11	3	1	14	2	15	2
2016	402	18	313.4	20	566.5	15	218.2	8	0	0	0	0
2017	459.6	17	264.8	20	220.2	7	166.2	9	6	1	0	0
2018	602.3	18	752.2	20	148.8	12	118.8	3	0	0	106	3
2019	305.8	17	715.4	19	340.6	18	87.4	7	15	1	0	0
2020	274	19	242	21	202.6	10	212.4	12	0	0	0	0

<u>Total number of Rainfall in the year from 2005 to 2020</u>

CLIMATE DATA

Name of the Block	Year															
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	RF in mm.	RF in mm.	RF in mm.	RF in mm.	RF in mm.	RF in mm.	RF in mm.	RF in mm.	RF in mm.	RF in mm.	RF in mm.	RF in mm.	RF in mm.	RF in mm.	RF in mm.	RF in mm.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Bh.Patna	1148.00	1986.00	1477.00	1414.00	1234.20	1066.00	872.00	1215.00	1262.00	1435.00	1001	1222.52	1362.5	1961.12	1090.2	1282.9
Kesinga	999.00	1784.00	1227.00	1659.10	1686.50	1183.50	1125.60	1556.00	1487.00	1752.00	1014	1254	1051	1947	1360.2	1422.
Narla	1048.00	1946.40	1438.00	1852.60	1449.00	1151.00	1085.00	1147.00	1408.00	1540.00	1093.5	1202.4	1725.96	1666.4	1452.8	1299
M.Rampur	1101.00	2157.00	1513.00	2091.90	1670.70	1547.40	1214.60	1583.00	1693.00	1628.00	1185	1499.7	1331.7	2424.2	2016	1586.2
Karlamunda	1967.00	2951.40	1278.00	1848.70	1489.00	1377.00	1406.00	1310.00	1960.00	1454.00	1102	1253	915.7	2003.77	2011	1114.2
Golamunda	1235.50	1955.40	1691.60	954.00	864.20	730.00	393.00	486.00	1225.00	1501.00	1087	952.5	1154	1446.7	1508.4	1372.4
Lanjigarh	1305	1820.2	NA	1801	1463.3	1637.4	1264.6	1029.3	1429	1720	1135	1676.1	1452.8	1954.2	1668.2	1435

Total number of Rainy days in the year from 2005 to 2020																
Name of the Block	**Year**															
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	RD in nos.	RD in nos.	RD in nos.	RD in nos.	RD in nos.	RD in nos.	RD in nos.	RD in nos.	RD in nos.	RD in nos.	RD in nos.	RD in nos.	RD in nos.	RD in nos.	RD in nos.	RD in nos.
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Bhawanipatna	55	71	49	63	50	47	62	57	64	54	61	76	76	75	74	90
Kesinga	55	65	55	76	61	71	69	65	73	65	52	47	66	75	56	65
Narla	55	55	51	66	37	60	64	66	67	55	58	66	49	57	57	55
M.Rampur	56	61	77	75	63	80	83	71	72	61	62	41	69	72	85	87
Karlamunda	65	61	42	55	48	65	61	65	66	59	54	65	59	54	58	60
Golamunda	64	63	60	52	37	50	57	52	70	61	60	59	54	51	57	73
Lanjigarh	56	71	NA	93	65	83	85	80	80	74	78	83	76	75	80	95

Temperature :-

1.4.6. As already narrated earlier summer season prevails from Mid February to June. During this period temperature is quite high and sometimes unbearable. May is the hottest month of the year while December is the coldest. The temperature recorded at Bhawanipatna, the District Head Quarters is furnished year wise and month wise for last ten years indicating the mean daily minimum and maximum temperature. The highest recorded during last ten year is 43^0 centigrade on April 2010.The dates on which maximum temperature more than 45^0 Centigrade and minimum than 5^0 Centigrade recorded at Bhawanipatna has been furnished in table no. 1.6

Table No. 1.6

Monthly Average temperature for the year 2006 to 2015
(unit temp in Degree Celsius)

YEAR	**MONTHS**											
	JANUARY		**FEBRUARY**		**MARCH**		**APRIL**		**MAY**		**JUNE**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2006	9	29	10	33	17	32	NA	NA	NA	NA	NA	NA
	JULY		**AUGUST**		**SEPTEMBER**		**OCTOBER**		**NOVEMBER**		**DECEMBER**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

YEAR	**MONTHS**											
	JANUARY		**FEBRUARY**		**MARCH**		**APRIL**		**MAY**		**JUNE**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2007	11	31	16	32	19	36	25	41	26	41	27	37
	JULY		**AUGUST**		**SEPTEMBER**		**OCTOBER**		**NOVEMBER**		**DECEMBER**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2007	26	33	25	32	24	32	20	31	15	31	13	29

YEAR	**MONTHS**											
	JANUARY		**FEBRUARY**		**MARCH**		**APRIL**		**MAY**		**JUNE**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**

2008	12	29	13	30	19	36	24	39	27	43	24	35
	JULY		**AUGUST**		**SEPTEMBER**		**OCTOBER**		**NOVEMBER**		**DECEMBER**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2008	24	31	22	31	22	32	20	31	15	31	13	29

YEAR	**MONTHS**											
	JANUARY		**FEBRUARY**		**MARCH**		**APRIL**		**MAY**		**JUNE**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2009	12	31	15	32	20	37	24	40	27	42	25	41
	JULY		**AUGUST**		**SEPTEMBER**		**OCTOBER**		**NOVEMBER**		**DECEMBER**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2009	23	31	24	32	23	33	18	32	17	31	12	28

YEAR	**MONTHS**											
	JANUARY		**FEBRUARY**		**MARCH**		**APRIL**		**MAY**		**JUNE**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2010	11	28	16	33	22	39	25	43	26	41	27	39
	JULY		**AUGUST**		**SEPTEMBER**		**OCTOBER**		**NOVEMBER**		**DECEMBER**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2010	25	32	25	33	24	31	21	31	19	31	12	27

YEAR	**MONTHS**											
	JANUARY		**FEBRUARY**		**MARCH**		**APRIL**		**MAY**		**JUNE**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2011	11.1	28.9	15	31.9	20.5	37.1	23.3	37.6	40.7	41	26.4	36.1
	JULY		**AUGUST**		**SEPTEMBER**		**OCTOBER**		**NOVEMBER**		**DECEMBER**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2011	24.7	33.2	24.4	31.9	24.4	31.9	20	33.4			12	30.1

YEAR	**MONTHS**											
	JANUARY		**FEBRUARY**		**MARCH**		**APRIL**		**MAY**		**JUNE**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2012	14	29	15	34	19	38	25	40	27	42	26	38
	JULY		**AUGUST**		**SEPTEMBER**		**OCTOBER**		**NOVEMBER**		**DECEMBER**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2012	24	30	23	30	23	31	19	32	17	30	12	30

YEAR	**MONTHS**											
	JANUARY		**FEBRUARY**		**MARCH**		**APRIL**		**MAY**		**JUNE**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	JULY		**AUGUST**		**SEPTEMBER**		**OCTOBER**		**NOVEMBER**		**DECEMBER**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

YEAR	**MONTHS**											
	JANUARY		**FEBRUARY**		**MARCH**		**APRIL**		**MAY**		**JUNE**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	JULY		**AUGUST**		**SEPTEMBER**		**OCTOBER**		**NOVEMBER**		**DECEMBER**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		

YEAR	**MONTHS**											
	JANUARY		**FEBRUARY**		**MARCH**		**APRIL**		**MAY**		**JUNE**	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**

2015	NA	NA	NA	NA	NA	NA	NA	NA	27.5	42.3	24.3	35
	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
2015	25.2	33.6	26	32.3					16.7	32.6	14.5	31.6

Humidity :-

1.4.7 : The relative humidities are high in southwest monsoon and post monsoon months. The air becomes gradually dry thereafter. The summer is the driest part of the year with relative humidities going downwards particularly in afternoons. The relative humidity recorded at Bhawanipatna month wise and year wise is furnished below. It is seen that relative humidity as high as 100% have been recorded on 50 days during last 10 years. The lowest humidity is recorded as 26.7% in 2011.

Table No.1.7

MONTH WISE RELATIVE HUMIDITY OF KALAHANDI DISTRICT.

YEAR	RELATIVE HUMIDITY IN %											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
2006	52	50	52	NA	NA	NA	NA	NA	NA	NA	NA	NA
2007	49	47	39	38	43.3	64	71	81	89	81	73	69
2008	66	68	54	47	43	70	86	85	81	77	75	74
2009	71	71	52	50	45	56	85	82	78	72	72	72
2010	70	60	59	46	45	52	79	84	87	86	82	85
2011	76	73	53	57	26.7	70	82	87	87	74	NA	73
2012	66	61	49	45.5	40.5	60.5	84	83	83	77	77.5	73
2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	76.6

1.4.8 Cloud: -

During monsoon season the skies are generally heavily clouded to overcast. In pre monsoon and post monsoon months, the cloud is moderate. The afternoon is cloudier than the mornings. In rest months the sky is mostly clear or lightly over shadow.

1.4.9 Wind: -

The velocity of the wind is generally slow to moderate with some increase in force during summer and monsoon seasons. The winds are mostly from direction between southwest and northwest in monsoon season. In post monsoon and cold seasons they blow from the direction between west and northwest. The winds are variable in direction during summer months. There is no cyclone hazard in this reason except Phailin during October,2013..

1.4.10 Sunlight: -

This is clear and bright. The intensity of sunlight is more felt during summer season and also in plain area in comparison to the Dongarla portion. The quantum of sunlight is less during rainy and winter months due to cloudy sky.

1.4.11 Water Supply: -

The main source of water supply is river, nalas and perennial streams. Though three main rivers namely Nagavalli, Vansadhara and Indravati are originating from Kalahandi but they are discharging their water to the neighbouring District and the State except the reservoir over Indravati in the extreme southwest corner of the District. Tel, originating from Nawrangpur District, is traversing through this District over a long track and considered as the major river of this District. The other important rivers of the District are the feeders of Tel. The brief description about the rivers and nalas are as follow.

Nagavalli: - Starts from Khakes RF Block of Th.Rampur North Range. It collects water through a number of small Nalas starting from the forest blocks like Ampadar, Chulbhadi, Kuspari, Kadokhaman, Thakuranipadar, Goelkhoj of both Th.Rampur North and South Ranges then it enters into Biswanathpur Range where Pitadharanala joins with it. After that it crosses the District border and enters into Rayagada District and ultimately joins the Bay of Bengal after passing through Srikakulam District of Andhra Pradesh.

Bansadhara: - Starts from Niyamgiri RF of Biswanathpur Range and flow towards North East direction collecting water from the catchments through so many small nalas and crosses the District border near Champadeipur and enters into Rayagada District. Then it flows to Andhra Pradesh and finally joins with Bay of Bengal after passing through Srikakulam District of Andhra Pradesh.

Indravati: - Starts from Indravati PRF, a place called Mardiguda of Th.Rampur North Range at an altitude of 915 Mtrs. above the mean sea level. It quickly gathers volume and rushes with its copious flow down its hilly southwesternly course and collecting waters from its catchments through a number of nalas. It crosses the District border near Jubarajpur and enters into Nawrangpur District. After that it enters Chhatisgarh State and finally joins the river Godavari. It drains southeastern corner of the District and its existence is confined to Kalahandi South Forest Division. A major hydroelectric project has been called Upper Indravati Project has been situated over this river. It is irrigating 69295 ha. of agricultural land at present spreading over mostly in Dharmagarh Sub-Division. This is the only major irrigation project of the District. After its construction the production of rice and other agricultural items has been enhanced in the District. This project has considered as a great boon to the drought prone District of Kalahandi.

Tel: - Tel is the longest and most important river in the District. Rising in the north of Nawrangpur District, it enters in the district a few kilometres west of Dharmagarh near Chhilpa and flows through an alluvial tract. Taking almost an easterly course through the Dharmagarh sub-division, it instantly takes a more northerly direction after its junction with Sagada until it meets the Udanti on its left bank. About eight kilometres from this point of confluence, it runs almost northeast and forms the boundary between Bolangir and Kalahandi for a fairly long distance and then enters Bolangir near Risida-Kumbharpada. The bed of this river is generally sandy; it is more observable from breadth than depth. Its water, through decreases very much during the hot season, does not entirely dry up. The river Tel has almost all the important feeders on its right side in the District while the only important feeder namely Udanti is on the left side.

Ret: - Ret is the most important feeder of Tel. It rises from the hill track of Biswanathpur Range near Bori reserve forest then passes through Bhawanipatna range area and ultimately joins Tel near Bahadurpadar of Kesinga range. It receives waters through a number of nalas in its course. Besides Bori reserve forest Machul, Raul, Dulma forest block come within its catchment. In addition it receives waters through a number of nalas like Daren and Luna nala originating from Madakhola 'B' RF of Bhawanipatna range, Phatamunda originating from Bazargarh RF of Kesinga range. This river is almost confined to Biswanathpur, Bhawanipatna and Kesinga range.

Utei: - It rises from the hill tracks of Baliguda Forest Division of Kandhamal District and enters Kalahandi North Division near Nagjhari of Narla range. It joins with river Tel near a place called Belkhandi under Kesinga range. In the confluence of Tel and Utei the famous Siva Temple is existing. It is a place of eco-tourism importance. This river Utei has the catchment spreading over major forest blocks like Urladani, Taparang, Bhatel, Sadel 'A' and Turchi RF of both Madanpur Rampur and Narla range of Kalahandi North Division.

Raul: - Like Utei, it owes its origin from the hill tracks of Baliguda Forest Division of Kandhamal District and passes through Urladani, Taparang and Sunamukhi RF of both Narla and M.Rampur range of Kalahandi North Division and then enters the district of Bolangir near Sikerkupa RF after which it joins with river Tel near Birmunda. The flow of water in this river is very good even during summer season.

Budha: - It has the same origin like Utei and Raul but it enters the Kalahandi District near Lahidi of Madanpur Rampur range after passing through Telen, Puijhari and Taparang forest block of the same range it joins with river Raul near Sankush where there is an ancient Siva Temple. This place is of unique importance form eco-tourism aspect.

Sandul: - It rises from the hill tracks of Biswanathpur range near Kiding and Sikerguda forest block after passing through Narla range, it joins river Utei prior to Belkhandi of Kesinga range. This river receives the water from a number of nalas like Pirchu originating from Kerbandi of Narla range, Chepulnala originating from Kadalighati RF of Bhawanipatna range, Matulnala starting from Chatamahul of Kesinga range, Maskutinala starting from Bazargarh RF Kesinga range, Sindhi nala from Kerbandi RF of Narla range, Bar nalla from Kamei RF of Narla range, Jamparanala starting from Narla PRF of Narla range.

Hati: - It starts from hill tracks of Jaipatna range near Pandi PRF and then passes through plain area of Junagarh range where it joins with river Tel near Amathula. This river also getting the backward discharge water of Upper Indravati Project for which there is a good flow of water through the year. During rainy season it poses serious problem, disrupting the road connectivity. It drains many forest blocks of Junagarh, Kegaon, Bhawanipatna and other ranges. These are Ghana, Panigaon, Pariagarh, Chura 'B', Kumkot, Daka, Brahmani, Dhanupanchan, Udayagiri, Singari, Jerka, Talchirka, Raktaboden, Dulkibandh, Bhalujore, Garjan, Balagaon etc.

Udanti: - This river is the only feeder of Tel on its right bank. Originating from the State of Chhatisgarh, it enters the District of Kalahandi through Kegaon range of Kalahandi North Division and joins the river Tel near Turkel under Bhawanipatna range of the same Division. Gojia, Lini, Ghatual, Bisibarni, Adabari and parts of Nageswar forest block under Kegaon range area situated in its catchment.

1.4.12: NALLAS: -

Besides the important rivers narrated above there are some important nallas, which are contributing a lot to the water resource of the District. During rainy season the flow is quite substantial whereas it reduces to tiny stream or sometimes dry up during summer. The few notable ones are described below.

Moter: - It drains the waters of Sahajkhol RF and joins the river Tel near Chilpa of Dharmagarh range.

Behera: - Like Moter it drains the waters of Sahajkhol RF and joins Moternalla near Nuagoda of Dharmagarh range ultimately to become a part of Tel river.

Sagada: - It originates from the hill tracks of Karlapat near Krishnamali PRF and joins the river Tel near Bargaon of Bhawanipatna range. This nalla also forms a natural boundary between Kalahandi North and South Division. GoelkhojGhati, Podhar, Thakuranipadar, Kanamanjur, Alma and Kuturkhai forest blocks are the main forest area in its catchment alongwithNehela and Karlapat forest block of Karlapat Sanctuary.

Bulat &Pipal: -Bulat rises at the Southern end of Gundi PRF of Bhawanipatna range and flows through Bhawanipatna town in a northwestern direction under the name of Pipalnalla. It ultimately joins Tel at Pandigaon near Karlapada of Bhawanipatna range.

Kholan: - It starts from Brahmani RF near Kholan of Bhawanipatna Range and joins the river Tel near Tentulipada of the same range.

Kaliganga: -It originates from hill tracks of Baliguda Forest Division of Kandhamal District and passes through a portion of Madanpur Rampur range of Kalahandi North Division receiving the waters of Sulia, Dengen forest block and then enters the Kandhamal District where joins with river Kharag. It also receives the water from another nalla called Banda originating from Baliguda Forest Division and draining the water of Sulia, Dengen forest block.

1.4.13 WATERSHED: -

The watershed is an important factor for the water resource. Much emphasis is given on the watershed to ensure proper water table and the perennial nature of the river streams. Though this District forms the parts of four river basin namely Mahanadi, Godavari, Nagavalli and Vansadhara, the Mahanadi river basin is the most important one occupying major portion of the District leaving aside the other three basins to very small areas. There are 31 watershed and 235 sub-watershed in the district. The number of mini and micro watershed of the District are furnished below in table no.1.8.

Table No.1.8

Sl.No.	Name of the Basin	No. of Mini Watershed	No. of Micro Watershed
1.	Mahanadi	442	1032
2.	Indravati	36	110
3.	Nagavalli	41	126
4.	Vansadhara	12	39
	Total: -	**531**	**1307**

1.4.14 Water Table: - The Water Table of the District at different places as recorded from the water levels of the wells located at various places by South Eastern Region, Bhubaneswar of Central Ground Water Board, Ministry of Water Resource, Government of India has been collected and Annexed in tabular form. This is the indicator of ground water table of the area.

1.4.15 Depth to Water Level (Pre-monsoon and Post-monsoon, 2011)

The depth to water level is measured from the National Hydrograph Stations situated in different blocks of the Kalahandi District. The Pre monsoon, 2011 water level data varies from 1.3 mbgl (Ranmalchak) to 9.4 mbgl(Dalguma). The depth to water level map of pre -monsoon, 2011 is displayed in Plate II. The depth to water level data of Post-monsoon, 2011 represents 0.84 mbgl (Ranmalchak) to 4.47 mbgl (Kesinga). Plate III represents depth to water level map of post –monsoon, 2011.

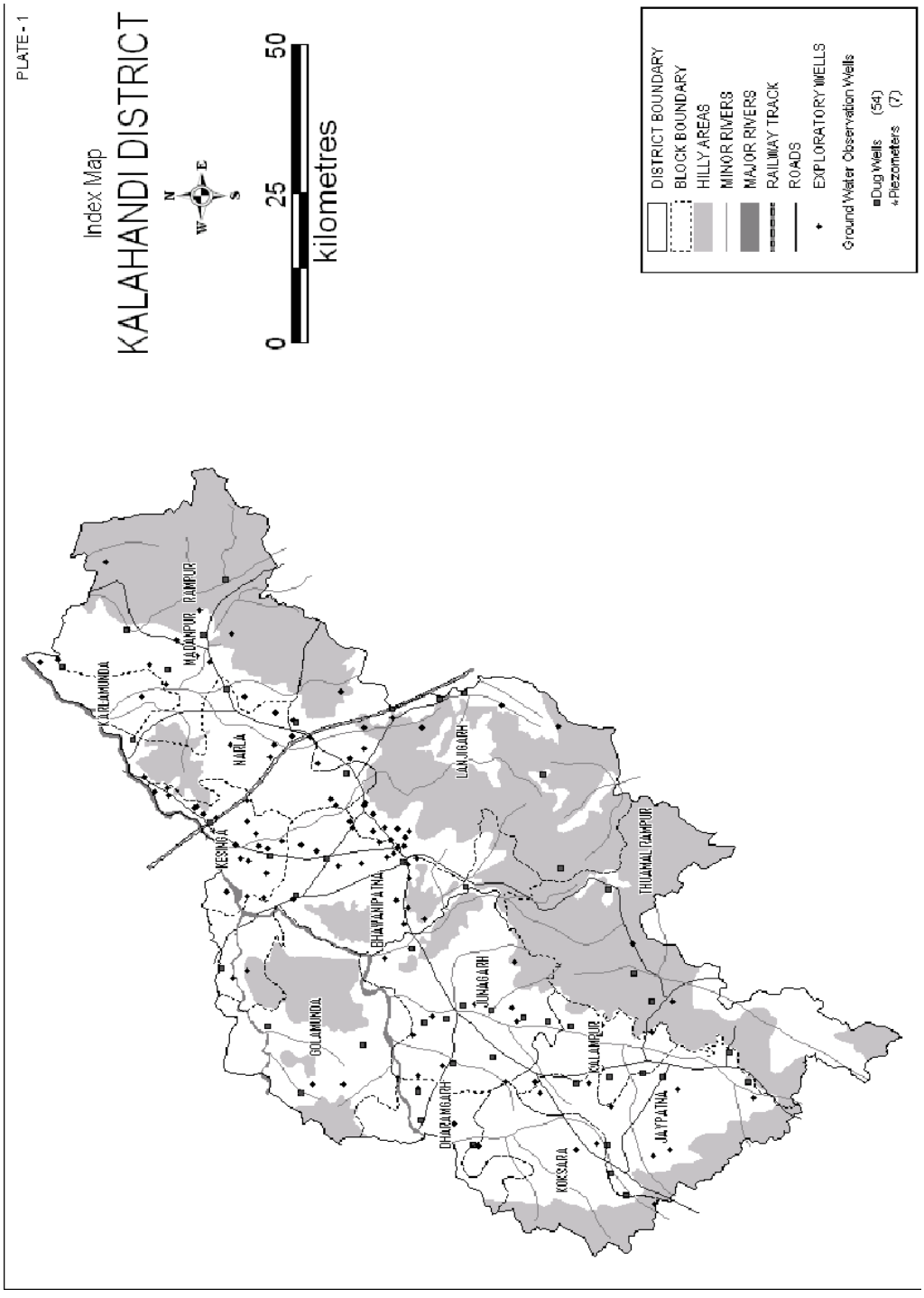
Seasonal Fluctuation

A study of the map reveals that in the major parts of the district fluctuation of the water table is in the range of 2m to 4m.The fluctuation ranges from 0.22- 6m. The seasonal fluctuation of ground water level is more than 4 meters in the northeastern hilly areas of the district (parts of Rampur Madanpur and Narla blocks). But valley and canal command areas show water level fluctuation within 2 meters.

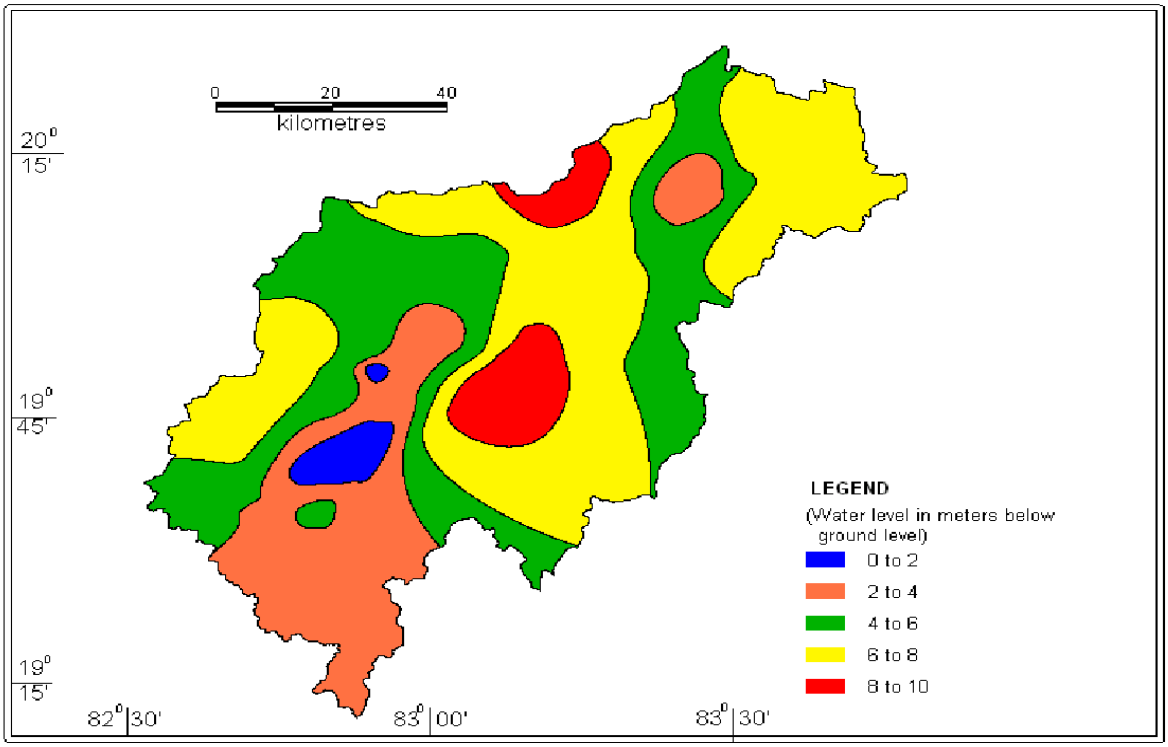
Water Conservation & Artificial Recharge

Kalahandi district is mostly traversed by Precambrian consolidated formations. The deeper water level of the order of 5-10 mbgl is observed in the northern part

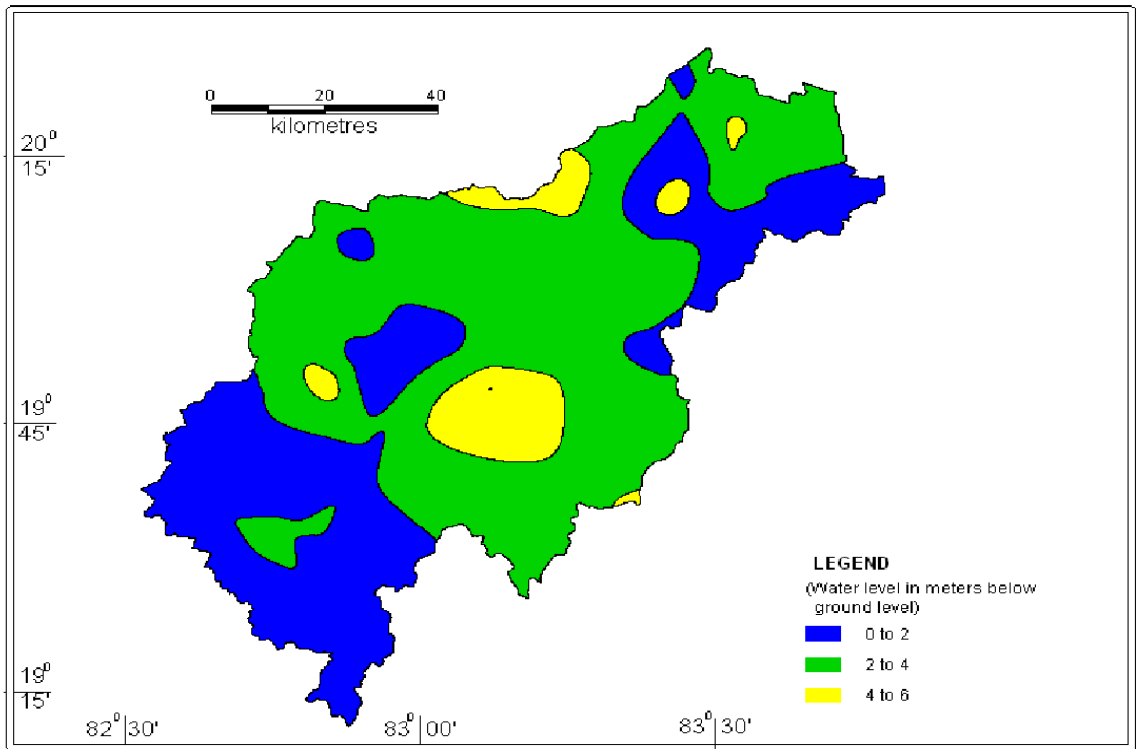
of Kalahandi district such as Badbasul , Dharamgarh , Jurakhaman , Kesinga , Thuamalrampur etc. At Dalguma , Gopalpur , Kesinga , Mukhiguda , Thuamalrampur the water level is deeper than 5mbgl. The data of water level of 10 years shows fall in the Golamunda , Junagarh , Koksara , Lanjigarh , Narla blocks during Post monsoon period. This is mainly due to prevailing topographic conditions and water table gradient, which facilitates flow of ground water through nalas and rivers and streams as base flows. To arrest the rapid decline of water table in these areas special studies may be taken up to pin point the areas where water scarcity problems are more pronounced during post monsoon and pre monsoon period. In these pockets suitable sites are required to be pin pointed to adopt artificial recharge techniques and rain water harvesting methods based on site specific conditions. This artificial recharge will also help in increase in storage and also in improving the quality of water etc. The most feasible artificial recharge and rain water harvesting structures are percolation tanks, nala /contour bonding, small check dams / weirs, renovation of old tanks to percolation tanks , subsurface dykes , water spreading, gully plugging, gabion structures. etc.



PRE-MONSOON DEPTH TO WATER LEVEL MAP OF KALAHANDI DISTRICT, ORISSA (APRIL-2011)



POST MONSOON DEPTH TO WATER LEVEL MAP OF KALAHANDI DISTRICT, ORISSA (NOVEMBER-2011)



CHAPTER-2

Maintenance/Increase in the extent of Forest and Tree Cover

2.1. Area of forests under different legal classes (RF, PF, UF and others):

Entire forest area under different legal classes (Reserve Forest, Protected Forest, Un-classed Forest, Village Forest, etc.) along with number and date of notification for creation of reserve/protected forest is given below in table no. 2.1

List of R.F.s in Kalahandi North Divison as per notification no. 9365-12-42(m)58 dt. 14.3.1959 of

Development Department, Govt. of Orissa.

Table No. 2.1

Sl.No	Name of the Range	Name of R.F	Area in Ha.as per Notification
1	Bhawanipatna	Alma	1360
2	Bhawanipatna	Brahmani	5919
3	Bhawanipatna	Dhangada dhangadi	229
4	Bhawanipatna	Dhanupanchan	726
5	Bhawanipatna	Kanamanjur	1902
6	Bhawanipatna	Kutrukhai	326
7	Bhawanipatna	Madhakhola (B)	597
8	Bhawanipatna	Pordhar	848
9	Bhawanipatna	Sinang	1221
10	Bhawanipatna	Bhalu	54
11	Bhawanipatna	Kadalighati	1725
12	Bhawanipatna	Madhakhola (A)	746
13	Kegaon	Adabari	921
14	Kegaon	Bisibarni	198
15	Kegaon	Chura (A)	7782
16	Kegaon	Chura (B)	2384
17	Kegaon	Daka	335
18	Kegaon	Ghatual	276
19	Kegaon	Gojia	347
20	Kegaon	Kumkot	5124
21	Kegaon	Lini	134
22	Kegaon	Nageswar	3020
23	Kesinga	Bazargarh	7987
24	Kesinga	Nangalguda	1488
25	M.Rampur	Dengen	476
26	M.Rampur	Jerka	1019
27	M.Rampur	Sadel (A)	273
28	M.Rampur	Sadel (B)	307
29	M.Rampur	Satami	1898
30	M.Rampur	Sunamukhi	2393
31	M.Rampur	Taparang	7181
32	M.Rampur	Telen	2660
33	M.Rampur	Turchi	257
34	M.Rampur	Benaguda	4974
35	M.Rampur	Bhatel	37

36	Narla	Porgel	1712
37	Narla	Kamei	156
38	Narla	Kerbandi	1231
39	Narla	Lumersinga	175
40	Narla	Narla	1293
41	Narla	Sripali	46
42	Narla	Urladani	10528
43	Narla	Karla Dangar	349
TOTAL: -			**82614**

Table No. 2.2

List of P.R.F. in Kalahandi North Division -				
Sl.No	**Name of the Range**	**Name of the Forest Block**	**Area as per Notification In Ha**	**Notification No./Dt**
1	M.Rampur	Podgudi	793.52	6963 Dt.14.02.70
2	M.Rampur	Ramud	597.07	66154 Dt.24.10.68
3	M.Rampur	Sulia	5668	28312 Dt.30.06.59
4	M.Rampur	Manikera	66.4	60267 Dt.03.09.80
5	M.Rampur	Mundramaska	750	66746 Dt.24.12.68
6	M.Rampur	Gochhadengen	346.34	28589 Dt.05.06.68
7	M.Rampur	Kutigudum	628	59937 Dt.02.09.80
8	M.Rampur	Talanuagaon	277.73	59933 Dt.02.09.80
9	M.Rampur	Puijhari	2251.21	35510 Dt.03.07.85
10	M.Rampur	Pongabaju	2331.91	22062 Dt.24.04.70
11	M.Rampur	Bidabaru (Harlanga)	1464.8	60252 Dt.03.09.80
12	Narla	Narla Extension	292.5	61749 Dt.14.09.84
13	Narla	Kamarda	444.6	59083 Dt.27.08.80
14	Narla	Porgel Extension	3222	28308 Dt.30.06.59
15	Narla	Badibahal	44.94	58786 dt.27.08.80
16	Bh.Patna	Gundi	6720.2	12694 dt.10.03.71
17	Narla	Sikerguda	358	59075 dt. 27.8.1984
18	Narla	Jamguda	107.4	58779 dt. 25.8.1980
	Total		**26364.62**	

Table No. 2.3

(I)List of D.P.F.s to be notified u/s 4 of OFA 1972-Kalahandi North Division			
Sl. No.	**Range**	**Name of Forest Block**	**Area in ha**
1	Kegaon	Jayantpur	199.2
2	-do-	Nasigaon	30.8
3	-do-	Sikuan	23.19
4	-do-	Kankeri (A)	32
5	-do-	Kankeri (B)	26.5
6	-do-	Sindabhadi	72.4
7	-do-	Ammuda	241.94
8	-do-	Patramara	132.72
9	-do-	Goilbindha	160
10	-do-	Banakdei	92.5

11	M.Rampur	Pudrimahul	303
12	-do-	Chandanpinda	298.25
13	-do-	Karla	432.11
14	Narla	Dengsur	255.06
15	-do-	Mundighati	88.2
16	Bhawanipatna	Thuapadar Gundi	9187.7
17	Narla	Barpati	148.67
18	Kegaon	Gandamer	70
19	Narla	Lamer	66
20	Narla	Belgaon	4230
21	Kegaon	Makardani	30.3
22	Kegaon	Baijalpur	72
23	Kegaon	Chanchermunda	73
24	Kegaon	Kirkakani	26
25	M.Rampur	Sulia Extn.	138.05
26	M.Rampur	Kuthiheju	208
27	M.Rampur	Sihidi	181.5
28	M.Rampur	Mugei	26.4
29	M.Rampur	Dengidonger	575.77
30	M.Rampur	Goutami	388
31	Bhawanipatna	Kadalighati Extn	68
32	Kesinga	Dumermunda	45.76
33	Kesinga	Biripura	332.8
34	Kesinga	Gudang	54.88
35	Kesinga	Turlakhaman	160
36	Kesinga	Laitara	83
37	Kesinga	Brahamanidonger	50.7
	Total		**18604.4**

Table No.2.4
II. List of UDPFs to be notified u/s 4 of OFA,1972 of Kalahandi North Division

Sl. No.	**Range**	**Name of Forest Block**	**Area in ha**
1	Kegaon	Kalamdei	3.2
	Total		**3.2**
Abstract:-			
DPF	37	18604.4	
UDPF	1	3.2	
Total	**38**	**18607.6**	

Table No.2.5
List of Village Forests in Kalahandi North Division

Sl.No	**Name of the Range**	**Name of Village Forest**	**Name of Tahasil**	**Name of G.P**	**Area in Ha.**	**Notification No. & Date.**
1	Bhawanipatna	Admunda	Bhawanipatna	Fatkamal	5	No.AFFN (SIDA) 96/91-22805 F&E dt.24.12.1991
2	-do-	-do-	-do-	-do-	5.0	-do-
3	-do-	-do-	-do-	-do-	10.0	-do-
4	-do-	Matia	-do-	Utkela	10	No.AFFN (SIDA) 6/92-3772 F&E dt.18.02.1992

5	-do-	Bhejipadar	-do-	Karlapada	8	-do-
6	-do-	Jajaldeipur	-do-	Dadpur	5.1	-do-
7	-do-	Jhikimiki	-do-	-do-	3.28	-do-
8	-do-	Dumerbahal	-do-	-do-	8.044	-do-
9	-do-	Khairbhadi	-do-	Deypur	3.6	-do-
10	-do-	Gopinathpur	-do-	-do-	2.0	-do-
11	-do-	Khairmal	-do-	-do-	5.0	-do-
12	-do-	Sarlanji	-do-	Medinipur	8.5	-do-
13	-do-	Bramhani	Bhawanipatna	Kandel	6	-do-
14	-do-	Jhikimiki	-do-	Dadpur	10	-do-
15	Kegaon	Daspur	Dharmagarh	Daspur	20	No.AFFN (SIDA) 6/92-676 F&E dt.08.01.1993
16	Kesinga	Jamjore	-do-	Gokuleswar	6	No.AFFN (SIDA) 6/92-3772 F&E dt.18.02.1992
17	-do-	Brahmani	-do-	Kandel	10	-do-
18	-do-	Jamjore	-do-	Gokuleswar	10	-do-
19	-do-	Dendrobahali	-do-	Rupra Road	3.6	-do-
20	-do-	-do-	-do-	-do-	5.0	-do-
21	-do-	Khairmal	-do-	Dalam	3	-do-
22	-do-	Palam	-do-	Palam	2	-do-
23	-do-	Matia	-do-	Utkela	2	-do-
24	-do-	Kurlupada	Bhawanipatna	NAC, Kesinga	1.96	No.AFFN (SIDA) 6/92-676 F&E dt.08.01.1993
25	-do-	Rengali	-do-	Balsi	11.36	-do-
26	-do-	Balsi	-do-	-do-	9.20	-do-
27	-do-	-do-	-do-	-do-	13.64	-do-
28	M.Rampur	Pipalbhadi	-do-	Pipalbhadi	6.22	No.AFFN (SIDA) 96/91-22805 F&E dt.24.12.1991
29	-do-	Saling	M.Rampur	Muskuti	5.2	No.AFFN (SIDA) 6/92-3772 F&E dt.18.02.1992
30	-do-	Kuten	-do-	Muskuti	0.948	-do-
Total: -					**199.65**	

The following areas are taken as pltn. as forest from Revenue land given to the Department on Ret Irrgn.project under CATP, proposal to be submitted to declare as PF

Table No. 2.6

Name of Range	**Plantation Site**	**Type**	**Area in Ha**	**Year of Plantation**	**Scheme**
Bhawanipatna	Adastala	50 (AR)	50	2012-13	CAMPA
	Barengdara	200(RDF)	200	2012-13	CAMPA
	Batua	300(RDF)	300	2013-14	CAMPA
	Jhikimiki B	100(RDF)	100	2013-14	MGNREGS
	Total		**650**		

The following proposed VFs are taken in the Plan due to plantations during plan period

Table No.2.7

Name of Range	Sl. No.	Name of VF	Area in ha. planted	Gross area in ha.	Year of pltn.	Name of scheme
	1	**2**	**3**	**4**	**5**	**6**
V.F.s						
Kesinga	1	Kumarpur	20	22	2011-12	13th FC
	2	Surujore	10	11	2011-12	13th FC
	3	Kantesir	20	22	2012-13	13th FC
	4	Ghantsola	10	11	2014-15	13th FC
	Total		**60**	**66**		
Narla	5	Nuapada	10	11	2011-12	13th fC
	6	Chapatkhanda	25	28	2013-14	MGNREGS
	Total		**35**	**39**		
Bh.patna	7	Dungripadar	10	11	2013-14	Bald hill(SP)
	8	Suben	20	22	2013-14	Bald hill(SP)
	9	Durla	10	11	2013-14	Bald hill(SP)
	10	Sagram	20	22	2013-14	Bald hill(SP)
	11	Kuhura	30	33	2013-14	Bald hill(SP)
	12	Goilbindha	10	11	2013-14	Bald hill(SP)
	Total		**100**	**110**		Bald hill(SP)
	13	Jhikimi A	15	17	2013-14	13th FC
	14	Salepali	20	22	2013-14	MGNREGS
	15	Dambarupadar	10	11	2013-14	MGNREGS
	16	Bhejapadar	20	22	2013-14	MGNREGS
	17	Kandakhal	10	11	2013-14	MGNREGS
	18	Dungripadar	10	11	2014-15	MGNREGS
	19	Saked	20	22	2014-15	Bald hill(SP)
	20	Kendugupka	10	11	2014-15	13th FC
	Total		**115**	**127**		
	G. Total		**310**	**342**		

Table No.2.8
List of RF Areas under management plan

Sl No	RANGE	Name of the Forest Block	Type	Area in ha	Area diverted (in ha)		Area under this plan in ha
					Under FRA	Under FC	
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	Bhawanipatna	Alma RF	RF	1360			1360
2	Bhawanipatna	Brahmani RF	RF	5919	72.10		5846.90
3	Bhawanipatna	Dhangada dhangadi RF	RF	229			229
4	Bhawanipatna	Dhanupanchan RF	RF	726			726
5	Bhawanipatna	Kanamanjur RF	RF	1902	87.64		1814.36
6	Bhawanipatna	Kutrukhai RF	RF	326	11.03		314.97
7	Bhawanipatna	Madhakhola (B) RF	RF	597			597
8	Bhawanipatna	Pordhar RF	RF	848	14.57		833.44

9	Bhawanipatna	Sinang RF	RF	1221	0.24		1220.7572
10	Bhawanipatna	Bhalu RF	RF	54			54
11	Bhawanipatna	Kadalighati RF	RF	1725		7.468	1717.53
12	Bhawanipatna	Madhakhola (A) RF	RF	746		1.215	744.79
13	Kegaon	Adabari RF	RF	921.00	225.07		695.94
14	Kegaon	Bisibarni RF	RF	198.00			198.00
15	Kegaon	Chura (A) RF	RF	7782.00	883.48		6898.52
16	Kegaon	Chura (B) RF	RF	2384.00	34.66		2349.34
17	Kegaon	Daka RF	RF	335.00	5.42		329.58
18	Kegaon	Ghatual RF	RF	276.00			276.00
19	Kegaon	Gojia RF	RF	347.00			347.00
20	Kegaon	Kumkot RF	RF	5124	286.6852		4837.3148
21	Kegaon	Lini RF	RF	134			134
22	Kegaon	Nageswar RF	RF	3020	603.7179		2416.2821
23	Kesinga	Bazargarh RF	RF	7987	210.89	54.89	7721.22
24	Kesinga	Nangalguda RF	RF	1488			1488
25	M.Rampur	Dengen RF	RF	476			476
26	M.Rampur	Jerka RF	RF	1019	4.2053		1014.7947
27	M.Rampur	Sadel (A) RF	RF	273			273
28	M.Rampur	Sadel (B) RF	RF	307			307
29	M.Rampur	Satami RF	RF	1898	3.775		1894.225
30	M.Rampur	Sunamukhi RF	RF	2393	53.3047		2339.6953
31	M.Rampur	Taparang RF	RF	7181	293.1931		6887.8069
32	M.Rampur	Telen RF	RF	2660			2660
33	M.Rampur	Turchi RF	RF	257			257
34	M.Rampur	Benaguda RF	RF	4974	45.7062		4928.2938
35	M.Rampur	Bhatel RF	RF	37			37
36	Narla	Porgel RF	RF	1712			1712
37	Narla	Kamei RF	RF	156			156
38	Narla	Kerbandi RF	RF	1231			1231
39	Narla	Lumersinga RF	RF	175			175
40	Narla	Narla RF	RF	1293			1293
41	Narla	Sripali RF	RF	46			46
42	Narla	Urladani RF	RF	10528	250.0968		10277.9032
43	Narla	Karladangar RF	RF	349			349
	Total			**82614**	**3085.7825**	**63.573**	**79464.6445**

Table No. 2.8.1
List of PRF Areas under management plan

Sl No	**RANGE**	**Name of the Forest Block**	**Type**	**Area in ha**	**Area diverted (in ha)**		**Area under this plan in ha**
					Under FRA	**Under FC**	
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	Bhawanipatna	Gundi PRF	PRF	6720.2	5.1711		6715.03
2	M.Rampur	Podgudi PRF	PRF	793.52			793.52

3	M.Rampur	Ramud PRF	PRF	597.07	49.978		547.092
4	M.Rampur	Sulia PRF	PRF	5668	50.663		5617.337
5	M.Rampur	Manikera PRF	PRF	66.4			66.4
6	M.Rampur	Mundramaska PRF	PRF	750			750
7	M.Rampur	Gochhadengen PRF	PRF	346.34			346.34
8	M.Rampur	Kutigudum PRF	PRF	628	249.893		378.107
9	M.Rampur	Talanuagaon PRF	PRF	277.73	100.2646		177.4654
10	M.Rampur	Puijhari PRF	PRF	2251.21	0		2251.21
11	M.Rampur	Pongabaju PRF	PRF	2331.91			2331.91
12	M.Rampur	Bidabaru (Harlanga) PRF	PRF	1464.8	0.185		1464.615
13	Narla	Narla Extension PRF	PRF	292.5			292.5
14	Narla	Kamarda PRF	PRF	444.6			444.6
15	Narla	Porgel Extension PRF	PRF	3222			3222
16	Narla	Badibahal PRF	PRF	44.94			44.94
17	Narla	Sikerguda PRF	PRF	358			358
18	Narla	Jamguda PRF	PRF	107.4			107.4
	Total			**26369.62**	**462.1547**	**7**	**25916.4653**

Table No. 2.8.2
List of DPF/UDPF Areas under management plan

Sl No	RANGE	Name of the Forest Block	Type	Area in ha	Area diverted (in ha)		Area under this plan in ha
					Under FRA	Under FC	
1	2	3	4	5	6	7	8
1	Bhawanipatna	Thuapadar Gundi DPF	DPF	9187.7			9187.7
2	Bhawanipatna	Kadalighati Extn DPF	DPF	68			68
3	Kegaon	Jayantpur DPF	DPF	199.2			199.2
4	Kegaon	Masigaon DPF	DPF	30.8			30.8
5	Kegaon	Sikuan DPF	DPF	23.19			23.19
6	Kegaon	Kankeri (A) DPF	DPF	32			32
7	Kegaon	Kankeri (B) DPF	DPF	26.5			26.5
8	Kegaon	Sindabhadi DPF	DPF	72.4			72.4
9	Kegaon	Ammuda DPF	DPF	241.94			241.94
10	Kegaon	Patramara DPF	DPF	132.72			132.72
11	Kegaon	Goilbindha DPF	DPF	160			160
12	Kegaon	Banakdei DPF	DPF	92.5			92.5
13	Kegaon	Gandamer DPF	DPF	70			70
14	Kegaon	Makardani DPF	DPF	30.3			30.3
15	Kegaon	Baijalpur DPF	DPF	72			72
16	Kegaon	Chanchermunda DPF	DPF	73			73
17	Kegaon	Kirkakani DPF	DPF	26			26
18	Kegaon	Kalamdei	UDPF	3.2			3.2
19	Kesinga	Dumermunda DPF	DPF	45.76			45.76
20	Kesinga	Biripura DPF	DPF	332.8			332.8
21	Kesinga	Gudang DPF	DPF	54.88			54.88

22	Kesinga	Turlakhaman DPF	DPF	160			160
23	Kesinga	Laitara DPF	DPF	83			83
24	Kesinga	Brahamanidonger DPF	DPF	50.7			50.7
25	M.Rampur	Pudrimahul DPF	DPF	303	0		303
26	M.Rampur	Chandanpinda DPF	DPF	298.25			298.25
27	M.Rampur	Karla DPF	DPF	432.11			432.11
28	M.Rampur	Sulia Extn. DPF	DPF	138.05			138.05
29	M.Rampur	Kuthiheju DPF	DPF	208			208
30	M.Rampur	Sihidi DPF	DPF	181.5			181.5
31	M.Rampur	Mugei DPF	DPF	26.4			26.4
32	M.Rampur	Dengidonger DPF	DPF	575.77			575.77
33	M.Rampur	Goutami DPF	DPF	388			388
34	Narla	Barpati DPF	DPF	148.67			148.67
35	Narla	Dengsur DPF	DPF	255.06			255.06
36	Narla	Mundighati DPF	DPF	88.2			88.2
37	Narla	Lamer DPF	DPF	66			66
38	Narla	Belgaon DPF	DPF	4230	403.006		3826.994
	Total			**18607.6**	**403.006**	**0**	**18204.594**

Table No. 2.8.3

List of VF Areas under management plan

Sl No	RANGE	Name of the Forest Block	Type	Area in ha	Area diverted (in ha)		Area under this plan in ha
					Under FRA	Under FC	
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	Bhawanipatna	Admunda VF	VF	5			5
2	Bhawanipatna	-do-	VF	5			5
3	Bhawanipatna	-do-	VF	10			10
4	Bhawanipatna	Matia VF	VF	10			10
5	Bhawanipatna	Bhejipadar VF	VF	8			8
6	Bhawanipatna	Jajaldeipur VF	VF	5.1			5.1
7	Bhawanipatna	Jhikimiki VF	VF	3.28			3.28
8	Bhawanipatna	Dumerbahal VF	VF	8.044			8.044
9	Bhawanipatna	Khairbhadi VF	VF	3.6			3.6
10	Bhawanipatna	Gopinathpur VF	VF	2			2
11	Bhawanipatna	Khairmal VF	VF	5			5
12	Bhawanipatna	Sarlanji VF	VF	8.5			8.5
13	Bhawanipatna	Bramhani VF	VF	6			6
14	Bhawanipatna	Jhikimiki VF	VF	10			10
15	Bhawanipatna	Dungripadar	Proposed VF	22			22
16	Bhawanipatna	Suben	Proposed VF	22.00			22.00
17	Bhawanipatna	Durla	Proposed VF	11.00			11.00
18	Bhawanipatna	Sagram	Proposed VF	22.00			22.00
19	Bhawanipatna	Kuhura	Proposed VF	33.00			33.00
20	Bhawanipatna	Goilibindha	Proposed VF	11.00			11.00
21	Bhawanipatna	Saked	Proposed VF	22.00			22.00
22	Bhawanipatna	Kendugupka	Proposed VF	11.00			11.00
23	Bhawanipatna	Jhikimi A	Proposed VF	17.00			17.00

24	Bhawanipatna	Salepali	Proposed VF	22.00			22.00
25	Bhawanipatna	Dambarupadar	Proposed VF	11.00			11.00
26	Bhawanipatna	Bhejapadar	Proposed VF	22.00			22.00
27	Bhawanipatna	Kandakhal	Proposed VF	11.00			11.00
28	Kegaon	Daspur	VF	20			20
29	Kesinga	Jamjore VF	VF	6			6
30	Kesinga	Brahmani VF	VF	10			10
31	Kesinga	Jamjore VF	VF	10			10
32	Kesinga	Dendrobahali VF	VF	3.6			3.6
33	Kesinga	-do-	VF	5			5
34	Kesinga	Khairmal VF	VF	3			3
35	Kesinga	Palam VF	VF	2			2
36	Kesinga	Matia VF	VF	2			2
37	Kesinga	Kurlupada VF	VF	1.96			1.96
38	Kesinga	Rengali VF	VF	11.36			11.36
39	Kesinga	Balsi VF	VF	9.2			9.2
40	Kesinga	-do-	VF	13.64			13.64
41	Kesinga	Kumarpur	Proposed VF	22			22
42	Kesinga	Surujore	Proposed VF	11			11
43	Kesinga	Kantesir	Proposed VF	22			22
44	Kesinga	Ghantsola	Proposed VF	11			11
45	M.Rampur	Pipalbhadi VF	VF	6.22			6.22
46	M.Rampur	Saling VF	VF	5.2			5.2
47	M.Rampur	Kuten VF	VF	0.948			0.948
48	Narla	Nuapada	Proposed VF	11			11
49	Narla	Chapatkhanda	Proposed VF	28			28
	Total			**541.652**	**0**	**0**	**541.652**

Table No. 2.8.4
List of Proposed PF and CA Areas under management plan

Sl No	**RANGE**	**Name of the Forest Block**	**Type**	**Area in ha**	**Area diverted (in ha)**		**Area under this plan in ha**
					Under FRA	**Under FC**	
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
16	Bhawanipatna	Adastala	Proposed PF	50			50
17	Bhawanipatna	Baringdar	Proposed PF	200			200
18	Bhawanipatna	Batua	Proposed PF	300			300
19	Bhawanipatna	Jhikimi B	Proposed PF	100			100
34	Bhawanipatna	Upper Gochhakola	CA	436			436
	Total			**1086**	**0**	**0**	**1086**

Table no. 2.9
Range wise area under management plan -Kalahandi North Division

Bhawanipatna range:

R.F.

Sl.no.	**Name of range**	**Name of forest block**	**Area in ha**
1	Bhawanipatna	Alma	1360
2	Bhawanipatna	Brahmani	5846.8964

3	Bhawanipatna	Dhangada dhangadi	229
4	Bhawanipatna	Dhanupanchan	726
5	Bhawanipatna	Kanamanjur	1814.3595
6	Bhawanipatna	Kutrukhai	314.9721
7	Bhawanipatna	Madhakhola (B)	597
8	Bhawanipatna	Pordhar	833.435
9	Bhawanipatna	Sinang	1220.7572
10	Bhawanipatna	Bhalu	54
11	Bhawanipatna	Kadalighati	1717.532
12	Bhawanipatna	Madhakhola (A)	744.785
	Total		**15458.74**
PRF			
1	Bh.Patna	Gundi	6715.0289
DPF/UDPF			
1	Bhawanipatna	Thuapadar Gundi	9187.7
2	Bhawanipatna	Kadalighati Extn	68
	Total		**9255.7**
Proposed DPF/UDPF			
1	Bhawanipatna	Adastala	50
2	Bhawanipatna	Baringdar	200
3	Bhawanipatna	Batua	300
4	Bhawanipatna	Jhikimi B	100
		Total	**650**
Village Forests:-			
1	Bhawanipatna	Admunda	5
2	-do-	-do-	5
3	-do-	-do-	10
4	-do-	Matia	10
5	-do-	Bhejipadar	8
6	-do-	Jajaldeipur	5.1
7	-do-	Jhikimiki	3.28
8	-do-	Dumerbahal	8.044
9	-do-	Khairbhadi	3.6
10	-do-	Gopinathpur	2
11	-do-	Khairmal	5
12	-do-	Sarlanji	8.5
13	-do-	Bramhani	6
14	-do-	Jhikimiki	10
		Total	**89.524**
Compensatory Afforestation. :-			
1	Bhawanipatna	Upper Gochhakola	**436**
Proposed VF:-			
1	Bhawanipatna	Dungripadar	22
2		Suben	22
3		Durla	11
4		Sagram	22
5		Kuhura	33

6		Goilibindha	11
7		Saked	22
8		Kendugupka	11
9		Jhikimi A	17
10		Salepali	22
11		Dambarupadar	11
12		Bhejapadar	22
13		Kandakhal	11
		Total	**237**
Bhawanipatna range-abstract		**No. of blocks**	**Area in ha**
1.	**RF**	12	**15458.74**
2.	**PRF**	1	6715.0289
3.	**DPF/UDPF**	2	9255.7
4.	**VF**	14	**89.524**
5.	**C.Affn.**	1	436
6.	**Proposed DPF/UDPF**	4	650
7.	**Proposed VF:-**	13	237
	Total	**47**	**32841.99**
Kegaon Range:			
R.F.			
1	Kegaon	Adabari	695.935
2	Kegaon	Bisibarni	198
3	Kegaon	Chura (A)	6898.5179
4	Kegaon	Chura (B)	2349.3415
5	Kegaon	Daka	329.5771
6	Kegaon	Ghatual	276
7	Kegaon	Gojia	347
8	Kegaon	Kumkot	4837.3148
9	Kegaon	Lini	134
10	Kegaon	Nageswar	2416.2821
	Total		**18481.9684**
PRF			**0**
DPF/UDPF			
1	Kegaon	Jayantpur	199.2
2	Kegaon	Nasigaon	30.8
3	Kegaon	Sikuan	23.19
4	Kegaon	Kankeri (A)	32
5	Kegaon	Kankeri (B)	26.5
6	Kegaon	Sindabhadi	72.4
7	Kegaon	Ammuda	241.94
8	Kegaon	Patramara	132.72
9	Kegaon	Goilbindha	160
10	Kegaon	Banakdei	92.5
11	Kegaon	Gandamer	70
12	Kegaon	Makardani	30.3
13	Kegaon	Baijalpur	72
14	Kegaon	Chanchermunda	73
15	Kegaon	Kirkakani	26
16	Kegaon	Kalamdei	3.2
	Total		**1285.75**
V.F.			
1	Kegaon	Daspur	**20**

Kegaon range-abstract		No. of blocks	Area in ha
	RF	10	18481.9684
	PRF	0	0
	dpf/udpf	16	1285.75
	VF	1	20
	C.Affn.	0	0
	Total	**27**	**19787.7184**

Kesinga range:

RF			
1	Kesinga	Bazargarh	7721.22
2	Kesinga	Nangalguda	1488
	Total		**9209.22**
PRF			**0**
DPF/UDPF			
1	Kesinga	Dumermunda	45.76
2	Kesinga	Biripura	332.8
3	Kesinga	Gudang	54.88
4	Kesinga	Turlakhaman	160
5	Kesinga	Laitara	83
6	Kesinga	Brahamanidonger	50.7
	Total		**727.14**
V.F.			
1	Kesinga	Jamjore	6
2	-do-	Brahmani	10
3	-do-	Jamjore	10
4	-do-	Dendrobahali	3.6
5	-do-	-do-	5
6	-do-	Khairmal	3
7	-do-	Palam	2
8	-do-	Matia	2
9	-do-	Kurlupada	1.96
10	-do-	Rengali	11.36
11	-do-	Balsi	9.2
12	-do-	-do-	13.64
	Total		**77.76**
Proposed V.F.s			
1	Kesinga	Kumarpur	22
2	Kesinga	Surujore	11
3	Kesinga	Kantesir	22
4	Kesinga	Ghantsola	11
	Total		**66**
Kesinga range-abstract		**No. of blocks**	**Area in ha**
	RF	2	9209.22
	PRF	0	0
	dpf/udpf	6	727.14
	VF	12	77.76
	C.Affn.	0	0
	proposed V.F.s	4	66
	Total	**24**	**10080.12**

M.Rampur range			
R.F.			
1	M.Rampur	Dengen	476
2	M.Rampur	Jerka	1014.795
3	M.Rampur	Sadel (A)	273
4	M.Rampur	Sadel (B)	307
5	M.Rampur	Satami	1894.225
6	M.Rampur	Sunamukhi	2339.6953
7	M.Rampur	Taparang	6887.8069
8	M.Rampur	Telen	2660
9	M.Rampur	Turchi	257
10	M.Rampur	Benaguda	4928.2938
11	M.Rampur	Bhatel	37
	Total		**21074.82**
PRF			
1	M.Rampur	Podgudi	793.52
2	M.Rampur	Ramud	547.092
3	M.Rampur	Sulia	5617.337
4	M.Rampur	Manikera	66.4
5	M.Rampur	Mundramaska	750
6	M.Rampur	Gochhadengen	346.34
7	M.Rampur	Kutigudum	378.107
8	M.Rampur	Talanuagaon	177.4654
9	M.Rampur	Puijhari	2251.21
10	M.Rampur	Pongabaju	2331.91
11	M.Rampur	Bidabaru (Harlanga)	1464.615
	Total		**14724**
DPF/UDPF			
1	M.Rampur	Pudrimahul	303
2	-do-	Chandanpinda	298.25
3	-do-	Karla	432.11
4	M.Rampur	Sulia Extn.	138.05
5	M.Rampur	Kuthiheju	208
6	M.Rampur	Sihidi	181.5
7	M.Rampur	Mugei	26.4
8	M.Rampur	Dengidonger	575.77
9	M.Rampur	Goutami	388
	Total		**2551.08**
V.F			
1	M.Rampur	Pipalbhadi	6.22
2	-do-	Saling	5.2
3	-do-	Kuten	0.948
	Total		**12.368**
M.Rampur Range-abstract		**no. of blocks**	**area in ha**
	RF	11	**21074.82**
	PRF	11	**14724**
	dpf/udpf	9	**2551.08**
	VF	3	12.368
	C.Affn.	0	0
	Total	**34**	**38362.26**

Narla range:			
R.F.			
1	Narla	Porgel	1712
2	Narla	Kamei	156
3	Narla	Kerbandi	1231
4	Narla	Lumersinga	175
5	Narla	Narla	1293
6	Narla	Sripali	46
7	Narla	Urladani	10277.9032
8	Narla	Karladangar	349
	Total		**15239.9032**
PRF			
1	Narla	Narla Extension	292.5
2	Narla	Kamarda	444.6
3	Narla	Porgel Extension	3222
4	Narla	Badibahal	44.94
5	Narla	Sikerguda	358
6	Narla	Jamguda	107.4
	Total		**4469.44**
DPF/UDPF			
1	Narla	Barpati	148.67
2	Narla	Dengsur	255.06
3	-do-	Mundighati	88.2
4	Narla	Lamer	66
5	Narla	Belgaon	3826.994
	Total		**4384.924**
V.F.			**0**
Proposed V.F.s			
1	Narla	Nuapada	11
2	Narla	Chapatkhanda	28
	Total		**39**
Narla range-abstract		**No. of blocks**	**Area in ha**
	RF	8	**15239.90**
	PRF	6	4469.44
	DPF/UDPF	5	**4384.924**
	VF	0	0
	C.Affn.	0	0
	Proposed V.F.s	2	39
	Total	**21**	**24133.264**
Division total -abstract :-			
	RF	43	79464.6484
	PRF	18	25908.47
	DPF/UDPF	38	18204.59
	VF	30	199.652
	C.Affn. *	1	436
	Proposed DPF/UDPF	4	650
	Proposed VF	19	342
	Total	**153**	**125205.36**

* **The CA land to be declared as Protected Forest.**

2.1.1 Legal Position:-

2.1.1.1 The Forest of Kalahandi was earlier managed by the Princely State of Kalahandi having its own rule and regulation. After the merger of this princely state to Orissa during 1948, the control and management of these forests vested with the Government of Orissa. During 1959 the then Development Department under which the Forest was included issued and notification vide No.9365-12F-42(M/2) 58-D dt.14.03.1959 published in Orissa gazette declaring the reserve forests of Princely State of Kalahandi before merger as the reserve forest, the list of such 43 no.s of forest block has been furnished vide **Appendix-III**.

2.1.1.2 38 nos. of forest blocks for which process has been initiated for notification u/s-4 of Orissa Forest Act but has been included in the purview of this working plan in view of its inclusion in the previous working plan. List of such forest blocks is furnished at **Appendix-IV**. Besides proposals to be submitted for 4 nos. of plantation areas as per table no.2.6 and 20 nos. of Revenue forest land as per table no.2.7 where plantation has been done to declare those as protected forest.

2.1.1.3 The forest settlement work in Kalahandi is not encouraging. Since the merger of this Princely State into Orissa, no area has been declared as reserve forest in spite of repeated effort in this regard. However, it is emphasized to pursue the matter constantly till the final notification U/S-21 of Orissa Forest Act. The CA land to be declared as PF. The lists of such pendency of forest settlement work for North Division has been furnished separately vide **Appendix-V**

2.1.1.4 30 nos. of Village Forest has been declared under the provisions of Orissa Village Forest Rules-1985 for the plantations raised under Social Forest Project. The list of such forest blocks is furnished at **Appendix-VI.**

2.1.1.5 The Orissa Forest Act-1972 and various rules frame under it are applicable to all the forest blocks. The Wildlife Protection Act and Rules, the Forest Conservation Acts and Rules are applicable along with other related rules in vogue.

2.1.2 Rights and Concessions:-

2.1.2.1 Apart from the customary rights as provided in Orissa Forest Acts and Rules frame there under, the most important right provided to the villagers is the usufructuary benefits under JFM resolution No.16700-10-F(Pron)-20/93 F&E, Govt. of Orissa dt.3rd July 1993.

2.1.2.2 Subject to discharge of duties and responsibility as laid down in the resolution, Vana Sarankshyana Samiti will enjoy the usufruct like leaves, fodder, grasses, thatch grasses, broom grasses, thorny fencing material, brush wood and fallen lops and tops and twigs used as fuel wood free of cost. Other usufructs like leases out minor forest produce, kendu leaves etc., can be collected by the members, but these will have to be delivered to the Departmental agency/lessee against payment of prescribed wages for the collection and delivery.

2.1.2.3 All intermediate yields in shape of small wood, poles, firewood etc. as may be obtained in silvicultural operations will be equitably distributed among the members by the executive committee.

2.1.2.4 Timber and poles are may be obtained from a major harvest or final feeling shall be shared between the Forest Department and the Vana Samrakshyana Samiti in equal shares. The executive committee on behalf of the Samiti will have the option either to distribute the said 50% of

the total produce among the members of the Samiti in equal shares or to request the Forest Department to dispose off the same and make the net sale-proceeds available for distribution in cash among the members.

2.1.2.5 After lifting of the moratorium on tree felling from Government forest vide letter No.10F(TR)-26/2003-16498/F&E dt.Bhubaneswar 20.09.2005 of Government of Orissa, Forest and Environment Department, working of timber coupe has been started since dt.01.10.2005 in both the Divisions of Kalahandi. Further, while formulating a procedure for assessment of royalty in respect of regular timber coupes vide Notification No.6F-(B)-12/2006-7420/F&E, Bhubaneswar dt.08.05.2006, the copy of which furnished at **Appendix-VII**, the Government of Orissa in Forest and Environment Department have directed all firewood and 30% of out turn of the timber received at central depots, Sal be kept for local retail sale. The C.M.D., OFDC Ltd. shall make suitable regulation in the sale policy to ensure that retail sale provisions are not misused by the unscrupulous elements for wrongful gains. While working out sale rates for supply of timber/sawn sizes, the basis shall be Rs.200/- per cft in the girth of 3 to 4 feet for the sound Sal logs. However, the sawn sizes/higher girth class round timber, appropriate sale rates shall be fixed by OFDC Ltd. on this basis. For retail sale, the maximum quantity shall be 1 cum timber in 12 months for one family.

2.1.2.6 OFDC Ltd. shall make available sawn sized timber to local public. However, if this is not available readily, then the same be made available within a specific time period on advance payment. In places, where OFDC Ltd. and do not have sawing facility of their own, rate for supply of sawn timber is to be notified in the depots for information of the public.

2.1.2.7 There is also provision to supply bamboo to the local artisans and tenants preferably at the doorstep of the group at price below Rs.10/- per piece by OFDC Ltd. as per the decisions of the Empowered Committee on Bamboo in their meeting held on dt.30.09.2004 communicated vide Government of Orissa, Forest and Environment Department letter No.6F(A)10/2004/F&E dt.06.01.2005 the copy of which is enclosed vide **Appendix-VIII**.

2.1.2.8 Control grazing is allowed as per the prescription of the working plan and under provisions of the Orissa Forest (grazing of cattle) Rules-1980.

2.1.3 Forest Right Act, 2006 :-

The status of implementation of the Forest Right Act, 2006 reveals that 2511.085 Ac of Forest land of different categories have been allotted to 939 nos. of individual titles and 7208.064 Acre of forest land of different categories allotted to 44 nos. community forest title holder in Kalahandi North Division. The detailed area statement is attached in **Appendix- IX.**

2.2 Forest area under different working circle/management plan Range wise entire forest area is covered under WP/ management plan.

Table no.2.10

The nos. of forest bocks in outgoing plan and future plan are furnished below.

Gist of Forests	As per ongoing working plan of Sri J.S.Mohanty		Proposed Working Plan area after deducting FC & FRA Area	
	No.s	**Area in ha.**	**Nos.**	**Area in ha.**
R.F.	43	82614.00	43	79464.65
P.R.F.	16	25790.82	18	25908.47
VF	30	199.652	49	541.65
DPF/UDPF/Proposed PF	16	11575.60	42	18854.59
CA	-	-	1	436.0
Unclassed Forest *	-	5.06	-	8.371
Total	**105**	**120180.072**	**153**	**125205.36**

***The area under unclassed forest in this plan is 20.685 acre or 8.371 ha. The details are in Appendix-X. The area is not added in Management Plan.**

*** The DLC area in respect of Kalahandi North Division is 8359.84 Ha. which is annexed in a separate volume.**

2.2.1 Two Nos of PRFs Sikerguda – 358 ha and Jamguda 107.4 ha came to the Working Plan Management of Kalahandi North Division from Kalahnadi South Division WP, since actual management of these PRFs remained in Narla range.

2.2.2 For the purpose of revised working plan, forest area of **125205.36** ha. have been taken into account i.e. 63.57 ha in RF diverted under FC Act,1980, 3944.943 Ha in different forest blocks were given under Scheduled Tribes & other Traditional Forest Dwellers (Recognition of Forest Rights) Act,2006 and rules made there upon in both individual and community rights and Unclassified forest of 8.371 ha excluded from management plan. In the last plan of Sri J.S. Mohanty, it was 120180.07 ha. Inclusion of additional DPF/UDPF/VF and area under Compensatory Afforestation/Plantations are taken into account in the revised plan. So there is increase in the nos. of DPF/UDPF/VF (PFs not notified) & area under the plan, the details of which have already been furnished above. The Range wise distribution of forest block with their area in the future Management Plan is furnished below.

Table no.2.12

Abstract of Area statement of Kalahandi North Division in the Management Plan

Sl. No.	Legal status of the forest blocks	Name of the Range										Total area in Ha.	
		Bhawanipatna		Kesinga		Kegaon		Narla		M.Rampur			
		No. of block	Area in Ha.	No. of block	Area in Ha.	No. of block	Area in Ha.	No. of block	Area in Ha.	No. of block	Area in Ha.	No. of block	Area in Ha
1.	Reserve Forest	12	15458.74	02	9209.22	10	18481.9684	08	15239.90	11	21074.82	**43**	**79464.65**
2.	PRF notified u/s-4	01	6715.0289	00	00	00	00	06	4469.44	11	14724	**18**	**25908.47**
3.	PRF not notified u/s-4	02	9255.70	06	727.14	16	1285.75	05	4384.92	09	2551.08	**38**	**18204.59**
4.	Village forest notified	14	89.524	12	77.76	01	20.00	00	00	03	12.368	**30**	**199.65**
5.	PFs not notified (C.Affn.&Pltns)	18	1323.00	04	66.00	00	00	02	39.00	00	00	**24**	**1428**
Total: -		**47**	**32841.99**	**24**	**10080.12**	**27**	**19787.72**	**21**	**24133.26**	**34**	**38362.27**	**153**	**125205.36**

Table no.2.13

The Range wise and working circle wise areas distributed under the Management plan is furnished as under –

Name of the Range	Plan Area	Selection-WC	Rehabilitation WC	Plantation WC	Bamboo (O) WC	Protection (O) WC	NTFP (O) WC	WL (O) WC	JFM (O) WC	SWC(O) WC
M.Rampur	38362.27	33233.85	4801.05	327.37	23303.59	33234.05	38362.26	38350.10	(6176.68+*2014.03) = 8190.71	2430
Narla	24133.26	12244.96	11560.30	328.00	12798.35	12244.96	24133.27	24094.27	(5063.80+*749.79) = 5813.59	1465
Bh.patna	32841.99	0	29731.47	3110.52	21074.90	0	32841.99	29440.49	(10344.31+*2050.22) = 12394.53	1900
Kegaon	19787.72	0	17189.22	2598.50	8975.23	2416.28	19787.72	17997.75	(9808.48+*512.93) = 10321.41	1580
Kesinga	10080.12	0	9311.36	768.76	0	0	10080.12	9936.36	(4895.57+*1537.62) =6433.19	600
Total: -	**125205.36**	**45478.81**	**72593.40**	**7133.15**	**66152.07**	**47895.29**	**125205.36**	**119818.97**	**(36288.84+*6864.58) = 43153.43**	**7975**
% to Plan area	**100**	**36.32**	**57.98**	**5.7**	**52.83**	**38.25**	**100**	**95.7**	**34.47**	**6.37**

- ***JFM area under revenue forests.**

2.3 Percentage of forest with secured boundaries:-

2.3.1 The area of both Kalahandi North and South Division being coterminous with that of Kalahandi Revenue District, it is bound by Bolangir, Kandhamal, Rayagada, Nawrangpur and Nuapada District of our State and Raipur District of Chhatisgarh. A small portion of Kegaon range of Kalahandi North Division and some portion of Dharmagarh range of Kalahandi South Division form the state boundary with Chhatisgarh State. Forest Blocks like Sahajkhol RF of Kalahandi South Division and Nageswar RF of North Division form the inter-state boundary with Indakoiba RF of Udanti Forest Division of Chhatisgarh State. There is a tri-junction on the boundary of Kalahandi and Nuapada District of Orissa with Raipur district of Chhatisgarh near village Gudurguma of Kegaon range. The inter-state boundary is demarcated with pillars. There is no dispute reported during last plan period with regard to the inter-state boundary.

2.3.2 Much emphasis has not been given on inter district and inter division boundaries in view of no dispute so far reported to this effect. The river Tel forms natural boundary between Kalahandi and Bolangir District over a considerable length. Similarly, river Indravati also forms a common boundary to some extent. Sagada nalla forms a natural boundary between both Kalahandi North and South Division. There is some inconvenience with regard to the boundary between North and South Division of Kalahandi pertaining to Narla and Biswanathpur ranges respectively. This has been taken care of by including Sikerguda and Jamguda PRF in Narla range of Kalahandi North Division taking the same from Biswanathpur range of Kalahandi South Division. This has resulted the change in the forest area of both the Divisions as decided during re-organisation.

2.3.3 The boundaries of most of the forest blocks have been generally demarcated by pillars of stone cairn and at some places masonry pillars. At many places Revenue Department has also fixed stone pillars by the side of Forest Department pillars. The condition of the stone cairns is deteriorating over long period. During recent years many masonry pillars have been constructed replacing those stone pillars. Efforts should be made to ensure the replacement of stone cairns by masonry pillars in a phased manner. 38nos. of forest blocks not notified u/s-4 of Orissa Forest Act but included in the plan as mentioned in the distribution of area statement are required to be reconciled on priority basis for accelerating the process of notification at the earliest.

2.3.4 Reconciliation of boundary with Revenue Department is also very much necessary. The usual practice of such reconciliation is at the time of settlement process. Considering the rise in tendency for grabbing land now a days by the ever-increasing population, such reconciliation with Revenue Department is of utmost importance.

2.3.5 The artificial boundary lines are required to be clear at least the width of 6 mtrs. up to 9 mtrs. This will not only indicates the demarcation of the forest blocks but also act as fire line to prevent the fire hazard. A four-year calendar of boundary maintenance was in practice during last plan period. Considering the duration of plan period as ten years, the calendar of boundary maintenance is fixed at five years so that each boundary can be maintained twice during the plan period.

2.3.6 Masonry pillars have been constructed to replace the stone cairns as a permanent structure to indicate the boundary of the forest blocks correctly in the field. Such construction during the last plan are furnished in the table below.

Table no.2.14

Construction of boundary pillars in pre-reorganized Kalahandi North Forest Division

Year	No. of masonry boundary pillar constructed	No. of stone cairns erected	Year	No. of masonry boundary pillar constructed	No. of stone cairns erected
2007-08	479	-	2008-09	147	-
2009-10	189	-	2010-11	324	-
2011-12	357	-	2012-13	144	-
2013-14	75	-	2014-15	80	-
2015-16	129	-	2016-17	182	-
2017-18	155	-	2018-19	95	-
2019-20	122	-	2020-21	88	-

2.3.7 The details of forest blocks, boundary length in k.m. and no. of boundary pillars as per notification, newly constructed/ replaced during plan period ending 2013-14 and proposed to cover during the balance years of the plan period are given in **Appendix- XI.**

2.4 Land use, land use change and forestry (LULUCF):-

2.4.1 Forest Diversion:-

Table no.2.15

2.4.1.1 The details of diversion of Forest area for Non-forestry purpose is given below -

Sl.no.	Name of the project	Name of the forest block from which diverted in ha.	Area diverted in ha.
1	Ghatpara MIP	*Bazargarh RF 49.00*	49.00
2	Latabanji MIP	*Village forest 8.43*	8.43
3	Katikuda MIP	*Village forest 7.61*	7.61
4	Ret Irrigation Project	*Dusaguda village Forest 39.40*	39.40
5	Railway double line L.road to titilagarh	Sargiguda RF 3.529 **KLD (S)** Gobardhanpur VF 0.324 **KLD (S)** *Dumermunda VF 0.028*	3.881
6	400 KV line from Meramanduli to Jeypore	***Kesinga Range (VF) 10.6394*** ***Bazargarh RF 5.8923*** ***Bhawanipatna Range (VF) 3.2901*** Junagarh Range (VF) 5.6980 KLD(S) Pariagarh RF 0.3439 KLD(S) Pandi PRF 7.4463 KLD(S)	33.3100
7	132 KV/SC line from Therubali to Kesinga	*Kadalighati RF 7.468 Ha.* *Madhakhola A RF 1.215 Ha* *Kalahandi South & Rayagada Division- 11.61 Ha*	20.293

ABSTRACT

Name of the Division	Name of RF/ PRF/ Other in Ha.	Name of the revenue forest area in Ha.
Kalahandi North Division	Bazargarh RF – 54.89 Ha Kadalighati RF – 7.468 Ha Madhakhola A RF – 1.215 Ha **Total - 63.573**	Latabanji 8.43 Katikuta 7.61 Dhusuguda 39.40 Dumermunda VF 0.028 (Kesinga range VF Bhawanipatna Range VF) 13.93 **Total - 69.398**

Name of forest	Area diverted in Ha.
Reserve Forest	63.573
Revenue forest land	69.398
Total	**132.971**

2.4.1.2 List of areas planted under compensatory afforestation towards forest diversion in Kalahandi North Division BY D.F.O. Kalahandi North Division.

Table no.2.16

Name of project	Forest land diverted	Details of areas identified/mutated in favour of F.D. by Revenue Department.						Details of areas planted	
		Tahsil	Village	Plot no.	Khata no.	Kissam	Area in ha.	Year of pltn.	Area in ha.
400 KV line Talcher to Rourkela	406.813	Kalahandi	Dengen, Upper Gochhakhola	8,9,10,11,17,82, 149 & 150	28	Donger	436	1992-93 & 1993-94 1995-96 1996-97 2004-05	78 85 15 229
								TOTAL	**407**

* Out of 436 Ha, 29 Ha area is having stone area which is not planted.

2.4.1.3 Action should be taken to mutuate the said land in favour of Forest Department by D.F.O. Kalahandi North Division and to submit proposal to declare it as PF. As can be seen there from that 436 ha. has been afforestation at Dengen/ Uper Gochhakola which have been taken into account in this Plan. The details of compensatory afforestation works carried out in Kalahandi North Division are as below

2.4.1.4 The following areas are planted under compensatory afforestation in Kalahandi South Forest Division towards forest diversion of areas in Kalahandi North Division.

Table no.2.17

Name of project	Forest land diverted in ha.	Details of areas identified/mutuated in favour of F.D. by Revenue Department.						Details of areas planted	
		Tahsil	Village	Plot no.	Khata no.	Kissam	Area in ha.	Year of pltn.	Area in ha.
Ghatpara MIP	49.0	Th.Rampur	Kasabara	99,100,101, 102,121,122	44/1	Dongar	49.0	2010-11	49.00
Latabanji MIP	8.43	Th.Rampur	Barkaudi	58,67	71/5	Dongar	8.43	1992-93	8.43
Katikuda MIP	7.61	Th.Rampur	Barkaudi	58,67	71/5	Dongar	7.61	1992-93	7.61
UIIP extention of right canal	9.87	Th.Rampur	Terengasil	140,143,144	25/3	Dongar	22.416	2002-03	22.416
Total									**87.456**

2.4.1.5 The following areas are identified for plantation under compensatory afforestation in Kalahandi South Forest Division towards forest diversion of areas in Kalahandi North Division

Table no.2.18

Name of project	Forest land diverted in ha.	Details of areas identified/mutuated in favour of F.D. by Revenue Department.						Details of areas planted	
		Tahsil	Village	Plot no.	Khata no.	Kissam	Area in ha.	Year of pltn.	Area in ha.
Ret Irrigation Project	39.40	Biswanathpur	Kanchal	22,232,18,19	215	Dongar	39.4	0	0
Railway double line L.road to titilagarh	3.881	Biswanathpur	Bakatpur	63	277/98	Dongar	3.88	0	0
Total							**43.28**		

2.4.2 Forest Right Act, 2006 :-

2.4.2.1 The status of implementation of the Forest Right Act, 2006 reveals that 2511.085 Ac of Forest land of different categories have been allotted to 939 nos. of individual titles and 7208.064 Ac of forest land of different categories allotted to 44 nos. Community Forest Title Holders in Kalahandi North Division. **(Appendix IX)**

2.4.2.2 The details of allotment made in RF/PRFs should include a map with GPS reading to identify plot and it's boundaries. Similarly the exact quantum of forest areas in Govt. forest land , VF, DPF should cover the details of range, Tahsil, CD block, name of village, khata no., plot no., name of beneficiary and area in ac./ha.are under progress and the mapping of FRA areas will be completed as soon an the DGPS survey of this division is completed. As it involves a detail assessment of area allotted under FRA,demarcation of boundary, GPS reading,mapping etc. which can conveniently be taken up during ongoing DGPS survey.

2.4.3 Change Matrix

2.4.3.1 Indian State of Forest Report 2007 and Indian State of Forest Report 2017 sources Forest Survey of India) reveals the forest cover data of Kalahandi District as given below in table no.2.19

2.4.3.2 District wise Forest Cover in 2007

Table no 2.19

Area in Sq Km

Name of District	Geogra Phical Area	2007 Assessment				% of G.A.	Change	Scrub
		Very Dense Forest	Mod. Dense forest	Open forest	Total			
Kalahandi	7920	370	743	1193	2306	29.12	1	475

2.4.3.3 District wise Forest Cover in 2017

Table no 2.20

Area in KM

Name of District	Geogra Phical Area	2017 Assessment				% of G.A.	Chang e	Scrub
		Very Dense Forest	Mod. Dense forest	Open forest	Total			
Kalahandi North	3815.3187	211.942	307.979	621.310	1141.231	29.91		181.149
Kalahandi South	4082.3016	149.819	419.677	701.322	1270.818	31.13		177.485
Total	**7897.6203**	**361.761**	**727.656**	**1322.632**	**2412.049**	**30.55**	**1.43**	**358.634**

Change Matrix:-

Table no 2.21

2.4.3.4 Area in KM

	Assessment (2007)				
	VDF	MDF	OF	Scrub	
Very Dense Forest	-8.239				-8.239
Moderate Dense Forest		-15.344			-15.344
Open forest			129.632		129.632
Scrub				(-)116.366	(-)116.366
Net change	-8.239	-15.344	129.632	(-) 116.366	

2.4.3.5 The analysis shows increase in open forest. Protection measures through VSS and effective planning increased the forest cover.

2.4.3.6 The range wise and beat wise forest cover change 2015 to 2017 as per FSI data is furnished below in respect of Kalahandi North Division.

2.4.4 FSI DATA

2.4.4.1 Kalahandi North Division GA 381531.87 ha

Table no.2.22

Type of Forest cover	FC Data – 2015 Data Area in ha	FC Data – 2017 Data area in ha	Forest cover change between 2015 & 2017
VDF	21490.34	21194.20	-296.14
MDF	31001.04	30797.89	-203.15
OF	58669.81	62131.00666	3461.20
Total	111161.19	114123.10	2961.91
% of GA	29.14	29.91	0.78
Scrub	21039.85	18114.90	-2924.96
Non-forest	242574.89	246483.62	3908.73

2.4.4.1.1 Bhawanipatna Forest Range GA 99360.03 ha

Table no.2.23

Type of Forest cover	FC Data – 2015 Data Area in ha	FC Data – 2017 Data area in ha	Forest cover change between 2015 & 2017
VDF	759.45	734.71	-24.74
MDF	2785.27	2728.41	-56.85
OF	17953.74	19003.12	1049.38
Total	21498.45	22466.24	967.79
% of GA	21.64	22.61	0.97
Scrub	11900.75	11442.46	-458.29
Non-forest	64437.28	64579.33	142.04

2.4.4.1.2 Kegaon Forest Range GA 86087.47 ha

Table no.2.24

Type of Forest cover	FC Data – 2015 Data Area in ha	FC Data – 2017 Data area in ha	Forest cover change between 2015 & 2017
VDF	0.00	0.00	0.00
MDF	6511.42	6504.15	-7.27
OF	12261.18	12209.88	-51.30
Total	18772.60	18714.03	-58.57
% of GA	21.81	21.74	-0.07
Scrub	1710.05	1708.90	-1.15
Non-forest	64020.27872	65024.83	1004.55

2.4.4.1.3 Kesinga Forest Range GA 65884.32 ha

Table no.2.25

Type of Forest cover	FC Data – 2015 Data Area in ha	FC Data – 2017 Data area in ha	Forest cover change between 2015 & 2017
VDF	0.00	0.00	0.00
MDF	587.29	596.41	9.12
OF	3634.04	4952.55	1318.51
Total	4221.33	5548.96	1327.63
% of GA	6.41	8.42	2.02
Scrub	3926.70	2620.45	-1306.24
Non-forest	55740.17	56983.60	1243.43

2.4.4.1.4 M.Rampur Forest Range GA 65884.32 ha

Table no.2.26

Type of Forest cover	FC Data – 2015 Data Area in ha	FC Data – 2017 Data area in ha	Forest cover change between 2015 & 2017
VDF	14326.09	14174.08	-152.01
MDF	15959.63	15857.51	-102.12
OF	11438.97	12761.02	1322.05
Total	41724.68	42792.61	1067.93
% of GA	49.59	50.86	1.27
Scrub	2589.76	1327.58	-1262.18
Non-forest	38438.31	39608.87	1170.55

2.4.4.1.5 Narla Forest Range GA 46057.16 ha

Table no.2.27

Type of Forest cover	FC Data – 2015 Data Area in ha	FC Data – 2017 Data area in ha	Forest cover change between 2015 & 2017
VDF	6404.81	6285.41	-119.40
MDF	5157.44	5111.41	-46.03
OF	13381.88	13204.44	-177.44

Total	24944.13	24601.26	-342.87
% of GA	54.16	53.41	-0.74
Scrub	912.60	1015.50	102.90
Non-forest	19938.84	20286.99	348.15

2.4.4.2 Beat wise area as per FSI Data –

2.4.4.2.1 Bhawanipatna Range

Table no.2.28

Beat	VDF		MDF		OF		Scrub	
	2015	2017	2015	2017	2015	2017	2015	2017
Kundabandh	00	00	00	00	00	00	284.22	284.78
Karlapada	00	00	00	00	00	00	369.38	367.76
Turpi	00	00	356.00	343.39	1476.89	1503.86	178.97	167.38
Kurmachuan	00	00	75.11	68.27	1226.21	1237.08	679.47	670.13
Tiljodi	00	00	2.53	2.62	485.64	504.61	874.48	855.50
Burat	00	00	00	00	278.85	807.25	959.04	439.37
Santpur-A	159.69	158.50	463.91	460.56	1684.21	1694.08	126.97	123.78
Santpur-B	93.42	92.14	133.72	130.66	1584.21	1595.22	7.47	7.11
Dangripadar	00	00	00	00	53.46	51.43	88.14	102.48
Purunapada	00	00	00	00	25.89	26.03	12.45	13.42
Kutrukhamar	00	00	00	00	549.51	675.95	839.40	709.84
Sirliguda	00	00	00	00	259.91	222.47	922.08	943.25
Tikrapada	00	00	00	00	63.25	60.97	343.14	336.34
Surli	00	00	5.05	3.43	1893.27	1911.29	849.64	837.44
Sarlanji	0.01	0.04	228.95	230.02	2171.99	2366.62	1997.19	1881.65
Bhatangpadar	39.98	29.84	382.69	382.65	1501.53	1488.69	587.35	673.76
Nuagaon	297.01	287.01	668.80	641.10	2544.77	2672.69	2266.12	2464.70
Sulia	169.33	167.18	468.51	465.71	2154.16	2184.86	515.24	563.76

2.4.4.2.2 Kegaon Range :-

Table no.2.29

Beat	**VDF**		**MDF**		**OF**		**Scrub**	
	2015	**2017**	**2015**	**2017**	**2015**	**2017**	**2015**	**2017**
Borda	00	00	10.79	10.79	243.60	182.79	58.99	117.30
Dumuria	00	00	83.82	83.27	443.83	444.90	117.40	117.19
Balipati	00	00	00	00	315.20	312.29	00	00
Sikuan	00	00	451.34	449.06	947.63	949.97	121.69	119.99
Jayantpur	00	00	31.51	28.00	504.82	518.22	138.13	137.44
Bagmunda	00	00	66.50	66.45	257.47	257.36	7.61	8.52
Kegaon	00	00	154.57	153.82	691.25	692.02	2.03	2.28
Tureicheda	00	00	43.32	45.03	164.41	164.11	85.15	85.01
Khaliapali	00	00	102.66	101.75	229.90	230.04	00	00
Nuagaon	00	00	1453.76	1452.95	1061.04	1060.26	00	00
Golamunda	00	00	7.00	7.40	174.08	173.27	210.41	198.78
Dudkel	00	00	105.28	107.46	566.69	566.61	57.03	59.87
Kendupani	00	00	00	00	0.51	0.58	160.25	158.55
Antarla	00	00	14.66	13.72	229.11	234.52	449.01	448.93
Bokrasil	00	00	30.12	30.40	296.89	298.23	00	4.68
Kirkakani	00	00	29.89	28.57	498.57	509.44	00	00
Gargab	00	00	3.32	3.44	238.45	231.70	94.25	88.54
Karmath	00	00	122.08	122.07	615.93	621.15	00	00
Sankripali	00	00	471.65	471.69	222.79	223.64	00	00

Ramchandrapur	00	00	907.82	906.93	1760.24	1759.43	208.11	123.41
Dhamanpur	00	00	1781.54	1779.98	1174.22	1174.20	00	7.73
Karpa	00	00	238.24	238.52	814.18	792.24	00	27.50
Daspur	00	00	139.22	141.07	89.83	94.34	00	00
Putiachura	00	00	262.35	261.77	720.50	718.58	00	3.18

2.4.4.2.3 Kesinga Range

Table no.2.30

Beat	VDF		MDF		OF		Scrub	
	2015	2017	2015	2017	2015	2017	2015	2017
Thapen	00	00	00	00	0.91	92.64	170.56	73.81
Palam	00	00	64.86	60.47	233.90	279.83	538.78	504.99
Tundla	00	00	00	3.66	149.28	176.03	229.85	199.45
Amath	00	00	00	17.48	19.03	487.09	682.96	189.08
Bijakhaman	00	00	254.13	350.24	627.59	555.71	40.31	17.17
Kashrupada	00	00	00	00	00	9.76	356.08	347.65
Singjharan	00	00	69.33	102.25	676.38	771.90	398.80	273.44
Dampadar	00	00	26.99	24.63	104.91	134.87	275.05	243.19
Gigina	00	00	171.98	37.67	533.68	673.11	191.39	187.41
Rupra road	00	00	00	00	370.52	403.91	116.13	82.07
Gadebandh	00	00	00	00	582.50	797.85	296.03	85.91
Kesinga	00	00	00	00	00	9.97	17.44	17.47
Podhkhaman	00	00	00	00	236.65	274.57	143.93	104.57
Dumermunda	00	00	00	00	42.65	229.16	401.17	229.03
Deogaon	00	00	00	00	56.04	56.17	68.24	65.21

2.4.4.2.4 M.Rampur Range

Table no.2.31

Beat	VDF		MDF		OF		Scrub	
	2015	2017	2015	2017	2015	2017	2015	2017
Parmanandpur	00	00	00	00	00	167.24	232.40	62.20
Kumerpeta	00	00	10.08	10.10	173.02	338.51	310.51	141.83
Gochhadangen	897.73	899.51	674.08	675.78	439.05	430.17	00	00
Ainlatara	00	00	52.34	52.34	155.28	242.59	214.33	127.97
Surujuli	00	00	00	00	00	0.35	21.56	18.84
Madanpur	439.64	435.50	929.11	932.41	521.05	715.41	341.67	195.24
Jamunapur	00	00	00	00	1.26	344.96	675.64	321.44
Pandapadar	220.86	224.32	239.27	236.09	383.84	384.90	00	00
Mohangiri	1213.12	1199.77	1830.09	1814.54	1305.73	1298.18	00	31.15
Juger	517.89	516.35	1093.47	1093.26	325.27	327.01	00	00
Manikera	1630.87	1628.42	1204.94	1194.48	1584.25	1565.23	00	2.43
Asrakupa	361.48	358.09	184.89	180.97	91.22	78.23	00	00
Mudish	120.98	121.32	295.07	291.99	1256.59	1234.45	00	44.99
Pongabaju	1237.61	1211.43	2053.48	2031.21	1908.53	1897.75	00	35.01
Taprang	3192.59	3142.20	2224.69	2192.57	912.35	892.06	00	00
Putrimahul	1752.01	1744.62	2727.29	2718.59	1303.67	1268.85	00	20.82
Ramud	210.17	210.22	697.20	696.54	623.82	622.92	61.44	57.20
Ainlapali	00	00	00	00	102.87	328.67	268.69	39.01
Gourkela	2531.15	2482.32	1743.51	1736.44	251.62	281.39	9.06	9.39
Kanchanpali	00	00	00	00	97.07	107.77	00	00
Pandakamal	00	00	00	00	00	51.01	50.80	00
M.Rampur	00	00	0.10	0.22	2.49	183.38	403.66	220.07

2.4.4.2.5 Narla Forest Range :-

Table no.2.32

Beat	VDF		MDF		OF		Scrub	
	2015	**2017**	**2015**	**2017**	**2015**	**2017**	**2015**	2017
Chochobahali	739.22	737.27	524.41	527.26	326.10	289.32	44.68	22.99
Sripali	451.92	449.77	384.67	386.82	399.62	397.63	26.18	27.09
Gunangbeda	212.26	212.21	304.39	306.42	344.14	352.25	83.61	81.92
Belgaon	111.84	109.35	741.46	739.44	4275.17	4293.55	00	00
Urladani-B	1881.10	1839.86	865.73	864.49	119.85	89.03	00	00
Harlanga-B	1223.42	1183.35	290.30	284.48	157.74	122.06	00	37.20
Urladani-A	653.32	646.48	732.65	712.55	658.60	654.32	00	00
Kamei	00	00	00	00	00	00	158.90	158.75
Kerbandi	00	00	00	00	1237.21	1212.83	28.70	28.92
Narla	00	00	00	00	1355.98	1339.58	141.27	170.31
Sargiguda	00	00	00	00	87.73	56.71	350.90	394.72
Kamarda	200.39	201.19	478.06	464.45	1892.12	1834.04	15.48	15.55
Bhurti	265.87	264.72	548.75	538.64	2439.95	2461.99	62.87	70.65

2.4.5 Ground truthing :-

The above FSI data then verified on the ground to identify the degraded lands and future management practices.

2.4.5.1 Forest block wise canopy density (assign canopy density 0.1 to 1.0)

Table no.2.33

Name of the Range	Name of the Forest Block	Compartment No.	Area in ha. (Management Map)	Canopy density	Av. Canopy density of Forest block
Bhawanipatna	Dhanga dhangidi RF	1		0.25	0.25
	Kutrukhai RF	1		0.25	0.25
	Kadalighati RF	1	**362.2009**	0.05	0.13
		2	**407.6085**	0.05	
		3	**324.2941**	0.05	
		4	**312.5715**	0.25	
		5	**318.2757**	0.25	
	Pordhar	1	**230.2978**	0.05	0.11
		2	**412.6541**	0.05	
		3	**205.4432**	0.25	
	Kanamanjur	1	**372.3342**	0.25	0.28
		2	**654.4713**	0.4	
		3	**488.6897**	0.25	
		4	**386.42**	0.25	
	Dhanu Panchan	1	**726**	0.4	0.4
	Sinang	1	**670.9057**	0.4	0.22
		2	**550.7375**	0.05	
Bhawanipatna	Madhakhola "A"	1	**291**	0.25	0.2
		2	**455**	0.15	
	Madhakhola "B"	1	**597**	0.15	0.15
	Alma	1	**389.5424**	0.25	0.32
		2	**425.4367**	0.25	

		3	**220.219**	0.55	
		4	**324.8858**	0.25	
	Thuapadar Gundi	1	**642.1265**	0.3	0.29
		2	**667.3657**	0.47	
		3	**556.0931**	0.18	
		4	**460.8124**	0.25	
		5	**437.0461**	0.25	
		6	**470.7555**	0.25	
		7	**619.4762**	0.25	
		8	**397.2129**	0.05	
		9	**309.753**	0.25	
		10	**379.9148**	0.55	
		11	**634.5387**	0.4	
		12	**248.2374**	0.25	
		13	**387.9196**	0.25	
		14	**287.2972**	0.25	
		15	**545.8482**	0.55	
		16	**493.0957**	0.25	
		17	**402.6679**	0.25	
		18	**585.0938**	0.25	
		19	**371.5048**	0.25	
		20	**291.2862**	0.35	
Bhawanipatna	Gundi	1	**487.7888**	0.4	0.37
		2	**574.7767**	0.35	
		3	**374.6444**	0.05	
		4	**705.0634**	0.42	
		5	**1105.383**	0.27	
		6	**704.6363**	0.85	
		7	**861.2557**	0.3	
		8	**598.2689**	0.55	
		9	**700.5408**	0.35	
		10	**607.955**	0.25	
	Brahmani	1	**197.0187**	0.25	0.31
		2	**348.4454**	0.05	
		3	**161.6963**	0.25	
		4	**218.0889**	0.05	
		5	**253.4209**	0.25	
		6	**290.4028**	0.55	
		7	**236.504**	0.25	
		8	**202.4048**	0.25	
		9	**233.4886**	0.45	
		10	**348.4359**	0.3	
		11	**229.1076**	0.25	
		12	**268.0809**	0.05	
		13	**164.6264**	0.25	

		14	**172.7055**	0.05	
		15	**494.505**	0.4	
		16	**465.0427**	0.65	
		17	**483.3345**	0.55	
		18	**270.2429**	-	
		19	**580.7107**	0.65	
		20	**301.0801**	0.55	
Kegaon	Ammuda	1	**241.94**	0.05	0.05
	Bamakdei	1	**92.5**	0.05	0.05
	Daka	1	**335**	0.05	0.05
	Lini	1	**134**	0.25	0.25
	Nasigaon	1	**30.8**	0.25	0.25
	Sindhbhadi	1	**72.4**	0.25	0.25
	Patramara	1	**132.72**	0.55	0.55
	Kumkot	1	**280.4907**	0.05	0.09
		2	**295.5385**	0.05	
		3	**343.9722**	0.05	
		4	**405.8304**	0.15	
		5	**387.861**	0.05	
		6	**221.3391**	0.05	
		7	**165.2937**	0.05	
		8	**347.4748**	0.05	
		9	**419.8316**	0.05	
		10	**318.3384**	0.25	
		11	**274.8347**	0.25	
		12	**300.4733**	0.05	
		13	**199.5193**	0.05	
		14	**199.9716**	-	
		15	**408.0785**	0.05	
		16	**294.5165**	0.25	
		17	**260.6428**	0.05	
	Nageswar	1	**524.0489**	-	0.04
		2	**223.4145**	-	
		3	**184.0765**	-	
		4	**294.8848**	-	
		5	**159.6667**	-	
		6	**141.5863**	0.05	
		7	**298.8714**	0.25	
		8	**464.5893**	0.05	
		9	**341.1424**	0.05	
		10	**387.9587**	-	
	Chura "A"	1	**206.9317**	0.25	**0.27**
		2	**348.6785**	0.25	
		3	**177.4934**	0.25	
		4	**293.0405**	0.85	
		5	**287.7555**	0.25	

		6	**255.4823**	0.55	
		7	**301.0103**	0.05	
		8	**331.8848**	0.25	
		9	**325.3889**	0.35	
		10	**365.1437**	0.25	
		11	**413.4033**	0.25	
		12	**340.1831**	0.25	
		13	**403.4247**	0.25	
		14	**359.4832**	0.15	
		15	**394.0094**	0.05	
		16	**452.2382**	0.25	
		17	**275.815**	0.25	
		18	**386.9596**	0.25	
		19	**441.4805**	0.05	
		20	**433.8205**	0.05	
		21	**295.1433**	0.55	
		22	**316.3771**	0.25	
		23	**376.8871**	0.4	
	Chura "B"	1	**265.9786**	0.05	0.11
		2	**232.1118**	0.15	
		3	**304.9546**	0.05	
		4	**299.1264**	0.15	
		5	**335.4664**	0.05	
		6	**282.5046**	0.05	
		7	**338.5339**	0.25	
		8	**325.4684**	0.15	
Kesinga	Bazargarh RF	1	**282.27**	0.25	0.22
		2	**922.91**	0.25	
		3	**578.2**	0.25	
		4	**585.5423**	0.05	
		5	**517.3759**	0.32	
		6	**711.9053**	0.30	
		7	**601.9246**	0.25	
		8	**454.7683**	0.25	
		9	**468.2099**	0.18	
		10	**158.2265**	-	
		11	**650.161**	0.40	
		12	**564.2557**	0.3	
		13	**436.6596**	0.15	
		14	**385.4**	0.05	
		15	**371.19**	0.05	
		16	**249.5103**	0.25	
	Nangalguda RF	1	**312.6544**	0.40	0.40
		2	**351.1081**	0.25	
		3	**362.4544**	0.40	
		4	**461.832**	0.55	

M.Rampur	Putrimahul	1	**303**	0.62	0.62
	Turchi	1	**257**	0.55	0.55
	Tal-Nua gaon	1	**277.73**	0.42	0.42
	Telen	1	**628.5064**	0.38	0.41
		2	**426.9089**	0.55	
		3	**414.1972**	0.5	
		4	**409.4742**	0.31	
		5	**372.3854**	0.55	
		6	**408.3482**	0.22	
	Taprang	1	**460.5253**	0.21	0.38
		2	**349.9467**	0.23	
		3	**264.3672**	0.56	
		4	**313.8785**	0.55	
		5	**356.1952**	0.45	
		6	**276.499**	0.27	
		7	**254.6808**	0.55	
		8	**479.6421**	0.36	
		9	**267.5422**	0.55	
		10	**399.4072**	0.15	
		11	**411.3962**	0.49	
		12	**482.0446**	0.16	
		13	**280.5783**	0.62	
		14	**279.492**	0.77	
		15	**378.7244**	0.25	
		16	**301.2435**	0.23	
		17	**341.4196**	0.05	
		18	**410.1959**	0.25	
		19	**435.6424**	0.42	
		20	**437.692**	0.61	
	Sunamukhi	1	**234.7526**	0.4	0.51
		2	**328.6123**	0.55	
		3	**412.8325**	0.63	
		4	**431.1529**	0.45	
		5	**200.2479**	0.4	
		6	**324.5**	0.55	
		7	**460.7386**	0.61	
	Sulia	1	**160.4629**	0.33	0.37
		2	**546.5524**	0.46	
		3	**818.958**	0.47	
		4	**628.6156**	0.6	
		5	**723.9602**	0.38	
		6	**845.3784**	0.28	
		7	**723.4905**	0.33	
		8	**686.4193**	0.15	
		9	**534.326**	0.35	

	Satami	1	**313.2224**	0.35	0.52
		2	**327.2105**	0.55	
		3	**304.3487**	0.45	
		4	**463.7987**	0.55	
		5	**489.1037**	0.7	
	Ramud	1	**165.6462**	0.4	0.36
		2	**170.8276**	0.25	
		3	**156.8614**	0.55	
		4	**104.0086**	0.25	
	Sadel 'A'	1	**273**	0.25	0.25
	Podgudi	1	**793.52**	0.55	0.55
	Puijhari	1	**575.4345**	0.52	0.4
		2	**409.8603**	0.4	
		3	**758.4933**	0.43	
		4	**507.9692**	0.25	
	Pongabaju	1	**476.1696**	0.3	0.42
		2	**580.5131**	0.21	
		3	**340.2244**	0.39	
		4	**413.1705**	0.75	
		5	**521.2294**	0.49	
	Mudramaska	1	**750**	0.18	0.18
	Kutigudum	1	**628**	0.3	0.3
	Karla	1	**432.11**	0.25	0.25
	Jerka	1	**406.4743**	0.55	0.38
		2	**381.7457**	0.55	
		3	**231.1997**	0.05	
	Gochhadengen	1	**346.34**	0.25	0.25
	Chandanpinda	1	**298.25**	0.4	0.4
	Dengen	1	**476**	0.25	0.25
	Benaguda	1	**180.3409**	0.55	0.42
		2	**613.1015**	0.55	
		3	**255.4505**	0.35	
		4	**538.2819**	0.32	
		5	**504.95**	0.35	
		6	**163.5785**	0.52	
		7	**506.2507**	0.62	
		8	**350.2533**	0.45	
		9	**229.8554**	0.45	
		10	**402.2393**	0.43	
		11	**335.9487**	0.43	
		12	**233.7433**	0.27	
		13	**383.4987**	0.27	
		14	**276.6555**	0.4	
	Bidabaru	1	**436.4776**	0.45	0.36
		2	**532.1376**	0.2	
		3	**495.703**	0.45	
Narla	Urladani RF	1	288.1582	0.4	0.38

		2	266.6239	0.32	
		3	428.2294	0.35	
		4	423.7544	0.35	
		5	186.9235	0.55	
		6	355.8629	0.51	
		7	365.2427	0.55	
		8	287.1212	0.4	
		9	302.3774	0.52	
		10	429.3505	0.55	
		11	474.6707	0.49	
		12	301.2003	0.55	
		13	348.4637	0.55	
		14	313.7191	0.55	
		15	222.6303	0.35	
		16	340.4292	0.5	
		17	765.7998	0.42	
		18	197.4058	0.55	
		19	284.6922	0.25	
		20	247.8643	0.27	
		21	312.2991	0.15	
		22	204.0482	0.15	
		23	271.9211	0.25	
		24	231.2721	0.25	
		25	373.3706	0.27	
		26	372.4644	0.39	
		27	227.2735	0.55	
		28	250.8071	0.28	
		29	104.4765	0.55	
		30	252.2179	0.18	
		31	339.2801	0.32	
		32	139.0342	0.05	
		33	241.7263	0.35	
		34	377.528	0.3	
	Porgel RF	1	528.4873	0.35	0.3
		2	428.3376	0.25	
		3	448.1874	0.35	
		4	306.8935	0.25	
	Porgel Extn.	1	**498.4944**	0.3	0.25
		2	**468.3516**	0.05	
		3	**690.9292**	0.25	
		4	**709.0835**	-	
		5	**657.2922**	0.4	
	NarlaExtn. PRF	1	**292.5**	0.55	0.55
	Narla	1	**505.0222**	0.05	0.05
		2	**349.174**	0.05	
		3	**439.1458**	0.05	

	Karladangar	1	**239.222**	0.05	0.17
		2	**110.5284**	0.3	
	Mundighati	1	**88.2**	0.25	0.25
	Kamarda	1	**444.6**	0.25	0.25
	Kerbandi	1	**514.0525**	0.05	0.15
		2	**717.5124**	0.25	
	Kamei	1	**106**	0.5	0.5
	Jamguda	1	**107.4**	0.05	0.05
	Dengsur	1	**255.06**	0.55	0.55
	Badibahal	1	**44.94**	0.05	0.05

Compartment history :- Please see Ch.IX of NWPC 2014 reg. compartment history

2.4.5.2 Encroachments:-

2.4.5.2.1 Earlier forest land was easy target of encroachment in anticipation of settlement. But after the enactment of Fore st Conservation Act during 1980, the stringent provisions in regularization of the encroachments become a stumbling block and the same has dampened the spirit of encroachment to some extent. The cases of pre-80 and post-80 encroachments has been assessed jointly by the forest and revenue officials and the status report on this score is being furnished in each quarter by the Collector and Divisional Forest Officer jointly to higher authorities. The extent of encroachment as reported in the last quarter of previous plan ending on 31.03.2007 is furnished below for Kalahandi North Division. During last three years of ongoing plan, some unscrupulous elements instigated tribals especially in M.Rampur and Narla Range to encroach forest land with the misconception to get the benefit of Schedule Tribes & Other Traditional Forest Dwellers (Recognition of Forest Rights). Act, 2006.

2.4.5.2.2 Further, poor boundary maintenance of the different forest blocks gives scope for encroachment in absence of well exhibited demarcation in the field particularly when forest blocks are coterminous with private lands. Eviction of encroachment and reverting back the same to the fold of Forest Department is most difficult task. It is necessary to tackle problem at the very beginning just like to nip in the bud.The detail of forest land encroachment as reflected in the last plan is reproduced as under.

2.4.5.2.3 Extent of Encroachment in Kalahandi North Division

Table no.2.34

Sl. No.	**Name of the District**	**Name of the Forest Division**	**Name of the encroached forests with status (RF/DPF/UDPF/Other Reserve Forests)**		**Extent of encroached forest area with encroacher (in ha.)**
			Name	**Status**	
1	**2**	**3**	**4**	**5**	**6**
01	Kalahandi	Kalahandi North Division	Chura B RF	RF	11.8
			Daka RF	RF	7.2
			Nageshwar	RF	26.5
Total: -					**45.5**

2.4.5.2.4 No encroachment cases have been booked during the plan period.

i. Existing pillars have also been repaired and the boundary lines are also maintained for the said purpose. The quantum of such work done during the last plan is not commensurating to the requirement.

ii. Restoration by eviction through enforcement of legal provision is neither fruitful nor everlasting. Motivation through the VSS has a good impact on the encroachers who relinquished the land for Joint Forest Management by taking up plantation over it. In this method 99 ha. of forest lands (69 ha. in Nageswar RF and 30 ha. in Urladani RF) have been reverted back, but a great amount of risk is involved in this process. However, repeated effort is required to contain this problem. While vigilant steps are needed to abort further encroachment simultaneously both persuasive and legal methods are to be resorted to depending on the situation for evicting the ineligible encroachers.

2.5 Threats to the forest all other threats to the existence of forests

2.5.1 Injury to which the crop is liable:-

2.5.1.1 Since time immemorial, the forest crop is undoubtedly subject to injury, whatever the proximate causes may be but all are attributed to human and their activities baring a few victims of vagaries of the nature. Other organisms like animals, insects, bacteria etc. also cause some damage to the crop. It is observed that the forest is reared naturally well than the tending through human care which is more crucial to reduce the hindering activities in comparison to augmenting ones. All these injury / damage causative agents are absolutely disturbing / interfering with the process of growth and development of the crop. So the said factors are broadly categorised in to two major groups namely Natural Disturbances and Biotic Interferences.

2.5.1.1.1 Natural Disturbances: -

Though nature and forest are very often considered as synonymous and almost symbiotic in association but sometimes the fluctuations of high degree in the functional aspects of the nature affects the crop considerably. Such damage causing disturbances of the nature are described in detail as under.

(a) Drought

Kalahandi is a drought affected District and it suffers a lot on this score. Forest is no exception from its harmful effect. The worst casualty is the unestablished regeneration crop being the victim of water scarcity due to lowering of the ground water level coupled with extreme high temperature. Sometimes over matured old crops also succumb to this adverse phenomenon. This drought condition prolongs the period for establishing the regeneration crop in the ground. The most vulnerable is the plantation which survival is always at stakes for this reason so also the growth and vigour. Hence repeated effort is required to be made to tide over this situation with gradual increase in the vegetal cover of this locality.

(b) Frost

Freezing of super cooled moisture into a smooth coat of ice on terrestrial objects is called Frost. This is due to accumulation of a considerable depth of heavy cold air flowing down into natural depressions from the adjoining areas. This has a more deleterious effect on vegetation than the ground. Occurrence of frost is rare and mostly confined to Madanpur Rampur range of Kalahandi North Division .Damage on this account is not significant except its adverse effect on Sal regeneration crop in prolonging the period to establish.

(c) Flood

Earlier flood occurs sporadically and has practically no effect in this district. During plan period Kalahandi experienced the harmful effect of flood in the rivers of Tel, Hati, Utei, Udanti etc. Though high forests can withstand such damage but the ground flora particularly regeneration crops in the forest blocks adjoining the river banks and the plantations suffered a lot due to stagnation of water for some period. However, the damage on this score is not significant

(d) Wind

Wind is generally light to moderate. During summer and southwest monsoon season, the wind velocity increases. Though there is neither cyclone nor tornado of worth mention reported so far in this district but at times wind pressure causes some cyclonic effect in some pockets thereby uprooting trees. Such wind fallen and uprooted trees are very often reported in both Kalahandi North and South Divisions. The old and mature crops are more prone to this damage causing effect. This wind disturbance causes some loss to the forests.

(e) Fire

Fire constitutes by far the greatest danger to which forests are susceptible and it is a grave menace indeed. The causes are many and varied, but all those are traceable to human and their activities. The elaborate description on this matter is furnished below.

i. Burning the leaves underneath the Mahula trees to facilitate collection of flowers and allowing the fire to run unchecked to engulf the forests, setting the fire in the forests to drive or scare away the animals, burning the ground vegetation to get an early flush of healthy and vigorous shoots, throwing inflammable materials carelessly while passing through forests and sometimes evil design to settle scores against forest staffs etc. are few enumerated reasons. Many fires may be and some no doubt are malicious but the greater numbers are the outcome of carelessness due to ignorance.

ii. Forest fire in Kalahandi is by and large ground fire. Occurrence of crown fire has not been reported so far. However the ground flora particularly regeneration crop is the worst victim of this menace. Sometimes pole crops are also subject to damage by the fire. In addition site condition is deteriorated due to ground fire. In Kalahandi, the fire season is a prolonged period of 4 (four) months starting from mid February till mid June or onset of the monsoon. Due to such large duration of vulnerability it is difficult to contain this problem effectively.

iii. As the forest belongs to mostly deciduous category, the accumulation of dry leaves in the forest floor during summer is a common phenomenon. Extreme dry condition and high temperature during the summer are congenial for easy and quick ignition of the aforesaid inflammable materials through the activities enlisted above to become forest fire which spreads rapidly being encouraged by the high speed of wind during the said period. The convergence of all such factors makes it a menace for the forests.

iv. The intensity and the harmful effect of forest fire has been observed since pretty long. Mr.G.N.Cooper, the then Agency Forest Officer had mentioned in his inspection note of April – May, 1918 regarding the destruction of forests of Kalahandi by fire. So it is an age old problem of this division. The maintenance of record of fire hazards is not perfect earlier. During last three

years of the last plan, the incident of fire has been detected through satellite imagery. However the fire incidence of last plan period as per available information is furnished below.

Table no.2.35

Year	No. of incidence	Area affected (in Ha.)	Remarks
2007	34	41.0	Data was acquired by only one satellite MODIS which has lesser resolution of 1km*1km
2008	48	122.5	
2009	27	67.55	
2010	42	81.864	
2011	49	73.70	
2012	56	147.60	
2013	61	157.9	
2014	43	57.61	
2015	63	48.75	
2016	106	48.85	
2017	1472	256.18	From 2017 onwards data is being acquired by both MODIS and SNPP satellite. SNPP has better resolution of 375m*375m. As a result multiple number of points will be detected for single large fire of more than 375m*375m area.

v. The MODIS aqua and terra satellite's daily active fire location information products have provided the site wise fire incidence for last three years of the plan period i.e. 2007 to 2016.

vi. From 2017, FSI has also started disseminating alerts obtained from SNPP-VIIRS sensor, which has a better resolution(375m X 375m) compared to MODIS(1km X 1km)

vii. It is observed that in Kalahandi North Forest Division the forest blocks and revenue village land affected by fire are mostly under Madanpur Rampur range that too bordering the area of Baliguda Forest Division under Kandhamal district. This is followed by Narla range and in rest ranges the occurrence is sporadic.

viii. Efforts have been made to tackle this menace by taking different measures like maintenance of existing fire line, creation of new fire line, engagement of fire watchers, deployment of fire fighting squad, supply of fire fighting tools such as blowers, incentive to VSS etc. The response to fire points has been quick since the use of QGIS map based fire alerts to ground staff. As a result number of fire points from 2018 onwards have started reducing as detailed below.

Table no.2.36

Year	No. of incidence	Area affected(in Ha.)
2018	1059	177.58
2019	813	709.420
2020	329	536.124
2021	1773	3284.700

ix. The expenditure for the same during the last plan is furnished in the table given below.

Fire fighting squad in the Kalahandi North Division.

Table no.2.37

Year	Expenditure							
	Allotment	**Fire watcher no.s& amount**	**Fire fighting squad no.s& amount**	**Purchase of fire fighting tools**	**Maintenance of fire line Kms, amount**	**Creation of fire line**	**Incentive to VSS**	**Misc.**
1	2	3	4	5	6	7	8	9
2007-08	373500/-	10nos. 12500/-	--	25000/-	32.42Rkm 60000/-	88.17Rkm 200000/-	46000/-	30000/-
2008-09	546000/-	10 nos. 126000/-	--	100000/-	30.35 Rkm 30000/-	42.00Rkm 30000/-	200000/-	50000/-
2009-10	140000/-	08 nos. 20000/-	10 nos. 25000/-	--	--	13.4 Rkm 31870/-	50500/-	12630/-
2010-11	279800/-	--	10 nos. 64800/-	215000/-	--	--	--	--
CAMPA	1074740/-	--	20nos 270000/-	108000/-	498.10Rkm 496758/-	--	59608/-	140374/-
2011-12								
CAMPA	911961/-	--	20nos 243000/	--	500Rkm 500000/-	--	--	168961/-
2012-13								
	495000/-			80000/-	45Rkm 45000/-	--	70000/-	300000/-
CAMPA	2004000/-	--	30nos 675000/-	54000/-	500Rkm 825000/-	--	--	450000/-
2013-14								
	1145000/-	--	40 nos 720000/-	--	50Rkm 100000/-	--	130000/-	19500/-
CAMPA	2620000/-	--	40nos 900000/-	280000/-	500Rkm 825000/-	--	--	599884/-
2014-15								
	482353/-	--	10nos 180000/-	50000/-	50Rkm 100000/-	--	50000/-	102353/-
CAMPA	2950000/-	--	50nos 555000/-	70000/-	900Rkm 990000/-	--	--	385000/-
2015-16								
CAMPA	CAMPA	3730000/-		50 Nos & 2325000/-	210000/-	590 Km 1180000/-	--	--
2016-17								
CAMPA	4435000		50 Nos & 2325000/-	915000/-	590 Km 1180000/-	--	--	15000/-
2017-18								

CAMPA	4960000	-	50 nos & 2425000/-	1355000/-	-	590 KM & 1180000/-	-	-
2018-19								
GENERAL	3136293	-	30 Nos & 1261800/-	1194960/-	-	310 KM & 619533/-	60000/-	
2019-20								
GENERAL	3121822/-	-	30 Nos & 1528680/-	820517/-	-	100 Km & 200000/-	570000/-	
CAMPA	4265000	-	50 Nos & 3000000/-	425000/-	-	300 Km & 840000/-		
2020-21								
GENERAL	1981362/-	-	20 nos & 447000/-	-	-	163 Km & 571454/-	630000/-	332908/-

x. It is seen that the expenditure on this score is grossly inadequate to meet the bare need. While the maintenance and creation of fire line are preventive measures, the engagement of watcher and deployment of squad are the curative steps to tackle the incidence. It is further observed that the difficulties are faced for extinguishing the fire on hill slopes. Whatever the quantum of effort made on this score, it is not fruitful without the support of local people. The motivation of the people through VSS is both preventive and curative that too in situ and instantaneous. On the whole the cooperation and involvement of the local people through VSS is imperative. Efforts should be made both to encash the support of local people and to deploy fire fighting squad and watchers to contain this problem.

2.5.2 Cyclone :-

The cyclone effect in this region is not significant. However damage occurred due to Phailin during October 2013 is furnished below.

Table no.2.38

Name of range	**Name of Forest block**	**No. of trees uprooted/felled &delivered to OFDC Ltd.**
M.Rampur	Ramud PRF	3
M.Rampur	Taprang RF	20
M.Rampur	Sunamukhi RF	24
M.Rampur	Benaguda RF	8
M.Rampur	Satami RF	27
M.Rampur	Dengen RF	22
M.Rampur	Jerka RF	55
Narla	Urladani RF	18
Total		**177**

2.5.2.1 Biotic Interference: -

This is the influence exerted by the living organisms like human beings, animals, insects, fungus etc. on the vegetation. The most important factor is the relentless pressure of local

people on the forests. However, the interference made by all such organisms are described as under.

(a) Illicit Felling:

This is so far the greatest cause of injury to the forests. It is not only the single dominant factor of destruction but also a matter of alarming concern through out the world. However the scenario of the Forest Divisions is described as under.

I. Due to galloping rise in population, the demand of the forest produce is increasing abnormally day by day. The permissible removal of the products from the forests is far away from the quantum of requirement and as a result there is a huge deficit on this account. On the other hand no viable alternative is in place particularly for the rural mass in meeting their need of fuel wood and other forest products. This has been described in detail under Chapter-III of Part-I. In these circumstances, excess removal of such products from the forests beyond the permissible limit is resulted through illegal means by the local people. In addition the clandestine removal by the smugglers is also aggravating the situation. It is also observed that sometimes the inhabitants of forest fringe villages used to earn their livelihood through sale of illicitly procured timber and firewood from the forests. Another peculiar habit of the tribals of Kalahandi is to fell the tree not for the sake of timber or firewood but to collect Jhuna, Honey and any rodent residing in that tree. The tribals will not take the pain to climb the tree for such collection rather prefer to fell the tree and leave the entire tree at the stump site after collecting the aforesaid materials. This is a serious ethnical problem. On the whole it is doubtless to say that the forests has been depleted mainly due to the aforesaid relentless over exploitation and the same is so far the greatest cause of injury to the forests.

II. Efforts have been made to control this problem through enforcement of forests rules and regulations as well as motivation of the people through VSS. The number of forest offence cases booked during the plan period is given in the following Table.

Details of Cases Booked in Kalahandi North Division

Table no.2.39

Year	OR Case	UD Case	PR Case	U/s-56	**Total**
2007-08	3516	368	15	368	**4276**
2008-09	3366	330	46	263	**4005**
2009-10	3490	149	43	193	**3875**
2010-11	3809	336	63	187	**4395**
2011-12	4386	241	38	120	**4785**
2012-13	3742	182	48	87	**4059**
2013-14	4583	232	77	217	**5109**
2014-15	5494	148	31	222	**5895**
2015-16	5063	516	42	21	**5642**
2016-17	4446	312	16	21	**4795**
2017-18	3631	401	23	9	**4064**
2018-19	3810	180	14	68	**4072**
2019-20	4174	124	3	8	**4309**
2020-21	3639	53	8	15	**4309**
Total	**57149**	**3572**	**467**	**1799**	**62987**

III. The forest produce seized during the last plan period are mostly timber, fire wood, bamboo, poles, Charcoal etc. While the timber is partly consumed by the local people and partly by the people of neighboring area through smuggling, the

fire wood, bamboo, poles are almost catering the local need through illicit removal. The details of such seizure during the last plan is given in the Table below.

Details of materials seized in Kalahandi North Division

Table no.2.40

Year	Timber in cum	Firewood in MT	Bamboo in Nos.	Poles in Nos.	Charcoal in Qntls.
2007-08	166.1392	84.305	5032	3709	28.24
2008-09	206.6322	90.879	2103	4309	23.05
2009-10	59.2936	77.585	3856	5193	1.9
2010-11	77.7219	125.424	2204	6311	17.89
2011-12	80.3979	105.315	2703	8911	6.94
2012-13	72.0875	101.073	670	8729	10.08
2013-14	168.0137	116.001	140	8722	10.65
2014-15	152.8017	160.781	2730	13934	0
2015-16	79.5838	202.986	3335	10006	0
2016-17	48.0666	201.96	140	14696	0
2017-18	14.2434	355.60	0	18059	0
2018-19	14.8506	433.535	85	21375	0
2019-20	17.370	222.755	280	26777	0
2020-21	36.1369	87.994	66	12936	0
Total	**1193.339**	**2366.193**	**23344**	**163667**	**98.75**

IV. Vehicles used for the illegal transportation of illicitly procured forest produce have also been seized. It is seen that in Kalahandi such illegal transportation is done by Cart and Cycle to the great extent which indicates the pressure of local people on the forests. The details of the vehicles seized during last plan is furnished below.

Details of vehicles seized in Kalahandi North Division

Table no.2.41

Year	Cycle	Motor Cycle	Cart	Jeep	Tata Ace	Bolero	Bolero maxi Truck	Tractor	Maruti Van	Max Pick Up	Truck	Auto	Rickshaw	3 Wheel Trolley	Boat	Tata Rx	Tata pick up	Tata magic	tata 207	Tata 790	Bus	Thela	Total
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
2005-06	173	1	18	1	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	1	**197**
2006-07	136	-	22	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	**160**
2007-08	109	-	9	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	**120**
2008-09	134	1	3	2	-	-	-	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	**143**
2009-10	72	-	4	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	**77**
2010-11	110	-	2	1	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	**117**
2011-12	96	-	2	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	**102**
2012-13	52	-	2	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	**57**
2013-14	116	4	-	-	1	-	-	1	1	3	-	-	-	-	-	-	-	-	-	-	-	-	**126**
2014-15	152	3	-	-	-	-	-	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	**158**
2015-16	206	1	-	-	-	-	-	2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	**215**
2016-17	239	1	2	-	1	3	-	7	1	3	-	-	3	-	-	-	-	-	-	1	-	-	**261**
2017-18	75	-	-	-	-	-	-	1	-	6	-	-	1	-	-	-	-	-	-	-	-	-	**83**
2018-19	57	1	-	-	-	-	-	3	-	9	-	-	-	-	-	-	-	-	-	2	-	-	**72**
2019-20	44	-	-	-	-	1	-	1	-	3	-	2	-	-	-	-	-	-	-	-	1	-	**52**
2020-21	14	1	-	-	-	8	1	1	1	-	-	-	-	-	-	1	1	1	1	-	-	-	**30**

V. Anti Smuggling Squad was deployed the last plan under 12th& 13thFCGrants. Such squad consisted of local youth on daily wage basis for a period of five to six months. It is observed that engagement of such daily wage watcher had paid reach dividends in controlling the menace as evident from their performances furnished in the following Table.

Deployment of Anti-smuggling Squad in Kalahandi North Division

Table no.2.42

Year	No.of Anti smuggling squad deployed	No.of watchers engaged in each squad	Duration of deployment	Expenditure incurred in Rs.	No.of offence cases booked
2007-08	10	--	01.12.2007 to 31.03.2008	163000/-	220
2008-09	10	--	01.11.2008 to 31.03.2009	231000/-	350
2009-10	10	--	01.11.2009 to 31.03.2010	231000/-	258
2010-11	10	--	01.01.2011 to 31.03.2011	113000/-	205
2011-12	10	--	01.12.2011 to 31.03.2012	275000/-	279
2012-13	10	--	01.06.2012 to 31.03.2013	531982/-	226
2013-14	20	--	01.04.2013 to 31.03.2014	1080000/-	125
2014-15	20	--	01.04.2014 to 31.03.2015	1080000/-	89
2015-16	--	--	--	--	--
2016-17	--	--	--	--	--
2017-18	--	--	--	--	--
2018-19	--	--	--	--	--
2019-20	--	--	--	--	--
2020-21	--	--	--	--	--

VI. Apart from above mentioned controlling measures through enforcement of Forest Acts and Rules, efforts through Joint Forest Management has also been made for protection of Forests by assigning the forest area to the VSS. Till the end of last plan 593 no. of VSS in Kalahandi North Division have been constituted assigning an area of 42679.97 ha.

(b) Animal:

The crop is liable to injury on account of grazing, browsing and damage by the activities of animals. The cattle grazing are the most important one. Not only the vegetation are damaged but also the regeneration is destroyed due to trampling and hardening of the soil. The damage due to wild animals shall not be construed as a threat since both the forests and wild animals are the habitat and inhabitants respectively. Further some portion of the vegetation should be set aside for the food of herbivores. The matter of concern is the uncontrolled grazing in the forest land violating the prescription of the Working Plan. The damage on this score has far

reaching consequences. The carrying capacity of the forest is far less to accommodate the huge cattle population which is increasing in geometrical progression. The detail has been described in Chapter-III of Part-1. The efforts to contain this problem has not been made seriously so far considering the tangible loss as less grievous but ignoring the colossal intangible loss.

(c) Encroachments:

Earlierforest land was the easy target of encroachment in the anticipation of settlement. But after the enactment of Forest Conservation Act during 1980, the stringent provisions in regularization of the encroachments become a stumbling block and the same has dampened the spirit of encroachment to some extent. The cases of pre-80 and post-80 encroachments has been assessed jointly by the forest and revenue officials and the status report on this score is being furnished in each quarter by the Collector and Divisional Forest Officer jointly to higher authorities. During the outgoing plan period, some unscrupulous elements instigated the tribals to invade the forest land with the misconception to get the benefit of THE SCHEDULE TRIBES AND OTHER TRADITIONAL FOREST DWELLERS (RECOGNITION OF FOREST RIGHTS) ACT, 2006. Further, poor boundary maintenance of the forest blocks gives scope for encroachment in the absence of well exhibited demarcation in the field particularly when forest blocks are co-terminus with the private lands. Eviction of encroachment and reverting back the same to the fold of Forest Department is the most difficult task. It is necessary to tackle the problem at the very beginning just like to nip in the bud. Earlier the forest blocks are having the boundary pillars made of stone cairns which is easily damaged and as a result there is no demarcation indicating the correct boundary of the forest blocks. In absence of the same, the encroachments are not properly and correctly detected. Masonry pillars have been constructed to replace the stone cairns as a permanent structure to indicate the boundary of the forest blocks correctly in the field. Such construction during the last plan are furnished in the table below.

Construction of boundary pillars in Kalahandi North Division-

Table no.2.43

Year	No. of masonry pillars constructed
2007-08	479
2008-09	147
2009-10	189
2010-11	324
2011-12	357
2012-13	144
2013-14	075
2014-15	80
2015-16	129
2016-17	182
2017-18	155
2018-19	95
2019-20	122
2020-21	88
Total	**2566**

Construction of boundary pillars in pre-reorganized Kalahandi Forest Division

iii. Existing pillars have also been repaired and the boundary lines are also maintained for the said purpose. The quantum of such work done during the last plan is not commensurating to the requirement.

iv. Restoration by eviction through enforcement of legal provision is neither fruitful nor everlasting. Motivation through the VSS has a good

impact on the encroachers who relinquished the land for Joint Forest Management by taking up plantation over it. However, repeated effort is required to contain this problem. While vigilant steps are needed to abort further encroachment simultaneously both persuasive and legal methods are to be resorted to depending on the situation for evicting the ineligible encroachers.

(d) Shifting Cultivation:

This is the most orthodox practice of the tribal people over a pretty long period. It has also got the official permission during the feudatory rules. The situation at that time was quite different wherein agriculture was boosted for food production through cultivation over large area. At present the outturn from this practice is very meagre but it is continued for sake to tradition to retain the right over such forest land. Since it is taken up on rotation basis huge track of valuable forest are being destroyed. The intensity of this problem along with the steps taken during last plan period to tackle it is described as under. Though the occurrence of this phenomenon is observed in the district but the same is prevalent in 7 GP under 2 nos. CD blocks namely Narla and Madanpur Rampur of the District. The list of such GP are furnished below.

Podu prevalent Gram Panchayats in Kalahandi North Division

Table no.2.44

Sl. No.	Name of the CD Block	Name of the Range	Name of the GP	No.of villages
1	M. Rampur	Narla	Urladani	40
2	M. Rampur	Narla	Barbandha	35
3	M. Rampur	M. Rampur	Mohangiri	40
4	M. Rampur	M. Rampur	Manikera	33
5	Lanjigarh	Narla	Kamarda	16
6	Lanjigarh	Narla	Bhurtigarh	26
7	Lanjigarh	Bhawanipatna	Gundri	49
			Total	**239**

i. It is felt that the problem cannot be solved through the enforcement by the forest officials. Viable alternatives are to be provided to wean away the practitioners from this method. A concerted effort is indispensable to solve this problem gradually. A sustained effort is highly essential to eradicate this age old practice completely and satisfactorily.

ii. Accordingly, a convergent strategy need to be formulated by involving forest, agriculture, horticulture, watershed, soil conservation, animal husbandry, health, education department to take up the issue in all GPs of the district.

(e) Insect Pests:

Though there are a number of insect pests which are harmful to the forest crop as well as plantations but the following few causing considerable damage to the forests and plantations of the division are described as under.

i. Teak defoliator (Hyblaea puera)

As the name denotes leaves are shed off prematurely affecting the growth. This is the most serious pest of Teak both in natural and plantation. It causes major problems together with some group of minor pests of other caterpillars, grasshoppers and weevils.

Controlling this pest by mechanical or physical means is a very limited use. Silviculturally it can be controlled by allowing the strips of existing mixed crop or raising strips of mixed plantations as the isolation barrier. The pest population can also be controlled by its natural enemy under biological control. Cedria paradoxa which is a polyphagous parasitoid is quite effective in checking the population of the pests and its alternate hosts.

ii. Teak skeletonizer (Eutectona machacralis)

Instead of defoliation, this pest eats away the chlorophyll portion of the leaves leaving the internal tissue as such. As a result the leaves in its skeletal form is visible on the tree. Like the defoliator, it is also a major pest of Teak. These two pests are the serious menace of Teak in this Division. Its control is similar to that described above for the defoliator.

iii. Sal heartwood borer (Haplocerambyx spinicornis)

It attacks the Sal tree particularly the heartwood portion which is the most valuable and durable part of the Sal tree. It affects the technical quality thereby causing depreciation in commercial value. The damage by this pest is sporadic and its intensity is not so acute. It attacks mostly felled / fallen unbarked logs as well as unhealthy moribund standing trees. Attack on healthy trees is very rare. It can be controlled effectively through biological methods.

iv. Insect pest of bamboo

Herbivorous insects attack bamboo and reduce the plant vigour and productivity. These insects have highly modified mouth parts and they feed on sap of leaves, branches, culms, shoots, roots and rhizomes. Defoliation, wilting of young shoots and branches even death of culms are the result of such attack. Notodontid defolitors / Green bamboo caterpillar (Loudonta dispar), Smoot moth (Artonia funerlis), Green slug Worm (Parasa bicolor), Bamboo powdering beetle (Dinoderus minutus) are the notable pests of bamboo. Biological control through protection of parasitoids, spiders and birds are effective for preventing the attack of powdering beetle, it is advisable to harvest the bamboo during winter when there is low content of starch and sugar.

(f) Fungus:

Fungi are the causative agents of numerous plant diseases but few notable ones affecting some valuable tree crop of the division is described individually as under.

i. Fomes caryophylli

It is brown heart rot of Sal. In the early stages of its attack, heartwood is stained slightly dark to brown. Ring rot is caused. Later decayed wood become spongy. After causing appreciable decay fungus emerges through the sound sap wood into the bark in form of pink knots. Bark in the region of eye is gradually shed off. Branch stubs and knots caused on stem. Epicormic branches emerge but it does not always indicate of heart rot. Sporophore rarely develops. Damage caused due to it appears less and only in dead and fallen trees.

ii. Fomes faustuous

It is a secondary parasite as well as a saprophyte on the bark of the Sal. It causes heart rot in butt region. In early stages the heart wood shows darker brown stains in patches which develop later into small pockets. Under active decay these pockets get filled with white decayed fibres which disintegrate, in later stages pockets appear empty and brown. There is practically no external symptom of the disease except the appearance of light brown reflexed sporophore near the base of attacked trees.

iii. Hymenochaete rubiginosa

It causes pockets rots in heart wood. Due to it, tissues in affected pockets become white and ibrous surrounded by brown wood. Sporophores appear in tiers one above other in close cluster from the stem of affected trees. Attack by this fungus appear more than above two.

iv. Polyporus shoreae

The Sal root fungus is more prevalent in the moister and often better quality forests where it tends to affect middle-aged stems and young vigorous poles. The dying off appears in groups, which is a very characteristics symptom. It often kills the best stems.

v. Fomes badius

It causes heart-rot in Khair and Babul but the incidence is not noticeably high. Study on this aspect is essential since Babul is occurring both in forest and farm lands and also considered as one important tree for agricultural implements and rural households.

vi. Controlling measures

Though the remedial measures are many but the best way of tackling this problem is to maintain the hygienic condition of the forests by removing the seriously infected crop and also to reduce the fire incidents which is one of the contributory factors causing damage to the bark of saplings and young poles and thereby rendering them prone to fungal infection.

(g) Loranthus:

This is an aerial hemi parasitic evergreen shrub on other seed plants. Dendrophthoe falcata (Loranthus longiflorus) and Scrurrula parasitica are seen on the trees like Sal, Karla, Mahul, Anla, Mango and Teak etc. These parasitic plants are locally called as Madanga or Malanga. Scrurrula parasitica is seen in upper hill slopes affecting the seed plants. The damage by Loranthus is though noticed but not of serious nature.

(h) Climbers:

A herbaceous or woody plants that climbs up trees or other supports by twining round them or by holding on to them by tendrils, hooks, aerial roots or other attachments. In the last plan climbers have not been treated as injurious agent of the forest crop. But the climber menace is very much observed in the forests. Climber grows spirally around small trees initially and in course of time it grows thicker and stiffer strangulating the growing trunk of the tree. It presses so tightly against the trunk that it is eventually gets embedded in the trunk. Then it becomes difficult to make it loosen from the tree. Finally the trunk becomes convoluted with a

deep spiral groove running from the bottom to the top. In this process the technical quality of the tree is spoiled which leads to huge depreciation in the commercial use and value. Few notable climbers causing menace in the forests is described below.

i. **Budel (Butea parviflora): -** A gigantic evergreen climber with smooth grey bark exuding a reddish gum when cut. Petiole 7.5 – 10 cm. long leaflets 12-25 cm. long, flowers cream or white. Pods 7.5-10 cm. long, ferruginous – tomentose.

ii. **Lata Palas or Palas Lai (Butea superba): -** A woody dextrose climber with smooth brownish bark exuding reddish gum from the wounds. Leaflets attaining 30-45 cm. and sometimes 50 cm. in young plants. Flowers bright orange red, 4-6.5 cm. long. Pods 12 – 15 cm. long densely rusty tomentose.

iii. **Atundi (Combretum decandrum) (Combretum roxburghii):** A rusty – pubescent climbing shrub leaves oblong 7-18 x 3-7.5 long. Conspicuous large white bracts. Flowers pentamerous, densely villous – pubescent. Fruits oblong 2.5-3 cm. long. Leaves on the panicle turning white or yellowish white during November.

iv. **Siali (Bauhinia vahlii): -** A gigantic climber, shoots and young parts tomentose, stem attaining 0.6- 1.2 meter girth, bark nearly smooth, brown. Leaves opposite, 8-10 x 8-25 cm. deeply lobed with rounded lobed, flowers white or cream, pods woody, oblong and flat.

v. **Marda (Millettia extensa): -** A large climbing silky tomentose shrub. Leaves 30-60 cm. long, leaflets 3-4 pairs opposite ovate 7.5 – 20 x 5-8 cm. terminal largest. Flowers cream 0.7-1.2 cm. long, pods flat straight 10-18 x 2-2.5 cm. woody with thickened sutures.

vi. **Muturi (Smilax zeylanica): -** A stout prickly climber with stems sometimes 2.5 cm. diameter below. Leaves ovate- oblong 9-30 x 7-30 cm, base rounded or subcordate. Flowers – peduncle of proper umbel 1.2 - 3.7 cm. in male and 1.2 – 1.8 cm. in female. Fruits berry globose.

(i) Weeds:

Any unwanted plant that interferes or tends to interfere with the growth of individuals of the favoured species is termed as Weeds. In natural forests having good canopy cover, there is little scope for invasion of weed. But large opening in the canopy encourages the weed to invade in that portion of the forests. Once introduced in an area, it is subsequently naturalized and grows rapidly. As a result it inhibits the growth of regeneration crop and the said portion of the forests become degraded. In plantation, the impact of weed growth is very much felt in view of the suppression of the growth of the planted seedlings. While weeding is prescribed for the plantations to control this problem, suitable silvicultural practice should be adopted for the natural forests to tide over such situation. Though there are a number of weeds but few notable ones which are a matter of concern are described below.

i. **Pokasunga (Eupatorium odoratum) (Chromolaena odorata)**: - An erect shrub leaves deltoid ovate, coarsely toothed, acuminate, pubescent on both sides, heads bluish, cylindrical, 3 mm. diameter in dense terminal corymbs. It is prevalent throughout the division both in forest as well as plantation.

ii. **Ban Tulsi (Hyptis suaveolens)**: - Tall, branched, hairy, aromatic herb upto 2 meter or more, stems four angled, leaves ovate, 3 – 12 x 1.5 – 8.7 cm. sinuate and crenate-dentate. Flowers blue small. Nutlets compressed, ovoid-oblong, emarginate at top pointed below, ribbed. This is now a days fairly common and often forming gregarious patches in the forests, plantations and other areas of the forest Division.

iii. **Naguari (Lantana camara)**: - A straggling aromatic shrub stems and branchlets conspicuously armed with recurved prickles. Leaves ovate, crenate-serrate, 5 – 9 X 2 – 5 cm. Flowers usually white pink or orange yellow in short capitated spike. Fruits, drupe globose.

2.6 Distribution of different forest types. The base year status of forest types along with GIS map may be referenced for any further change/shift.

Forestry is an applied biological science. It is difficult to categorize it in a specific and concrete manner. However as experienced from the application of various methods in forestry, the effective result is obtained within a limited range of similar conditions of forest. So it is necessary to classify the forests in a broad based manner into different types for facilitating the use of proper method specific to the category of forests. Accordingly a forest type is defined as a vegetation unit, which possess (broad) characteristics in physiognomy and structure sufficiently pronounced to permit of its differentiation from other such units. It is very much essential for the management of the forest. Hence the discussion is focussed here on the types of forests occurring in different localities of the Division. Champion and Seth have broadly classified the forests of India into 16 (Sixteen) types under different major group, group, sub group. The forests of undivided Kalahandi Division belong to one major group i.e. Tropical. It is further divided into two groups namely Tropical Moist and Tropical Dry. Each group has 2 (two) sub-groups called Northern and Southern. Then the type is determined considering various climax formation like Climatic Climax, Edaphic Climax etc. According to Champion and Seth classification following types and sub-types of forests are found in Kalahandi, the details of which has been discussed in following paragraphs.

Tropical Moist Deciduous Forests: -

3B/c_2 Southern Moist Mixed Deciduous Forest

3C/c_2(e) Northern Moist Deciduous Forests-Moist Peninsular Sal.

3C/c_3 Northern Moist Mixed Deciduous Forest

3C/c_3/2S1 Northern Secondary Moist Mixed Deciduous Forest

General Edaphic and Seral Type: -

3C/E Terminalia tomentosa Forest.

Tropical Dry Deciduous Forests: -

5A/c_1 Southern Dry Deciduous Forests-Dry Teak Forest.

5A/c_3 Southern Dry Mixed Deciduous Forest.

5B/c_1(e) Southern Dry Deciduous Forests-Dry Peninsular Sal.

5B/c_2 Northern Dry Mixed Deciduous Forest.

5B/$c_{2/s1}$ Northern Secondary Dry Mixed Deciduous Forest.

General Edaphic Type: -

5B/E_2 Boswellia Forests

5B/E_6 Aegle Forests

5B/E_9 Dry Bamboo Brake

3C/c2(e) Northern Moist Deciduous Forest-Moist Peninsular Sal: -

This type is found in Sunamukhi, Benaguda, Dengen, Telen, Jerka, Taparang, Urladani RFs of M.Rampur Range in Kalahandi North Division. The crop is mainly Sal Quality-III to IV and at places having good soil depth is Quality-II. The associates of Sal are Sahaj (*Terminalia tomentosa*), Bija (*Pterocarpus marsupium*) and in moist sites and nala banks Jamun (*Syzygium cumini*) and Arjun (*Terminalia arjuna*) is found.

The top storey is represented by *Terminalia tomentosa, Terminalia belerica, Xylia xylocarpa, Pterocarpus marsupium, Anogeissus latifolia, Diospyrus melanoxylon, Lagerstromia parviflora, Adina cardifolia, Mitragyna parviflora, Dalbergia latifolia, Gmelina arborea, Briderlia retusa, Stereospermum suaveolens, Madhuca indica, Dalbergia paniculata, Albizia procera, Albizia chinensis, Bombax ceiba, Hymenodictyon excelsum, Schleichera oleosa, Dillenia pentagyna*. In moist sites *Syzygium cumini, Mangifera indica, Terminalia arjuna, Anogeissus acuminata, Michelia champaca* also occur.

The under storey is represented by *Cleistanthus collinus, Ougenia oogenensis, Emblica officinalis, Buchnania lanzan, Bauhinia retusa, Bauhinia racemosa, Randia uliginosa, Grewia tiliafolia, Cassia fistula, Mallotus phillipanensis, Ficus cunia, Ficus glomerata, Ficus infectoria, Semicarpus anacardium, Miliusa veiutina*. In dry rocky areas *Gardenia latifolia* and *Chloroxylon swetenia* are seen.

The ground cover is represented by good Sal indicators like *Indigofera pulchella, Clerodendron infortunatum, Flemingia chappar* besides *Murraya koengia, Desmodium pulchella, Petalibium barleriodes, Asparagus racemosus, Holarrhena antidysentrica, Helictreris isora, Wrightia tomentosa, Pogostemon plectranthoides, Glycosmis pentaphylla* and weeds like Eupatorium, Ageratum. In some water logged areas Phoenix acaulis is seen.

3C/c_3/2s1 Northern Secondary Moist Mixed Deciduous Forest: -

This type of forests is found in small isolated sheltered pockets in Urladani, Telen, Jerka, Taparang RFs of Kalahandi North Division. The crop here is extremely complex and heterogeneous in nature having varieties of valuable species i.e. Sal (*Shorea robusta*), Bija (*Pterocarpus marsupium*), Haldu (*Adina cordifolia*), Mundi (*Mytragyna parvifolia),* Kusum (*Schleichara oleosa*), Mahul (*Madhuca indica*) etc.

The top storey is represented by *Shorea robusta* (sporadic), *Pterocarpus marsupium, Adina cordifolia, Terminalia tomentosa, Mitragyna parviflora, Schleichera oleosa, Dillenia pentagyna, Bombax ceiba, Madhuca indica, Mangifera indica*, along the nalla and stream banks by *Syzygium cumini*.

The under storey is represented by *Grewia elastica, Bridelia retusa, Buchnania lanzan, Kydia calycina, Caseria tomentosa, Mallotus phillipinensis*.

3C/E Terminalia tomentosa Forest: -

This type of forest is found in patches of heavy clay soil and flat land in the valleys of Raul and Utei River in Taparang, Urladani, Sunamukhi Blocks.The common associates area Bahada (*Terminalia chebula*), Harida (*Terminalia balarica*), Patuli (*Lagestroemia parviflora*), Moi (*Lanea coromandelica*), Haldu (*Adina cordifolia*) etc.

The top storey is represented by *Terminalia belerica, Lagerstromia parviflora, Lannea coromandalica, Adina cordifolia, Syzygium cumini, Albizzia odoratissima, Garuga pinnata, Dalbergia paniculata* and Sal (sporadic).

The under storey is represented by *Cleistanthus collinus, Soimida fabrifuga, Stereospermum suaveolens, Buchnania lanzan.* The under growth consists of *Aspargus racemosus, Holarrhena antidysentrica*.

5A/c1 Southern Dry Deciduous Forest-Dry Teak Forest: -

This type of forests are met with in larger parts of Nageswar Block, Adabari Block, Bisbareni Block, lower foothill of Gujia, part of Chura, Kumkot Block of Kegaon Range of Kalahandi North Division. Sal with teak is seen in Kumkot Block. Associates of Teak are *Boswellia serrata* and *Lanea coromandalica*.

The top storey is represented by *Boswellia serrata, Lannea coromandalica, Anogeissus latifolia, Dalbergia paniculata, Madhuca indica, Adina cordifolia, Terminalia tomentosa*.

The under storey is represented by *Careya arborea, Cleistanthus collinus, Chloroxylon swietenia, Lagerstromia parviflora*.

The ground cover is represented by *Dendrocalamus strictus* of very poor quality present, with rhizomes exposed.

5A/c3 Southern Dry Mixed Deciduous Forests: -

This type of forest is found in Bisbareni, Adabari, Ghatual, Gujia, Kumkot, Chura, Dhanupancham and Nageswar Blocks. Besides in Lini and Bazargarh Blocks this type of forests met with sprinkling of teak. Bamboo of medium to poor quality are also noticed in the upper reaches of Chura Block. Other associates mainly found are Salai (*Boswellia serrata*), Moi (*Lannea coromandelica*), Kendu (*Diospyrus melanoxylon)*, Patuli (*Lagerstroemia parviflora*), Dhoben (*Dalbergia panniculata*), Sahaj (*Terminalia tomentosa*) etc. On the lower storey Anla (*Emblica officinalis*), Khair (*Acacia catechu*) etc. are seen. The under growth consists of Dhataki (*Woodfordia fruticosa*) and Phonex etc.

The top storey is represented by *Angeissus latifolia, Boswellia serrata, Lannea coromandalica, Dalbergia paniculata, Terminalia tomentosa* are found.

The under storey is represented by *Gardenia gummifera, Cochlospermum gossipium, Chloroxylon swietenia, Accacia catechu, Zyziphus glaberrima, Aegle marmelos, Randia collinus* and *Dendrocalamus strictus* of poor to medium quality.

The ground cover is represented *by Woodforida fruticosa, Nyctanthes arboritristics*;*Dodonaeaviscosa* is found in eroded soils.

5B/c1(e) Southern Dry Deciduous Forests- Dry Peninsular Sal: -

This type of forests occur in Dangerla area forming a belt in between moist peninsular Sal and dry mixed deciduous forests. The example of this type of forests is seen in Sunamukhi, Benaguda, Taparang, Urladani, Telen, Jerka, Satami, Dengen, Sadel 'A' and 'B', Sripali, Bhatel, Narla, Kadalighati, Porgel, Alma, Kanamanjur Blocks.Sal is 50% to 60% and the quality varies from III to IV. Common associates of Sal are Bija (*Pterocarpus marsupium*), Sahaj (*Terminalia tomentosa*), Dhaura (*Anogeissus latifolia*) etc. The under storey consists of Amla (*Emblica officinalis*), Mahula (*Madhuca Indica*), Chara (*Buchanania lanzan*), *Zyziphus glaberrima, Celistanthus collinus* etc. The ground flora consists of *Indigophera pulchella* and Dhataki(*Woodfordia fruticosa*), *Helicteres isora, Ixora parviflora, Phoenix acaulis* etc. The climbers are not much in these forests.

5B/c_2 Northern Dry Mixed Deciduous Forests: -

This type of forests occurs on drier aspects of almost all the blocks. The Sal quality is very poor here. The associates of Sal are Dhaura (*Anogeissus latifolia*), Karla (*Cleistenthus collinus)* are common. The under storey consists of Chara (*Buchanania lanzan*), Bahada (*Terminalia chebula*), Sunari (*Cassia fistula*), Anla (*Emblica officinalis*), Bhalia (*Semicarpus anacardium)* etc. The under growth here are Telkerua (*Ixora parviflora*), Gangsiuli (*Nyctanthus arbortristis*) etc. There are very much unpalatable grass cover found in the ground.

The top storey is represented by *Anogeissus latifolia* and *Cleistanthus collinus* are most common species. Besides these *Pterocarpus marsupium, Xylia xylocarpa, Adina cardifolia, Mitragyna parviflora, Lannea coromandelia, Diospyrus melanoxylon, Terminalia tomentosa, Terminalia belerica, Dalbergia paniculata, Dalbergia sisoo, Gemlina arborea* are also seen.

The under storey is represented by *Ougenia oojenensis, Buchanania lanzan, Terminalia chebula, Cassia fistula, Casearia tomentosa, Emblica officinalis, Semecarpus anacardium* are commonly seen, besides Salia bamboos which is of good to medium quality.

The ground cover consists of *Nyctanthus arbortristis, Randia uliginosa, Gardenia gummifera, Zyziphus acnoplia, Ixora parvifolia, Carissa opaca.*Climbers are generally sparse and few.

5B/c2s(i) Northern Secondary Dry Mixed Deciduous Forests: -

This type of forests occur in many blocks like Daka, Bhalu, Dhanupanchan, Dhangda-Dhangidi, Kumkot, Ghatual, Lini, Sinang, Chura 'A' & 'B', Brahmani, Bazargarh, Nageswar etc. Natural vegetation has virtually reduced to scrub over extensive areas due to biotic interferences like illicit felling, fire and grazing. The tree growth is of hardly 3-5 meter high. The species found are mostly Karla (*C.collinus*), Dhaura (*A.latifolia*), Kendu (*D.melanoxylon*), Patuli (*Lagerstroemia parvifolia*), Sahaj (*T.tomentosa*) and Sal in patches and bamboos are seen sporadically. These forests are surrounded by thickly populated villages. The crop can be restored and established by constant and strict protective measures if adopted.

The top canopy is represented by *Anogeissus latifolia, Celistanthus collinus* which are most common. Besides these *Diospyrus melanoxylon, Mitragyna parviflora, Xylia xylocarpa, Terminalia tomentosa, Terminalia belarica* etc. are also found.

In the under storey *Buchanania lanzan, Ougenia oojenensis, Emblica officinalis, Cassia fistula* etc. are found.

Ground flora consists of *Ixora parviflora, Carissa opaca, Gardenia gummifera, Zyziphus* species etc.

5B/E$_2$ Boswellia Forests: -

This type is edaphic type of forest found in pure crop in Nageswar, Adabari, BisbariniBlocks in patches and also scattered in other blocks. It is also seen in Narla RF in large quantity. Common associates are Mohi (*L.coromandelica*), Dhoben (*D.paniculata*), Ganiari (*C.gossypium*), Kendu (*D.melanoxylon*) etc. Teak is seen in Nageswar, Bisbarini and Adabari blocks alongwith Boswellia.

The tope storey is represented by *Lannea coromandelica, Dalbergia paniculata, Cochlostermum gossypium, Diospvros melanoxylon, Sterulia urens*. Teak is seen in Nageswar, Bisiberni and Adabari blocks in association with these species.

The middle storey is represented by *Emblica officinalis, Chloroxylon swietenia, Randia uliginosa.*

The ground cover is represented by *Nyctanthes arbortistis*, thorny species like *Ziziphus aenopplia*.

5B/E$_6$ Aegle Forests: -

This is one of the edaphic climax types in dry deciduous forests. *Aegle marmelos* predominates often forming nearly pure consociation. It is only leafless for a short period. *Acacia catechu* and *Emblica officinalis* are the most common associates alongwith *Nyctanthes arbor-tristis*. Aegle has the good reproduction vigour by root suckers. This type is found in a portion of Bazargarh Reserve Forest near village Singhjharan under Kesinga Range.

The top storey is represented by *Aegle marmelos, Acacia catechu, Adina cordifolia, Lannea coromandelica* etc.

The ground flora is *Mimosa rubicaulis, Heteropogon contorerius* etc.

5B/E9 Dry Bamboo Brakes: -

In this type of forest Bamboos (*Dendrocalamus strictus*) are commonly met with. This type occurs throughout the hills except the tree zone and extends the foothills at places. The bamboos are seen forming pure crop in steep and dry hills, which were subjected to Podu cultivation in the past and has given space for bamboos to come up. The quality of bamboo varies from poor to good quality. Generally good quality bamboo is seen all over, except in Chura 'A' and 'B' where the bamboo quality is poor to medium. The regeneration is quite satisfactory but the collection of Kardi (young tender culms) for food purpose by the people during rains is a menace.

The top storey is represented by *Anogeisus accuminata, Terminalia arjuna, Barringtonia acutangula, Pongamia pinnata, Ficus hispida, Ficus cumea, Steblus asper, Ixora parviflora, Alangium salvifolium, Cipadessa haccifera*.

2.7 Tree cover outside forest area Assessment of the growing stock and the potential area for extension of forestry outside forests and sustainable land use management within the geographical area of the forest division.

2.7.1 **Trees outside forests (TOF)** are located on the lands other than forests, including agricultural lands (e.g. agro-forestry systems, farm forestry, industrial plantations, hedgerows, woodlots), built-up areas such as settlements and infrastructure (e.g. street trees, parks and other urban tree systems) and bare lands (e.g. dunes, both abandoned and accomplished mining sites. They not only contribute nearly one fourth of the total growing stock of the country but also have become major source of wood in India. So there is a need to describe and comprehend the dynamics of trees and shrubs on rural and urban land, and their interaction with forest ecosystem. This will lead to a better understanding of off-forest tree management and towards integrated and sustainable management of forests as natural resources. Based on plot description and enumeration for areas outside forests, assessment will be done with respect to present scenario and their potential for forestry outside forests as part of sustainable land use management at landscape level within the forest division. The focus of forestry outside forest areas is on production forestry, revitalization of rural economy and expanding economicopportunities through innovations. This requires inter-sector synergy and convergence.

2.7.2 The year wise analysis of tree cover outside forest (Distribution of seedlings) made in the Division is as under –

Table no.2.45

Year	**Name of Scheme**	**Amount of seedlings distributed in lakh for TOF**
2009-10	RLTAP	1.50000
2010-11	RLTAP	1.50000
	CAMPA	2.00000
2011-12	13th FCG	5.00000
2012-13	13th FCG	5.00000
2013-14	13th FCG	7.40000
2014-15	13th FC	7.40000
2014-15	Agro forestry	5.00000
2015-16	TOF	7.40000
	Agro forestry	6.00000
2016-17	TOF	7.40000
	Agro forestry	6.00000
2017-18	TOF	2.50000
2018-19	TOF	2.50000
	Agro forestry	6.00000
2019-20	TOF	0
	Agro forestry	0
2020-21	TOF	2.50000
	Agro forestry	6.50000
Total		81.60000

2.7.3 During the year 2020-21, 6.5 lakh seedlings under Agro Forestry and 2.5 lakh seedlings under TOF (Distribution of seedlings) are raised in the Division. The details of distribution for TOF can be made available after it's utilization in plantations sites of MGNREGS, NAP & CAMPA schemes and balance distribution to beneficiaries as per Government guidelines.

2.7.4 The urban plantations made during the plan period 2013-14 to 2020-21 are as under-

Table no.2.46

Sl No.	**Year**	**Name of Scheme**	**Name of Range**	**Name of Sites**	**No. of Seedling planted**
1	2013-14	State Plan	Kesinga	Kesinga Town	10000

2	2014-15	State Plan	Bhawanipatna	Engineering Collage Campus	7500
3	2014-15	State Plan	Narla	Novadaya Vidyalaya Campus	7500
4	2015-16	State Plan	Kegaon	Kegaon Basti	15000
5	2015-16	State Plan	Kegaon	Sanchergaon College	5000
6	2018-19	State Plan	Kesinga	Tahansir	32000
7	2018-19	State Plan	Kesinga	Kesinga Railway	12000
8	2019-20	GIM	Bhawanipatna	Khaing	10000
9	2019-20	State Plan GMM	Bhawanipatna	Kutrukhamar	5000
10	2019-20	State Plan IGC	Bhawanipatna	Kutrukhamar Railway Station	3600
11	2019-20	GIM	Kegaon	Baramud	8000
12	2019-20	GIM	Kegaon	Pendramal	7000
13	2019-20	State Plan GMM	Kesinga	Kesinga NAC	20000
14	2020-21	GIM	Bh.Patna	Kanikupa	5000
15	2020-21	GIM	Kegaon	Daspur	5000
16	2020-21	State Plan IGC	Bh.Patna	Engineering College, Railway Line	2000

2.7.5 The details of avenue plantations made during the year are as under-

Table no.2.47

Sl No.	Year	Name of Scheme	Name of Range	Name of Sites	No. of Seedling planted
1	2013-14	State Plan	Bhawanipatna	Karlapada-Utkela Road	3750
2	2013-14	State Plan	Narla	Boringpadar-Tulapada Rd.	1500
3	2013-14	State Plan	Narla	Narla-Railway Gate Road	2250
4	2013-14	MGNREGS	Bhawanipatna	Balarampur Dadpur Road	2500
5	2013-14	MGNREGS	Bhawanipatna	Dadpur Ulikupa Road	2500
6	2013-14	MGNREGS	Bhawanipatna	Gohirapadar Ulikupa PMGSY Rd	2000
7	2013-14	MGNREGS	Bhawanipatna	Gohirapadar Ulikupa PMGSY Road	2500
8	2013-14	MGNREGS	Kegaon	Golamunda- Chapria PMGSY Road	2500
9	2013-14	MGNREGS	Kesinga	Kandel-Brahmani PMGSY Road	2500
10	2013-14	MGNREGS	Narla	Mundagaon- Pipalpada PMGSY Road	2500
11	2013-14	MGNREGS	M.Rampur	Khaliapali- Karlamunda Road	2500
12	2014-15	MGNREGS	Kegaon	Nuagaon to Gargab RD Road	5000
13	2014-15	MGNREGS	Kegaon	Gargab to Uchhala RD Road	1250
14	2014-15	MGNREGS	Narla	Narla to Asurgarh PMGSY Road	1250
15	2014-15	MGNREGS	Narla	Balisinga to Belgaon PMGSY Road	2500
16	2014-15	MGNREGS	Kesinga	Rupra to Julkhabhadi RD Road	2500
17	2014-15	MGNREGS	Kesinga	Pipalpadar to Palam SH Road	2500
18	2014-15	MGNREGS	Kesinga	Boria to Bahadurpadar PMGSY Road	2500
19	2014-15	MGNREGS	M.Rampur	Risida to Karlamunda RD Road	1250
20	2014-15	MGNREGS	M.Rampur	Sikelkupa to Budhikhaman RD Road	1250
21	2014-15	MGNREGS	Narla	Uligunjer to Kadamguda PMGSY Road	2500
22	2015-16	MGNREGS	Bh.Patna	Atangguda-Chancher	2500
23	2015-16	MGNREGS	Bh.Patna	Fukjodi-Kamthana	2500
24	2015-16	MGNREGS	M.Rampur	Karlakhunta to Chandanpinda	2500
25	2015-16	MGNREGS	M.Rampur	Motoganda to Ganjapadar	2500

26	2015-16	MGNREGS	M.Rampur	Mandirpada to Andhariburei	2500
27	2015-16	MGNREGS	Narla	Tulapada - Manikera Forest Road	2500
28	2015-16	MGNREGS	Narla	Tulapada - Manikera Forest Road	2500
29	2015-16	MGNREGS	Kesinga	Palsapada to Mandel PMGSY Road	2500
30	2015-16	MGNREGS	Kegaon	Kegaon to Lanji	2500
31	2015-16	MGNREGS	Kegaon	Mahaling to Bhatipada	2500
32	2015-16	State Plan	M.Rampur	Sagarpali to Bhatapala	2500
33	2015-16	State Plan	Narla	Narla - Rekhpur	2500
34	2015-16	State Plan	Narla	Tulagaon - Bhatang	2500
35	2015-16	State Plan	Kesinga	Gigina to Thuapadar PMGSY Road	2500
36	2018-19	MGNREGS	Bhawanipatna	Bhoiguda to Pairal PMGSY Road	1375
37	2018-19	MGNREGS	Bhawanipatna	Nuagaon to Khaing PMGSY Road	1375
38	2018-19	MGNREGS	Bhawanipatna	Pastipada to Palshijharan PMGSY Road	1375
39	2018-19	MGNREGS	Bhawanipatna	Singjharan to Rajnaguda PMGSY Road	1375
40	2018-19	MGNREGS	Bhawanipatna	Bhatangpadar to Rabandoro PMGSY Road	1375
41	2018-19	MGNREGS	Bhawanipatna	Ulikupa to Saria PMGSY Road	1375
42	2018-19	MGNREGS	M.Rampur	Khaliabandh - Gochhadengen PMGSY Road	2750
43	2018-19	MGNREGS	M.Rampur	Dhumabhata chowk to Kansil Road	2750
44	2018-19	MGNREGS	Narla	Padampada to Belgaon PMGSY Road	2750
45	2018-19	MGNREGS	Narla	Uligunjer to Regdimal PMGSY Road	2750
46	2018-19	MGNREGS	Kesinga	Takarla to Ainlapada PMGSY Road	2750
47	2018-19	MGNREGS	Kesinga	Dendoguda to Deogaon PMGSY Road	2750
48	2018-19	MGNREGS	Kegaon	Golamunda to Kendupani Road	2750
49	2018-19	MGNREGS	Kegaon	Kadlimunda to Tingipadar Road	2750
50	2018-19	MGNREGS	Kegaon	Kantamal to Bhatipada Road	2750
51	2019-20	MGNREGS	Bhawanipatna	Kapsara to NH-26	1250
52	2019-20	MGNREGS	Bhawanipatna	Badfunda to Rangiguda	1250
53	2019-20	MGNREGS	Bhawanipatna	Turpi to Podmundi	1250
54	2019-20	MGNREGS	Bhawanipatna	Palsijharan to Kurmachuan	1250
55	2019-20	MGNREGS	Bhawanipatna	Khaing to Talbelgaon	1250
56	2019-20	MGNREGS	Bhawanipatna	Nishanpur to Gunpur	1250
57	2019-20	MGNREGS	Kesinga	Bandhpada to Khairmal	2500
58	2019-20	MGNREGS	Kesinga	Sourapadar to Balsi	2500
59	2019-20	MGNREGS	M.Rampur	Nunpur to Kadhel via Mankadkhola	2500
60	2019-20	MGNREGS	M.Rampur	Gochhadengen to Benaguda	2500
61	2019-20	MGNREGS	Narla	Jamguda to Barabandha	2500
62	2019-20	MGNREGS	Narla	Narla Vet. Chhak to Kurmel	2500
63	2020-21	MGNREGS	Bh.Patna	Ghusrigudi to Kougopna	1250
64	2020-21	MGNREGS	Bh.Patna	Pajidohoni to Santpur	1250
65	2020-21	MGNREGS	M.Rampur	M.Rampur to Pandakamal	1250
66	2020-21	MGNREGS	M.Rampur	Damkarlakhunta to Kandagaon	1250
67	2020-21	MGNREGS	Bh.Patna	Pairmal to Dakibandel	1250
68	2020-21	MGNREGS	Bh.Patna	Bhawanipur to Kenduguda	1250
69	2020-21	MGNREGS	M.Rampur	Alatara chowk to Gochhadengen	1250

70	2020-21	MGNREGS	M.Rampur	Gochhadengen to Badsurda	1250
71	2020-21	MGNREGS	Narla	Rangparu-Chitra	2500
72	2020-21	MGNREGS	Kesinga	Rajapada to Digsira	2500
73	2020-21	MGNREGS	Kesinga	Rupra Road to Chhatamahul	1250
74	2020-21	MGNREGS	Kesinga	Gokhra to Fatkabahali	1250
75	2017-18	MGNREGS	Bhawanipatna	Dangripadar to Jamunabahal	1250
76	2017-18	MGNREGS	Bhawanipatna	Bhatangpadar to Rabandora	1250
77	2017-18	MGNREGS	Bhawanipatna	Pajibahal to Sankarmal	1250
78	2017-18	MGNREGS	Bhawanipatna	Podmundi to Kholandi	1250
79	2017-18	MGNREGS	M.Rampur	Borbhata to Podelkuna	1250
80	2017-18	MGNREGS	M.Rampur	Tejipada to Dalabahali	1250
81	2017-18	MGNREGS	Narla	Sikuli - Mahulpada	1250
82	2017-18	MGNREGS	Narla	Pipalpada - Goten	1250
83	2017-18	MGNREGS	Narla	Sripali - Gumu	1250
84	2017-18	MGNREGS	Kesinga	Taprang to Muskuti	1250
85	2017-18	MGNREGS	Kesinga	Kashrupada to Singjharan	1250
86	2017-18	MGNREGS	Kesinga	Kuten to Thuapadar	1250
87	2017-18	MGNREGS	Kegaon	Antarla- Naktikani	1250
88	2017-18	MGNREGS	Kegaon	Gargab- Latabanji	1250

There is no industrial plantations, hedgerows in the Divison as there are no Industries existing in the Division.

2.8 Shifting Cultivation (Jhumming):

2.8.1 This is the most orthodox practice of the tribal people over a pretty long period. It has also got the official permission during the feudatory rule. The situation at that time was quite different wherein agriculture was boosted for food production through cultivation over large area. At present the outturn from this practice is very megre but it is continued for the sake of tradition to retain the right over such forest land. Since it is taken up on rotation basis huge track of valuable forest are being destroyed. The intensity of this problem alongwith the steps taken during last plan period to tackle it is described as under. Though the occurrence of this phenomenon is observed in the district but the same is prevalent in seven Gram panchayats under two nos. CD blocks namely Narla and Madanpur Rampur of the District. The list of such GPs are furnished below.

Podu prevalent Gram Panchayats in Kalahandi North Division

Table no.2.48

Sl. No.	**Name of the CD Block**	**Name of the Range**	**Name of the GP**	**No.of villages**
1	M. Rampur	Narla	Urladani	40
2	M. Rampur	Narla	Barbandha	35
3	M. Rampur	M. Rampur	Mohangiri	40
4	M. Rampur	M. Rampur	Manikera	33
5	Lanjigarh	Narla	Kamarda	16
6	Lanjigarh	Narla	Bhurtigarh	26
7	Lanjigarh	Bhawanipatna	Gundri	49
			Total	**239**

i. It is felt that the problem cannot be solved through the enforcement by the forest officials. Viable alternatives are to be provided to wean away the practitioners from this method. A concerted effort is indispensable to solve this problem gradually. A sustained effort is highly essential to eradicate this age old practice completely and satisfactorily.

ii. Accordingly, a convergent strategy needs to be formulated by involving forest, agriculture, horticulture, watershed, soil conservation, animal husbandry, health, education department to take up the issue in all GPs of the district.

CHAPTER-3

Maintenance, Conservation and Enhancement of Biodiversity

3.1 Forest composition and distribution

3.1.1 The forest of Kalahandi displays a great floristic diversity due to wide variation in topography, altitude, climate, rock and soil. The general character of vegetation is tropophilous. So the forest mostly belongs to tropical both dry and moist. It ranges from tropical evergreen forest to dry deciduous scrubs. There is no rain forest. The remarkable feature of the forest flora is the presence of Sal, the only member of family Dipterocarpaceae. The summer makes the forest leaf less but the greenery is restored well before the monsoon. The easily traversable forest during summer becomes difficult to walk through in monsoon season due to heavy growth of herbaceous climbers, shrubs and innumerable annual plants. The natural occurrence of both Sal and Teak known as transition belt or ecotone is a special characteristic feature of the forests of Kalahandi. The functional attribute of the locality factors results in the wide variance in floristic composition, which have been described under different forest types of the Division.

3.1.2 Vegetation

The general character of vegetation is tropo philous. So the forest mostly belongs to tropical both dry and moist. It ranges from tropical evergreen forest to dry deciduous scrubs. There is no rain forest. The remarkable feature of the forest flora is the presence of Sal, the only member of family Dipterocarpaceae. The summer makes the forest leaf less but the greenery is restored well before the monsoon. The easily traversable forest during summer becomes difficult to walk through in monsoon season due to heavy growth of herbaceous climbers, shrubs and innumerable annual plants. The natural occurrence of both Sal and Teak known as transition belt or eco tone is a special characteristic feature of the forests of Kalahandi. The functional attribute of the locality factors results in the wide variance in floristic composition, which have been described under different forest types of the Division.

3.1.3 Trees:

Tree is a large woody perennial plant having a single well-defined stem (bole or trunk) and a more or less definite crown. It is a dominant form of plant communities. The tree species along with herbs, shrubs, climbers etc. available in the forest of Kalahandi has been furnished under the glossary of terms in which local name and botanical name has been given in alphabetical order. However the prominent and important tree species are Sal (Shorea robusta), Bija (Pterocarpus marsupium), Sahaja (Terminalia tomentosa), Dhaura (Annogeissus latifolia), Arjuna (Terminalia arjuna), Teak (Tectona grandis), Salai (Boswellia serrata), Moi (Lannea coromandelica), Mahula (Madhuca latifolia), Kendu (Diospyros melanoxylon), Chara (Buchanania lanzan), Karda (Clestanthus collinus), Bhalia (Semicarpus anacardium), Kasi (Bridelia retusa), Mundi, Harida, Kangada, Sina, Haldu, Bahada, Anla, . Some of these notable tree species have been described individually in the succeeding paragraphs.

3.1.3.1 Sal (Shorea robusta) Family: Dipterocarpaceae

This is one of the most valuable trees of any type of forest. The timber merchants very often use the term Sal and Non-Sal as two broad categories for the timbers. This is locally known as Sargi or Rengal. A large gregarious tree with shining foliage. The crown is conical in young stage, subsequently turned into round on maturity having a clean and straight bole. Depending on the site quality, the height of the crop varies from 40 feet to 150 feet. On an average the height of a good crop ranges from 70 to 100 feet in height and 5 to 7 feet in girth. Flowering commence in March-April followed by ripening of fruit in June-July. Leaf shading occurs in February-March immediately followed by the appearance of new leaf coinciding with the period of flowering. It is a light demander, fire hardy and good coppicer. Frost and draught are harmful in the initial stage. The seedlings suffer from dying back for several years before producing a strong shoot as well as taproot. A fungus called Polyporus shorea attacks the root and causes the death. Hoploserambyx spinicornis – a heartwood borer causes some damages to the heartwood. The regeneration is almost natural. It has multifarious use of which timber is the most important due to hard, heavy, strong, durable and cross-grained properties. The leaves are used as cups and plates. Seeds are rich in fatty substances and used for extraction of oil. It occurs in a number of forest blocks namely Taparang, Benaguda, Sunamukhi, Telen of Madanpur Rampur range; Urladani of Narla range and Kumkot of Kegaon range under Kalahandi North Division and Bori, Jalkrida, Machul, Champadeipur, Dhadel, Benbhata, Tirmuhi, Dhepguda, Kiding of Biswanathpur range; Goelkhoj, Thakuranipadar, Kadokhaman, Kuspari, Bagmari of Thuamul Rampur range; Benakhamara of Jaipatna range under Kalahandi South Division.

3.1.3.2 Bija or Piasal (Pterocarpus marsupium) Family: Papillionacea

A large deciduous tree attaining a height of about 100 feet and girth of 7 to 10 feet with a straight bole under favorable condition. The lower part of the bole is often fluted in large trees. A red coloured juice is exuded from the bark when incised. Leafs are compound with 5 to 7 elliptic leaflets with rounded ends. The tree is a moderate light demander. It coppices moderately and produces root suckers sparingly. It is also a common associate of Sal but available in mixed deciduous forests preferably on nalla banks and northern aspects. Leaf shading occurs during April – May. The flowering is during October. The flat disc shaped fruit ripens during December – January having one or two winged seed. It can be regenerated through both natural and artificial. The young seedlings suffer a lot from grazing by bear and cattle. It is mainly used as furnitures, door and window shutters due to yellowish brown with darker streaks heartwood which is hard, close grained and durable with a good luster. It has a demerit for producing yellow stain when contact with or moisture. So a waterproof varnish is required to be given for preventing this. Other use of this tree is the collection of an astringent gum called Kino, which is utilised for medicinal purpose. The leaves are good fodders for buffalos. It is available in a number of forest blocks namely Taparang, Benaguda of Madanpur Rampur range; Urladani, Porgel of Narla range and Kumkot of Kegaon range under Kalahandi North Division and Bori, Jalkrida, Machul, Dhadel, Benbhata, Tirmuhi, Dhepguda, Kiding of Biswanathpur range; Goelkhoj, Thakuranipadar, Kadokhaman, Kuspari, Bagmari of Thuamul Rampur range; Benakhamara of Jaipatna range under Kalahandi South Division.

3.1.3.3 Bandhan (Ougenia dalbergioides) Family: Papillionacea

A small or moderate sized deciduous tree seldom exceeding 4 feet in girth and 30 to 40 feet in height. The bole is generally short and crooked. The bark is thin, ash grey or light brown with regular longitudinal and horizontal cracks. The leaves are trifoliate. Leaflets often slightly hairy beneath.Flowering in February – March with white or mauve colour flower. The tree looks very beautiful during flowering period. The pod i.e. fruit ripes in May. Each pod is 2 to 4 inch long and contains 2 to 5 seeds. It is a good coppicer and produces abundant root suckers. It has a strong root system, which facilitates its growth in very poor soil and hill slopes. It needs shed and protection from sun during young stage, but once established it requires full overhead light. Reproduction is both natural and artificial. Due to hard, close grained, tough and extremely durable timber it is used for wheel work, shuttles in looms, agricultural implement etc.

3.1.3.4 Pahadi Sisoo (Dalbergia Latifolia) Family: Papillionacea

A medium sized tree having a large rounded crown and deciduous for a very short period only, bark light coloured, leaves imparipinnate, leaflets 5-7 unequal sized, 2.5-10 cm. long, rounded or emarginated at apex, glabrous, flowers white, in numerous lax panicles 5-7 cm long, flowering occurs during September when the tree is full leaf, fruit- pod, 1-3 seeded rarely 4 seeded, ripening of fruits in January-February. It is a moderate light demander tree but stands a fair amount of shade in youth. If grown in open it becomes very branchy. It is occurring in dry mixed deciduous forests and invariably associated with Salia bamboo (Dendrocalamus strictus). The tree associates are Piasal ((Pterocarpus marsupium) and Bandhan (Ougernia dalbergioides). It is both drought and fire resistance in the mature stage, but seedlings and saplings are prone to the damage by the same. It grows based on a deep well drained moist soil but also can survive on poor dry soils. A good coppicer and also reproduces through root suckers. It is the most valuable timber at present due to hard, close grained and durable dark purple heart wood with black streaks suitable for furniture and fashionable wood carving work. It is becoming rare now a day and is in urgent need of boosting its population.

3.1.3.5 Kongada / Tangan (Xylia xylocarpa)Family: Mimosaceae

A moderate sized deciduous tree with smooth radish grey bark leaves compound, bipinnate, each pinnae usually with 5-7 pairs of leaflets which are ovate and oblong 5-20 x 2.5-5.5 cm. diminishing in size down wards. Leaf shedding occurs during February. Yellowish white, fragrant, globose flowers appear with new leaves in April – May. The pods are flat and woody about 15 cm. long and dehisce (split) on the trees when ripe. Seeds are flat, oval 1.2-1.5 cm. long, brown in colour, smooth and shining. The tree is shade bearer specially when young. It tends to be gregarious on shallow soil over laterite and sand stone. It withstands fire well. A good coppicer and produces root sucker in abundance. It is immune to grazing damage. Wood is brown in colour, extremely hard, heavy, strong and very durable. It is widely used as building and agricultural implement in Kalahandi.

3.1.3.6 Sahaja / Asana (Terminalia tomentosa)Syn.Terminalia alata

Family: Combretaceae

A large deciduous tree with a straight stem and large crown. The bark is dark grey or black, very rough with longitudinal and transverse cracks dividing it into numerous

oblong scales resembling the skin of crocodile, Blaze red, leaves oblong, 12.5 – 22.5 cm. long. The under surface of leaf is distinctly pubescent called tomentose with two large glands at the base of the lamina. Leaf shedding in March and reappearing in May.Flowering during June in panicled spikes of small whitish flower. Fruit is brown with five wings and ripen during next February- March and starts falling from the trees from March to May. It is one of the common associates of the Sal and also one of the principle species in mixed deciduous forests alongwith Dhaura, Karla and Bamboo. It is light demander but seedlings can withstand slight shade. It stands moderate to drought. It is good coppicer and better than Sal in this regard. Though germination is poor but natural regeneration in forests is fairly good. Since the seedlings are hardy and survive in unfavorable conditions. The heart wood is usually dark brown with darker streaks, extremely hard, very heavy, strong and fairly durable. It lasts well under water. It is extensively used for variety of purposes and acts as a substitute for Sal but its weight, hardness and liability to split are demerits when compared with Sal. It is known as "Laurel Wood".

3.1.3.7 Arjuna (Terminalia arjuna) Family: Combretaceae

A large almost evergreen tree with drooping branches and pale greenish or grey bark. Leaves opposite or sub-opposite, elliptic oblong with two glands near the base of the lamina beneath, 10 – 15 x 4 – 6.5 cm. The small white flowers appear during May to July in shortly panicled spike. The fruits 2.5 – 3.7 cm. long, 5 winged, wings 1.2 cm. wide, fibrous – woody. It is occurring along the stream, nallas. Trees moderate shade bearer and sensitive to drought. The seedling suffers from frost. It coppices well and produces root suckers. Rate of growth is fairly rapid in swampy or water logged areas. The tree is not easily destroyed by girdling. Artificial regeneration is good. Transplanting should be done in the first rains before tap root develops. The heart wood is brown, very hard, heavy, strong and durable. It is hard to work and difficult to season. It has the tendency to split badly. It is used for carts, building and agricultural implements. The most important use is its bark for tanning purposes. It has also some medicinal properties.

3.1.3.8 Dhaura (Anogeissus latifolia) Family: Combretaceae

A large deciduous tree with a long straight bole and a light rounded crown, frequently with drooping branch lets. Bark thin, smooth, pale greyish white, exfoliating in thin rounded scales. Leaves alternate to opposite, broadly elliptic, 5 – 10 x 3 – 5 cm, mostly glabrous with edge. Flowers small, greenish yellow in small globose heads from June – September. Fruits small, dry yellowish brown with a narrow wing on each side in the small globose heads ripening from December – January. It is commonly occurring in dry deciduous forests, a common associate of Sal, Asan and Bamboos. It is light demander susceptible to damage by prolong drought and fire but suffers less than most species from grazing and browsing. It develops a strong tap root at an early age coppicing power is variable. Natural reproduction is favourable on bare soil with good drainage and abundant light. Artificial regeneration is difficult due to poor fertility of the seed. The wood is hard, heavy, tough and strong and elastic with a very small irregular dark brown heart wood. It is used extensively for cart axles, axe handle, shafts etc. where both toughness and elasticity are required. It is also a substitute for Sal where the later is not available.

3.1.3.9 Kuruma (Adina cordifolia / Haldinia cordifolia) Family: Rubiaceae

A large deciduous tree with a straight bole and spreading crown. Bark smooth, light colour exfoliating in patches. Leaves are cordate (heart shaped), 10 – 20 x 10 – 18 cm, petiole 5 – 9 cm. Leaf fall from February to May reappear in June. The flowers are in round yellow heads 1.8 – 2.5 cm. diameter, auxiliary, usually in vertical rows of three. Flowering in June and July. The fruit are also in globose heads and shades numerous seeds when ripens. It occurs in dry mixed deciduous forests but reaches its best growth in deep fertilizer soil in moist valley. This tree is a strong light demander although the seedlings can survive moderate shade and are frequently found under shade in natural state. It is moderately hardy to drought but withstands frost very well. It coppices vigorously. Natural regeneration is found in patches. The wood is yellow moderately hard and heavy and also even grained. It is used largely for planking and boxes. It takes good polish and has quite a good appearance for which it is used for fashionable light materials.

3.1.3.10 Mundi / Mitkinia (Mitragyna parviflora) Family: Rubiaceae

A moderate sized deciduous tree with silvery grey bark exfoliating in white patches. Rather similar to Kuruma tree in general appearance but the leaves are ovate instead of cordate as in Kuruma. 4-15 x 1.7-10 cm, glabrous, base rounded, petiole 1.2-3.7 cm. Patchy bark is also more remarkable in this tree. Flowers – globose heads and pale yellow in colour. Flowering during May-June. Fruits like Kuruma 1.2-1.5cm capsules ellipsoid and verrucose. It occurs in similar condition as Kuruma. Frequently available in mixed deciduous forests particularly in moist localities. As regards its silvicultural characteristics it is similar to Kuruma, but it withstands water logging and drought rather better. It coppices freely and grows rapidly. As it coppices from cambium it should be cut low. It is similar in uses and reproduction as that of Kuruma.

3.1.3.11 Kasi (Bridelia retusa) Family: Euphorbiaceae

A moderate sized tree usually with long conical thorns on the trunk when young, bark grey, flaky. Leaves oblong some times obovate, 7-25 x 3.5-10 cm, glabrous. The flowers are small and green and appear in clusters during August to October. Fruits- drupe black when fully matured, globose, 6-7.5 mm diameter. Fruiting and ripening occurs from November to January. It is commonly found in mixed deciduous forests being one of the most valuable miscellaneous species. This tree resists fire, frost, and drought well. It can withstand moderate shade but not heavy one. A good coppicer having root sucker. Coppice growth is vigorous. Natural reproduction is well but while taking up artificial regeneration, care has to be taken in transplanting owing to long tap root system. The heart wood is dark brown streaked with black, close grained and durable. It stands well under water. At present it is considered as a substitute to teak.

3.1.3.12 Salai (Boswellia serrata) Family:Burseraceae

A large deciduous tree often attaining a height of 10-16 meters and girth of 1.5-2 meters.Greenish yellow or yellowish flaky bark. Leaves are pinnate 30-45 cm long with 9-16 pairs of leaflets, 4-7.5 cm long and distinctly serrate. The small whitish flowers appear in recemes are the ends of the branches during January to March when the tree is leaf less. Fruit is globose 1.5 cm diameter and ripens in May-June. It is available on hill tops in exposed stony patches. Usually associated with Dhaura and Genduli.A strong light demander,

resisting fire and drought well. A good coppicer and produces root suckers. Natural reproduction is usually good both from seeds and root suckers. It can grow very easily from large cutting as evident from sprouting while planted as fence posts. Sap wood is large and white in comparison to small and dark greenish brown heart wood. It is used as packing cases, match sticks. It yields a resin which is used as incense and also gives a good quality turpentine.

3.1.3.13 Mahula (Madhuca indica) Gmel. Syst. Nat. Family – Sapotaceae

A large deciduous tree with a dense rounded crown, spreading branches and a short bole. The trunk of the tree is often covered in knobby growth caused by incisions made in order to induce for heavy flowering. Bark brown, nearly smooth, leaves clustered near the ends of the branches. 12 - 20 x 6 - 10 cm. Leafless during February to May. Flowers, creamy white, fleshy on rusty tomentose pedicels clustered at the end of the usually leafless branches, from the leaf-scars. Pedicels 2 - 2.5 cm long. Flowers have unpleasant odour but sweet to taste. Fruits, Berry ovoid 2.5 - 5 cm long, tomentose, seed ellipsoid. Flowering in February to April and fruiting during May to July. It is commonly found in association with Sal in dry mixed deciduous forests. It is a light demander but tolerates and benefits by moderate shade in young stage. It can reproduce both naturally and artificially, but the growth of the seedling is very slow. The timber is hard, heavy, tough and difficult to work and saw. The tree is seldom felled as considered the most valuable for its flowers and fruits by the local people. The flower is the most important products of the tree. The fleshy corollas being reach in sugar are widely used as food commodities by the tribals. It is also a potential raw-material of country liquor. The wild animals specially bears are fond of Mahula flowers. The seeds yield a greenish yellow oil used as cooking and burning by the tribals. This is also used in manufacture of soap, margarine and glycerine.

3.1.3.14 Sidha (Lagerstroemia parviflora) Roxb. Pl. Corom Family – Lythraceae

Commonly a small deciduous tree. Bark smooth greyish, leaves narrow elliptic or oblong 5-8.5 x 2.5-3.7 cm. Flowers small white and sweet scented and appear in April - May. Tree is leafless from February to March. Fruits capsule ellipsoid, 1.8-2.5 cm long, polished, 3 sometimes 4 valved. Splitting open in December- January. Seeds with a terminal wing 1.5-1.8 cm long including the wing. The tree is typical of dry deciduous mixed forest, growing on a verity of soil, but thrives best on deep loam. It is not browsed by cattle or goats. It is a decided light-demander, frost- hardy and stands drought well, a good coppicer, reproduces both naturally and artificially the timber is heavy, hard greyish brown but darker near the centre. It is used for all purposes as substitute of Sal. It is an excellent fuel and gives a very good charcoal. The poles are used extensively as rafter for house buildings in the rural area and also agricultural implements.

3.1.3.15 Kendu (Diospyros melanoxylon) Roxb. Pl. Corom Family – Ebenaceae

Usually a small or moderate sized but rarely a large tree with a straight bole and rounded branchy crown. Bark black and rough with rectangular plates or scales. Leaves mostly sub-opposite, broadly ovate, 10 – 22 x 5 – 12.5 cm. shining above and greyish green below, young leaves are softly pubescent and a delicate pink colour. Apex acute old leaves coriaceous flowers unisexual male and female flowers are separate. These small flowers appear in May. Fruit globose 2.5 – 5 cm. diameter smooth yellow when ripe fruiting calyx thick. Fruit is edible and palatable seeds 3 – 4 cm. It is commonly available in dry mixed

deciduous forests. Most common occurrence is in dense growth of small Kendu plants arising from root suckers. This is very important revenue fetching plant in view of producing Kendu leaves popularly called "Green Gold". It is one of the hardiest species and withstands shade well in its early stage. It can resist both drought and frost extremely and not at all susceptible to grazing and browsing. It can grow on poor soil. It coppices and produces root suckers freely. Natural reproduction is very good. The timber is reddish brown with a small black irregular heartwood. It is hard, heavy and takes good polish. The most important use is the collection of young leaves arising out of the shoots from root suckers in the wastelands.

3.1.3.16 Karla / Karada (Cleistanthus collinus) Family – Euphorbiaceae

A small rarely a moderate sized deciduous tree. Bark nearly black, rough but the blaze is red. Leaves obovate 1.8 – 11 x 1.8 – 8 cm. rounded to retuse at both ends.The trees leafless during March – April, flowering April and May. Flowers green small 6.2 – 7.5 mm. across, appearing with the leaves. Males clustered, female often solitary sessile. Fruits capsule subglobose 1.8 – 2.5 cm. diameter, woody chestnut brown coloured when ripe. The fruit ripens in March – April of the following year. It is occurring mostly in poor hilly areas and also on clay soil. Most commonly associated with miscellaneous species noticeably Dhaura and Asan. Sometimes it is gregarious on dry hill side. A very hardy tree which withstands fire and grazing very well. An extremely well coppicer and produces numerous shoots. It also produces root suckers. The wood is day reddish brown, tough, close grained and heavy. Being resistant to white ant, it is in much demand for use as house post and rafters, locally called Dely and Patty. In poorest dwellings, the walls are made up Karla saplings and brush wood and roof of the same material with thatch over it. The fruit is used to catch fish through poisoning. The bark contains tannin. It is not only most commonly available but a much demanded house building material of the rural mass of Kalahandi.

3.1.3.17 Moi / Raji Mohi (Lannea coromandalica) Family – Anacardiaceae

A small to moderate sized deciduous tree. Bark light coloured and smooth in young trees but rough and dark in old ones. Leaves 10 – 25 cm. long, clustered at the end of thick branchlets. Leaflets 5 – 9 or more, ovate or ovate oblong 6 – 14 x 2.5 – 4.5 cm. entire acuminate, oblique at the base. Flowers small, yellowish green, dioecious.Flowering during March – April.Fruits drupes red curved oblong and compressed 1 – 1.5 cm. long.Fruiting during April to June. The tree remains leafless during November to May. It is very often available in moist mixed deciduous forests. Timber is used mostly for miscellaneous purpose.

3.1.3.18 Char (Buchanania lanzan) Family – Anacardiaceae

A small sometimes moderate sized deciduous tree with a straight trunk and rough dark grey or black bark, blaze reddish. The tree sheds its leaves in April – May and renews them in June. The leaves simple, alternate, stiff and strongly nerved, 12 – 20 cm. long. Small greenish white flowers appear in dense pyramidal panicles from January to March. Fruits black ovoid ripen during April – May. It is one of the common associate of Sal in dry mixed deciduous forest. Frequently occurs in eroded land as well as lateritic soil. It is a moderate light demander being tolerant of a fair amount of shade, but very sensitive to frost. It is fairly resistant to drought and the damage due to grazing is also less. The coppicing ability is poor. The wood is grayish brown and its use is not much in demand. The most important utility of this tree is its seed kernel called "Chironji" a white nut which is wildly used in preparation of sweetmeats. The ripe fruit is also edible.

3.1.3.19 Bela (Aegle marmelos) Family – Rutaceae

Small or medium sized tree. Spines 1 – 2 axillary strong petiole 2.5 – 6.5 cm. leaf lets ovate 5 – 10 x 2.5 – 3.5 cm. trifoliate terminal one larger flowers greenish white in very numerous lateral and sub-terminal simple panicles. Flowering during March to April alongwith new leaves fruit berry globose woody 5 – 7.5 cm. diameter. Fruit ripens after one year of flowering. Seeds embedded in a clear mucilage and yellow sweety aromatic pulp. It is available naturally in Bazargarh RF of Kesinga Range. It is a medicinal plant, its leaves and fruits are used as medicinal purpose. The leaves are sacred offering in the temple particularly for Lord Shiva.

3.1.2 General Description of Growing Stock:

Growing Stock is defined as the sum (by number or volume) of all the trees growing in the forest or a specified part of it. But generally it means the vegetation particularly the tree crop as a whole of a particular area or locality. Forestry is an applied biological science. It is difficult to categorize it in a specific and concrete manner. However as experienced from the application of various methods in forestry, the effective result is obtained within a limited range of similar conditions of forest. So it is necessary to classify the forests in a broad based manner into different types for facilitating the use of proper method specific to the category of forests. Accordingly a forest type is defined as a vegetation unit, which possess (broad) characteristics in physiognomy and structure sufficiently pronounced to permit of its differentiation from other such units. It is very much essential for the management of the forest. Hence the discussion is focussed here on the types of forests occurring in different localities of the Division. Champion and Seth have broadly classified the forests of India into 16 (Sixteen) types under different major group, group, sub group. The forests of undivided Kalahandi Division belong to one major group i.e. Tropical. It is further divided into two groups namely Tropical Moist and Tropical Dry. Each group has 2 (two) sub-groups called Northern and Southern. Then the type is determined considering various climax formation like Climatic Climax, Edaphic Climax etc. According to Champion and Seth classification following types and sub-types of forests are found in Kalahandi, the details of which has been discussed in following paragraphs.

Tropical Moist Deciduous Forests: -

3B/c_2	Southern Moist Mixed Deciduous Forest
3B/c_2/2S1	Southern Secondary Moist Mixed Deciduous Forest
3C/c_2(e)	Northern Moist Deciduous Forests-Moist Peninsular Sal.
3C/c_2e(i)	Northern Moist Deciduous Forest- Moist Peninsular High Level Sal.
3C/c_3	Northern Moist Mixed Deciduous Forest
3C/c_3/2S1	Northern Secondary Moist Mixed Deciduous Forest

General Edaphic and Seral Type: -

3C/E	Terminalia tomentosa Forest.

Tropical Dry Deciduous Forests: -

5A/c_1 Southern Dry Deciduous Forests-Dry Teak Forest.

5A/c_3 Southern Dry Mixed Deciduous Forest.

5B/c_1(e) Southern Dry Deciduous Forests-Dry Peninsular Sal.

5B/c_2 Northern Dry Mixed Deciduous Forest.

5B/c_2/s_1 Northern Secondary Dry Mixed Deciduous Forest.

General Edaphic Type: -

5B/E_2 Boswellia Forests

5B/E_6 Aegle Forests

5B/E_9 Dry Bamboo Brake

3B/c_2/2S1 Southern Secondary Moist Mixed Deciduous Forest: -

This type of forests are noticed in portion of Benakhamara, Kucheighati, Ampadar, Bijaghati, Thakurani padar Blocks of Th.Rampur Range. This type of vegetation has come up due to shifting cultivation in the past, which has replaced the primary forest specially in damp hollows where it is encountered. The crop is scattered trees here and there with thick growth of deciduous shrubs and thick grass covers on the ground. The main species found here Kangra (Xylia xylocarpa), Chhatian (Alstonia scholaris), Haldu (Adina cordifolia) etc.

The top story is represented by Xylia xylocarpa, Alstonia scholaris, Adina cordifolia, Albizzia chinensis, Bombax ceiba, Mangifera indica, Syziqium cumini, Ailanthus excels.

Under storey is represented by Careya arborea, Mallotus phillipinensis, Caseria tomentosa, Kydiya calycina,.

Ground cover is represented by Clerodendron viscosum, Helicteres isora, Colebrokia oppositifolia, Crotolaria juncea, Ardisia solanaceae. Bamboos are totally absent in such type of forest.

3C/c2(e) Northern Moist Deciduous Forest-Moist Peninsular Sal: -

This type is found in Sunamukhi, Benaguda, Dengen, Telen, Jerka, Taparang, Urladani RFs of M.Rampur Range in Kalahandi North Division and in Sargiguda, Dhepguda, Champadeipur, Patraguda, Benbhata, Bori, Machul, Raul, Dulma, Jhimiri, Jalkrida RFs of Biswanathpur Range and Benakhamara, Uparchirika, Ranipadar, Khakes, Kuspari, Goelkhoja, Thakuranipadar RF blocks of Th.Rampur Range in Kalahandi South Division. The crop is mainly Sal Quality-III to IV and at places having good soil depth is Quality-II. The associates of Sal are Sahaj (Terminalia tomentosa), Bija (Pterocarpus marsupium) and in moist sites and nala banks Jamun (Syzygium cumini) and Arjun (Terminalia arjuna) is found.

The top storey is represented by Terminalia tomentosa, Terminalia belerica, Xylia xylocarpa, Pterocarpus marsupium, Anogeisus latifolia, Diospyrus melanoxylon,

Lagerstromia parviflora, Adina cardifolia, Mitragyna parviflora, Dalbergia latifolia, Gmelina arborea, Briderlia retusa, Stereospermum suaveolens, Madhuca indica, Dalbergia paniculata, Alibizzia procera, Alibizzia chinensis, Bombax ceiba, Hymenodictyon excelsum, Schleichera oleosa, Dillenia pentagyna. In moist sites Syzygium cumini, Mangifera indica, Terminalia arjuna, Anogeisus acuminata, Michelia champaca also occur.

The under storey is represented by Cleistanthus collinus, Ougenia oogenensis, Emblica officinalis, Buchnania lanzan, Bahuhinia retusa, Bauhinia recemosa, Randia uliginosa, Grewia tiliafolia, Cassia fistula, Mallotus phillipanensis, Ficus cunia, Ficus glomerata, Ficus infectoria, Semicarpus anacardium, Miliusa veiutina. In dry rocky areas Gardenia latifolia and Chloroxylon swetenia are seen.

The ground cover is represented by good Sal indicators like Indigofera pulchella, Clerodendron infortunatum, Flimingia chappar besides Murraya koengia, Desmodium pulchella, Petalibium barleriodes, Asparagus racemosus, Holarrhena antidysentrica, Helictreris isora, Wrightia tomentosa, Pogostemon plectranthoides, Glycosmis pentaphylla and weeds like Eupatorium, Ageratum. In some water logged areas Phoenix acaulis is seen.

3C/c2e(i) Northern Moist Deciduous Forest-Moist Peninsular High Level Sal: -

This type of Sal forest is found in Kadalighati and Jerka RF of Kalahandi North Division. The Sal here is of poor Quality-IV to V. The associates of Sal here are Sahaj (Terminalia tomentosa), Bahada (Terminalia belarica), Harida (Terminalia chebula), Haldu (Adina cordifolia), Jamun (Syzygium cumin) etc.

The top storey is represented by Terminalia tomentosa, Terminalia chebula, Xylia xylocarpa, Pterocarpus marsupium, Adina cordifolia, Syzygium cumini, Grewia tiliaefolia, Bauhinia retusa, Cedrela toona, Grewia elastica, Colebrookia oppositifolia.

The ground flora constists of Gardenia gummifera, Woodforida fruticosa, Zyzyphus rugosa. The commonly met grasses are Arundianella sectosa, Themeda triendra.

3C/c_3/2s1 Northern Secondary Moist Mixed Deciduous Forest: -

This type of forests is found in small isolated sheltered pockets in Urladani, Telen, Jerka, Taparang RFs of Kalahandi North Division. The crop here is extremely complex and heterogeneous in nature having varieties of valuable species i.e. Sal (Shorea robosta), Bija (Pterocarpus marsupium), Haldu (Adina cordifolia), Mundi (Mytrgyna parvifolia), Kusum (Schleichara oleosa), Mahul (Madhuca indica) etc.

The top storey is represented by Shorea robusta (sporadic), Pterocarpus marsupium, Adina cordifolia, Terminalia tomentosa, Mitragyna parviflora, Schleichera oleosa, Dillenia pentagyna, Bombax ceiba, Madhuca indica, Mangifera indica, along the nalla and stream banks Syzygium cumini.

The under storey is represented by Grewia elastica, Bridelia retusa, Buchnania lanzan, Kydia calycina, Caseria tomentosa, Mallotus phillipinensis,

3C/E Terminalia tomentosa Forest: -

This type of forest is found in patches of heavy clay soil and flat land in the valleys of Raul and Utei River in Taparang, Urladani & Sunamukhi Blocks. The over wood consists of Sahaj (Terminalia tomentosa) is about 70% in Kadokhaman Block of Th.Rampur Range etc. The common associates area Bahada (Terminalia chebula), Harida (Terminalia balarica), Patuli (Lagestroemia parviflora), Moi (Lanea coromandelica), Haldu (Adina cordifolia) etc.

The top story is represented by Terminalia belerica, Lagerstromia parviflora, Lannea coromandalica, Adina cordifolia, Syzygium cumini, Albizzia odoratissima, Garuga pinnata, Dalbergia paniculata and Sal (sporadic).

The under storey is represented by Cleistanthus collinus, Soimida fabrifuga, Stereospermum suaveolens, Buchnania lanzan. The under growth consists of Aspargus racemosus, Holarrhena antidysentrica.

5A/c1 Southern Dry Deciduous Forest-Dry Teak Forest: -

This type of forests are met with in larger parts of Nageswar Block, Adabari Block, Bisbareni Block, lower foothill of Gujia, part of Chura, Kumkot Block of Kegaon Range of Kalahandi North Division. Sal with teak is seen in Kumkot Block. Associates of Teak are Boswellia serrata and Lanea coromandalica.

The top storey is represented by Boswellia serrata, Lannea coromandalica, Anogeissus latifolia, Dalbergia paniculata, Madhuca indica, Adina cordifolia, Terminalia tomentosa.

The under storey is represented by Careya arborea, Cleistanthus collinus, Chloroxylon swietenia, Lagerstromia parviflora.

The ground cover is represented by Dendrocalamus strictus of very poor quality present, with rhizomes exposed.

5A/c3 Southern Dry Mixed Deciduous Forests: -

This type of forest is found in Bisbareni, Adabari, Ghatual, Gujia, Kumkot, Chura, Dhanupancham and Nageswar Blocks. Besides in Lini and Bazargarh Blocks this type of forests met with sprinkling of teak. Bamboo of medium to poor quality are also noticed in the upper reaches of Chura Block. Other associates mainly found are Salai (Boswellia serrata), Moi (Lanea coromandelica), Kendu (Diospyrus melanoxylon), Patuli (Lagerstroemia parviflora), Dhoben (Dalbergia panniculata), Sahaj (Terminalia tomentosa) etc. On the lower storey Anla (Emblica officinalis), Khair (Acacia catechu) etc. are seen. The under growth consists of Dhatuki (Woodfordia) and Phonex etc.

The top storey is represented by Angeissus latifolia, Boswellia serrata, Lannea coromandalica, Dalbergia paniculata, Terminalia tomentosa are found.

The under storey is represented by Gardenia gummifera, Cochlospermum gossipium, Chloroxylon swietenia, Accacia catechu, Zyziphus glaberrima, Aegle marmelos, Randia collinus and Dendrocalamus strictus of poor to medium quality.

The ground cover is represented by Woodforida fruticosa, Nyctanthes arboritristics, Dodonaeaviscosa is found in eroded soils.

5B/c1(e) Southern Dry Deciduous Forests- Dry Peninsular Sal: -

This type of forests occur in Dangerla area forming a belt in between moist peninsular Sal and dry mixed deciduous forests. The example of this type of forests is seen in Sunamukhi, Benaguda, Taparang, Urladani, Telen, Jerka, Satami, Dengen, Sadel 'A' and 'B', Sripali, Bhatel, Narla, Kidding, Kadalighati, Samajhola, Porgel, Alma, Kanamanjuri, Nehela, Jugsaipatna, parts of Sahajkhol Blocks. Sal is 50% to 60% and the quality varies from III to IV. Common associates of Sal are Bija (Pterocarpus marsupium), Sahaj (Terminalia tomentosa), Dhaura (Anogeissus latifolia) etc. The under storey consists of Anla (Emblica officinalis), Mahula (Madhuca Indica), Chara (Buchanania lanzan), Zyziphus glaberrima, Celistanthus collinus etc. The ground flora consists of Indigophera pulchella and Dhatuki (Woodfordia fruticosa), Helicteres isora, Ixora parviflora, Phoenix acaulis etc. The climbers are not much in these forests.

5B/c_2 Northern Dry Mixed Deciduous Forests: -

This type of forests occurs in Sahajkhol, Belagaon particularly in steep slope and drier aspects of almost all the blocks. The Sal quality is very poor here. The associates of Sal are Dhaura (Anogeissus latifolia), Karla (Cleistenthus collinus) are common. The under storey consists of Chara (Buchanania lanzan), Bahada (Terminalia chebula), Sunari (Cassia fistula), Anla (Emblica officinalis), Bhalia (Semicarpus anacardium) etc. The under growth here are Telkerua (Ixora parviflora), Gangsiuli (Nyctanthus arbortristis) etc. There are very much unpalatable grass cover found in the ground.

The top storey is represented by Anogeissus latifolia and Cleistanthus collinus are most common species. Besides these Pterocarpus marsupium, Xylia xylocarpa, Adina cardifolia, Mitragyna parviflora, Lannea coromandelia, Diospyrus melanoxylon, Terminalia tomentosa, Terminalia belerica, Dalbergia paniculata, Dalbergia sisoo, Gemlina arborea are also seen.

The under storey is represented by Ougenia oojenensis, Buchanania lanzan, Terminalia chebula, Cassia fistula, Casearia tomentosa, Emblica officinalis, Semecarpus anacardium are commonly seen, besides Salia bamboos which is of good to medium quality.

The ground cover consists of Nyctanthus arbortristis, Randia uliginosa, Gardenia gummifera, Zyziphus acnoplia, Ixora parvifolia, Carissa opaca. Climbers are generally sparse and few.

5B/c2s(i) Northern Secondary Dry Mixed Deciduous Forests: -

This type of forests occur in many blocks like Daka, , Dhanupanchan, Dhangda-Dhangidi, Kumkot, Ghatual, Lini, Sinang, Chura 'A' & 'B', Brahmani, Singari, Madakhola, Bazargarh, Nageswar, Sahajkhol etc. Natural vegetation has virtually reduced to scrub over extensive areas due to biotic interferences like illicit felling, fire and grazing. The tree growth is of hardly 3-5 meter high. The species found are mostly Karla (C.collinus), Dhaura (A.latifolia), Kendu (D.melanoxylon), Patuli (Lagerstroemia parvifolia), Sahaj (T.tomentosa) and Sal in patches and bamboos are seen sporadically. These forests are surrounded by thickly populated villages. The crop can be restored and established by constant and strict protective measures if adopted.

The top canopy is represented by Anogeissus latifolia, Celistanthus collinus which are most common. Besides these Diospyrus melanoxylon, Mitragyna parviflora, Xylia xylocarpa, Terminalia tomentosa, Terminalia belarica etc. are also found.

In the under storey Buchanania lanzan, Ougenia oojenensis, Emblica officinalis, Cassia fistula etc. are found.

Ground flora consists of Ixora parviflora, Carissa opaca, Gardenia gummifera, Zyziphus species etc.

5B/E$_2$ Boswellia Forests: -

This type is edaphic type of forest found in pure crop in Nageswar, Adabari, Bisbarini, Sahajkhol Blocks in patches and also scattered in other blocks. It is also seen in Narla RF in large quantity. Common associates are Mohi (L.coromandelica), Dhoben (D.paniculata), Ganiari (C.gossypium), Kendu (D.melanoxylon) etc. Teak is seen in Nageswar, Bisbarini and Adabari blocks alongwith Baswellia.

The tope storey is represented by Lannea coromandelica, Dalbergia paniculata, Cochlostermum gossypium, Diospvros melanoxylon, Sterulia urens. Teak is seen in Nageswar, Bisibern and Adabari blocks in association with these species.

The middle storey is represented by Emblica officinalis, Chloroxylon swietenia, Randia uliginosa.

The ground cover is represented by Nyctanthes arbortistis, thorny species like Ziziphus aenopplia.

5B/E$_6$ Aegle Forests: -

This is one of the edaphic climax types in dry deciduous forests. Aegle marmelos predominates often forming nearly pure consociation. It is only leafless for a short period. Acacia catechu and Emblica officinalis are the most common associates alongwith Nyctanthes arbotristis. Aegle has the good reproduction vigour by root suckers. This type is found in a portion of Bazargarh Reserve Forest near village Singhjharan under Kesinga Range.

The top storey is represented by Aegle marmelos, Acacia catechu, Adina cordifolia, Lannea coromandelica etc.

The ground flora is Mimosa rubicaulis, Heteropogon contorerius etc.

5B/E9 Dry Bamboo Brakes: -

In this type of forest Bamboos (Dendrocalamus strictus) are commonly met with. This type occurs throughout the hills except the tree zone and extends the foothills at places. The bamboos are seen forming pure crop in steep and dry hills, which were subjected to Podu cultivation in the past and has given space for bamboos to come up. The quality of bamboo varies from poor to good quality. Generally good quality bamboo is seen all over, except in Chura ‘A’ and ‘B’ where the bamboo quality is poor to medium. The regeneration is quite satisfactory but the collection of Kardi (young tender culms) for food purpose by the people during rains is a menace.

The top storey is represented by Anogeisus accuminata, Terminalia arjuna, Barringtonia acutangula, Pongamia pinnata, Ficus hispida, Ficus cumea, Steblus asper, Ixora parviflora, Alangium salvifolium, Cipadessa haccifera.

3.2 Plant Species Diversity:

3.2.1 Biodiversity assessment in terms of density, frequency, total basal cover, dominance, IVI have been added in **Appendix-XII.**

Kalahandi North Division

Table no.3.1

Sl.No.	Name of the Division	>70%	40-70%	10-40%	<10%/Non- forest
1	Kalahandi North Division	7730.47	20889.56	50420.68	41847.15

The canopy density map prepared by NRSA, Hyderbad is given separately.

3.3 Status of biodiversity conservation in forests:-

3.3.1 Biodiversity is a contraction of biological diversity. Biodiversity reflects the number, variety and variability of living organisms. Biodiversity **is the foundation of** ecosystem services **to which human** well-being **is intimately linked.** No feature of Earth is more complex, dynamic, and varied than the layer of living organisms that occupy its surfaces and its seas, and no feature is experiencing more dramatic change at the hands of humans than this extraordinary, singularly unique feature of Earth. This layer of living organisms—the biosphere—through the collective metabolic activities of its innumerable plants, animals, and microbes physically and chemically unites the atmosphere, geosphere, and hydrosphere into one environmental system within which millions of species, including humans, have thrived. Breathable air, potable water, fertile soils, productive lands, bountiful seas, the equitable climate of Earth's recent history, and other ecosystem services are manifestations of the workings of life.

3.3.2 Since there is admitted threat to the biodiversity, it is required to be conserved. Thus, in order to monitor and conserve biological diversity, it is important to have ways of measuring and documenting the levels of diversity. As there is diversity between individual, subspecies, species, biological communities and ecosystems, it can be distinctively recognized at three levels namely Species level (Between species); Genetic level (within species) and Ecosystem level (within ecosystems & habitats). The most useful level is the species which is defined as "a population whose members are able to interbreed freely under natural conditions". Thus, the ultimate measure of biodiversity is the total number of species in existence.

3.3.3 The natural forests possess myriad of living organisms that are inter-dependent for their survival. So, depletion of any one species will adversely affect the population of other species. Present management of forests is aimed at maintaining this symbiotic relationship. The study conducted in this plan has aimed at knowing the species richness of different flora only. Therefore, it is more appropriate to say it Floristic Diversity instead of Bio- Diversity. With better understanding of interdependence of species, floristic diversity importance has been realized of late. Now each and every tree, herb, shrub, climber, fungi, algae etc. are equally waiting for the scientific research to prove it to be indispensable for the benefit of mankind. Hence emphasis has been laid on the floristic diversity studies in this Plan.

3.3.4 Biological diversity can be quantified in many different ways. The two main factors taken into account when measuring diversity are richness and evenness. Richness is a measure of the number of different kinds of organisms present in a particular area. For example, species richness is the number of different species present. However, diversity depends not only on richness, but also on evenness. Evenness compares the similarity of the population size of each of the species present.

- **Richness: It is a measure of the number of species found in as sample denoted by 'S'.** The more species present in a sample, the 'richer' the sample, the number of species is divided by the square root of the individuals in the sample. This particular meaure of species richness is known as R, the Menhinick's Index

$$R = \frac{S}{\sqrt{N}}$$

Where **'s'** equals the numbers of different species represented in the sample, and '**N'**equals the total number of individual organisms in the sample.

Species richness as a measure on its own takes no account of the number of individuals of each species present. It gives as much weight to those species which have very few individuals as to those which have many individuals. Thus, one Sal Tree has as much influence on the richness of an area as 1000 Piasal Trees.

- **Evenness:** Evenness is a measure of the relative abundance of the different species making up the richness of an area. It is calculated by dividing Shannon's diversity index H by natural logarithm of species richness ln(S)

Evenness(E) = H'/ln(S)

To give an example, we might have sampled two different fields for tree species. The sample from the first field consists of 300 Asana, 335 Sal and 365 Piasal. The sample from the second field comprises 20 Asana, 49 Sal and 931 Piasal (see the table below). Both samples have the same richness (3 species) and the same total number of individuals (1000). However, the first sample has more evenness than the second. This is because the total number of individuals in the sample is quite evenly distributed between the three species. In the second sample, most of the individuals are piasal, with only a few sal and Asana present. Sample 2 is therefore considered to be less diverse than sample 1.

Tree Species	**Numbers of individuals**	
	Sample 1	**Sample 2**
Asana	300	20
Sal	335	49
Piasal	365	931
Total	**1000**	**1000**

Thus, a community dominated by one or two species is considered to be less diverse than one in which several different species have a similar abundance.

As species richness and evenness increase, so diversity increases. Simpson's Diversity Index is a measure of diversity which takes into account both richness and evenness.

Simpson's Index (**D**) measures the probability that two individuals randomly selected from a sample will belong to the same species (or some category other than species). There are two versions of the formula for calculating **D**. Either is acceptable, but be consistent.

$$D = \frac{\Sigma n(n-1)}{N(N-1)} \qquad D = \Sigma(n/N)^2$$

D refers to Floral-diversity Index which is a ratio and varies from 0 to 1
n = the total number of organisms of a particular species
N = the total number of organisms of all species

The value of **D** ranges between 0 and 1

With this index, 0 represents infinite diversity and 1, no diversity. That is, the bigger the value of D, the lower the diversity. This is neither intuitive nor logical, so to get over this problem, D is often subtracted from 1 to give:

Simpson's Index of Diversity 1 - **D**

The value of this index also ranges between 0 and 1, but now, the greater the value, the greater the sample diversity. This makes more sense. In this case, the index represents the probability that two individuals randomly selected from a sample will belong to different species.

Another way of overcoming the problem of the counter-intuitive nature of Simpson's Index is to take the reciprocal of the Index:

Simpson's Reciprocal Index 1 / **D**

The value of this index starts with 1 as the lowest possible figure. This figure would represent a community containing only one species. The higher the value, the greater the diversity. The maximum value is the number of species (or other category being used) in the sample. For example, if there are five species in the sample, then the maximum value is 5.

3.3.5 Since there is admit threat to the Biodiversity it is, required to be conserved for which steps like identification of all potential Biodiversity rich area are mapped, degraded patches are restored as per prescription of Working plan, shifting cultivation are protected, J.F.M committee are being encouraged periodically, awareness are created among the people on the protective, productive and ecological role of forest, strengthening livelihood security who are staying adjoining to the forest area, forest protection act and environment act are regulated.

3.3.6 In this alarming situation conservation of these Biodiversity rich wealth is very important. As most of these plant have been reduced to a greater extent and even some endemic and endangered species disappear from the forest, steps are taken in the areas for in-situ as well as ex-situ conservation this task undertaken not only by the Govt. but also by the VSS . Plants are raised in the Mega Nursery / Central Nurseries and seeds are also collected locally. Steps are being taken to implement the Biodiversity act 2002 and Biodiversity rule 2004 by forming committee at each Panchayat level for Biodiversity conservation in forests.

3.3.7 Nos. of squad engaged year and scheme wise

Table no.3.2

Year	No. of squad	Person Engaged		
		CAMPA	GENERAL	Total
2007-08	0	0	0	0

2008-09	2	0	20	20
2009-10	4	20	20	40
2010-11	4	20	20	40
2011-12	4	20	20	40
2012-13	4	20	20	40
2013-14	4	20	20	40
2014-15	4	20	20	40
2015-16	4	20	20	40
2016-17	4	84	20	104
2017-18	4	84	20	104
2018-19	4	84	20	104
2019-20	4	84	20	104
2020-21	4	84	20	104

3.3.8 Year wise weed eradication (ha) in elephant corridor

Table no.3.3

Year	Area Covered in ha.	Year	Area Covered in ha.
2007-08	0	2012-13	0
2008-09	0	2013-14	0
2009-10	0	APO 2014-15	33.5
2010-11	0	2015-16	0
2011-12	0	2016-17	0
2017-18	0	2018-19	0
2019-20	0	2020-21	0

3.3.9 Fodder plantation

Table no.3.4

Year	**Area in ha**
2007-08	0
2008-09	0
2009-10	0
2010-11	0
2011-12	0
2012-13	0
2013-14	10
2014-15	5
2015-16	10
2016-17	0
2017-18	10
2018-19	0
2019-20	0
2020-21	30
Total	30

3.3.10 Nos. of pond excavated year wise

Table no.3.5

Year	**No. of Pond constructed**
2007-08	1
2008-09	0
2009-10	2

2010-11	0
2011-12	4
2012-13	9
2013-14	16
2014-15	1
2015-16	1
2016-17	1
2017-18	1
2018-19	1
2019-20	2
2020-21	2
Total	**41**

3.4 Status of species prone to over exploitation:-

3.4.1 In Kalahandi North forest Division specially Timber, firewood and Bamboo are harvested through the agency OFDC Ltd. as per approved plan / scheme. In some cases over exploitation of medicinal plant like Phan Phana , Harida, Bahada, Anla, Patal Garud, Bhuin Neem are done by the local tribal for selling purpose which leads depletion of these medicinal plant all the above species are to be given equal importance for conservation of species of Biodiversity and development of forest. Emphasis is to be given on conservation of balance forest and planting of more medicinal plants. The fruit bearing and NTFP species such as Mahula, Amla, Char, Kendu, Bahada, Harida and Bela is not to be felled.

3.4.2 At each Panchayat Level Biodiversity management committee shall be constituted under Biodiversity act 2002 and Biodiversity Rule 2004.

3.5 Conservation of genetic Resource:-

3.5.1 Nineteen Forest blocks namely Nageswar RF (3020 Ha),Jerka RF (1019 Ha) ,Satami RF (1898 Ha,) Sunamukhi RF (2393 Ha), Taprang RF (7181 Ha),Telen RF (2660 Ha),Benaguda RF (4974 Ha),Ramud PRF(597.07),Sulia PRF (5668 Ha.),Manikera PRF (66.4 Ha.),Mundramaska PRF (750 Ha.), Tal Nuagaon PRF (277.73 Ha.), Puijhari PRF (2251.21 Ha.),Pongabaju PRF(2331.91 Ha), Bidabaru (Harlanga) PRF (1464.8 Ha.), Pudrimahul DPF (303 Ha.), Porgel RF (1712 Ha.), Urladani RF (10528 Ha.) and Dengsur DPF (255.06 Ha) have been proposed to be kept under Protection Working Circle for existed rare endangered and threatened faunal and floral genetic resources.

3.5.2 With a total area of 49350.18 Ha have been earmarked for total genetic conservation in the current Plan. In this area absolute in-situ genetic conservation will be ensured without any external intervention. No other forestry activities except protection from grazing, forest fire and invasive weed will be taken up there. To access floristic and faunal diversity required Permanent Sample Point (PSP) will be laid out in the area and biodiversity in the time scale will be surveyed, different indices will be accessed and recorded. During the survey of the forest, few undeclared elephant corridors have been identified in Narla Ranges. The floristic survey of these areas needs to be carried out during the plan period and necessary intervention of introduction of NTFP fodder species may be made.

3.6 Fauna and their habitats:

Once upon a time, the forests of Kalahandi were reputed for abundance of Wild Fauna-both Herbivora and Carnivora. The deterioration of habitat, increasing level of pressures and some ancillary factors have contributed towards rapid decline in the population

of forest fauna and also pushed it to the brink of precarious situation compelling for an immediate and all out effort to conserve the same. Though the fauna includes all the groups of animal kingdom, the scope of description in this chapter is confined to some important species belonging to Mammals, Birds, Reptiles and Fishes available in the forests of Kalahandi at present.

Section-I Mammals

3.6.1 This belongs to Phylum-Chordata, Sub-Phylum-Vertebrata and class Mammalia. The animals are in possession of mammae or teats for sucking by the young. They have mammary gland and nourish their offspring with milk. Other important feature is the possession of hairs, at least in some part of its body at some period of life. This class is the important one among the animal kingdom. The notable mammals found in the forests of Kalahandi are described individually in following paragraphs.

3.6.1.1 Tiger (Bagha) Panthera tigris tigris (Linnaeus)

Order: Carnivora

Family: Felidae

Schedule: I

This animal is designated as vulnerable according to Red Data Book. The species is also included in Appendix-I of CITES. The Indian tiger is rich coloured well-stripped animal with a short coat. There is some colour variation in individual, which varies by season and age. The great majority are game killers, some cattle killers and few sometimes turns man-eater. It normally prays on deer, nilgai, wild pig, bear and porcupines even baby elephants. It also eats fish, reptiles, fowl or carrion. In absence of game animal and other prey animals, they resort to cattle lifting. There is a decline trend in the tiger population of Kalahandi. The census has been carried out at two year's interval. Five census have been conducted during the last plan period. There is a decline trend in the population of tiger during last plan period. But the census data prior to the last plan indicates that the population was also fluctuating. It is revealed from the census data as well as the graph furnished below.

Table no.3.6

Year	Period of Census	Tiger Population			
		Male	Female	Cub	Total
2009	5.01.2009 to 10.01.2009	0	0	**0**	0
2014		0	0	0	0
2016	05.02.2016 to 10.02.2016	0	0	0	0

3.6.1.2 Leopard or Panther (Kalara Patria bagha, Pendra) Panthera pardus (Meyer)

Order: Carnivora

Family: Felidae

Schedule: I

Like tiger, this animal is also designated as vulnerable according to Red Data Book. The species is included in Appendix-I of CITES. Leopards live/thrive in almost any type of forest cover. They kill and eat anything it can over power, which includes deer,

monkey, smaller beasts like porcupine etc. It is bolder and more sneaking than tiger. Its climbing habit makes it a greater menace. Panthers breed all the year round and normally two cubs per litter are born. There is up and down in the population of leopard not only during the last plan period, but also in earlier periods as evident from the data of the census conducted and the chart indicating the population of successive census chronologically. Both the data in table and the chart are furnished below.

Table no.3.7

Year	Period of Census	Leopard Population			
		Male	Female	Cub	Total
2009	5.01.2009 to 10.01.2009	0	0	0	**0**
2014		0	0	0	**0**
2016	05.02.2016 to 10.02.2016	10	6	1	**17**

As per 2016 census, 17 (Seventeen) leopards are found in Kalahandi North Division.

3.6.1.3 Jungle Cat (Bana Biradi, Katas) Felis chaus kutas (Pearson)

Order: Carnivora

Family: Felidae

Schedule: II

It is the most common wild cat of our forests. It prefers drier and more open areas having grassland, scrubby growth, marshes etc. Small mammals, birds and even poultry are its prey.

3.6.1.4 Stripped Hyena (Hunda or Heta Bagha) Hyaena hyaena hyaena (Linnaeus)

Order: Carnivora

Family: Hyaenidae

Schedule: III

This animal has a dog like built, massive head and forehead, weak hindquarters and a heavy dorsal crest of long hairs. It is scavenger in habit feeding chiefly on carrion but at times carry off dogs and goats. It is nocturnal in habit.

3.6.1.5 Indian Wolf (Gadhia, Ramsiali): Canis lupus pallipes (Sykes)

Order: Carnivora

Family: Canidae

Schedule: I

This animal designated as vulnerable as per Red Data Book and also included in Appendix-I of CITES. Wolfs lives in hill forests but also found in bare and open region having bushy growth. It preys on mostly sheep, goats etc. Their population is estimated as 38 approximately during a census on other animal in 2014.

3.6.1.6 Wild Dog (Balia Kukura) Cuon alpinus (Pallas)

Order: Carnivora

Family: Canidae

Schedule: II

It is like domestic dog in general appearance but relatively shorter in leg and muzzle. It differs from wolf, domestic dog or jackal in having six molar teeth in lower jaw instead of seven as seen in the former. Their pack is a family. Such pack increases the chances of killing larger animal. There are instances of killing of leopard by wild dogs. It is rarely available in Kalahandi and its population is estimated as 40 as per the census on other animals conducted during 2002.

3.6.1.7 Jackal (Bilua, Siala) Canis aureus (Linnaeus)

Order: Carnivora

Family: Canidae

Schedule: II

It is very common animal found in almost any environment but it prefers scrub forests near villages and avoid heavy forests. They are also good scavengers in clearance of carcasses and offals. It is considered as a very cunning animal and its running speed is 40 kms per hour when chased.

3.6.1.8 Indian Fox (Koki Siali) Vulpes bengalensis (Shaw)

Order: Carnivora

Family: Canidae

Schedule: II

It is common in open areas as it avoids heavy woods. It lives in a several chambers burrow dug by itself in open ground or in scrub. It is a pretty slender-limbed animal distinctive in the black tip to its tail. It lives on insects, reptiles, birds even domestic poultry and small mammals.

3.6.1.9 Common Mongoose (Neula) Herpestes edwardsi (Geoffroy)

Order: Carnivora

Family: Herpestidae

Schedule: IV

A tawny, yellowish-grey animal with pointed mouth and having no stripe on the sides of its neck. It lives in holes burrowed by itself and feeds on rat, snake, centipedes, lizard and insect of all kind. It is diurnal in habit. It is plentily available in the forests of Kalahandi and its population is estimated as 2500 as per the census conducted during 2002.

3.6.1.10 Honey badger or Ratel (Gada Bhalu) Mellivora capensis indica (Kerr)

Order: Carnivora

Family: Mustelidae

Schedule: I

This animal is designated as insufficiently known as per Red Data Book. Ratels resemble bears; it has the habit of digging great holes in sandy beds of river but prefers hilly broken-country where shelter is easier to find. It preys on birds, reptiles and also eats fruits, honey and carrion. Though its population has not been estimated during 2002 census but it is rare.

3.6.1.11 Smooth coated Indian Otter (Pani Odha) Lutra Perspicillata Perspicillata (Geoffroy)

Order: Carnivora

Family: Mustelidae

Schedule: II

It prefers water for which it is so named. It has a smooth sleek coat. It hunts in flooded area, creeks, estuaries etc. Fish is the main food. It is commonly available with the population estimated as 250 as per the census 2002.

3.6.1.12 Sloth Bear (Bhalu) Melursus ursinus ursinus (Shaw)

Order: Carnivora

Family: Ursidae

Schedule: II

This animal is included in Appendix-I of CITES. It is found all over the forest of Kalahandi where there is sufficient forest cover to provide food mainly fruits and insects. Its favourite food is Mahua flower, berries and white ant. It has also the climbing habit. Sometimes it shakes trees with its great paws to collect fruit. This animal comes out shortly before the sunset and hunts for food all the night and then retire in the morning. It attacks people when taken by surprise. There are some attacks causing human injuries during the last Plan Period. The population has been estimated as 53 during 2014 census.

3.6.1.13 Small Indian Civet (Salia patani) Viverricula indica indica (Desmarest)

Order: Carnivora

Family: Viverridae

Schedule: II

This animal is nocturnal in habit. It hunts during night like other civets. It preys on rats, squirrels, small birds, lizards, insects and their grubs and also poultry. In addition it feeds on fruits, roots and other vegetable matter. It has a sweet odour.

3.6.1.14 Sambar (Sambar) Cervus unicolor niger (Blainville)

Order: Artiodactyla

Family: Cervidae

Schedule: III

A forest loving animal generally frequents the high and thick inaccessible hills. It is largest among the Indian deer and carries the grandest horns. It is nocturnal in habit and grazes chiefly at night. It returns to hilltops during the day to choose a shady corner to escape the heat. The food of the Sambar consists of grass, leaves and various kinds of wild fruits. The young ones are born at the commencement of rains, in late May or early June. The males are called stags while the females are named hinds. The young ones are known as fawns. The animal is either seen singly or a party of hinds and fawns without a stag. The population of Sambar has been estimated during 2002 as 1150 in Kalahandi.

3.6.1.15 Spotted deer or Chital (Harina) Axix axix axix (Erxleben)

Order: Artiodactyla

Family: Cervidae

Schedule: III

It is gregarious in habit and less nocturnal than Sambar. It is perhaps the most beautiful of all deer and quite adaptive species. They are seen in herds of 10 to 30, which may contain 2 or 3 stags. Several herds also found together. It prefers low lying lands close to water source and seldom choose more hilly tracks for their habitat. Shedding of horns is extremely irregular but usually during July and August. They feed late in the morning and careless of the neighbor hood of human beings. So it often falls as an easy prey. The population of spotted deer is estimated as 2600 during 2002 census.

3.6.1.16 Barking Deer (Kutura) Muntiacus muntjak malabaricus (Lydekker)

Order: Artiodactyla

Family: Cervidae

Schedule: III

It is commonly available throughout the forests of Kalahandi. It is seen singly or in pairs or in small groups. They prefer more or less thick forests and sometimes come out to graze in the open patches or in outskirts of the forests. They are diurnal in habit. The food material consists of grasses, leaves and wild fruits. The rut mainly takes place in the cold weather. The young usually one, sometimes two are born at the beginning of the rains. In appearance, it somewhat resembles with goat. This animal very often becomes victims of the poachers. Its population is estimated as 30 during 2014 census.

3.6.1.17 Indian Bison or Gaur (Gayala) Bos gaurus gaurus (Smith)

Order: Artiodactyla

Family: Bovidae

Schedule: I

This animal has been designated as vulnerable as per Red Data Book and also included in Appendix-I of CITES. This animal is rarely available at present. As per 2002 census, its population has been estimated as 20. It is prone to retire in rains in the hills particularly during daytime to avoid the flies and comes down at night to feed on young grass. It also browses on leaves and eat the bark of certain trees. These animals are fond of visiting saltlicks. Gayala is shy and timid by nature. Their defence is the massive body size and an acute sense of smell. It is a very retiring animal and lives in small herds with generally a fine bull in charge.

3.6.1.18 Wild Pig or Wild Boar (Barha) Sus scrofa cristatus (Wagner)

Order: Artiodactyla

Family: Suidae

Schedule: III

It is commonly available in forests of Kalahandi and its population is estimated as 2500 during 2002 census. These animals are omnivorous. The food consists of various types of crops, roots, tubers, insects, snakes, offals and carrion. The digging of soil for roots and tubers are mostly met within the forest indicating the presence of this animal. It also attacks human beings. Human injury due to attack of this animal have been reported.

3.6.1.19 Indian Hare (Thekua) Lapus nigricollis rugicaudatus (Geoffroy)

Order: Logomorpha

Family: Leporidae

Schedule: IV

Though its population has not been estimated during 2002 census but it is rarely available in the forests of Kalahandi. It is herbivorous in nature. Young and slender grass is the most palatable food material of this animal. It prefers hilly forest areas for its habitat. It can run very swiftly when chased. Its population is estimated as 118 during 2014 census.

3.6.1.20 Common Langur (Hanu Mankada) Presbytis entellus entellus (Dufresne)

Order: Primaie

Family: Cercopithecidae

Schedule: II

This is the most widespread and common of Indian Langurs. It is also plentily available in Kalahandi as evident from the census conducted during 2002 wherein its population was estimated as 8000. It is arboreal in habit. This animal long limbed, long tailed and black faced. The natural food of this animal is leaves; flower and fruits of a large variety of plants but it readily accept cooked food and other vegetables as well as fruits like banana. Now a days money menace is very often reported due to their invasion in domestic area. In

Kalahandi though such menace is not acute but it has been reported sometimes.Its population is estimated as 1037 during 2014 census.

3.6.1.21 Rhesus Macaque (Pati Mankada) Macaca mulatta mulatta (Zimmermann)

Order: Primaie

Family: Cercopithecidae

Schedule: II

It is also commonly available in Kalahandi like Hanu Mankada. The population was estimated as 5000 during 2002 census. This animal has the usual built and their hairs on its crown radiate backwards from the forehead without the neat centers parting. The orange red fur on its loins and rump distinguish it from other Indian monkeys. This is usually found in large troops near temple, villages, townships, in groves around tanks in addition to forests.

3.6.1.22 Indian Elephant (Hati) Elephas maximus indicus (G.Cuvier)

Order: Proboscidea

Family: Elephantidae

Schedule: I

This animal has been designated as vulnerable as per Red Data Book and also included in Appendix-I of CITES. Elephant is the largest terrestrial mammal of Orissa as well as in India. The status of elephants is a good indicator of the health of habitat. Since the elephant requires much larger home range than any other terrestrial animal, it is usually one of the first species to suffer from the consequences of habitat fragmentation and destruction. As reported in Kalahandi District Gazetteers, a few stray elephants appeared in Kalahandi for a few days in 1907. Their occurrence was reported most unusual and novel. In the meanwhile there is a sea change in the situation. Kalahandi at present is a potential area of elephant population. The census carried out during last plan period for an elephant is furnished below.

Table no.3.8

Year	Period of Census	Male	Female	Makhna	Calf	Sub-Adult (Male)	Sub-Adult (Female)	Adult (U.S)	Sub-Adult (U.S)	Juvenile	Total
2007	07.06.2007 to 10.07.2007	2	10	0	1	1	7	0	1	4	**26**
2012	01.06.2012 to 03.06.2012	4	4	0	8	2	10	0	4	2	**34**
2015	26.05.2015 to 28.05.2015	4	5	0	2	3	4	0	0	1	**19**

2017	01.05.2017 to 12.05.2017	1	5	0	3	3	4	0	0	1	**17**

The elephants is mostly confined to Madanpur Rampur and Narla range of Kalahandi North Division .There was a major setback to the elephant population due to the poaching by an interstate gang during 2002-03. Steps have been taken to uplift the elephant population through special management activities under proposed South Orissa Elephant Reserve Plan in which the elephant inhabited area of Kalahandi has been included. However the increase and decrease in population basing on the census data is depicted in chart given below.

3.6.1.23 Indian Giant Squirrel (Belera Musa or Nepali Musa) Ratufa indica centralis (Ryleg)

Order: Rodentia

Family: Sciuridae

Schedule: II

This animal has been included in Appendix-II of CITES. They live in good forests having dense canopy cover. They active and agile animals move from tree to tree taking amazing leaps with limbs spread. It is usually live alone sometimes in pairs. The colour of the hair on its body is shining black with tinge of red. The author has come across this animal in Taparang reserve forest and saw its movement from the branch of one tree to another. Such scene is really spectacular and enjoyable. Its population has been estimated as 250 in Kalahandi during 2002 census.

3.6.1.24 Common Giant Flying Squirrel- Petaurista petaurista philippensis (Elliot)

Order: Rodentia

Family: Sciuridae

Schedule: II

This animal is also available in dense canopy cover. It prefers hill forests. Its population is less than the giant squirrel in Kalahandi. It was estimated as 150 during 2002 census. It is almost similar to the giant squirrel except the occasional flying habit.

3.6.1.25 Indian Crested Porcupine (Jhinka) Hustrix indica indica (Kerr)

Order: Rodentia

Family: Hysiricidae

Schedule: IV

It is commonly available in forests of Kalahandi. Porcupines form a separate family of rodents. Their hair is modified into spines. This animal has a good adaptability for any type of habitat. It can live in both open land and forests. Its number was estimated as 600 during 2002 census.

3.6.1.26 The Indian Pangolin or Scaly Anteater (Bajra Kapta) Manis Crassicaudata (Gray)

Order: Pholidota

Family: Manidae

Schedule: I

This animal is designated as vulnerable as per Red Data Book and also included in Appendix-II of CITES. It is rarely available in the forests of Kalahandi and its population was estimated as 60 during 2002 census. The most distinctive character of this animal is the armour of protecting scales. It is the victim of poaching for this scales which are much priced item for medicines to cure rheumatisms and piles.

3.6.1.27 Indian Flying Fox (Badudi) Petropys giganteus (Brunnich)

Order: Chiroptera

Family: Pteropodidae

Schedule: V

This animal is included in Appendix-II of CITES. It is the largest of Indian Bats usually seen flying with slow wing beats at dusk and roosts during the day in colonies on trees. It is black in colour and a flying mammal.

3.6.2 Section-II Birds

Birds belong to the Phylum Chordata, Sub-phylum Vertebrata and Class Aves. It is derived from the Latin word Avis for birds. Similarly in Greek the bird is called Ornis for which Ornithology is the name of science for bird. Birds are oviparous, warm blooded and amniotic vertebrates. It is also called as feathered bipeds. The anterior extremities of the forelimbs have been transformed into wings. Flight adaptability of birds are light and strong skeleton, powerful muscle, light body weight to conserve heat and provide lift and propulsion. The eyes of the birds are sharpest among all animals. The focus can be altered from a distant object to a near one almost instantaneously like changing itself from a telescope to a microscope. But some birds have no flying ability. So the birds are divided into two major groups called flying or carinate and flightless or ratite. Like sight, the hearings are also highly developed in birds. Birds display a wide range of size, form, colour, habits and habitats. They occur almost everywhere in the fields, forests, grasslands, mountains, marshes, deserts, wetlands, water bodies etc. It is due to their warm bloodedness coupled with peculiar facilities for locomotion, the birds enjoy a wider distribution on earth than any other class of animals. Birds are also popularly called as Avifauna and broadly categorised as terrestrial and aquatic. In Kalahandi the aquatic Avifauna are very less. The important available birds have been described in the following paras.

3.6.2.1 Indian Peafowl (Mayura) Pavo cristatus (Linnaeus)

Order: Galliformes

Family: Phasianidae (Pheasants, Partridges, Quails, Jungle fowl)

Schedule: I

A terrestrial bird having stout and unfettered legs, short and rounded wings is swift and strong flier. The gorgeous oscillated tail of the adult cock 3 to 4 feet long is in reality the abnormally lengthen upper tail coverts. Hen also crested like cock but smaller in size. Mottled brown with metallic green on the lower neck is the most attractive feature of this bird along with the gorgeous oscillated tail. It inhabits dense, scrub and deciduous forest preferably plain and foothill in the neighbourhood of rivers and streams. Being polygamous in nature it is usually found in parties of one cock with four or five hens. Roosts at night in large tree. It feeds on grain, vegetable shoots, insects, lizards, snakes etc.

3.6.2.2 Indian Red Jungle fowl (Bana Kukuda) Gallus gallus murghi (Robinson & Kloss)

Order: Galliformes

Family: Phasianidae (Pheasants, Partridges, Quails, Jungle fowl)

Schedule: IV

Being a member of the same family it has some common characteristics with Peafowl stated above but it is mainly available in Scrub and Sal forests. It prefers to feed in early morning and afternoon at the edge of the forests or on forest road and fire lines. It roosts in trees and bamboo clumps. Grain, vegetable shoots, insects, lizards etc are its food. Another species called Gallus sonneratii (Temminck) is also available mostly in deciduous forests particularly fond of lantana and other scrubs growing on the site of abandoned forest clearings.

3.6.2.3 Indian Baya(Baya Chadhei) Ploceus philippinus (Linnaeus)

Order: Passeriformes

Family: Ploceidae (Sparrow and Weaver Birds, Bayas)

Schedule: IV

A small bird having dark streaked fulvous brown above, plain whitish below is available everywhere. Mostly found in flocks and feed on paddy and other grains and insects. Roosts in enormous numbers in reed-beds, bordering tanks etc. Its nest is built by male only. The nest is a swinging retort shaped structure with long vertical entrance tube, compactly woven out of strips of paddy leaf and grasses. Each male has several nests and females at the same time. The nest of this bird is the most attractive item and often used as a decorative piece in modern household.

3.6.2.4 Pariah kite (Matia Chila) Milvus mirgrans govinda (Sykes)

Order: Falconiformes

Family: Accipitridae (Hawks, Kites, Vultures etc.)

Schedule: IV

A large brown hawk, clearly distinguished from all birds of this family by its forked tail. This scavenger is found single or sometimes in folks. A confirm commensal of man usually found near human habitation. Lizards, mice, winged termites, young birds, earthworms etc. are its food. Nests are built up in a large tree or on the roof or cornice of a building.

3.6.2.5 Indian Roller (Bhadabhadalia / Terra) Coracias benghalensis benghalensis (Linnaeus)

Order: Coraciformes

Family: Coracidae

Schedule: IV

A striking blue bird with biggish head, heavy black bill, rufous brown breast and pale blue abdomen under the tail, exhibits brilliant bands of the wings in flight. It prefers light deciduous forests and open cultivated country as its habitat. It is highly beneficial to agriculture since it feeds on harmful insects apart from frog or lizard. Nest is made in unlined tree holes at a moderate height by using straw, rags and rubbish. It is considered as an auspicious bird. People of Kalahandi consider a glimpse of this bird on Dushera day as a sign of prosperity for the entire year.

3.6.2.6 House Crow (Indian house crow) Corvus splendens splendens (Viellot)

Order: Passeriformes

Family: Corvidae

Schedule: V

A highly gregarious and social bird is clearly distinguished from the jungle crow for its grey neck. It is the most familiar birds in all human habitats and eats almost every thing. It is a useful scavenger but also a great bully and therefore a serious menace to defenceless ornamental birds. Roosts in selected trees or groups where large numbers collect every night. Both sexes share incubation and nest feeding. It incubates the eggs of Koel in addition to its own.

3.6.2.7 Spotted Dove (Indian Spotted Dove) Streptopelia chinensis suratensis (Gmelin)

Order: Gruiformes

Family: Columbidae (Pigeons and Doves)

Schedule: IV

A bird clearly distinguished by its white spotted pinkish brown and grey upper parts and white and black chessboard on hind neck. It is commonly found in open wood and near the cart tracks and avoid arid tracts. Flight is swift and powerful. Seeds, grains, drupes etc. are its chief food. Nest is made of a sketchy platform of a few sticks on ledge or low down in a tree or bush.

3.6.2.8 Cattle egret (Gaya Baga) Bubulcus ibis coromandus (Boddaert)

Order: Coconiformes

Family: Ardeidae (Herons, Egrets, Bitterns)

Schedule: IV

A bird with pure white plumage, yellow bill and orange buff head is mostly seen with the grazing cattle running in and out between the legs of the animals. It feeds on the insects like grasshoppers, blue bottle flies, fish, frog and sometime lizards. Roosts at night in favourite trees sharing with the other birds. Nest is more like a crow's i.e. an untidy twig platform.

3.6.2.9 Indian House Sparrow(Ghara Chatia) – Passer domesticus indicus (Jerdire & selby)

Order: Passeriformes

Family: Ploceidee

Schedule: IV

It is an arboreal small size gregarious bird and perhaps our most familiar bird. Plumage ashy grey- brown above and blackish below. A confirmed hanger-on of man found everywhere. Omnivorous birds which eats grain, insects, fruit seeds, flower nectar and kitchen crops. Some times causes damage to ripening crops in enormous flocks. It builds its nest with straw, rubbish and feathers in a hole in ceiling, niche in wall, inverted lampshade and every conceivable site.

3.6.2.10 Yellow legged green pigeon (Harada Chadhei)-Teron phoenicopitera phoenicopitera (lathum)

Order: Charadriiformes

Family: Columbidee

Schedule: IV

A stocky yellow, olive-green and ashy grey pigeon with a lilac patch on shoulders and a conspicuous yellow bar in the blackish wings. Its yellow leg always diagnostic for this species. This gregarious and arboreal bird rarely descends to the ground and commonly found in roadside trees, particularly in baniyan and Peepal. It feeds on fruits and berries. Nest is alike dove's concealed in foliage up in moderate-seized tree.

3.6.2.11 Indian Pond Heron (Kantia Baga) Ardeola grayii grayii (Sykes)

Order: Pelecaniformes

Family: Ardeidae

Schedule: IV

An egret like bird chiefly earthy brown at rest and glistening white in flight. In breeding season acquires maroon hair like plumes on back and long white occipital crest. Abundantly found wherever there is water. Its normal method of feeding is to stand hunched up at the water edge for watching the movement of frog, fish, crab and insects. It steadily beats wings with neck pulled in while in flight. Roosts in large leafy trees in mixed congregation of crow and other birds. Nest is like a crow's up in a large tree, shared with other egrets.

3.6.2.12 South Indian Black Drongo or King Crow (Kajalapati)- Dicrurus adsimilis macrocercus (Vieillot)

Order: Passeriformes

Family: Dicruridae (Drongos)

Schedule: IV

A slim and agile glossy black bird with long deeply forked tail. It is commonly found on the open countryside, usually perched on telegraph wires. It rides on the back of grazing cattle and takes toil of the insects disturbed by the animals movement through the grasses. Forest fire or fired grass attract numbers of Drongos for the same reason. Highly beneficial to agriculture as it destroys vast quantity of harmful insects. Apart from insects, flower nectar is also eaten by this bird.

3.6.2.13 North Brown Crowned Pigmy Wood Pecker (Kathahana)- Picoides nanus nanus (Vigors)

Order: Piciformes

Family: Picidae

Schedule: IV

A diminutive pied woodpecker, dark brown and white above and dusky white below with faint brown longitudinal streaks. Female lacks the narrow scarlet streak on either side of the hind crown. It is found single or in pair in open deciduous country. Feeds on stems of saplings close to the ground as well as slender branches, and end twigs of all trees. Apart from this, insects, flowers nectar, soft pulps of berries and banyan are its prime food. Nest is made in unlined holes in tree trunks.

3.6.2.14 Indian Koel (Koili) – Eudynamys scolopacea scolopacea (Linnaeus)

Order: Cuculiformes

Family: Cuculidae

Schedule: IV

A slender bird with long tail commonly know for its sweet call. Males are glistening black with yellowish green bill while females are brown in colour with profusely spotted and barred with white. These brood parasitic arboreal birds are commonly found in gardens, groves and in open country having large leafy trees. This bird becomes silent in winter and increasingly noisy with the advance of the hot weather. Fruits and berries, insects and caterpillars are its prime food. Laying eggs in the crow's nest is the most typical features of this bird.

3.6.2.15 Common Crow Pheasant (Kumbhatua) – Centropus sinensis sinensis (Stephens)

Order: Cuculiformes

Family: Cuculidae

Schedule: IV

A clumsy, glossy black bird with conspicuous chestnut wings and long, broad, black graduated long tail. It is one of the non-parasitic cuckoos found commonly in open forests, groves near human habitation. Its feeds on caterpillars, large insects, lizards, young mice, birds egg and nestlings. Nest is built up in a large untidy globular mass of twigs, leaves etc. with a lateral entrance. Both sexes share all domestic duties.

3.6.2.16 Barn Owl or Indian Barn Owl (Pecha)– Tyto alba stertens (Hartert)

Order: Strigiformes

Family: Strigidae

Schedule: IV

An arboreal and chiefly nocturnal bird of prey having large head with very large forwardly directed eyes on the monkey like facial disc. Generally females are larger than the males. Mostly found in deserted buildings, ancient forts etc. Spend daytime standing upright and dosing in some dark niche. It is of economic usefulness as it exclusively eats rats and mice. Nest is made in holes or hollows of the trees.

3.6.2.17 Rose-ringed Parakeet (Sua) – Psittacule krameri manillensis (Bechstein)

Order: Psittaci formes

Family: Psittacidae

Schedule: IV

A grass-green bird with typical, massive deeply hooked red bill is the most familiar bird everywhere. Female lacks the black and rose pink collar of male. It is highly destructive to crops and orchard fruits as this bird wastes more than it actually eats. It is often trained to imitate human sounds. Nest of this bird is usually seen in the holes of trees, rocks, walls of buildings etc.

3.6.2.18 Southern Hill Myna (Sari) – Gracula religiosa indica (Cuvier)

Order: Passeriformes

Family: Sturnidae

Schedule: IV

A jet-black bird with white patch on the wings, yellow bill and legs and wattles on the head. Mostly found in hill forests in noisy flocks or in pairs. It feeds on various wild figs and has a habit of sitting on bare tops of dead trees in forest clearings at sunset and uttering its loud, sharp, creaky shrieks. An accomplished mimic and talker and much prized as a cage bird. Nesting is made in natural hollows of lofty tree-trunks in forests.

3.6.2.19 Indian Myna (Bani) Acridotheres tristis tristis (Linnaeus)

Order: Passeriformes

Family: Sturnidae

Schedule: IV

A familiar perky, well-groomed dark brown bird with bright yellow bill is commonly known as "Bani" locally. Sexes are alike and found in pairs or parties, around human habitation and on countryside. It is omnivorous in nature and eats fruits, insects, kitchen scraps, earthworms etc. It attends on grazing cattle and catches the grasshoppers disturbed by the animals. It is a farmer friendly bird.

Section –III Reptiles

Reptiles belong to Phylum Chordata, Sub-phylum Vertebrata and class Reptilia. These animals have been evolved from amphibians and also given rise to higher vertebrate like birds and mammals. They are cold-blooded animals having a low metabolic rate. They differ from amphibians by their dry scaly skin, from birds by absence of feathers and from mammals by absence of fur or hair. In Mesozoic era of geological time scale, the reptiles were the dominant form of vertebrate life on the earth, which usually refer to the "Golden age of Reptiles". During this age, giant reptiles like Dinosaurs flourished on the earth with amazing size, shape and verity. Even today the number of living reptiles species are almost double of that of mammals. Some important reptiles available in Kalahandi are described in following paragraphs.

3.6.3.1 Banded Krait (Rana) Bungarus fasciatus

Order:Squamata

Family:Elapidae

Schedule:IV

3.6.3.1.1 A poisonous snake commonly known as "Rana". The snake is found in plains and bushy areas. It also lives in broken walls, under heaps of stone or bricks. It is nocturnal in habit and is deadly poisonous. Males are usually larger than females. It grows to about 1.5 meters in length. The head is small and not distinguished from the rest of the body. Tail is blunt and swollen at the tip. A number of wide, dark bands are present around the body alternating with the light colour bands of the same size. It feeds upon snakes and mice.

3.6.3.1.2 Another species of this family which is known as common Krait differs from banded Kraits in colour. In common Kraits body is still blue with white cross bars or white cross-spots.

3.6.3.2 Cobra (Naga or Gokhar Sapa) Naja naja

Order:Squamata

Family:Elapidae

Schedule:II

This deadly poisonous snake is commonly known as "Naga". It is found in crevices, dark and open places. It grows upto 1.8 meters in length. Head is not very distinct from neck. Body is brown or dark in colour and sometimes golden yellow. The body is covered by smooth oblique scales. The neck is highly dilatable due to elongated ribs. This expansion forms the hood. The hood is with biocellate or monocellate markings and sometimes without marking. The spreading of hood takes place when Cobra is in danger or

when excited. It feeds upon frogs, rats or birds. Periodical shedding of the skin occurs during summer.

3.6.3.3 Russell's Viper (Chandana Boda Sapa) Vipera russelli

Order:Viperidae

Family: Elapidae

Schedule: II

It is a common poisonous snake locally known as "Chandra Buda" and found in rocky and bushy region. Its body coloration usually matches with the surroundings. It grows upto 1.7 meters in length. Body is brown in colour, tail is elongated and head is somewhat triangular and covered with very small scales. This nocturnal snake feeds on rats, mice, lizard and birds. When the snake is disturbed, head is raised up with rhythmic swelling of the body and hissing begins.

3.6.3.4 Common Blind Snake (Teli Sapa) Typhlops brahminus

Order:Squamata

Family: Typhlopidae

Schedule: IV

It looks like earthworm and it lives inside the burrows in the rotting vegetation. This is the smallest snake available. Body is elongated, narrow and covered with minute scales uniformly. Head is not distinct from the body. Tail is short and ends bluntly. This blind snake feeds on insects and worms. It moves slowly on the ground and is a non-poisonous or harmless snake.

3.6.3.5 Russell's Earth Boa (Domundia Sapa) Eryx conicus

Order:Squamata

Family: Boidae

Schedule: IV

It is locally known as "Domundia or Double Headed Snake". It measures nearly 30 to 90 cm. in length. The remains concealed in sandy soil and often inside the burrow. The body is pinkish grey with deep brown irregular patches throughout the dorsal side and faint yellow with brown spot ventrally. Head is indistinct from the rest of the body and tail is blunt. The snake charmer cut a mouth and provide two artificial eyes to exhibit it as a double-headed snake. It feeds on frog, mice etc.

3.6.3.6 Indian Rat Snake (Dhamana) Ptyas mucosus

Order:Squamata

Family: Colubridae

Schedule: II

The non-poisonous snake is commonly called as "Dhamana" locally and found in plains. It is timid in nature and able to climb on trees. It is also fast runner and swimmer.

The body length varies from 1 to 2.2 meters. Head is distinct from the neck, body is covered with scales, tail is very long and whip like. The body colour is dirty yellow and tip of the scales are black. The rat snake feeds on rats, frogs, toads, snakes and birds. It throws coils of its body on the prey and bites aggressively with loud hissing.

3.6.3.7 Water Snake (Dhanda) Natrix piscator

Order: Squamata

Family: Colubridae

Schedule: II

A common non-poisonous snake called "Dhanda" locally is usually available in plain areas especially near water, ponds and paddy fields. It feeds upon frogs and fishes. Usually females are larger male in size. During summer it undergoes hibernation. The body is olive colour with dorsal black spots arranged in a definite pattern. This snake bites viciously, often jumping at the prey.

3.6.4 Section –IV Fishes

Fresh water fishes both large and small are occurred in the tanks and rivers. There is no marine variety in Kalahandi. Earlier Magura, Singi, Baligarada and Mahurali were commonly available while Rohi and Bhakura were rare. At present the situation has been changed to a great extent due to implementation of various schemes under Pisciculture, the fishes of different variety are available. The detail list has been furnished under Glossary of Terms. The production is still not sufficient to meet the local demand. The fishes from outside specially Andhra Pradesh is procured for the local consumption. Some commonly available fishes have been described in the following paras.

3.6.4.1 Rohi – Labeo rohita

Order: Cypriniformes

Family: Cyprinidae

It is the most popular and valuable carp. Body is elongated with rounded abdomen. Mouth is inferior and the snout is projected forward. One pair of barbells present, lateral lobes absent, scales red or orange coloured. Head big and well marked, big eyes, operculum present.Feeds upon vegetation and phytoplanktons.Develops faster than other fishes.

3.6.4.2 Bhakur – Catla catla

Order: Cypriniformes

Family: Cyprinidae

Commonly called Catla "Bhakuar". It is one of the major carp which gains weight very soon and develops fast. Head is very big with large eyes. Fins are dark and black. Fin ray strong, caudal fin well forked. One pair or barbs present. Scales are cycloid and small. Lateral line almost clear. Dorsal and ventral colour varies slightly. A voracious feeder, feeds upon vegetarian and non-vegetarian diets.

3.6.4.3 Mirkali – Cirrhinus mrigal

Order: Cypriniformes

Family: Cyprinidae

A fresh water fish commonly known as Mrigal. It develops faster in lakes and ponds enriched in organic materials. Mouth small, lips thin and wide. Lateral line clear, caudal fin forked, dorsal fin strong. Scales cycloid and big.Dorsal side dark colour, ventral light colour.Barbells one pair small. This fish is herbivorous, mainly feeds upon submerged plants and herbs.

3.6.4.4 Kantia – Mystus cavasius

Order: Cypriniformes

Family: Bagridae

Commonly found in streams, water reservoirs, lakes and rivers. Body elongated, packed, grey colour on dorsal and whitish yellow on ventral side.Barbels four pairs with one pair highly elongated. Dorsal fin with strong fin rays, caudal fin forked. Size varies from 30 to 40 cm.

3.6.4.5 Balia – Wallago attu

Order: Cypriniformes

Family: Siluridae

Commonly known as “Balia” is supposed to be fresh water shark as it feeds upon the young fingerlings, small fishes, frogs, insects and other water inhabiting creatures. It is laterally compressed with thick fleshy and big prominent head. Mouth is as wide as its head. Two pair of barbels present which are very big. Pectoral fin small, dorsal fin ray strong, anal fin long and congruent. Caudal fin forked and upper lobe pointed and big.

3.6.4.6 Seula – Ophiocephalus striatus

Order: Ophiocephaliformes

Family: Ophiocephalidae

A fresh water fish commonly known as “Seula”. It is covered with scales, Body elongated and cylindrical. Dark black on the dorsal side but yellowish white with brown or black spots on the ventral side. Dull coloured and slow moving fish, which feeds upon manures, mud and rotten substances present in the bottom of the pond or other water reservoir. Dorsal fin is present along the entire length of the body separated from the caudal by a notch, anal fin long and caudal fin not forked.

3.6.4.7 Singi – Heteropneustes fossils

Order: Cypriniformes

Family: Heteropneustidae

Dark black colour small fresh water fish about 40 cm in size. Head well marked and bigger in size, dorsoventrally compressed with big mouth and four pairs of barbells. Dorsal side dark colour where as ventral side light in colour. Dorsal fin small and

weak, pectoral fin with serrated spine, caudal fin not forked. It swiftly inflicts wound by pectoral fin so people avoid it. It is found in fresh water reservoir but not in running water. Highly susceptible to fungal disease so sold only in living forms.

3.6.4.8 Jarel – Chela gora

Chela untrahi

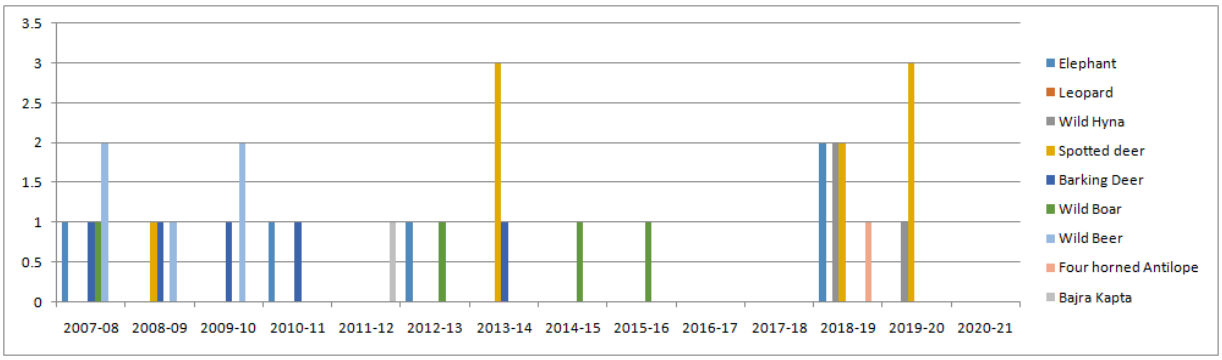
This is a small sized fish of much demand in Kalahandi. It is akin to Mahurali. It is not only nutritious but also tasty. The availability of this fish is gradually decreasing.

3.7 THREATS AND CHALLENGES TO WILDLIFE

3.7.1 The wildlife specially the wild animals are the victim of both habitat degradation and poaching. The habitat degradation has been described in detail under the paragraphs dealing with the injuries to which the crop is liable. Due to degradation in habitat, the population of herbivores is decreasing which affecting the population of carnivores leading to the disturbance in the food chain. The equilibrium in the food chain is highly essential to maintain the population of wild animals properly. The diseases affecting the wild animals have not been assessed. Further epidemic of serious nature causing a great toll to the wildlife has not been reported so far in Kalahandi. Only death of wild animal which has been noticed mainly on account of poaching and other unnatural factors have been documented for past several years and the same is furnished below.

Poaching / Unnatural Death
Table no.3.9

Year	Nos. of wild animals killed									
	Elephant	Leopard	Wild Hyna	Spotted deer	Barking Deer	Wild Boar	Wild Beer	Bajra Kapta	Four horned Antilope	Total
2007-08	1	0	0	0	1	1	2	0	0	5
2008-09	0	0	0	1	1	0	1	0	0	3
2009-10	0	0	0	0	1	0	2	0	0	3
2010-11	1	0	0	0	1	0	0	0	0	2
2011-12	0	0	0	0	0	0	0	1	0	1
2012-13	1	0	0	0	0	1	0	0	0	2
2013-14	0	0	0	3	1	0	0	0	0	4
2014-15	0	0	0	0	0	1	0	0	0	1
2015-16	0	0	0	0	0	1	0	0	0	1
2016-17	0	0	0	0	0	0	0	0	0	0
2017-18	0	0	0	0	0	0	0	0	0	0
2018-19	2	0	2	2	0	0	0	0	1	7
2019-20	0	0	1	3	0	0	0	0	0	4
2020-21	0	0	0	0	0	0	0	0	0	0



3.7.2 Sometimes wild animals trapped or injured are also rescued and provided required treatment to regain the normal condition. After the recovery the animals are mostly let free to the natural habitat. In some cases it is sent to Nandankanan / other Zoological Park. The details of such rescue cases are furnished below.

Wild Animals Rescued

Table no.3.10

Year	**Name of the wild animals rescued**	**Remarks**
2007-08	Nil	
2008-09	Nil	
2009-10	Nil	
2010-11	Nil	
2011-12	Nil	
2012-13	Nil	
2013-14	Nil	
2014-15	Nil	
2015-16	Female elephant Baby	Nandankanan Zoo
2016-17	Barking deer , peacock	Papdahandi , Nawarangpur
2017-18	One Barking deer, One Peacock, One Asian palm Civet	Dt. 16.11.2017
2018-19	Nil	
2019-20	Nil	
2020-21	One Sloth bear	Dt.15.08.2020

3.7.3 Forest fire and grazing are not only damaging the flora but also affecting the fauna to a great extent. Due to over grazing by domestic cattle in the forests the fodder for the herbivores are becoming insufficient leading to a situation of scarcity. So the herbivores are depredating crop fields outside the forest area and become the easy victim of the people. Similarly during the summer in search of water the wild animal move outside in absence of adequate water hole in the forest and fall as an easy prey of the poachers. This situation is also further aggravated due to forest fire in summer season compelling the wild animal to move outside for escape. The killing of deer, Sambar and wild boar are attributed to the aforesaid reason. The death of elephants, leopards and hyena are the handiwork of the professional poachers. In Kalahandi an Inter State gang of elephant poacher was nabbed during 2003. The poachers of North Eastern State like Arunachal Pradesh having expertise in killing elephant had come and established relationship with local people to kill the elephants for collection of tusk. Electrocution though reported for two cases only during entire last plan period is also a potential threat for the wild animals particularly the elephants. Poisoning by the local people being aggrieved due to the elephant depredation is another great danger which required to be curtailed.

3.7.4 The elephant depredation is on rise in the recent years and this menace is directly proportional to the discontentment of the people. The elephant depredation during last plan period is furnished below.

Elephant Depredation

Table no.3.11

Year	**No. of Cases**	**Crop damaged (In Acre)**	**Compassionate amount paid**
2007-08	52	57.30	57300
2008-09	68	131.77	131770
2009-10	95	148.12	148120
2010-11	37	51.36	51360
2011-12	72	103.91	165400
2012-13	334	116.105	752200
2013-14	187	49.59	502900
2014-15	Nil	Nil	Nil
2015-16	287	57.23	5,77,180
2016-17	152	39.13	3,91,600
2017-18	07	3.02	35,640
2018-19	311	145.74	14,65,600
2019-20	294	144.43	15,16,380
2020-21	163	87.009	15,32,740

3.7.5 It is seen from the above table that the house damage is very less while the crop damage is of considerable extent. It is necessary to reduce it through suitable management practice in order to avoid elephant – human conflict otherwise it may lead to detrimental activities like poisoning, killing etc.

3.7.6 Apart from the above depredation, there are instances of human injury and also death by the wild animals. Though this has not turned to be havoc but the intensity is notable. The details of such incidence for the last plan period is furnished below.

Human death / Injury by Wild Animals

Table no.3.12

Year	Elephant		Bear		Wild boar		Wolf		Total	
	Death	Injury	Death	Injury	Death	Injury	Death	Injury	Death	Injury
2007-08	-	-	-	-	-	1	-	-	-	1
2008-09	-	-	-	8	-	2	-	-	-	10
2009-10	-	-	-	2	-	-	-	-	-	2
2010-11	-	-	-	1	-	-	-	-	-	1
2011-12	2	8	-	1	-	1	-	-	2	10
2012-13	-	-	-	5	-	1	-	-	-	6
2013-14	-	-	-	-	-	-	-	-	-	-
2014-15	-	-	-	1	-	-	-	-	-	1
2015-16	-	-	-	-	-	-	-	-	-	-
2016-17	-	-	-	8	-	-	-	-	-	8
2017-18	-	1	-	3	-	-	-	-	-	4
2018-19	2	-	1	2	-	-	-	-	3	2
2019-20	1	-	-	2	-	-	-	-	1	2
2020-21	-	-	-	6	-	-	-	-	-	6
Total	**5**	**9**	**1**	**39**		**5**			**6**	**53**

3.7.7 It is observed that death is comparatively less to the quantum of injury. Elephant subscribes to majority of death while bear has caused the maximum injury. Other animals which have contributed a little to the wildlife havoc are wild boar and wolf. Similarly the wild animal which suffered maximum casualty during last plan period is elephant followed by Wild Boar, Barking Deer, Leopard, Sambar, Spotted Deer and Hare. The deers i.e. Sambar, Chital and Kutura are the victims of stray incidence. It is further revealed that the death of wild animal are more than the death of human beings from the ongoing man animal

conflict during the last plan period. The extent of crop damage is exclusively due to the elephant. So the bone of contention is the man elephant tussle in Kalahandi.

3.8 Protection & Management of Fauna

3.8.1 Unlike forests, the management of wildlife was initiated at a very belated stage. Earlier the wildlife was treated for recreation particularly the hunting purpose. The rulers tried to exhibit their valour through the number of shooting of tigers, panthers etc. Even the forest officials had a craze to achieve such distinction to their credit. This was perhaps the prevailing situation due to thick population of carnivores in the forests along with the proportionately high density of herbivores. During the colonial rule of British, elephants were used as the means of transport and conveyance for the public servants in in accessable areas. So the Britishers felt to promote the elephant population not for the sake of conservation of wildlife but as a transport system. As a result "Elephant Preservation Act" came into force during 1879 for the protection of a wild animal. This was the first act for the cause of conservation of wildlife. This was followed by "Wild Birds, Animals Preservation Act" in 1912. In Orissa, the conservation of wildlife started with the formulation of Orissa Reserve Forest Shooting Rules 1938 not only intending for restriction of shooting of animals but also protection of the same both in forest and plain. The Orissa Elephants Preservation Rules 1953 was made by the Government of Orissa in exercise of the power conferred by the Section-6 of The Elephants Preservation Act, 1879. Further, the prevention of Cruelty to Animals Act, 1960 was enacted by the Government of India. Though this Act was not intended directly but have some implications for the conservation of wild animals. However appreciable result could not be obtained in absence of strict enforcement.

3.8.2 After independence, there was no mention of wildlife management specifically in the five-year plans upto 1964. The importance of conservation of wildlife was felt gradually and it became explicit towards late 60's of last century. In 1969, the International Union for Conservation of Nature and Natural Resources (IUCN) emphasised for an urgent need of Uniform Wildlife Law for India in its conference held at New Delhi. Further All India Silviculture Conference had also recommended that ***"Wild Life is an integral element of our forests and its preservation is admitted to be an urgent necessity, suitable forest areas of adequate extent be set apart in each state for preservation and perpetuation of Wild Life"***. The Wild Life (Protection) Act was enacted by Government of India during 1972. Similarly The Wild Life (Transaction and Taxidermy) Rules 1974 and The Wild Life (Stock Declaration) Rules 1974 were also made by the Government of India in exercise of the powers conferred Section-63 of aforesaid Act. The Government of Orissa have also framed "The Wild Life (Protection) (Orissa) Rules 1974" in exercise of the powers conferred by Section-64 of The Wild Life (Protection) Act 1972. The aforesaid Acts and Rules have provided stringent measures to ensure the protection of wild life. Subsequently several modification as well as new rules have been made to make the provisions more stringent.

3.8.3 Wild life was focussed with establishment of Wild Life Institute of India and also being emerged as a separate and exclusive wing of Forest Department to converge the attention for development of Wild Life. The entire country is divided into different bio-geographical zones considering the habitat of wild life in different areas for imparting proper management. Orissa comes under the bio geographically zone of "Decan Peninsula". Similarly the wild life in Orissa comes under Indian Peninsular Sub-region, which forms part of the Oriental zoogeographical realm of the world.

3.8.4 The Action Plan adopting the strategies for wild life conservation was initiated in 1983 in pursuance to the decision in the 15th meeting of Indian Board of Wild Life held in 1982. In the mean while there is some change in the scenario requiring the modification. Bio-

diversity conservation has emerged as a new focus of interest. So the major emphasis is given in the New National Wild Life Action Plan on the aspects furnished below.

(a) Every species has the right to live and every threatened species must be protected to prevent its extinction.

(b) Water, wilderness and wildlife are irrevocably interlinked. With mounting agricultural, industrial and demographic pressures, wilderness areas, which are the richest repositories of wildlife and biodiversity have either shrunk or disappeared. Their continued existence is crucial for the long-term survival of the biodiversity and the ecosystems supporting them.

(c) Effective ecosystem conservation counts upon perpetual ecological balancing. Natural resources like wild habitat, mountain, water bodies which are the aquifer would control and regulate the natural calamities like flood, cyclone, drought etc. thereby regulating food security and climatic change which otherwise responsible for survival of the local communities.

(d) Bio-diversity conservation is interlinked directly with conservation of eco-system. It constitutes major source of Indian economy by ensuring water and food security.

3.8.5 The descriptions in the foregoing paras indicates the origin and evolution of wild life management. It is seen that though wild life is an integral part of forests, the earlier management was focussed on the flora specially the valuable tree crop, bamboo and non-timber forest produce. Of late the attention has been given on the protection and management of wild life to ensure the stability of forest eco-system.

3.8.6 The earlier working plans had laid much emphasis on the protection and management of forests specially the forest crop without giving any attention on the forest fauna. Even the list of available wild animals were not provided in the working plans upto that of Late S.R.Choudhury. Sri D.S.Patnaik enlisted the available wild fauna and incorporated in the working plan. Though the scope of wildlife broadly includes both wild fauna and flora of rare occurrence, but the management is practically focussed on the wild animals. Special emphasis was given in the last plan of Sri K.R.Singh who had constituted a separate Wildlife Overlapping Working Circle for the exclusive management of wild fauna. Not only that he had also made some suitable prescriptions like retention of dead trees having the nest and holes of wild animals in other working circles. All other working plans have neither explicit nor implicit prescription for the wildlife. So the management of fauna in the forests of Kalahandi was a nascent one initiated by Sri K.R.Singh. The ratio of implementation to the prescription is low in the last plan period. Creation of water holes, salt lick and few plantations are some important works carried out during last plan period. The detail has been provided in Chapter-VII of Part-I under the Special Work of Improvement.

3.8.7 The notable habitat for wild life are Nagjhari, Pipadi, Pilibanji, Budhipadar, Amjharan, Kasighati, Garudaghati near Ladugaon of Urladani RF under Narla Range, Taparang, Jerka, Jurakhaman, Borighat under M.Rampur Range of Kalahandi North Division. Similarly, the habitats under Kalahandi South Division are Nachniguda, Niyamgiri, Jhimiri, Tangankona, Dhodel and Jalakrida of Biswanathpur Range and Kanakpur (Atharanala) of Sahajkhol RF of Dharmagarh Range. The Salt Licks are also available in those localities. The Water Holes existing in the plan area are Karag near Ampani, Dokrichanchara, Khaligarh of Dharmagarh Range, Pariagarh, Teleguda, Badpodaguda of

Junagarh Range, Kenduguda of Biswanathpur Range, Jatangpada of Th.Rampur Range under Kalahandi South Division and Kholandi of Bhawanipatna Range, Pankamal of Madanpur Rampur Range, Bandajore of Kegaon Range, Singhjharan of Kesinga Range and Ladugaon near Bimlapadar of Narla Range under Kalahandi North Division. Besides that a number of streams crisscrossed through the forests stated above are also the source of water to the wild animals. These habitats need protection and development to sustain its carrying capacity for harbouring the wild animals.

3.8.8 The protection which forms an integral part of the management was not given due attention as revealed from the number of casualties made to the wild animals. The awareness among the local people particularly the forest fringe area has not been propagated to the desired extent. The craze for the meat of wild animals and its other products are still on high not only for herbivores like deers but also for carnivores in some tribal community as revealed from an investigation to the death of a leopard in Kegaon Range during 2005. The offenders had consumed the meat of the leopard as an act of valour and pride. The idea of protection of wild animal has not yet been inculcated in the minds of such tribal people. Though the aforesaid offenders were arrested and sent to jail for the above crime but their mindset having the lure for eating the meat of such high profile animal still haunts them. The enforcement of the Wildlife Acts and Rules are not sufficient to control the situation particularly the protection of wildlife. Constant vigil alongwith the awareness developing the passion for wildlife can provide an effective check over the situation. Some other issues like conflict between the man and wildlife has arisen during recent years. Earlier the invasion of wildlife into human habitation was rare. Due to degradation in their habitat the depredation in civil areas i.e. area outside the forest has become very frequent. Inadequate compensation that too at belated stage is agitating the mind of aggrieved people to turn hostile for protection of wild animals. The stringent penal provision for the wildlife offences may create fear psychosis as a deterrent measure but spontaneous cooperation from the people is of utmost importance to have an everlasting solution to the problem. The management is required to be oriented both persuasive and punitive with emphasis on vigil and motivation.

3.8.9 The engagement of Anti Poaching Squad consisting of 6 persons under the leadership of a Forester assisted by a Forest Guard with a vehicle is necessary for frequent patrolling in vulnerable areas. In addition elephant trackers are essential to monitor the movement of elephants and provide information not only to take steps for protection from the poachers but also to chalk out strategy for driving out in case of anticipated depredation to crop field / human settlement. At least 3 trackers for each herd and 1 Anti Poaching Squad per Range are of felt need to ensure proper protection. Awareness campaign to instill the necessity of protecting wild life for ecological stability in the minds of the local people is imperative to get effective result. The people affected due to the damage caused by wild animals are solaced thorough payment of compassionate amount, the rate of which is furnished as under.

Compassionate amount as per the Notification No.21330-8F (W)-34/2002-F & E Dated 26th December 2002 of Govt. of Orissa and amended upto 01.01.2021

Table no.3.13

Sl.No.	Case	Compassionate Amount
1	Death of human beings caused by attack of Tiger, Leopard, Elephant, Crocodile, Sloth Bear, Indian Wolf locally called as Ramsiala, Boar, Gaur and Wild Dogs within forest area or within a belt of 5 kms. from the limits thereof.	Rs.4,00,000
2	Permanent injury of human beings by the attack of wild animals as specified above.	Rs.1,00,000
3	Temporary injury of human beings by the attack of wild animals as specified above.	Limited to free treatment in Govt. Hospitals plus Rs.5,000
4	Crop damage by wild animals as specified above.	Rs.10,000 per Acre
5	Damage of house completely razed to the ground by wild elephants.	Rs.10,000
6	Damage of house partially by wild elephants.	Rs.2,000

3.8.10 Compensation to any loss/damage is the most difficult task. It is also not possible to make good the loss in certain cases like human death / permanent injury which are irreparable. However the compassionate amount should be to the extent, which can provide a good healing touch. The present rate needs enhancement for proper soothing.

CHAPTER- 4

Maintenance and Enhancement of Forest Health and Vitality:

4.1 Status of regeneration:

4.1.1 The process of replacing old crop with younger generation either naturally or artificially is called Regeneration. Forest regeneration process may also include interventions like assisted natural regenerations, seed origin, enrichment planting, controls to reduce grazing and lopping activities etc.

4.1.2 The intensity of regeneration refers to the extent the regeneration has been established in an area for a given species or a group of species. The establishment of regeneration depends upon many factors such as presence of weeds, climate, soil, moisture regimes, grazing intensity, diseases, insect attack, fire incidence and topographic factors like slope and aspects.

4.1.3 For recording intensity of regeneration, four subplots of size 3mx 3m, are laid out at a distance of 30m from the centre of the main plot of size 0.1ha, in all four directions along the diagonals. For computing all the regeneration of the tree species (established) were recorded in the 9 sqmt x 4 =36 sqmt and are classified according to NWPC – 2014 the regeneration status is classified into Adequate/Moderate/Poor and Absent.

4.1.4 The status of natural regeneration as assessed from the field study conducted by Sample Point Enumeration and overall status of regeneration in respect of individual forest block are furnished below.

Forest Block wise status of natural regeneration of Kalahandi North Division

Table no.4.1

Sl No	Name of the Forest Block	Name of the Range	Regeneration Status		
			Adequate	Moderate	Poor
1	Alma	Bhawanipatna		√	
2	Brahmani	Bhawanipatna		√	
3	Dhangdadhangdi	Bhawanipatna		√	
4	Dhanupanchan	Bhawanipatna	.	√	
5	Gundi	Bhawanipatna		√	
6	Kadalighati	Bhawanipatna		√	
7	Kanamanjur	Bhawanipatna		√	
8	Kuturukhai	Bhawanipatna			√
9	Madakhola A	Bhawanipatna		√	
10	Madakhola B	Bhawanipatna		√	
11	Pordhar	Bhawanipatna			√
12	Sinang	Bhawanipatna		√	
13	ThuapadarGundi	Bhawanipatna		√	
14	Ammuda	Kegaon		√	
15	Banakdei	Kegaon		√	

16	Chura A	Kegaon		√	
17	Chura B	Kegaon		√	
18	Daka	Kegaon		√	
19	Kumkot	Kegaon		√	
20	Lini	Kegaon		√	
21	Masigaon	Kegaon		√	
22	Nageswar	Kegaon			√
23	Patramara	Kegaon		√	
24	Sindabhadi	Kegaon			√
25	Bazargarh	Kesinga		√	
26	Nangalguda	Kesinga		√	
27	Benaguda	M.Rampur		√	
28	Bidabaru (Harlanga)	M.Rampur		√	
29	Chandanpinda	M.Rampur	√		
30	Dengen	M.Rampur		√	
31	Gochhadengen	M.Rampur		√	
32	Jerka	M.Rampur		√	
33	Karla	M.Rampur			√
34	Kutigudum	M.Rampur		√	
35	Mudramaska	M.Rampur			√
36	Podgudi	M.Rampur	√		
37	Puijhari	M.Rampur		√	
38	Putrimahul	M.Rampur		√	
39	Ramud	M.Rampur		√	
40	Sadel-A	M.Rampur			√
41	Satami	M.Rampur		√	
42	Sulia	M.Rampur		√	
43	Sunamukhi	M.Rampur	√		
44	TalaNuagaon	M.Rampur		√	
45	Taprang	M.Rampur		√	
46	Telen	M.Rampur		√	
47	Turchi	M.Rampur		√	
48	Pangabaju	M.Rampur			√
49	Dengsur	Narla	√		
50	Jamguda	Narla			√
51	Kamarda	Narla		√	
52	Kamei	Narla			√
53	Karladangar	Narla			√
54	Kerbandi	Narla		√	
55	Mundighati	Narla	√		
56	Narla	Narla			√
57	NarlaExtn	Narla		√	

58	Porgel	Narla			√
59	PorgelExtn	Narla	√		
60	Sikerguda	Narla			√
61	Urladani	Narla	√		
62	Badibahal	Narla		√	

4.2 Area affected by forest fire

4.2.1 Fire constitutes by far the greatest danger to which forests are susceptible and it is a grave menace indeed. The causes are many and varied, but all those are traceable to human and their activities. The elaborate description on this matter is furnished below.

i. Burning the leaves underneath the Mahula trees to facilitate collection of flowers and allowing the fire to run unchecked to engulf the forests, setting the fire in the forests to drive or scare away the animals, burning the ground vegetation to get an early flush of healthy and vigorous shoots, throwing inflammable materials carelessly while passing through forests and sometimes evil design to settle scores against forest staffs etc. are few enumerated reasons. Many fires may be and some no doubt are malicious but the greater numbers are the outcome of carelessness due to ignorance.

ii. Forest fire in Kalahandi is by and large ground fire. Occurrence of crown fire has not been reported so far. However the ground flora particularly regeneration crop is the worst victim of this menace. Sometimes pole crops are also subject to damage by fire. In addition site condition is deteriorated due to ground fire. In Kalahandi, the fire season is a prolonged period of 4 (four) months starting from mid February till mid June or onset of the monsoon. Due to such large duration of vulnerability it is difficult to contain this problem effectively.

iii. As the forest belongs to mostly deciduous category, the accumulation of dry leaves in the forest floor during summer is a common phenomenon. Extreme dry condition and high temperature during the summer are congenial for easy and quick ignition of aforesaid inflammable materials through the activities enlisted above to become forest fire which spreads rapidly being encouraged by high speed of wind during the said period. The convergence of all such factors makes it a menace for the forests.

iv. The intensity and the harmful effect of forest fire has been observed since pretty long. Mr.G.N.Cooper, the then Agency Forest Officer had mentioned in his inspection note of April – May, 1918 regarding the destruction of forests of Kalahandi by fire. So it is an age old problem of this division.

4.2.2 Fire constitutes by far the greatest danger to which forests are susceptible and it is a grave menace indeed. The causes are many and varied, but all those are traceable to human and their activities.

i. The fire incidence of last plan period as per available information is furnished below.

Table no.4.2

Year	No. of incidence	Area affected (in Ha.)
2007	34	41.0
2008	48	122.5
2009	27	67.55
2010	42	81.86
2011	49	73.70
2012	56	147.60
2013	61	157.9
2014	43	57.61
2015	63	48.75
2016	106	48.85
2017	1472	256.18
2018	1059	177.58
2019	813	709.42
2020	329	536.12
2021	1773	3284.70

ii. It is seen that the expenditure on this score is grossly inadequate to meet the bare need. While the maintenance and creation of fire line are preventive measures, the engagement of watcher and deployment of squad are the curative steps to tackle the incidence. It is further observed that the difficulties are faced for extinguish the fire on hill slopes. Whatever the quantum of effort made on this score, it is not fruitful without the support of local people. The motivation of the people through VSS is both preventive and curative that too in situ and instantaneous. On the whole the cooperation and involvement of the local people through VSS is imperative. Efforts should be made both to encase the support of local people and to deploy fire fighting squad and watchers to contain this problem.

4.2.3 Efforts have been made to tackle this menace by taking different measures like maintenance of existing fire line, creation of new fire line, engagement of fire watchers, deployment of fire fighting squad, supply of fire fighting tools, incentive to VSS etc. The expenditure for the same during the last plan is furnished in the table given below

Fire fighting squad in the Kalahandi North Division.

Table no.4.3

Year	Expenditure							
	Allotment	Fire watcher no.s& amount	Fire fighting squad no.s& amount	Purchase of fire fighting tools	Maintenance of fire line Kms, amount	Creation of fire line	Incentive to VSS	Misc.
1	2	3	4	5	6	7	8	9
2007-08	373500/-	10nos. 12500/-	--	25000/-	32.42Rkm 60000/-	88.17Rkm 200000/-	46000/-	30000/-
2008-09	546000/-	10 nos. 126000/-	--	100000/-	30.35 Rkm 30000/-	42.00Rkm 30000/-	200000/-	50000/-
2009-10	140000/-	08 nos. 20000/-	10 nos. 25000/-	--	--	13.4 Rkm 31870/-	50500/-	12630/-
2010-11	279800/-	--	10 nos. 64800/-	215000/-	--	--	--	--
CAMPA	1074740/-	--	20nos 270000/-	108000/-	498.10Rkm 496758/-	--	59608/-	140374/-

2011-12								
CAMPA	911961/-	--	20nos 243000/	--	500Rkm 500000/-	--	--	168961/-
2012-13								
	495000/-			80000/-	45Rkm 45000/-	--	70000/-	300000/-
CAMPA	2004000/-	--	30nos 675000/-	54000/-	500Rkm 825000/-	--	--	450000/-
2013-14								
	1145000/-	--	40 nos 720000/-	--	50Rkm 100000/-	--	130000/-	19500/-
CAMPA	2620000/-	--	40nos 900000/-	280000/-	500Rkm 825000/-	--	--	599884/-
2014-15								
	482353/-	--	10nos 180000/-	50000/-	50Rkm 100000/-	--	50000/-	102353/-
CAMPA	2950000/-	--	50nos 555000/-	70000/-	900Rkm 990000/-	--	--	385000/-
2015-16								
CAMPA	CAMPA	3730000/-		50 Nos& 2325000/-	210000/-	590 Km 1180000/-	--	--
2016-17								
CAMPA	4435000		50 Nos & 2325000/-	915000/-	590 Km 1180000/-	--	--	15000/-
2017-18								
CAMPA	4960000	-	50 nos. & 2425000	1355000/-		590 KM & 1180000	-	-
2018-19								
GENERAL	3136293		30 nos. & 1261800	1194960		619533	60000	
2019-20								
GENERAL	3121822		30 nos. & 1528680	820517/-		100 KM & 200000	570000	
CAMPA	4265000	-	50 nos. & 3000000	425000/-		300 KM & 840000		
2020-21								
GENERAL	1981362/-	-	20 nos &4 447000/-	-	-	163 Km &571454/-	630000/-	332908/- -
CAMPA	5707000/-	-	50 nos & 3285000/-	425000/-	-	600 KM & 1788000/-	-	209000/-

4.2.4 NATURAL FIRE REGIMES AND FIRE-ADAPTED PLANT SPECIES

4.2.4.1 In tropical forests where fires are regular phenomena, tree species exhibit adaptive traits like thick bark, ability to heal fire scars, re-spouting capability and seed adaptations. The ecological importance of these annual fires on forest formations is significant.

Fire strongly promotes fire-resistant species, which replace the species potentially growing in an undisturbed environment.

4.2.4.2 Fire is one of the greatest danger to which forests are susceptible and it becomes a serious menace indeed. The causes are many and varied, but all those are traceable to human and their activities. The elaborate description on this matter is furnished below.

I. Burning the leaves underneath the Mohua(*Madhucaindica*) trees to facilitate ripening as well as sweeping of flowers from the floor and allowing the fire to run unchecked to engulf the forests.

II. Burning the forest to get good flush of KenduLeaves .

III. Setting the fire in the forests to drive or scare away the animals,

IV. Burning the ground vegetation to get an early flush of healthy and vigorous shoots for grazing livestock.

V. Burning the forest to facilitate the shifting cultivation.

VI. Picnickers forget to extinguish their hearth while leaving the forest that spread to make havoc

VII. Throwing inflammable materials carelessly while passing through forests are few enumerated reasons.

4.2.4.3 Forest fire in this Division is by and large ground fire. However the ground flora particularly regeneration crop is the worst victim of this menace. Sometimes pole crops get damaged. In addition site condition is deteriorated due to ground fire. The length fire season is quite long in this Division started from mid February till mid June or the onset of rains. Due to such large stretch of vulnerability it becomes difficult to fix it effectively.

4.2.4.4 The deciduous nature of the forest of this division leads to pile up of dry substratum on the floor conducive for the fire to proliferation. Extreme dry condition and high temperature during the summer are congenial for easy and quick ignition of the aforesaid inflammable materials through the activities enlisted above to become forest fire which spreads rapidly being encouraged by the high speed of wind during the said period. The convergence of all such factors makes it a menace for the forests.

4.2.4.5 It is felt that the problem cannot be solved through enforcement by the forest officials. Viable alternatives are to be provided to wean away practitioners from these practices. An integrated strategy with the active involvement of the line department, VSS, all Gram Panchayats of this division is indispensable to address this problem.

4.2.4.6 The MODIS aqua and terra satellite daily active fire location information products have provided the site wise fire incidence for last eleven years of the plan period i.e. 2007 to 2017.

4.3 Area damaged by natural calamities

4.3.1 On the basis of distribution of rainfall, temperature and location, Kalahandi comes under tropical monsoon-continental type of climate. The main characteristic feature of this climate is summer being very hot along with occasional conventional rainfall that comes with thunder and lightning. Such kind of rainfall normally occurs in the afternoon. The winters

are very cold but mostly dry except few rains occurred due to depression. Rain is normally received from Bay of Bengal branch of Southwest Monsoon. Kalahandi experiences three distinct seasons like

(a) Summer season- Mid February to Mid June.

(b) Rainy season- Mid June to October.

(c) Winter season- November to Mid February.

4.3.2 There is some variation between the hills and plains of the District with regard to the climate. The hills receive more shower than the plains due to the perpendicular position of the hills to the direction of southwest monsoon wind. With receding of monsoon, the temperature increases during the day while decreases in the night. The winter appears earlier in the hill portions than the plains. The Dongarla portion i.e. hills experience more rains and cold in rainy season and winter season than the plains,the trend being reverse during summer. Though nature and forest are very often considered as synonymous and almost symbiotic in association but sometimes the fluctuations of high degree in the functional aspects of the nature affects the crop considerably. Such damage causing disturbances of the nature are described in detail as under.

(a) Drought

Kalahandi is a drought affected District and it suffers a lot on this score. Forest is no exception from its harmful effect. The worst casualty is the unestablished regeneration crop being the victim of water scarcity due to lowering of the ground water level coupled with extreme high temperature. Sometimes over matured old crops also succumb to this adverse phenomenon. This drought condition prolongs the period for establishing the regeneration crop in the ground. The most vulnerable is the plantation which survival is always at stakes for this reason so also the growth and vigour. Hence repeated effort is required to be made to tide over this situation with gradual increase in the vegetal cover of this locality.

(b)Frost

Freezing of super cooled moisture into a smooth coat of ice on terrestrial objects is called Frost. This is due to accumulation of a considerable depth of heavy cold air flowing down into natural depressions from the adjoining areas. This has a more deleterious effect on vegetation than the ground. Occurrence of frost is rare and mostly confined to Madanpur Rampur range of Kalahandi North Division .Damage on this account is not significant except its adverse effect on Sal regeneration crop in prolonging the period to establish.

(c) Flood

Earlier flood occurs sporadically and has practically no effect in this district. Kalahandi experienced the harmful effect of high flood in the rivers of Tel, Hati, Utei, Udanti etc. Though high forests can withstand such damage but the ground flora particularly regeneration crops in the forest blocks adjoining the river banks and the plantations suffered a lot due to stagnation of water for a considerable period. However, the damage on this score is not much.

(d) Wind/Cyclone

Wind is generally light to moderate. During summer and southwest monsoon season, the wind velocity increases. Though there is neither cyclone nor tornado of worth mention reported so far in this district but at times wind pressure causes some cyclonic effect in some pockets thereby uprooting trees. Such wind fallen and uprooted trees are very often reported in both Kalahandi North and South Divisions. The old and mature crops are more prone to this damage causing effect. This wind disturbance causes some loss to the forests. During last plan period he cyclone effect in this region is not significant. However damage occurred due to phailin during October 2013 is furnished below.

Table no.4.4

Name of range	Name of Forest block	No. of trees uprooted/felled & delivered to OFDC Ltd.
M.Rampur	Ramud PRF	3
M.Rampur	Taprang RF	20
M.Rampur	Sunamukhi RF	24
M.Rampur	Benaguda RF	8
M.Rampur	Satami RF	27
M.Rampur	Dengen RF	22
M.Rampur	Jerka RF	55
Narla	Urladani RF	18
Total		**177**

And the last one disturbance by nature is Fire. Which is given in Chapter -4 of 4.2.

4.4 Area protected from grazing

4.4.1 Indian grasslands are degraded stage of deciduous forests and hence are not climax grasslands (Champion & Seth 1968) In India ,with a wide range of environmental variables , the climax can be either forest or desert and the grasslands that exist in the country are in seral stage (Bor,1960).These grasslands are spread all spread all over the country, but dominant the Peninsular Indian Landmass.

Forests of Kalahandi North Division

Table no.4.5

Type of Forest	Forest Cover during 2015 (Area in Ha.)	Forest Cover during 2017 (Area in Ha.)	Change in Ha
VDF	21490.34	21194.2	-296.14
MDF	31001.04	30797.89	-203.15
Open Forest	58669.81	62131.00666	3461.2

% of Geographical area	29.14	29.91	0.78
Scrub	21039.85	18114.9	-2924.96
Non forest	242574.89	246483.62	3908.73

LIVE STOCK POPULATION IN KALAHANDI (NORTH) FOREST DIVISION AS PER 2012 CENSUS (CD BLOCK WISE)

Table no.4.6

BLOCK WISE CATTLE POPULATION OF KALAHANDI DISTRICT AS PER 2012 CENSUS												
Sl.No	**Name of the block**	**Cattle**				**Buff Male**	**Buff Female**	**Grand Total**	**Sheep**	**Goat**	**Pig**	**Poultry**
		CB Male	**CB Female**	**IND Male**	**IND Female**							
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
1	Bhawanipatna	2533	2731	26177	12642	2039	1866	**47988**	11606	31113	129	92904
2	Karlamunda	1774	1358	9965	3506	997	608	**18208**	3625	9620	0	25450
3	Kesinga	3339	3476	14434	5490	1641	2437	**30817**	6031	16266	287	37544
4	Lanjigarh	238	212	12227	9055	3370	3737	**28839**	3640	19120	639	35628
5	M.Rampur	1330	1020	12438	4897	1667	1538	**22890**	2145	21383	1160	30699
6	Narla	2011	1497	14834	7113	1189	1153	**27797**	2709	21475	23	65757
7	Golamunda	748	530	18470	8670	1540	1017	**30975**	10797	18560	0	52610

(Source-CDVO, Kalahandi)

Live Stock population of KalahandiNorth Division

Table no.4.7

Name of the Animal	Total population as per 2012 Census	Fodder in MT
Cattle	182715	333454.9
Buffalo	24799	90516.35
Goat	137537	125502.5
Sheep	40553	37004.61
TOTAL	**385604**	**586478.4**

(Source CDVO Kalahandi)

4.5 Lopping practices: -

4.5.1 Tree lopping is the process of trimming various sections of a tree. The lopping may involve clearing away branches or limbs, or even shortening trunks. There are two different schools of thought in regard to the practice of lopping, with some people feeling the process is beneficial and others believing the practice should be avoided if at all possible. One form of tree lopping takes place as part of the landscaping process. In this setting, the tree lopper has the goal of reshaping existing trees so they will blend in with the general landscape design. This may involve trimming branches and limbs in order to modify the shape of the tree. If the idea is to limit the height of the tree, the lopping may involve removing all the branches and limbs, as well as part of the trunk. When new branches begin to form, they are trained to grow in the directions desired, often with the use of guide wires. This radical approach is sometimes used when lightning or some other disaster has damaged a tree. Here, the idea is to

remove the damaged section that is no longer living, and allow the remainder of the tree to thrive. In some cases, the tree will begin to grow new branches and foliage, eventually regaining its former stature and strength.

4.5.2 Stray cases of lopping of the fodder species like *Terminaliaalata*, *Brideliaretusa* ,*Pterocarpus marsupium* etc are notices in the interior pocket of the forest for fodder of the goat reared by the villagers.

Fruits of *Phylanthusemblica*, Terminalia*chebula*, *Semicarpus anacardium* , *Diospyrus melanoxylon, Madhucaindica* are generally harvested by the ignorant villagers for their uses by (lopping young trees) destructive method of collection causing heavy damage to the young crop.

4.6 Area infested by invasive weed species in forests:-

4.6.1 Any unwanted plant that interferes or tends to interfere with the growth of main crop species is termed as Weeds. In natural forests with good canopy cover, there is little scope for invasion of weed. But large opening in the canopy encourages the weed to invade in that portion of the forests. In plantation, the impact of weed growth is very much felt in view of the suppression of the growth of the planted seedlings. While de-weeding is prescribed for the plantations to control this problem, suitable silvicultural practice should be adopted for natural forests to tide over such situation.

4.6.2 Over the last few decades, a number of Forest Invasive Species, without realizing the consequences, have been introduced in India knowingly or unknowingly. Many of the invasive species have naturalized in the forest and are being used for multiple purposes like medicinal, ornamental, religious sentiments to uses in furniture, compositing etc.

4.6.3 Weeds of invasive nature growing in the forest vegetation form a category of Forest Invasive Species; (FIS) they include both indigenous as well as exotic taxa. These plants pose a lot of management problem and adversely affect the productivity besides incurring heavy costs in preventive and damage control measures. It is generally very difficult to isolate the native and exotic species, as they grow together. Exotic invasive species, however, are usually confined to the areas managed or otherwise influenced by man and his dispersing agencies.

Weeds have been classified into the following three categories. (Babu, 1977)

Category I: -

This group comprises of the species, which are thoroughly naturalized and appear to behave as wild plants. These plants are of tropical American origin and are usually obnoxious. They have Napoleonic ambitions to colonize new areas. This category generally belong to families Asteraceae, Amaranthaceae, Solanaceae, Malvaceae, Brassicaceae.

Category II: -

This group includes the plants of cultivated origin that have become naturalized or run wild. These weeds represent the members of the families such as Solanaceae, Cucurbitaceae, Asteraceae, Apiaceae, Brassicaceae, Fabaceae, Convolvulaceae, etc.

Category III: -

Species falling under this category are exclusively cultivated, and also met with as escapes which include members of Acanthaceae, Caryophyllaceae, Malvaceae, Asteraceae, Poaceae, Amaryllidaceae, etc.

4.6.4 Exotic weeds, owing to their aggressive nature can expand their zone of occupancy in quick succession, spread over large tracts, and endanger the natural elements of flora and bring about abrupt changes in floristic composition. With seasonal variations invasive species pass through vigorous reproductive phases without any obstruction and hinder the efforts to eradicate them. Invasive plants have appeared at different times and have always sustained and multiplied at the cost of indigenous species. They have occupied vast areas and have even pushed many indigenous species into red data status.

Impact of a few major Forest Invasive Species in KalahandiNorth Division are explained as below.

Eupatorium

Eupatorium odoratum commonly known as "pokasunghha" in local language has its genesis from Central and South America. The current status indicates that it has been naturalized and invading the forest and wastelands of Kalahandi South Division in a great pace. They are spreaded by fodder forage, wind, water runoff, transportation of grains and vegetables, etc. through Cattle, animals, birds, man and nursery operations. Around 80% of the forested area of this division are invaded by it. This weed spreads fast and hinders the regeneration of main species and has replaced the valued flora at places. It crops up even in disturbed soils. Generates and survives well in most of the goat-travelled paths that is why it is locally known as 'goat weed'. Since the plant has no local or commercial use, it has widely spread in denuded and forestlands.

Lantana

Lantana camara locally known as Lantana, has its origin from Tropical America, naturalized throughout. In India, it was introduced as an ornamental plant 1809. This species is propagated through Nursery, trade, animal excretion, garden waste by Animals, birds and human agencies, transport networks, commercial nurseries. The species is Common throughout the division in the forests, plantations, disturbed areas, grass lands, wetlands, riparian and urban areas. It is one of the obnoxious weeds that has encroached most of the areas under community and reserve forestlands of Kalahandi South Division especially in the left over chunk of Podu land. This weed, not only ruins common forestlands but also makes shade as well as allopathy impacts on the regeneration of important forestry species. Due to spread of Lantana, the natural regeneration of the principal species get hindered. Heavy expenditure is incurred for afforestation of lands infested with this weed which requires frequent de-weedings so as to avoid suppression of young seedlings of planted species. Afforestation cost is also increased due to loss of stand and slower growth rate due to weed competition. The thickets of Lantana obstruct the migration of the herbivorous fauna of the forest in this Division.

Parthenium

Parthenium by steropborus is known as Carrot weed, congress grass, white top grass, gajar ghas has its origin from Mexico, Argentina, Tropical America, invaded large areas in India. Commercial trade from USA, believed to have come with Mexican wheat consignment in 1950 is responsible for its induction in India. It is propagated through Wind, water runoff, transport

of grains and vegetable, garden waste etc by air, cattle, nurseries animals and man. Generally found in Agricultural fields, forest areas, grass lands & urban areas, it is an aggressive colonizer of degraded areas with poor ground cover and exposed soil such as fallow wastelands, roadsides and overgrazed pastures between existing plant cover and native weed density. Spreads very fast. It seeds prolifically. Seed germinates readily and the plant tolerates a wide range of conditions. The weed is a menace to forest because it has allopathic effect and competes with natural regeneration. The weed affects human and animal health by causing respiratory problems, severe dermatitis and tainted milk.

Ageratum

Ageratum conizoides commonly known as Goat weed, has its origin from Tropical America, naturalized throughout India propagated through intentional, Contaminated in crop seeds by 1860. It is propagated through air, water animals, graziers and fodder collectors in plantations, pasture and all forest types up to 1500 m above sea level. This species invaded a large chunk of forests in this division in a sporadic way.

Besides the above, unabated free grazing and intense human activities have led the way to many other plant species having no use in supporting ecology and economy of this division. These are Agave catula, Cassia tora, Clerodendrum viscosum etc.

The invasive weeds not only affect the productivity of forests but also blocking of water bodies, water transport ways, affecting wildlife habitat in the forests and wetlands and commercial activities such as cultivation of medicinal plants etc.

Current methods/ techniques for prevention of monitoring control of weeds

The following species specific methods are being employed for prevention and control of weeds:

Mechanical:

Mechanical control involves hoes, cultivators, harrows, rotary weeders, discs, ploughs, mowers and manual uprooting. The weeds are physically lifted from the soil, cut off or buried. In most of the forestry operations the FIS such as lantana, eupatorium Parthenium, etc. are uprooted manually and either burnt or buried. In some places, those are being used for making compost.

Tillage:

Tillage helps in the burial of most small annual weeds. If all growing points are buried, most annual weeds will be killed. Tillage also disturbs the rooting system of most of the perennial weeds. The root system is cut to enough depth so that the plant dies from desiccation before it can re-establish its roots. In moist soils or if it rains soon after tillage, the roots may quickly re-establish themselves. In effect one may transplant the weed with little or no injury. Mowing is effective on tall growing plants. Tall annual weeds are mowed or scythed to reduce competition with crop plants and to prevent seed production.

Biological control:

In biological weed control, a ‘natural enemy’ of the plant is used which is harmless to main crop. Insects or diseases organisms are the usual natural enemies. Also parasitic plants, selective grazing by livestock and highly competitive replacement plants are other forms of

biological control. There exist numerous biological agents like a gall forming moth, leaf minor, weevil, beetles and a rust fungus against*Parthenium* .

4.7 Incidences of pest and diseases.

Though there are a number of insect pests which are harmful to the forest crop as well as plantations but the following few causing considerable damage to the forests and plantations of the division are described in brief as under.

i. Teak defoliator (*Hyblaeapuera*)

This is the most serious pest of Teak both in natural and plantation. It causes major problems together with some group of minor pests. Controlling this pest by mechanical or physical means is of limited use. Silviculturally it can be controlled by allowing the strips of existing mixed crop or raising strips of mixed plantations as the isolation barrier. The pest population can also be controlled by its natural enemy under biological control.

ii. Teak skeletonizer (*Eutectona Machaeralis*)

Instead of defoliation, this pest eats away the chlorophyll portion of the leaf leaving the internal tissue as such. As a result leaf in its skeletal form is visible on the tree. Like the defoliator, it is also a major pest of Teak. These two pests are the serious menace of Teak Plantatiom in this Division. Its control is similar to that for the defoliator.

iii. Sal heartwood borer (*Haplo Cerambyx Spinicornis*)

It attacks Sal tree particularly the heartwood portion. It affects the timber quality thereby causing depreciation in commercial value. The damage by this pest is sporadic and its intensity is not so acute. It attacks mostly felled / fallen un-barked logs as well as unhealthy moribund standing trees. Attack on healthy trees is very rare. It can be controlled effectively through biological methods.

iv. Insect pest of bamboo

Herbivorous insects attack bamboo and reduce the plant vigour and productivity. These insects have highly modified mouth parts and they feed on sap of leaves, branches, culms, shoots, roots and rhizomes. Defoliation, wilting of young shoots and branches even death of culms are the result of such attack. Notodontiddefolitors / Green bamboo caterpillar (Loudontadispar), Smoot moth (Artoniafunerlis), Green slug Worm (Parasa bicolor), Bamboo powdering beetle (Dinoderus Minutus) are the notable pests of bamboo. Biological control is effective for preventing the attack of powdering beetle. It is advisable to harvest the bamboo during winter when there is low content of starch and sugar.

(f) Fungus:

Fungi are the causative agents of numerous plant diseases but few notable ones affecting some valuable tree crop of the division is described individually as under.

i. *Fomes Caryophylli*

It is brown heart rot of Sal. In the early stages of its attack, heartwood is stained slightly dark to brown. Ring rot is caused. Later decayed wood become spongy. After causing appreciable decay fungus emerges through sound sap wood into the bark in form of pink knots. Bark in the region of eye is gradually shed off. Branch stubs and knots caused on stem. Epicormic branches

emerge but it does not always indicate of heart rot. Sporophore rarely develops. Damage caused due to it appears less and only occur in dead and fallen trees.

ii. *Fame Faustus*

It is a secondary parasite as well as a saprophyte on the bark of the Sal. It causes heart rot in butt region. In early stages the heart wood shows darker brown stains in patches which develop later into small pockets. Under active decay these pockets get filled with white decayed fibres which disintegrate, in later stages pockets appear empty and brown.

iii. Hymenochaete Rubiginosa

It causes pockets rots in heart wood. Due to it, tissues in affected pockets become white and fibrous surrounded by brown wood. Sporophores appear in tiers one above other in close cluster from the stem of affected trees.

iv. Polyporus shoreae

The Sal root fungus is more prevalent in the moister and often better quality forests where it tends to affect middle-aged stems and young vigorous poles. The dying off appears in groups, which is a very characteristics symptom. It often kills the best stand.

v. Fomesbadius

It causes heart-rot in Khair and Babul but the incidence is not noticeably high. Study on this aspect is essential since Babul is occurring both in forest and farm lands and also considered as one important tree for agricultural implements and rural households.

Controlling measures

Though the remedial measures are many but the best way of countering this problem is to maintain the hygienic condition of the forests by removing the seriously infected crop and also to reduce the fire incident which is one of contributory factors causing damage to the bark of saplings and young poles and thereby rendering them prone to fungal infection.

(g) Loranthus:

This is an aerial hemi parasitic evergreen shrub on other seed plants. *Dendrophthoe Falcata* (*Loranthus Longiflorus*) and *Scurrula Parasitica* are seen on the trees like *Shorearobusta, Cleistanthuscollinus,Madhucaindica, EmblicaofficinalisMangiferaindica, Tectona Grandis* etc. These parasitic plants are locally called as Madanga or Malanga. Scurrula Parasitica is seen in upper hill slopes affecting the seed plants. The damage by Loranthus is though noticed but not of serious nature.

(h) Climbers:

A herbaceous or woody plants (Lians) that climbs up trees or other supports by twining round them or by holding on to them by tendrils, hooks, aerial roots or other attachments. The climber menace is very much observed in the forests. Climber grows spirally around small trees initially and in course of time it grows thicker and stiffen the growing trunk of the tree for which the tree is embedded in the trunk. Then it becomes hard to loosen it from the tree. Finally the trunk becomes convoluted with a deep spiral groove running from the bottom to the top. In this process the technical quality of the tree is lost. Few notable climbers causing menace in the forests of KalahandiNorth Division are as follows.

I. Budel (Butea Parviflora)

II. LataPalas or Palas Lai (Buteasuperba)

III. Atundi (Combretumdecandrum)

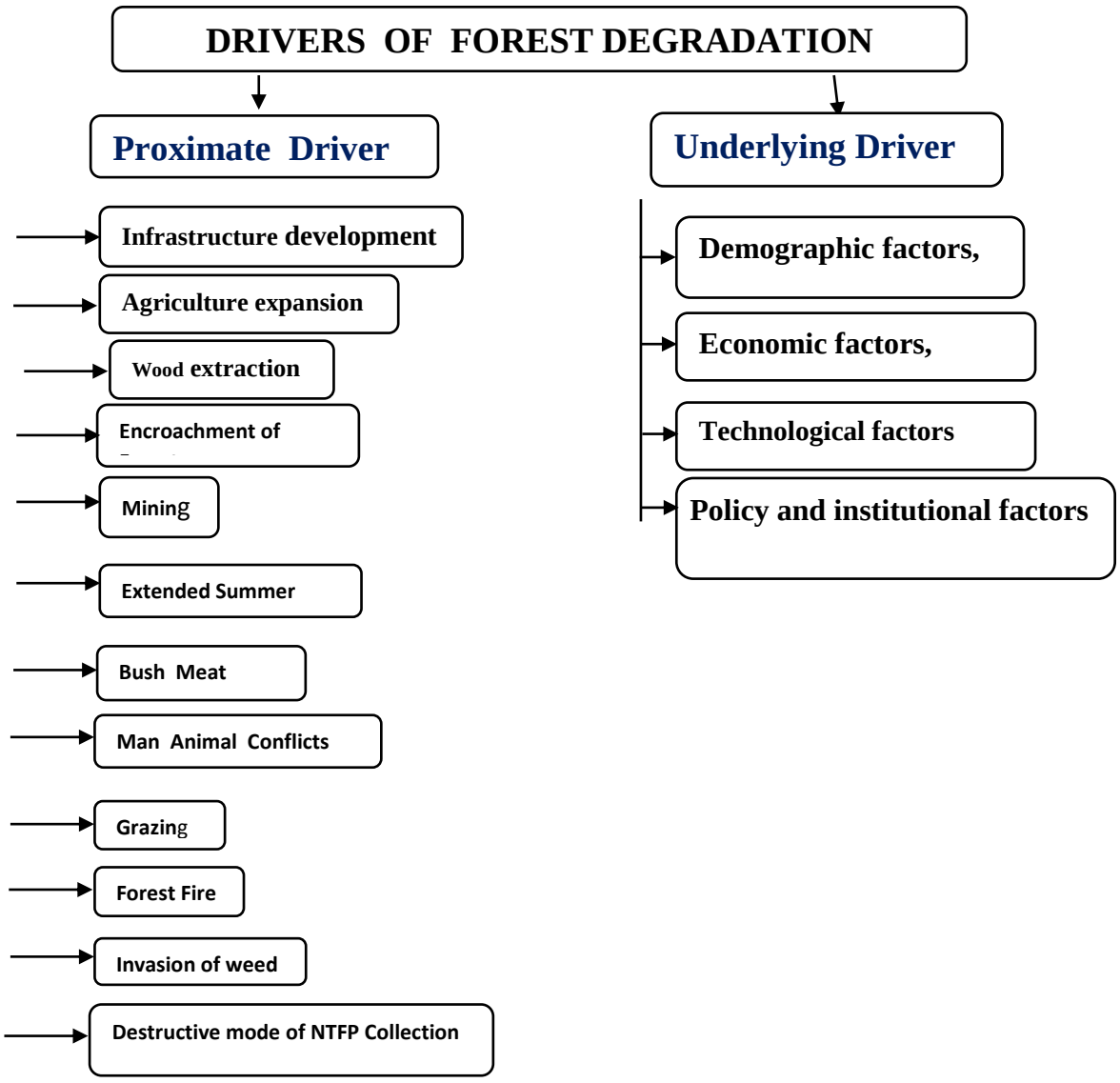
IV. Siali (Bauhinia vahlii)

V. Marda (Millettia Extensa)

VI. Muturi (Smilax zeylanica)

4.8 Forest degradation and its drivers:.

There exist a large numbers of drivers of forest degradation that can be categorized into **Proximat**e and **Underlying.**



4.8.1 Proximate driver causes are those which are visible in nature and they are mentioned below.

i. Infrastructure development:- Since India is moving towards development, infrastructures like road networks, electricity, and communication networks are being built.

ii. Agriculture expansion: - Agriculture is the main source of livelihood in these countries. It pushed the forest conversion. This is mainly due to less land holding and not enough land to sustain even farmer's livelihood The Forest Rights Act which forces the conversion of forested land into agricultural land.

(i) **Wood extraction:-** Extraction of wood from the forest is another proximate driver that can be legal or illegal. In order to generate income and employment many people are involving in wood extraction and trade. Wood export is quite high due to the increased demand of tropical timber .Due to galloping rise in population, the demand of forest produce is increasing day by day. The permissible removal of the products from the forests is far away from the quantum of requirement and as a result there is a huge deficit on this account. On the other hand no viable alternative is in place particularly for the rural mass in meeting their need of fuel wood and other forest products. In these circumstances, excess removal of such products from forests beyond the permissible limit is resulted through illegal means by local people. The clandestine removal of trees by smugglers is also aggravating the situation. Sometimes inhabitants of forest fringe villages earn their livelihood through sale of illicitly procured timber and firewood from the forests. Another peculiar habit of the tribal of Kalahandi is to fell the tree not for the sake of timber or firewood but to collect wood resin, Honey and to kill rodent residing in that tree. The tribal will prefer to fell the tree and leave the entire tree at the stump site after filling their cause. This is a serious ethnical problem. On the whole the forests has been depleted mainly due to the aforesaid relentless over exploitation and the same is the greatest cause of injury to the forests. Efforts have been made to control this problem through enforcement of forests rules and regulations as well as motivation of the people through VSS. The number of forest offence cases booked during the plan period is mentioned in previous chapter.

iii. Encroachment of forest land described in Chapter – 2

iv. Extended summer

The summer is felt from 4 to 5 months in this division causing severe desiccation leading to aridity of the forest. This hamper the establishment of the regeneration to a large extent.

v. Frequent forest fire*:*-Fire serves an important function in maintaining the health of certain ecosystems, but as a result of changes in climate and in human use (and misuse) of fire, fires are now a threat to many forests and their biodiversity. It is described in para 4.2

vi. Bush meat: -Poaching is a big threat to wildlife next to the developmental processes, which causes direct elimination of a species from wild. In tribal dominated KalahandiNorth Division poaching is going on causing an irreversible loss to the ecosystem of some areas. The network of poachers is sometimes unnoticed by the wildlife managers. The target species and the parts susceptible to poaching are skins of leopards, Otters, Giant squirrels, Pangolins, Porcupines, Monitor Lizard (the skin is used to prepared the Ghumura a widely popular dance form in this district) etc. Large scale shifting cultivation (Podu) and encroachment in the past: Large scale of slash and burn/ shifting cultivation/ practiced by various ethnic groups, living inside and outside the forest has harsh impact on the wildlife habitat.

vii. Man Animal(wild) conflict (MAC), detail is described in Chapter – 3 at Para – 3.7

viii. Rearing of cattle in the fringe villages beyond carrying capacity posing grazing pressure over the natural vegetation

ix. Destructive way of collecting of NWFP.is described in Chapter – 7 of Para 4.3

x. Soil erosion:- Due to the undulating terrain like the steep hills and valleys with origin of numerous streams this division is highly susceptible to Soil erosion. Special attention has been taken up during the outgoing plan period under Rehabilitation Working Circle.

xi. Rapid Spreading of Invasive weeds is described in para 4.6.

xii. Minning:- Illegal mining for precious stone is a frequent phenomena in different forests of this division which needs to be addressed.

4.8.2 Underlying causes are hidden behind the proximate drivers of deforestation and forest degradation **Underlying c**auses of deforestation include

i. demographic factors,

ii. economic factors,

iii. technological factors and

iv. Policy and institutional factors.

These drivers are somehow interdependent and all are important

4.8.3 Demographic factor

Demographic features of Kalahandi North Forest Division and Kalahandi district table no.1.1 of Chapter 1.

Particular		Odisha	Kalahandi District	Kalahandi North Division
Area in sq. Km		155707	7920	3850
Population		41974000	1576869	763072
Male		21212000	787101	383509
Female		20762000	789768	379563
Sex ratio (No. Of Females per '000' males		979	1003	989
Schedule tribe	Male	NA	221171	98791
	Female	NA	228285	100606
	Total	9590756	449456	199397
	Sex ratio (no of females per '000' males)	NA	1032	1981
	% of population	22.8	28.5	26
Scheduled caste	Male	NA	142133	68125
	Female	NA	144447	68486
	Total	7188463	286580	136611
	Sex ratio (no of females per '000' males)	NA	1016	1005
	% of population	17.1	18.17	18
Rural population		34971000	1454882	660741
Urban population		7003000	121987	102331
Rural -urban population		83:17	93:7	87:13
Population density per Sq. Km		270	199	198
Literacy rate		72.9	59.22	NA

This growing population needs additional livelihood resources to survive. Migration is another demographic factor that created different pressures on forests. The main factor is urbanization which is huge in Kalahandi. People move from rural areas to urban, for better survival opportunities.

4.8.4 Economic factor

Above 763072 peoples are living in the rural areas in Kalahandi North Division and almost all of them are engaged in agro based economy. With food crisis of the 1960s, Green revolution started in India which demanded forest land be converted to agriculture land and the enhancement of agricultural fields, sacrificing the forested land in India. Kalahandi has also lost its pristine forest in this mission. It is also a fact that this mission has increased per capita income and reduced poverty to a certain extent. Kalahandi has limited industrial development and forest based enterprise activities and employment generation is considered an important sector.

4.8.4 Technological factors

Technology development can be either supporting or reducing deforestation and forest degradation. Technology can help replace the accessories made from wood products with

other materials and comparatively better to reduce wastes of the trees etc. However, development and application of technology in reducing wood products for particular geography is yet to be developed.

4.8.5 Policy and institutional factors

Many Acts and Rights provided to the people by the government from time to time have becomes a negative drivers for example the Forest Right Act -2005. The Schedule Tribes encroaching forest land since the cut off line of 2005 and the other forest dwellers of 75 years are given rights. In anticipation of the flexibility of the cut off line, people at large are encroaching upon more forest land and want the forest case is registered against them so that their name starts appearing in government documents.

4.9 Pollution control and protection of environment

There is no large industry exist within the ambit of the Division. The damage to the Forest-crop is very negligible. However due to running of crusher machine for preparation of chips in some Forest area, it affects the environment in the nearby Localities. Another cause for pollution of environment is running of s brick kilns which is to be restricted by the District authority.

CHAPTER 5

Conservation and maintenance of soil and water resources

5.1 Area treated under soil and water conservation measures

5.1.1 Soil and moisture conservation measures is one of the principal activities of the forestry activities of the for the upgrading of the moisture regime of a forested ecosystem .In the last plan period the following activities were proposed to be taken up in the forest blocks under Rehabilitation Working Circle. The approach of the activities was under the watershed basic to ensure maximum conservation of moisture and soil, which will act as drought proofing measures. All the annual coupes were super imposed with the watershed maps and the soil and moisture measures were taken up from the top of the slope to the bottom approach.

5.1.2 The following works were proposed in this activity

Gully Plugging: - (1) Check dams were proposed to be made across the gullies with Loose boulder check dams (LBCD) provided in the middle reaches of the gullies having a width of 1.0 mt. to 3.0 mt. Rough stones of size of 0.15 to 0.3 cum were proposed for the construction of these structures. Earthen bunds were proposed to be provided in both sides of the structure. Height of the check dam was proposed to be regulated 1/3rd to ½ of the gully depth. These check dams were to be constructed at regular intervals depending on the gradient, steeper the slope, more check dams are required. More number of check dams are required in Category-II areas since the slopes are steep and the velocity of runoff is high. (2) for brush wood dam for gully plugging were proposed as per the suitability and availability of the vegetative soil binders like Sabai grass, Vetiver grass and Agave. Generally for brushwood check dams, the height of the fall taken into consideration was fixed 1 meter, the maximum width of the gully was 3 meter and depth was 0.6 meter.

(a) Palisading, Agave Planting & Vegetative Building: - With the available materials palisading was to be prepared along the contours to counteract the force of water movement. 10 to 20 meters apart depending on the slope with the growing of grasses like KhusKhus, Napier grass, Sacharum etc. . 10 to 20 meters from the second line Agave should be planted.

(b) Contour Bunds: - Contour bunds were proposed to be constructed along the contour to cease run-off water . Grass turfing was proposed on the side slope and top of the bund. The soil binding species like Vetiver grass were to be planted on the upper slope of the bund with spacing of 0.23 meter.

(c) Staggered Trenches: - These trenches were proposed to be constructed along the contours of size 2 mt. x 0.5 mt. x 0.5 mt.and for undersize , equal trenches of more number were to be dugout. The soil dug from the trenches to be kept at least one foot away from the trench in an inverted trapezoid structure When the slope goes more than 30%. the trenches half the original size (2 mt. x 0.5 mt. x 0.5 mt.) were to be built along the contour line. Generally the distance between the two trenches could be 3 meters along the contour and also 3 meters along the slope.

(d) Percolation Tanks: - These tanks were to be constructed on the flat surface of the highest points. Generally each tank was to be dug out with dimensions of 5 mt. x 5 mt. x 0.5 mt. The width and the depth can vary depending on the availability of the flat surface. The dugout soil from the tanks should be stacked in a inverted trapezoid with the compaction. No inlet and outlet to be provided from the percolation tank. The bunds were to be treated with seeds Dhanicha (Sesbaniaaculeala), Sun hemp or even Horse gram.

(e) Planting The blank area which had least chance of restocking through promotion of existing growing stock, were to be covered through planting. Choice of species for planting shall be based on its suitability to the site, need of the local people and easy propagationwith a special emphasis on indigenous species but NTFP, fruit bearing, medicinal plant species were to be preferred along with bamboo Generally species like Asana, Arjuna, Mahula, Bamboo, Teak, Khaira, Babool, Karanja, Amla, Sirisa, Bija, Champaetc.were proposed for different areas proposed for planting In the areas close to villages Ficus species and fruit bearing species like Mango, Jackfruit, Tamarind, Mahula, Karanja, Neem, Kusum and others were proposed . On much eroded and degrades sites species like Acacia catechu, Acacia leucophloea, Zizyphus species, Aegle marmelos, Babul and Agave were proposed along bunds and gullies.

5.2 Duration of water flow in the selected seasonal streams:-

The main source of water supply is river, nalas and perennial streams. Though three main rivers namely Nagavalli, Vansadhara and Indravati are originating from Kalahandi and it comes under Kalahandi South Division.but, they are discharging their water to the neighbouring District and the State except the reservoir over Indravati in the extreme southwest corner of the District. Tel, originating from Nawrangpur District, is traversing through this District over a long track and considered as the major river of this District and also kalahandi North Division. The brief description about the rivers and nalasof Kalahandi North division are as follow.

5.2.1 Tel: - Tel is the longest and most important river in the District. Rising in the north of Nawrangpur District, it enters in the district a few kilometers west of Dharmagarh near Chhilpa and flows through an alluvial tract. Taking almost an easterly course through the Dharmagarh sub-division, it instantly takes a more northerly direction after its junction with Sagada until it meets the Udanti on its left bank. About eight kilometres from this point of confluence, it runs almost northeast and forms the boundary between Bolangir and Kalahandi for a fairly long distance and then enters Bolangir near Risida-Kumbharpada. The Tel rivers passes through Bhawanipatna Range, Kegaon Range, Kesinga Range and M.Rampur Range of this Kalahandi North Division. The bed of this river is generally sandy; it is more observable from breadth than depth. Its water, through decreases very much during the hot season, does not entirely dry up. The river Tel has almost all the important feeders on its right side in the District while the only important feeder namely Udanti is on the left side.

5.2.2 Ret: - Ret is the most important feeder of Tel. It rises from the hill track of Biswanathpur Range near Bori Reserve forest then passes through Bhawanipatna Range area and ultimately joins Tel near Bahadurpadar of Kesinga Range. It receives waters through a number of nalas in its course. Besides Bori reserve forest Machul, Raul, Dulma forest block come within its catchment. In addition it receives waters through a number of nalas like Daren and Luna nala originating from Madakhola 'B' RF of BhawanipatnaRange, Phatamunda originating from Bazargarh RF of Kesinga Range. This river is almost confined

to Bhawanipatna and Kesinga Range of Kalahandi North Division and Biswanathpur Range of Kalahandi South Division.

5.2.3 Utei: - It rises from the hill tracks of Baliguda Forest Division of Kandhamal District and enters Kalahandi North Division near Nagjhari of NarlaRange. It joins with river Tel near a place called Belkhandi under Kesinga Range. In the confluence of Tel and Utei the famous SivaTemple is existing. It is a place of eco-tourism importance. This river Utei has the catchment spreading over major forest blocks like Urladani, Taparang, Bhatel, Sadel 'A' and Turchi RF of both Madanpur Rampur and Narla range of Kalahandi North Division.

5.2.4 Raul: - Like Utei, it owes its origin from the hill tracks of Baliguda Forest Division of Kandhamal District and passes through Urladani, Taparang and Sunamukhi RF of both Narla and M.Rampur Range of Kalahandi North Division and then enters the district of Bolangir near Sikerkupa RF after which it joins with river Tel near Birmunda. The flow of water in this river is very good even during summer season.

5.2.5 Budha: -It has the same origin like Utei and Raul but it enters the Kalahandi District near Lahidi of Madanpur Rampur Range after passing through Telen, Puijhari and Taparang forest block of the same Range it joins with river Raul near Sankush where there is an ancient Siva Temple. This place is of unique importance form eco-tourism aspect.

5.2.6 Sandul: - It rises from the hill tracks of Biswanathpur Range near Kiding and Sikerguda forest block after passing through Narla range, it joins river Utei prior to Belkhandi of Kesinga range. This river receives the water from a number of nalas like Pirchu originating from Kerbandi of Narla range, Chepulnala originating from Kadalighati RF of Bhawanipatna range, Matulnala starting from Chatamahul of Kesinga range, Maskutinala starting from Bazargarh RF Kesinga range, Sindhi nala from Kerbandi RF of Narla range, Bar nalla from Kamei RF of Narla Range, Jamparanala starting from Narla PRF of Narla Range.

5.2.7 Hati: - It starts from hill tracks of Jaipatna range near Pandi PRF and then passes through plain area of Junagarh range where it joins with river Tel near Amathula. This river also getting the backward discharge water of Upper Indravati Project for which there is a good flow of water through the year. During rainy season it poses serious problem, disrupting the road connectivity. It drains many forest blocks of Junagarh, Kegaon, Bhawanipatna and other ranges. These are Ghana, Panigaon, Pariagarh, Chura 'B', Kumkot, Daka, Brahmani, Dhanupanchan, Udayagiri, Singari, Jerka, Talchirka, Raktaboden, Dulkibandh, Bhalujore, Garjan, Balagaon etc.

5.2.8 Udanti: - This river is the only feeder of Tel on its right bank. Originating from the State of Chhatisgarh, it enters the District of Kalahandi through Kegaon range of Kalahandi North Division and joins the river Tel near Turkel under Bhawanipatna range of the same Division. Gojia, Lini, Ghatual, Bisibarni, Adabari and parts of Nageswar forest block under Kegaon range area situated in its catchment.

NALLAS: -

Besides the important rivers narrated above there are some important nallas, which are contributing a lot to the water resource of the District. During rainy season the flow is quite substantial whereas it reduces to tiny stream or sometimes dry up during summer. The few notable ones are described below.

5.2.9. Moter: - It drains the waters of Sahajkhol RF and joins the river Tel near Chilpa of Dharmagarh Range.

5.2.10.Behera:- Like Moter it drains the waters of Sahajkhol RF and joins Moternalla near Nuagoda of Dharmagarh range ultimately to become a part of Tel River.

5.2.11.Sagada: - It originates from the hill tracks of Karlapat near Krishnamali PRF and joins the river Tel near Bargaon of BhawanipatnaRange. This nalla also forms a natural boundary between Kalahandi North and South Division. GoelkhojGhati, Podhar, Thakuranipadar, Kanamanjur, Alma and Kuturkhai forest blocks are the main forest area in its catchment alongwithNehela and Karlapat forest block of Karlapat Sanctuary.

5.2.12.Bulat&Pipal: -Bulat rises at the Southern end of Gundi PRF of BhawanipatnaRange and flows through Bhawanipatna town in a northwestern direction under the name of Pipalnalla. It ultimately joins Tel at PandigaonnearKarlapada of Bhawanipatna Range.

5.2.13.Kholan: -It starts from Brahmani RF near Kholan of Bhawanipatna range and joins the river Tel near Tentulipada of the same range.

5.2.14.Kaliganga: -It originates from hill tracks of Baliguda Forest Division of Kandhamal District and passes through a portion of Madanpur Rampur Range of Kalahandi North Division receiving the waters of Sulia, Dengen forest block and then enters the Kandhamal District where joins with river Kharag. It also receives the water from another nalla called Banda originating from Baliguda Forest Division and draining the water of Sulia, Dengen forest block.

5.3 Wetlands in forest areas

A **wetland** is a distinct ecosystem of inundated with water, either permanently or seasonally, The primary factor that distinguishes wetlands from other land forms or water bodies is the characteristic vegetation of aquatic plants,adapted to the unique hydric soil. Wetlands play multiple roles, sometimes referred to as functions. Among these are water purification, water storage, processing of carbon and other nutrients, stabilization of shorelines, and support of plants and animals. Wetlands are also considered the most biologically diverse of all ecosystems, serving as abode to a wide range of plant and animal life. Whether any individual wetland performs these functions, and the degree to which it performs them, depends on characteristics of that wetland and the lands and waters near it. There exists a number of wetland either man made or natural and reaching the water regime of this division. The check list of these water bodies are as follows:-

5.3.1.Indravati Project

Upper Indravati Hydro Power Project is one of the largest Dam in India as well as Asia. It is the largest dam in eastern India which produces 600MW of electricity. The Upper Indravati Project envisages diversion of water, of the Indravati River in its upper reaches into the Mahanadi valley for power generation and irrigation.

The project involves construction of 4 dams across the Indravati and its tributaries 8 dykes and two inter-linking channels to form a single reservoir with a live capacity of 1,435.5 million m^3 (50.69 billion cu ft), 4.32 km (2.68 mi). tunnel, a power house with installation of 4 units of 150 MW each turbines, 9 km (5.6 mi) tail race channel and an irrigation barrage across Hati river with the associated irrigation canals i.e., Left Canal and Right Canal.Irrigation from left canal is done in Kalampur, Koksara, Junagarh and

Dharmagarh Block where Asia's longest aqueduct is made on Tel River near Odisha border. And right canal is done is Junagarh (Nandol area)andBhawanipatna Block, the construction work is under process in Karlapada where it merges with Ret River. The water comes from mainly Indravati River,

5.3.2 Ret Irrigation Project: Ret medium irrigation project is a reservoir project with an earth Dam of 1054M long near village Kutingpadar in Kalahandi District intercepting 262 Sq. Km Catchment area in Orissa state to Irrigate 8500 Ha of C.C.A. The ayacut cover under Khariff is 7225 Ha.at85% intensity and 2550 ha during Rabi for a total annual irrigation of 9775 ha. The ayacut covers 4 blocks in Kalahandi District namely Kesinga, Bhawanipatna, Narla and Lanjigarh. The C.W.C has accorded techno economical clearance for project for the project in their 71st meeting held on Dt. 03.08.1999 at New Delhi. The project after completion will sub manage 6 nos. of village fully and 9 nos. of village partly alongwith affecting a total population of 1061 nos. comprising of 352 Families (ST-190, SC- 53, and Gen-109) Facilities have been proposed to resettle the affected families by allotting 5 acres to each ST Family and 4 Acres to each SC and General family of non-irrigated Govt. land in the ayacut preferably and cash components to some others families besides normal compensation. Total 700 ha. of land out of which 25-98 ha of village forest and rest revenue land will be affected. (revenue land inclusive of cultivated, Dangar and Gochar land etc) Total nos. of trees to be affected is 269 and Bamboo 579 nos. in 43 clumps.

5.3.3 WATERSHED: -

The watershed is an important factor for the water resource. Much emphasis is given on the watershed to ensure proper water table and the perennial nature of the river streams. Though this District forms the parts of four river basin namely Mahanadi, Godavari, Nagavalli and Vansadhara, the Mahanadi river basin is the most important one occupying major portion of the District leaving aside the other three basins to very small areas. There are 31 watershed and 235 sub-watershed in the district. The number of mini and micro watershed of the District are furnished below.

Table no. 5.1

Sl.No.	Name of the Basin	No. of Mini Watershed	No. of Micro Watershed
1.	Mahanadi	442	1032
2.	Indravati	36	110
3.	Nagavalli	41	126
4.	Vansadhara	12	39
	Total: -	**531**	**1307**

5.4 <u>Water Table</u>: - The Water Table of the District at different places as recorded from the water levels of the wells located at various places by South Eastern Region, Bhubaneswar of Central Ground Water Board, Ministry of Water Resource, Government of India has been collected and furnished below in tabular form. This is the indicator of ground water table of the area.

Post-monsoon Ground Water Level Trend of Kalahandi District

(Period 01-Nov-06 to 01-Nov-16)

Block	Location	Well No	No. of Data	Rise	Fall	Intercept
		Dist-Kalahandi				
BHAWANIPATNA	Bawanipatna	W195429083093302	16	-	0.125	2.299
	Bhawanipatna	W195429083093301	8	-	0.739	2.283
	Dalguma	W194900083071501	10	-	0.427	2.410
	Karlapada	W200346083062401	9	-	0.003	2.821
	Pastikudi	W200104083095401	10	-	0.211	2.314
	Pastikudi1	W200104083095402	9	0.043	-	3.540
	Sargigora	W201015082592401	10	-	0.550	0.756
DHARAMAGARH	Dharamgarh	W195212082464701	13	-	0.076	3.085
GOLAMUNDA	Daspur	W195754082520001	10	-	0.194	1.804
	Golamunda	W200320082471801	8	-	0.245	3.296
	Golmunda	W200320082471802	18	-	0.107	2.123
	Kegaon	W200615082534501	8	-	0.174	2.665
JAYAPATNA	Baner	W193152082485001	10	-	0.125	1.311
	Bijamara	W193330082491201	10	-	0.170	1.471
	Jaipatna	W192814082483901	10	0.075	-	2.350
	Ladugaon	W193642082422001	8	-	0.157	2.233
	Mukhiguda	W192559082511901	10	-	0.052	1.703
JUNAGARH	Badbasul	W195008082501501	10	0.075	-	3.979
	Baldiamal	W195038082542501	13	0.042	-	1.920
	Jaring	W195337083011801	10	0.195	-	3.606
	Junagarh	W195130082554902	12	-	0.068	1.512
	Mahichala	W194640082504501	10	0.044	-	1.784
KALAMPUR	Bandigaon	W193625082485001	8	-	0.124	1.155
	Kalampur	W193720082530001	10	-	0.087	1.171
	Moter	W194255082474501	15	-	0.016	2.459
KARLAMUNDA	Risida	W202405083282201	10	-	0.011	2.057
KESINGA	Kesinga1	W201115083132402	7	-	0.601	1.577
KOKASARA	Ampani	W193456082372801	13	-	0.015	1.831
	Koksara	W194032082414201	10	-	0.137	0.650
LANJIGARH	Biswanathppur	W194902083255501	9	-	0.213	1.767
	Narla	W200345083225901	12	-	0.066	2.876
	Pokaribandh	W195110083251501	9	-	0.024	1.294
MADANPUR	Jurakhaman	W200952083365001	13	-	0.190	1.412
	M-rampur	W201150083313002	11	-	0.049	3.696
NARALA	Santapur	W195808083191601	9	-	0.564	-0.294
	Tulapada	W200739083250402	9	-	0.178	-0.691
THUAMUL RAM	Gunupur	W193630083070001	9	0.433	-	4.421
	Thuamalrampur	W193242082560501	5	0.086	-	3.926

Pre-monsoon Ground Water Level Trend of Kalahandi District

(Period 01-Apr-07 to 01-Apr-17*)*

Block	Location	Well No	No of Data	Rise (meter/yr.)	Fall (meter/yr.)	Intercept *01-Apr-07*
		District: KALAHANDI				
BHAWANIPATNA	Bawanipatna	W195429083093302	17	0.013	-	5.783
	Bhawanipatna	W195429083093301	7	-	0.724	3.316
	Dalguma	W194900083071501	8	-	0.176	9.322
	Karlapada	W200346083062401	8	0.071	-	6.583
	Pastikudi	W200104083095401	8	-	0.230	5.134
	Pastikudi1	W200104083095402	9	0.078	-	6.888
	Sargigora	W201015082592401	9	-	0.141	6.119
DHARAMAGARH	Dharamgarh	W195212082464701	16	-	0.102	7.226
GOLAMUNDA	Daspur	W195754082520001	9	0.080	-	5.730
	Golamunda	W200320082471801	7	-	0.781	1.836
	Golmunda	W200320082471802	21	-	0.023	5.061
	Kegaon	W200615082534501	9	0.015	-	5.912
JAYAPATNA	Baner	W193152082485001	9	-	0.239	2.563
	Bijamara	W193330082491201	9	-	0.264	2.747
	Jaipatna	W192814082483901	9	-	0.006	3.068
	Ladugaon	W193642082422001	6	-	0.391	3.707
	Mukhiguda	W192559082511901	10	-	0.111	2.990
JUNAGARH	Badbasul	W195008082501501	9	-	0.077	4.126
	Baldiamal	W195038082542501	13	0.049	-	2.843
	Jaring	W195337083011801	7	-	0.400	1.761
	Junagarh	W195130082554902	12	0.059	-	5.256
	Mahichala	W194640082504501	8	0.266	-	3.828
KALAMPUR	Bandigaon	W193625082485001	9	-	0.135	1.478
	Kalampur	W193720082530001	9	0.000	-	2.199
	Moter	W194255082474501	16	-	0.079	3.216
KARLAMUNDA	Risida	W202405083282201	9	-	0.158	5.681
KESINGA	Kesinga1	W201115083132402	8	-	0.196	6.414
KOKASARA	Ampani	W193456082372801	16	0.011	-	5.434
	Koksara	W194032082414201	9	0.023	-	3.926
LANJIGARH	Biswanathppur	W194902083255501	9	-	0.271	4.903
	Langigarh	W194216083180001	6	0.191	-	6.974
	Narla	W200345083225901	12	-	0.288	3.355
	Pokaribandh	W195110083251501	8	0.357	-	6.336
MADANPUR	Jurakhaman	W200952083365001	15	-	0.010	6.925
	M-rampur	W201150083313002	10	-	0.018	5.373
NARALA	Tulapada	W200739083250402	8	-	0.175	1.516
THUAMUL RAM	Gunupur	W193630083070001	8	0.311	-	5.526
	Thuamalrampur	W193242082560501	6	0.190	-	9.352

Block wise Ground Water Resources of Kalahandi District

(Source: Study Group Report, March 2009)

Table no. 5.2

Sl. No.	Assessment Unit/ District	Net Annual Ground Water Availability	Existing Gross Ground Water Draft for irrigation	Existing Gross Ground Water draft for domestic and industrial Water Supply	Existing Gross Ground water draft for all uses (11+12)	Allocation for domestic and industrial requirement supply upto next 25 years	Net Ground Water availability for future irrigation Development (10-11-14)	Stage of Ground Water Development {(13/10)*100}%
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	Bhawanipatna	6412	1358	529.00	1887	1204	3850	29.43
2	Dharmagarh	5355	647	356.34	1003	809	3899	18.73
3	Golmunda	6208	1020	306.00	1326	702	4486	21.36
4	Jaipatna	4761	324	339.00	663	762	3675	13.93
5	Junagarh	9686	882	479.25	1360	1076	7729	14.04
6	Kalampur	3044	444	167.91	611	346	2254	20.07
7	Karlamunda	4965	359	152.97	512	321	4285	10.31
8	Kesinga	5365	1231	343.00	1574	752	3382	29.34
9	Koksara	8691	838	342.67	1181	727	7126	13.59
10	Lanjigarh	5481	588	215.00	803	488	4405	14.65
11	M.Rampur	3910	618	297.63	916	1834	1457	23.43
12	Narla	4797	998	424.00	1422	964	2835	29.64
13	Th.Rampur	6236	311	283.00	594	659	5266	9.53
District Total		**74911**	**9618**	**4236.00**	**13852**	**10644**	**54649**	**18.49**

NB: - HM = Hectare Metre, DW = Dug Well

5.4.1.**<u>Traditional Water Structure</u>: -**Earlier the people of Kalahandi use to store water by constructing various structures. Some of these structures are also prevalent now days. It is worthwhile to mention about these structures since the same are contributing significantly to the water resource of the District. Some structures as locally called are described below.

5.4.2*(a) Bandh:*A traditional pond that is usually located in the lower ridges. The water conserved is used for drinking and bathing purposes.

(b) Munda: This semicircular structure is constructed on the upper ridges for percolation purpose and also to retain the moisture level of the ground. Water running down from the uppers slopes enters this structure and the semicircular embankment stops it from further running down.

(c) Kata:A variation of the Munda, it collects water from a larger catchments area. It has embankments on three sides. This is also used for percolation but in case of rainfall failure, the embankment is breached for irrigation purposes.

(d) Chahala:Rectangular tanks dug within agricultural fields but without any embankments. This water is used when there is insufficient water for irrigation.

(e) Sagar:A structure measuring around eight hectares and is situated just beneath hills and mountains. It catches rainwater gushing from these hills. This is community-owned structure.

5.5 Status of aquifers

5.5.1 The aquifer, which are water bearing horizons occurs in unconfined condition above base rock different types of aquifer are encountered in different area of the district. As the district comes under hard rock terrain, the water holding zones encountered within the district can be broadly put under the following categories.

(a) The fissured formation

(b) The porous formation

(a) Fissured Formation: The weathered and the fractured zones of the hard rocks constitute the main water bearing horizons. The open joints in hard rocks facilitate the movement of ground water. The weathered zone acts as ground water reservoir for the underlying fractured zone and facilitates the movement of ground water. In this hard rock terrain, the water yielding capacity of an aquifer formation largely depends upon the extent of joints and fractures present and the nature of their interconnection. A significant quantity of water occurs when two or more sets of fractures or joints are interconnected.

The weathered zone in Khonadalites is extensive and its thickness ranges from 18 to 25 mtrs. The weathering in granitic rocks ranges from 8 to 15 mtrs. depth in general. In comparison to these rocks, the charnockites are less weathers jointed and fractured. Above formation is suitable for shallow tube wells.

In general, two or three major sets of water bearing fractures occur within 100 mtrs. of depth in this district and the yield capacity of the fractures depends on the extent of fracturing, size of opening and the nature of their interconnection. In the fractures rocks the ground water occurs under unconfined to semi-confined condition. Above formation is suitable for dug-cum bore wells.

(b) Porous Formation: The laterites and the alluvium of sub-recent to recent origin comprise the porous formation.

Laterite generally occurs as capping over the older formations. The weathered laterites are highly porous and act as good aquifer. Alluvium of recent origin occurs as thin discontinuous patches in the flood plains of the major rivers like Tel, Udanti, Retetc. in limited area. In the alluvial formation, where the thickness of sandy zone is significant, the water table both during monsoon and non-monsoon period occurs at a shallow depth the yield of wells installed in such areas have been found to be good.

Along the flood plain of river Hati and Tel granular zone aquifer has been encountered. The area extends along the flood plain of Hati from Junagarh block to Kalampur block and in limited places in Dharmagarh, Golamunda and Koksara blocks. The medium to coarse-grained sand occurs within 60 ft. from ground level. The thickness of granular zone varies from 10 to 20 feet. In said area shallow tube wells are feasible. The wells have moderate to high yielding capacity ranging from 5000 to 10000 gal./hour.

The ground water potentiality of Kalahandi is quite high in view of less utilization of the ground water. This source can be tapped to avail the surplus resource for irrigation and other purposes.

CHAPTER 6

Maintenance and enhancement of forest resource productivity:

6.1.1 Growing stock of wood:-

Analysis of growing stock is necessary to know the capacity and potential of the forest to have tree growth and also to calculate harvestable yield in the working plan as also for future management to maintain the forest in the similar condition as selection forest. As the objective of forest management is gradually shifting towards regular flow of income and ecosystem services to local community keeping conservation and ecological security as larger objective. The harvestable yield and increment of the forest has to be considered to arrive at the crucial decision of sustainable management. The Kalahandi North division having miscellaneous crop of trees has been managed under the Selection System in the past and will be continued to be managed under Selection System owing to character of the crop and age class composition in unit area. In absence of any research plot / preservation plot in the Division, there is no authentic documentation of growth of important species of the locality. So the scope of updating the data on this score is almost obliterated. However the detailed method of volume determination and yield calculation of major species prescribed by different authors are furnished in chapter 12.

6.1.2 Estimation of total growing stock:

6.1.2.1 Forest Resource Assessment methodology as prescribed in the "National Working Plan Code-2014" was used to assess the total growing stock of trees and biomass. In each compartment number of sample plots was laid out after reconnaissance of the forest area so that representation of all site qualities, type and structure of forests was ensured. While approaching the sample plot observational assessment of site quality, tree species, composition, its health, density and crop age etc. were recorded in the Plot Approach Form I. Presence of special features such as blanks, scattered trees, plantations raised etc. were noted. Information on NTFP yielding species, intensity of invasive species, faunal sights and their traces, special wildlife habitats and drivers of deforestation were recorded.

6.1.2.2 After reaching the sample plot, a square plot of 0.1 ha was laid out measuring 22.36m horizontal distance i.e. half of the diagonal in all the four directions. After checking the dimensions of the plot, latitude, longitude and altitude coordinates were recorded. The main plot was used for recording the trees and bamboo stocking. The enumeration of trees was done by measuring the diameter/girth of each tree found in the sample plot. In case of bamboos, each clump was enumerated by taking its height, number of first, second and three year old culms, dried, congested culms and overall condition of the culms.Information on regeneration and status of crop, injury to crop, grazing incidence, fire incidence, soil type, gradient of slope etc. were gathered and recorded.

6.1.2.3 The data of shrubs, climbers and regeneration status from all quadrants of3m×3m laid out at a distance of 30 meters from the center of the main plot of0.1ha was collected and recorded in the plot enumeration form. The data ofherbs from all nested quadrants of 1m×1m laid within each quadrant of 3m×3mwas collected and recorded in the

plot enumeration form. The recorded data was analyzed compartment wise to find the stocking of trees and other ecological parameters.

6.1.2.4 The results show that growing stock is represented by about 24 treespecies in various proportions. The most predominant species as emerged from sample point survey are *Shorearobusta, Cleistanthuscollinus, Lanneacoromandalica, Diospyrosmelanoxylon, Lagerstroemia parviflora, Terminaliatomentosa, Anogeissuslatifolia, Xyliaxylocarpa, Buchananialanzan, Dilleniapentagyna, Syzygiumcumini, Terminaliabellirica, Schlicheraoleosa, Careyaarborea, Tectonagrandis, Madhucaindica, Aeglemarmelos, Boswelliaserrata, Dalbergiapaniculata, Bombaxceiba, Ougeniadalbergiodies, Pterocarpusmarsupium, Adina cordifolia, Mangeferaindica* etc.

6.1.2.5 Going by the number of trees, it is apparent that *Shorearobusta*contributed 11.48 per cent to the total growing stock. Going by the volume also *Shorearobusta* emerged as the most important species contributing as much as 24.25 per cent of the total growing stock. All other species contributed about 75.75 per cent. When number of trees are plotted against diameter classes, the forest looks fairly balanced as seen in **Graph 6.1.** Inverse J curve corresponds to structure of the forest that is managed under Selection system. This graph however does not give the picture that how many more trees can be accommodated in the higher diameter classes. From the structure and composition of forest, it will be advisable to develop the forests a selection forest with fair distribution of trees of all classes and species.

Graph 6.1 Number of Trees in Diameter clasees

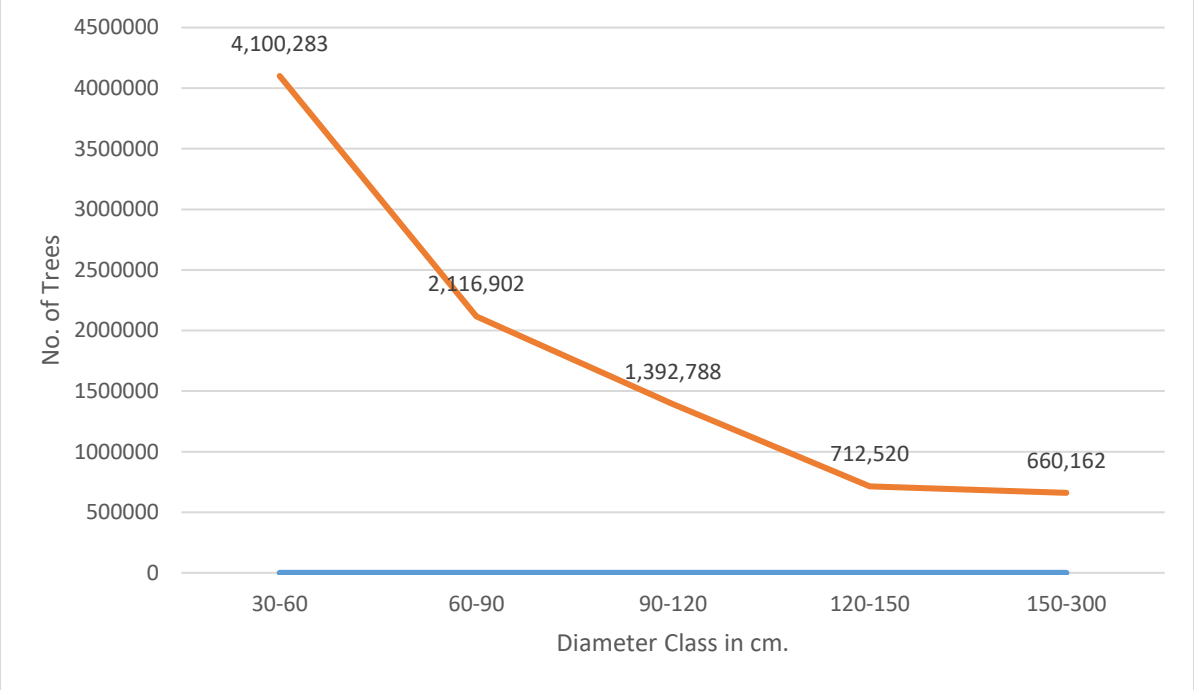


Table 6.1
Total Growing Stock (No. of Trees)

Species	30-60	60-90	90-120	120-150	150-300	**Total Trees**
Terminaliatomentosa	220,037	98,552	72,663	53,707	61,667	**506626**
Anogeissuslatifolia	209,042	91,184	69,256	39,709	34,492	**443683**
Diospyrosmelanoxylon	176,972	97,967	100,028	56,409	39,899	**471275**
Lanneacoromandalica	114,634	79,714	67,079	39,330	31,079	**331836**
Shorearobusta	693004	398,454	292,716	179,378	166,625	**1730177**
Miscellaneous	2686594	1351031	791046	343987	326400	**5499058**
	4,100,283	**2,116,902**	**1,392,788**	**712,520**	**660,162**	**8,982,655**

Table 6.2
Total Growing Stock (Volume of trees in cum)

Species	30-60	60-90	90-120	120-150	150-300	**Total Volume in cum**
Terminaliatomentosa	59289	69955	92997	106113	210071	**538425**
Anogeissuslatifolia	25775	43795	73326	70490	89646	**303032**
Diospyrosmelanoxylon	83156	113071	213055	182366	195219	**786867**
Lanneacoromandalica	42237	66662	97199	82021	108655	**396774**
Shorearobusta	598621	702168	846809	760326	1037699	**3945623**
Miscellaneous	878079	1059011	1131960	751059	1158582	**4978691**
	1687157	**2054662**	**2455346**	**1952375**	**2799872**	**10949412**

6.2 GROWING STOCK OF BAMBOO

6.2.1 At the time of carrying out the growing stock enumeration, the bamboo clumps wherever available have also been enumerated. The enumeration has been done in two stages.

Stage-1.

In this stage number of clumps species wise occurring in sampling unit are fixed according to the % of sampling which have been enumerated along with average height of the culms. The bamboo forests have been classified into three qualities depending on the culm height as per the criteria shown in table 6.3

Table no. 6.3

Different Quality Classes for Bamboo Clumps	
Quality Class	**Criteria**
Quality Class-I	Culm height of 9 meters and above
Quality Class-II	Culm height between 6 meters to 9 meters
Quality Class-III	Culm height less than 6 meters

Stage-2.

In the second stage, number of culms in individual clumps have been counted duly differentiating & recording the culms age into 1st year; 2nd year; 3rd year & up. The enumeration data has been duly reflected in the respective compartment history.

The perusal of enumeration data clearly reveals that majority of Bamboo forests in the Division comprises mainly of Salia bamboo (Dendrocalamus strictus). The Salia bamboo is the most dominant species, which occurs almost in the entire area covering the forests of NarlaMadanpurRampur ,Bhawanipatna and some parts of Kegaon Range. Besides, the large occurrence of Salia bamboo, the Kanta bamboo (Bambusa arundaneaceae) and Bolangibans (Gigantochloahasskarliana) does also occur but is confined along theNallahs& Streams.. However, majority of the bamboo forests is of Quality-II and Quality III. Due to anthropogenic pressure bamboo crops experiences the deterioration in both quality and quantity.

6.2.2 An attempt has been made to estimate the total growing stock of the Bamboo forests by adopting the standard statistical methods. The total number of clumps enumerated has been divided by the total area of enumeration to get number of clumps per hectare. This has been subsequently multiplied by the total bamboo forests area of the Division to estimate total number of clumps in the entire Division (Bamboo forest has been taken as that forest which contains at least 5% of bamboo). The second stage enumeration data has been similarly used to assess the number of culms per clump. The total number of clumps in the Division when multiplied by number of culms per clump gives the total number of culms in the entire Division.

6.2.3 Further analysis of the data have been done and estimated the total bamboo growing stock of the Division in terms of Sale Unit (SU). Though the quality class of the Bamboo forests are varying from Q.II to Q.III, the average height of culms has been taken as 7.5 meters for the purpose of the present calculations for quality-II (Culm height in between 6M to 9M & thus average length is 7.5M) and 3 meter for quality III. The total number of culms in the Division when multiplied with average length of a culm gives total length of the culms of all the estimated Bamboo clumps of the Division in RMT (Running Meters). It is then divided by 2400RMT to get total growing stock of the bamboo in terms of the standard Sale Units since one standard SU is equal to 2400 RMT. The abstract of growing stock of bamboo is given in table 6 4.

Table no. 6.4

Abstract of Growing Stock of Bamboo in Kalahandi North Forest Division	
Total Bamboo Area in the Division(In Ha)	66152.07
Bamboo Area Enumerated(Ha)	23
Total Bamboo Clumps Enumerated(In No.)	1290
Total Culms in the Enumerated Area(In No.)	34980
Average Clumps Per Hectare in Enumerated Area(In No.)	60
Average Culms Per Clump in Enumerated Area(In No.)	27
Total Clumps in the Entire Bamboo Forest (In No.)	3226469

Total Culms in the Entire Bamboo Forest (In No.)	53312990
Average Height of the Culms(In Meters)	4.5
Total Culm Length in the Division(In Meters)	238228073
One Sale Unit(SU) of Bamboo (In Meters)	2400
Total Sale Units of the Bamboo Forest(In SUs)	99261

6.2.3 Classification of Bamboo:

Before working of Bamboo coupes, a Treatment Map will be prepared on the topo map in 1:25,000 scale indicating Salia and Daba Bamboo areas separately. Treatment type to be distinguished in the first stage shall be based on the assessment of the standard Salia bamboo quality classes and actual clump condition. In both these cases areas less than 4ha will be taken. For Salia Bamboo areas the following Treatment Types have to be identified.

Treatment Type A - Areas with healthy and well stocked Bamboo Clumps consisting of

Clump Quality I –Culm height of Bamboos 9m and up.

Clump Quality II- Culm height of Bamboos between 6 to 9m.

Clump Quality III- Culm height of Bamboos below 6m.

Treatment Type B – Areas with well-stocked but degraded, damaged, congested and /or fire burnt clums.

Treatment Type 'C' –

Areas wherein Bamboo clumps are sparse and scattered. Sporadic and gregarious flowering should also be recorded for specific areas.

Secondly before taking up treatment the following factor are to be considered.

1. Total number of culms per clump
2. Number of culms of current year (1 year) (Karadi)
3. Number of culms of previous year (2 years) (Kasi)
4. Number of culms of third years and older ... (Pakala)
5. Average Día meter of young culms.
6. Average height of young culms.

6.3. INCREMENT IN VOLUME OF IDENTIFIED TIMBER SPECIES

"Increment is the increase in girth, diameter, basal area, height, volume, quality or value of individual trees or crops during a given period."

6.3.1 Growth is important because it tells us how much crop is to be harvested or cut, what is the condition of the site and what is the comparative efficiency of different species.

Moreover, it is important for making judgments about various silvicultural practices being done or to be done.

Important factors affecting growth in natural forests includes:

- regeneration density and treatment
- spatial distribution
- silvicultural treatment
- artificial thinning
- site conditions
- climatic conditions

Each year in each growing season, the trees put a new layer on all of its parts (i.e. stem, branches, and roots). In other words, every entity increases its size and volume within a due course of time. However, in Forest management, the interest lies in the growth of diameter, girth, volume and basal Area i.e. the increment.

Increment Types.

- Current Annual Increment (CAI)- The increase in growth that takes place in a particular year is called CAI. But practically it is very difficult to measure increment annually. So CAI is measured over a certain period of time called Periodic Annual Increment (PAI).

  If the period is very short, PAI and CAI will be very close to each other.

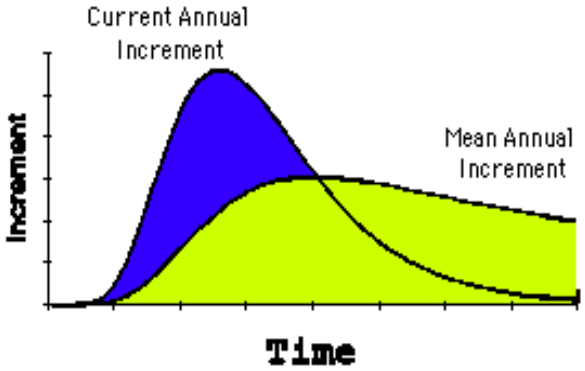
- Mean Annual Increment (MAI) - An average annual rate of growth up to any given date is called MAI. It is an average rate of growth representing the total growth or yield at a given aged distributed or spread over the period.

  MAI = Total increment up to a given age divided by that age

  = (Vx-Vo)/x where Vx=Volume at the end of x year

  Vo= Volume at the beginning

  CAI and MAI can be represented graphically as;



The meeting points (Culmination) of CAI and MAI curves determines the rotation of maximum volume production.

6.4. EFFORTSTOWARDS ENHANCEMENT OF FOREST PRODUCTIVITY THROUGH QUALITY PLANTATION ACTIVITIES

6.4.1 During the outgoing plan period no quality plantation activities has been carried out in this Division other than the normal plantation. The details of plantation activities carried out in this Division has been discussed in chapter 11. However initiations has been taken for raising quality plantation by raising quality planting material in permanent Nurseries, High-tech nurseries during the revision of this plan. Accordingly management plan has been prescribed in the plantation working circle. During the period of the outgoing plan there has been no remarkable occasion where quality plantation activities other than the usual plantation carried out year on year. Plantations using the latest silviculture technology in terms of high-tech nurseries for raising quality planting material, drip irrigation, chain-linked fencing etc. could be tried for specific need driven plantation in this Division.

6.5 Carbon stock:

6.5.1 Under the national forest inventory programme, FSI has been calculating carbon stock of forests under different types. Forest type wise and strata density wise values of carbon in tonnes/ha have been given in FSI reports for all carbon pools viz Above ground biomass (AGB), Below Ground Biomass(BGB), Dead wood, Litter and Soil Organic Carbon. These standard values mentioned in India state of Forest report 2017 have been considered to calculate carbon stock.

In forests enormous carbon is stored which is classified into 5 pools by Good Practice Guide of IPCC(Intergovernmental Panel on Climate Change). Both living and dead organic matter of the biomass is classified into two pools each:-

1. Above Ground Biomass
2. Below Ground Biomass
3. Dead wood
4. Litter
5. Soil organic matter

Table no.6.5

Table Showing Carbon Pools in a Forest

Category	Pools	D e s c r i p t i o n
Living Biomass	Above Ground Biomass	All living biomass above the soil which includes stumps, branches, bark, fruits, flowers, seeds and Foliage.
	Below Ground Biomass	All living biomass of roots. Fine roots of less than2mm dia are excluded as they cannot be empirically distinguished from soil organic carbon or litter.
Dead Organic Matter	Deadwood	Includes all non living biomass not included in litter either standing or lying on the ground. Also includes dead wood above 5 cm in diameter.
	Litter	Includes all non living biomass having diameter less than 5cm (FSI) ,lying dead in various states of Decomposition on ground.
Soil	Soil Organic Matter	Includes organic carbon in mineral and organic Soils in the plot

6.5.2 Forests of Kalahandi North division belong to two major types viz. Tropical dry deciduous and Tropical dry deciduous. Forest blocks of Madanpur Rampur, Narla ranges conform to Tropical moist deciduous forest while those of Kegaon, Kesinga and Bhawaniptna range conform to Tropical dry deciduous forest. Strata density wise areas in these ranges have been obtained from NRSC data available for preparation of this working plan. Accordingly carbon stock calculation has been done using standard values mentioned in India State of Forest Report 2017. Standard value per hectare given for various carbon pools for different forest type stratum and density has been multiplied by area for that particular type for carbon stock calculation in various ranges and division as a whole as detailed in table.

6.5.3 Summary of standard carbon stock values in tonnes for various carbon pools as mentioned in India State of Forest report 2019 has been given in table below:

Table no.6.6

Forest Type Stratum	Density	Carbon(in tonnes/ha)					
		AGB	BGB	Dead wood	Litter	SOC	Total
Tropical Moist Deciduous	VDF	45.45	10.00	0.90	2.77	58.42	117.54
	MDF	31.71	6.98	0.57	3.36	56.71	99.33
	OF	20.98	4.62	0.25	1.76	55.02	82.63
Tropical Dry Deciduous	VDF	31.46	13.21	0.42	6.29	50.71	102.09
	MDF	27.07	11.37	0.20	0.62	45.81	85.07
	OF	12.52	5.26	0.09	0.42	41.38	59.67

Source: India State of Forest Report 2019

Strata density wise area(in ha) statement of various ranges from NRSC reports and their forest type has been listed below in table:

Table no.6.7

Forest Type Stratum	Range	Area(in ha)		
		VDF	MDF	OF
Tropical Moist Deciduous	Madanpur Rampur	5990.65	9020.82	12294.56
	Narla	1216.91	4651.87	6556.38
Tropical Dry Deciduous	Kegaon	0.00	1382.94	6143.24
	Kesinga	7.86	1194.00	6803.05
	Bhawanipatna	515.05	4639.93	18,623.44

Source: NRSC data submitted for preparation of Kalahandi North Division working plan

6.6. CARBON SEQUESTRATION AND MITIGATION

6.6.1 To increase the carbon Sequestration potential of the forest of this division, the following points are to be addressed with prescription of suitable management techniques.

- Prolonged rotations
- Increased thinning
- Continuous forest cover
- Supporting litter production.
- Natural ecological condition
- Keeping the right water level
- Preventing deforestation
- Forest productivity and growing stock.

6.6.2 Enhancement of forest carbon stocks Effective implementation of good management practices ensures the multiple functions of forests and can increase forest carbon stocks. Specific management practices – e.g. silvicultural treatments (tending operations, enrichment of gaps, etc.), species selection, modification of rotation cycles, can be adopted to enhance forest carbon stocks.

1. **Deforestation and forest degradation**: Whether due to human activities or natural causes, deforestation and forest degradation result in carbon stock reductions and greenhouse gas emissions, as well as loss or impairment of other forest goods and services, threatening livelihoods, environmental functions and other socio-economic values. Forest conservation endeavors to rectify such deleterious impacts that cause forest degradation, and ultimately deforestation.

2. Forest threats include fires, pests and diseases, poor management and harvesting, overexploitation, grazing and other disturbances etc. Management measures must be adapted to the specific threats of the site. Forest management activities that conserve carbon stocks in forests includes:

    a. sustainable practices of forest management and use;

    b. integrated fire management;

c. management of forest health and vitality;

d. management of forest biodiversity;

e. management and extension of protected areas.

i. **Sustainable practices of forest management** can ensure that productive or multipurpose forests continue to store carbon and maintain their capacity to provide other goods and services for the benefit of current and future generations. Management practices need to be actively planned, tailored to each specific ecosystem and evolving situations, so as to avoid overexploitation and forest degradation. Forest management plans and practices will also need to be adapted to modifications caused by climate change, both gradual and abrupt. Adaptive forest management will be essential to address arising challenges and reduce forest vulnerability. Adaptation measures might include, for example,

- Selection of pest-resistant or drought-tolerant varieties,
- Use of stocks from a range of provenances,
- Under planting of genotypes of species adapted to expect new climate conditions, or assisted natural regeneration of functional species.

The measures need to be adapted to forest conditions (primary, secondary, degraded) and the specific site.

ii. **Integrated fire management:** Wild fires are a significant source of greenhouse gas emissions, and their incidences are likely to increase because of climate change. Integrated fire management is essential for forest conservation and as a part of climate change adaptation strategies. Strengthening capacities to prevent wildfires or to reduce risk of large disastrous wildfires can contribute to protecting storage and sequestration of carbon in natural or artificial forests. With the increased risk of wildfires, integrated fire management is a key component of both climate change mitigation and adaptation strategies. Fire management practices will need to be intensified and adapted as the context evolves with climate change.

iii. **Management of forest health and vitality**: Increased temperatures and levels of atmospheric carbon dioxide as well as changes in precipitation and in the frequency and severity of extreme weather events are having notable impacts on the condition of the world's forests, for example by making winters warmer or affecting the length of growing seasons. Climate change, particularly extreme weather events, can affect forest pests and the damage they cause by directly impacting their development, survival, reproduction and spread; altering host defenses and susceptibility; and indirectly impacting ecological relationships such as changing the abundance of competitors, parasites and predators. Insects and diseases may be the first indicators of climate change, and there are already numerous examples where insect and pathogen lifecycles or habits have been altered by local, national or regional climatic changes. Research has suggested that insect outbreaks can significantly affect the carbon sink or source status of a large landscape. Thus preventing and reducing pest impacts on forests may also provide an opportunity to mitigate climate change. Management of pests and

prevention of their spread ensure that forests remain healthy, reducing the risk of forest degradation and increasing resilience to climate change.

iv. **Management of forest biodiversity**:- Biodiversity is key to resilience of forest ecosystems to climate change, and therefore for conservation of forest carbon stocks. Forests are among the most important repositories of terrestrial biological diversity. Together, tropical, temperate and boreal forests offer very diverse habitats for plants, animals and micro-organisms. Biological diversity is the basis for a wide array of goods and services provided by forests. In their great variety, forest trees and shrubs have a vital role in the daily life of rural communities in many areas, as sources of wood and non-wood products, as contributors to soil and water conservation, and as repositories of aesthetic, ethical, cultural and religious values. In forests, biological diversity, in particular genetic diversity, allows species to adapt continuously to evolving environmental conditions (including climate change), to maintain the potential for selection and improvement to meet future needs and changing end-use requirements, and to support ecosystem functions. However, inadequate information and knowledge is generally an obstacle in identifying issues, needs and priorities for action in conservation of biodiversity in the context of climate change, at national and global levels.

v. **Management and Extension of Protected Areas:** Management of protected areas are among the most important tools for forest and wildlife conservation. Accordingly, improved management, and possibly expansion, of protected areas is considered one of the REDD+ mitigation options. Climate change is greatly adding to human-induced pressures on wildlife and protected areas (e.g. the unsustainable and often illegal hunting and trade in wildlife and its products) by modifying habitats and increasing the prevalence of threats such as fire, pests and pathogens. Wise management of wildlife and protected areas is critical for successful conservation and sustainable use of wild animals in the prospects of a changing climate. Priority activities includes:

- Developing adapted strategies, policies and legislation;
- Setting up long-term monitoring and reporting schemes for indicator plant and animal species;
- Trans boundary cooperation;
- Better involvement of local people;
- Implementing measures that help to reduce non-climate related, human induced pressures, e.g. from habitat loss or degradation and illegal hunting and trade, and thus overall vulnerability to climate change;
- Expanding or shifting protected area boundaries for conservation of forest ecosystems and species at risk from climate change;
- Improving habitat connectivity and providing migration corridors and seasonal feeding areas for migratory species;

- Integrating carbon sequestration and storage, along with other ecosystem services, into management and finance plans

3. **Management of Fragile Forest Ecosystems**: Some forest ecosystems are particularly vulnerable to climate change:

    - Mountain forests and watersheds;
    - Dry land forests;

    These ecosystems, with their unique features and resources, also have an important role for climate change mitigation on both local and on a global scale, as well as providing many other environmental, economical, social and cultural functions. Management measures are often critical to reduce their vulnerability and facilitate their adaptation to climate change.

i. **Management of mountain forests and watersheds:** Mountains are among the region's most affected by climate change. The expected increase in temperature and extreme weather events will amplify hazards in mountains worldwide and change the hydrological cycle, in which mountains play a key role. Climate change will alter precipitation and runoff patterns. For large parts of the world, this will mean reduced availability of water when it is most needed. Sound forest management and afforestation of degraded areas reduce erosion, increase slope stability and hence contribute to the provision of essential environmental services such as a regulated water flow and protection against natural hazards. Sustainable mountain development and collaborative and integrated approaches to watershed management are therefore vital for climate change mitigation and adaptation.

ii. **Management of Dry Land Forest :** Land use and management practices to sequester SOC (Soil Organic Carbon) include afforestation with appropriate species, soil management on cropland, pasture management on grazing land, and restoration of degraded soils and ecosystems through afforestation and conversion to other restorative land uses. Tree species suitable for afforestation in dry land ecosystems include Mesquite, Acacia, Neem and others. Recommended soil management practices include application of biosolids (e.g., manure, sludge), which enhance activity of soil macro fauna (e.g., termites), use of vegetative mulches, water harvesting, and judicious irrigation systems.

CHAPTER 7

Optimization of forest resource utilization

7.1 Recorded removal of timber

7.1.1 In the previous plan 47632.56 ha forest was allotted to the Selection Working Circle. In the Stand and Stock table it was indicated that trees of five girth classes 30 cm to 60 cm, 60-90, 90-120, 120-150 and 150 cm and above were available in the stand for management. As revealed from the field inventory by sample point enumeration the principal species present are *Shorea robusta* (Sal), *Terminalia alata* (Asana), *Anogeissus acuminata* (Dhaura) , *Xylia xylocarpa* (Tangana), Peterocarpus marsupium (Piasal) etc

7.1.2 Selection system was prescribed for managing the forests assigned under this working circle with special emphasis on the regeneration and improvement of the stand. Looking into the drought proneness of the division special cares were taken during the removal of the mature trees to maintain the ecological and environmental stability.

7.1.3 Minimum girth at breast height of a tree was considered as one of the qualifying criteria for harvest. Silvicultural, ecological and genetical safeguarding factors of the trees were taken into consideration during harvest. The harvestable girths calculated at breast height for different species in the last plan period are as follows:-

Table no.7.1

Sl. No.	Name of the species	Harvestable girth at breast height in cm.
1	Sal	150
2	Asana, Kuruma, Bija, Mundi, Champa, Sirisa and Kasi	180
3	All other species	150
4	Teak	120

Implementation :-

7.1.4 Timber coupe working could not be worked in this Division from 2007-08 to 2010-11 due to no valid working plan approval. The detail of yield analysis during the plan period from 2011-12 to 2020-21 achieved by the Division are tabulated below-

Yield in the felling series of Regular coupes of the Division:-
Table no.7.2

Year of working	Name of felling series	Coupe no	Coupe area (in ha)	Nos. of trees to be removed felling series wise as per working plan prescription	Coupe wise nos. of trees harvestable as per the Yield Table	Coupe wise nos. of trees actually felled / removed	Out turn of timber in cum	Out turn of firewood in stacks
1	2	3	4	5	6	7	8	9

1	2	3	4	5	6	7	8	9
2011-12	Urladani East	V	590.68	295	999	1000	329.1143	159
	Urladani West	V	704.82	235	232	35	11.488	10
	Taprang	V	640.49	320	1785	754	354.9342	84
	Telen	V	642.79	322	916	471	195.8214	35
	Benaguda	V	416.3	208	1040	144	61.9364	24
	Sunamukhi	V	609.05	305	1147	5	3.2927	0
	Sulia	V	619.27	155	881	31	13.4955	12
	Pongabajju	V	408.64	102	246	220	161.145	50
Total			**4632.04**	**1942**	**7246**	**2660**	**1131.228**	**374**
2012-13	Urladani East	VI	577.15	289	1033	103	43.4272	11
	Urladani West	VI	598.16	199	1112	278	81.6582	122
	Taprang	VI	654.03	327	1135	283	158.1035	50
	Telen	VI	670	335	778	453	98.6668	155
	Benaguda	VI	496.09	248	1265	159	69.2663	20
	Sunamukhi	VI	64.77	32	123	100	58.0629	5
	Sulia	VI	144.78	36	Not worked	0	0	0
	Pongabajju	VI	594.5	148	Not worked	0	0	0
Total			**3799.48**	**1614**	**5446**	**1376**	**509.1849**	**363**
2013-14	Urladani East	VII	663.54	332	663	202	129.1766	70
	Urladani West	VII	728.83	243	623	333	213.0385	70
	Taprang	VII	856.92	429	1732	350	101.1053	115
	Telen	VII	557.49	279	779	556	207.1519	100
	Benaguda	VII	618.42	309	800	140	36.8245	23
	Sunamukhi	VII	640.88	321	381	69	53.6584	10
	Sulia	VII	548.03	137	881	8	7.4834	5
	Pongabajju	VII	423.76	106	Not worked	0	0	0
Total			**5037.87**	**2156**	**5859**	**1658**	**748.4386**	**393**
2014-15	Urladani East	VIII	642.92	322	1241	124	155.629	60
	Urladani West	VIII	450.97	151	613	15	5.1898	5
	Taprang	VIII	517.32	259	431	284	93.5396	80
	Telen	VIII	417.62	209	981	425	155.7217	110
	Benaguda	VIII	422.12	211	980	5	0	10
	Sunamukhi	VIII	752.11	376	890	179	63.2552	40
	Sulia	VIII	767.39	192	882	66	20.091	20
	Pongabaju	VIII	600	150	Not worked	0	0	0
Total			**4570.45**	**1870**	**6018**	**1098**	**493.4263**	**325**
2015-16	Urladani East	IX	885.32	443	2407	142	61.7656	50
	Urladani West	IX	952.13	317	437	95	6.4474	10

	Taprang	IX	789.66	445	1473	103	52.354	35
	Telen	IX	378.35	189	979	328	116.5718	80
	Benaguda	IX	251.17	126	Not worked	0	0	0
	Sunamukhi	IX	476.03	238	733	54	28.5622	10
	Sulia	IX	691.36	173	880	17	4.5158	10
	Pongabaju	IX	520.08	130	623	244	104.8605	10
Total			**4944.1**	**2061**	**7532**	**983**	**375.0773**	**205**
2016-17	Urladani East	X	262.28	131	581	109	48.9507	30
	Urladani West	X	770.05	257	780	22	5.6011	
	Taprang	X	925.17	463	2582	659	262.1745	80
	Telen	X	414.81	207	515	275	112.5565	37
	Benaguda	X	376.84	188	852	104	96.8268	40
	Sunamukhi	X	393.95	198	268	20	13.8528	
	Sulia	X	847.84	212	1071	133	36.7157	10
	Pongabaju	X	302.42	76	263	225	126.465	25
Total			**4293.36**	**1732**	**6912**	**1547**	**703.1431**	**222**
2017-18	Urladani East	I	557.23	279	1366	86	24.278	15
	Urladani West	I	502.28	167	641	2	0.4595	
	Taprang	I	685.08	343	1119	336	139.1066	60
	Telen	I	628.41	314	926	157	59.0659	20
	Benaguda	I	555.18	278	501	183	72.5064	39
	Sunamukhi	I	549.31	275	542	36	7.4291	10
	Sulia	I	549.83	137	23	10	6.5757	5
	Pongabaju	I	612.34	153	206	55	11.4653	20
Total			**4639.66**	**1946**	**5324**	**865**	**320.8865**	**169**
2018-19	Urladani East	II	502.81	252	1037	180	170.6439	87
	Urladani West	II	628.17	209	377	22	22.8232	10
	Taprang	II	872.7	437	1217	427	334.7618	115
	Telen	II	858.69	430	1185	62	34.0332	20
	Benaguda	II	579.73	290	642	76	46.7763	15
	Sunamukhi	II	405.71	203	613	19	18.7766	5
	Sulia	II	728.75	182	23	10	11.402	5
	Pongabaju	II	593.23	148	206	42	16.3646	10
Total			**5169.79**	**2151**	**5300**	**838**	**655.5816**	**267**
2019-20	Urladani East	III	624.04	312	1406	186	140.0323	15
	Urladani West	III	479.07	160	710	8	5.354	5
	Taprang	III	739.76	370	1421	361	303.2787	60
	Telen	III	615	308	778	298	194.7905	35
	Benaguda	III	751.84	376	859	276	225.8521	30
	Sunamukhi	III	604.49	302	845	8	5.1217	5

	Sulia	III	829.12	207	23	18	27.6592	5
	Pongabaju	III	691.96	173	206	38	20.8663	5
Total			**5335.28**	**2208**	**6248.00**	**1193.00**	**922.95**	**160.00**
2020-21	Urladani East	IV	**723.57**	**361**	**2020**	**228**	**189.2821**	**35**
	Urladani West	IV	**746.54**	**248**	**880**	-	-	-
	Taprang	IV	**525.89**	**263**	**969**	**262**	**171.1802**	**40**
	Telen	IV	**394.58**	**197**	**565**	**196**	**100.7271**	**20**
	Benaguda	IV	**560.74**	**280**	**1079**	**67**	**71.6751**	**10**
	Sunamukhi	IV	**832.42**	**416**	**416**	**11**	**25.9576**	**2**
	Sulia	IV	**743.61**	**186**	**24**	**6**	**1.5371**	**1**
	Pongabaju	IV	**493.05**	**123**	**207**	**82**	**26.6371**	**28**
TOTAL			**5020.4**	**2074**	**6160**	**852**	**586.996**	**136**
G.TOTAL			**47442.4**	**19754**	**62045**	**13070**	**6446.92**	**2614**

During 2011-12 all 8 felling series are worked out and 2660 no. of trees were felled. During 2012-13coupe working could not be carried out in Sulia & Pangabaju F.S. due to non-availability of trees as per marking rule. 1376 nos. trees felled during the year.During 2013-14, Pangabaju F.S. was not worked due to non-availability of trees and 1658 nos. of trees were felled in other seven felling series. In 2014-15, Pangabaju F.S. was not worked out due to non-availability of trees and1098 nos. of trees felled in other felling series. In 2015-16, coupe working in Benaguda F.S. could not be carried out due to non availability of trees whereas coupe working carried out in other seven felling series wherein 983 nos. of wind fallen and uprooted tree were worked. In 2016-17, 2017-18, 2018-19, 2019-20 all 8 felling series has been worked out and wherein 1547, 865, 838 and 1193 no. of uprooted and wind fallen trees have been worked out respectively.

Timber and fuel wood from irregular coupes

Statement of Timber and Fuel wood of last 13 years in respect of Kalahandi North Forest Division

Table no.7.3

Financial year	Removed of logs in cum	Poles in no	Sawn timber in cum	Fire wood in Qtl	Firewood in stacks	Remarks
2007-08	442.3908	245	-	301.3	484.35	-
2008-09	1101.804	114	-	624.11	124.8	-
2009-10	1355.9915	223	-	32.55	333.25	-
2010-11	464.3664	224	-	3590	359	-
2011-12	259.129	114	-	2400	240	-
2012-13	631.53	11	5.74	442	44.2	-

2013-14	939.549	12	0.90	495.2	495.21	-
2014-15	879.3103	-	2.0661	4569.9	456.99	-
2015-16	871.23	58	25.4117	586.33	58.633	-
2016-17	771.9978	85	25.9631	4652.00	465.20	-
2017-18	457.18	29	46.277	2683.8	268.38	-
2018-19	445.2861	28	9.3356	1726.75	157.75	-
2019-20	19.8331		5.3837	191.4	17.3	
2020-21	97.8861	12	9.8021	2.3	20	

Allotment of Forest Blocks and Compartments to Selection Working Circle

Table no.7.4

Name of the Range	Sl.No. of the Forest Block	Name of the Forest Block	Total No. of Comp.	Total area under in this plan	Selection Working Circle	
					Compt No.	Area in Ha.
M.Rampur	1	Taparang RF	20	6887.80	1 to 20	6887.80
	2	Benaguda RF	14	4928.29	1 to 14	4928.29
	3	Sunamukhi RF	7	2339.69	1 to 7	2339.69
	4	Degen RF		476		0
	5	Jerka RF	3	1014.79	1 to 3	1014.79
	6	Telen RF	6	2660	1 to 6	2660
	7	Satami RF	5	1894.22	1 to 5	1894.22
	8	Sadel 'A' RF		273		0
	9	Sadel 'B' RF		307		0
	10	Turchi RF		257		0
	11	Bhatel RF		37		0
	12	Kutigudum PRF		378.10		0
	13	Chandanpinda PRF		298.25		0
	14	Gochhadengen PRF		346.34		0
	15	Mundramaska PRF		750		750
	16	Ramud PRF		547.09		547.09
	17	Bidabaru PRF		1464.61		1464.61
	18	Sulia PRF		5617.33		5617.33
	19	Pudrimahul PRF		303		303
	20	Pongabaju PRF		2331.91		2331.91
	21	Talnuagaon PRF		177.46		177.46
	22	Podgudi PRF		793.52		0
	23	Manikera PRF		66.4		66.4
	24	Puijhari PRF		2251.21		2251.21
	25	Karla DPF		432.11		0
	26	Pipalbhadi VF		6.22		0

	27	Saling VF		5.2		0
	28	Kuten VF		0.948		0
	29	Sulia Extn. DPF		138.05		0
	30	Kutiheu DPF		208		0
	31	Sihidi DPF		181.5		0
	32	Mugei		26.4		0
	33	Dengidongor DPF		575.77		0
	34	Goutami DPF		388		0
TOTAL			**55**	**38362.26**		**33233.84**
Narla	33	Urladani RF	34	10277.90	1 to 34	10277.90
	34	Lumersingha RF		175		0
	35	Karladongor RF		349		0
	36	Sripali RF		46		0
	37	Porgel RF	4	1712	1 to 4	1712
	38	Kamei RF		156		0
	39	Kerbandi RF		1231		0
	40	Narla RF		1293		0
	41	Dengsur PRF		255.06		255.06
	42	Mundighati PRF		88.2		0
	43	Narla Extension PRF		292.5		0
	44	Kamarda PRF		444.6		0
	45	Porgel Extension PRF		3222		0
	46	Badibahal PRF		44.94		0
	47	Sikerguda PRF		358		0
	48	Jamguda PRF		107.4		0
	49	Barpati		148.67		0
	50	Lamer		66		0
	51	Belgaon		3866.97		0
	52	Nuapada		11		0
	53	Chapatkhanda		28		0
TOTAL			**38**	**24173.25**		**12244.96**

Table no.7.5

Recorded removal of Timber & Firewood (Recorded holding plots) during last plan period-Kalahandi North Forest Division				
Year	**No of Tenants**	**No. of Tree removed**	**Quantities of Timber removed in Cum**	**Quantities of Firewood removed in stake size 12'x3'x3'**
2007-08	-	-	-	-
2008-09	-	-	-	-
2009-10	-	-	-	-
2010-11	3	281	79.6722	24

2011-12	1	21	6.6786	-
2012-13	1	61	23.9978	16
2013-14	-	-	-	-
2014-15	-	-	-	-
2015-16	11	137	227.9355	98
2016-17	4	49	148.8841	30.75
2017-18	2	47	53.5893	24
2018-19	1	44	93.9075	22
2019-20	4	21	38.0813	19.5
2020-21	03	16	57.82	08
TOTAL	**30**	**677**	**730.5663**	**242.25**

7.2 Recorded removal of fuel wood

Table no.7.6

Fuel wood harvested from regular coupes

Year	Firewood in stack (12' X 3' X 3')
2006-07	-
2007-08	-
2008-09	-
2009-10	-
2010-11	-
2011-12	373.5
2012-13	315
2013-14	393
2014-15	325
2015-16	245
2016-17	222
2017-18	169
2018-19	267
2019-20	160
2020-21	125
TOTAL	**2594.5**

7.3 Recorded removal of bamboo/ rattans

7.3.1 This Forest Division has a number of forest blocks having potentially rich in bamboo crop mostly Salia Bamboo (*Dendrocalamus strictus*). But species like Kanta Bamboo i.e (*Bambusa arundinacea*) and Bolangibans (*Gigantochloa hasskarliana*) are also found in very small extent along perennial streams and other water source of this Division. The forest blocks with potentials of commercial bamboo have been clubbed to Bamboo Overlapping Circle (BWC . The area assigned to this Overlapping Working CIrcle is66152.0661 Ha. It covers 58.83% of the Division. Spreading with of the total plan area of the outgoing plan over 14 nos.Reserved Forests, 5 nos. of notified PRF and 4 nos. of PRF to be notified over M.RampurRange, Narla Range, Bhawanipatna Range and Kegaon Range.For the management of this area this overlapping working circle was segregated into felling series or cutting series

which in turn further divided in to sub units of annual cutting area named annual coupes. These felling series have four annual coupes coterminous with the cutting cycle of four years. These annual coupes are named as **A, B, C, D**. Considering the potentiality of the crop as well as the topography of the area, 23 nos. of cutting series had been constituted for ensuring smooth harvest and executing the prescribed operations.

Detail production of Bamboo in the Division for the year 2010-11 to 2019-20

Table no.7.7

Year of working	Range	Name of the Bamboo Coupe	Compt. No	Area in ha	Production	
					IB in SU	CB in cum/ No
2010-11	M.Rampur	Telen "B "	2	435.13	114.06	-
		Taparang "B "	18,19,20	1374.24	-	-
		Satami "B "	3	305.53	296.1	500
		Benaguda East "B "	8	376.84	1063.72	5400
		Benaguda West "B "	13	416.30	795.76	4010
		Sulia "B "	Part	798.14	265.15	800
		Ramud "B "	Part	113.30	114.20	
		Puijhari "B "	Part	531.49	208.43	-
	Kegaon	Chura 'A' East"B "	4,5,12,16	1369.96	94.41	-
		Chura 'A' West "B "	1,2,22	856.34	350.57	-
		Chura 'B' "B "	3,8	660.75		
	Narla	Urladani East "B "	9	302.99	-	-
		Urladani West "B "	26,27	600.94	-	-
		Urladani Central "B "	13,14	663.54	-	-
		Porgel "B "	4	324.87	1028.83	620
		Porgel Extn "B "	Part	809.09	1776.25	10435
	Bhawanipatna	Kadalighati "B "	4	313.55	210.56	-
		Brahmani East "B "	5,6,12	796.82	102.24	-
		Brahmani West "B "	9,18	495.84	164.98	1465
		Alma "B "	Part	204.12	627.96	800
		Poddara "B "	Part	300.17	68.89	-
		Kanamanjur "B "	Part	481.88	205.42	-
		Th. Gundi "B "	Part	2528.84	976.62	1800
TOTAL				**15069.67**	**8464.15**	**25830.00**
2011-12	M.Rampur	Telen "C "	3 & 4	838.37	266.01	1000
		Taparang "C "	1,2,3	1051.41	89.54	
		Satami "C "	4 & 5	923.35	265.32	2170
		Benaguda East "C "	7 (Balance)	223.00	329.03	3475
		Benaguda West "C "	1,2,3,4,14	1631.00	146.08	600
		Sulia "C "	Part	2119.00	277.42	
		Ramud "C "	Part	95.37	112.92	
		Puijhari"C "	Part	803.53	227.08	
	Kegaon	Chura 'A' East "C "	3,6,17	702.54	6.03	
		Chura 'A' West "C "	7,8,9	955.57	341.23	
		Chura 'B' "C "	1,2	508.08	10.06	
	Narla	Urladani East "C "	8	287.69	0	

		Urladani West "C "	28,29,30	610.53	0	
		Urladani Central"C "	15,31	577.15	0	
		Porgel "C "	1	628.06	1042	2580
		Porgel Extn "C "	Part	1269.65	2439.88	8760
	Bhawanipatna	Kadalighati "C "	5	312.00	260.82	
		Brahmani East "C "	3,4	372.77	181.92	
		Brahmani West "C "	17,19	1078.87	330.73	2000
		Alma "C "	Part	335.01	532.71	1325
		Poddara "C "	Part	431.21	143.87	
		Kanamanjur "C "	Part	658.52	233.26	
		Th. Gundi "C "	Part	2433.46	832.21	3000
TOTAL				**18846.14**	**8068.12**	**24910.00**
2012-13	M.Rampur	Telen "D "	5 & 6	795.97	100.63	0
		Taparang "D"	10,11,12,13,14	1834.49	0	0
		Satami "D"	1	313.44	0	0
		Benaguda East "D"	7 (Part)	337.74	60.38	1000
		Benaguda West "D"	9 & 10	673.29	80.5	0
		Sulia "D"	Part	1037.00	40.25	0
		Ramud "D"	Part	190.07	0	0
		Puijhari "D"	Part	243.76	24.15	0
	Kegaon	Chura 'A' East "D"	10,11,23	1168.8	0	0
		Chura 'A' West "D"	18,21	677.87	0	0
		Chura 'B' "D"	4,5	622.7	0	0
	Narla	Urladani East "D"	7, 11	822.13	0	0
		Urladani West "D"	18,20,22	655.72	0	0
		Urladani Central "D"	17, 19	1276.38	0	0
		Porgel "D"	2	425.36	289.59	3000
		Porgel Extn "D"	Part	464.5	603.75	10000
	Bhawanipatna	Kadalighati "D"	1,2	739.51	0	0
		Brahmani East"D"	13,14,15,16,20	1622.52	0	0
		Brahmani West"D"	1,2	537.63	0	0
		Alma "D"	Part	404.03	114.3	1000
		Poddara "D"	Part	316.92	0	0
		Kanamanjur "D"	Part	374.57	0	0
		Th. Gundi "D"	Part	3084.85	0	0
TOTAL				**18619.25**	**1313.55**	**15000**
2013-14	M.Rampur	Telen "A "	1	628.41	0	0
		Taparang"A "	15,16,17	1017.81	0	0
		Satami "A "	2	327.44	0	0
		Benaguda East "A "	5 & 6	751.84	100.62	0

		Benaguda West "A "	11 & 12	618.42	181.12	2000
		Sulia "A "	Part	2061.95	191.18	0
		Ramud "A "	Part	210.31	0	0
		Puijhari "A "	Part	748.50	0	0
	Kegaon	Chura 'A' East "A "	13, 14 , 15	1137.55	0	0
		Chura 'A' West "A "	19,20	868.36	0	0
		Chura 'B' "A "	6,7	593.57	0	0
	Narla	Urladani East"A "	10	430.19	0	0
		Urladani West "A "	18,20,22	686.23	0	0
		Urladani Central "A "	12,16	642.92	0	0
		Porgel "A "	3	445.63	0	0
		Porgel Extn "A "	Part	1041	1122.39	0
	Bhawanipatna	Kadalighati "A "	3	318.28	0	0
		Brahmani East "A "	10,11	570.11	0	0
		Brahmani West "A "	7,8	432.48	0	0
		Alma "A "	Part	479.15	229.42	1000
		Poddara "A "	Part	255.6	0	0
		Kanamanjur "A "	Part	386.45	65.4	0
		Th. Gundi "A "	Part	1336.60	603.75	0
TOTAL				**15988.80**	**2493.88**	**3000.00**
2014-15	M.Rampur	Telen "B "	2	435.13	0	0
		Taparang "B "	18,19,20	1374.24	0	0
		Satami "B "	3	305.53	0	0
		Benaguda East "B "	8	376.84	0	0
		Benaguda West "B "	13	416.30	0	0
		Sulia "B "	Part	798.14	0	0
		Ramud "B "	Part	113.30	0	0
		Puijhari "B "	Part	531.49	0	0
	Kegaon	Chura 'A' East"B "	4,5,12,16	302.99	0	0
		Chura 'A' West "B "	1,2,22	856.34	0	0
		Chura 'B' "B "	3,8	660.75	0	0
	Narla	Urladani East "B "	9	1369.96	0	0
		Urladani West "B "	26,27	600.94	0	0
		Urladani Central "B "	13,14	663.54	0	0
		Porgel "B "	4	324.87	0	0
		Porgel Extn "B "	Part	809.09	0	0
	Bhawanipatna	Kadalighati "B "	4	313.55	0	0
		Brahmani East "B "	5,6,12	796.82	0	0
		Brahmani West "B "	9,18	495.84	0	0
		Alma "B "	Part	204.12	0	0

		Poddara "B "	Part	300.17	0	0
		Kanamanjur "B "	Part	481.88	0	0
		Th. Gundi "B "	Part	2528.84	0	0
TOTAL				**15069.67**	**0.00**	**0.00**
2015-16	M.Rampur	Telen "C "	3 & 4	838.37	199.42	0
		Taparang "C "	1,2,3	1051.41	0	0
		Satami "C "	4 & 5	923.35	72.23	0
		Benaguda East "C "	7 (Balance)	223.00	233.72	0
		Benaguda West "C "	1,2,3,4,14	1631.00	107.75	0
		Sulia "C "	Part	2119.00	20.23	0
		Ramud "C "	Part	95.37	103.56	0
		Puijhari"C "	Part	803.53	82.52	0
	Kegaon	Chura 'A' East "C "	3,6,17	702.54	292.97	0
		Chura 'A' West "C "	7,8,9	955.57	93.63	0
		Chura 'B' "C "	1,2	508.08	0	0
	Narla	Urladani East "C "	8	287.69	0	0
		Urladani West "C "	28,29,30	610.53	0	0
		Urladani Central"C "	15,31	577.15	0	0
		Porgel "C "	1	628.06	554.75	0
		Porgel Extn "C "	Part	1269.65	2913.29	2180
	Bhawanipatna	Kadalighati "C "	5	312.00	350.69	0
		Brahmani East "C "	3,4	372.77	173.24	0
		Brahmani West "C "	17,19	1078.87	359.44	0
		Alma "C "	Part	335.01	478.94	0
		Poddara "C "	Part	431.21	0	0
		Kanamanjur "C "	Part	658.52	24.15	0
		Th. Gundi "C "	Part	2433.46	1231.81	0
TOTAL				**18846.14**	**7292.34**	**2180.00**
2016-17	M.Rampur	Telen "D "	5 & 6	795.97	0	0
		Taparang "D"	10,11,12,13,14	1834.49	0	0
		Satami "D"	1	313.44	0	0
		Benaguda East "D"	7 (Part)	337.74	0	0
		Benaguda West "D"	9 & 10	673.29	0	5491
		Sulia "D"	Part	1037.00	0	0
		Ramud "D"	Part	190.07	0	0
		Puijhari "D"	Part	243.76	0	0
	Kegaon	Chura 'A' East "D"	10,11,23	1168.8	0	0

		Chura 'A' West "D"	18,21	677.87	0	0
		Chura 'B' "D"	4,5	622.7	0	0
	Narla	Urladani East "D"	7, 11	822.13	0	0
		Urladani West "D"	18,20,22	655.72	0	0
		Urladani Central "D"	17, 19	1276.38	0	0
		Porgel "D"	2	425.36	0	1150
		Porgel Extn "D"	Part	464.5	0	4765
	Bhawanipatna	Kadalighati "D"	1,2	739.51	0	0
		Brahmani East"D"	13,14,15,16,20	1622.52	0	0
		Brahmani West"D"	1,2	537.63	0	0
		Alma "D"	Part	404.03	0	1775
		Poddara "D"	Part	316.92	0	0
		Kanamanjur "D"	Part	374.57	0	0
		Th. Gundi "D"	Part	3084.85	0	0
TOTAL				**18619.25**	**0**	**13181**
2017-18	M.Rampur	Telen "A "	1	628.41	0	0
		Taparang"A "	15,16,17	1017.81	0	0
		Satami "A "	2	327.44	0	0
		Benaguda East "A "	5 & 6	751.84	0	0
		Benaguda West "A "	11 & 12	618.42	0	12623
		Sulia "A "	Part	2061.95	0	3060
		Ramud "A "	Part	210.31	0	0
		Puijhari "A "	Part	748.50	0	4817
	Kegaon	Chura 'A' East "A "	13, 14 , 15	1137.55	0	0
		Chura 'A' West "A "	19,20	868.36	0	0
		Chura 'B' "A "	6,7	593.57	0	0
	Narla	Urladani East"A "	10	430.19	0	0
		Urladani West "A "	18,20,22	686.23	0	0
		Urladani Central "A "	12,16	642.92	0	0
		Porgel "A "	3	445.63	0	2220
		Porgel Extn "A "	Part	1041	0	11840
	Bhawanipatna	Kadalighati "A "	3	318.28	0	0
		Brahmani East "A "	10,11	570.11	0	0
		Brahmani West "A "	7,8	432.48	0	0
		Alma "A "	Part	479.15	0	4000
		Poddara "A "	Part	255.6	0	0

		Kanamanjur "A "	Part	386.45	0	0
		Th. Gundi "A "	Part	1336.60	0	0
TOTAL				**15988.8**	**0**	**38560**
Year of working	**Range**	**Name of the Bamboo Coupe**	**Compt. No**	**Area in ha**	**Production**	
					IB in SU	**CB in cum/ No**
2018-19	M.Rampur	Telen "B "	2	435.13	0	-
		Taparang "B "	18,19,20	1374.24	0	-
		Satami "B "	3	305.53	0	-
		Benaguda East "B "	8	376.84	0	-
		Benaguda West "B "	13	416.30	0	6000
		Sulia "B "	Part	798.14	0	-
		Ramud "B "	Part	113.30	0	-
		Puijhari "B "	Part	531.49	0	-
	Kegaon	Chura 'A' East"B "	4,5,12,16	1369.96	0	-
		Chura 'A' West "B "	1,2,22	856.34	0	-
		Chura 'B' "B "	3,8	660.75	0	-
	Narla	Urladani East "B "	9	302.99	0	-
		Urladani West "B "	26,27	600.94	0	-
		Urladani Central "B "	13,14	663.54	0	-
		Porgel "B "	4	324.87	0	-
		Porgel Extn "B "	Part	809.09	0	32000
	Bhawanipatna	Kadalighati "B "	4	313.55	0	-
		Brahmani East "B "	5,6,12	796.82	0	-
		Brahmani West "B "	9,18	495.84	0	-
		Alma "B "	Part	204.12	0	-
		Poddara "B "	Part	300.17	0	-
		Kanamanjur "B "	Part	481.88	0	-
		Th. Gundi "B "	Part	2528.84	0	-
TOTAL				**15069.67**	**0**	**38000**
2019-20	M.Rampur	Telen "C "	3 & 4	838.37	0	-
		Taparang "C "	1,2,3	1051.41	0	-
		Satami "C "	4 & 5	923.35	0	-
		Benaguda East "C "	7 (Balance)	223.00	0	-
		Benaguda West "C "	1,2,3,4,14	1631.00	0	-
		Sulia "C "	Part	2119.00	0	-
		Ramud "C "	Part	95.37	0	-
		Puijhari"C "	Part	803.53	0	-

	Kegaon	Chura 'A' East "C "	3,6,17	702.54	0	-
		Chura 'A' West "C "	7,8,9	955.57	0	-
		Chura 'B' "C "	1,2	508.08	0	-
	Narla	Urladani East "C "	8	287.69	0	-
		Urladani West "C "	28,29,30	610.53	0	-
		Urladani Central"C "	15,31	577.15	0	-
		Porgel "C "	1	628.06	0	-
		Porgel Extn "C "	Part	1269.65	0	42000
	Bhawanipatna	Kadalighati "C "	5	312.00	0	-
		Brahmani East "C "	3,4	372.77	0	-
		Brahmani West "C "	17,19	1078.87	0	-
		Alma "C "	Part	335.01	0	-
		Poddara "C "	Part	431.21	0	-
		Kanamanjur "C "	Part	658.52	0	-
		Th. Gundi "C "	Part	2433.46	0	-
TOTAL				**18846.14**	**0**	**42000**

2020-21	M.Rampur	Telen "D "	5 & 6	795.97	0	-
		Taparang "D "	10,11,12,13,14	1834.49	0	-
		Satami "D "	1	313.44	0	-
		Benaguda East "D "	7 (Part)	337.74	0	-
		Benaguda West "D "	9 & 10	673.29	0	-
		Sulia "D "	Part	1037.00	0	-
		Ramud "D "	Part	190.07	0	-
		Puijhari"D "	Part	243.76	0	-
	Kegaon	Chura 'A' East "D"	10,11,23	1168.8	0	0
		Chura 'A' West "D"	18,21	677.87	0	0
		Chura 'B' "D"	4,5	622.7	0	0
	Narla	Urladani East "D "	7, 11	822.13	0	0
		Urladani West "D "	18,20,22	655.72	0	0
		Urladani Central"D "	17, 19 + Dengsur PRF	1276.38	0	0
		Porgel "D "	2	425.36	0	
		Porgel Extn "D"	Part	464.5	0	17000
	Bhawanipatna	Kadalighati "D "	1,2	739.51	0	0
		Brahmani East "D "	13,14,15,16,20	1622.52	0	0
		Brahmani West "D "	1,2	537.63	0	0
		Alma "D "	Part	404.03	0	2000
		Poddara "D "	Part	316.92	0	0

		Kanamanjur "D "	Part	374.57	0	0
		Th. Gundi "D "	Part	3084.85	0	0
TOTAL				**18619.25**		**19000**
Grand Total				**189582.78**	**27632.04**	**221661**

7.4 Recorded removal of locally important NTFPs including MAPs

7.4.1 The importance of tapping of N.T.F.P resource of the forests has gained momentum as the most viable, sustainable and profitable source of income from forestry sector. Since fruit, flower, seed, leafs etc. of a variety of plants i.e. tree, shrubs, climbers, grasses etc. are used as N.T.F.P and these are scattered occurring throughout the Forest Division, the constitution of this separate overlapping working circle can serve the purpose of managing the production, collection and improvement of these crops in a meaningful manner. The area kept under this overlapping working circle is124994.233ha. spreading throughout the Forest Division..

7.4.2 The forest of this Division contains a number of N.T.F.P. species. These species are almost covering 69 items transferred to Gram Panchayats for regulating the collection and trade in phases vide Government of Orissa, Forest and Environment Department Resolution No.5503 dt.31.03.2000 (60 items), Resolution No.13285 dt.23.08.2000 (7 Items) Resolution No.15325 dt.21.09.2000 (1 Item) and Resolution No. 3695 dt.02.03.2006 (1 item).

7.4.3 Kendu leaf of bush cutting purchasing and processing and storing is done by the Forest Department whereas the marketing is done through O.F.D.C. Ltd. The forest fringe dwellers of this division get engaged with this bush cutting , plucking of Kendu leaf ,and processing and bagging in the storage yard from the month of January to September and earn handsome livelihoods. After marketing through the OFDC Ltd.the government earn revenue which again are rotated to these stakeholders through incentives and social welfare measures.

Annual production of Kendu leaves in Quintals and the amount of revenue generated

Table no.7.8

ANNUAL PRODUCTION OF Diospyros melanoxylon LEAVES IN QUINTALS AND THE AMOUNT OF REVENUE GENERATED YEAR WISE - BHAWANIPATNA (KL) DIVISION					
Year	**No. of Phadies**	**Production (In Qntls.)**	**No. of Pluckers**	**Revenue in Lakhs**	**Remarks**
2007-08	283	18886.2	31785	1301.62	
2008-09	315	16128	30990	1461.64	
2009-10	348	18515.4	32890	1712.33	
2010-11	348	19131	36175	1954	
2011-12	348	17272.2	33956	2401.38	
2012-13	348	18370.2	36337	1901	
2013-14	348	18121.2	39299	2026.32	
2014-15	348	18122.4	45708	1948.84	
2015-16	348	14686.8	39734	2588.82	
2016-17	348	13695.6	33630	4037.45	

2017-18	346	14674.2	37634	3403.04	
2018-19	346	14425.8	40174	2993.92	
2019-20	347	10769.4	41278	2551.86	
2020-21	333	10449.6	39222	2870.57	

Apart from Kenduleaf this Division has a huge potential of producing a large quantities of the products of NTFP like Tamarind (*Tamarindus indica Linn*), Hill Broom or Phul Jhadu (*Thysanolaena maxima* (Roxb) Kuntze),Thorn Broom or Kanta Jhadu (*Aristida setacea* Retz),Amla- *Phyllanthus emblica* (L.),Bahada-Belleric myrobalan (*Terminalia bellirica*, Gaertn.)Harida-*Terminalia chebula* (Retz.), Siali-*Bauhinia bahlii* (Siali leaves) Char-*Buchanania lanzan*, Spreng. (Char seed) Mahua-*Madhuca indica*, Gmel. (Mahul),Mahua Flower, Mahua Seeds Kusum-*Schleichera oleosa* (Lour.) Karanja-*Pongamia pinnata* (L.) Sal-*Shorea robusta* (Roxb. ex Gaertn.),Sal Seeds ,Sal Leaves Neem-*Azadirachta indica* (A. Juss.),Neem Seed Dhataki-*Woodfordia fruticosa* (Salisb.), Satabari-*Aspargus recimosus* (Willd.)Honey.Since the regulation of the production iskept away from the previews of the forest Department it is very hard to assess the actual production. However applying indirect methodologies of assessing of the production of the aforesaid NTFP through socioeconomic studies of the forest fringe villages it is revealed that the villagers are getting some livelihood from collecting the products and selling in the local market. They urge to master the art of Value addition of these products better the income.

Species requiring focused attention for processing, value addition and marketing during the plan period on priority basis locality wise are indicated below.

Table no.7.9

Name of the NTFP item	Locality	Name of the Range
Siali Leaves	Bhawanipatn	Bhawanipatna
	Jurakhaman	M.Rampur
	Manikera	M.Rampur
Tamarind	Manikera	M.Rampur
Hill Broom	Mohangiri	M.Rampur
	Bhawanipatna	Bhawanipatna
	Urladani	Narla
	Manikera	M.Rampur
Harida/Bahada/Amla	Jurakhaman	M.Rampur
Amla	Jurakhaman	M.Rampur
	Kegaon	Kegaon
	Rupra Road	Kesinga
Mohua Seed	Mohangiri	M.Rampur
	Sagada	Bhawanipatna
	Kegaon	Kegaon
Honey	Jurakhaman	M.Rampur
Neem Seed	Narla	Narla
	Kegaon	Kegaon
Char Seed	Kegaon	Kegaon
	Mohangiri	M.Rampur
	Jurakhaman	M.Rampur

Value addition and storage in respect of major NTFP items need to be done individually along with marketing strategy with the involvement of local stake holder with storage facility

In the forest blocks of this Division, Amla, Harida, Satabari, Bela, Basanga, are available. Besides there is potentiality for Dhatuki flower, Kurei seeds, Sal seeds and Bhuinneem, Some medicinal species like Raulwofia serpentina, Rasna, Asparagus, Vetiver, Anantamula, are also available.

VSS shall be induced to take up cultivation of medicinal herbs as an income generating activity. . The Range Officer should assess the feasibility while examining the Micro Plan for Joint Forest Management and recommend species suitable for the locality. This will serve the dual purpose of cultivation and propagation of medicinal plants as well as augmenting to the earning of the people. In Kalahandi there are a good number of Vaidyas i.e. traditional healers who are depending on the forests for their raw materials. So it is prescribed to explore this aspect while preparing the Micro Plan for the VSS. These traditional healers also need training on sustainable harvesting of medicinal plants.

After transfer of control over collection and trade from Forest Department to Gram Panchayats an indifferent situation has developed for its management. There is virtually no control over the Traders to purchase the commodities at minimum purchase price from the gatherers. Earlier the agencies entrusted for procurement was forced to collect the available quantity at the fixed price. At present the Traders are free to purchase according to their suitability and profitability. It is almost a buyer's market. Kenduleaf being managed departmentally is doing well with payment of good price to the pluckers in addition to some other incentives. The Working Plan Officer should collect the data of NTFP items collected during the plan period 2007-08 to 2014-15. He should conduct survey of fringe villages requiring plantations of NTFP items and silvicultural operations to improve production of NTFP items.

The source of benefit which can easily be accrued annually in perpetuity is Non Timber Forest Produce (NTFP). In the emerging situation for retaining adequate vegetal cover, the production of Timber is bound to be restricted. On the other hand some sustained benefit specially in terms of income is required to be provided to the forest fringe villagers to ensure proper protection. So there is no alternative except resorting to tapping of NTFP. This is the major area of thrust in forestry sector to provide livelihood support to the forest dwellers. Therefore it is imperative to retain this Working Circle with suitable modification for harnessing this resource optimally and scientifically.

7.5 Demand and supply of timber and important non-timber forest produce

7.5.1 During the time of Socio Economic survey, data was collected from villagers to adjudge their dependency on forest for housing and related activities. Among the total respondents, 20% did not respond about tree species that they collect for their housing and other activities. Among the 47.7% , who responded to the questionnaire, a maximum of 22.6% stated to collect "Sal" plant (*Shorea robusta)* for their housing, 16.3% for collection of Bija (*Pterocarpus marsupium)*, 4.5% for collection of bamboo (*Dendrocalamus strictus)* and 13% for collection of "Asana" (*Terminalia alata*). As many as 14 different species are found to be of use for housing purpose by the villagers. Besides, 8.3% of the respondents did not categorise any specific tree for their housing, instead stated to collect stems (boles) from the nearby forest. Similarly 2.9 and 4.5% of the respondents stated to collect leaf and non-woody materials respectively from the forest.

Table no.7.10

TREE CUT FOR HOUSING & OTHER USES

Sl no	Tree	% Respondents
01	Sal	22.6
02	Piasal	16.3
03	Sahaj	13.0
04	Dhaura	5.2
05	Sena	4.7
06	Bamboo	4.5
07	Karla	5.6
08	Haland / Haldu	2.1
09	Kendu	2
10	Kasi	4.0
11	Tangan	3.0
12	Mahua	4.0
13	Bheru	6.7
14	Kekada	6.3
	Total	**100**

7.5.2 During the socioeconomic studies of the survey made in the 75 forest fringe villages of this division, it is revealed that using the traditional ethno botanical knowledge the people of this division use a number of plants and plant products for healing different physiological ailments .The checklist of such Medicinal and Aromatic Plants are given below.

Table no.7.11

MAP (Medicinal and Aromatic plants) and their usage

Sl. No.	Local Name	Scientific Name	Family	Target Disease
1	Pedipedika	*Abutilion indicum*	Malvaceae	Jaundice, Piles
2	Dholanki	*Alangium salvifolium*	Alangiaceae	Rheumatism
3	Madranga	*Altemanthera sessilis*	Amaranthaceae	Jaundice
4	Bhuin nimbi	*Andrographis paniculata*	Acanthaceae	Malaria
5	Kadamba	*Anthocephalus chinensis*	Rubiaceae	Chronic ulcer
6	Sahajmari	*Ardisia solanacea*	Myrsiniaceae	Back pain
7	Pannoari	*Aristolochia indica*	Aristolochiaceae	Stomatitis, piles bleeding
8	Nimba	*Azadirachta indica*	Meliaceae	Viral fever
9	Daskerenta	*Barleria prionitis*	Acanthaceae	Stomach cancer
10	Kontaikoli	*Ziziphus oneoplia*	Rhamnaceae	UTI(Urinary Tract Infection) & STD (Sexually Transmitting Disease)
11	Salapa	*Caryota urens*	Areaceae	Spermatorrhoea

12	Gopakanu	*Caryplolepis buchananii*	Periplocaceae	Ottis
13	Nirmuli	*Casytha filiformis*	Lauraceae	Ascites.
14	Sadabihari	*Catharanthus roseus*	Apocyanaceae	Diabetes
15	Hadasinkuda	*Cissus qudrangularis*	Vitaceae	Asthma
16	Madanga	*Dendropthoe falcate*	Loranthaceae	Leucorrhea
17	Luduru	*Desmodium trifolium*	Fabaceae	Bone fracture
18	Chitachori	*Diplocyclos palmatus*	Cucurbitaceae	Snake bite
19	Dimiri	*Ficus hispida*	Moraceae	Diarrhoea in infants
20	Kurdu	*Gardenia turgid*	Rubiaceae	Enhancing memory power
21	Chauldhua	*Glycosmis pentaphylla*	Rutaceae	Severe diarrhoea, Leucorrhoea, Rheumatoids arthritis ,Migrane
22	Raktapiculi	*Gounaniale ptostachya*	Rhamnaceae	Body pain due to internal injuries
23	Homolapata	*Grewia rothii*	Tiliaceae	Oedema
24	Madhavilata	*Hiptage benghalensis*	*Malpighiaceae*	Tuberculosis
25	Kurei	Holarrhena pubescens	Apocynaceae	Tuberculosis
26	Dudhilata	*Ichnocarpus frutescens*	Apocynaceae	Conjuctivitis
27	Jagal	*Ludwigia adscendens*	Onagraceae	Eczema
28	Guadhuni	*Millettia extensa*	Fabaceae	Wounds
29	Sajana	*Moringa oleifera*	Moringaceae	Rheumatism
30	Bhada bhadalia	*Olax scandens*	Olaceae	Bone – fracture
31	Bhuin Kakharu	*Pueraria tuberose*	Papilionaceae	Tuberculosis
32	Badi onla	*Phyllanthus amarus*	Euphorbiaceae	Malaria
33	Badi onla	*Phyllanthus fratemus*	Euphorbiaceae	Paralysis
34	Jhar	*Phyllanthus lawii*	Euphorbiaceae	Lung cancer
35	Jandaki	*Phyllanthus reticulates*	Euphorbiaceae	Filarial swellings
36	Ghantiana	*Pygmaeopremna herbaceae*	Verbenaceae	Rheumatism
37	Muturi	Smilax zeylanica	Smilacaceae	Diarrhoea
38	Bhejibaigan	*Solanum virginiaum*	Solanacee	Asthma & cold
39	Rohini	*Soymida febrifuga*	Meliaceae	Asthama
40	Sahada	*Streblus asper*	Moraceae	Conjunctivitis
41	Mahasindu	*Symphorema polyandrum*	Verbenaceae	Rheumatism
42	Arjuna	*Terminalia arjuna*	Combretaceae	Blood in Urine
43	Bichuati	*Tragia involucrate*	Euphorbiaceae	Tuberculosis

44	Bona piaja	*Urginea indica*	Liliaceae	Rheumatism
45	Poka sungha	*Vemonia cinerea (L)*	Asteraceae	Filariasis
46	Kantamali	*Ventilago denticulate*	Rhamnaceae	Mumps
47	Begunia	*Vitex negundo*	Verbenaceae	Asthma
48	Muria	*Vitex pinnata*	Verbenaceae	Nephritis
49	Parsu kedar	*Zingiber zerumbet*	Zingiberaceae	Snake bite
50	Sunthi (Adda)	*Zingiber officinale*	Zingiberaceae	Pre-natal diseases and labour pain
51	Kantaikoli	*Ziziphy oenoplia*	Rhamnaceae	Headache

Ranking of ten **most valuable tree species** preferred by forest fringe villagers of Kalahandi North Forest Division for non-medicinal uses.

Vernacular name	Species	Botanical name	Family	Rank
Rengal	Sal	*Shorea robusta*	Dipterocarpaceae	1
Bija	Bija	*Pterocarpus marsupium*	Fabaceae	2
Kusum	Kusuma	*Schleichera oleosa*	Sapindaceae	3
Tangan	Tangeni	*Xylia xylocarpa*	Mimosacea	4
Dhaura	Dhaura	*Anogeissus latifolia*	Combretaceae	5
Mahula	Mahua	*Madhuca indica*	Sapotaceae	6
Bheru	Bheru	*Chloroxylon swietiana*	Rutaceae	7
Gambhari	Gambha	*Gmelina arborea*	Verbenaceae	8
Shershuan	Sirisha	*Albizia lebbeck*	Mimosaceae	9
Sisoo	Sisoo	*Dalbergia sissoo* .	Fabaceae	10

Taking into consideration of the both medicinal and non medicinal uses of the plant species all the trees species under utilisation by the fringe villagers are categorized as multipurpose trees and are tabulated as follows.

Table no.7.12

Checklist of Multipurpose tree used by fringe villagers of Kalahandi North Division

Sl. No.	Local name	Botanical name	Family	Multiple usage	Medicinal usage
01	Char	*Buchanania lanzan*	Anacardiacea e	Bio-fencing, , edible fruit	Cut wound, blood dysentery, toothache, diarrhoea
02	Mudei	*Lannea coromendelica*	Anacardiacea e	Agricultural implements, gum	Diarrhoea, dysentery
03	Amba	*Mangifera indica*	Anacardiacea e	Country liquor, edible fruit	Loose motion
04	Bheluan	*Semecarpus anacardium*	Anacardiacea e	Edible fruit, fuel wood	Piles, rheumatism
05	Badel	*Annona squamosa*	Annonaceae	Insect and pest repellant, bio-pesticide, shampoo, edible fruit	Lice, cuts and wounds
06	Hinjala	*Barringtonia acutangula*	Barringtoniac eae	Fish poison, small timber	Dysentery, cut wounds

07	Kumb	*Careya arborea*	Lecythidaceae	Furniture, snake repellant, fish poison	Swelling due to injury
08	Padel	*Stereospermum chelonoides*	Bignonaceae	Fuel wood	Night blindness
09	Simel	*Bombax ceiba* .	Bombacaceae	Gum, cotton for mattress	Bile, acne
10	Tentuli	*Tamarindus indica*	Caesalpiniaceae	Country liquor, gum, edible fruit	Leucorrhoea, bone fracture, dysentery, boils
11	Dhaura	*Anogeissus latifolia*	Combretaceae	House construction, bio-fencing, fuel wood, agricultural implements	Diarrhoea, cough
12	Kah	*Terminalia arjuna*	Combretaceae	Furniture, shampoo, fuel wood	Bone fracture, burn injury, asthma, blood vomiting, heart diseases
13	Bahada	*Terminalia bellirica*	Combretaceae	Gum	Headache, stomach disorder, cold and cough, constipation
14	Harida	*Terminalia chebula*	Combretaceae	Shampoo	Skin ailment diarrhoea, constipation cardio tonic, Stomachic, Digestive, Antiseptic, Scrotal enlargement. UT infection
15	Sahaja	*Terminalia tomentosa*	Combretaceae	Fodder, fuelwood, tooth brush	Vomiting, skin diseases, loose motion
16	Rengal	*Shorea robusta*	Dipterocarpaceae	House construction, bio-fencing, furniture, fuel wood, agricultural implements, Toothbrush, Edible oil, sacred plant	Wound, chicken pox, chest pain, stomachic,Gonorrhoea,Leucorrhoea,Aphrodisiac
17	Kendu	*Diospyros melanoxylon*	Ebenaceae	Tooth brush, edible fruit, fuel wood	Diarrhoea
18	Kashi	*Bridelia retusa*	Euphorbiaceae	Furniture, fuel wood, house construction, agricultural implements	Stomachache, Pyorrhoea
19	Karla	*Cleistanthus collinus*	Euphorbiaceae	Bio-fencing, insect and pest repellant, Biopesticide, fuel wood	Scabies and itches
20	Ganda,	*Glochidion lanceolarium*	Euphorbiaceae	Bio-fencing, tooth brush	Skin ailment
21	Sindura	*Mallotus philippensis*	Euphorbiaceae	Dye, fuel wood	Menstrual disorder
22	Karanja	*Pongamia pinnata*	Fabaceae	Tooth brush, body or massage oil	Headache, menstrual disorder, piles, cataract, worm infection , skin diseases

23	Bija	*Pterocarpus marsupium*	Fabaceae	House construction, furniture, gum	Diabetes, stomach-ache
24	Sisoo	*Dalbergia sissoo*	. Fabaceae	Furniture, house construction	Scabies and itches
25	Sinamara	*Lagerstgroemia parviflora*	Lythraceae	House construction, bio-fencing, fuel wood	Urticaria, fever
26	Limba	*Azadirachta indica*	Meliaceae	Tooth brush, body or massage oil, insect and pest repellant, bio-pesticide	Scabies and itches, jaundice, earache, stomachache
27	Rohen	*Soymida febrifuga*	Meliaceae	House construction	Fever, diarrhoea
28	Kahir	*Acacia catechu*	Mimosaceae	House construction, furniture	Cold and cough, toothache, throat infection
29	Sershuan	*Albizia lebbeck*	Mimosaceae	House construction, furniture, agricultural implements	Dog bite
30	Tangan	*Xylia xylocarpa*	Mimosaceae	House construction, bio-fencing, fodder, edible fruit	Skin diseases
31	Panasa	*Artocarpus heterophyllus*	Moraceae	Country liquor, gum, edible fruit, house construction	Headache
32	Dumer	*Ficus hispida*	Moraceae	Country liquor, gum, edible fruit	Cuts, diarrhoea, gonorrhoea, fever, dysentery
33	Jamu	*Syzygium cumini*	Myrtaceae	Fodder, country liquor, furniture, agricultural implements, edible fruit	Burn injury, mouth ulcer, tonsil, diabetes, diarrhoea, stomach disorder
34	Patua	*Randia dumetorum*	Rubiaceae	Fish poison, fuel wood	Piles
35	Bheru	*Chloroxylon swietiana*	Rutaceae	House construction, agricultural implements, Insect and pest repellant, Bio-pesticide	Lice
36	Ritha	*Sapindus emarginata*	Sapindaceae	Shampoo	Epilepsy, throat infection, piles, headache
37	Kusum	*Schleichera oleosa*	Sapindaceae	Furniture, body or massage oil, edible oil, Edible fruit, fuel wood	Body pain
38	Mahul	*Madhuca indica*	Sapotaceae	Country liquor, edible oil, sacred plant	Chest pain, pain during delivery
39	Baranga	*Helicteres isora*	Sterculaceae	House construction, fuel wood	Cuts and wounds, gripping
40	Gambhari	*Gmelina arborea* Roxb.	Verbenaceae	Furniture, agricultural implements	Dysentery

Further survey categorized these medicinal plant species for the treatment of different ailments.

USE OF MEDICINAL PLANTS FOR VARIOUS AILMENTS
Table no.7.13

Sl No	common Disease	No of MAP species used
1	Common cold & cough	8
2	Stomach disorder	10
3	Tooth ache	5
4	Ear problem	3
5	Eye problem	5
6	Boils, Burns & Blisters	2
7	Piles	5
8	Gyneic Problem	4
9	Veterinary medicine	9
10	Ascarises	5
	Total	**56**

The data indicated that for 10 different ailments, around 56 species can be used as medicinal plants. Some of the common ailments like stomach disorder, common cold etc. are treated with good number species which are present in local forest

7.6 Imports and export of wood and wood products

Table no.7.14

Year	Timber /firewood collected (in Cum)		Timber/fire wood disposed off in the Division (in Cum)		Timber imported from Outside (in Cum)		Timber disposed off outside the Division (in Cum)
	R.T (in cum)	F.W (in stack)	R.T (in cum)	F.W (in stack)	R.T (in cum)	F.W (in stack	
2007-08	945.4786	536.50	945.4786	536.50	-	-	**No record maintained by OFDC**
2008 – 09	1041.3212	620.00	1041.3212	620.00	-	-	
2009 – 10	896.5214	476.00	896.5214	476.00	-	-	
2010 – 11	927.3127	561.00	927.3127	561.00	-	-	
2011 – 12	1131.2280	373.50	1131.2280	373.50	-	-	
2012 – 13	509.1849	363.00	509.1849	363.00	-	-	
2013 – 14	748.4386	393.00	748.4386	393.00	-	-	
2014 – 15	493.4263	325.00	493.4263	325.00	-	-	
2015 – 16	369.5141	225.00	369.5141	225.00	-	-	
2016 – 17	703.1431	222.00	703.1431	222.00	-	-	
2017 - 18	320.8865	169.00	320.8865	169.00	-	-	
2018-19	1035.4223	375	794.0268	260.08	-	-	
2019-20	593.1477	250.50	712.3799	318	-	-	
2020-21	1458.5321	260	911.0809	199	-	-	

(Source DM OFDC ,Ltd Kalahandi)

7.7 Import and export of NTFPs

ANNUAL PRODUCTION OF KENDU LEAVES IN QUINTALS AND THE AMOUNT OF REVENUE GENERATED YEAR WISE - BHAWANIPATNA (KL) DIVISION

Table no.7.15

Year	No. of Phadies	Production (In Qntls.)	No. of Pluckers	Revenue in Lakhs	Remarks
2007-08	283	18886.2	31785	1301.62	
2008-09	315	16128	30990	1461.64	
2009-10	348	18515.4	32890	1712.33	
2010-11	348	19131	36175	1954	
2011-12	348	17272.2	33956	2401.38	
2012-13	348	18370.2	36337	1901	
2013-14	348	18121.2	39299	2026.32	
2014-15	348	18122.4	45708	1948.84	
2015-16	348	14686.8	39734	2588.82	
2016-17	348	13695.6	33630	4037.45	
2017-18	346	14674.2	37634	3403.04	
2018-19	346	14425.8	40174	2593.92	
2019-20	347	10769.4	41278	2551.86	
2020-21	333	10449.6	39222	2870.57	

7.8 Removal of fodder

The census for cattle in this district is held once in every 5 years and the latest report available with the CDVO Kalahandi reveals a decline trend for all categories.

Live Stock population of Kalahandi North Division

Table no.7.16

Name of the Animal	Total population as per 2012 Census	Fodder in MT
Cattle	182715	333454.9
Buffalo	24799	90516.35
Sheep	40553	37004.61
Goat	137537	125502.5
TOTAL	**385604**	**586478.4**

(Source CDVO Kalahandi)

The cattle population in the divisional area stands declining over the time.

7.9 Valuation of the products

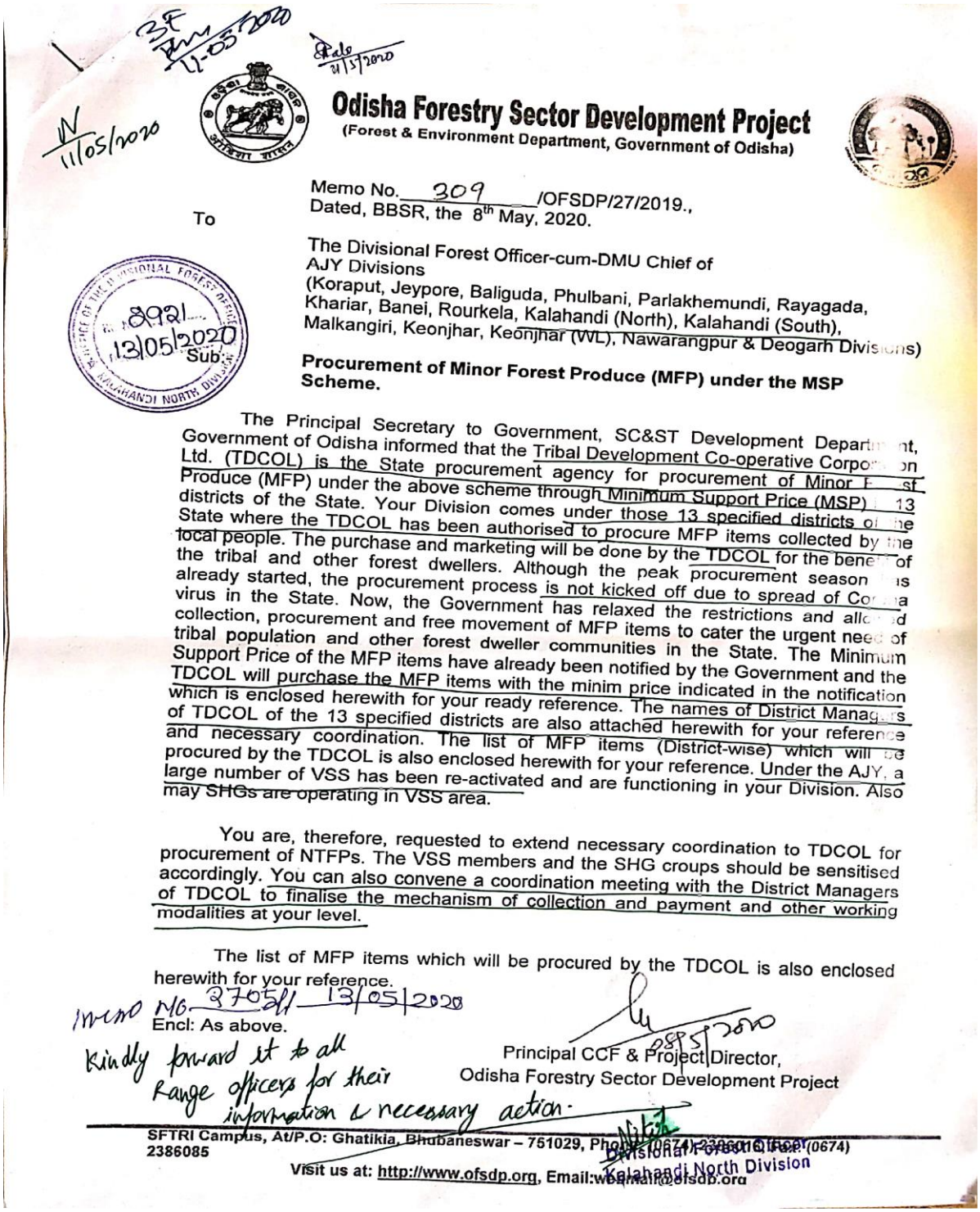
In a major development, the Ministry of Tribal Affairs (MoTA) has taken a decision to revisit and hike the price of some of the key minor forest produces (MFPs) included under the Minimum Support Price for Minor Forest Produces scheme. The prices of some MFPs were drastically reduced on October 31, 2016.

The ministry, through its guidelines dated November 21, 2017, took the decision to increase prices of key MFPs like Lac (Rangini and Kusumi), Chironjee pods with seeds, Sal seed and Sal leaves. The ministry, however, excluded Palash flower (wet variety, whose price was reduced along with 13 other MFPs on October 31, 2016), whose MSP had been fixed at Rs 8 per kg. The reason stated for not increasing the MSP is the lack of shelf life and

very few takers. For the remaining 13 new MFPs introduced last year, the prices announced on October 31, 2016 will remain valid till further revision.

The revised guidelines issued by the government on October 31, 2016 dealt a major blow to this MSP for MFP Scheme. While the sharp reduction in the MSP allowed the states to enhance the rates by up to 10 per cent, it also put the condition that any losses incurred in the process would be solely borne by the state government.

Rate list of MSP for MFPs (2020)



Odisha Forestry Sector Development Project
(Forest & Environment Department, Government of Odisha)

Memo No. 309 /OFSDP/27/2019.,
Dated, BBSR, the 8th May, 2020.

To

The Divisional Forest Officer-cum-DMU Chief of
AJY Divisions
(Koraput, Jeypore, Baliguda, Phulbani, Parlakhemundi, Rayagada, Khariar, Banei, Rourkela, Kalahandi (North), Kalahandi (South), Malkangiri, Keonjhar, Keonjhar (WL), Nawarangpur & Deogarh Divisions)

Sub: **Procurement of Minor Forest Produce (MFP) under the MSP Scheme.**

The Principal Secretary to Government, SC&ST Development Department, Government of Odisha informed that the Tribal Development Co-operative Corporation Ltd. (TDCOL) is the State procurement agency for procurement of Minor Forest Produce (MFP) under the above scheme through Minimum Support Price (MSP) in 13 districts of the State. Your Division comes under those 13 specified districts of the State where the TDCOL has been authorised to procure MFP items collected by the local people. The purchase and marketing will be done by the TDCOL for the benefit of the tribal and other forest dwellers. Although the peak procurement season is already started, the procurement process is not kicked off due to spread of Corona virus in the State. Now, the Government has relaxed the restrictions and allowed collection, procurement and free movement of MFP items to cater the urgent need of tribal population and other forest dweller communities in the State. The Minimum Support Price of the MFP items have already been notified by the Government and the TDCOL will purchase the MFP items with the minim price indicated in the notification which is enclosed herewith for your ready reference. The names of District Managers of TDCOL of the 13 specified districts are also attached herewith for your reference and necessary coordination. The list of MFP items (District-wise) which will be procured by the TDCOL is also enclosed herewith for your reference. Under the AJY, a large number of VSS has been re-activated and are functioning in your Division. Also may SHGs are operating in VSS area.

You are, therefore, requested to extend necessary coordination to TDCOL for procurement of NTFPs. The VSS members and the SHG croups should be sensitised accordingly. You can also convene a coordination meeting with the District Managers of TDCOL to finalise the mechanism of collection and payment and other working modalities at your level.

The list of MFP items which will be procured by the TDCOL is also enclosed herewith for your reference.

Memo No. 3705/ 13/05/2020

Encl: As above.

Kindly forward it to all Range officers for their information & necessary action.

Principal CCF & Project Director,
Odisha Forestry Sector Development Project

Divisional Forest Officer
Kalahandi North Division

SFTRI Campus, At/P.O: Ghatikia, Bhubaneswar – 751029, Phone: (0674) 2386016, Fax: (0674) 2386085

Visit us at: http://www.ofsdp.org, Email:wbmail@ofsdp.org

Odisha Forestry Sector Development Project

(Forest & Environment Department, Government of Odisha)

Memo No. 310 Dated 08.05.2020

Copy forwarded to the Principal CCF & HoFF, Odisha, Bhubaneswar , Berhampur for kind information and necessary action.

Principal CCF & Project Director,
Odisha Forestry Sector Development Project

Memo No. 311 Dated 08.05.2020

Copy forwarded to the Managing Director, Tribal Development Co-operative Corporation Ltd. (TDCOL), Bhubaneswar information and necessary action with reference to this office memo No.923 dated 04.05.2020.

Principal CCF & Project Director,
Odisha Forestry Sector Development Project

Memo No. 312 Dated 08.05.2020

Copy forwarded to All Regional CCFs, Koraput/ Berhampur/ Bhawanipatna/ Rourkela/Baripada for information and necessary action.

Principal CCF & Project Director,
Odisha Forestry Sector Development Project

F.No.19/17/2018-Livelihood
Government of India
Ministry of Tribal Affairs

Jeevan Tara Bldg., Sansad Marg,
New Delhi, dated: 1st May, 2020

To,

The Principal Secretaries / Secretaries / Commissioners
Tribal Welfare Department, All States

Subject: Revision of Minimum Support Price (MSP) for Minor Forest Produce (MFP) under the Centrally Sponsored Scheme titled "Mechanism for Marketing of Minor Forest Produce (MFP) through Minimum Support Price (MSP) and development of value chain of MFP" – regarding.

Sir / Madam,

I am directed to refer to this ministry's letter of even number dated 11th January, 2019 on the above subject informing about the inclusion of some additional MFP items in the scheme along with their MSP as also about the revised MSP of the MFP items that were already covered under the scheme.

2. While the guidelines of the above mentioned scheme stipulate that the MSP for MFPs be reviewed once every three years by the Pricing Cell constituted under the aegis of this Ministry, in view of the exceptional and very difficult circumstances currently prevailing in the country on account of the COVID-19 pandemic, and the potential of the instant scheme to offer the much needed support to the tribal MFP gatherers, the competent authority has decided to relax the existing provisions in the scheme guidelines and effect revision of MSP in respect of the MFP items currently covered under the scheme after due consultation with the MFP Pricing Cell and some of the major MFP-rich States as under:-

(in Rupees per Kg.)

S. No.	Minor Forest Produce (MFP)	Existing MSP	Revised MSP to be effective now
1	Tamarind (with seeds) (Tamarindus indica)	31	36
2	Wild Honey	195	225
3	Gum Karaya (Sterculia urenus)	98	114
4	Karanj seed (Pongamia pinnata)	19	22
5	Sal seed (Shorea robusta)	20	20
6	Mahua seed (Madhuca longifolia)	25	29
7	Sal leaves (Shorea robusta)	30	35
8	Chironji pods with seeds (Buchanania lanzan)	109	126

Contd.....

9	Myrobalan (Terminalia chebula)	15	15
10 A	Rangeeni Lac	130	200
10 B	Kusumi Lac	203	275
11	Kusum seeds (Schleichera oleosa)	20	23
12	Neem seeds (Azadirachta indica)	23	27
13	Puwad seeds (Cassia tora)	14	16
14	Baheda (Terminalia bellirica)	17	17
15	Hill Broom Grass (Thysanolaena maxima)	30	50
16	Dry Shikakai Pods (Acacia concinna)	43	50
17	Bael pulp (Dried) (Aegle marmelos)	27	30
18	Nagarmotha (Cyperus rotundas)	27	30
19	Shatavari Roots (Dried) (Asparagus racemosus)	92	107
20	Gudmar / Madhunashini (Gymnema sylvestre)	35	41
21	Kalmegh (Andrographis paniculata)	33	35
22	Tamarind (De-seeded) (Tamarindus indica)	54	63
23	Guggul (exudates)	700	812
24	Mahua Flowers (dried) (Madhuca longifolia)	17	30
25	Tejpatta (dried) (Cinnamomum tamala and Cinnamomum sp.)	33	40
26	Jamun dried seeds (Syzygium cumini)	36	42
27	Dried Amla pulp (deseeded) (Phyllanthus emblica)	45	52
28	Marking Nut (Semecarpus anacardium)	8	9
29	Soap Nut (dried) (Sapindus emarginatus)	12	14
30	Bhava seed/ (Amaltas) (Cassia fistula)	11	13
31	Arjuna Bark (Terminalia arjuna)	18	21
32	Kokum (Dry) (Garcinia indica)	25	29
33	Giloe (Tinospora cordifolia)	21	40
34	Kaunch seed (Mucuna pruriens)	18	21
35	Chirata (Swertia chirayita)	29	34
36	Vaybidding / Vavding (Embelia ribes)	81	94
37	Dhavaiphool dried flowers (Woodfordia floribunda)	32	37
38	Nux Vomica (Strychnos nux vomica)	36	42
39	Ban Tulsi Leaves (dried) (Ocimum tenuiflorum)	19	22
40	Kshirni (Hemidesmus indicus)	30	35
41	Bakul (dried bark) (Mimusops elengii)	40	46

Contd.....

42	Kutaj (dried bark) (Holarrhena pubescens/ H.antidysenterica)	27	31
43	Noni / Aal (dried fruits) (Morinda citrifolia)	15	17
44	Sonapatha/ Syonak pods (Oroxylum indicum)	18	21
45	Chanothi seeds (Abrus precatorius)	39	45
46	Kalihari (dried tubers) (Gloriosa superba)	27	31
47	Makoi (dried fruits) (Solanum nigrum)	21	24
48	Apang plant (Achyranthes aspera)	24	28
49	Sugandhmantri roots/ tubers (Homalomena aromatica)	33	38

3. The MSP of the MFP items as mentioned above shall be operative with immediate effect and shall remain valid till further revision.

4.1. MSP declared by GoI shall be reference MSP for fixing MSP and State Government shall have latitude of 10% of MSP declared by GoI i.e., State can fix MSP upto 10% higher or lower than MSP declared by GoI.

4.2. If a State fixes its MSP higher than MSP declared by GoI as mentioned above and sale price / proceeds falls below that, then the difference between State MSP and MSP declared by GoI will be borne by concerned State Government only.

5. The MSP of the MFP items as mentioned above may be brought to the notice of the State Nodal Agencies and the State Implementing Agencies as they shall be exercised with immediate effect. TRIFED shall keep watch on market prices and display on website besides sharing with the States to facilitate implementation of the scheme. It shall also endeavour to develop market linkage between state agencies (through State Nodal Department) and bulk users / buyers.

6. Strict compliance of instruction issued vide letter dated 22.4.2020 regarding submission of accounts may be made.

7. This issues with the approval of the competent authority.

Yours faithfully,

(Roopak Chaudhuri)
Director
Tel.: 011-23367333

Copy for information and action as deemed appropriate to:

1. The Managing Director, Tribal Cooperative Marketing Development Federation of India Ltd. (TRIFED), NCUI Building, IInd Floor, 3, Siri Institutional Area, August Kranti Marg, New Delhi-110016.
2. The Principal Secretaries / Secretaries, Forest Department of all States /UTs.

Contd.....

3. The Managing Directors of STDCCs / FDCs.
4. DDG NIC, Ministry of Tribal Affairs, Jeevan Tara Building, New Delhi.

Copy also to:

1. PS to MTA
2. PS to MoS (TA)
3. PPS to Secretary (TA)
4. PPS to JS (A)
5. PPS to JS(NJK)
6. PPS to JS & FA
7. Director (IFD), MoTA / US (IFD), MoTA
8. US (Livelihood)
9. PA to Director (Livelihood)

Details of PPAs in Kalahandi. Potential of MFP items under MSP Scheme Harida, Seeded Tamarind, Kalmegh & Sal Seeds

Sl.No	District	Block	G.P.	Name of the SHG/PPA
1	KALAHANDI	Lanjigarh	Batelina	Poultry Producer Group
2		M.Rampur	Salepali	Mahalaxmi Producer Group
3			Barabandha	Baunsa Haatasilpa Producer Group
4			Mohangiri	Pallibikash SHG
5				Sanjog SHG
6			M.Rampur	Seva Jagat SHG
7				Prayas Multipurpose Co-operative society

CHAPTER 8

MAINTENANCE AND ENHANCEMENT OF SOCIAL, ECONOMIC, CULTURAL AND SPIRITUAL BENEFITS

8.1 Number of JFM committees and area (s) protected by them

8.1.1 Forests are one of the complex eco-systems. The role of forest in conservation of environment and economic prosperity of mankind is well established. Government of Odisha for the first time in the country issued a resolution vide no 10F(Pron)47/88/17240/FFAH dated 01.08.1988 assigning a specific role to the villagers in protection of peripheral reserved forest adjoining their village with simultaneous permission to meet their bona fide requirement of firewood and small timber from the said forest area. According to the National Forest policy, 1988 envisages co-operation of the people in conservation and development of forests. The Government of Odisha have already adopted the policy of Joint Forest management (JFM) and sought community participation for protection, regeneration and management of the forest wealth. Joint Forest Management is not only a tool for forest regeneration, but also a means of employment generation and social empowerment of the forest fringe dwellers. The JFM resolution was revised on 2008 and later it was revised on 2011.

8.1.2 **Selection of Area for JFM.**

8.1.2.1 The forests of the state to be covered under the resolution shall be grouped into two categories.

a) Reserve forests, Protected forests, Village forests, revenue forests etc. not covered under protected area.

b) Protected area (National park and sanctuaries) excluding Core area, and Mangrove wetland.

8.1.2.2 The committee constituted for the first category of forests will be known as Vana Surakshya Samiti (VSS) while the committee constituted for the second category will be known as Eco development Committee (EDC).

8.1.2.3 While deciding the extent of area to be assigned, the *pallisabha* shall consult the Forest Range Officer concerned and take into account the area customarily being protected and used by the community, the number of adjacent villages,their claims,if any, and user regime. In case a group of villages decides to constitute one VSS jointly,they may do so. The local forester will provide the technical input and facilitate the process of identification of the forest area to be assigned to the committee.

8.1.2.4 In case any change is required in the extent of Forest area assigned to the existing VSS formed under the JFM resolution,2008, the same can be done in consultation with the village community and the local forest department officials not below the rank of a Forest Range Officer.

8.1.2.5 The Vana Suraksha Samitis (VSS) have been constituted and strengthen during last plan period. The number of VSS constituted so far till the end of last Plan period along with the assignment of area for both the divisions is furnished as under

Status of VSS

Name of the Division	No. of VSS constituted	Forest area assigned in Ha. inclusive of revenue forest
Kalahandi North Division	593	42679.97

The detail list of aforesaid VSS have been furnished vide **Appendix-XIII** for Kalahandi North Division.

8.2 Status of empowerment of JFMCs

8.2.1 Amenities provided to VSS under Entry Point Activities of the aforesaid scheme during the last plan period are construction of community hall, mandap, awareness center, bathing ghat, repair of village road, digging of tube wells, renovation of pond and supply of usable articles like gas light, chair, table, Durry, iron plough, music system etc. Awareness campaign, training and exposure visit have also been conducted to enhance the capacity building of the VSS for strengthening the institution of JFM.The following aspects are the focus of attention for its effective execution:-

- Institutionalisation of V.S.S
- Capacity Building
- Preparation of Micro Plan
- Protection Mechanism
- Rejuvenation & Development Process
- Benefit of Usufruct

8.2.2 Implementation :-

VSS s are institutionalized through regular meeting with its members

- Capacity building of VSS s in the Division are ensured through imparting of training programmes.
- Preparation of Micro Plans are ensured.
- VSSs members are assigned forest areas specially forest fringe areas for protection through regular information retrieval.
- They are given understanding about the benefit of usufruct.

60nos. of VSSs are contacted through a meeting held on 4.7.2015 at Bhawanipatna, the proceedings of the meeting with VSSs are enclosed in **Appendix-XIV**

8.3 Labour Welfare.

8.3.1 Kalahandi North Forest Division has been providing direct employment to laborers while executing various development works under different schemes. The laborers were paid minimum wages as per Govt. Notification modified from time to time. Table

shows the minimum wages in force in Odisha during various period of time in the current working plan. With respect to the welfare scheme and expenditure no special welfare scheme was in operation during the current working plan period. No cases are pending in the labour courts. With respect to provisions of drinking water, childcare, first aid etc. The laborers are being provided as a matter of right in case of schemes under MGNREGS. However, for others departmentally funded schemes no such facility is available. Year wise wage rate shown in **Table.8.1**

Year wise wage rate for MGNREGS

Table no.8.1

Year	Wage Rate in Rs.
2007-08	70
2008-09	70
2009-10	90
2010-11	90
2011-12	90
2012-13	150
2013-14	143
2014-15	164
2015-16	174
2016-17	174
2017-18	176
2018-19	182
2019-20	188
2020-21	207

8.4 Use of indigenous knowledge.

8.4.1 This is also a very important matter. Instead of introducing any new method, it is always better to take advantage of old traditional method locally available provided it is found useful. In this context the soil and moisture conservation measures adopted through Kata, Munda, Bandha, Chahala etc. are most important one. This has already been described in para no. 5.4.2 of Chapter-5. Similarly the rejuvenation of the Podu ravaged area through the preservation measures as done by the tribal people is also helpful to restore the vegetation at earliest. The methods adopted by the local people to drive away the elephants peacefully through burning, straw torch and observation through machans on the tree are found suitable to prevent elephant depredation during crop harvesting period. These beneficial and congenial traditional methods have been incorporated in the prescriptions.

8.5 Extent of cultural / Sacred groves

Local communities in many parts of this division have conserved sacred forests or groves based on spiritual and cultural values. These sacred sites and sacred forests for millennia for spiritual, cultural, economic and aesthetic purposes. The list of sacred groves in Kalahandi North division is enclosed in **Appendix-XV**

8.5.1.Classification of Sacred Forests :

Sacred Forests are three categories have been recognized based on their religious cultural and other values for which they are used.

1. Traditional sacred Groves – Places where the village deity reside and are represented by an elementary symbol.
2. Temple Groves-Groves created around a temple and conserved.
3. Groves around the burial or cremation-grounds.

8.5.2. Socio-cultural values of the sacred Groves

a. Religious: propitiations of deity/ ancestral spirits.

b. Cultural values: Provide cultural space to the community as a common property resource.

c. Health: well being of community / family

d. Economic value: Good rainfall / good agricultural production / well being of crops and animals/source of raw materials, medicine, food, fruits etc.

e. Psychological: Moral support and guidance of local people.

f. Educational: Ideal sites for teaching and research.

8.6. Ecotourism areas and activities

8.6.1 Kalahandi has hospitable people, rich cultural heritage. The land is very rich in terms of water fall, forest and wild life, natural and scenic beauty, tribal life, mountains, agriculture field, historical sites, diverse cultural heritage and handicrafts. Every celebration centers on the ritual of prayer, seeking blessings, exchanging goodwill and gift, decorating house, wearing new clothes, music, dance and feasting. Kalahandi derived from 'Kala' and 'Handi', Kala mean art and Handi means pot. The pot full of art and culture. It is the sacred place of art and Eastern Ganga dynasty. Kalahandi merged with the state of Odisha on the 1st January 1948.

8.6.2 The history of Kalahandi goes back to the primitive period where a well-civilized, urbanized and cultured people inhabited on this land mass around 2000 years ago. The world's largest Celt of Stone Age and the largest cemetery of the megalithic age have been discovered in Kalahandi. This land was unconquered by the great Ashoka, who fought the great Kalinga War. In medieval period the region had played a prominent role to link South India, Eastern India and Central India region and witnessed the battle ground for Somavamsi, Chola, Kalachuris and Eastern Ganga dynasty. Kalahandi merged with the state of Odisha on the 1st January 1948.

8.6.3.Places Of Tourist Interest In Kalahandi North Division

8.6.3.1 Asurgarh

Asurgarh, Fort of Asura, is near Narla in Kalahandi. This place is was once inhabited by urbanised and civilised people of 500 BC to 500 AD and served as a political and cultural hub. People travel to this place to marvel at the remnants of a fort that is located near a large tank of 200 acres named Asursagar. It has four entrances in each direction and each entrance enshrines a different deity. The east entrance is presided by Goddess Ganga, whereas the west entrance is ruled by Kala Pahad. The Vaishnavi image is installed in the south and Lord Budharaja is worshipped in the north direction. The fort's presiding deity is Goddess Dokari

or Old Lady who is enshrined inside the fort. Locals believe that the fort was home to a demon king, GosinghaDaitya. Anyone travelling to Asurgarh Fort is guaranteed of sailing into the virtual tour of ancient times.

8.6.3.2 Rabandhara

Rabandarh is home to a cascading waterfall that dwells amidst the dense green forest. Far away from the maddening crowd of the town, Rabandarh is a serene and tranquil location with only one sound, that is, the sound of the waterfalls. One has to cross dusty roads to reach this place. Despite the poor roads, people come to Rabandarh to spend some time in the lap of nature. It is a well-known picnic spot. Adventure lovers come here for trekking too. The natural beauty that casts serenity and seclusion all around Rabandarh is a major tourist attraction of Kalahandi. Many tourists come here during winter when the weather remains cool.

8.6.3.3 Mohangiri

Mohangiri is a quaint village in Kalahandi, which comes under the places of interest for tourists of the Shiva temple. A stream named Kali Ganga flows close to the village. On the bank of this stream lie the ruins of the ancient Shiva temple with eleven pillars of Jagmohan Hall. Though the temple has been reconstructed, the old remnants which date back to 600 AD can still be found inside the temple. Many rock-cut sculptures have been carved out on the body of the temple along with the many stone blocks of this ancient collapsed temple making the temple worthy of a visit. A Shivalinga has been unearthed along with the temple which is now placed inside a hut for worshipping. The temple is a unique combination of the present period and the olden time. This place is 60 km from Bhawanipatna.

8.6.3.4 Belkhandi

Belkhandi Temple is Located at Belkhandi, Odisha.Situated on the confluence of the river Tel and Uttei, two tributaries of the river Mahanadi, Belkhandi has gained prominence as a centre of religious activities and archaeological importance with a picture-sque site. Besides the temples now standing therein, ruins of 12th Century monuments have been excavated from there in the recent past.Among the sculptures unearthed images of SaptaMatruka (Seven Mother Goddesses) and Uma Maheswararenote-worthy. The ruins of Belkhandi are preserved in a small museum adjacent to the temple premises. It is also an ideal site for an outing. This place is 67 K.Ms from Bhawanipatna.

8.6.3.5 Bhawanipatna

Bhawanipatna is famous for MaaManikeswari temple and Chhataryatra. **Manikeswari** is one of the popular Hindu deities in Orissa. There are many Manikeswari temples present in Western and Southern part of Orissa. Manikeswari temple in Bhawanipatna is well recognized in Orissa. Manikeswari is also the primary deity associated with the royal family of Paralakhemundi in Gajapati. ChhatarJatra is one of the most popular festival of Manikeswari at Bhawanipatna. Khandasadhaka is a festival associated with Manikeswari in Paralakhemundi. The deity of Chakrakotamandala comprising present days Kalahandi, Koraput and Bastar was Manikya debi or Manikeswari around 10th century A.D. Later on Kalahandi king Harichandra Deo struggled and died because of which his pregnant queen left for her father's house in Gadapur, Phulbani. Some part of Phulbani was part of Mahakantara in ancient time and Chakrakota Mandala. Though capital of Chakrakotamandala is still being debated, it is clear that it has many similarities with Kamala Mandala, another ancient name of Kalahandi.Manikya Devi came to Gadapur perhaps due to influence of Chakrakota Mandala. Later on, queen along with her son, Ramchandra Deo returned with Manikya Debi

or Manikeswari as per Kalahandi's public request that time. Manikeswari was brought from Gadapur (Phulbani) around 1200 A.D and it was located in Kalahandi. Manikeswari was also popularized by Suryabansi Gajapati in 15th -16th century in Puri region. PurushottamDevGajapati considered Manikeswari as consort of Lord Jagannath and made a shrine of Manikeswari at Chilika, now it doesn't exist. Manikeswari is royal family deity of Parlakhemundi. Manikeswari was installed in Bhawanipatna much later around 1849 AD during shifting of the capital from Junagarh. Some people also mention Manikeswari in Thumaul Rampur as Adipitha and Devi was brought to Bhawanipatna from there. UditnarayanDeo laid the foundation of the present modern temple in Bhawanipatna and it was completed in 1947 by BrajamohanDeo. Manikeswari was associated with Kalahandi history as a goddess of wealth, Manik, since 10th century. There is some debate to relate Manikeswari with Stambeswari temple in Asurgarh-Narla around 5-6th century as well as Maningeeswari in Banapur in Puri. There are many Manikeswari worshiping locations in many place of Orissa and Chhattisgarh, especially in undivided districts of Koraput, Phulbani-Boudh, Bolangir-Sonepur, Ganjam-Gajapati, Angul-Dhenkanal, Keonjhar, Sundergarh, etc. due to influence by various rulers. ChatarYatra are meant to celebrate the Vijayautsav with cheerful heart and splendid display. The festival is being celebrated during the Mahastami of Durga puja festival. The ritual practice of Khonds (Adivasis of Kalahandi Districts) Nabakalevar (the renewal of post-worship) is also performed during the festival. MaaManikeswari comes out from the *Garbhagriha* on Mahastami mid night to *Jenakhal* which is at about 3 km distance from the alma mater. The jatra starts with *Nagar Paribhramana* on Mahanavami auspicious morning. A bamboo covered with black cloth represents MaaManikeswari in the jatra, and at the top on silver plate DasamahavidyaYantra is installed which represents the Tantric Hinduism. To please MaaManikeswari, a tribal dance is performed, which is known as Ghumura dance. Ghumura is a traditional dance and a heritage of Kalahandi district.

8.7 Social customs:

8.7.1 Local customs and habits always dominate the style of living of any locality. It plays a very important role in the progress and development of the area. Unless these factors are taken care up well, it is difficult to accomplish the desired objectives, whatever efforts may be put. Social customs are nothing but a die-hard practice being followed from generation to generation. Some important customs are narrated in succeeding paras.

8.7.2 Social Ceremonies

8.7.2.1 Traditional birth, death and marriage ceremonies are observed as per Hindu rituals in the general and schedule caste, which is about 72% of total population. General castes are Bramhin, Gouda, Karana, Kosta, Dosi, Kultha, Kurmi, Mali, Paika, Sampuas, Sunari, Sundhi, Badhei, Bhandari, Gudia, Keuta, Kumbhara, Lohara, Teli etc. The schedule castes are Chamar, Dhoba, Dom, Ganda, Ghasi, Mahar etc. These people observe all types of Hindu religious festival like Ganesh puja, Saraswati puja, Durga puja, Kali puja, Laxmi puja, Biswakarma puja, Ratha Jatra, DolaJatra etc.

8.7.2.2 The schedule tribes are mostly Kandha, Sabar, Kutia kandha, Gond etc. Gonds are the most important and significant schedule tribe of the district mostly found in Kalahandi, Dharmagarh, Lanjigarh, M.Rampur and NarlaTahasil area. They have usually a well-developed physique with fine chest and massive shoulder, but have scantily grown beard and moustache. They are good in climbing steep hills, narrow hill tracks and also capable of carrying heavy load. They are much more industrious than Kandhas and take physical labour

with pleasure. The religious head of this tribe is called Jani who performs various rites. The death rites are completed after three days by performing Tel Ghar or Chhota Karma on the fourth day. After a year they perform Bada Karma. Bows and arrows are their traditional weapons, but at present they are mostly cultivators or collectors of NTFP. Budhadeo, Jangadeo and Lingadeo are their main deities. Now days they are celebrating Pousapurnima, Chaitraparab, Makarjatra, Dasahara, Laxmi puja with much pomp and show. Dancing, singing and use of alcoholic drink on the occasion of marriage, fair and festivals are retained on a lower scale at present. Bride price system is prevalent among them. It is paid in shape of foodstuff, cash and ornaments, unlike the dowry system of paying cash and kind to the bridegroom in other caste.

8.7.2.3. Next to Gond the Kandhas are the most important schedule tribe. They are of three types, Kutia, Dangaria and Desia. Kutiakandha used to engrave some kind of picture in their face, forehead, hand of the ladies for which they are so named. Similarly Kandhas living on highland hills locally called Danger are known as DongariaKandhas. The DesiaKandha lives in plain area with non-tribal. Desari is the religious priest of this tribe. The death rite is completed within three days by performing *ambopanigadhua* i.e. mango water bath on this day. After that they can perform a rite called Dossa on any day and month after a year. On this occasion they give a feast to relatives and villagers. Like Gond they also pay the bride price in shape of money, ornaments and buffalo for the marriage ceremony. The bride is taken away by bridegroom's party. On the way mock fight is held between bride and bridegrooms party. The bride's party retained to take back the bride with oral as well as physical opposition but fails to do so. Afterwards they are allowed to go peacefully. Divorce and widow marriage are also permitted. Kandhas worship DharaniDebata i.e. earth god, GramDebati the goddess of village, Bima the goddess of household and other female deities such as Kandhual, Sat bhaen, Jina and Duma etc. They observe Chaitparab, Pausaparad, Toki parab, Rani parab etc.

8.7.3 Fairs & Festivals

8.7.3.1. Nuakhai and Dasahara are the most popular festival of the district and celebrated by all sections of the society. Nuakhai is celebrated on fifth day of Bhadraba, Odia calendar month. It is the day just after Ganesh puja. In Bhawanipatna it is celebrated on tenth day of the aforesaid month. It is just like Pongal, Bihu and Onam festivals of Andhra Pradesh, Assam and Kerala respectively. It is a festival to rejoice on the production of new grain of the year. Hence it is named as Nuakhai i.e. the ceremonial eating of new grain by the family members after offering of the same to the deities. Family members are gathered at the residence on that day and celebrate the function unitedly. New clothings are also put on during the occasion. Similarly Dasahara is celebrated by all sections of society. Chhatarajatra is celebrated in Bhawanipatna with much pomp and ceremony for goddess Manikeswari. Khandabasa is also celebrated in the temple of goddess Lankeswari at Junagarh, the erstwhile capital of ex-princely State of Kalahandi on Mahastami day during Dasahara festival. Pushpuni or Toki parab is also celebrated by the tribals of Kalahandi and Dharmagarh sub-division. It is a festival of merrymaking and rejoicing with heavy drink and food. Laxmi puja and MakarSankranti are also celebrated. The other two important festivals of this district are Puajiuntia and Bhaijiuntia. Puajiuntia is celebrated on eighth day of the dark fortnight in the month of Aswina. On this occasion all the mothers fast for the whole and night and worship called Dutibahana for long life and prosperity of their sons. Similarly Bhaijiuntia observe on eighth day of bright fortnight of the same month. The sisters worship goddess Durga on this occasion for long and happy life of their brothers.

8.7.4 Communal Dances

8.7.4.1 Different types of dances are held during socio cultural and religious functions. Ghumura, Madal, Dhangadhangidi, Dhap are some important ones. These are described as under.

8.7.4.2 Ghumura

Though this is originally a tribal dance but in course of time it is at present the typical dance of Kalahandi. The dance is named after the instrument i.e. earthen drum called Ghumura. Dancers sing devotional songs, Chanda, Chaupadi and songs relating to mythological scripts. It is performed by the male members dressed in coloured dhoti and jacket. It is usually performed during Dasahara, Pushpuni, Nuakhai, marriage ceremony and other social functions.

8.7.4.3 Madal

Gonds usually perform this dance. The male and female participants dance in circles. In this dance one person acts as a singer while others play drums called Madal. The male dances use turbans with feathers of peacock. This dance is usually performed during marriage and festivals.

8.7.4.4 Dhangadadhangidi

This is performed by unmarried grown up boys and girls with Dhola, Changu, Nisan and Mahuri. This is now days very rare.

8.7.4.5 Dhap

Kandhas mostly perform this dance in which both men and women participate. The women dancer play on Ramakathi a musical instrument made up two pieces of polished wood with little cymbals fitted in them. The main instrument of this dance is Dhap, which is like the shape of a Khanjani. The dancers hold the Dhap with his left hand and beats it with a stick in the right hand. The men dancers use it. This is also very rare.

8.8 Status of compliance of Forest Right Act (FRA) :

The detailed information on individual and community forest rights given in Kalahandi North Divisional area of Kalahandi District is given in following table.

Table no.8.2

CFR

Village Name	Tehasil	GP Name	FRA Type	FRA Area in Ha	FB Name
Mermahul	Golamunda	Badchergaon	CFRA	99.957	Chura A RF
Phatamunda	Golamunda	Badchergaon	CFRA	99.957	Chura A RF
Pitapada	Golamunda	Badchergaon	CFRA	49.978	Chura A RF
Grindol	Golamunda	Manjhari	CFRA	49.978	Adabari RF
Dudkela	Golamunda	Manjhari	CFRA	99.957	Adabari RF
Lanji	Golamunda	Lanji	CFRA	99.957	Kumkote RF
Banjibahal	Golamunda	Daspur	CFRA	99.957	Chura A RF

Golamunda	Golamunda	Golamunda	CFRA	29.987	Adabari RF
Kasturapadar	Golamunda	Khaliapali	CFRA	99.957	Chura A RF
Jamjharan	Golamunda	Dhamanpur	CFRA	99.957	Chura A RF
Kanakpur	Golamunda	Khaliapali	CFRA	99.957	Chura A RF
Jamgudabahal	Golamunda	Dhamanpur	CFRA	99.957	Chura A RF
Khainsguda	Golamunda	Dhamanpur	CFRA	99.957	Chura A RF
Bijkhman	Kesinga	Nunmath	CFRA	99.95	Bazargarh RF
Khajurpada	Kesinga	Tundla	CFRA	49.97	Bazargarh RF
Tundla	Kesinga	Tundla	CFRA	59.97	Bazargarh RF
Dudkaranja	M. Rampur	Barabandha	CFRA	19.991	Urladani RF
Jamujura	M. Rampur	Barabandha	CFRA	49.97	Belgaon DPF
Tarkabahali	M. Rampur	Barabandha	CFRA	24.989	Belgaon DPF
Udayagiri	M. Rampur	Barabandha	CFRA	71.969	Urladani RF
Lamer	M. Rampur	Barabandha	CFRA	65.971	Belgaon DPF
Lundurubaru	M. Rampur	Barabandha	CFRA	39.982	Belgaon DPF
Dholapara	M. Rampur	Barabandha	CFRA	39.982	Belgaon DPF
Gundurupi	M. Rampur	Barabandha	CFRA	69.97	Belgaon DPF
Chitra	M. Rampur	Barabandha	CFRA	50.978	Belgaon DPF
Rangaparu	M. Rampur	Barabandha	CFRA	51.476	Urladani RF
Sadalguchha	M. Rampur	Barabandha	CFRA	19.991	Belgaon DPF
Chochobahali	M. Rampur	Barabandha	CFRA	79.965	Urladani RF
Talanuagaon	M. Rampur	Manikera	CFRA	99.957	Talanuagaon PRF
Taparang	M. Rampur	Manikera	CFRA	49.978	Taparang RF
Pajibahal	M. Rampur	Damkarlakhunta	CFRA	49.978	Ramudu PRF
Balibaju	M. Rampur	Urladani	CFRA	26.988	Taparang RF
Dakabahali	M. Rampur	Mohangiri	CFRA	49.978	Sulia PRF
Nuapur	M. Rampur	Nuapur	CFRA	149.936	Kutugudum PRF
Ulurupi	M. Rampur	Nuapur	CFRA	99.957	Kutigudum PRF
Palasapadar	Kalahandi	Sagada	CFRA	21.4888	Kanamanjur RF
Bandajore	Golamunda	Sinapali	CFRA	99.9573	Kumkot RF
Dhenkapara	Golamunda	Golamunda	CFRA	49.9786	Nageswar RF
Kadalimunda	Golamunda	Golamunda	CFRA	14.9733	Adabari RF
Kendupani	Golamunda	Golamunda	CFRA	49.9786	Nageswar RF
Nuapara	Golamunda	Golamunda	CFRA	39.9829	Nageswar RF
Pohiripani	Golamunda	Golamunda	CFRA	99.9573	Nageswar RF
Samarthbasa	Golamunda	Golamunda	CFRA	49.9786	Nageswar RF
Baksundhi	M. Rampur	Barbandha	CFRA	39.9829	Belgaon DPF
			Total	**2917.6873**	

Table no.8.3

IFR					
Village Name	**Tehasil**	**GP Name**	**Total FRA beneficiaries**	**FRA Area in Ha**	**FB Name**

Kermunda	Dharmagarh	Dumerguda	2	0.8094	Nageswar RF
Bokrasil	Dharmagarh	Tipiguda	14	7.2036	Nageswar RF
Kirkakani	Dharmagarh	Kirkakani	5	4.569	Nageswar RF
Mukhiguda	Dharmagarh	Dumermunda	5	1.7766	Nageswar RF
Rainguda	Dharmagarh	Tipiguda	4	5.2489	Nageswar RF
Tekpara	Dharmagarh	Tipiguda	8	5.4634	Nageswar RF
Tipiguda	Dharmagarh	Tipiguda	2	1.1412	Nageswar RF
Amurlapadar	Golamunda	Naktikani	11	11.0036	Nageswar RF
Antarla	Golamunda	Naktikani	15	8.6281	Nageswar RF
Baijalpur	Golamunda	Brundabahal	6	3.0352	Adabari RF
Girendol	Golamunda	Naktikani	1	0.4047	Nageswar RF
Golamunda	Golamunda	Golamunda	142	123.9956	Nageswar RF
Golamunda	Golamunda	Golamunda	3	3.5771	Nageswar RF
Golamunda (Nuapada)	Golamunda	Golamunda	3	3.5771	Nageswar RF
Golamunda (Phoiripani)	Golamunda	Golamunda	8	4.9373	Nageswar RF
Golamunda (Samarathabasa)	Golamunda	Golamunda	2	0.4654	Nageswar RF
Gudurghuma	Golamunda	Naktikani	17	14.569	Nageswar RF
Jhuleanbar	Golamunda	Naktikani	69	56.8596	Nageswar RF
Karangamunda	Golamunda	Khalianani	3	3.6423	Nageswar RF
Kasturapadar	Golamunda	Khaliapali	5	3.6423	Chura A RF
Lanji	Golamunda	Sinapali	8	3.9134	Kumkot RF
Mahendrapur	Golamunda	Sinapali	23	11.7361	Kumkot RF
Mukundpur	Golamunda	Dhamanpur	5	1.2343	Adabari RF
Naktikani	Golamunda	Naktikani	36	32.5779	Nageswar RF
Naktikani	Golamunda	Golamunda	1	0.607	Nageswar RF
Patialpada	Golamunda	Naktikani	14	11.5338	Nageswar RF
Sargiguda	Golamunda	Gandamer	6	5.8446	Nageswar RF
Sukunimunda	Golamunda	Khaliakani	10	17.4019	Adabari RF
Tendopani	Golamunda	Dhamanpur	2	1.4164	Adabari RF
Tumra	Golamunda	Manjhari	6	5.4027	Nageswar RF
Udeapur	Golamunda	Khaliapali	1	0.2226	Chura A RF
Udeasurung	Golamunda	Manjhari	6	7.0822	Adabari RF
Bileikuni	Kalahandi	Palam	17	17.2481	Bramhani RF
Bengaon	Kalahandi	Chancheer	22	14.565	Pordhar RF
Ghusurigudi	Kalahandi	Palsijharan	3	1.9709	Bramhani RF
Gundchipadar	Kalahandi	Duarsuni	1	0.2428	Sinang RF
Kalam	Kalahandi	Kalam	4	2.2258	Bramhani RF
Kaugopana	Kalahandi	Kuliamal	11	5.5443	Bramhani RF
Kholandi	Kalahandi	Palsijharan	16	17.0053	Bramhani RF
Kurumachuan	Kalahandi	Kuliamal	10	5.9085	Bramhani RF
Mundapalla	Kalahandi	Risigaon	17	11.0279	Kutrukhai RF
Palasapadar	Kalahandi	Sagada	24	65.1585	Kanamanjur RF
Themra	Kalahandi	Kalam	3	4.573	Bramhani RF
Sargigura	Kalahandi	Chheliamal	15	16.6289	Bramhani RF
Ainli	Kalahandi	Uchhala	12	5.4229	Daka RF

Budelpali	Kalahandi	Rengsapali	4	0.7689	Chura B RF
Godalajharan	Kalahandi	Farang	7	2.3391	Chura A RF
Karpa	Kalahandi	Rengsapali	8	1.5985	Chura B RF
Nuamunda	Kalahandi	Rengsapali	4	0.8094	Chura B RF
Padampur	Kalahandi	Rengsapali	8	3.6018	Chura A RF
Pitaguda	Kalahandi	Rengsapali	12	23.84	Chura A RF
Purunapani (Mahulpada)	Kalahandi	Chahaka	4	6	Kumkot RF
Rojanapur	Kalahandi	Dumuria	26	65.1	Kumkot RF
Sankripali	Kalahandi	Rengsapali	44	31.4817	Chura B RF
Dulen	M. Rampur	Dam Karlakhunta	29	53.0797	Sunamukhi RF
Mardding	M. Rampur	Urladani	1	3.7353	Jerka RF
Jurakhaman	M. Rampur	Urladani	54	144.0874	Taparang RF
Nuagaon	M. Rampur	Manikera	25	21.0401	Benaguda RF
Nuapada (Balibaju)	M. Rampur	Urladani	7	40.67	Taparang RF
Pidel	M. Rampur	Urladani	6	8.1748	Taparang RF
Sakush	M. Rampur	Urladani	17	22.3149	Taparang RF
Uper Nuagaon	M. Rampur	Manikera	19	24.6661	Benaguda RF
Uper Nuagaon	M. Rampur	Manikera	1	0.3076	Talanuagaon PRF
Khaliamunda	M. Rampur	Urladani	34	15.0627	Urladani RF
Urladani	M. Rampur	Urladani	22	11.4731	Urladani RF
Nishangura	Kalahandi	Jugsaipatna	8	4.8	Gundi PRF
Kodobahali	Golamunda	Rengsapali	1	0.2023	Chura A RF
		Total	939	1016.1976	

Table no.8.4

Area diverted as per Sec 3 (2) of S.T & Other Traditional Forest Dwellers Act.2006	
FB Name	**Area Diverted**
Bazargarh RF	1
Brahmani RF	0.9988
Jerka RF	0.47
Kanamanjur RF	0.992
Kumkot RF	0.0187
Satami RF	3.775
Sunamukhi RF	0.225
Taparang RF	0.98
Urladani RF	0.16
Belgaon DPF	1.19
Bidabaru (Harlanga) PRF	0.185
Gundi PRF	0.3711
Sulia PRF	0.685
Total	11.0506

8.9 Other Rights and Concessions:

8.9.1 Rights and concessions in different legal types of forests have gradually evolved over time. All rights or concessions or privileges are subject to the condition that if a given forest resource is exhausted or detrimental to the general health of forests; all rights, concessions or privileges shall cease to exist. Even the National Forest Policy, 1988 prescribes that, enjoyment of rights and concessions should be subject to carrying capacities of forests, and availability of adequate quantities of relevant forest products, without jeopardizing regeneration of forests. This principle shall be strictly followed in the Division.

8.9.2 The right and concession of the local people will be regenerated accordance with the provisions of the Odisha Forest Act' 1972 and relevant to there under the Govt. Policies in vogue. The concessions & rights have lost with the enactment of some legislation.

They are

1. PESA Act. (The Panchayat Extension to Scheduled Area) Act.1996.
2. Forest Rights Act
3. Odisha Gram Panchayat (MFP Administration Rules) 2002.
4. JFM resolutions of Govt. of Odisha

8.9.3 As per the PESA act the ownership of the minor forest produce rests with the Gram Panchayat in scheduled areas. Similarly, the forest rights act recognizes the right of ownership, access to collect; use and dispose of minor forest produce have been traditionally collected within or outside village boundaries or manage boundaries. The act also gives the right to protect, regenerate or conserve any community forest resources which have been traditionally protect land conserving for sustainable use. As per this act, the extraction of MFP from forest lands falling within the community forest rights granted, will be the right of the community provided the management plans proscribe the sustainable level of extraction in such areas. However, at present the CFR title holders or communities have not yet prepared any management plan.

8.9.4 As per the 2002 Rules of Odisha Gram Panchayat (Minor Forest Produce Administration). The Govt. had liberalized the control on extraction of MFP of 68 items and placed some powers to regulate procurement and trading of MFP. Therefore, the GPs had the power to register traders & issue permits for extraction & transport of MFP within their area no matter the kind of forest involved. However it is to be understood here that there was no method of controlling the extraction within the sustainable limits. The working plan prescriptions could not be enforced on the Gram Panchayats. No information was available on the number of traders registered, the quantity of MFP extracted, yearly etc as such reports were not supplied to this Office.

8.9.5 As per the JFM resolutions and the current being the 2011, of the Govt. of Odisha, the VSS had the right to collect & use sell the MFP items from these forest area as per their micro plan. The Micro plan shall detail out the various MFP items that can be collected. This shall be done with due regard to the carrying capacity, productivity and biodiversity of the local ecosystem. The draft micro plan prepared by the executive committee will be scrutinized by the Forest Range Officer from the technical, financial and legal point of view. After that the same shall be placed before the General Body for deliberation and approval.

8.9.6 As per the Joint Forest management Resolution' 2011; the VSS/EDC shall be entitled to the usufructuary benefits from the assigned forests as under:-

(a) Usufructs like fallen leaved, fodder grasses, thatch grass, broom grass, fencing materials, brushwood, fallen lops, tops and twigs to be used as fuel shall be available to the members free of cost.

(b) All intermediate yields in the shape of small wood, poles, firewood etc as may be obtained as a result of silvicultural operations and bamboo harvested in VSS/EDC assigned area shall be made available to the VSS/EDC members in a manner as may be decided by the EC. The funds so obtained by selling the materials, shall be deposited in the VSS/EDC account.

(c) In case of Kendu leaves and specified forest produce other than bamboo, if any, the VSS will have the right to collect the same from the assigned forest but these items will be disposed of as per the prevailing provisions of Government and practices.

(d) While maintaining the forest cover in perpetuity, if any major harvest or final felling occurs in the assigned forest, the same shall be taken up by the forest department as per the prescription of the working plan / duly approved micro plan. In case of natural calamities, harvesting of wind-fallen trees shall be treated as final harvest. Priority will be given to the members of the VSS/EDC for salvaging and harvesting work. Valuation of the produce so obtained shall be done and information shared with the VSS/EDC and the produce will be sold/disposed of by the forest department or by the agents of the forest department. The VSS/EDC will receive 50% share of the sale price after deduction of proportionate harvesting cost and this will be deposited in the "VSS account". The VSS may also opt for 50% of the forests produce so proportionate cost of harvesting.

(e) In case of village woodlots created and maintained by the VSS/EDC on non-forest land, all usufructs including interim and rotational harvests shall go to the VSS/EDC.

(f) In the event of a natural calamity occurring in the village there may be demand for house building materials and other forest produce from the assigned forest. In such cases, the VSS/EDC may go for harvesting the required quantity of timber or other forest produce as a deviation to the micro plan, with due approval of the Divisional Forest Officer concerned.

(g) The EC shall be responsible for the distribution of the usufructuary benefits equitably among the members of the VSS. Need of the group or community who do not have any livelihood support other than depending on the forest should be specially considered.

(h) In cases where member / a group of members of the VSS/EDC play a major role in the collection of intelligence, detection and seizure of illegal forest produce in transit the concerned VSS/EDC shall be entitled to the prescribed percentage of the sale price of the forest produce as per Rule 4(3) of the Orissa Reward for Detection of Forest Offences Rules' 2004. Such amount shall be deposited by the DFO in the "VSS account / EDC account" after disposal of the seized produce following due procedure of law.

(i) All forest produce requiring permits for transit as per provisions of Orissa Timber and Other Produce Transit Rules' 1980 shall be removed from the assigned forest area in accordance with a permit to be issued jointly by the president and the secretary in the prescribed format (Form-4). The permit will be valid only within the limits of the area to which the VSS members belongs. In case of transportation outside the above limit, the permit will be issued to the competent forest officer on receipt of application from VSS/EDC.

8.9.7 As per the above discussion it is now legitimate for communities to collect, use of the MFPs from their forest areas that they were traditionally managing or within the Gram jurisdiction. The collection or judicious use of these rights within the sustainability levels, has also been placed with the communities itself through a management plan. The major hurdle at this juncture is that the preparation of management plan with a decision of sustainable levels is a scientific process where support of the community are to be ensured.

8.10: Dependency of local people on NTFPs:

8.10.1: Government of Odisha, Forest and Environment Department Resolution No. 5503/F&E.

Dated 31st March' 2000, Bhubaneswar:

1. Non-Timber Forest Produce (NTFP) has traditionally been perceived as an important source of forest revenue. Accordingly, the policies relating to NTFP over the years have generally tended to aim of maximisation of revenue. However, NTFP important source of livelihood of tribals and the rural poor. These gatherers of NTFP majority of whom are women, have limited access to the market, and their primary concern is getting a fair price for the NTFP gathered by them and being able to dispose off the produce gathered. The prevailing system does not adequately provide these facilities to the primary gatherers. At the same time, it is also equally important collection of NTFP must be on non-destructive basis so that sustainability of forest and long term sustainability of the NTFP based livelihood can be reasonably ensured.

2. The State Government have had under their consideration proposals for formulation of an appropriate policy on Non-Timber Forest Produce, keeping in view the consideration outlined in the preceding paragraph. While formulating the policy the provisions of the Panchayats (Extension to scheduled areas) Act' 1996 have also to be kept in view. The term 'minor forest produce' has not been defined. Under the policy of Joint Forest Management, the local communities are being closely involved as partners of Forest Department in the management of degraded forests; and the members of the Vana Samrakshana Samiti are entitled to share of the usufructs, including the entire NTFP gathered from such a forest area. Considering all aspects of the matter, Government have been pleased to approve of the following policy guidelines for streamlining the system of collection and disposal of various Non-Timber Forest Produce items: -

8.10.2 Minor Forest Produce:

(a). The items of Non-Timber Forest Produce listed in Table will be treated as Minor Forest Produce (MFP) and the term MFP will only mean and include items listed in separate table.. The list of items of NTFP to be treated as MFP may however be modified by

Government from time to time, Gram Panchayat / Gram Sabha in the scheduled areas will have the ownership over MFP produced within its territorial jurisdiction, i.e. in respect of the MFP produced in and collected from the Government lands and forest lands within the limits of the revenue villages comprising the Gram Panchayat. Under law, ownership of MFP in non-scheduled areas is not vested in Gram Panchayats. Gram Panchayats both in the scheduled and non-scheduled areas will however, have the authority to regulate purchase, procurement (as distinct from collection by primary gatherers) and trading in MFP in accordance with the policy outlined in the succeeding paragraphs.

(b). No Gram Panchayat, whether situated within or outside the scheduled area will have ownership over MFP produced in Reserve Forests, in forest areas under Wildlife Sanctuaries and National Parks which are outside the limits of revenue villages. The Gram Panchayats will not therefore have the right to grant lease or license to any individual or agency for collection of Minor Forest Produce from any Reserve Forest or Sanctuary or National Park. However, members of VanaSamrakshyanaSamitis and tribals, non tribals, artisans etc as part of their customary rights will be free to collect Minor Forest Produce from forest areas excluding sanctuaries and National Parks. When any such MFP collected from forest areas is brought to a village, i.e. into the territory within a Gram Panchayat, it will come under the Gram Panchayat's power to regulate procurement and trading. Where Vana Samrakshana Samiti has been formed, the Samiti and its members will have priority over the Gram Panchayat in the matter of collection and disposal of Minor Forest Produce of the respective forest area.

(c). Any person desirous of purchasing MFP from primary gatherers or trading in MFP so purchased shall apply for registration to the concerned Gram Panchayats and the Gram Panchayat may register such dealers or traders for a season from the first day of October to the last day of September of the following year. Dealers and Traders will have to seek fresh registration for the next season. Gram Panchayats shall make all efforts to promote free competition in procurement of MFP by engaging as many as dealers for each item of Minor Forest Produce as reasonably practicable. The Gram Panchayat shall also levy an annual registration fee from such dealers or traders at such rate as may be determined by the Gram Panchayats will have to furnish a monthly return to the concerned Range Officer indicating the item of MFP procured quantity procured and the GP from which procurement was made during the month. No one will be allowed to operate as a Dealer/Trader in MFP in any area without registered as such by the concerned GP.

(d). The collection of MFP by the primary gathers will be subject to reasonable control to be exercised by the Divisional Forest Officer in accordance with the provisions of law and silvicultural principles laid down in the Forest Working Plan which shall be published in advance in the adjoining GPs.

(e). The Government agencies like Odisha Forest Development Corporation; Development Co-operative Corporations etc may also register themselves with more Gram Panchayats for procurement and trading in one or more items of Forest Produce.

(f). A Gram Panchayat may cancel the registration of any dealer / trader or may refuse to grant registration for the subsequent seasons, in that case the affected party shall be given an opportunity to show cause it is satisfied that the dealer / trader has procured any MFP from the primary gatherers at a rate lower than the minimum procurement price fixed for that item of MFP under para 5 of this resolution for the relevant year.

(g). No lease shall be granted by Government in respect of any Minor Forest produce nor shall it levy any royalty on these items after commencement Resolution. No Forest Department Transit permit will be required thereafter for transport / movement of any Minor Forest Produce within the state.

8.10.3 Other items of NTFP:

(a). The Trade in Kendu leaf will continue to be directly controlled by the Government as there are well laid down statutory provisions for control of trade in this item. Sal Seed which is the one NTFP items notified as a specified forest produce under the Odisha Forest Produce (Control of Trade) Act 1981 will also be dealt with in accordance with the provisions of law by Government keeping the overall interest of the trade, the industries and the gathers in view.

(b). Certain items, namely Sal leaves, gums and resins of different trees, climbers and roots of various species which have medicinal or other uses will leased out, as the collection of these items on commercial scale has adverse impact on the sustainability of the particular species and the forest. In particular localities however, based on sound assessment of silvilultural availability and enforcement appropriate collection procedure, any of these lease-barred may be allowed collected either directly by field organization of Forest Department or a Government undertaking.

(c). The remaining items of NTFP as per the list of Table., which may be modified by Government from time to time, will be allowed to be procured and traded by the dealers who have been registered for the purpose under this Resolution by the concerned Divisional Forest Officer. Individuals, societies, Co-operatives, Government Undertakings and Corporations may be registered as a dealer for the above purpose. Such registration shall ordinarily be granted by the Divisional Forest Officers for a season (from the first day of October to the last day of September of the following calendar year) to applicants seeking such registration, unless there are valid reasons for refusing registration. The Divisional Forest Officer will endeavor to promote competition among the traders and dealers by registering as many dealers as reasonably practicable for a specified area. For each items, as many dealers as may come forward can be engaged for each Forest Division / Range. OFDC, TDCC, Co-operative Societies like LAMPS etc will also be eligible to register themselves with the DFOs and should be encouraged to engage themselves in trading in these items. The Vana Samrakshana Samithi, MahilaSamiti, recognized groups of primary gatherers may also get themselves registered for this purpose. The fees to be paid for registration shall be prescribed by Government.

(d). The registered dealers will be required to furnish the names of their authorized agents / nominees and the names of their collection and storage centers to the concerned Divisional Forest Officers, and will also record the daily transactions in prescribed formats. The dealers will have to enter into an agreement with the concerned DFOs under which the dealers will be responsible for achieving a minimum target of procurement to be fixed by the Divisional Officer of a particular item during a collection season. If the collection method of any particular item in any particular area is considered to be harmful or injurious to the forest, the DFO may impose temporary ban on such collection.

(e). The registered dealers will have to pay royalty to the local forest Range Officer at the rate fixed for the quantity of produce collected. The rate of royalty shall ordinarily not be less than 10percent of the minimum procurement price for the particular item, but this rate may be

varied by Government from time to time, or on proposals submitted by the Divisional Forest Officers.

(f). The registered dealers will be required to take transit permits from competent Forest Officers for movement / transport of the produce out of the collection centers after setting the royalty, etc.

(g). The Divisional Forest Officer may cancel the registration or refuse registration of any dealer/ trader even after summary enquiry in course of which the affected party shall be given an opportunity to show cause, where it is found that the dealer has procured any forest produce from the primary gatherers at a price less than the minimum procurement price fixed for the relevant year under para-5 of this Resolution or has failed to achieve the minimum target of procurement, or has failed to prescribed returns or has failed to settle the royalty dues in time.

For all NTFP items including MFP, the committee appointed by Govt. in SC & ST Development Department will fix the minimum procurement price each collection season or part thereof. These procurement prices shall be announced every year generally during the month of September and will be given wide publicity decided by Government.

Table.8.5

Sl. No.	Common Trade name of the item of forest produce	Sl. No.	Common Trade name of the item of forest produce
1.	Tamarind, de-seeded Tamarind, Tamarind seed	2.	BanaKolatha
3.	Mahua Flower	4.	Gaba
5.	Hill Broom	6.	Basil
7.	Thorn Broom (Jhadu or GhodaLanji)	8.	Makhana seed
9.	PhulaJhadu	10.	TalaMakhana seed
11.	Broom Grass	12.	Baidanka Seeds
13.	Nux Vomica (Kochila seeds)	14.	Baghanakhi seeds
15.	Harida.	16.	Kamala Gundi Fruit
17.	Bahada	18.	LandaBaguli
19.	Amla	20.	Bela
21.	Soap Nut (RithaPhala)	22.	Chireita (BhuiNeem)
23.	Marking Nut (Bhalia)	24.	Khajuripata
25.	Cleaning Nut (Nirmala)	26.	Rohini Fruit
27.	Honey	28.	Bhusanga Leaves
29.	Siali Leaves	30.	Rasna Root
31.	Sabai Leaves	32.	Phenaphena Fruit
33.	Mango Kernel	34.	Sidha Fruit

35.	Thatch Grass	36.	Sathabari
37.	Simul Cotton	38.	Katha lai
39.	Arrow Root (Palua)	40.	Atundi Lai
41.	Dhatuki Flower	42.	Khelua Lai
43.	Putrani	44.	Suam Lai
45.	Sikakai	46.	Eksira Fruit
47.	Jangal Jada or Gaba	48.	Katha Chhatu (Mushroom)
49.	Palasa Seed	50.	Mat Reed (SapaMasina Grass)
51.	Suaku seed	52.	AnantaMula
53.	IndraJaba (Korai Seed)	54.	AntiaPata
55.	Gila (Seed and Coat)	56.	Nageswar Flower
57.	Benachera	58.	MabjadKendu
59.	Banahaladi	60.	Atundi Fruit

1. Mahula seed
2. Kusum seed
3. Karanja seed
4. Neem seed
5. Char seed
6. Chakunda seed
7. Babul seed
8. Any other items(s) as may be notified by Government.

Items covered under Para-4(b)

1. Sal leaves
2. Sal resin (Jhuna)
3. Gum (Dharua Gum, Babul Gum, Genduli Gum, Bahada Gum, Palas Gum etc.
4. Khaira and Catechu
5. Barks of trees / climbers (Sunari, Lodha, Medha, Phanphania, Arjuna.
6. Roots of Patala Garuda (RS roots)
7. Sandal wood
8. Tassar cocoon
9. Canes.

8.10.4: Government of Odisha, Forest and Environment Department RESOLUTION No. 5F-C-62/2000. 13285/F&E, Dated Bhubaneswar 23.08.2000

In partial modification of this Department Resolution No. 5503/F&E 31.03.2000 in the matter of policy on procurement and trade of Non-Timber produce, the State Government have been pleased to transfer the following seven seed items mentioned in Table No. 8.4 appended to the said Resolution for inclusion of the same as Minor Forest Produce items under Table No. 8.3 to be regulated Gram Panchayats henceforth.

1. Mahua Seed
2. Kusum Seed
3. Karanja Seed
4. Neem Seed
5. Char Seed
6. Chakunda Seed
7. Babul Seed

The guidelines laid down in the aforesaid Resolution for disposal of the above seven oil seed items shall be treated as ineffective.

8.10.5: Government of Odisha, Panchayat Raj (G.P) Department Notification No. SRO No. 934/2002 – Dated Bhubaneswar the 14.11.2002.

Whereas the draft of certain rules which the State Government propose to make in exercise of the powers conferred by clause (W) of sub-Section 44 read with section 150 of the Odisha Gram Panchayat Act' 1964 (Odisha Act 1 of 1965), was published as required by sub-section (1) of section 150 of the said Act in the extraordinary issue No. 1241, dated the 9th August 2002 of the Odisha Gazette under the notification of Government of Odisha in the Panchayati Raj (Gram Panchayat) Department No. 9570/GP dated the 6th July 2002 bearing SRO No. 701/2002 inviting objections and suggestions from all persons likely to be affected thereby till the expiry of a period of thirty days from the date of publication of the same in the Odisha Gazette;

And whereas objections and suggestion received during the period specified above have been duly considered by the State Government.

Now therefore, in exercise of the powers conferred by clause (W) of sub-section (1) of section 44 read with section 150 of the said Act, the State Government do hereby make the following rules, namely:-

8.10.6 Short title and commencement:

1. (1) These rules may be called the Odisha GramPanchayats (Minor Forest Produce Administration) Rules' 2002.

   (2) They shall come into force on the data of their publication in the official Gazette

2. (1) These rules, unless the context otherwise requires –

(i) “Act” means the Odisha GramPanchayat Act’ 1964

(ii) “Form” means a form appended to these rules;

(iii) “Minor Forest Produce” means any or all of the Minor Forest Produces specified in the scheduled appended to these rules;

(iv) “Section” means section of the Act; and

(v) “Trading year” means the seasonal year commencing from the first day of October and completing on the thirtieth day of September of the financial year.

(2) All other words and expression used but not defined in these rules shall be the same meaning as have been respectively assigned to them in the Act

8.10.7 Regulating procurement and trading of minor forest produce.

(1) The Gram Panchayat shall have the power to regulate procurement and Trading of minor forests produce whether produced in Government lands and Forest areas within the limits of the Gram or collected from Reserve Forests brought into the Gram.

(2) In case of the forest areas where Vana Samrakshana Samiti has been the GramPanchayats shall give priority to such Samities and its members in the matter of collection and trading of minor forest produce.

8.10.8 Registration of trades.

(1) Any person intending to procure Minor Forest Produce from the primary gatherers or to trade in minor forest produce within the limits of Gram during any trading year shall register himself as a trader in Minor Forest Produce in theGramPanchayat.

(2) Any person intending to be registered as a trader in minor forest shall apply to the Gram Panchayat in form no. 1. All such applications shall be placed before the Gram Panchayat immediately in its next meeting and with the approval of the GramPanchayatthe Sarpanch shall register the applicant as a trader in minor forest produce for one trading year ending next September and grant a certificate of Registration in Form No. 2 to that effect.

(3) The names of all the traders of minor forest produce registered under sub-rule (2) each year shall be recorded in a permanent Register to be maintained in Form No. 3 in the Gram Panchayat.

(4) At the time of filling of application under sub-rule (2) the applicant shall deposite with the GramPanchayats the required registration fees for each item of Minor Forest Produce applied for.

(5) No application for registration shall be entertained if the required fees been deposited under sub-rule(4).

(6) The fees for registration for every item of Minor Forest produce shall be such as may be notified by Government from time to time.

8.10.9 Fixation of minimum price of the minor forest produce.

(1) In the month of September every year the PanchayatSamiti shall by adopting resolution to that affect, fix-up the minimum price of procurement of different Forest Produces payable to the primary gatherers during the next trading year shall be applicable to all the GramPanchayats within the block.

Provided the Gram Panchayat shall be competent to modify the minimum fixed under this sub-rule of sub-rule(3) by the PanchayatSamiti according to the local need by adopting a resolution to that effect.

(2) The representatives of Divisional Forest Officer, Tribal Development cooperative corporation, Odisha, Forest Development Corporation and Tribalco-operative Marketing Development Federation of India Ltd, shall be invited to the meetings convened under this sub-rule or under sub-rule(3).

(3) The minimum price fixed under sub-rule (1) or sub-rule (3) shall be notified in the notice board of the Panchayat Samiti and copies thereof shall be communicated to the Collector, Divisional Forest Officer, District Panchayat Officer, Sub-Collector and all the GramPanchayats within the Block.

(4) If at any time or in any case it appears to the Collector that a PanchayatSamiti has failed to fix up the minimum price for procurement of Minor Forest produce under sub-rule (1) the Collector shall convene a special meeting of the PanchayatSamiti preferably in the month of October to fix up the minimum price of procurement of minor forest produce.

(5) On receipt of intimation under sub-rule(2) regarding fixation of the minimum procurement price of the Minor Forest Produce fixed under sub-rule(1) or (3) the Gram Panchayat shall place the same before the GramSabha in its next meeting for rectification.

8.10.9. Furnishing of returns.

(1) A trader registered under these rules shall furnish a monthly return of Minor Forest Produce to the Gram Panchayat within fifteen days of the following month in Form No. 3.

(2) Within one month of the closure of the trading year, the dealer shall also file an annual return of the Minor Forest Produce for the trading year in Form No. 3.

(3) The Gram Panchayat shall communicate a copy of the annual return received under sub-rule (2) to the Forest Range Officer concerned.

8.10.10. Cancellation

(1) If at any time or in respect of any case it appears to the Sarpanch, that a trader registered under these rules has failed to-

(i) Pay the minimum price of procurement to the Primary gatherers fixed by the Gram Panchayat in Minor Forest Produce.

(ii) Register himself in the Gram Panchayat, or

(iii) Comply with the conditions of registration, the Sarpanch shall issue a notice to such dealer or person, the case may be to show cause as to why the registration shall not be cancelled or action shall not be taken against him for such illegal trading.

(2) If such trader or person fails to show cause within seven days of receipt of the notice or show cause which is not satisfactory, the Sarpanch shall conduct an inquiry and after giving the traders of the person an opportunity of being heard, place his inquiry report before the Gram Panchayat in its next meeting together with the explanation, if any, received from such trader or person for its decision.

(3) On consideration of the inquiry report of the Sarpanch and the explanation of the trader if the Gram Panchayat are satisfied that circumstances specified that circumstances specified in sub-rule (1) exist in relation to such trader or person, the Gram Panchayat shall resolve to cancel the registration of the dealer for the trading year and may also refuse to register him as trader for the subsequent trading years.

Provided that if the person is engaged in the trading of minor forest produce without registering himself in GramPanchayat the Sarpanch or Secretary of the Gram Panchayat shall lodge necessary complaint before the Divisional Forest Officer concerned for taking appropriate action against the concerned for such illegal trade under the appropriate provisions of law.

(4) In pursuance of the decisions of the Gram Panchayat under sub-rule(3), the Sarpanch / Secretary shall cancel the registration of the trader and in case of the person carrying an illegal trade in Minor Forest produce; the Sarpanch shall forthwith lodge the complaint with the concerned Divisional Forest Officer.

5) If after cancellation of the registration under sub-rule (4) it appears to the Sarpanch / Secretary that the trader is still continuing his trade on the Minor Forest Produce, the Sarpanch / Secretary shall report the matter to the Divisional Forest Officer for taking against the person under the appropriate provisions of law.

6) The item of Minor Forest produce seized by the Divisional Forest Officer the dealer or person shall be sold by public auction and the sale proceeds thereof be deposited under the appropriate head of account as provided the Orissa forest Act.

8.10.11.Appeal.

Any person aggrieved by the decision of the Gram Panchayat under rules may prefer an appeal under section 133 of the Act. The appeal shall be disposed of within thirty days from the date of admission of the appeal.

8.10.12. <u>Deemed traders.</u>

(1) Public Sector undertakings like the Orissa forest Development Corporation, Tribal Development Co-operative Corporation and Tribal Cooperative marketing Development Federation of India Ltd., shall be deemed to have been registered under these rules.

(2) Notwithstanding the relaxation provided under sub-rule (1), the provisions of rule 6,7, and 8 shall apply to these public sector undertakings.

8.10.13 Issuance of instructions.

The Government may, from time to time, issue such instructions, as occasion may require for,-

(a) Smooth implementation of these rules and

(b) Removal of any doubt or difficulties arising out of implementation of these rules.

SCHEDULE

(See rule 2(i)(iii)

LIST OF MINOR FOREST PRODUCES

Table no.8.6

Sl.No	Common Trade name of MFP	Sl.No	Common Trade name of MFP
1	Tamarind/deseeded Tamarind & Seed	35	TalaMakhana seed
2	Mahua Flower	36	Baidanka Seeds
3	Hill Broom	37	Baghanakhi Seeds
4	Thorn Broom (Jhadu or GhodaLanji)	38	Kamala Gundi Fruit.
5	PhulaJhadu.	39	LandaBaguli.
6	Broom Grass	40	Bela.
7	Nux Vomica (Kochilaseeds)	41	Chireita (BhuiNeem)
8	Harida.	42	Khajuripata
9	Bahada.	43	Rohini Fruit
10	Anla	44	Bhursunga Leaves.
11	Soap Nut (RithaPhala)	45	Rasna Root.
12	Marking Nut (Bhalia)	46	Phanaphania Fruit.
13	Cleaning Nut (Nirmala)	47	Sidha Fruit.
14	Honey	48	Sathabari.
15	Siali Leaves.	49	Katha lai
16	Sabai Grass	50	Atundi Lai
17	Mango Kernel	51	Khelua Lai
18	Thatch Grass.	52	Suam Lai
19	Simul Cotton.	53	Eksira Fruit
20	Arrow Root (Palua)	54	Katha Chhatu (Mushroom)
21	Dhatuki Flower.	55	Mat Reed (SapaMasina Grass)
22	Putrani	56	AnantaMula.
23	Sikakai	57	AntiaPata.
24	Jangaljada or Gaba	58	Nageswar Flower
25	Palasa Seed	59	MankadaKendu.
26	Suaku Seed	60	Atundi Fruit.
27	Indrajaba (Korai Seed)	61	Mahula Seeds
28	Gila (Seed and Coat)	62	Kusuma Seeds
29	Benachera.	63	Karanja Seeds

30	Banahaladi.	64	Neem Seeds
31	BanaKolatha.	65	Char Seeds
32	Gaba	66	Chakunda Seeds
33	Basil	67	Babul Seeds
34	Makhana seed	68	Baibiranga Seeds

8.11: Other aspects:

In Kalahandi North Division there are no Grazer community nor the out siders allowed for grazing. However, the villagers are allowed to collect firewood for their domestic needs and allowed to graze their cattle subject to restrictions as may be imposed by the Forest Department from time to time. However, the browsers and grazers are not allowed in the regeneration and plantation areas to encourage regeneration and growth of plantation.

CHAPTER 9

Adequacy of Policy, Legal and Institutional framework

9.1 Existing policy & legal framework and their compliance

9.1.1 Sustainable Forest Management (SFM) implies that forest resources and lands should be used to meet the social, economic, ecological, cultural and spiritual human needs of present and future generation. It should address conflicting needs and demands from various stakeholders and Sustainable Forest Management must feed the goals of forest policies and laws.

A sound and effective legal and regulatory frame work for Sustainable Forest Management is

1. Practicable and flexible
2. Adapted to national development objectives.
3. Strengthen the technological aspects of forest resources management and reduce the merely repressive character of forest policy.

9.1.2 Forest management is now faced with the increasingly complex challenges of reconciling the demands of various users, Govt. wishes to mobilise the economy and employment potential of a renewable resources.

9.1.3 Local people rely on the forest as a major source of fuel, construction material, food, fodder and income and the forest may also constitute the basis of their culture, the public expects the forest to be an important component of a stable and amenable local environment and concerns have recently been raised regarding the role of forests in global climate changes and conservation of biodiversity.

9.1.4 In discussing major policy and legal aspects of Forest Management, it is necessary to clarify the shift from the traditional sustained yield concept to that of the Sustainable Forest Management for multiple benefits. This shift consists in a significant change from production techniques designed to ensure a sustained commodity flow over time to a broadened focus that encompasses socio economic impacts, the participation of rural people, environmental benefits and ecological stability, in a holistic continuity of multiple benefit flows while maintaining the potential to respond to evolving demands. A concern for sustainability was already present in the sustained yield concept but this concern now embraces systematically the economic, social and ecological roles of forests in development.

9.1.5 The fundamental of Sustainable Forest Management are as follows.

a) The underlying concern is sustainable development i.e. securing improved livelihood for present generations while maintaining the forest heritage and its future potential.

b) The stable forest potential within the broader context of rural develop recognizes the strict physical stability in un realization and that, while a balance between forest and other land uses is essential, the dynamics of land use must allow for changes.

c) The stability of forests and the sustainability of their management can only be achieved if management responsibilities are clearly identified and if diverse and possibility

completing interests are reconciled through a democratic process of dialogue and partnership building.

d) Endorse a shift in emphasis towards the environmental protection function of forests.

For a policy framework to provide effective incentives for sustainable forest management, the following aspects are particularly important: -

- Land use policies planning.
- Macroeconomic policies and structural adjustment measures.
- Policy interactions between forestry and related sectors.
- The conservation and wise utilization of forests.
- Forest policy should focus on the behaviour various social groups.
- Forest dwellers and neighbouring communities.
- Fiscal policies for forestry.
- Price policies for all marketed forest goods.

9.1.6. Laws and Regulations to support State Management Policies

Policy development must be followed by legal binding norms. Laws and regulation are thus the result of policy formulation process as well as being the basis for their implementation.

Different Policies which have been implemented during the last plan period with the support of the different laws in vogue this Division are as follows:-

9.1.7. National Forest Policy 1988:

The basic objectives that should govern the National Forest Policy are the following:-

- Maintenance of environmental stability through preservation and, where necessary, restoration of the ecological balance that has been adversely disturbed by serious depletion of the forests of the country.
- Conserving the natural heritage of the country by preserving the remaining natural forests with the vast variety of flora and fauna, which represent the remarkable biological diversity and genetic resources of the country.
- Checking soil erosion and denudation in the catchment areas of rivers, lakes, reservoirs in the interest of soil and water conservation, for mitigating food and droughts and for the retardation of siltation of reservoirs.
- Checking the extension of sand-dunes in the desert areas of Rajasthan and along the coastal tracts.
- Increasingly substantially the forests/tree cover in the country through massive afforestation and social forestry programmes, especially on all denuded, degraded and unproductive lands.

- Meeting the requirements of fuelwood, fodder, minor forest produce and small timber of the rural and tribal population.
- Increasing the productivity of forests to meet essential national needs.
- Encouraging efficient utilisation of forests produce and maximising substitution of wood.
- Creating a massive people's movement with the involvement of women, for achieving these objectives and to minimise pressure on existing forests.

The principal aim of Forest Policy must be to ensure environment stability and maintenance of ecological balance including atmospheric equilibrium which are vital for sustenance of all life forms, human, animal and plant. The derivation of direct economic benefit must be subordinated to this principal aim

9.1.8. Joint Forest Management Resolution 2011:

The primary objective of JFM is to ensure sustainable use of forests to meet local needs equitably while ensuring environmental **sustainability**. The central premise is that local women and men who are dependent on forests at the village level have the greatest stake in sustainable forest management

9.1.9 Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006

9.1.9.1 To address the adverse living conditions of many tribal families living in forests was on account of non-recognition and vesting of pre-existing rights, a landmark legislation viz. Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, has been enacted to recognize and vest the forest rights and occupation of forest land in forest dwelling Scheduled Tribes and other traditional forest dwellers, who have been residing in such forests for generations, but whose rights could not be recorded.

9.1.9.2 This Act not only recognizes the rights to hold and live in the forest land under the individual or common occupation for habitation or for self-cultivation for livelihood, but also grants several other rights to ensure their control over forest resources which, inter-alia, include right of ownership, access to collect, use and dispose of minor forest produce, community rights such as nistar; habitat rights for primitive tribal groups and pre-agricultural communities; right to protect, regenerate or conserve or manage any community forest resource which they have been traditionally protecting and conserving for sustainable use.

9.1.9.3 The Act also provides for diversion of forest land for public utility facilities managed by the Government, such as schools, dispensaries, fair price shops, electricity and telecommunication lines, water tanks, etc. with the recommendation of Gram Sabhas. In addition, several schemes have been implemented by the Ministry of Tribal Affairs for the benefit of tribal people, including those in the forest areas such as "Mechanism for marketing of Minor Forest Produce (MFP) through Minimum Support Price (MSP) and development of Value Chain for MFP". Funds are released out of Special Central Assistance to Tribal Sub Plan for infrastructure work relating to basic services and facilities viz. approach roads, healthcare, primary education, minor irrigation, rainwater harvesting, drinking water, sanitation, community halls, etc. For development of forest villages.

9.1.9.4 Under Section 3(1)(h) of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, the rights of settlement and conversion of all

forest villages, old habitations, un-surveyed villages and other villages in forest, whether recorded, notified, or not, into revenue villages have been recognized as one of the forest rights of forest dwelling Scheduled Tribes and other traditional forest dwellers on all forest lands.

9.1.10 . Mahatma Gandhi National Rural Employment Guarantee Scheme:

9.1.10.1 The Aims and object of MGNREGA is to enhance livelihood security in rural areas by providing at least 100 days of wage employment in a financial year to every household whose adult members volunteer to do unskilled manual work.

9.1.11. National Afforestation Programme

Objectives:

The overall objective of the schemes to develop the forest resources with peoples participation, with focus on improvement in livelihoods of the forest-fringe communities, especially the poor.

NAP Scheme aims to support and accelerate the ongoing process of devolving forest protection, management and development functions to decentralized institutions of Joint Forest Management Committee (JFMC) at the village level, and Forest Development Agency (FDA) at the forest division level.

Components:

1. Financial support under NAP Scheme is available for:

(a) Mobilisation of village JFMC, and Micro-planning in project villages

(b) Afforestation following components:

- ❖ Aided Natural Regeneration
- ❖ Artificial Regeneration
- ❖ Bamboo plantation
- ❖ Cane Plantation
- ❖ Mixed Plantation of trees having MFP & medicinal value
- ❖ Regeneration of perennial herbs & shrubs of medicine value
- ❖ Pasture Development/ Silvi pasture

(c) Soil & Moisture Conservation

(d) Entry Point Activity (for village development; average assistance Rs. 1.6 lakh per village)

(e) Fencing, Monitoring & Evaluation, Training, Awareness raising, Overheads

2. Biological Diversity Act, 2002

An Act to provide for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto.

3. Compensatory Afforestation Fund Management and Planning Authority(CAMPA)

1. Green India Mission
2. The Odisha Forest Act 1972.
3. The Wildlife (Protection) Act 1972
4. The Forest (Conservation) Act 1980
5. The Odisha Timber and other Forest Produce Transit rules 1980
6. The Orissa Kendu Leaves Control to trade Act 1961.

The entire activities prescribed in the last plan have been followed with the help of the above acts and regulations.

9.2. Status of approved working plan and compliance

After needful consideration from all such angles and also in consistent with the provisions of National Working Plan Code 2014 following Working Circles have been constituted for management of forest area covered in this plan duly approved by the Working Plan Committee.

1. Selection Working Circle
2. Rehabilitation Working Circle
3. Plantation Working circle
4. Protection (Over lapping)Working Circle
5. Bamboo (Over lapping)Working Circle
6. N.T.F.P (Overlapping) Working Circle
7. Wildlife (Overlapping) Working Circle
8. Joint Forest Management (Over lapping) Working Circle
9. Soil and water conservation (Over lapping) Working Circle.

Out of aforesaid 9 (nine) working circles, 6 (six) are overlapping working circles. The forest area covered in this plan has been distributed primarily among 3 (three) mandatory working circles i.e. Selection Working Circle, Rehabilitation Working Circle and Plantation Working Circle. Whereas the forest area of all the Overlapping Working Circles are secondarily allotted from the area of main working circles for emphasizing the required functional aspects.

Table no.9.1

Area Allotted to Different Working Circles in Kalahandi North Division (in Ha)									
Working Plan Area	**Selection Working Circle**	**Rehabilitation Working Circle**	**Plantation Working Circle**	**Protection (OL) Working Circle**	**Bamboo (OL) Working Circle**	**NTFP (OL) Working Circle**	**Wildlife (OL) Working Circle**	**JFM (OL) Working Circle**	**Soil & Water Conservation (OL) Circle**
125205.36	**45478.81**	**72593.40**	**7133.15**	**66152.07**	**47895.30**	**125205.36**	**11981 8.97**	**43153.42**	**7975.00**

The NRSA, Hyderabad has computed the yield adopting Smythie's safeguarding formula indicating Coupe wise/ Compartment wise nos. of trees available for harvest per Hecate in Selection Working Circle.

9.3. Number of forest offences

The details of the offence report made pertaining to this Division is given in the table below

Offence report of Kalahandi North Division:

Table no.9.2

Details list of year wise cases booked including wild life cases during 2005-06 to 2020-21 in respect of Kalahandi North Division.							
Sl.No.	**Year**	**Compound Case**	**UD Case**	**Prosecution Case**	**U/S – 56**	**Wildlife**	**Total**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	2005-06	2262	264	55	194	2	2777
2	2006-07	3024	209	24	161	1	3419
3	2007-08	3512	407	30	283	3	4235
4	2008-09	3343	354	65	250	5	4017
5	2009-10	3334	161	30	166	1	3692
6	2010-11	3843	374	57	199	2	4475
7	2011-12	4377	235	51	127	0	4790
8	2012-13	3704	186	46	63	1	4000
9	2013-14	4564	236	77	220	4	5101
10	2014-15	5829	218	37	154	1	6239
11	2015-16	5192	178	44	218	2	5634
12	2016-17	4375	214	38	134	0	4761
13	2017-18	3409	293	50	16	0	3768
14	2018-19	3802	183	34	28	9	4056
15	2019-20	4049	136	13	10	7	4215
16	2020-21	3223	53	8	15	0	3299
TOTAL		**61842**	**3701**	**659**	**2238**	**38**	**68478**

Table no.9.3

Details of Forest Materials seized for the year 2005-06 to 2020-21 in Kalahandi North Division.

Year	Timber (in cum.)	Firewood (in MT)	Bamboo (in Nos.)	Poles (in Nos.)	Charcoal (in Qntl)	Brushwood (in MT)	Sandal wood (in Kg.)	Masani Bark	RedSandal wood	Genduli Gum (in Qntl)
1	2	3	4	5	6	7	8	9	10	11
2005-06	81.1038	62.579	1132	2052	0	2.62	112.5	0	0	0
2006-07	40.8969	69.166	2120	2947	0	1.86	0	0	0	0
2007-08	166.1392	84.305	5032	3709	28.24	0.63	0	0	0	0
2008-09	206.6322	90.879	2103	4309	23.05	0.63	0	0	0	0
2009-10	59.2936	77.585	3856	5193	1.9	0.72	0	0	0	0
2010-11	77.7219	125.424	2204	6311	17.89	1.93	0	0	0	0
2011-12	80.3979	105.315	2703	8911	6.94	0.24	0	0	0	0
2012-13	72.0875	101.073	670	8729	10.08	0.31	0	0	0	0
2013-14	168.0137	116.001	140	8722	10.65	0.45	0	0	0	0
2014-15	152.8017	160.781	2730	13934	0	7.05	0	0	0	0
2015-16	79.5838	202.986	3335	10006	0	1.21	0	0	0	0
2016-17	48.0666	201.96	140	14696	0	1.12	0	0	0	0
2017-18	14.2434	355.60	0	18059	0	0	0	0	0	0
2018-19	14.8506	433.535	85	21375	0	0	0	0	0	2
2019-20	17.370	222.755	280	26777	0	0	0	0	0	0
2020-21	36.1369	87.994	66	12936	-	-	-	-	-	-
TOTAL	**1315.34**	**2497.938**	**26596**	**168666**	**98.75**	**18.77**	**112.5**	**0**	**0**	**2**

Table no.9.4

Details of Vehicles seized for the year 2005-06 to 2020-21 in Kalahandi North Division.

Year	Cycle	Motor Cycle	Cart	Jeep	Tata Ace	Bolero	Bolero maxi Truck	Tractor	Maruti Van	Max Pick Up	Truck	Auto	Rickshaw	3 Wheel Trolley	Boat	Tata Rx	Tata pick up	Tata magic	tata 207	Tata 790	Bus	Thela	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2005-06	173	1	18	1	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	1	**197**
2006-07	136	-	22	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	**160**
2007-08	109	-	9	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	**120**
2008-09	134	1	3	2	-	-	-	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	**143**
2009-10	72	-	4	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	**77**
2010-11	110	-	2	1	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	**117**
2011-12	96	-	2	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	**102**
2012-13	52	-	2	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	**57**
2013-14	116	4	-	-	1	-	-	1	1	3	-	-	-	-	-	-	-	-	-	-	-	-	**126**
2014-15	152	3	-	-	-	-	-	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	**158**
2015-16	206	1	-	-	-	-	-	2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	**215**
2016-17	239	1	2	-	1	3	-	7	1	3	-	-	3	-	-	-	-	-	-	1	-	-	**261**
2017-18	75	-	-	-	-	-	-	1	-	6	-	-	1	-	-	-	-	-	-	-	-	-	**83**
2018-19	57	1	-	-	-	-	-	3	-	9	-	-	-	-	-	-	-	-	-	2	-	-	**72**
2019-20	44	-	-	-	-	1	-	1	-	3	-	2	-	-	-	-	-	-	-	-	1	-	**52**
2020-21	14	1	-	-	-	8	1	1	1	-	-	-	-	-	-	1	1	1	1	-	-	-	**30**
TOTAL	1785	13																					

9.4 Status of research and development

9.4.1 As the scientific practice of forestry in India grows old lots of research have been carried out and are disseminated in the forest to uplift the standard of sustainable management. Some of the latest products of the research and innovation in this field are as follows:-

9.4.1.1 Digitization of Forest Blocks

Digitization and geo-referencing of all forest blocks of the division from 1:50000 scale topo sheet based management maps have been completed. The data has. been rectified over high resolution image of Worldview imagery present at ORSAC through involvement of field staff of each Forest Section of the Division. Preparation of management boundaries of all these forest blocks has also completed and the Shape files of the same has been given to ORSAC which is being done as a part of the Working Plan Exercise at ORSAC.

9.4.1.2 Customized GAGAN Enabled GPS PDA device for Forestry Management:

GAGAN enabled GPS PDAs have been customized as per the need of the Forest Department. The earlier used GPS devices were not customized according to our need and there were no default lock settings for features such as time stamp and datum. Further these also do no direct SBAS GAGAN signal which decreases the accuracy. These devices have been provided to all the Ranges of the Division @ two devices per range. Sixteen numbers of applications developed have few things in common i.e. they are captured in offline (no network). Mode through GPS signal through the device and date is uploaded using internet to the servers after coming back to office from the field using Wi-Fi or Mobile data. All the applications have facilities in which Geo tagged photographs can be taken with Date and Time. In the details shown, one can exactly know the geospatial details such as latitude longitude, District, Circle, Division, Range, Section, Beat etc. The captured details are also shown over Bing maps, Bhuvan maps and Google maps for GIS queries and better analysis. There are also facilities for downloading of KMZ files for opening the data through google earth and shape files for working on GIS software. The system was officially launched in the month of August 2016. The following applications have been developed for utility in the device.

a. **Forest Patrolling:** It is an application in the device which automatically captures the distance covered by the field staff during patrolling in Forest with other information such as speed, time of pause, time of patrol etc.

b. **Incident reporting:** This module is used for reporting on various types of incidents each in the form of various sub-modules namely illicit felling, forest fire, Wild life depredation, Animal death/ Injury reporting, Encroachments, Wildlife sights, Mining/ Quarry, others

c. **Project area:** Delineation of any area as an area of interest for creating plantation or water body or nursery or any other with facilities for calculation of area, excluded area, gross and net areas for field convenience.

d. **Asset Mapper:** Used to map any asset geospatially to project it on map with images. Assets include all types such as building, nurseries, old plantations etc.

e. **Forest Block Survey:** For survey of total or any part of any Forest Block with facilities for calculation of gross area, net area, number of pillars, perimeter of boundary line etc.

f. **Monitoring and Evaluation:** Used to electronically monitor and evaluate any forestry intervention after work.

g. **GIS Query facility:** Facilities on GIS Map to draw an area of interest, calculate its area, measure length etc.

h. **Capturing of Waypoints and track:** Use in capturing way points as per requirement and tracks with facilities of closing tracks and calculation of areas.

i. **Navigation, Compass, Sky plot etc:** Which function as GPS aids and used for tracking and arriving at any desired location.

j. **Android Apps for Forest Monitoring:** Some of the most frequently used applications for field verification have been emulated and released parallel over android mobile system. These applications are Asset Mapping, Forest Patrolling, Camera for photo inventory, Forest fire info, Forest Block survey ,Working Plan, Tree salvage & illicit Felling, Animal Death &Injury, WildlifeDepredation, Forest Right survey and wildlife vulnerability preparation which are not location accuracy intensive. The applications are seamlessly integrated over GPS PDA system to complement and supplement the shortage of GPS PDA devices in the field. In Kalahandi North Division At present about 108 android mobile phones are being registered in the FITGC server and data flow has already been started. The Details of PDA device supplied to the Ranges and Android phones registered are in Table No.9.5 (I)

Table no.9.5

Sl.No.	Name of the Range	No. Of PDA device issued	No. Of Android Phones registered	Remark
1	Bhawanipatna	5	187	The Mobile phones are registered with Division,Range,Section and Beat Jurisdiction.
2	Kegaon	9		
3	Narla	27		
4	M.Rampur	8		
5	Kesinga	50		
	Total	**99**		

Further a Control room is established in the Divisional Forest Office, where 3 no. of Foresters are deployed for monitoring of all the above works done through GPS PDA and Android Phones.

9.4.1.3. Digitization of administrative and management boundaries:

Accurate delineation of Forest Administrative and Management boundaries is very important for Scientific Management of Forests and Wildlife of the State. The Forest IT and Geomatics Centre has taken steps for accurate delineation of administrative and management boundaries by overlaying it with high resolution satellite imagery, digitized revenue cadastral maps and Topo-sheets with assistance of ORSAC.

9.4.1.4. Modernization in Forest Fire Fighting

A standard operating procedure on prevention of forest fire has been developed and implemented in the State to combat forest fire strategically from 2016 – 17.Fire Blowers

have been procured for dispersal of leaves from forest floor to create fire lines for the first time. All the Range Officers, Foresters, Forest Guards have been instructed to make registration of the mobile numbers so as to disseminate the information of Forest Survey of India regarding a quick alert for forest fire. The IT & GIS Cell in the office of the PCCF, Odisha, Aranya Bhawan is facilitating the details of KMZ file relating to geo-coordinates up to Forest Block level of different divisions received from Forest Survey of India for field inspection by Divisional Forest Officers. A Control room in the Divisional Office has established where 3 No. Of Staff are working round the clock for Monitoring of Forest Fire.

9.4.1.5. **Monitoring Mechanism (e-Green Watch)**

Web based monitoring portal 'e-Green Watch' has been launched for monitoring and evaluation of all activities taken up under CAMPA in the state. The process of uploading the geo-references of all activities undertaken on to the portal has already been initiated and likely to be completed soon for their monitoring and evaluation by Forest Survey of India (FSI) and National Informatics Centre (NIC).

9.5 Human resource capacity building efforts.

The Forest staff need to be both technically trained and extension oriented. The training of the initial recruits as well as orientation training for in-service personnel are extremely important. Updating knowledge on new emerging topics of different aspects of forestry, forest management and forest research is essential to augment the efficiency and skill of forestry personnel. During the last plan period many such training have been imparted to the front line staff of this division is as follows in table No. 9.5 (II).

Table No. 9.5(II).

Human Resource Capacity Building efforts.

Year	Name of Training	Range	No. of Trainee	Theme
2007-08	General Refresher Training	Kesinga	1	
2008-09	Referesher Course Training	Divisional Forest Office Kalahandi North Division	1	
2008-09	Basic computer app Training	Divisional Forest Office Kalahandi North Division	1	
2008-09	General Refresher Training	Divisional Forest Office Kalahandi North Division	1	
2008-09	Referesher Course Training	Divisional Forest Office Kalahandi North Division	1	
2009-10	Referesher Course Training	Divisional Forest Office Kalahandi North Division	1	
2009-10	Referesher Course Training	Divisional Forest Office Kalahandi North Division	2	
2009-10	Referesher Course Training	Divisional Forest Office Kalahandi North Division	1	

2009-10	Referesher Course Training	Divisional Forest Office Kalahandi North Division	1	
2009-10	Referesher Course Training	Divisional Forest Office Kalahandi North Division	1	
2010-11	Referesher Course Training	Kegaon	1	
2010-11	Short term Refresher Course	Divisional Forest Office Kalahandi North Division	4	
2010-11	Referesher Course Training	Divisional Forest Office Kalahandi North Division	1	
2010-11	Basic computer app Training	Divisional Forest Office Kalahandi North Division	1	
2010-11	Referesher Course A.C.F/ Foresters	Divisional Forest Office Kalahandi North Division	1	
2010-11	General Refresher Training	Divisional Forest Office Kalahandi North Division	2	
2010-11	Referesher Course Training	Divisional Forest Office Kalahandi North Division	1	
2011-12	Training Regarding Tranquilization	Narla, M.Rampur	2	
2011-12	5- Day Training Corse on Rural Development	Bhawanipatna	1	
2011-12	One week General Refresher course Training		2	
2011-12	Basic computer app Training		1	
2011-12	Two week Refresher Course Training	Kesinga, Kegaon	2	
2011-12	Training field staff regarding tranquilization	Narla	1	
V APO 2011-12 2011-12 to 2013-14 (up to August 13)	Theme based Training - Division Level	Bhawanipatna	--	
	Theme based Training - Range Level	Bhawanipatna	--	Computer
		M.Rampur	--	
		Narla	--	
		Kesinga	--	
		Kegaon	--	
	Training & Awareness Meetings	Bhawanipatna	--	Awareness Meeting
		M.Rampur	--	
		Narla	--	
		Kesinga	--	
		Kegaon	--	
2012-13	One week General Refresher course Training	--	4	

2012-13	Basic computer app Training	--	1	
2012-13	Two week Refresher Course Training	--	1	
2013-14	Tranquilization Training	Kesinga, M.Rampur	3	
2013-14	Two week Refresher Course Training	--	2	
2013-14	Two week Refresher Course Training	--	1	
2013-14	General Refresher Training	--	1	
2013-14	Referesher Course Training	--	1	
2013-14	HRD Programme	--	3	
2013-14	Referesher Course Training	--	1	
2013-14	HRD Programme	--	1	
2013-14	Two week Refresher Course Training	--	1	
2013-14	Two week Refresher Course Training	--	1	
2013-14	Forest Fire Rist Mitigation & Management	--	1	
2013-14	Training cum workshop for inservice forest officers	--	1	
2013-14	Two week Refresher Course Training	--	1	
2013-14	Training on use of handled GPS	--	5	
APO 2012-13 (2013-14 & 2014-15) (Up to June 14)	Arm Training	Bhawanipatna	--	Arm Training
	Computer Training	Bhawanipatna	--	Computer Training
	Regional Consultative Workshop	Bhawanipatna	--	
	Forest Law Training	Bhawanipatna	--	Forest Law Training
		M.Rampur	--	
		Narla	--	
		Kesinga	--	
		Kegaon	--	
	Technical Support Training	Bhawanipatna	--	Technical Support Training
		M.Rampur	--	
		Narla	--	
		Kesinga	--	
		Kegaon	--	
2014-15	HRD Remote sensing & GIS	--	11	
2014-15	Bio-Diversity conservation	--	1	
2014-15	One week BCA course	--	1	
2014-15	General Refresher Training	--	2	
2014-15	HRD Programme BCA Course	--	1	

2014-15	Orentation Training Programme in OCAMP module by OMEGA	--	1	
2014-15	Two week Refresher Course Training	--	1	
2014-15	Two week Refresher Course Training	--	1	
2014-15	Two week Refresher Course Training	--	1	
2014-15	Two week Refresher Course Training	--	1	
APO 2013-14 (2014-15 & 2015-16) (up to Sept. 15)	Divisional level Training	Bhawanipatna	--	Arm Training
	Divisional level Training	Bhawanipatna	--	Computer Training
	Range level Training	Bhawanipatna	--	Forest Law
		M.Rampur	--	
		Narla	--	
		Kesinga	--	
		Kegaon	--	
APO 2013-14 2014-15 & 2015-16 (up to Sept. 15)	Range level Training	Bhawanipatna	--	Forestry Operation
		M.Rampur	--	
		Narla	--	
		Kesinga	--	
		Kegaon	--	
	Range level Training	Bhawanipatna	--	Conservation & Protection
		M.Rampur	--	
		Narla	--	
		Kesinga	--	
		Kegaon	--	
APO 2013-14	Regional level Workshop (Circle level)	--	--	
2015-16	Development of in house IT prof. Resources for Forest Division Odisha	--	2	
2015-16	HRD Programme	--	1	
2015-16	General Refresher Training	--	2	
2015-16	Training of forest personnel on GPS PDA Devices	--	2	
APO 2014-15 (2015-16 & 2016-17) (up to June 16)	Training on Control & Prevention of Forest Fire	Narla	--	Control & Prevention of Forest Fire
2016-17	General Refresher Training	--	2	

2016-17	Basic computer app Training	--	1	
2016-17	General Refresher Training	--	2	
2016-17	General Refresher Training	--	1	
2016-17	Basic computer app Training	--	1	
APO 2016-17 (2017-18 & 2018-19) (up to August 18) 2016-17	Circle Level Training Programme for Front Line Staff Short term refresher course	Bhawanipatna	- 1	
2016-17	Human resource development program	--	1	
2017-18	Tranquilization technique and operation of various strategic project	--	2	
2017-18	Refresher Training course	--	1	
2017-18	Refresher Training course	--	3	
2017-18	Induction Course	--	6	
2017-18	Short term Refresher	--	--	
2017-18	Human resources development program	--	--	
2017-18	Induction Course	--	2	
2017-18	Induction Course	--	-	
2018-19	Induction Course	--	1	
2018-19	Induction Course	--	2	
2018-19	Induction Course	--	-	
2018-19	Induction Course	--	-	
2018-19	Induction Course	--	-	
2017-18	Induction Course	--	6	
2017-18	Induction Course	--	2	
2018-19	Nomination/Invitation participation in training programs under model training courses (MTCS) at IACR-IISWC,RC, Sunabeda, Koraput, Odisha	--	2	
2018-19	WL Protection Act. 1972 & other relevant act for WL offences	--	1	
2018-19	Forest releventActs,Rules& implementation	--	1	
2018-19	Plant taxonomy & identification	--	1	

2018-19	Forest fire & prevention measures	--	1	
2018-19	Forest fire disaster preparedness	--	1	
2018-19	Odisha Forest Act. 1972 & other relevant Acts for forest offences	--	1	
2018-19	VSS & people's participation in forest management	--	1	
2018-19	Survey and mapping of forest resources	--	1	
2018-19	Survey and mapping of forest resources	--	1	
2018-19	Forest management, forest fire protection and preparation measures	--	1	
2018-19	SMC measures	--	1	
2018-19	Detection, enquiry& prepare of prosecution report in forest offence cases	--	1	
2018-19	Odisha Forest Act. 1972 & other relevant Acts for forest offences	--	1	
	Refresher case of Forestry	--	-	
	SMC measures	--	1	
	GPS-GIS application in forestry	--	1	
	Forest fire and disaster preparedness	--	1	
2018-19	Refresher course on Forestry	--	-	
2018-19	Forest fire protection and preparation measures	--	-	
2018-19	Plant taxonomy & identification	--	-	
2018-19	Forest fire protection and prevention measures	--	1	
2018-19	Forest fire and disaster prepardness	--		
2019-20	Odisha Forest Act. 1972 & other relevant Acts for forest offences	--	1	
2019-20	Nursery techniques	--		
2019-20	Training program for tranquilization technique	--	1	
2019-20	Organizing one week thematic course for the frontline staff	--	1	
2019-20	Refresher Training course	--	1	
2020-21	Induction Course	--	1	
2020-21	Induction Course	--	1	

2020-21	Induction Course	--	1	

Ministerial Staff

Table no 9.5(III)

Year	Name of Training	No. of Trainee	Theme
2007-08	--	--	--
2008-09	--	--	--
2009-10	--	--	--
2010-11	--	--	--
2011-12	Short term course on computer application	1	--
2012-13	--	--	--
2013-14	Short term course on computer application	1	--
2014-15	Short term course on computer application	1	--
2015-16	--	--	--
2016-17	--	--	--
2017-18	Account training for the year 2017-18	1	--
2017-18	Account training for the year 2017-18	1	--
2018-19	Account training for the year 2018-19	1	--
2018-19	Account training for the year 2018-19	1	--
2018-19	Account training for the year 2018-19	1	--
2019-20	--	--	--
2020-21	--	--	--

9.6 Forest Resource Accounting

9.6.1 The forests have various protective, productive, regulative and accessory functions. They generate a large variety of goods and services which are beneficial to the mankind. The economic valuation of these services is related to the individual's willingness to pay for these services. However, the willingness to pay is determined by various motivations which may range from self-interest to concern for future generations and concern for environment and other living beings. These values can be classified as

Goods: Direct usage of services - consumptive and non-consumptive usage, e.g. timber, fuel wood, tourism;

Services: Indirect usage - watersheds, groundwater recharge, oxygen production, carbon storage, etc.However, the economic valuation of loss of forests is hampered by following constraints:

9.6.2 DIRECT COSTS

Standing trees are valued at their present market value. Since, there is a marked prize size relationship, young trees are undervalued; Value of climber, creepers and medicinal plants is overlooked.

Price of forest land is not taken into account; and Compensatory afforestation costs are misleading because a mixed forest cannot always be created within a 50 year accounting period.

9.6.3 INDIRECT COSTS

Intangible costs and benefits are difficult to quantify; Undervaluation of goods consumed by poor are undervalued; Cost of extinction of species are disregarded; Costs of disregarding habitat carrying capacity are not taken into account.The various goods and services provided by the forests and their economic importance can be discussed as below

9.6.4 WOOD RESOURCE FROM FORESTS:

The forest trees play the most important role in all the functions of forests.The trees are felled for using their wood as timber and firewood. The wood of the trees in forests is very hard, strong, durable and hence many species of trees are preferred for their wood as it is used as timber wood. Broadly two types of timber uses are distinguished - commercial and non-commercial. Since the timber is marketed, its valuation is easy to derive. The timber wood is mainly used for construction of houses, doors, windows, planks, boats, furniture, railway sleepers, carriages, carts, cabinets, etc. Trees like *Tectonagrandis* (Teak), *Shorearobusta* (Sal), *Mangiferaindica* (Mango), *Dalbergiasisoo* (Shisham), *Azadirachtaindica*(Neem) and many other trees are have lot of economic importance because of the various uses of their wood. The rural people and the tribal people are also mainly dependent upon the wood obtained from forests as a source of fuel. They collect the firewood from the forests and burn it to cook food, heating water, providing light and heat, prepare charcoal, etc. The use of wood as fuel is a very old practice and almost dates back to establishment of the civilizations. Though this practice has almost died down in urban civilizations, but for people living in villages and rural areas, firewood is most easy, cheap and readily available source of energy.

9.6.5 NON-TIMBER FOREST PRODUCTS (NTFP):

Though the forests serve as a storehouse of wood used for various purposes, but there are also equally important non-wood products that are obtained from the forests. The botanical and other natural products, other than timber extracted from the forest system are referred to as Non-Timber Forest Products (NTFPs). These are also referred as all the resources/products that may be extracted from forest ecosystem and are utilized within the household or are marketed or have social, cultural or religious significance (FAO, 1990). These include plants and plant materials used for food, fuel, storage and fodder, medicine, cottage and wrapping materials, biochemical, as well as animals, birds, reptiles and fishes, for food and feather. Unlike timber-based products, these products come from variety of sources like: fruits and vegetables to eat, leaves and twigs for decoration, flowers for various purposes, herbal medicines from different plant parts, wood carvings and decorations, etc. People have been using NTFPs since many years and it forms an important part of local and regional economics. The values of NTFPs per hectare when calculated might not be very high, but these products are of critical importance as source of income and employment for rural people living around the forest regions, especially when crop growing season is not there. The NTFPs can be broadly classified into following types:

9.6.5.1 EDIBLES - The fruits, nuts and berries collected from various plants are eaten widely. Fruit of *Artocarpus heterophyllus* is cooked as food while fruits of *Emblicaofficinalis, Mangiferaindica, Zizifuszuzuba* are used as pickles. Wild herbs and spices are also used in various food items. The mushrooms which have a large diversity form an important and integral part of edible items obtained from the forests. They are a rich source of protein and have also been found to possess health benefits. Ecosystem people collect many different wild mushrooms from the forests and use it as edible items.

9.6.5.2 MEDICINAL PRODUCTS - Plants have been exploited on a large scale for their medicinal properties since ages. The early humans were totally dependent upon the plants for healing and curing of various disorders. Today also in villages and other rural areas around the forests, the plants growing in forests serve as medicines. Every village has a 'Vaidya' or a Herbal Practitioner who has knowledge of regional medicinal plants and treats the patients. The production of herbal drugs has also increased manifold in last few years. Many ethno medicinal studies have proved the importance of medicinal plants present in forests and now these plants have been explored and exploited for preparation of various medicines. The herbal drug is a multi-million industry and is totally dependent upon the plants obtained in forests for their medicinal benefits. Medicinal plants like *Adhatodavasica, Ficusreligiosa, Emblicaofficinalis, Vitexnegundo, Terminaliachebula, Rawolfiaserpentina, Asparagus racemosus,Acoruscalamus,* etc. are widely used as ethno medicine by various tribes and rural people across different parts of Western Ghats.

9.6.5.3 ANIMAL PRODUCTS - A large amount of honey is also extracted from forests by rural people from honeybees in the forests and it is sold in the market too. Honey is one of most important NTFP consumed by rural and urban people and is of great economic value. It has lots of medicinal values as well as is used in preparation of variety of food items. Besides this, many insects are also collected from forests and used as food delicacies. The collection of Lac from Lac insects is also an important NTFP and has a good price in the market. The earthworms are used as bait for catching fishes and also used in agricultural fields. Lot of fishes are obtained from rivers in forests which are eaten as food and also used for obtaining some oil, making delicacies like pickles and sold in market.

9.6.5.4 MISCELLANOUS - The wild flowers are used for decorations and some of them are offered to the Gods. The ferns are also of great ornamental importance and are cultivated for their beautiful appearance. The wood is used to make beautiful carvings and decorations and sold in market. The fibers obtained from bamboo, wild jute, coconut are used for stuffing things, preparing baskets, covering rooftops, etc. The dyes are also obtained from various plants e.g. orange colour dye is obtained from *Buteamonosperma* and blue colour dye is obtained from *Indigofera* sp. Gums and resins are also obtained from bark of some trees, which are sold in markets. Research has also proved that many plants in the forests have potential of producing hydrocarbons and biodiesel which can be used as substitute for fossil fuels. Many plants are also used in rites, rituals and magico-beliefs while many animals and trees are also worshipped.

9.6.6 ECOTOURISM AND RECREATIONAL VALUES OF FORESTS -

The Ecotourism is a much growing and popular activity and is a potential valuable usage of forests without extracting anything from it. However, care should be taken that such tourism activities are sustainable and do not harm the ecological carrying capacities of the forests. The ecotourism is also economically very useful to the local people living in and around the forest areas as they can gain net profit by participating and assisting in such activities. However, the values of ecotourism vary from place to place and the extent of attraction in the forests.

9.6.6.1 BIODIVERSITY:

The forests of the world harbour very large and complex biological species diversity and hence, it becomes a complex thing to assign a specific definition or explanation for it. The species diversity is an indicator for biological diversity and the species richness increases as we move from the poles to the equatorial region. The tropical forests are the richest source of biodiversity and are probably thought of containing more than half of world's biodiversity. However, there is a confusion between the values of biological resources and values of biodiversity. The values of biodiversity refer to values of the information and insurance. The existing species are results of long evolution processes that have been occurring over several billion years. Since these evolutionary processes have occurred in different environmental conditions, the existing species contains a significant stock of information related to these processes and environment. There also occurs interactions between different species in nature. The information stored by this diversity can be used develop goods and services for benefit of mankind. However, only a part of valuable information is known and there is a lot of potential still left in forests to harness more valuable information.

9.6.6.2 ENVIRONMENTAL AND ECOLOGICAL IMPORTANCE OF FORESTS:

Many studies have suggested enormous potential function of forests to store carbon. However, there is also a distinction between the carbon stored in a standing forest and carbon sequestered in a growing forest. The former case has a high economic value associated with it and is greatly affected if the forests get burned or are cleared for some purpose. The forests which are preserved and not under threat have carbon storage values but are often not realized, while if a forest which is under some kind of threat in coming future, its carbon storage value can be realized through protective measures. However, when forest land conversion takes place, the entire carbon storage values are lost. A number of studies have been taken place and are going on to record the carbon stored and sequestered in different types of forests. Today, immense potential can be observed for development of carbon trading markets in view of increasing climate change and this would be having a great economic significance.

One more important role of the forest trees is soil binding and prevention of soil erosion. The roots of the trees bind the soil together by great force and prevent it from running - off in conditions of high rains. The roots of trees are also a preferred place for living of many important fungi and bacteria. These microbes benefit the trees as well as enrich the soil by their degradation activities. The leaves and twigs of plants and trees when they detach and fall on the ground, the micro flora of soil starts degrading it and converts it into humus which enriches

the forest soil. This humus provides nutrition for germinating plants and serve as substratum for mushrooms and ferns and also give shelter to large number of insects. Forests are also the houses of large number of insects, animals, birds and plants ranging from cryptogams to angiosperms. The forests also play a key role in hydrological functions and water cycle. Large amount of trees ensures higher transpiration rates and greater aerodynamic roughness of forests compared to agriculture and pasture lands ensures increased humidity and moisture convergence leading to increased probabilities of cloud formation and rainfall generation (André et.al., 1989). Forests have both tangible and intangible effects which should be covered in any kind of impact assessment. But it is not easy to assign economic values to intangible effects. There have also been some attempts to quantify and evaluate the environmental costs of loss of forests. The notional values 84 assigned to some parameters contributing to ecological balance (Das, 1980) are as follows:-

Environmental benefits derived from a medium sized tree of 50 tonnes during its 50 years life span, excluding values of timber, fruit and flowers is shown in table No. 9.6

Table Showing Environmental Benefits of a Single Tree

Table No. 9.6

Sl No	Environmental Benefits of Tree	Single tree	
		Rs in lakh	Rs in lakh/ha
01	Oxygen production	2.50	22.50
02	Conservation of Animal protein	0.20	1.80
03	Control of soil erosion	2.50	22.50
04	Recycling of water and control of humidity	3.00	27.00
05	Shelter for birds, squirrels, insects, plants	2.50	22.50
06	Control of air pollution	5.00	45.00
	Total	**15.70**	**141.30**

9.7. Budgetary allocations to the forestry sector

Budget provision made during the last plan period which have been efficiently utilized are given **Table no. 9.7**

Five year Plan	Year	Revenue collected in Lakh	Expenditure incurred in Lakh		
			Non-Plan	Plan	Total
11th FYP (2007-12)	2007-18	62.06065	50.59000	119.33365	169.92365
	2008-19	82.40263	32.83200	132.73270	165.56470
	2009-10	19.20961	35.57800	243.91530	279.49330
	2010-11	46.64690	36.28450	198.84302	235.12752
	2011-12	148.59321	24.59910	124.68660	167.28570
Total		**358.91300**	**179.88360**	**837.51127**	**1017.39487**
12th FYP 2012-17	2012-13	94.31439	37.22270	373.25429	410.47699
	2013-14	69.02518	198.97634	283.73744	482.71378
	2014-15	57.59922	182.55280	333.45962	516.01242
	2015-16	118.07192	41.42000	458.93030	500.35030
	2016-17	86.85937	32.83200	392.94285	425.77485
Total		**425.87008**	**493.00384**	**1842.32450**	**2335.32834**
13th FYP 2017-22	2017-18	67.87378	27.13296	147.68989	174.82285
	2018-19	83.55990	45.59200	731.74927	777.34127
	2019-20	53.81469	50.33100	686.34715	736.67815
Total		**205.24837**	**123.05596**	**1565.78631**	**1688.84227**

9.8. Existence of monitoring, assessment and reporting mechanism: -

9.8.1 The monitoring and evaluation mechanism have been followed according to the prescription made in the working plan code and reported in the prescribed Control Forms.

9.8.1.1 CONTROL FORMS

9.8.1.1 General prescriptions of the working plan should be written in such a way that it is quite clear as to what constitutes a performance norm for each prescription. The Control forms provide for performance parameters /targets /annotations /norms for all prescriptions /suggestions for every working circle will be monitored, assessed and reported on annual basis during the period of the working plan. Control forms will be prepared to include each of these prescriptions.

9.8.1.2 Draft set of control forms to monitor all the important operations prescribed and suggested in working plan such as different types of fellings, thinnings, plantation works, subsidiary silvicultural operations, rotational loppings, soil and water conservation works, controlled /regulated grazing, fire protection, NTFP harvesting practices, bamboo harvesting, boundary pillars, spring recharge, lantana /weed eradication, reducing degradation, removal of firewood, etc., These forms will then be submitted to the CCF/APCCF (WP) for approval and preparation of final sets. There shall be separate set of control forms for each working circle. In this regard, help will be taken from suggested reporting formats for sustainable management of forests.

9.8.1.3 Three permanent sets of control forms will be prepared in the office of the Divisional Forest Officer and one set each is to be sent to CCF/APCCF (WP), head, territorial circle.

Following are examples of control forms: -

a) Silvicultural Control Form – For the control of all silvicultural operations such as fellings, subsidiary cultural operations, cleanings, thinning, burnings, etc., which will be prescribed or suggested to be carried out in a given management unit for the duration of the working plan.

SILVICULTURAL CONTROL FORM

Working Circle – periodic block		Felling series Cutting Section	Localities prescribed Localities suggested				Coupe control form		
			As carried out				Coupe No.		Page
Prescription in brief	W.P. Para	Year Due	Year	Block/ Comptt.	Area	Volume	Excess (+) or deficit (-)		Remarks and Sanction
							Area	Volume	
1	2	3	4	5	6	7	8	9	10

b) Felling Control Form – For controlling and maintaining the record of all trees marked for felling and trees retained. –

FELLING CONTROL FORM

Working Circle – periodic block		Felling series Cutting Section		Localities prescribed Localities suggested (with areas)				Coupe Control Form	
Range wise	Area	Species	Diameter class	Trees marked	Unit facto	Volume marked	Trees retained	Coupe No.	Page
								% Trees retained	Remarks
1	2	3	4	5	6	7	8	9	10

c) NTFP Control Form – For controlling and maintaining a record of all NTFPs harvest so as to make the removal/harvest of NTFPs remain sustainable.

NTFP CONTROL FORM

Working Circle – periodic block		Felling series – Cutting-section – collection area	Localities prescribed Localities suggested					Coupe control form		
			As Carried out					Coupe No.		Page
Prescription and brief	Working Plan para	Year due	Year	Block/ Comptt.	Area	Name of NTFP with scientific name of species	Vol./ Qty.	Excess (+) or deficit(-) Area	Vol./ Qty.	Remarks and Sanction
1	2	3	4	5	6	7	8	9	10	11

9.9. Public awareness and education

There are so many international, national and state level events are observed in this division so as to raise public awareness about values, importance and significance of natural resources like forests, wildlife, wetland, etc. Few of them are listed below:

9.9.1 World Wetlands Day

World Wetland Day is celebrated every year on February 2nd to raise awareness about the value of wetlands for humanity and the planet. This day marks the date of the adoption of the Convention on Wetlands on 2 February 1971, in the Iranain city of Ramsar on the shores of the Caspian Sea. The day was celebrated for the first time in 1997 and has grown remarkably since then.

Each year, Government agencies, non-Governmental organizations, and groups of citizens at all levels of the community, have taken advantage of the opportunity to undertake actions aimed at raising public awareness on wetland values and benefits. Some of these benefits include: biologically diverse ecosystems that provide habitat for many species, serve

as buffers on the coast against storms and flooding, and naturally filter water by breaking down or transforming harmful pollutants.

9.9.2 World Forestry Day

The World Forestry Day was established in the year 1971 at the 23rd General Assembly of European Confederation of Agriculture. And it was decided to be celebrated as an annual event celebration on 21st of March by the United Nations Food and Agriculture Organization. World Forestry Day was established in the conference of States members of Food and Agriculture Organization by voting to establish it. This event was originated in a well planned manner to give support in contributing towards the public awareness about the importance of the forests.

World Forestry Day or International Day of Forests is celebrated worldwide every year on 21st of March at the international level in order to increase the public awareness among communities about the values, significance and contributions of the forests to balance the life cycle on the earth.

Similarly, the day has been observed and celebrated every year in the Division with an aim to meet the above objectives.

9.9.3 World Earth Day

World Earth Day is celebrated every year as an annual event by the people all across the world on 22nd of April in order to increase the awareness among people about the environment safety as well as to demonstrate the environmental protection measures. For the first time, the world earth day was celebrated in the year 1970 and henceforth was celebrated annually on a global basis by almost 192 countries.

World Earth day is regularly being celebrated since 2010 in this Division to create environmental awareness amongst the people.

9.9.4 World Environment Day

World environment day is a day especially celebrated to know and solve all the environmental issues. It is also known as the environment Day. Eco Day or WED. It is a great annual even focusing on the issues of environment and trying to solve them completely. It is being celebrated for years worldwide with lots of creative activities and enthusiasm to bring positive changes in the environment. It aims to protect the natural environment forever on the earth for the healthy possibility of life.

It is celebrated annually on 5th of June since 1973 however declared in 1972 by the United Nations General Assembly during the opening of conference on Human Environment to raise the global awareness about the declining condition of the environment as well as tell people about the importance of healthy and green environment on earth. The annual celebration of it depends on the particular theme on the year (declared by the UN) which focuses on implementing some new and effective plans to save the environment.

9.9.5 World Day to Combat Desertification and Drought

The World Day to Combat Desertification and Drought is observed on 17thJune every year to promote public awareness of international efforts to combat desertification. The day is a unique moment to remind everyone that land degradation neutrality is achievable through problem-solving, strong community involvement and co-operation at all levels.Similarly, this Division has also been celebrating this day successfully every year to create awareness among the people.

9.9.6 Vana Mahotsava

Vana Mahotsava is an annual week long tree planting festival being celebrated in India, observed in the month of July. The day is dedicated to the public awareness on three key strategies: increasing tree cover by plantation of more and more trees, protection and conservation of existing forests withthe support of community to improve biodiversity.

This was started in the 1950s immediately after independence by the then Union Minister for Agriculture, Mr. K.M. Munshi and since then it has been an annual event.

In this Division VanaMahotsava has always been celebrated right from the grass roots level in the first week of July ensuring greater participation in awareness among the people for receiving overall positive impact on forests and their biodiversity.

9.9.7 World Elephant Day

This day highlights about the importance of conservation and protection of elephants from the numerous threats they face.

On august 12, 2012, the inaugural World Elephant Day brought about the attention towards the existing plight of Asian and African elephants. There is not an iota of doubt that the elephant is loved, revered and respected by people and cultures around the world, yet we balance on the brink of seeing the last of this magnificent creature.

The escalation of poaching, habitat loss, human-elephant conflict and mistreatment in captivity are just some of the innumerable threats to both the African and the Asian elephants. In this connection, almost all the elephant conservation organizations are primarily focussing on better protection for wild elephants, conserving elephant habitats, improving enforcement policies to prevent the illegal poaching and trade of ivory, better treatment for captive elephants and, when appropriate, reintroducing captive elephants into natural, protected sanctuaries.

Elephants are noting but one more natural resource that is being caught up in human greed on the one hand and human need on the other.

9.9.8 Wildlife Week

Wildlife Week is celebrated in the Division in the month of October from 2nd to 8th October every year with the view to preserve the fauna of India. It was first started in the year 1952 with the great vision of saving the life of animals by taking some critical steps. The Indian Government has established an Indian Board of Wild Life which works to improve the awareness as well as the consciousness of the Indian people towards the wildlife preservation.

Wildlife week is being celebrated every year in this Division with much gusto to create awareness among the public. The above dates & purpose informed to public & educational institutions by leaf load speakers in public place /markets etc Banners /posters hoardings are given for protection of forest & wild life from fire etc Drawing /Essay / Debate competitions have been organised among the school students within the ambit of the Division.

9.10 Adequate manpower in forest Division: -

The details of sanctioned, permanent, temporary, and seasonal posts of Kalahandi North Forest Division as on 01.01.2021 are as follows.

Table no.9.8

Sl. No.	Post Name	Sanctioned Strength	Men in Position	Vacancy
1	Divisional Forest Officer(Territorial)	1	1	0
2	Asst. Conservator of Forests, (Affn)	1	1	0
3	Asst. Conservator of Forests, (Enf& Crime Control)	1	0	1
4	Asst. Conservator of Forests, (Admn)	1	1	0
5	Forest Ranger (Affn)	1	1	0
6	Forest Ranger (Enf.)	1	0	1
7	Forest Ranger (Range)	5	3	2
8	Dy,. Ranger (Spl Striking Force)	1	0	1
9	Dy. Ranger (2nd Officer)	6	2	4
10	Forester (Enf.)	5	5	0
11	Forester (Affn.)	5	5	0
12	Forester (Ch.)	2	2	0
13	Forester (Section)	20	20	0
14	Forester (new section proposed for creation)	2	2	0
15	Forester (Spl.)	1	1	0
16	Forester (Consolodation)	1	1	0
17	Forester (For O/o RCCF)	2	2	0
18	Forester (O/o WPO)	6	6	0
19	F.G (Beat)	94	75	19
20	F.G (Ch.)	10	0	10
21	F.G (Enf/Affn)	6	6	0
22	F.G (For O/o RCCF)	10	1	9
23	F.G (For O/o WPO)	4	2	2
24	Head Clerk	1	1	0
25	Junior Accountant	7	6	1
26	Junior Clerk	9	1	8
27	Junior Steno	1	0	1
28	Driver (L.V)	2	0	2
29	Dak Runner	2	2	0
30	Chainman	1	1	0
31	Amin	1	0	1
32	Sleeper watcher	2	2	0
Total		**212**	**150**	**62**

CHAPTER-10

FIVE-YEAR PLANS

10.1 Planning in India

10.1.1 After the independence from the colonial rule of British during 1947, the makers of the destiny of the nation thought for all round development in social and economical sectors in a proper and planned manner. To accomplish this task planning commission was constituted during 1950. The main objective of the planning in India derives from Directive Principles of State Policy enshrined in the constitution. The welfare of all sections of people is the basic element in formulating the plan process.

10.1.2 Planning Process

10.1.2.1 Planning is an organised and coordinated effort to achieve certain self-define objectives within a fixed time frame through optimum utilisation of communities resource so as to promote its general well being. The two main constituents of the concept of planning are (i) a system of ends to be pursued and (ii) knowledge as to the available resources and their optimum allocations. So the main ingredients of planning are the following.

(a) Formulation of objectives to be achieved within define time frame.

(b) Fixation of targets and priorities for different sectors.

(c) Mobilisation of required financial and other resources for execution of the plan.

(d) Identifying the executing agency.

(e) Setting of assessment machinery.

10.1.2.2 So in nutshell, planning is a systematic arrangement of conceiving, initiating, controlling and regulating various developmental activities by a central authority to achieve definite targets and goals.

10.1.3 Planning Commission & National Development Council

India being a union of states has the responsibility of economic planning both for its Central and State Government. After formation of planning commission in March 1950, the necessity of a coordinating agency between the planning commission and various states was felt. Thus the National Development Council was set up by Government of India on 6th August 1952. The planning was drafted by planning commission but the same is finally approved by National Development Council. The planning commission is headed by Prime Minister of India as Chairman having other members. Similarly the National Development Council is also headed by Prime Minister of India but the Chief Ministers of all the States of Indian Union are its member alongwith others.

10.2 Five Year Plan

10.2.1 Since the time frame is fixed five years for accomplishing the objectives, it is popularly known as Five Year Plan. The salient features of five year plan is both central plan and state plans are prepared separately. Further five separate annual plan component are also prepared. This is suitable for realizing the definite target and also making necessary

modification as and when required. Opinion of various tiers of government, institutions, experts, public are taken for formulating the plan. India having a mixed economy, the outlay for public sector and private sector are earmarked separately in each plan. Attainment of higher rate of economic growth, reducing economic inequalities, developing various infrastructures etc. are the major objectives. In short, growth with social justice is the main theme of planning. In the mean while ten five year plans have already been implemented. The synopsis of individual five year plans are furnished in succeeding paras.

10.3 First Five-Year Plan (1951-52 to 1955-56)

10.3.1 This is the first five year plan of independent India. The objective of this plan was mainly to correct the disequilibrium in economy caused by World War-II and partition of the pre-independence India and to initiate the process of all-round balanced development. So it was aimed at removing food crisis and shortage of raw material, to develop economic and social infrastructures such as roads, railway, irrigation and power projects. Efforts have also been made to lay a foundation for future development economy and to attain social justice. The budget allocation in this plan was 9.6 crores for forest development. The forest under private ownership was brought to the fold of state control. Welfare of the tribals mostly the forest dwellers have been given importance. The Indian Board of Wildlife was constituted in 1952 during this plan period for preservation of wildlife of the nation. Similarly the first forest policy of independent India was formulated in 1952.

10.4 Second Five Year Plan (1956-57 to 1960-61)

10.4.1 This plan was a bit more ambitious and boulder in comparison to the first plan. It emphasized on industrial progress alongwith rural development to achieve socialistic pattern of society. Development of basic and heavy industries was given much priority for creation of large employment opportunities. In view of formulation of forest policy in 1952, some emphasis was given on the proposal of the said policy during second plan. These are as under.

(a) Plantation of species of commercial and industrial value.

(b) Afforestation and improvement of poorer areas in forest and extension forestry.

(c) Promotion methods for increase production and availability of timer and other forest produce.

(d) Conservation of wildlife.

(e) Forest research and technical personnel.

10.4.2 The Central Government paid special attention to research education and training of technical personnel while State Government carried out other developmental projects. The total outlay for forest sector in this plan was about 27 crores.

10.5 Third Five Year Plan (1961-62 to 1965-66)

10.5.1 This plan accorded greatest importance to the achievement of a balanced regional development. So importance was given for development of agriculture and rapid industrialization. To achieve self-sufficiency in food grain was given much priority. While promoting the agriculture, it was necessary to develop the forests since forest is the foster

mother of agriculture. This plan had an outlay of 51 crores for various development programmer in forestry sector by the states. Few important ones are the following.

(a) Village and extension forestry.

(b) Large-scale programme for raising economic plantation.

(c) Development of minor forest produce and increase production of other forest produce.

(d) Survey and demarcation of forestland.

(e) Improvement of forest roads.

(f) Establishment of timber treatment plants.

10.6 Annual Plan (1966-67 to 1968-69)

10.6.1 Though the third plan was started with much hope but a number of difficulties faced mainly due to financial crisis. Foreign Exchange Crisis, Adverse weather, Chinese Aggression and Indo-Pakistan War are some important factors in creating bottlenecks for smooth implementation of third plan. So the fourth plan could not be launched immediately for which Annual Plans were carried out for three years. The strategy adopted in these annual plans was to eliminate the stresses and strains arising out of unforeseen events of third plan and also to secure a reasonable growth rate without creating any additional inflationary pressures in the economy. Greater emphasis was laid on full utilisation of existing install capacity of the industries. Simultaneously priorities were accorded to various social service schemes related to education, scientific research, family planning, water supply and sanitation. Forestry technique on harvesting and raising profitable plantation technique were adopted in these annual plans.

10.7 Fourth Five Year Plan (1969-70 to 1973-74)

10.7.1 The strategy adopted during the annual plans was continued in the fourth plan. It gave highest priority to agricultural and irrigation development with a special emphasis to support small farmer. It also aimed at increasing exports and reducing imports thereby gradually phase out the reliance foreign aid. In the forestry sector the increase of productivity, forest development vis-à-vis forest based industry and to develop forest to support a rural economy are the area of focus in this plan period. The production form forest in India per annum was estimated at 0.53 cubic meters as against the world average of 2 cubic meters. It was required to be enhanced. Large scale plantation of valuable quick growing species of both economic and industrial importance were required to meet the long term need of both agriculture and industrial sector. Management of national parks and sanctuaries were given much importance for ecological conservation. The financial achievement upto the end of fourth plan period is furnished in the following table.

Table no.10.1

Sl. No.	Name of the Scheme	1st plan 1951-56	2nd Plan 1956-61	3rd Plan 1961-66	Annual Plan 1966-69	Total 1951-69	4th Plan 1969-74
I. State schemes and schemes sponsored by Central Government							
1	Economic Plantation for industrial and commercial uses.	111.91	486.88	1163.16	934.01	2695.96	2014.99

2	Rehabilitation of degraded forests	16.42	199.23	380.58	229.84	826.07	322.17
3	Farm forestry cum Fuel wood plantation	-	-	109.54	151.93	261.47	361.25
4	Development of MinotForest Products	-	-	151.74	148.09	299.83	107.44
5	Communication	42.27	247.65	555.98	335.50	1181.40	553.01
6	Consolidation of forests (Including Survey and Demarcation)	14.63	61.83	199.30	194.19	469.95	367.75
7	Development of pastures and grazing	-	-	52.93	47.13	100.06	77.82
8	Nature conservation	-	99.52	175.07	125.32	399.91	445.32
9	Training of staff	41.75	74.00	178.43	136.49	430.67	147.83
10	Timber operation	-	-	285.77	149.97	532.74	554.19
11	Forest protection	-	-	107.03	62.79	169.82	115.25
12	Working Plan Organisation	-	-	121.58	100.90	222.45	132.91
13	Forest Research	-	-	25.61	46.64	72.25	156.27
14	Publicity	-	-	14.03	13.44	27.47	47.41
15	Establishment of statistical cell and planning cell	-	-	-	13.55	13.55	38.63
16	Construction of building	43.97	115.27	247.40	149.94	556.58	405.99
17	Amenities of staff and labour	-	-	48.05	14.63	62.68	31.10
18	Intensification of Management	-	-	-	20.57	20.57	29.43
19	Cultural operation	-	-	-	42.89	42.89	71.33
20	Plantation of quick growing species	-	-	406.48	239.45	1345.93	1685.59
21	Forest Resources	-	-	32.11	34.47	66.58	101.92
22	Misc. schemes NES	478.83	738.28	248.54	95.47	156.12	821.79
II. Central Schemes							
1	Forest Research Institute and Colleges	-	41.85	17.39	27.45	86.69	101.29
2	Delhi Zoological Park	-	56.20	34.67	6.43	97.30	22.75
3	Pre-investment Survey of Forest Resources	-	-	8.17	71.54	79.71	143.14
4	Logging Training Project	-	-	3.06	16.19	19.25	35.44
5	Scheme wise details not available	100.00	-	-	-	100.00	6.85
	Total: -	**849.78**	**2120.71**	**4566.59**	**4205.82**	**11742.90**	**8898.89**

(Source: Report of the National Commission on Agriculture 1976 Part-IX, Forest)

10.7.2 It is observed that much emphasis was given on economic plantation for meeting the demand of industry and other commercial sector. Another notable investment is on farm forestry cum fuel wood plantation to meet the demand of local people but the quantum of expenditure is comparatively less.

10.8 Fifth Five Year Plan (1974-75 to 1978-79)

10.8.1 The strategy of the fifth plan was the eradication of poverty with attainment of economic self-reliance. On agricultural sector attains were made to boost the production through adoption of modern technique and multiple cropping programme while on industrial front production of mass consumption goods and agro based industries were encouraged. Minimum Needs Programme was launched for the first time during this plan period to provide a minimum level of social consumption to all sections of the people throughout the country. In forestry sector emphasis was given to take up a dynamic programme of production forestry. Creation of large-scale man made forests with the assistance of institutional financing were taken up. The most notable programme was the social forestry and economic plantation. Forestry with the participation of the local people was the call of that period. It was aimed to provide fuel and fodder to the local people by raising plantation mostly on non-forestland thereby reducing pressure on natural forest. Project Tiger was also taken up to enhance the tiger population. On the whole the production from the forestry sector was aimed for boosting in order to cater the growing demand of both local people and industrial sector. Though the fifth plan was scheduled to complete by 1978-79, it was terminated at the end of March 1978 i.e. a year ahead of its full term due to change of government at centre.

10.9 Sixth Five Year Plan (1980-81 to 1984-85)

10.9.1 After two years the sixth plan came for implementation by the new government at center. The strategy adopted in this plan was to launch a direct attack on the problems of unemployment, under employment and massive low-end poverty. Special emphasis was given for employment in rural areas and unorganized sector. Increase in production through proper land water management was of prime concern. Ecological security and preservation of genetic and bio-diversity was given due importance. While social forestry continued to gain momentum, the conservation of forest was also highlighted. The Forest Conservation Act 1980 was came into force during this plan period. Indiscriminate diversion of forestland for non-forestry purpose was controlled. The Orissa Social Forestry Project with the financial assistance from SIDA (Swedes International Development Agency) was launched during this plan period.

10.10 Seventh Five Year Plan (1985-86 to 1989-90)

10.10.1 This plan was mainly devoted to carry on ceaseless works on food and productivity. Generation of employment for maximum utilisation of human resource and solving the problem of unemployment through agricultural and industry sector was prime concern. It also laid emphasis in decentralised planning for ensuring full participation of the local people. In forest and environment sector, land reclamation, afforestation, cleaning of water bodies etc. were prioritized to restore the degraded eco-system. Sustainable development in harmony with environment was felt. Emphasis on research and training was given. The Botanical Survey of India and Geological Survey of India were reoriented to harmonize the Man and Biosphere Programme. The implementation of biosphere programme was started during this plan period with the Department of Environment as the nodal agency.

Social Forestry Project was also expanded to Kalahandi in its second phase during this plan period. Rural fuel wood plantation was in operation in 157 districts of the country in this plan to address the fuel wood crisis areas. National Wasteland Development Board was also established to formulate prospective plans for management and development of wasteland in the country. The National Forest Policy was revised during 1988.

10.11 Annual Plans (1990-91 to 1991-92)

10.11.1 After completion of the seventh plan by March 1990, the eighth plan could not be started immediately due to change of government at centre for which two annual plans were implemented.

10.12 Eighth Five Year Plan (1992-93 to 1996-97)

10.12.1 This plan has main focus on human development. The major thrust areas are expansion of employment opportunity; a faster and geographically diversified growth in agriculture, development of infrastructure and marketing arrangement for agro based and allied activities, development of wasteland crop cultivation and forestry etc. The emphasis in forest sector were the following.

(a) To regenerate and restore the degraded eco-system.
(b) To increase productivity and generate employment.
(c) Protection of natural environment and ensure intergraded coordination between conservation of nature and sustainable use of natural resources.

10.12.2 The bio-diversity conservation was initiated during 1991-92. Considerable attention was given for pollution control during this plan period. The National Wasteland Development Board was bifurcated during 1992 and National Afforestation & Eco-Development Board was created. The investment made so far in forestry sector starting from first plan period till eighth period was reviewed and it is observed that the investment is less than 1% of the plan outlay as revealed from the following table.

Table no.10.2

Plan Year	Total Plan		Agriculture Plan		Forest & Wildlife Plan		Forest Outlay
	Outlay	Actual	Outlay	Actual	Outlay	Actual	% Total
1st Plan1951-56	23780	19600	3540	2990	76	85	0.32
2nd Plan1956-61	45000	46720	5100	5490	212	212	0.47
3rd Plan1961-66	75000	85770	10860	10890	458	459	0.61
Annual Plan1966-69	66250	66225	10370	11070	419	421	0.63
4th Plan1969-74	159020	157790	27280	23200	894	938	0.56
5th Plan1974-79	393220	394260	47660	48650	2088	2088	0.53
Annual Plan1979-80	126010	121760	18150	19960	683	683	0.54
6th Plan1980-85	975000	1092920	125390	152010	6924	NA	0.71

7th Plan1985-90	1800000	2187300	222330	315090	18519	19759	1.09
Annual Plan1990-91	647170	583690	91420	85420	6299	5764	0.97
Annual Plan 1991-92	723170	647500	100580	90600	7831	7153	1.08
8th Plan1992-97	4341000	-	636420	-	40820	39930	0.94
9th Plan1997-02	-	-	-	-	68228	-	-
Total up to 8th Exp.	**9374620**	**-**	**1299100**	**-**	**85295**	**-**	**0.90**

(Source: Developing Wastelands, Ministry of Environment and Forests)

10.13 Ninth Five Year Plan (1997-98 to 2001-02)

10.13.1 The important objectives of this plan are the following.

(a) Accelerating the rate of economic growth with stable price.
(b) Priority to agriculture on rural development to generate productive employment and to eradicate poverty.
(c) Food and nutritional security for all particularly the vulnerable sections of the society.
(d) Ensuring environmental sustainability of development process through social mobilization and participation of people at all level.
(e) Providing basis minimum service of safe drinking water, primary health care, universal primary education and connectivity to all in a time bound manner.
(f) Strengthening efforts to build self-reliance.

10.13.2 In nutshell growth with equity is the main strategy of this plan. During this plan period, the Long Term Action Plan (LTAP) was started for forest dominated KBK region of the State. Kalahandi is one of the district under KBK region. Adequate funding was provided for afforestation to increase the forest cover as a drought proofing measure. In addition food security was provided to the vulnerable sections particularly the forest dwellers through creation of employment opportunity. The allocation to the forestry sector of the district was enhanced.

10.14 Tenth Five Year Plan (2002-03 to 2006-07)

10.14.1 This was approved by National Development Council on 1st September 2001 setting the growth rate at 8%. Focus on private sector growth, elimination of poverty and the strategies to improve the national growth were important thrust areas. The free economy creating a conducive atmosphere for huge foreign investment was given top most priority. While gearing up the growth and development, due care to safeguard the environment was emphasised. Social service like education, drinking water facilities, basic sanitation were also included in the plan objectives. In forestry sector the important objectives are as given below.

(a) To address the livelihood needs of the forest fringe villagers.
(b) JFM to be accelerated for regeneration of degraded forest.

(c) Developmental work to be implemented alongwith forestry operations through Forest Development Agency under National Afforestation Programme of National Afforestation & Eco-Development Board.
(d) Conservation and protection of medicinal plants and promotion of bio-diesel plantation like Jatropha, Pongamia etc.
(e) Watershed approach to develop and maintain forest cover.
(f) Last but not least to bring 1/3rd of total geographical area under forest cover.

10.14.2 During this plan period both National Afforestation Programme and LTAP/RLTAP (Revised Long Term Action Plan) have been implemented in Kalahandi. In addition other programmes under 12th Finance Commission Grant have also been implemented. The investment in forestry sector in this district has been substantially increased during this plan period.

10.15 Eleventh Five Year Plan (2007-08 to 2011-12)

The Eleventh Five Year Plan was approved by the National Development Council on 19th December 2007.The monitorable target of the Eleventh Five Year Plan is to increase the forest cover by 5% of the total geographical area. This would require an additional cover of about 16 million ha. Out of this, 5 million ha could be brought under the tree cover within the recorded forest area while the rest would be added through agro forestry and social forestry. However, the policy target is to have 33% forest and tree cover ultimately which will require additional coverage of about 10–11 million ha. This will have to be done mainly outside the recorded forest area.In this plan period investment in forestry and wildlife sector so far, including State and Central plan, has been about 1% of the total plan outlay. The National Forestry Commission (2006) has recommended an investment of 2.5% of the plan outlay in the forestry and wildlife sector.

10.15.1 Objective of the Eleventh Five Year Plan.

Enhancing the green cover will be integrated with livelihood opportunities. Suitable policy and legal measures for this purpose will back-up the programmatic interventions. The Tenth Plan strived to universalize Joint Forest Management (JFM). The resolve of the Eleventh Plan is to strengthen the regime by incorporating the concepts of harvesting, value addition, and facilitated marketing of forest produce. The ultimate aim of the State forest management will be to achieve optimally productive forests capable of providing timber and non-timber products, apart from the ecological services without unnatural change in the composition of the forests. The forests in the vicinity of habitations will be managed for livelihood needs of the neighbouring populations. For this, adequate support and empowerment will be ensured.The harvest of forest products will be governed by the availability. However, strategy for widening the production base beyond forests will be pursued to ensure sustainable use of the land resources of the country. Protected areas will be integrated with the sensitivities of local populations and protected area management planning will be based on the optimization of local community resources and the use of noninvasive benefits from the PAs directed towards the neighboring population, on village eco-development principles.Support systems for attaining these results will be evolved in terms of

R&D, capacity building, and strong information system for long as well as short term objective monitoring.

10.15.2. During this plan period National AfforestationProgramme,CAMPA (Compensatory Afforestation Fund Management And Planning Authority) and FDA have been implemented in KalahandiNorth Forest Division. In addition other programmessuch as under 13th Finance commission Grant also been implemented. The investment in forestry sector in this division has been substantially increased during this plan period.

Table no.10.3

Tenth plan outlays / Expenditure Year wise of the Ministry

(Rs. In crore)

Sl. No	Sector	Tenth plan Outlay	2002-2003		2003-2004		2004-2005		2005-2006		2006-2007	
			Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure
1	Environment	1200	229	206.32	211.17	160.03	215.92	157.09	209.41	185.65	212.54	208.64
3	National River Conservation Directorate	1670	295	295.59	294.76	244.59	364.2	322.86	425	364.01	435	339.19
4	Forestry & Wildlife	1600	265	244.29	255.57	223.86	288.63	243.34	260.65	258.6	316.39	310.39
5	National Afforestation and Eco-development Board	1300	201	187.27	230	250.48	267.25	263.57	320.85	273.69	356	315.8
6	Animal Welfare	175	0	14.56	18.5	11.9	14	11.94	19	15.97	19	20.74
TOTAL		**5945**	**990**	**948.03**	**1010**	**890.86**	**1150**	**998.8**	**1234.91**	**1097.92**	**1338.93**	**1194.76**

Forestry sector is one of the largest employers in remote and rural areas primarily inhabited by tribals and provides a major source of livelihood through non timber forest produce like Kendu leaves etc.

10.15.3 AFFORESTATION

Forests play a critical role in environment protection in two ways. They help to absorb carbon dioxide in the atmosphere thus mitigating the buildup of GHGs. They also help to cope with water stress by trapping water that would otherwise run off and this is especially so when forests exist in upper ends of catchments. Under CAMPA the plantation programme both block and RDF have been taken up since this plan period. Due to such efforts the forest cover of the district has been increased to the extent of 1.8 sq. Kms as per the FSI report 2019 from 2017.The strengthening of VSS was also taken up during last plan period. These VSS

have contributed a lot in rendering the protection to forest and ultimately rejuvenating the degraded forest thereby bringing more area under forest cover. This concept of Joint Forest Management are found to be effective.

10.16 Twelveth Five Year Plan (2012-13 to 2016-2017)

The Twelveth Five Year Plan was approved by the National Development Council on 15thseptember 2012. The main vision of the 12th five year plan isManaging Environment, Forests, Wildlife and challenges due to Climate Change for faster and equitable growth, where ecological security for sustainability and inclusiveness is restored, equity in access to all environmental goods and ecosystem services is assured through institutionalization of people's participation. Another target of this vision is for future in which the nation takes pride in the quality of its environment, forests, richness of its biodiversity, and efforts by the State and its people to protect, expand and enrich it, for intra and inter-generational equity and welfare of the local and global community.

10.16.1 Goal, Monitoring and target

(i) Greening 5 million ha under Green India Mission including 1.5 million ha of degraded lands, Afforestation and eco-restorationof 0.9 million ha of ecologically sensitive areas.

(ii) Technology-based monitoring of forest cover, biodiversity and growing stock including change-monitoring on periodical basis through dedicated satellite by 2017 and establishment of open web-based National Forestry and Environmental Information system for research and public accessibility by 2015.

(iii) Engagement of Village Green Guards/Community Foresters for every Joint Forest Management (JFM) village by 2016.

(iv) Establish forestry seed bank in forest circles and Model Nursery in every district with information on public portal by2014.

(v) Improve forest productivity, production and sustainable management of biodiversity (equity in access to benefit sharing with local people).

(vi) Restoration and intensification of forest-rangelands/grazing-land management and establish community grazing land around forest fringe villages.

(vii) Build capacity of Village Forest Committees/Joint Forestry Management Committees for management of forest resources including ecotourism.

(viii) Revive seed orchards and silviculture plots for various forest types of the country, as well as, for enlisted species under Minor Forest Produce/Non Timber Forest Produce (MFP/NTFP) including genetic improvement of and establishment of clonal orchards.

10.16.2 AFFORESTATION

One of the keys to success of this mission will beits ability to establish convergence with other flagship programmes like MGNREGA, CompensatoryAfforestation Fund Management and PlanningAuthority (CAMPA) and National Action Plan(NAP); and effecting regulatory improvements thathelp local communities access and benefit from localforest resources. Synchronized implementation ofMGNREGA and GIM, and unlocking of CAMPAfunds for this purpose will not only enhance theavailability of resources, but also achieve stronger inter-sectoral linkages. Due to such efforts the forest cover of the district has been increased to the extent of 1322.36 sq.kms as per the FSI report 2017.

10.16.3 Plan Expenditure in Kalahandi North Division

The plan expenditure of the division from seventh plan onwards have been furnished in the following table.

Table no.10.4

Five year Plan	Year	Revenue collected in Lakh	Expenditure incurred in Lakh		
			Non-Plan	Plan	Total
11th FYP(2007-12)	2007-18	62.06065	50.59000	119.33365	169.92365
	2008-19	82.40263	32.83200	132.73270	165.56470
	2009-10	19.20961	35.57800	243.91530	279.49330
	2010-11	46.64690	36.28450	198.84302	235.12752
	2011-12	148.59321	24.59910	124.68660	167.28570
Total		**358.91300**	**179.88360**	**837.51127**	**1017.39487**
12th FYP 2012-17	2012-13	94.31439	37.22270	373.25429	410.47699
	2013-14	69.02518	198.97634	283.73744	482.71378
	2014-15	57.59922	182.55280	333.45962	516.01242
	2015-16	118.07192	41.42000	458.93030	500.35030
	2016-17	86.85937	32.83200	392.94285	425.77485
Total		**425.87008**	**493.00384**	**1842.32450**	**2335.32834**
13th FYP 2017-22	2017-18	67.87378	27.13296	147.68989	174.82285
	2018-19	83.55990	45.59200	731.74927	777.34127
	2019-20	53.81469	50.33100	686.34715	736.67815
Total		**205.24837**	**123.05596**	**1565.78631**	**1688.84227**

10.17 Feedback for Future Management:

As narrated above as well as in the earlier chapters strengthening of VSS through vesting more power on them and dragging them towards the mainstream of nature management by adopting Community Based Ecotourism coupled with the rehabilitation of degraded forest to improve the stand quality and quantity. Special focus should be given to make the forest free from invasive weeds, along with the efforts to achieve zero tolerance to the carbon release by combating forest fire and enhance the capacity of the carbon sequestration in the Forest Carbon Pool. Intensification of protection of wildlife and biodiversity to be considered as a top priority along with the use of new technology to enhance the water regime of the forest.

CHAPTER 11

PAST SYSTEM OF MANAGEMENT

Bhonsalas of Nagpur in the middle of 18th century A.D. In 1803, although British defeated the Marhattas, coastal region came under their rule. Probably Kalahandi still remained under the Marhattas. Subsequently in 1806 Patna-Sambalpur region was again restored to Raghujee Bhonsala-II. Although after 3rd British Marhatta was in 1818, Marhatta became subordinate of British power. Kalahandi continued to be under Marhattas till 1853, when the NagpurState lapsed to the British crown as Raghujee-II died without an heir.

11.1.6 Till the year 1850 Junagarh was the capital of this ex-state. Due to outbreak of Cholera epidemic which carried away a Prince from Raj family, the capital was shifted to a small fort at Bhandeswari. Subsequently, the name was changed to Bhawanipatna after the name of local deity Bhawanishankar. It is said that Satidaha system was in Vague in old age. At that time the ex-state Kalahandi was called as Karona. It was subsequently created as a feudatory state during the rule of Phate Narayan Deo son of Jugsar Deom the 26th Nagbhansi Raja. In 1881 on the death of Udit Pratap Deo there was dispute over the succession to the thrown of Kalahandi. Taking this opportunity the Khonds broke into a rebellion and there was heavy bloodshed. A place near Ghodabandh village inside Singhari RF which is called as Melghara stands testimony to this incident. This rebellion is known as Kandhamolli. After the murder of Raja Raghukesari Deo, Kalahandi the state came under court of wards which was released in 1917 and Raja Brajamohan Deo, was vested with power of ruler and on the 16thOctober 1926 British Government conferred on Raja Brajamohan Deo the title of Maharaja as personal distinction.

11.1.7 In 1905 Sambalpur including some feudatory states including Kalahandi were amalgamated with Orissa Division of Bengal. In the year 1947 the Eastern States Union Constitution Act was adopted Kalahandi with 24 princely States of Orissa and 14 of Chhatisgarh formed a federation styled as "Eastern States Union". On the 14th December 1947 Maharaja of Kalahandi signed an instrument of accession of KalahandiState to Orissa province with effect from 1st January 1948. Since then it is part of OrissaState.

11.1.8 History of Forest Management:

11.1.8.1 The first effort for forest conservancy was initiated by Commissioner of Chhatisgarh (most probably Sri Andrew Fraser) who sometimes towards the end of 80's of 19th century drew attention to the necessary for reservation of the some of the forests and advise to reserve the forest as well as wastelands. But it was not materialised. Between the years 1897 and 1905 the princely state was under the direct administration of the government. At that time Rai Bahadur Rama Krishna Mishra was the superintendent of the State. According to Dr. H.F.Mooney small-scattered blocks of forests were actually demarcated probably during the year 1902. The Superintendent acting under the orders of political agent Mr L.C.Cobdens Ramsay, C.I.E., I.C.S., had taken steps to get a number of forest blocks

demarcated and 73 forest blocks covering 95137 ha. had been declared as ReserveForest by 1908. During this period from 1897 to 1905, forest Daroga (equivalent to Ranger) was working under the superintendent to look after the management of forests. He was assisted by Assistant Daroga, Dafadar and some watchers. The post of Agency Forest Officer was created in 1910and subsequently the said post was designated at Forest Advisor to Eastern State Agencies. The Agency Forest Officer was advising the states for proper management of the forests. Mr. A.M.Grieve, IFS who was the first Agency Forest Officer visited Kalahandi in the year 1912. After his visit a systematic arrangement was made for forest administration in Kalahandi.

11.1.8.2 As per his proposals in 1915 the post of the State Forest Officer was created. Khalsa portion was divided into 6 ranges and each Zamindary was formed a Range. Six Ranges of Khalsa portion was subsequently reduced to five. Two surveyors were posted to Survey the reserved forests. Strength of protective staff was created. Forest Officer was under the Dewan. In the Central Khalsa, by 1912, shortage of firewood was already felt. In order to meet the demand Mr. Grieve suggested opening of some coupes in Dhanupanchan, Chura, Kumkot, Ghana, Pariagarh, Garjan, Kandul, Dhangda Dhangdi, Nangalguda, Kamei in a portion in Sahajkhol and Bazargarh Blocks, which was approved by the political agent. First coupe was opened in 1914-15 in Dhanupanchan, Panigaon and Pariagarh blocks. Rotation was fixed at 20 years and it was called as Nistar Working Circle. Silvicultural system was coppice. Then Mr. G.N.Cooper, IFS who succeeded Mr. Grieve took keen interest in this system with the intension to allow the forest to be exploited in a systematic manner. In this system, a coupe was opened till all the available materials were removed. Then the adjoining coupe was being opened. As the system did not work satisfactorily it was dispensed with. It was also though to work the coupes departmentally which was not done. In two years i.e. 1917-18 and 1918-19, half a dozen Nistar coupes were worked and subsequently abandoned. The British prescription for working of tropical forests with 20 years rotation under coppice silvicultural system was wrong prescription. The primary objective was to meet the demand of firewood of central Khalsa without any conservation principle.

11.1.8.3 After the inspection of political agent Mr.Cobden Ramsay, M/S Bengal Timber Trading Co. Ltd. was granted the lease for 20 years from the date of commencement of work to extract Railway Sleepers from the forest of Khalsaand Madanpur Rampur, Lanjigarh, Karlapat, Thuamul Rampur and Kasipur Zamindary. The lease was granted in 1908. Due to lack of communication, the lessee held the lease by paying retaining fee till 1920. In 1920, the company started work in Madanpur Rampur, in 1927 in Lanjigarh, in Karlapat in 1937, in Kasipur in 1935 and finally in 1938 in Thuamul Rampur Zamindary. For sleeper extraction no silvicultural rules were laid down. The exploitable girth was above 5’0”. Only sound trees were being removed because in the interest of business felling of such trees were profitable. Transport difficulty was very acute at that time. There was no Railway line till 1932 when Raipur-Vizayanagaram railway line was established. All the Railway Sleepers were being floated in the river to Cuttack. The company first started work in Taparang block then followed by Sunamukhi and Benaguda block. Urladani and Dengen blocks were taken up last but work continued in Urladani block till the end of lease period. After seeing the

work of sleeper operation for a coupe of years, in 1923 it was suggested that instead of allowing the sound trees only to be extracted improvement feeling should be carried but in the worked out areas to create favourable condition for the future crop but this was hardly implemented. After first visit of Dr. Mooney in 1924, in 1926 enumeration of Sal was done in the reserved and unreserved forest of Lanjigarh Zamindary. On the basis of result of enumeration exploitable girth was fixed at 5 feet with a felling cycle of 15 years. Yield was prescribed at 2000 trees per annum. Basing on that the B.T.T.C. started work in Dhepguda block and area adjoining to that in 1927, a much better area than Madanpur Rampur forests where per tree 2 to 3 B.C. Sleeper were converted as against 5 nos. In this area it was found by Dr. Mooney in 1929 that Sal root fungus attack was more in Jhimiri Block. So he suggested to extend the sleeper operation in this are including rural block. But this was not done because of inaccessibility. Rather work was confined in Kidding and Sargiguda i.e. near Lanjigarh Road railway station.

11.1.8.4 Sleeper operation was carried out in 1938 in Bori block and in Raul in 1939. In Thuamul Rampur Kasipur and Khalsa areas, sleeper work was very sketchy, probably due to non-availability of exploitable Sal trees in concentrated patches. The unreserved forests supported better trees where the work was more concentrated. After the expiry of sleeper operation, through lease of M/S B.T.T.C. fresh tenders was called for a period of 5 years lease. Sri D.N.Dutta's offer was considered better and the lease was granted to him. As usual, Sal trees of and above 5 feet girth were marked for sleeper conversion. In 1938-39 enumeration of Sal land Bija trees were carried out in Taparang, Urladani, Benaguda, Sunamukhi, Dengen, Sadel 'A' and 'B', Turchi and Jarka forest blocks for trees 50 cm. d.b.h. According to that, taking 20 years a felling cycle, annual yield was fixed at 3000 trees. Accordingly 3000 trees were being marked in the reserved forest blocks and 1000 trees in unreserved forests. The lease was extended by two years upto 1947. Besides for war purposes in 1941, 5000 more trees were marked for felling. After the expiry of lease of Sri D.N.Dutta, quasi-departmental work under an organisation called Kalahandi Development Syndicate was started. After the merger of the State with Indian Union the sleeper conversion was stopped within a year after working out the marked trees from Sunamukhi block. The objective of the prescription was to meet the demand for railway sleepers only.

11.1.8.5 In 1895 Sandal was first introduced in Kalahandi Division in Thuamul Rampur. It was felled by the Zamindar in 1918 in its very early stage. Though some natural regeneration through dispersal of seeds by birds had taken place but same has been reduced due to biotic interference. This is the general description about the forest management of Kalahandi. The systematic management started through prescription of the working plan from the year 1934-35. Till date five working plans had been prescribed and implemented. The synopsis of each plan alongwith its result is described individually as under.

11.2 Past system of management & their result

11.2.1 Mr. F.A.Hart's Plan (1934-35 to 1944-45)

11.2.1.1 Though Dr.H.F.Mooney started the first Working Plan of Khalsa Portion in 1930, but the same was completed by Mr. Hart during 1931. This working Plan

was given effect from the year 1934-35. Earlier the forests were being worked on adhoc prescriptions mainly for exploitation. The prescriptions of the plan were simple. The plan was mainly intended to give a start to systematic exploitation in the accessible forests and to give rest to some area. At that time due to lack of trained staff intricate silvicultural system and management practices were thought to be too difficult to introduce. Equally there was not much interest in the forest from the administration side.

Under this plan, three Working Circles were formed i.e.

(i) Coppice with Standard Working Circle.
(ii) Miscellaneous Working Circle.
(iii) Bamboo Working Circle.

11.2.1.2 Coppice with Standard Working Circle

This Working Circle consisted of the blocks, which are easily accessible. It was mainly intended to regulate the irregular exploitation by the tenants for their own use. Three different rotations ranging from 25 to 50 year were prescribed. But majority of areas were kept under 40 years rotation. Thinning and cultural operations were prescribed.

11.2.1.3 Miscellaneous Working Circle

More inaccessible areas were kept under this Working Circle. The area under this Working Circle was larger than the coppice with standard Working Circle. No exploitation was prescribed for this Working Circle. Only climber cutting and fire protection was prescribed. The intention was to give rest to these areas and allow exploitation under coppice with standard or any of the high forest system afterwards reviewing the position after 30 years.

11.2.1.4 Bamboo Working Circle

Some of the bamboo bearing the blocks such as Chura ‘A’, Chura ‘B’ Pordhar and parts of Brahmani Block were put under this Working Circle. This overlapped the areas under coppice with standard and Miscellaneous Working Circle. A three years cutting cycle was prescribed. Simple cutting rules were prescribed. This was done only to regulate the exploitation by the local people.

11.2.1.5 Results of the prescription

Neither prescription nor its implementation was proper. Prescription of coppice working circle with 40 years rotation was not appropriate. Subsidiary silvicultural operation based on conservation principle was lacking. Soil moisture conservation, fire protections etc. were not carried out. In fact, the coppice coupes were not laid according to the plan. Control and supervision of Working out of the coppice and bamboo coupe was too bleak, as a result of which the prescriptions ere practically not followed. Thus the chaos continued. Working out of the area u8nder miscellaneous Working Circle after reviewing the position after 10 years was not done. So a large chunk of forests remained unworked.

To add to the misfortune, the World War-II took place which complicated the position further as all silvicultural consideration were scarified for war supply. The local people did

not observe the bamboo cutting rules and they continued in their own way. So the bamboo forests deteriorated considerably.

11.2.2H.F.Mooney's Plan (1948-49 to 1961-62)

Although Hart's Plan expired in 1944-45, it could not be followed immediately by the next plan, Dr. Mooney wrote the 3rd Plan which came into force in 1949. This is actually the first working plan for Kalahandi Division. It covered all the 107 blocks including present 96 blocks, and all blocks of KasipurRange which were transferred to Rayagada Division and Arkhapedi extension block the limits of which were still not known and was no covered under this Plan. Seven Working Circles were formed i.e.

(i) Conversion Working Circle
(ii) Selection Working Circle
(iii) Coppice Working Circle
(iv) Protection Working Circle
(v) Khair Working Circle
(vi) Bamboo Working Circle
(vii) Plantation Working Circle.

11.2.2.1 Conversion Working Circle

Kadalighati, Kidding, Sargiguda and Dhepguda blocks were included under this Working Circle with one felling series. 90 years was conversion period. The forests were divided into 6 periodic blocks of 15 years each. Dhepguda block and a portion of Sargiguda, the balance portion of Sargiguda block was kept under P.B-I, P.B.-II constituted the balance portion of a Sargiguda block. Rest of the area of Working Circle were put under P.B.-I. Selection felling in P.B. Inter was prescribed. P.B.-II closed to any felling.

Results

Since the best forests were kept under P.B.-I with concentrated regeneration felling followed by tending the result was satisfactory. The exclusion of P.B.-II areas from any kind of felling was proper. But felling the hilly areas of Kadalighati, Kidding and portion of Sargiguda under conversion Working Circle was not proper because clear felling on steep and precipitous slope was unsound. To sum up, conversion Working Circle for hard wood species in tropical forest was not appropriate.

11.2.2.2Selection Working Circle

All the major blocks of Madanpur Rampur, Lanjigarh and Bhawanipatna Range were included in this Working Circle. The areas included were mostly far from railhead. Six felling series were constituted of which Lilliguma felling series is now in Rayagada Division. In Lilliguma felling series were Madanpur Rampur, Dongeria, Nehela, Lilliguma, Sahajkhol and Karlapat.

Madanpur Rampur felling series included all the major Sal forests blocks of Madanpur Rampur Range. Dongeria felling series was constituted of Sal forests of plateau in Lanjigarh and Bhawanipatna. Nehela felling series comprised the areas in the concerned blocks where as Karlapat felling series was subsequently added after three years working under Coppice system.

Selection-cum-improvement system was prescribed for this Working Circle. But no work prescribed for Lilligumma felling series and no work was taken up in Shajkho9l felling series. Yield was prescribed on gross area basis without assessing the growing stock.

In order to regulate the exploitation and to determine the availability of exploitable trees in 1938-39 in Madanpur Rampur Range. Sal and Bija trees of exploitable diameter and i.e. 50 Cm. and up and approach class 45-50 cm. d.b.h. were enumerated in same blocks. Based on that, annual yield for Sal trees was prescribed on 20 years felling cycle.

Results

Exploitation was given the paramount importance almost totally neglecting the improvement prescription. Sleeper extraction lease was in operation. As a result, all the exploitable Sal sound trees above 5' girth were removed, as there was no safe guard for future yield. So almost all the sound Sal trees were removed leaving unsound over mature trees mixed with congested immature crop. Further due to exclusion of working in Lilligumma felling series practically it was forgotten and left to the mercy of advasi's, which gave rise to massive Podu. Sahajkhol felling series was also not worked. To sum up, removal of only sound Sal trees above 5 feet girth class was not appropriate.

11.2.2.3Coppice Working Circle

This Working Circle comprised all the forests blocks of Borda, Junagarh, Kesinga Ranges and some blocks of Bhawanipatna, Lanjigarh, Madanpur Rampur and Kashipur Ranges. Coppice with standard was the Silvicultural system adopted. So felling series were constituted most of which were worked for as Praja Coupes. At that time also, due to over-exploitation Dhanupanchan, Jharbandh, Kandul and Singari blocks were completely degraded. So no working could be possible there.

Results

28 felling series meant for Praja supply were over-worked. The availability of produce was far too less than the requirement. Besides some of the felling series were created in dry zones especially of Borda, JunagarhRange and BhawanipatnaRanges. In addition to refractory nature of site due to repeated hacking, over-grazing and annual fires restocking through coppice regeneration was poor. As a result, the forests deteriorated further. The other felling series which were free from Nistar supply some how did not degenerate much. Moreover working the coppice coupes at low rotation without doing any follow up operations like cleaning, thinning caused deterioration of crop. To sum up, inspite of bad result of past, prescription of coppice working circle was not appropriate.

11.2.2.4Bamboo (over lapping) Working Circle

All the blocks except Chura 'B', Brahmani, Pordhar blocks were included in this Working Circle. 10 felling series were formed. Till 1954 the Bamboo Coupes were being

given on annual lease through auction sale and local demand was also being met from the coupes. From 1954 (1.10.54) M/S Orient Paper Mills were given lease of bamboo for 6 years. Thereafter M/S Straw Products Ltd. were given the lease of bamboo.

Results

Chura 'B', Brahmani and Podhara, blocks were now containing bamboos. It seems at that time there must have been some bamboos in these blocks, which could have been allowed to be worked. Besides, the bamboo coupes were over-worked in allotted blocks. Over working might be due to lack of proper supervision.

11.2.2.5 Khair Working Circle

No definite area was allotted to this Working Circle and no work including exploitation was carried out in this Working Circle.

11.2.2.6 Plantation Working Circle

No Reserved Forest was included in this Working Circle, rather Dr. Mooney persuaded the rich tenants and Gauntias of villages to raise a tree belt on the banks of TelRiver to protect the banks from soil erosion. The landowners agreed to his advice. Accordingly Dalbargia sisoo was planted in narrow belts for 3 to 3 years. Then it was discontinued due to legal complications. Again it was started from 1956-57 covering 2 hectares annually.

Under the provision of five years plan schemes, teak, teak mixed with Semul or bamboo was planted in Bazargarh, Kerbandi, Madakhola 'A', Kutrukhai, Brahmani, Dhanupanchan, Kumkot, Chura 'A', Sahajkhol and Lilliguma (Rayagada Division) forest blocks.

Results

The plantations in Reserved Forests Blocks were met with limited success due to planting of improper size of stock, defective method of planting, late planting and lack of after care. Sisoo plantations on the banks of TelRiver was most successful and effective too in achieving the objective. But the people did not co-operate with the administration for fear of loosing some fertile land. Eucalyptus plantation raised in Jalbandh Block was partially successful as potted plants were planted and in the early stage during dry months watering was done to the plantations. But the plantations on the plateau i.e. on Lilliguma and Kandabindha Blocks were not successful.

11.2.2.7Protection Working Circle

Small Sal forest blocks situated in the plateau in Thuamul Rampur Range including Kasipur Range were included under this Working Circle. Since working out these small isolated blocks was difficult and expensive due to inaccessibility and long lead from rail head, no exploitation was prescribed therein. Thinning, cleaning, climber cutting and gap planting was prescribed. But prescriptions were not practically carried out. These blocks were neglected and left unattended.

11.2.3 Sri S.R.Choudhury's Plan (1962-63 to 1981-82)

Revision of Kalahandi Plan was started by Sri S.R.Chaudhary and plan was given effect to from 1962-63 i.e. after the expiry of Dr.Mooney's Plan. In this Plan instead of 7 Working Circles of previous plan only 5 Working Circles were constituted doing away with Conversion Working Circle and Khair Working Circle.

11.2.3.1 Selection Working Circle

21 felling series comprising of 44 blocks were formed in this Working Circle covering an area of 69,668 hectares, which included 10,964 hectares in 5 Blocks now under Rayagada Division. The Silvicultural system was selection cum improvement fellings. The felling cycle was 20 years for all felling series except Bori, Dulma and Jalkrida where it was 10 years. Exploitable diameters for different species were as follows.

Table no.11.1

Name of Species	Bori	Benaguda, Sunamukhi, Taparang, Urladani, Telen, Niyamgiri, Gunupur, Benakhamara, Liliguma	Urladani West, Jugsaipatna, Benghata, Nehela, Karlapat East, Karlapat West & Chura 'A'
Sal, Tangan	55 cm.	50 cm.	45 cm.
Sisoo, Gamphari, Halanda, Semel, Sahaj,	50 cm.	50 cm.	50 cm.
Bija	60 cm.	60 cm.	60 cm.
Champa	-	60 cm.	-
Bandhan	35 cm.	35 cm.	35 cm.
All others	50 cm.	50 cm.	50 cm.

Yield was prescribed in terms of number of exploitable Sal and Sal equivalent with quinquenial area a check in seven felling series i.e. Sunamukhi, Benaguda, Taparang West, Urladani East, Urladani Central & Urladani West felling series.

Enumeration of growing stock was carried out in Madanpur Rampur Range only with various intensities in different methods starting from 20% systematic strips to 10%, 5% even 5% line plot survey. Some Blocks of Kashipur Range were sampled to 2.5% intensity. For different felling series the percentage of exploitable trees to be marked and retained for future yield based on Smithy's safeguarding formula was prescribed as under.

Table no.11.2

Name of the felling series	No. of Sal equivalent of exploitable trees to be marked	Percentage of exploitable trees to be retained
1	2	3
Sunamukhi	280	33 1/3
Benaguda	560	33 1/3
Taparang (East)	620	40%
Taparang (West)	870	33 1/3
Urladani (East)	380	25

Urladani (West)	350	50%
Urladani (Central)	500	33 1/3 to 40

All the coupes were shown in the management map. In case of Sunamukhi, Taparang (East & West), Urladani (East, West & Central) felling series, however, management maps showed approximate extract of groups of 5 contiguous coupes. Marking rules were for exploitation, improvement & thinning.

Tabular statement of fellings was made. Subsidiary silvicultural operations consisted of cleaning, showing and planting. There were prescriptions for fire and grazing control. Bori and Jalkrida felling series should be allotted from conversion to Uniform system and attempt should be made to allot better quality. Sal areas from Urladani East, Urladani Central, Taparang East and West felling series were transferred from conversion to uniform system.

11.2.3.2 Results

All these areas were subjected to sleeper extraction in the earlier periods. At that time almost all sound Sal trees of 5 feet girth i.e. 50 cm. d.b.h. were removed barring probably some inaccessible sites. In the last plan period although exploitable diameter was kept 50 cm. for some felling series, in case of many felling series it was brought down to 45 cm. d.b.h. due to non-availability of trees of 50c.m. d.b.h. Improvement marking gave further scope to mark the trees in approach class and sub-approach classes. The percentage retention prescribed was hardly observed resulting in the percent stand structure revealed by the enumeration data. Although it was specifically laid down in case of Bori, Dulma, Jalkrida, felling series that will be considered for inclusion of those areas alongwith some portion of Urladani (East & Central), Taparang (East & West) to Conversion Working Circle, and without that end in view 10 years felling cycle was prescribed keeping the exploitable diameter limit 50 c.m. over the usual ones. This was not followed. Rather after complete working out of the felling series, felling was again recycled. There was no mention of retention of trees of exploitable diameter limit. The loose interpretation of improvement marking, thinning prescription caused severe erosion of growing-stock in these areas as a result of which it was rather impossible to adopt conversion without any improvement felling. The availability of bigger tree was scarce. In course of twenty-year plan period, some Class-II trees would have passed into Class-I stage. But because of loose interpretation, of improvement marking rules it was not possible. Adequate check was not exercised in marking also. The proposal to create a Conversion Working Circle by carrying out some areas out of Taparang and Urladani Blocks along with Bori, Machul, Dulma, Raul, Jhimiri, Jalkrida and Nachniguda appeared to be futile as regeneration of Sal was not satisfactory. Some patches of plain forest of Taparang, Urladani Blocks contain thickest of Phoenix acauliswhich definitely indicates site deterioration. All the Blocks of Lanjigarh Range supported Sal on the plain ground and lower slopes while the upper reaches were mostly of miscellaneous species. These were not very suitable for allotment, as the most important prescriptions was found totally neglected almost throughout the Working Circle. To sum up, switching over to conversion area and non-implementation of Silvicultural prescription based on the principle of conservation was not appropriate from ecological point of view.

11.2.3.3 Coppice Working Circle

According to the marking rules, on the steep slopes, all the trees above 45 cm. d.b.h. except Bandhan of 35 cm. d.b.h. were marked. No marking was done in case of trees standing on blanks, on exposed rocks without any regeneration of tee species underneath. The plain areas and gentle slopes were subjected to coppice with standard system with prescription of retaining 25 to 30 standards per hectare. Khair trees were excluded from marking. After main felling thinning at 11^{th} and 26^{th} year was prescribed. Other regulations like cultural operation, climber-cutting restriction of grazing in regenerated area fire protection was prescribed. Coupes were to be opened from 1^{st} October to 30^{th} June following, whereas Praja coupes were to be opened for the same period as above so as to allow the materials to be removed the surplus materials if any to be worked in the next Working season.

11.2.3.4 Results

Although it was laid down to demarcate and differentiate steep slope areas from the gentler slopes and adopt Selective marking in the steeper slopes, it was hardly carried out. The retention of prescribed number o9f standards was hardly done. Although standards were being retained in the earlier period they are not being retained now. First thinning which was due during the last plan period was not undertaken at all. Stools with multiple shoots were seen almost throughout the area. Cleaning after the main felling was not done, as a result of which multiple shoots are growing in the stools and were suffering from congestion. Fire conservancy and control of grazing were misnomers almost every year the areas being subjected to fire in which the coppice shoots and young recruits were scorched. Due to non-availability village pasture and insufficient Khasra forests the forests were subjected to grazing much above the carrying capacity. Shajkhol Block was put under Selection Working Circle in Mooney's Plan leaving some portion near about Ampani to Coppice Working Circleto meet the tenants supply. But in Choudhury's plan the entire area was put under Coppice Working Circle. In fact this is a hilly Block with some plain land adjoining Nawrangpur (Jhariguma) plateau. Allotment of such areas to coppice working does not appear to be proper. Moreover, the demand for timber etc. was very heavy in this locality. Regeneration was also not assured to allow clear felling. Moreover in the adjoining areas of Nawrangpur Division Podu cultivation was going on rampantly. By allowing clear felling Podu cultivations will find the area much easier for them to access and encroachment. In fact, large areas of this Block near about Ampani are under severe Podu. The no. of Praja coupes were too inadequate to meet the demand. In fact, there was no control in working of these felling series as a result of which 21 out of 28 felling series became completely devoid of forests and need urgent rehabilitation measures. To sum of prescription of Coppice Working Circle was not appropriate.

11.2.3.5 Bamboo (Overlapping) Working Circle.

All the bamboo-bearing areas were put in this Working Circle. 27 felling series were formed. A cutting cycle of 4 years was prescribed with simple cutting rules. Clumps containing 10 or less number of culms were to be left unworked, removal of dead culms were permitted from such clumps only. Clumps after working had to contain only 6 old green

culms. The flowered clumps were to be clear felled after the seeds had shed. The bamboo coupes were leased out to M/S Straw Products Ltd., Rayagada on a long-term basis. Besides the coupes were also opened for tenants to procure their requirements. Thus two agencies were permitted to operate in the same area.

11.2.3.6 Results

The cutting rule was too liberal, as result of which the clumps were over-exploited. In fact the productive potential of clumps was affected because of retention of 6 old green culms. There was no provision to keep sufficient number of supporting leader culms for the young culms i.e. Kardi and Mahilas. There was no prescription for working a clump in any particular pattern. Retention of older culms was left to the convenience of bamboo cutting muias. Thus the clumps were subjected to almost clear felling from one side in one cycle almost pushing the rhizome towards its centre. There was no regulation for supervision of tenants supply from the annual coupes. In the absence of regulations in every cutting cycle, new set of extraction paths were being laid in the forests as a result of which virtually a network of treeless lanes were created throughout the forests. Complete neglect of soil conservation measures on the old extraction paths gave rise to gullies causing heavy soil erosion on higher slopes. To sum up, non-implementation of silvicultural prescription due to lack of supervision was the main drawback. Bamboo clumps were not treated with soil mounding which led to further exposure of rhizomes.

11.2.3.7 Plantation Working Circle

A very small area consisting only 16,179 hect.out of total 1577.09 Sq.Km.of forest were put under this Working Circle. It covered only 10 complete Blocks and portion of 5 other Blocks. 17 planting series were formed. Mainly economic species like Teak was prescribed for raising plantation in suitable sites. For dry localities species like Sabai, Khair were proposed to be planted. Generally poorly stocked areas completely depleted due to over-exploitation, were included in this working Circle with the main object to improve the stocking of the forests and to meet the local demand.

11.2.3.8 Results

In actual practice a very little area was planted during the plan period, although funds were available for raising plantation. In absence of consented effort and disregard for various provision of Working Plan, Plantation have been raised in half hazard manner, without follow up action for tending. Choice of species for different site was not proper. As a result, the plantations met with limited success. To add to the problem the exposure of plantations to heavy biotic interference due to almost complete disap0perance of Khesra forests and Goachar land has resulted in failure of plantations.

11.2.3.9 Protection Working Circle

Only two Blocks i.e. Kandabindha and Arkhapedi extension Blocks were put under this Working Circle. These Blocks are no more under management control of Kalahandi Forest Division.

11.2.3.10 Period from 1982-83

After the expiry of Shri Choudhury's Plan 1981-82, there was no plan in 1982-83. This year forests of Kalahandi Division were managed as per the decision taken in the meeting held in the Chamber of Chief Conservator of Forests, Orissa, Cuttack on 20.5.82. Where Working Plan Officer, Koraput Circle was authorised to identify the coupes for selection and Coppice Working Circle.

11.2.4Shri D.S.Pattanaik's Plan (1983-84 to 1992-93)

Shri Patnaik's Plan came into force with effect from 1983-84. This plan was prepared for 10 years and consisted of 96 Blocks of Reserved Forests. There were 8 Working Circles in this Plan against the 5 Working Circles in Shri S.R.Choudhury's Plan. Sri Pattanaik adopted Improvement, Pulpwood Production. Softwood (Overlapping) and Rehabilitation Working Circle where as he deleted Protection Working Circle.

The main features of this Plan which came into force from 1983-84, has been that prescriptions of this plan could not be implemented for all the 10 years of the plan period due to imposition of ban on felling of trees in the districts of Kalahandi, Bolangir & Phulbani with effect from 1.10.1988 by Government of Orissa vide the letter No.5 FC 5/88(Pt)/23614/Bhubaneswar dated 13.10.1988 of Forest, Fisheries and Animal Husbandry Department. Thus effectively the plan was implemented from 1983-84 to 1987-88 for five years. During this plan period Forest Corporation took up the working in this division for the first time. He has introduced pulp wood production and soft wood working circle with an objective to meet the raw material demand of the industries. Podu ravaged areas were also given due importance by putting under Improvement Working Circle which is separate from RDF Working Circle. Another remarkable feature of his working plan was to enrich the crop quality by prescribing to plant teak and other species of economic importance. The results of this plan are discussed individually for each working circle.

11.2.4.1 Selection Working Circle

20 (twenty) felling series comprising of 43 blocks were formed in this working circle covering an area of 67,378 ha. The silvicultural system adopted was selection system; the felling cycle was 20 years for all felling series. The exploitable diameters for different species in different felling series were as follows:

Table no.11.3

Sl. No.	Name of Species	Category of Felling Series		
		Category A	Category B	Category C
1.	Sal	50	45	35
2.	Bija, Haldu, Sahaj and Champa	60	60	50
3.	Sisoo, Gambhari, Kasi and Toon	50	50	50
4.	Bandhan	35	35	35
5.	Salai, Semul, Rai	45	45	40
6.	Rest other species	50	50	40

The felling series comprises of three category of areas i.e. A,B,C which are as follows.

CATEGORY-A

Sunamukhi, Benaguda, Taparang (East & West), Urladani (East & Central), Telen, Bori-Dulma, Jalkrida, Trilochanpur and Gunpur felling series.

CATEGORY-B

Urladani (West), Benbhata-Jugsaipatna, Nehela, Karlapat (East & West) felling series.

CATEGORY-C

Kadalighati, Porgel, Sahajkhol and Chura felling series.

Yield was regulated by area with a percentage check on removal of exploitable trees. The number of trees to be worked in any year as prescribed by Mr.Pattnaik, were as follows:

(a) Category 'A' area:

Sl.No.	Name of the felling series	Ratio of Sal trees to be marked for felling	Proportion of trees to be retained
1	Sunamukhi,	1 out of 3	2 out of 3
2	Benaguda, Taparang (E), Taparang (W), Urladani (E), Urladani Central, Bori-Dulma, Trilochanpur, Gunpur	4 out of 5	1 out of 5
3	Telen	1 out of 2	1 out of 2
4	Jalkrida	3 out of 4	1 out of 4

(b) In respect of Category B and C areas, it was prescribed empirically by Mr.Pattnaik that 50% of the Sal selection trees can be marked in any of the years subject to silvicultural availability. This principle was also to be applied to Asan and other species categorized as Principal species.

Other prescriptions like subsidiary silvicultural operation after main felling, control of grazing and fire were emphasised. Protection from fire was to be strictly enforced along with closer of the coupe for five years after the main felling.

11.2.4.2 Results

The special objects of Management in this Working Circle were:

(i) To conserve and maintain the forest cover on the hill slope so as to conserve soil and water and to check runoff.

(ii) To obtain maximum out turn consistent of general objective by exploiting silviculturally available trees.

(iii) To build up the growing stock and to improve the stocking through suitable silvicultural operations.

(iv) To obtain and encourage natural regeneration of Sal and other important species by suitable cultural operations.

As regards the first objective, it was achieve to some extent. The protection form fire was not checked properly; as a result exposure of rocks due to washing away of soil had taken place. Fire resistance species like *Phoenix acaulis* came up. For obtaining maximum out turn as per the second objective, it was to mention here that the implementation was only upto 1987-88 for five years. The imposition of ban on felling of trees came during the year 1988-89. It was observed that the prescription for removing 80% of the available trees in some forest blocks namely Benaguda, Taparang, Urladani, Bori-Dulma etc. had resulted the decrease in the trees of higher girth class. The future eventualities like illicit felling and other biotic interference was not perhaps taken into account. It was not in due consonance with the safeguarding formula. The third and fourth objectives for building up growing stock by silvicultural operation could not be achieved to the desired extent in view of non-implementation of adequate silvicultural operations. Repeated fire, uncontrolled grazing and excess biotic interference were the impediments in achieving the goal. Without silvicultural operation and soil conversation measure, it was not possible to boost the growing stock. This aspect was to be focussed.

11.2.4.3 Coppice Working Circle

13 (thirteen) forest blocks comprising 14 felling series with a total area of 17,055 ha. constituted this working circle in Patnaik's Plan. The silviculture system followed by Mr.Patnaik was coppice with Reserve as against Mr.S.R.Chowdhry's system of Coppice with standard. Mr.Patnaik fixed the rotation of 40 years for Sal, depending upon the average diameter at brest height of 18.8 cm., which Sal attains in these forests in 40 years and this size mostly in demand by the people. Coppice regeneration was mainly aimed at plantations in poorly stocked and blank area. Coupes have been shown in Management Map in 1:25,000 scale. Depending upon blanks and other unproductive areas, coupes had been made equiproductive; yield was prescribed on area basis. Marking rules were prescribed separately for separate areas as defined in treatment map dividing the coupe into: -

(i) Protection areas
(ii) Areas requiring enrichment
(iii) Areas fir for felling
(iv) Plantations

The marking rule advocated for retention of 20-30 trees per hectares of principal species well distributed throughout the coupe in girth class of 60-90 cm. as standard. In case principal species are deficient or absent than secondary species of economic value will be retained as standard. It also emphasised for retention of few seed bearers of more valuable species like Sal, Bija, Khasi, Sisoo, Gambhar and Haldu between 90 cm to 120 cm. g.b.h., subsidiary silvicultural operation was to clean the area in the year following the main felling. Thinning was prescribed in the 11^{th} year of the main felling. Mr.Patnaik also prescribed for closing the coupes to grazing for 10 years after the main felling and entire working circle to be protected from fire for at least 10 years.

11.2.4.4 Results

The special objects of management in this Working Circle as laid down by Mr.Patnaik, have been as follow: -

(i) To meet the demand of local population in respect of small sized timber, poles and firewood on a perpetual basis.

(ii) To improve the quality and stocking of forests by silvicultural methods and to restock the different areas by artificial regeneration.

(iii) To protect and maintain the forest cover in the interest of soil and water conservation.

Like Selection Working Circle, this working circle was worked out for five years upto the imposition of ban on felling of trees. Some coupes were found to be unproductive indicating the non-availability of trees silviculturally having prescribed exploitable girth. The constitution of this working circle was not justified because the forests close to habitation are always under severe biotic pressure. The system prescribed for this working circle was coppice with reserve. It was extremely difficult to ensure the retention of reserved trees in the face of acute demand of the local people. Without considering this aspect it was not proper to constitute such working circle. It became dismal. Regarding the objective it can be said that the demand of the people have not been met through permissible extraction of forest produce. Rather it was met beyond the carrying capacity of the forests through unfair means. This led to degradation in crop condition. Similarly as told earlier silvicultural operations could not be carried out to the desired extent due to paucity of funds, so also the soil and water conservation. On the whole this working circle was found to be ineffective.

11.2.4.5 Improvement Working Circle

Nine felling series comprising 9 blocks were formed in this Working Circle, covering an area of 4275 ha. Each block was a felling series. This Working Circle included crop which was immature arising out of Podu cultivation and also areas worked under P.B.I. felling during Mooney's Plan. As the crop of this Working Circle was young hence only improvement felling and tending was suggested.

A felling cycle of 10 years was fixed. No yield was prescribed. Each felling series was divided in 10 annual coupes and shown in the management map.

The special objects of management of this working circle was: -

(i) To improve the quality and stocking of existing crop by suitable cultural operation.

(ii) To conserve and improve the forest cover in the catchment of rivers for soil and moisture conservation.

(iii) To induce natural regeneration and to establish the same by the proper tending.

11.2.4.6 Results

The implementation of this working circle was haphazard and adequate attention was not given to the prescriptions. Cultural operations and soil moisture conservation were not carried out to the desired extent. So the objectives could not be achieved.

11.2.4.7 Teak Plantation Working Circle

The gross area allotted to this working circle in Mr.Patnaik's Plan was 5479.5 ha., out of which plantations existed in 832.5 ha. in which area of each plantation was 2 ha. or more than 2 ha. In rest other area new plantations were to be raised included in this working circle.

The special objects of management of this working circle as proposed by Mr.Patnaik were: -

(i) To replace miscellaneous forests of poor stocking and low economic value by Teak and Simel, wherever the site to permits increase the value of the forests.
(ii) To nurse and tend the existing and future plantations.

11.2.4.8 Results

The paucity of funds was the main reason for non-implementation of the prescriptions. Though some plantations under the scheme B economic were taken up but it was in a very limit scale. It was also not correct to replace the existing miscellaneous growth when the efforts for enhancing forest cover was of utmost necessity. Similarly the tending of old plantations could not be taken up due to lack of funds. On the whole this working circle did not yield any substantial result.

11.2.4.9Pulp Wood Production Working Circle

This working circle was constituted to augment the production of palpable hardwood for meeting the industrial demand. It was proposed to raise Eucalyptus and tropical pines in some of the forest blocks. Total area allotted to this working circle was 4725.5 ha. 10 planting series were constituted, 8 for raising Eucalyptus alongwith other species except pines and 2 for planting tropical pines.

The special objects of management of this working circle as proposed by Mr.Patnaik were: -

(i) To replace the miscellaneous forest of poor stocking of low economic value by fast growing species like Eucalyptus, tropical pine species etc. for meeting the requirement of palpable raw materials by the Paper Industries.
(ii) To ensure regular programme of fast growing species plantations in future.

11.2.4.10 Results

Though it was intended to produce the raw materials for catering the demand of industry. It could not be successful due to non-raising of such plantation in view of lack of funds. Further 1988 forest policy envisaged for such industrial plantation in the areas outside the reserve forests. It was not proper to introduce the exotic species at the cost of indigenous ones. The result was total dismal.

11.2.4.11 Soft Wood Working Circle

This Working Circle Overlapped "Rehabilitation, Selection and Coppice Working Circle". Part of the areas of 14 blocks were included in this working circle with the following special objects of management.

(i) To meet the demand of industries using soft wood species on a sustained basis.
(ii) Consistent with the general objects of management, to obtain progressively increasing revenue.

11.2.4.12 Results

Since the operation of this working circle were not carried out due to fund constraint and other factors, it was obvious not to expect any result.

11.2.4.13 Rehabilitation Working Circle

Total area allotted to this working circle was 42604 ha., part of areas of 38 blocks constituted this working circle with 43 "Rehabilitation Series".

The special objects of management of this working circle have been: -

(i) To restock the depleted forests through artificial regeneration and tending of the existing crop supported by proper rehabilitation measures.
(ii) To check soil erosion and enrich soil moisture regime by adopting suitable soil and water conservation measures.
(iii) To afford effective protection against grazing, fire and illicit felling so as to check ecological retrogression and prevent degradation of remaining forests.

11.2.4.14 Results

This working circle yielded some appreciable result. The vegetal cover was enhanced due to the rehabilitation measures. It had the relevance with the existing situation as well as for future eventualities. Rehabilitation was definitely better than the plantation alone.

11.2.4.15 Bamboo Overlapping Working Circle

The gross area included under this working circle was 78514 ha. There were 33 cutting series and cutting cycle was 4 years. The silvicultural system adopted was culm selection system cum clump improvement system. However for Kanta bamboo clumps were to be clear felled. Till June 1988, these bamboos forests were worked under long-term lease

with M/S Straw Products Limited. After June 1988 it was nationalized and Orissa Forest Development Corporation was appointed an agent to work these bamboos vide Government of Orissa, Forest, Fisheries and Animal Husbandry Department Notification No.6F-10/88-21691/FFAH and 6F-10/88-21693/FFAH both dated 21st September 1988.

During this plan period both marking and felling rules were modified with the approval of Chief Conservator of Forests (Central), Government of India vide his letter communicated through Memo No.29651 (40) dated 28th December 1990 of Principal Chief Conservator of Forests, Orissa. The special object of management in this working circle were as under: -

(i) To improve and augment the growing stock through appropriate silvicultural treatment.
(ii) Consistent with the above, to obtain maximum possible yield to meet the requirement of people industries.

11.2.4.16 Results

Though the yield from this working was obtained for meeting the requirement of industry but the observation of the marking rule was not followed scrupulously specially in hilly areas. In these areas over extraction was done in lower portion while there was under extraction in upper reaches. This was due to the difficulty in working in upper slopes. It was required to be curtailed. Bamboo is the most demanded forest produce next to firewood in Kalahandi. It is necessary to ensure the perpetuity in its production. Another menace is the indiscriminate removal of Kardi, the young bamboo.

11.2.5 K.R.Singh's Plan (1997-98 to 2006-07)

This plan was written while the moratorium on felling of trees in force. However in anticipation of lifting of the aforesaid ban, Selection Working Circle was constituted with the provision to fell trees. Mr. Singh reduced the number of working circle from 8 (eight) in the plan of Mr. D.S.Patnaik to 7 (seven) in his plan. He has abolished different types of Plantation Working Circles namely Teak Plantation, Pulp Wood Production and Soft Wood Working Circle. Similarly the Coppice Working Circle and Improvement Working Circle were also removed. He has retained the Selection Working Circle, Rehabilitation Working Circle and Bamboo Overlapping Working Circle of his predecessor. He has added new working circles namely Wildlife Overlapping and Minor Forest Produce Overlapping Working Circles. These two thrust area were not given due importance in the earlier plan. Mr.Singh has rightly emphasised on these two aspects to remove the deficiencies of his predecessor. He has kept plantation in one working circle while an eco-fragile area is kept under Protection Working Circle. For sake of better appreciation result of this recent past management is discussed individual working circle wise.

11.2.5.1 Selection Working Circle

General Description

The well-stocked forest blocks having crop density of and above 0.4 and having high degree of bio-diversity with different age class were kept in this working circle. Total area allotted to this working circle was 59,195.14 ha. The forests are predominantly Sal forest of different qualities. The general quality of Sal is III and IV. Quality V is noticed on higher reaches of the slope. According to the abstract of 1% enumeration result there were about 329 stems per hectare, out of which 44% were in the girth class of 30 cm. to 59 cm. so the regeneration status was good. 13 felling series were constituted. 9 felling series are under the jurisdiction of Kalahandi North Division while the rest 4 belongs to Kalahandi South Division.

Special Objects of Management

The special objects of management in this working circle are: -

(i) To conserve and maintain the forest cover for environmental protection.
(ii) Checking of soil erosion and moisture conservation.
(iii) Bio-diversity conservation.
(iv) To cater to the needs of people on sustained basis.
(v) To build up the growing stock and to improve the stocking by suitable silvicultural operations.
(vi) To obtain, encourage and establish natural regeneration of important species by suitable silvicultural operations.

Prescriptions

Unlike his predecessor, the author of this plan Sri K.R.Singh has fixed the exploitable diameter of Sal and other major species at 150 cm. for all the forest blocks instead of the variable exploitable diameter of Sal for different forest blocks by Sri D.S.Patnaik. He has fixed the exploitable girth considering productive of the forest, growth, yield and market demand. The detail is furnished in the following table.

Sl. No.	**Species**	**Exploitable Girth at Breast Height**	
		Cm	**Feet/Inch**
1	Sal, Sissoo, Gambhar, Bandhan, Tangini	150	5
2	Asan, Kuruma, Bija, Mundi, Champa, Siris, Kasi	180	6
3	Other species	150	5

It is seen that except seven species i.e. Asan, Kuruma, Bija, Mundi, Champa, Siris and Kasi whose exploitable diameter was fixed at 180 cm., all the rest species were prescribed for harvest at 150 cm. Virtually he has made two groups so far as the exploitable diameter is concerned. The felling cycle was 20 years having 20 annual coupes. Though there are 20 coupes in each felling series, the prescription was made for working of 10 coupes synchronizing with the plan period of 10 years. Selection system was adopted as the silvicultural system for this working circle for which it is so named. Mr. Singh has followed

Smithy's safeguarding formula to prescribe the yield. 25% of the silviculturally available trees subject to a maximum of 2.5 trees per hectare has been prescribed.

Implementation

Out of 10 years of the plan period, working was not done in first 8 years due to the continuance of the moratorium on felling of trees since 1988. After lifting of the aforesaid ban during 2005, the working of coupes has been done for 2 years i.e. 2005-06 and 2006-07 only.

Results

It is observed that the coupes have worked after a long span of about 20 years. About 40% of the marked trees mostly Sal are dry standing. Similarly about 25% of the marked trees have produced firewood only as revealed from the conversion. This is somewhat tallying with the same 25% of the marked tree as defective. Two coupes out of 13 annual coupes are found to be non-productive due to lack of silviculturally available trees. Of course the working after a long gap is almost akin to the salvage operations. During the moratorium on felling of trees, the salvage is confined to the trees which are dislodged from the ground i.e. either uprooted/wind fallen or illicitly felled. The dead, dry and damaged standing trees are kept untouched. A number of factors are attributed to the cause of large number of dead trees coupled with production of only firewood. These are the following.

(i) Harvesting is not done at appropriate exploitable girth.
(ii) Hollowness is developing due to locality factor in some forest blocks like Taparang, Urladani, Benaguda etc.
(iii) Retention of top broken/damaged trees becoming unhealthy and gradually reducing timber value.
(iv) Retention of dry standing tree loosing timber value due to weathering.
(v) Old trees having heart rot developing further hollowness.
(vi) Girdling done by the miscreants.

As regards the accomplishment of the objectives, it is to mention that forest cover is conserved and maintained to some extent for environmental protection. Barring biotic interference the commercial harvest is banned for eight years. Checking of soil erosion and moisture conservation was not given the importance to the desired extent. Only in last two years soil moisture conservation work have been taken up under subsidiary silvicultural operation, with financial assistance under 12^{th} Finance Commission Grant.Building of growing stock and to encourage natural regeneration through suitable silvicultural operation have also taken up under subsidiary silvicultural operations in last two years. Steps for biodiversity conservation is also inadequate in the plan period. It is not worthwhile to comment when majority of the period is left unworked. The result of the subsidiary silvicultural operation is found to be encouraging but it is required to be stabilized. Had such operations been carried out right from the beginning of the plan period, the result could have been much better.

Remarks

Two main prescriptions i.e. fixing the exploitable diameter at 150 cm. for Sal throughout the division and forbidding the climber cutting need critical review. The author being charge of Kalahandi North Forest Division for last three years of the last plan period have observed the climber menace. Most of the trees are found to be strangulated due to the climbers. Another notable point requiring deep analysis is the formation of 20 annual coupes for a plan of 10 years duration. It means half of the area allotted to the working circle has been prescribed for working while the rest is left as such for working in the next plan period. This anomaly should be removed. The prescription should be given for working in respect of the entire area so that the result can be assessed correctly. On the whole there is necessity of retaining this working circle at present scenario for prospective management of some forest blocks.

11.2.5.2 Protection Working Circle
General Description

This working circle was constituted for one reserve forest block i.e. Nageswar at present under the jurisdiction of Kalahandi North Division. This forest block is representing the transition zone of teak. Southern DryDeciduousForest-DryTeakForest conforming to 5A/$_{c1}$ of Champion and Seth classification is the type of forest available in this forest block. The natural teak vegetation has been degraded severely due to biotic interference for which Mr.Singh kept it in Protection Working Circle with special provision for restoration.

Special Object of Management

(i) To restock the degraded forests and to increase the land productivity through effective protection measures by checking incidence of fire, grazing and other biotic interference.

(ii) To check soil erosion and enrich soil moisture regime by adopting suitable soil and moisture conservation measures.

(iii) To increase the biodiversity and improve the local ecology.

Prescription

One protection series with ten annual protection units were prescribed. There was no silvicultural system. Only tending operation alongwith soil and moisture conservation, protection etc. were prescribed. This is a special working circle by Mr.Singh for restoring the natural teak vegetation of the division. Protection against fire, grazing and illicit felling were emphasized with involvement of VSS.

Implementation

During the last plan period cleaning, planting both Block and Gap with predominantly Teak, and Soil Moisture Conservation measures have been taken up. These works have been executed through active participation of the VSS. In addition to this, 18 no. of VSS have been constituted assigning 1150 ha. of peripheral area of NageswarReserveForest for Joint Forest Management. Masonry Boundary Pillars have also been constructed replacing the earlier stone cairn in order to ensure the permanent demarcation structure for preventing

encroachment which was observed earlier in this Forest Block and also reported to Government during 2000-2001 while submitting the joint verification report by Forest and Revenue Officials indicating the extent of encroachment. The implementation of prescription of this Working Circle is better than that of Selection Working Circle. The works executed during last plan period is quantified in the following Table.

Table no.11.4

Sl.No.	Item of work	Quantum of execution
1	Tending / Cleaning operation	328 Ha.
2	Block Plantation	78 Ha.
3	Gap Planting (RDF)	250 Ha.
4	Soil and Moisture Conservation measures	328 Ha.
5	Construction of masonry boundary pillars	315 nos.
6	No. of VSS constituted	18 nos.
7	Area assigned to VSS for joint forest management	1150 Ha.

Result

Enrichment in quality and quantity of the crop has been observed. Though there is involvement of the VSS but the degree of protection as expected has not been completely accomplished. The participation of VSS is increasing gradually. 99 ha.of encroached area has been reverted back to the fold of Forest Department. Construction of masonry pillars has a visible impact in ensuring the proper demarcation there by preventing the malpractice to encourage encroachment through shifting of stone cairn pillars. This is an important area of indigenous Teak. Local people have realised the importance of its preservation.

Remarks

Considering the achievements from the implementation it is felt to continue the process for its stabilization. The process of restoration has already been started, but it is a gradual one. It is required to continue it to have a lasting impact, so it is essential to retain this Working Circle for pursuing its objective vigorously so as to achieve its ultimate goal.

11.2.5.3 Plantation Working Circle

General Description

This Working Circle was constituted to restock the open forest with suitable economic species. Forest Blocks having large blank areas were kept under this Working Circle. Only one planting series covering an area of 528 ha.were allotted to this Working Circle. The availability of sufficient blank area was not much as evident from the extent of area allotted to this Working Circle. Ten Annual Planting coupes were also constituted. Area of this Working Circle are entirely under the jurisdiction of Kalahandi South Division.

Special Object of Management

1. To restock the degraded forest and to increase the land productively through re-afforestation measures & protection of old plantations and existing crop in the area.
2. Soil and moisture conservation measures to improve the site quality.

3. To increase the bio-diversity to improve the local ecology.

Prescription

No silvicultural system was prescribed. Only plantation along with soil moisture Conservation tending and protection were prescribed. Planting of Teak and Bamboo in a mixed manner at spacing of 2.5 x 2.5 Mtrs. and 10 x 10 Mtrs. respectively were suggested.

Implementation

315 ha.of plantations were carried out in this Working Circle. Soil and moisture conservation measures being an integral part of plantation norm have also been taken up over the aforesaid plantation area. No special effort has been made for protection of old plantations. The plantation has been raised through VSS.

Results

The result is not much appreciable in comparison to that obtained from RDF. Planting of Teak predominantly contribute a little for increasing the bio diversity. The soil and moisture conservation measures taken up along with the plantations has yielded some result in enhancing the moisture regime. Participation of the VSS is also helpful for proper watch and ward. But the expenditure vis-à-vis the outcome is comparatively less with that of RDF.

Remarks

In view of the aforesaid observation the RDF is preferred to block plantation for restoration of the vegetable cover at faster rate with low cost. Further, the availability of large compact blank area is not common. It is not wise to take up Block plantations in honeycomb patches. The success in such cases is not appreciable rather required Silvicultural treatment of the existing scrubby growth coupled with Gap planting wherever necessary is decidedly better. Considering the scenario of both North and South Division, it is not wise to retain this Working Circle in the revision, but being a mandatory over lapping Working Circle as envisaged in the National Working Plan Code, it is to be retained with some modifications.

11.2.5.4 Rehabilitation of Degraded Forest Working Circle

General Description

Degraded forest blocks having density less than 0.4 were assigned to this working circle due to heavy biotic interference. The condition of the crop was degraded. Most of the forest blocks allotted to this working circle are situated in populated tract. The vegetation was mostly scrubby with some poles and sporadic trees. Total area allotted to this working circle is 110310.86 ha. Large chunk of the total plan area were kept in this working circle. There were 31 rehabilitation series with 10 annual coupes under each.

Special Object of Management

To restock and rehabilitates the degraded forests for:

(i) Environmental stability and improvement of local ecology.
(ii) Checking of soil erosion and moisture conservation.
(iii) Bio-diversity conservation and increase heterogeneity in the crop.

(iv) Encourage natural regeneration.

Prescription

Tending operation alongwith reforestation, soil and moisture conservation and protection measures were the main prescription of this working circle. While promoting the coppice growth, it was suggested for gap planting in blank areas with bamboos and other indigenous species with emphasis on M.F.P. Afforestation activities in different sites were prescribed. Seed dibbling particularly showing of grasses was also prescribed. Protection from grazing and fire was emphasised.

Implementation

This working circle has been worked out to great proportion in comparison to other working circles. 18766.1 ha. have been tackled during last plan period under various schemes predominantly R.L.T.A.P. Soil and moisture conservation measure have also taken up alongwith the rehabilitation and gap planting work being an integral component of the plantation scheme. Showing of grasses, seed dibbling were rarely done.

Results

Result of implementation of this working circle is quite encouraging in view of increase in forest cover. As per the report of Forest Survey of India, the forest cover of the district has been increased by 341 sq. kms. up to 2003 during this plan period. Soil and moisture regime has also been improved alongwith enhancement of natural regeneration. Due to protection the vegetation come up from the rooted stock. As regards the productivity to meet the local demand, the result is not to the desired extent. Baring this objective all other objectives have been fulfilled to a considerable extent.

Remarks

Considering the inputs vis-à-vis the output, this working circle is found to be most effective in Kalahandi as evident from the increase in forest cover. The pace of restoration of vegetal cover is also quick in comparison to other method so also the cost factor. It is both low cost and result oriented. The change in the vegetation is visible in few years. Instead of going for massive plantation involving large financial outlay, the rehabilitation is the most preferred one from both physical and financial angles. The retention of this working circle is a must in the prevailing condition of forests of Kalahandi.

11.2.5.5 Bamboo Overlapping Working Circle

General Description

Forest blocks having substantial bamboo crop in both Selection and Rehabilitation Working Circle were assigned to this overlapping working circle. Area allotted to this working circle was 91285.64 ha. Salia bamboo (Dendrocalamus strictus) is the main species which occurs over extensive area. Kanta bamboo (Bambusa arundinasia) occurs over very small area along perennial nalla banks and Pani bamboo (Gigantochloa hasskarliana) are also found in some pockets. But the commercial harvest is mostly confined to Dendrocalamus strictus. 37 bamboo felling series were constituted having 4 annual coupes in each like A, B,

C and D synchronizing with four year cutting cycle. At present 24 felling series are under the jurisdiction of Kalahandi North Division while rests 13 are under Kalahandi South Division.

Special Object of Management

The special objects of management in this working circle are: -

(i) To provide a systematic management of the bamboo forests in order to secure maximum sustained yield, consistent with improvement of the quality and quantity of bamboo clumps.
(ii) To meet the local demand of forest dwellers and artisans of the locality from the depots opened by the OFDC, which has been appointed as agent of Government to extract bamboo.
(iii) To meet the demand of the industries particularly the Paper Mills in respect of Bamboos.
(iv) To provide employment to forest dwellers and weaker section, by engaging them in management of bamboo forest.

Prescription

Culm Selection-cum-Clump Improvement combined with simultaneous cultural operation was prescribed for Salia bamboo while clump improvement combined with simultaneous cultural operation was suggested for Kanta bamboo. A cutting cycle of four years was adopted for working of coupe by rotation like A, B, C and D. Culms more than three years of age are ready for harvest. Minimum number of culms to be retained in a clump are 20, 15 and 10 for clump quality I, II and III respectively. Culms less than three years of age are not to be harvested. Felling should be started from upper slopes to downwards. In case of gregarious flowering, clear felling of all the clumps are prescribed to be done. The cutting rules were prescribed in details.

Implementation

Except 2001-02 the coupes have been worked throughout the entire plan period. After nationalisation of bamboo during 1974, the working of coupe is done through OFDC Ltd. as the agent of the Government. Subsequently OFDC Ltd. has engaged J.K.Papers Ltd., Rayagada as the Raw Material Procurer. During the last plan period OFDC Ltd. has worked directly itself for the year 2002-03 and 2003-04. The rest period has been worked through the RMP. Earlier all the felling series were worked but after direction of Honourable Supreme Court of India, the felling series within the Karlapat Sanctuary area has been excluded from working. Adequate silvicultural operation could not be carried out keeping pace with the production.

Results

The coupes are found productive except one each in both Kalahandi North and South Division. The quantum of production though not to be desired extent but it is not discouraging. The silvicultural operations carried out have yielded some result in ensuring the

improvement of bamboo clump thereby leading to enhancement of yield but it is on a small scale. Employment to the forest dwellers has been provided alongwith meeting the requirement of raw material demand of paper industries to some extent.

Remarks

The forest of Kalahandi is having good potentiality of bamboo which is required to be harvested periodically. This is one forest produce which is harvested at a short rotation i.e. four years. On the other hand there is also great demand of this produce both from domestic and industrial front. This is the sector where some tangible production can be expected and delivered. Silvicultural management of bamboo forest is of utmost important to ensure it. Bamboo clumps not harvested for years together have shown the symptoms of degeneration and decay. Regular working can only provide the sustained yield. Considering all such parameters there is no doubt to retain this working circle.

11.2.5.6Wildlife Overlapping Working Circle

General Description

The entire Working Plan area i.e. 191386.32 ha. were assigned to this Working Circle inclusive of area of Karlapat Sanctuary, which has been declared as Sanctuary vide Notification No. 24498-8F(W)-41/92-F&E dt.15.10.92 published in Orissa Gazette 27.11.92. Habitat diversity of different order is marked with high degree of bio diversity. This Working Circle was constituted to promote the Wild Life throughout the Division for which the entire Plan areas were allotted to this Working Circle.

Special Object of Management

(i) Protection, improvement of Wild Life habitat and natural eco-system
(ii) Increased bio-diversity with increased Wild Life population
(iii) Protection and recovery of endangered species.
(iv) Eco-tourism and nature recreation.
(v) People's participation in nature conservation.

Prescription

Protection of Wild Life habitat from fire, grazing, illicit felling, encroachment, poaching was given priority for execution through motivation and persuasion of local people along with enforcemental existing Acts and Rules. Improvement of habitat for food, water, salt licks was also prescribed. Estimation of Wild Life population at regular interval was suggested with a calendar of programme.

Implementation

The Sanctuary area was managed with focal attention while rest areas were given some treatment. Water holes and salt licks were created inside Karlapat Sanctuary area. Water Bodies have been created at different places of both the Divisions to provide water facility to the wild animals. Anti poaching squad along with a vehicle was provided under 12^{th} Finance Grant for effective patrolling in Karlapat Sanctuary area to prevent the Wild Life crime. WatchTowers and Game Tank have also been constructed in Sanctuary area. 519 Sq. Km. (270.45 Sq. Km. forest area) of Kalahandi North Division, 510 Sq. Km (350 Sq. Km forest area) of Kalahandi South Division thus a total of 1029 Sq. Km. (620.45 Sq. Km forest

area) of undivided Kalahandi Forest Division inclusive of the area of Karlapat Sanctuary have been proposed for inclusion in South Orissa Elephant Reserve for promoting the management of Elephant in this locality. Flow of fund for implementation of the prescription of the Working Plan is rare except for Karlapat Sanctuary. Habitat improvement through Silvicultural Operation of Bamboo, Rehabilitation of Degraded Forest, Block plantations of NTFP and Mixed category and Subsidiary Silvicultural Operation have been taken up to some extent. Thus specific activities for improvement of Wild Life habitat in particular is very less.

Results

Due to non-implementation of the prescription to the projected extent the expected outcome could not be obtained. Awareness among the people have been created through celebration of Wild Life Week, Elephant Day etc.. During this plan period due to the efforts of field staff, an interstate gang of elephant poacher were nabbed and remanded to Jail custody. Similarly prompt actions have been taken to arrest the Wild Life offenders for which the crime has been kept under control. Rescue operations gave a good impact on the public for protection of Wild Life. On the other hand elephant depredation particularly crop damage during harvest period is very much felt during the plan period.

Remarks

Notwithstanding the result of outgoing management prescription undoubtedly there is necessity of retaining this Over Lapping Working Circle. Though the Karlapat Sanctuary Area has been excluded from the purview of this revision the other area having potentiality of Wild Life needs suitable management prescriptions. Man – Elephant conflict is on rise now a days. It is required to be curtailed. Elephant is the important Wild Life of both the Forest Divisions. Creation of congenial habitat is essential to enhance the Wild Life population.

11.2.5.7Minor Forest Produce Overlapping Working Circle

General Description

Minor Forest Produce are available in almost all Forest Blocks of both the Divisions. So the entire Plan area excluding the core area of Karlapat Sanctuary were assigned to this Working Circle. The total allotted area of this Working Circle was 187935.32 Ha.. The collection of MFP was mainly highlighted.

Special Objects of Management

(i) To protect the Minor Forest Products bearing trees by ensuring scientific collection of Minor Forest Products on sustained basis.
(ii) To improve the stocking of MinorForest products trees in and around forest and also to ensure its regeneration through suitable cultural operations.
(iii) To create employment for the people specially weaker section of society.
(iv) To encourage the development of a number of industries based on these Minor Forest Produce.

Prescription

The prescription was given for important Minor Forest Produce items including Kenduleaf. Mostly the method of collection / harvest and the time were prescribed individual item wise.

Implementation

No remarkable work was done except raising 985 ha. of NTFP plantations to improve the plant population. The control over the collection and trade was also not effective particularly after transfer of the same to the fold of Gram Panchayats from Forest Department during 2000. 42 nos. of NTFP godown have been constructed to support the rural people for storing their materials. Enforcement of the payment of minimum purchase price to the primary gatherers has not been strictly implemented.

Result

After transfer of control over collection and trade from Forest Department to Gram Panchayats an indifferent situation has developed for its management. There is virtually no control over the Traders to purchase the commodities at minimum purchase price from the gatherers. Earlier the agencies entrusted for procurement was forced to collect the available quantity at the fixed price. At present the Traders are free to purchase according to their suitability and profitability. It is almost a buyer's market. Kenduleaf being managed departmentally is doing well with payment of good price to the pluckers in addition to some other incentives. Destructive collection is also observed which is reducing the production potentiality.

Remarks

The source of benefit which can easily be accrued annually in perpetuity is Non Timber Forest Produce (NTFP). In the emerging situation for retaining adequate vegetal cover, the production of Timber is bound to be restricted. On the other hand some sustained benefit specially in terms of income is required to be provided to the forest fringe villagers to ensure proper protection. So there is no alternative except resorting to tapping of NTFP. This is the major area of thrust in forestry sector to provide livelihood support to the forest dwellers. Therefore it is imperative to retain this Working Circle with suitable modification for harnessing this resource optimally and scientifically.

11.2.6 Working Plan of Sri J.S.Mohanty, 2007-08 to 2016-17

Constitution of Working Circle

After needful consideration from all such angles and also in consistent with provisions of National Working Plan Code 2004 following Working Circles have been constituted for management of forest area covered in this plan duly approved by the Working Plan Committee.

1. Selection Working Circle
2. Rehabilitation Working Circle

3. Protection (Overlapping) Working Circle
4. Plantation (Overlapping) Working Circle
5. Bamboo (Overlapping) Working Circle
6. N.T.F.P (Overlapping) Working Circle
7. Wildlife (Overlapping) Working Circle
8. Joint Forest Management (Overlapping) Working Circle

Out of the aforesaid 8 (eight) working circles, 6 (Six) are overlapping. The forest area covered in this plan has been distributed primarily among 2 (two) main working circles like Selection Working Circle and Rehabilitation Working Circle whereas the area of all the Overlapping Working Circle are secondarily allotted from the area of main working circles for emphasizing the required functional aspects.

11.2.6.1Selection Working Circle

The high forests having good crop density and mature trees needs the harvest of mature crop to remove stagnation in growing stock and subsidiary operations for improvement of the crop with an intension of sustained production. The selection system is the silvicultural system which is most appropriate for those forests. Accordingly the working circle is named as Selection Working Circle comprising of forest blocks having mostly Sal and Mixed Deciduous Forests. All the forest blocks included under this working circle are in Madanpur Rampur and Narla Range of this Division. The total area allotted to this working circle is 47632.56 ha. which is about 38.86% of the total forest area covered in this plan.

Objectives of Management: -

Within the ambit of general objects of management as described earlier, the following special objectives have been set for this working circle.

1. To **S**tabilise the environment and ecology with enrichment of the vegetation both in quality and quantity through proper silvicultural treatment.
2. To **E**ncourage and establish the natural regeneration of the crop with special emphasis on hill slopes and other eco-fragile areas.
3. To **L**imit the harvest of mature crop to silviculturally and environmentally permissible extent through selection felling.
4. To **E**nsure the general hygiene of the forests through removal of causative substance like dead and uprooted trees and strangulating climbers.
5. To **C**onserve the moisture and soil through appropriate measures for ensuring the streams, nalas and ultimately the rivers to become perennial and fertility of the soil.
6. To **T**ackle the biotic interference effectively to protect and promote the forests.

Prescription :-

Sri Mohanty prepared Stand and stock tables prepared by NRSA, Hyderabad . It has indicated the number of trees available species wise in five girth classes

like 30 cm. to 60 cm, 60 cm. to 90 cm, 90 cm. to 120 cm, 120 cm. to 150 cm. and 150 cm. & above. The principal species as revealed from the field inventory in the forests of this working circle are Sal, Asana, Dhaura, Kendu, Tangan etc.

Selection system is prescribed for managing the forests assigned under this working circle with special emphasis on improvement of crop condition as well as regeneration. In this silvicultural system, the removal of mature crop will be selective to ensure ecological balance and environmental stability. This is imperative as a drought resisting measure for Kalahandi.

It is the minimum girth at breast height of a tree which is considered as one of the qualifying criteria for harvest. Further, in the present day context the trees are only harvested to the extent after meticulously observing various safeguarding factors like silvicultural, ecological, genetical etc. So the more appropriate term is harvestable girth and the same is furnished below.

Sl.No.	Name of the species	Harvestable girth at brest height in Cm.
1	Sal	150
2	Asana, Kuruma, Bija, Mundi, Champa, Sirisa and Kasi	180
3	All other species	150

Implementation :-

Timber coupe working could not be worked in the Division from 2007-08 to 2010-11 due to no valid working plan approval. The prescribed no. s of trees in the ongoing working plan are seldom achieved.

Yield in the felling series of Regular coupes of the Division:-

Yield in the felling series of Kalahandi North Division:-

Table no.11.5

Year of working	Name of felling series	Coupe no	Coupe area (in ha)	Nos. of trees to be removed felling series wise as per working plan prescription at Page- 340	Coupe wise nos. of trees harvestable as per the Yield Table (Annex - 41 of working plan)	Coupe wise nos. of trees actually felled / removed	Out turn of timber in cum	Out turn of firewood in stacks
1	2	3	4	5	6	7	8	9
2011-12	Urladani East	V	590.68	295	999	1000	329.1143	159
	Urladani West	V	704.82	235	232	35	11.488	10
	Taprang	V	640.49	320	1785	754	354.9342	84

	Telen	V	642.79	322	916	471	195.8214	35
	Benaguda	V	416.3	208	1040	144	61.9364	24
	Sunamukhi	V	609.05	305	1147	5	3.2927	0
	Sulia	V	619.27	155	881	31	13.4955	12
	Pongabajju	V	408.64	102	246	220	161.145	50
Total			**4632.04**	**1942**	**7246**	**2660**	**1131.228**	**374**
2012-13	Urladani East	VI	577.15	289	1033	103	43.4272	11
	Urladani West	VI	598.16	199	1112	278	81.6582	122
	Taprang	VI	654.03	327	1135	283	158.1035	50
	Telen	VI	670	335	778	453	98.6668	155
	Benaguda	VI	496.09	248	1265	159	69.2663	20
	Sunamukhi	VI	64.77	32	123	100	58.0629	5
	Sulia	VI	144.78	36	Not worked	0	0	0
	Pongabajju	VI	594.5	148	Not worked	0	0	0
Total			**3799.48**	**1614**	**5446**	**1376**	**509.1849**	**363**
2013-14	Urladani East	VII	663.54	332	663	202	129.1766	70
	Urladani West	VII	728.83	243	623	333	213.0385	70
	Taprang	VII	856.92	429	1732	350	101.1053	115
	Telen	VII	557.49	279	779	556	207.1519	100
	Benaguda	VII	618.42	309	800	140	36.8245	23
	Sunamukhi	VII	640.88	321	381	69	53.6584	10
	Sulia	VII	548.03	137	881	8	7.4834	5
	Pongabajju	VII	423.76	106	Not worked	0	0	0
Total			**5037.87**	**2156**	**5859**	**1658**	**748.4386**	**393**
2014-15	Urladani East	VIII	642.92	322	1241	124	155.629	60
	Urladani West	VIII	450.97	151	613	15	5.1898	5
	Taprang	VIII	517.32	259	431	284	93.5396	80
	Telen	VIII	417.62	209	981	425	155.7217	110
	Benaguda	VIII	422.12	211	980	5	0	10
	Sunamukhi	VIII	752.11	376	890	179	63.2552	40
	Sulia	VIII	767.39	192	882	66	20.091	20
	Pongabaju	VIII	600	150	Not worked	0	0	0
Total			**4570.45**	**1870**	**6018**	**1098**	**493.4263**	**325**
2015-16	Urladani East	IX	885.32	443	2407	142	61.7656	50
	Urladani West	IX	952.13	317	437	95	6.4474	10
	Taprang	IX	789.66	445	1473	103	52.354	35
	Telen	IX	378.35	189	979	328	116.5718	80
	Benaguda	IX	251.17	126	Not worked	0	0	0
	Sunamukhi	IX	476.03	238	733	54	28.5622	10
	Sulia	IX	691.36	173	880	17	4.5158	10
	Pongabaju	IX	520.08	130	623	244	104.8605	10
Total			**4944.1**	**2061**	**7532**	**983**	**375.0773**	**205**

	Urladani East	X	262.28	131	581	109	48.9507	30
	Urladani West	X	770.05	257	780	22	5.6011	
	Taprang	X	925.17	463	2582	659	262.1745	80
2016-17	Telen	X	414.81	207	515	275	112.5565	37
	Benaguda	X	376.84	188	852	104	96.8268	40
	Sunamukhi	X	393.95	198	268	20	13.8528	
	Sulia	X	847.84	212	1071	133	36.7157	10
	Pongabaju	X	302.42	76	263	225	126.465	25
Total			**4293.36**	**1732**	**6912**	**1547**	**703.1431**	**222**
	Urladani East	I	557.23	279	1366	86	24.278	15
	Urladani West	I	502.28	167	641	2	0.4595	
	Taprang	I	685.08	343	1119	336	139.1066	60
2017-18	Telen	I	628.41	314	926	157	59.0659	20
	Benaguda	I	555.18	278	501	183	72.5064	39
	Sunamukhi	I	549.31	275	542	36	7.4291	10
	Sulia	I	549.83	137	23	10	6.5757	5
	Pongabaju	I	612.34	153	206	55	11.4653	20
Total			**4639.66**	**1946**	**5324**	**865**	**320.8865**	**169**
	Urladani East	II	502.81	252	1037	180	170.6439	87
	Urladani West	II	628.17	209	377	22	22.8232	10
	Taprang	II	872.7	437	1217	427	334.7618	115
2018-19	Telen	II	858.69	430	1185	62	34.0332	20
	Benaguda	II	579.73	290	642	76	46.7763	15
	Sunamukhi	II	405.71	203	613	19	18.7766	5
	Sulia	II	728.75	182	23	10	11.402	5
	Pongabaju	II	593.23	148	206	42	16.3646	10
Total			**5169.79**	**2151**	**5300**	**838**	**655.5816**	**267**
	Urladani East	III	624.04	312	1406	186	140.0323	15
	Urladani West	III	479.07	160	710	8	5.354	5
	Taprang	III	739.76	370	1421	361	303.2787	60
2019-20	Telen	III	615	308	778	298	194.7905	35
	Benaguda	III	751.84	376	859	276	225.8521	30
	Sunamukhi	III	604.49	302	845	8	5.1217	5
	Sulia	III	829.12	207	23	18	27.6592	5
	Pongabaju	III	691.96	173	206	38	20.8663	5
Total			**5335.28**	**2208**	**6248.00**	**1193**	**922.95**	**160.00**
	Urladani East	IV	**723.57**	**361**	**2020**	**228**	**189.2821**	**35**
	Urladani West	IV	**746.54**	**248**	**880**	-	-	-
2020-21	Taprang	IV	**525.89**	**263**	**969**	**262**	**171.1802**	**40**
	Telen	IV	**394.58**	**197**	**565**	**196**	**100.7271**	**20**
	Benaguda	IV	**560.74**	**280**	**1079**	**67**	**71.6751**	**10**

	Sunamukhi	IV	**832.42**	**416**	**416**	**11**	**25.9576**	**2**
	Sulia	IV	**743.61**	**186**	**24**	**6**	**1.5371**	**1**
	Pongabaju	IV	**493.05**	**123**	**207**	**82**	**26.6371**	**28**
TOTAL			**5020.4**	**2074**	**6160**	**852**	**586.996**	**136**
G.TOTAL			**47442.4**	**19754**	**62045**	**13070**	**6446.92**	**2614**

During 2011-12 all the 8 felling series were worked out and 2660 no. of trees are marked .During 2012-13 In Sulia and Pangabaju series timber coupe working could not be worked out due to non availability of trees as per marking rules. 1376 no. of trees were marked during the year. During 2013-14 Pangabaju series was not worked out due to non-availability of trees as per marking rules. 1658 no. of trees were marked during 2013-14. During 2014-15 1098 nos. of trees have been marked. During 2015-16 & 2016-17 983 nos & 1547 nos of trees have been marked. From 2017-18,2018-19,2019-20 & 2020-21 865 nos, 838 nos, 1193 nos & 852 nos trees have been marked.

ii) Series wise prescription & achievement analysis of SSO:-

Table no.11.6

Sl.no	Name of Felling Series	Total area prescribed up to 2014-15	Area prescribed during 2015-16	Area prescribed during 2016-17	Total area prescribed during the plan	Area prescribed during 2017-18	Area prescribed during 2018-19	Area prescribed during 2019-20	Area prescribed during 2020--21	Area achieved up to 2014-15	Area achieved during 2015-16	Area achieved up to 2015-16	Area achieved during 2016-17	Area achieved up to 2016-17	Area achieved during 2017-18	Area achieved during 2018-19	Area achieved during 2019-20	Area achieved during 2020-21
1	Urladani East	4881.84	885.32	262.28	6029.54	557.23	502.81	624.04	723.57	1831.37	642.92	2474.29	885	3359.29	557.23	502.81	624.04	723.57
2	Urladani West	4838.84	952.13	770.5	6561.47	502.28	628.17	479.07	746.54	2031.81	450.97	2482.72	950	3432.72	502.28	628.17	479.07	746.54
3	Taprang	5492.19	789.66	952.17	7270.02	685.08	872.7	739.76	525.89	2151.44	517.32	2668.76	785	3453.76	685.08	872.7	739.76	525.89
4	Telen	4784.58	378.35	414.81	5577.74	628.41	858.69	615	394.58	1870.28	417.62	2287.9	375	2662.9	628.41	858.69	615	394.58
5	Benagudda	4400.42	251.17	376.84	5028.43	555.18	579.73	751.84	560.74	1530.81	422.12	1952.93	250	2202.93	555.18	579.73	751.84	560.74
6	Sunamukhi	4458.74	476.77	393.95	5329.46	549.31	405.71	604.49	832.42	1314.7	752.11	2066.81	475	2541.81	549.31	405.71	604.49	832.42
7	Sulia	4930.78	691.36	847.84	6469.98	549.83	728.75	829.12	743.61	1167.3	762.39	1929.69	690	2619.69	549.83	728.75	829.12	743.61
8	Pongbaju	4606.52	520.08	302.42	5428.92	612.34	593.23	691.96	493.05	832.4	788.4	1621.34	700	2321.34	612.34	593.23	691.96	493.05
	TOTAL	**38393.91**	**4944.84**	**4293.81**	**47632.56**	**4639.66**	**5169.79**	**5335.28**	**5020.4**	**12730.11**	**4754.39**	**17484.5**	**5110**	**22594.44**	**4639.66**	**5169.79**	**5335.28**	**5020.4**

(i) Year wise prescription and achievement of felling series(SSO) –

Table no.11.7

Year	No. of series	Total area prescribed	Area achieved	Remarks
2007-08	8	4639.66	0	Timber working was not done due to non availability of valid working plan during the period 2007-08 to 2010-11.
2008-09	8	5169.79	0	
2009-10	8	5335.28	0	
2010-11	8	5020.4	0	
2011-12	8	4632.04	4632.04	
2012-13	8	3799.48	3060.2	
2013-14	8	5037.87	5037.87	
2014-15	8	4759.39	4754.39	
2015-16	8	4944.82	**5110.00**	SSO of Timber coupe has been done due for working during 2015-16 over 5110.00 ha & balance 165.18 ha of SSO work has been done in the coupes which was due for working.
2016-17	8	4293.81	**22594.44**	
2017-18	8	4639.66	4639.66	
2018-19	8	5169.79	5169.79	
2019-20	8	5335.28	5335.28	
2020-21	8	5020.4	5020.4	
Total		**67797.7**	**65354.1**	

Result :-

. Natural regeneration is observed in some forest blocks where silvicultural operation has been carried out. In some forest blocks like Taprang, Urladani , Benaguda etc. hollowness is developed due to locality factor . In some forest blocks like Pangabaju trees are not available as per marking rule.

Remarks

During this plan period work in this Working circle has been carried out only from 2011-12. On the whole there is necessity of retaining this working circle at present scenario for prospective management of some forest blocks of the Division with some deviation that is to make it more accommodative with Artificial /Natural Regeneration of gap planting apart from silvicultural operation where ever it is required. . For the purpose of the future plan period , it is proposed to have this working Circle as Selection cum Improvement Working Circle .

11.2.6.2 Rehabilitation working circle

It is intended to restore the degraded forests through suitable silvicultural operations and artificial regeneration with emphasis on protection. The forests having low density and under severe biotic interference are kept under in this working circle to revive crop density. All the forest blocks except those allotted to Selection-cum-Improvement Working Circle spreading over the entire Forest Division are assigned to this

working circle. A major chunk of the plan area is under this working circle. The total area allotted is 74711.32 ha. and it constitutes about 60.96 % of the total plan area.

Objectives of Management: -

Within the ambit of general objects of management as described earlier, the following special objectives have been set for this working circle.

1. To **Re**strict the degradation by reducing the biotic interference to barest minimum and reverse the trend towards the process of restoration.
2. To **D**evelop the forest by providing site-specific required silvicultural treatment.
3. To **F**acilitate the boosting of natural regeneration and ensure its establishment.
4. To take up soil and moisture conservation measures to improve the soil and moisture regime with special emphasis on upper reaches of the hill slope to ensure the perennial nature of the streams, nallas etc.
5. To conserve the area for bio diversity.
6. To improve the microclimate of the area as a whole, thereby ensuring environmental stability.

Prescription :-

The prime objective is to restock the area with appropriate rehabilitation measures. As no harvest of timber is prescribed, the rotation and conversion period is not applicable for this working circle. However as part of the rehabilitation measures removal of dead and uprooted trees along with thinning of congested pole crop can be considered while approving the site-specific treatment plan by the Divisional Forest Officer.

The plan shall include the following components.

i. Preparation of a rehabilitation map in the copy of the management map indicating the SCM work, gap planting, silvicultural cleaning etc. as far as practicable.
ii. The current site condition narrating the terrain, slope, drainage, soil type and depth.
iii. Vegetation and the status of natural regeneration.
iv. Watershed number.
v. Details of operations proposed to be taken up.
vi. Cost norm and the schedule of operations.

Sri Mohanty prescribed Rehabilitation Measures and suggested the rehabilitation plan that specify the details of operations to be carried out for a particular site. He also prescribed Soil & Moisture Conservation Measures (SCM) and planting the blank area.

Implementation :-

A detailed statement showing year wise prescription and achievement in Rehabilitation working circle in different forest blocks are shown below. . It is seen there from ending 2014-15(August, 2014), AR plantation has been carried out in over 3325 ha. ,

Artificial Natural Regeneration with gap planting over 11240 ha. and silvicultural operation over 3715 ha.in the Division. Though the prescription set was about 0.60 lakh hactres , so far the achievement is 0.18 lakh ha. It may be due to paucity of fund and shortage of man power in implementation of the working plan.

(i) Series wise prescription & achievement analysis of Rehabilitation operation

Table no.11.8

Sl. No.	Name of the Rehabilitation series	Total area prescribed up to 2014-15	Area prescribed during 2015-16	Area prescribed during 2016-17	Total area prescribed during the plan	Area achieved up to 2014-15	Area achieved up to 2015-16	Area achieved during 2016-17	Area achieved up to 2016-17
1	Narla	2497.15	560	565.93	3623.08	1484	1684	10	1694
2	Porgel	2906.38	580	653.42	4139.8	460	720	0	720
3	Podgudi	3081.35	359.18	507.86	3948.39	1095	1710	260	1970
4	Kadalighati	4032.4	732.05	236.12	5000.57	1403	2283	0	2283
5	Kanamanjur	3968.73	601.36	316.92	4887.01	2485	2485	0	2485
6	Brahmani	4284.52	797.68	824.84	5907.04	1130	1480	400	1880
7	Th.padar gundi(W)	3792.45	461.04	317.26	4570.75	0	400	317.26	717.26
8	Th.padar gundi(E)	4054.60	376.61	381.79	4813.00	805	805	42.74	847.74
9	Gundi	5524.5	722.7	629.15	6876.35	250	385	629.15	1014.15
10	Bazargarh(N)	4467.47	386.17	146.36	5000.00	2320	2830	146.36	2976.36
11	Bazargarh(S)	3644.77	362.46	449.83	4457.06	1325	1590	350	1940
12	Kumkot	4302.18	386.08	299.26	4987.52	993	1183	299.26	1482.26
13	Chura A	6199.76	721.32	824.91	7745.99	2655	3725	780	4505
14	Chura B	2385.10	339.92	240.21	2965.23	490	790	200	990
15	Nageswar	2703.61	222.28	115.58	3041.47	710	710	0	710
16	Adabari	2297.22	232.76	218.08	2748.06	675	1135	0	1135
	Total	**60142.19**	**7841.61**	**6727.52**	**74711.32**	**18280**	**23915**	**3434.77**	**27349.77**

(i) Year wise prescription and achievement of Rehabilitation series.

Table no.11.9

Year	Total area prescribed	Achievement			
		AR	ANR with gap planting	ANR without gap planting	Total
2007-08	8098.41	0	3800	0	3800
2008-09	7711.8	295	1280	0	1575
2009-10	7357.04	425	730	0	1155
2010-11	6550.84	1600	630	3695	5925
2011-12	7163.19	300	0	0	300
2012-13	8308.98	80	850	0	930
2013-14	7651.14	385	1400	20	1805
2014-15	7300.79	240	2550	0	2790
2015-16	7841.61	115	5520	0	5635
2016-17	6727.52	210	3224.77	0	3434.77

2017-18	8098.41	250	1140	80	1470
2018-19	7711.8	254	6050	0	6304
2019-20	7357.09	650	3355	0	4005
2020-21					
Total					

Impact of implementation of working plan prescriptions in the forest –

1. Basal coppice shoots coming up well, malformed and defective stumps and hazardous coppicing removed.
2. Useful coppicing developed from malformed shoots
3. Less fire hazard in SSO implemented areas in forest blocks
4. Generation of fuel wood fulfilling the house hold demand of VSS
5. More natural regeneration of species like Asan, Dhaura, Sidha, mahul, Salai, Modei and Kendu species observed due to clean environment.

Reason of non-implementation of working plan prescription:-Works have been executed to the extent of allotment received in the Division

Effect on forest due to non-implementation of working plan prescription:-

1. Malformed, defective and unwanted coppice shoots developed
2. High rate of gully erosion
3. Incidence of forest fire becoming more
4. Low natural regeneration due to un cleaned environment

Remarks :--

Extensive SSO work should be carried out to improve the crop condition .Artificial regeneration and Artificial Natural Regeneration with gap planting should be taken up to increase the growth of forest and to establish the principal and secondary species. Necessary stringent measures should be taken to prevent or reduce biotic interference and to check forest fire.

In view of the requirements of the Division, it is suggested that this working circle should continue in the Division.

11.2.6.3Protection (Overlapping) Working Circle

In addition to the usual protection provided to the entire forest areas of the Division, some forest blocks being vulnerable to heavy biotic interference, eco-fragile and important from bio-diversity angle are in need of some additional effort for its protection. Such areas like all the forest blocks of Selection Working Circle in both Madanpur Rampur and Narla range and natural Teak forests of Nageswar reserve forest blocks in Kegaon Range forms under Rehabilitation Working Circle have been clubbed to constitute this Overlapping Working Circle. The area allotted is 50674.03 ha. which overlaps the part of two main working circles i.e. Selection Working Circle and Rehabilitation Working Circle.

Special Objectives of Management:

Within the ambit of general objects of management as described earlier, the following special objectives have been set for this working circle.

1. To **P**rovide strict vigil against illicit felling, encroachment, poaching and shifting cultivation etc.
2. To **R**educe the biotic interference to barest minimum.
3. To **O**ver come the impediments with active participation of the local people through strengthening the institutions of VSS for effective Joint Forest Management.
4. To **T**ighten the fire protection measures.
5. To **E**nhance the performance of the staff through regular monitoring.
6. To **C**ontrol the forest crime through secret collection of information.
7. To **T**rain the field functionaries in building up intelligence network and effective handling of arms and ammunitions and modern fire fighting methods.

Prescription:-

As narrated above, the area included in this working circle are good high forests and the natural teak forests. The crop is economically the most valuable asset of the Division and also ecologically important for environmental stability of the locality. Intensive protection is necessary not only to save these forests from biotic onslaught but also to conserve it for perpetual benefit. Sri Mohanty prescribed synchronising the plan period. He suggested protection units to accomplish the special objective. Engagement of Anti smuggling squad and strengthening of Infrastructure were of very much importance apart from fire protection measures.

Achievements :-

Protection units to accomplish the objectives have been set up with anti smuggling squad and strengthening of Infrastructure apart from fire protection . Communication net works are also developed. But as the word “protection” involves, it is continuous and can not be completed over time. The protection overlapping working cycle therefore should continue covering all the forest blocks in the Division.

A statement showing the offence case position and compounding fees realized from 2007-08 to 2013-14 .

Remarks :-

It is essential that protection overlapping working circle should continue in all the forests of the Division with the objectives of protecting from smuggling , strengthening of communication net work and infrastructure to all the forest blocks of the Division.

(i) Fire line Maintenance & fire fighting squards :-

Efforts have been made to tackle this menace by taking different measures like maintenance of existing fire line, creation of new fire line, engagement of fire watchers, deployment of fire fighting squad, supply of fire fighting tools, incentive to VSS etc. The expenditure for the same during the last plan is furnished in the table given below.

Fire fighting squad in the Kalahandi North Division.

Table no.11.10

Year	Expenditure							
	Allotment	**Fire watcher no.s & amount**	**Fire fighting squad no.s & amount**	**Purchase of fire fighting tools**	**Maintenance of fire line Kms, amount**	**Creation of fire line**	**Incentive to VSS**	**Misc.**
1	2	3	4	5	6	7	8	9
2007-08	373500/-	10nos. 12500/-	--	25000/-	32.42Rkm 60000/-	88.17Rkm 200000/-	46000/-	30000/-
2008-09	546000/-	10 nos. 126000/-	--	100000/-	30.35 Rkm 30000/-	42.00Rkm 30000/-	200000/-	50000/-
2009-10	140000/-	08 nos. 20000/-	10 nos. 25000/-	--	--	13.4 Rkm 31870/-	50500/-	12630/-
2010-11	279800/-	--	10 nos. 64800/-	215000/-	--	--	--	--
CAMPA	1074740/-	--	20 nos 270000/-	108000/-	498.10Rkm 496758/-	--	59608/-	140374/-
2011-12								
CAMPA	911961/-	--	20 nos 243000/	--	500Rkm 500000/-	--	--	168961/-
2012-13								
	495000/-			80000/-	45Rkm 45000/-	--	70000/-	300000/-
CAMPA	2004000/-	--	30 nos 675000/-	54000/-	500Rkm 825000/-	--	--	450000/-
2013-14								
	1145000/-	--	40 nos 720000/-	--	50Rkm 100000/-	--	130000/-	19500/-
CAMPA	2620000/-	--	40nos 900000/-	280000/-	500Rkm 825000/-	--	--	599884/-
2014-15								
	482353/-	--	10 nos 180000/-	50000/-	50Rkm 100000/-	--	50000/-	102353/-
CAMPA	2950000/-	--	50 nos 555000/-	70000/-	900Rkm 990000/-	--	--	385000/-
2015-16								
CAMPA	3730000/-		50 Nos & 2325000/-	210000/-	590 Km 1180000/-	--	--	15000/-
2016-17								
CAMPA	4435000/-		50 Nos & 2325000/-	915000/-	590 Km 1180000/-	--	--	15000/-
2017-18								
CAMPA	4960000/-	-	50 nos. & 2425000/-	1355000/-	--	590 KM & 1180000/-	--	--
2018-19								
GENERAL	3136293/-		30 nos. & 1261800/-	1194960/-	--	619533/-	60000/-	--
2019-20								
GENERAL	3121822/-		30 nos. & 1528680/-	820517/-	--	100 KM & 200000/-	570000/-	--
CAMPA	4265000/-	-	50 nos. & 3000000/-	425000/-	--	300 KM & 840000/-	--	--
2020-21								
GENERAL	1981362/-	-	20 nos & 447000/-	-	-	163 KM & 571454/-	630000/-	332908/-
CAMPA	5707000/-	-	50 NOS & 3285000/-	425000/-	-	600 KM & 1788000/-	-	209000/-

Earlier the forest blocks are having the boundary pillars made of stone cairns which is easily damaged and as a result there is no demarcation indicating the correct boundary of the forest blocks. In absence of the same, the encroachments are not properly and correctly detected. Masonry pillars have been constructed to replace the stone cairns as a permanent structure to indicate the boundary of the forest blocks correctly in the field. Such construction during the last plan are furnished in the table below.

(ii) Construction & repairs of Boundary Pillars to prevent encroachments :-
Construction of boundary pillars in pre-reorganized Kalahandi Forest Division

Table no.11.11

Year	**No. of masonry boundary pillar constructed**	**No. of stone cairns erected**
Kalahandi North Division		
2007-08	479	-
2008-09	147	-
2009-10	189	-
2010-11	324	-
2011-12	357	-
2012-13	144	-
2013-14	75	-
2014-15	80	-
2015-16	129	-
2016-17	182	-
2017-18	155	-
2018-19	95	-
2019-20	122	-
2020-21	88	-
Total	**2566**	

Some of the RF and PRF block boundaries were verified. Most of the boundaries were found in tact, but pillar numbers were not properly maintained. Most of the blocks inspected during the field visit was also covered under GPS survey for which map etc. has been prepared at the level of the Principal C.C.F. (GIS cell). The details of forest blocks, boundary length in k.m. and no. of boundary pillars as per notification, newly constructed/ replaced during plan period are enclosed in **Appendix-XI**.

iii) Checking of Illicit felling and smugglings :-

Details of Cases Booked in Kalahandi North Division
Table no.11.12

Year	OR Case	UD Case	PR Case	U/s-56	**Total**
2007-08	3516	368	15	368	**4216**
2008-09	3366	330	46	263	**4005**
2009-10	3490	149	43	193	**3875**
2010-11	3809	336	63	187	**4395**

2011-12	4386	241	38	120	**4785**
2012-13	3742	182	48	87	**4059**
2013-14	4583	232	77	217	**5109**
2014-15	5494	148	31	222	**5895**
2015-16	5063	516	42	21	**5642**
2016-17	4446	312	16	21	**4795**
2017-18	3631	401	23	9	**4064**
2018-19	3810	180	14	68	**4072**
2019-20	4174	124	3	8	**4309**
2020-21	3639	53	8	15	**3715**

The forest produce seized during the last plan period are mostly timber, fire wood, bamboo, poles, Charcoal etc. While the timber is partly consumed by the local people and partly by the people of neighbouring area through smuggling, the fire wood, bamboo, poles are almost catering the local need through illicit removal. The details of such seizure during the last plan is given in the Table below.

Details of materials seized in Kalahandi North Division

Table no.11.13

Year	Timber in cum	Firewood in MT	Bamboo in Nos.	Poles in Nos.	Charcoal in Qntls.
2007-08	166.1392	84.305	5032	3709	28.24
2008-09	206.6322	90.879	2103	4309	23.05
2009-10	59.2936	77.585	3856	5193	1.9
2010-11	77.7219	125.424	2204	6311	17.89
2011-12	80.3979	105.315	2703	8911	6.94
2012-13	72.0875	101.073	670	8729	10.08
2013-14	168.0137	116.001	140	8722	10.65
2014-15	152.8017	160.781	2730	13934	0
2015-16	79.5838	202.986	3335	10006	0
2016-17	48.0666	201.96	140	14696	0
2017-18	14.2434	355.60	0	18059	0
2018-19	14.8506	433.535	85	21375	0
2019-20	17.37	222.755	280	26777	0
2020-21	36.1369	87.994	66	12936	0

Vehicles used for the illegal transportation of illicitly procured forest produce have also been seized. It is seen that in Kalahandi such illegal transportation is done by Cart and Cycle to the great extent which indicates the pressure of local people on the forests. The details of the vehicles seized during last plan is furnished below.

Table no.11.14

Details of vehicles seized in Kalahandi North Division

Year	Cycle	Motor Cycle	Cart	Jeep	Tata Ace	Bolero	Bolero maxi Truck	Tractor	Maruti Van	Max Pick Up	Truck	Auto	Rickshaw	3 Wheel Trolley	Boat	Tata Rx	Tata pick up	Tata magic	tata 207	Tata 790	Bus	Thela	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

2005-06	173	1	18	1	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	1	**197**
2006-07	136	-	22	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	**160**
2007-08	109	-	9	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	**120**
2008-09	134	1	3	2	-	-	-	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	**143**
2009-10	72	-	4	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	**77**
2010-11	110	-	2	1	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	**117**
2011-12	96	-	2	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	**102**
2012-13	52	-	2	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	**57**
2013-14	116	4	-	-	1	-	-	1	1	3	-	-	-	-	-	-	-	-	-	-	-	-	**126**
2014-15	152	3	-	-	-	-	-	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	**158**
2015-16	206	1	-	-	-	-	-	2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	**215**
2016-17	239	1	2	-	1	3	-	7	1	3	-	-	3	-	-	-	-	-	-	1	-	-	**261**
2017-18	75	-	-	-	-	-	-	1	-	6	-	-	1	-	-	-	-	-	-	-	-	-	**83**
2018-19	57	1	-	-	-	-	-	3	-	9	-	-	-	-	-	-	-	-	-	2	-	-	**72**
2019-20	44	-	-	-	-	1	-	1	-	3	-	2	-	-	-	-	-	-	-	-	1	-	**52**
2020-21	14	1	-	-	-	8	1	1	1	-	-	-	-	-	-	1	1	1	1	-	-	-	**30**

Anti Smuggling Squad has been deployed last plan i.e. during under 12th& 13th Finance Commission Grant. Such squad was consisting of local youth on daily wage basis for a period of five to six months. It is observed that engagement of such daily wage watcher had paid reach dividend in controlling the menace as evident from their performances furnished in the following Table.

Deployment of Anti-smuggling Squad in Kalahandi North Division

Table no.11.15

Year	No. of Anti smuggling squad deployed	No. of watchers engaged in each squad	Duration of deployment	Expenditure incurred in Rs.	No. of offence cases booked
2007-08	10	--	01.12.2007 to 31.03.2008	163000/-	220
2008-09	10	--	01.11.2008 to 31.03.2009	231000/-	350
2009-10	10	--	01.11.2009 to 31.03.2010	231000/-	258
2010-11	10	--	01.01.2011 to 31.03.2011	113000/-	205
2011-12	10	--	01.12.2011 to 31.03.2012	275000/-	279
2012-13	10	--	01.06.2012 to 31.03.2013	531982/-	226
2013-14	20	--	01.04.2013 to 31.03.2014	1080000/-	125
2014-15	20	--	01.04.2014 to 31.03.2015	1080000/-	89
2015-16	--	--	--	--	--

2016-17	--	--	--	--	--
2017-18	--	--	--	--	--
2018-19	--	--	--	--	--
2019-20	--	--	--	--	--
2020-21					
Total					

Apart from the above mentioned controlling measures through enforcement of Forest Acts and Rules, efforts through Joint Forest Management has also been made for protection of Forests by assigning the forest area to the VSS. Till the end of last plan 593 no. of VSS in Kalahandi North Division have been constituted assigning an area of 42679.97 ha.

Remarks :-

It is essential that protection overlapping working circle should continue in the required forests blocks (RF & PRFs) prescribed in the ongoing Working Plan.

11.2.6.4.Plantation (Overlapping) Working Circle

This overlapping working circle is to take care of blank areas in the main working circles need plantations as well as the areas containing old plantations requiring the protection and tending/thinning operations. Blank areas in the main working circles are not only limited but also scattered in view of smooth and fast restoration of vegetal cover through natural process of rehabilitation which is the most common phenomenon in this Division. These small sized scattered patches can be tackled effectively through the provision of gap planting prescribed under Rehabilitation Working Circle. Hence, it is appropriate to confine to handle the old plantations in view of the prescription already made in Rehabilitation Working Circle to treat the blank areas by Gap Planting. Accordingly the old plantations particularly the Teak patches within the plan area extending over 250 ha. which is in need of protection and tending / thinning operations has been allotted to this Overlapping Working Circle. These areas overlaps mainly the area of Rehabilitation Working Circle and to some extend that of Selection Working Circle. Total area is included in this overlapping working circle is 250 ha.

Special Objectives of Management: -

Within the ambit of general objects of management as described earlier, the following special objectives have been set for this overlapping working circle.

1. To **P**romote the growth of existing plantation through suitable tending/thinning operations.
2. To **L**essen the biotic interference to the barest minimum with the active participation of VSS and ensure proper protection.
3. To **A**dopt suitable soil and moisture conservation measures to enhance the moisture regime of the area for nourishment and improvement of the plantation.

4. To **N**urture the suppressed plants till reaching the desired growth.
5. To **T**reat the failure blank patch with planting of older, tall and fast growing seedlings suitable to the patch should be done.

Prescription :-

The above objective includes tending and thinning operation, replanting and protection measures.

Achievements :- .

As per direction of the MoEF while approving the working plan of Kalahandi North Division , these plantation areas need to be worked out in Plantation overlapping working circle in view of less survival percentage in the ensuing plan period . However during the plan period , plantations have been done in these areas ,as a result the plantations done in the plantation overlapping working circle is 1425 ha. as against the prescription of 250 ha. to this overlapping WC.

Result :-

Though there is no shortfall in the achievement, the author has given very less area in this overlapping circle. While approving the working plan of Kalahnadi North Division , the GoI, MoEF has rightly instructed to include plantation of 1991-92 to 2006-07 in this working circle so as to replant the failured plantations , may be due to over period of time elapsed. Hence this working plan circle has to be worked out in the proposed plan period.

Remarks :-

The objectives should include replanting though AR, ANR gap planting and protection measures including SMC measures wherever it is required.

11.2.6.5Bamboo (Overlapping) Working Circle

This Forest Division has a number of forest blocks having potentially rich in bamboo crop mostly Salia Bamboo (Dendrocalamus strictus). Bamboo is a perennial woody grass having four years rotation crop, which necessitates a separate working from the other crops. Further it is available mostly as an understorey with the main crop of forest blocks. Hence an overlapping working circle is constituted to tackle this crop suitably and exclusively. The area allotted to this working circle is 68523.86 ha. mostly confined to Madanpur Rampur, Narla, Bhawanipatna Ranges to a great extent and Kegaon Range to some extent. The entire Kesinga Range is excluded from the purview of this overlapping working circle which covers 55.91% of the plan area.

Special Objectives of Management: -

1. To **B**oost and sustain the production through suitable silvicultural operation and systematic management of bamboo forests.
2. To **A**ccelerate the natural regeneration through protection of the young bamboo particularly the slender shoots i.e. Kardi from being collected indiscriminately by the local people.

3. To **M**eet the bonafide demand of local people, bamboo artisans and bamboo based industries.
4. To **B**enefit the people dwelling in and around the forests especially the weaker section of the society through creation of employment opportunity.
5. To **O**pt for site-specific treatment to revive the unproductive coupe to commercially viable production.
6. To **O**ptimise the production in elephant dominated area to cater their food need.

Prescription

For smooth regulation of harvest of bamboo the total area of the working circle is divided in to small units called felling series or cutting series which is in turn further divided in to sub units of annual cutting area named annual coupes. In case of bamboo each felling series has four annual coupes coterminous with the cutting cycle of four years. These annual coupes are named as A, B, C, D. Considering the potentiality of the crop as well as the topography of the area, 23 nos. of cutting series have been constituted for ensuring smooth harvest and executing the prescribed operations.

For enrichment planting in Bamboo coupes:

Bamboo is an important forest produce of this Forest Division. It provides sustenance to a large number of people particularly the forest fringe dwellers. Over the time the crop has been degraded which ultimately leads to make the coupe on productive in future. In order to prevent such situation and to make sustain production it is necessary to maintain adequate Bamboo crop in the Forest Blocks. Accordingly enrichment plantation of Bamboo particularly Salia Bamboo (Dendrocalamus strictus) is prescribed.Considering the present situation only Gap planting @200 plants per ha for 1000 ha.

Achievement of Bamboo Overlapping Circle:

(Year wise Analysis of prescription & achievement) of Kalahandi North Division during the plan period is tabulated below.

Table no.11.16

Details of Production of different Forest Block									
Year	**Series of coupe in the wp**		**coupe type**	**Series of coupes working**				**Areas not worked out**	
	No.	**Area**		**No**	**Area**	**Production LB in SU**	**Production CB in nos**	**No**	**Area in ha**
2007-08	23	18846.1	C	22	18141.1	11967.3	31562	Urladani (W)	705
2008-09	23	18619.3	D	22	17797.17	7589.4	20934	Urladani(E)	822.13
2009-10	23	15988.8	A	21	14477.52	4913.43	8728	Urladani (C)	642.92
								Chura (W)	868.36
								TOTAL	**1511.28**
2010-11	23	15069.7	B	18	11467.24	8464.15	25830	Taprang	1374.24
								Urladani(E)	302.99
								Urladani (W)	600.94
								Urladani (C)	663.54
								Chura (B)	660.75

								TOTAL	**3602.46**
2011-12	23	18846.14	C	20	17370.77	8068.12	24910	Urladani(E)	287.69
								Urladani (W)	610.53
								Urladani (C)	577.15
								TOTAL	**1475.37**
2012-13	23	18619.25	D	9	4571.72	1313.55	15000	Taparang	1834.49
								Satami	313.44
								Chura 'A' East	1168.8
								Chura 'A' West	677.87
								Chura 'B'	622.7
								Urladani(E)	822.13
								Urladani West	655.72
								Urladani Central	1276.38
								Kadalighati	739.51
								Brahmani East	1622.52
								Brahmani West	537.63
								Poddara	316.92
								Kanamanjur	374.57
								Th. Gundi	3084.85
								TOTAL	**14047.53**
2013-14	23	15988.8	A	7	6675.41	2493.88	3000	Telen	628.41
								Taparang	1017.81
								Satami	327.44
								Ramud	210.31
								Puijhari	748.5
								Chura 'A' East	1137.55
								Chura 'A' West	868.36
								Chura 'B'	593.57
								Urladani(E)	430.19
								Urladani West	686.23
								Urladani Central	642.92
								Porgel	445.63
								Kadalighati	318.28
								Brahmani East	570.11
								Brahmani West	432.48
								Poddara	255.6
								TOTAL	**9313.39**
2014-15	23	16127.64	B	0	0	0	0	Telen	435.13
								Taparang	1374.24
								Satami	305.53
								Benaguda East	376.84
								Benaguda West	416.30
								Sulia	798.14
								Ramud	113.30

								Puijhari	531.49
								Chura 'A' East	1369.96
								Chura 'A' West	856.34
								Chura 'B'	660.75
								Urladani East	1369.96
								Urladani West	600.94
								Urladani Central	663.54
								Porgel	324.87
								Porgel Extn	809.09
								Kadalighati	313.55
								Brahmani East	796.82
								Brahmani West	495.84
								Alma	204.12
								Poddara	300.17
								Kanamanjur	481.88
								Th. Gundi	2528.84
								TOTAL	**16127.64**
2015-16	23	18846.14	C	19	16862.69	7292.34	2180	Chura 'B'	508.08
								Urladani East	287.69
								Urladani West	610.53
								Urladani Central	577.15
								TOTAL	**1983.45**
2016-17	23	18619.25	D	4	1967.18	0	13181	Telen	795.97
								Taparang	1834.49
								Satami	313.44
								Benaguda East	337.74
								Sulia	1037.00
								Ramud	190.07
								Puijhari	243.76
								Chura 'A' East	1168.8
								Chura 'A' West	677.87
								Chura 'B'	622.7
								Urladani(E)	822.13
								Urladani West	655.72
								Urladani Central	1276.38
								Kadalighati	739.51
								Brahmani East	1622.52
								Brahmani West	537.63
								Poddara	316.92
								Kanamanjur	374.57
								Th. Gundi	3084.85
								TOTAL	**16652.07**
2017-18	23	15988.8	A	7	5604.96	0	38560	Telen	628.41
								Taparang	1017.81
								Satami	327.44

								Benaguda East	751.84
								Chura 'A' East	1137.55
								Chura 'A' West	868.36
								Chura 'B'	593.57
								Urladani(E)	430.19
								Urladani West	686.23
								Urladani Central	642.92
								Kadalighati	318.28
								Brahmani East	570.11
								Brahmani West	432.48
								Poddara	255.6
								Kanamanjur	386.45
								Th. Gundi	1336.60
								TOTAL	**10383.84**
2018-19	23	15069.67	B	2	1225.39	-	38000	Telen	435.13
								Taprang	1374.24
								Satami”	305.53
								Benaguda	376.84
								Sulia	798.14
								Ramud	113.30
								Puijhari	531.49
								Chura ‘A’ East	1369.96
								Chura ‘A’ West”	865.34
								Chura ‘B’	660.75
								Urladani East	302.99
								Urladani West	600.94
								Urladani Central	663.54
								Porgel	324.87
								Kadalighati	313.55
								Brahmani East	796.82
								Brahmani West	495.84
								Amla	204.12
								Poddara	300.17
								Kanamanjur	481.88

								Th.Gundi	2528.84
								TOTAL	**13844.28**
2019-20	23	18846.14	C	1	1269.65	-	42000	Telen	838.37
								Taprang	1051.41
								Satami	923.35
								Benaguda East	223
								Benaguda West	1631
								Sulia	2119
								Ramud	95.37
								Puijhari	803.53
								Chura ‘A’ East	702.54
								Chura ‘A’ West	955.57
								Chura ‘B’	508.08
								Urladani East	287.69
								Urladani West	610.53
								Urladani Central	577.15
								Porgel	628.06
								Kadalighati	312
								Brahmani East	372.77
								Brahmani West	1078.87
								Amla	335.01
								Poddara	431.21
								Kanamanjur	658.52
								Th.Gundi	2433.46
								TOTAL	**17576.49**
2020-21	23	18619.25	D	2	868.53	-	19000	Telen	795.97
								Taparang	1834.49
								Satami	313.44
								Benaguda East	337.74
								Benaguda West	673.29

								Sulia	1037.00
								Ramud	190.07
								Puijhari	243.76
								Chura 'A' East	1168.8
								Chura 'A' West	677.87
								Chura 'B'	622.7
								Urladani East	822.13
								Urladani West	655.72
								Urladani Central	1276.38
								Porgel	425.36
								Kadalighati	739.51
								Brahmani East	1622.52
								Brahmani West	537.63
								Poddara	316.92
								Kanamanjur	374.57
								Th. Gundi	3084.85
								TOTAL	**17750.72**

Achievement :

The details of bamboo production in the Division hasd been exhibited in the above table. As can be seen there from during 2010-11, Taprang, Urladani and Chura B coupes are not worked. During 2011-12 Urladani coupe ws not worked out. During 2012-13 Alma, Kanamanjur, Brahmani, Th.padar Gundi, Ramud, Pujhari, Taprang, Satami, Urladani, Progel ext.,Chura are not worked out. During 2013-14 Podhar, Brahamani, Kadalighati, Telen,Ramud, Pujhari, Tarang, Satami, Urladani, Progel, Sikerguda, Chura are notworked out. In Urladani forest block there is need of intensive silvicultural operation. Less achievement then the prescription in the working plan is due to want of proper silvicultural operation and shortage of manpower.

The details of bamboo coupe area statement has been exhibited. The plantation target during the plan period has been exhibited. Year wise and forest block wise prescription of bamboo workings have been exhibite. Year wise and forest block wise achievement in bamboo overlapping working circle has been exhibited. It is seen that only 6000 ha. SSO could be carried out during 2013-14 only. Against plantation target of 1000 ha. , 455 ha. could be achieved during the plan period ending 2013-14. In view of the potentiality of bamboo clumps, it is desirable that this overlapping working circle should continue with prescriptions to increase Silvicultural operation for bamboo forest regeneration.

Impact of implementation of working plan prescription on forest :

1. Rate of growth of new culms become more
2. Congestion of bamboo clumps removed
3. Incidence of forest fire in bamboo coupes became less
4. Less soil erosion-Malformed bamboo on cleaning also being used by VSS

Reason for non-implementation of working plan prescription:

1. Works are executed as per fund received in the Division

Effect on forest due to non-implementation of working plan prescription:

1. Slow rate of growth of new rhizomes
2. High congestion of bamboo clumps
3. Incidence of forest fire damaging even dead and dry bamboos
4. Increased soil erosion.

11.2.6.6 Non-Timber Forest Produce (Overlapping) Working Circle

The importance of tapping of N.T.F.P resource of the forests has gained momentum as the most viable, sustainable and profitable source of income from forestry sector. Since fruit, flower, seed, leafs etc. of a variety of plants i.e. tree, shrubs, climbers, grasses etc. are used as N.T.F.P and these are scatteredly occurring throughout the Forest Division, the constitution of this separate overlapping working circle can serve the purpose of managing the production, collection and improvement of these crops in a meaningful manner. The area kept under this overlapping working circle is 122543.57 ha. spreading throughout the Forest Division and covering the entire plan area.

The forest of this Division contains a number of N.T.F.P. species. These species are almost covering 69 items transferred to Gram Panchayats for regulating the collection and trade in phases vide Government of Orissa, Forest and Environment Department Resolution No.5503 dt.31.03.2000 (60 items), Resolution No.13285 dt.23.08.2000 (7 Items) Resolution No.15325 dt.21.09.2000 (1 Item) and Resolution No. 3695 dt.02.03.2006 (1 item). Such species along with their local name, trade name, botanical name, parts used, purpose of use and collection period are furnished in a Tabular Statement as enclosed .

Kenduleaf collection and processing is done by the State government while marketing is done through O.F.D.C. Ltd.. A sizable income accure tothe local Advisi people of Kalahandi District from January to June through bush cutting operation, phadi and godown repairs, collection of leaves at approved price, drying and storage operation, processing and binding and transportation of bags to the godowns where those are delivered to OFDC Ltd. for marketing. Besides for marketing the produce, the OFDC Ltd. Used to pay royalty fixed by Government. In hot summer it is main income generation item to the local adivasi people.

Apart the following NTFP items are of great importance in the Division

Tamarind	=	(Tamarindus indica Linn),
Hill Broom or Phul Jhadu	=	(Thysanolaena maxima (Roxb) Kuntze)
Thorn Broom or Kanta Jhadu	=	(Aristida setacea Retz),
Amla	=	Phyllanthus emblica (L.)
Bahada	=	Belleric myrobalan (Terminalia bellirica, Gaertn.)
Harida	=	Terminalia chebula (Retz.)
Siali	=	Bauhinia bahlii (Siali leaves)
Char	=	Buchanania lanzan, Spreng. (Char seed)
Mahua	=	Madhuca indica, Gmel. (Mahul),Mahua Flower,Mahua Seeds
Kusum	=	Schleichera oleosa (Lour.)
Karanja	=	Pongamia pinnata (L.)
Sal	=	Shorea robusta (Roxb. ex Gaertn.),Sal Seeds ,Sal Leaves
Neem		Azadirachta indica (A. Juss.),Neem Seed
Dhataki	=	Woodfordia fruticosa (Salisb.),
Satabari	=	Aspargus recimosus (Willd.)Honey

Species requiring focussed attention for processing, value addition and marketing during the plan period on priority basis locality wise are indicated below.

Name of theNTFP item	**Locality**	**Name of the Range**
Siali Leaves	1.Bhawanipatna	Bhawanipatna
	2.Jurakhaman	M.Rampur
	3. Manikera	M.Rampur
Tamarind	1. Manikera	M.Rampur
Hill Broom	1. Urladani	Narla
	2. Mohangiri	M.Rampur
	3.Bhawanipatna	Bhawanipatna
	4. Manikera	M.Rampur
Harida/Bahada/Amla	1. Jurakhaman	M.Rampur
Amla	1. Jurakhaman 2. Kegaon 3. Rupra Road	M.Rampur Kegaon Narla
Mohua Seed	1. Mohangiri	M.Rampur
	2. Sagada	Bhawanipatna
	3. Kegaon	Kegaon
Honey	1.Jurakhaman	M.Rampur
Neem Seed	1. Narla, 2.Kegaon	Narla, Kegaon
Char Seed	1.Kegaon, 2.Mohangiri, 3.Jurakhaman	Kegaon, M.Rampur, M.Rampur

The skill upgradation of local people for processing technique, value addition and storage in respect of major NTFP items individually shall be made along with marketing strategy.

Medicinal Plants

Plants used predominantly for the health care are popularly known as medicinal plants. Though all categories of plants like trees, herbs, climbers, grasses are the source of ingredient for medicine.

Sl.No.	Local Name	Botanical Name	% of the Total Demand
1	Anla	Phyllanthus emblica	12.5
2	Satabari	Asparagus racemosus	6.8
3	Aswagandha	Withania somnifera	4.9
4	Harida	Terminalia chebula	4.5
5	Ashok	Saraca asoca	4.4
6	Bela	Aegle marmelos	3.7
7	Sunamukhi	Cassia senna	3.6
8	Basanga	Adhathoda zeylanica	3.5
9	Pipali	Piper longum	2.4
10	Brahmi	Bacopa monnieri	2.2
Total: -			**48.5**

In the forest blocks of this Division, Anla, Harida, Satabari, Bela, Basanga are available adequately. Besides that there is potentiality for Dhatuki flower, Kurei seeds and Bhuin Neem. Some medicinal species like Serpentina, Rasna, Asparagus, Vetiver, Anantamula.

VSS shall be induced to take up cultivation of medicinal herbs as an income generating activity. In this forest division, during 2005 cultivation of Aswagandha was introduced in 3 (three) VSS. The result is encouraging. The Range Officer should assess the feasibility while examining the Micro Plan for Joint Forest Management and recommend species suitable for the locality. This will serve the dual purpose of cultivation and propagation of medicinal plants as well as augmenting to the earning of the people. In Kalahandi there are a good number of Vaidyas i.e. traditional healers who are depending on the forests for their raw materials. So it is prescribed to explore this aspect while preparing the Micro Plan for the VSS. These traditional healers also need training on sustainable harvesting of medicinal plants.

Prescription

The prescription was given for important Minor Forest Produce items including Kenduleaf. Mostly the method of collection / harvest and the time were prescribed individual item wise.

Implementation

No remarkable work was done except including NTFP plantations in the normal plantations to improve the plant population. The control over the collection and

trade was also not effective particularly after transfer of the same to the fold of Gram Panchayats from Forest Department during 2000. 42 nos. of NTFP godown have been constructed to support the rural people for storing their materials. Enforcement of the payment of minimum purchase price to the primary gatherers has not been strictly implemented. NTFP surveys are conducted under 13th FC to increase the NTFP plantations and the income of the people.

Result

After transfer of control over collection and trade from Forest Department to Gram Panchayats an indifferent situation has developed for its management. There is virtually no control over the Traders to purchase the commodities at minimum purchase price from the gatherers. Earlier the agencies entrusted for procurement was forced to collect the available quantity at the fixed price. At present the Traders are free to purchase according to their suitability and profitability. It is almost a buyer's market. Kenduleaf being managed departmentally is doing well with payment of good price to the pluckers in addition to some other incentives. Destructive collection is also observed which is reducing the production potentiality.

Remarks

The source of benefit which can easily be accrued annually in perpetuity is Non Timber Forest Produce (NTFP). In the emerging situation for retaining adequate vegetal cover, the production of Timber is bound to be restricted. On the other hand some sustained benefit specially in terms of income is required to be provided to the forest fringe villagers to ensure proper protection. So there is no alternative except resorting to tapping of NTFP. This is the major area of thrust in forestry sector to provide livelihood support to the forest dwellers. Therefore it is imperative to retain this Working Circle with suitable modification for harnessing this resource optimally and scientifically.

11.2.6.7Wildlife (Overlapping) Working Circle

Wildlife being an integral part of forests, its management needs special emphasis on different aspects like conservation, development and prevention of depredation and conflict. Constitution of a separate working circle is necessary in view of the management is mostly oriented for conservation and development of tree crop. Wildlife is also available in different pockets spreading over majority of the forest blocks of the Division. So an overlapping working circle can serve the interest of wildlife better. Accordingly an overlapping working circle is constituted assigning an area of 122343.92 ha. It constitutes 99.83% of the plan area.

Almost all the areas in the working plan were assigned to this Working Circle, Habitat diversity of different order is marked with high degree of bio diversity. This Working Circle was constituted to promote the Wild Life through out the Division for which the entire Plan areas were allotted to this Working Circle.

Special Objective of Management

1. Protection and improvement of Wild Life habitat and natural eco-system
2. Increased bio-diversity with increased Wild Life population
3. Protection and recovery of endangered species.

4. Eco-tourism and nature recreation.
5. People's participation in nature conservation.

Prescription

Protection of Wild Life habitat from fire, grazing, illicit felling, encroachment, poaching was given priority for execution through motivation and persuasion of local people along with enforcemental existing Acts and Rules. Improvement of habitat for food, water, salt licks was also prescribed. Estimation of Wild Life population at regular interval was suggested with a calendar of programme.

Implementation

Water Bodies have been created at different places of the Division to provide water facility to the wild animals. Habitat improvement through Silvicultural Operation of Bamboo, Rehabilitation of Degraded Forest, Block plantations of NTFP and Mixed category and Subsidiary Silvicultural Operation have been taken up to some extent. Thus specific activities for improvement of Wild Life habitat in particular is very less.

Special emphasis was given for –

- Improvement of Wildlife habitat
- Enhancement of Forest Cover
- Increase in food availability
- Maintenance and improvement of Corridor
- Development of Water source and sal lick
- Control of Man-animal conflict.

Protection measures include –

- Deployment of Anti-poaching squads
- Information retrival
- Establishment of antipoaching gates
- Awareness among local people
- Development of Eco-tourism
- Infrastructure development and training
- Prosecution of Wildlife Crime
- Wildlife depredation
- Fire protection
- Incentive & awards.

Results

Due to non-implementation of the prescription to the projected extent the expected outcome could not be obtained. Awareness among the people have been created through celebration of Wild Life Week, Elephant Day etc.. During this plan period due to the efforts of field staff, an interstate gang of elephant poacher were nabbed and remanded to Jail custody. Similarly prompt actions have been taken to arrest the Wild Life offenders for which the crime has been kept under control. Rescue operations gave a good impact on the public

for protection of Wild Life. On the other hand elephant depredation particularly crop damage during harvest period is very much felt during the plan period.

The wildlife especially the wild animals are the victim of both habitat degradation and poaching. The habitat degradation has been described in detail under the paragraphs dealing with the injuries to which the crop is liable. Due to degradation in habitat, the population of herbivores is decreasing which affecting the population of carnivores leading to the disturbance in the food chain. The equilibrium in the food chain is highly essential to maintain the population of wild animals properly. The diseases affecting the wild animals have not been assessed. Further epidemic of serious nature causing a great toll to the wildlife has not been reported so far in Kalahandi. Only death of wild animal which has been noticed mainly on account of poaching and other unnatural factors have been documented for past several years and the same is furnished below.

Table no.11.17

Year	Elephant	Nos. of wild animals killed							
		Leopard	Wild Hyna	Spotted deer	Barking Deer	Wild Boar	Wild Beer	Four hourned Antilope	Total
2007-08	1	0	0	0	1	1	2	0	5
2008-09	0	0	0	1	1	0	1	0	3
2009-10	0	0	0	0	1	0	2	0	3
2010-11	1	0	0	0	1	0	0	0	2
2011-12	0	0	0	0	0	0	0	0	1 (Bajra-kapta)
2012-13	1	0	0	0	0	1	0	0	2
2013-14	0	0	0	3	1	0	0	0	4
2014-15	0	0	0	0	0	1	0	0	1
2015-16	0	0	0	0	0	1	0	0	1
2016-17	0	0	0	0	0	0	0	0	0
2017-18	0	0	0	0	0	0	0	0	0
2018-19	2	0	2	2	0	0	0	1	7
2019-20	0	0	1	3	0	0	0	0	4
2020-21	0	0	0	0	0	0	0	0	0

Some times wild animals trapped or injured are also rescued and provided required treatment to regain the normal condition. After recovery the animals are mostly let free to the natural habitat. In some cases it is sent to Nandankanan / other Zoological Park. The details of such rescue cases are furnished below

Table no.11.18

Wild Animals Rescued

Year	Name of the wild animals rescued	Remarks
2007-08	Nil	
2008-09	Nil	
2009-10	Nil	
2010-11	Nil	

2011-12	Nil	
2012-13	Nil	
2013-14	Nil	
2014-15	Nil	
2015-16	1no. Female Baby elephant	Nandankanan Zoo
2016-17	1 no. of Barking deer & peacock each	Papdahandi , Nawarangpur
2017-18	1 no.female Barking deer 1 no. Male peacock 1 no. male Asian palm civet (Teddy cat)	Dt. 16.11.2017
2018-19	Nil	
2019-20	Nil	
2020-21	1 no. Sloth Bear	Dt. 15.08.2020

Forest fire and grazing are not only damaging the flora but also affecting the fauna to a great extent. Due to over grazing by domestic cattle in the forests the fodder for the herbivores are becoming insufficient leading to a situation of scarcity. So the herbivores are depredating crop fields outside the forest area and become the easy victim of the people. Similarly during the summer in search of water the wild animal move outside in absence of adequate water hole in the forest and fall as an easy prey of the poachers. This situation is also further aggravated due to forest fire in summer season compelling the wild animal to move outside for escape. The killing of deer and wild boar are attributed to the aforesaid reason.

The elephant depredation is on rise in the recent years and this menace is directly proportional to the discontentment of the people. The elephant depredation during last plan period is furnished below.

Elephant Depredation
Table no.11.19

Year	**No. of Cases**	**Crop damaged (In Acre)**	**Compassionate amount paid**
2007-08	52	57.30	57,300
2008-09	68	131.77	1,31,770
2009-10	95	148.12	1,48,120
2010-11	37	51.36	51,360
2011-12	72	103.91	1,65,400
2012-13	334	116.105	7,52,200
2013-14	187	49.59	5,02,900
2014-15	Nil	Nil	Nil
2015-16	287	57.23	5,77,180
2016-17	152	39.13	3,91,600
2017-18	07	3.02	35,640
2018-19	311	145.74	14,65,600
2019-20	294	144.43	15,16,380
2020-21	163	87.009	15,32,740
Total	**2059**	**1134.714**	**7328190**

Through suitable Elephant corridor management plan, efforts are made to reduce the crop damages.

Apart from the above depredation, there are instances of human injury and death by the wild animals. The details of such incidence for the last plan period is furnished below.

Table no.11.20

Year	Human killed		Human injuries	
	No. of cases	Compassionate amount paid	No. of cases	Compassionate amount paid
2007-08	0	0	1	2000
2008-09	0	0	10	20000
2009-10	0	0	3	37330
2010-11	0	0	1	2000
2011-12	2	300000	10	23000
2012-13	0	0	6	27000
2013-14	0	0	0	0
2014-15	0	0	1	5000
2015-16	0	0	0	0
2016-17	0	0	6	30000
2017-18	0	0	04	20000
2018-19	03	1100000	03	15000
2019-20	01	400000	03	15000
2020-21	-	-	7	35000
Total	**6**	**18,00,000**	**55**	**216330**

It is observed that death is comparatively less to the quantum of injury. No death of domestic animals by Wild animals are reported.

Remarks

Notwithstanding the result of outgoing management prescription undoubtedly there is necessity of retaining this Over Lapping Working Circle. Though the Karlapat Sanctuary Area has been excluded from the purview of this revision,the other area having potentiality of Wild Life needs suitable management prescriptions. Man – Elephant conflict is on rise now a days. It is required to be curtailed. Elephant is the important Wild Life of the Forest Divisions. Creation of congenial habitat is essential to enhance the Wild Life population

11.2.6.8Joint Forest Management (Overlapping) Working Circle

Joint Forest Management with active participation of the VSS is now days a unique panacea to address the problems faced on the account of management of forests particularly protection. People's involvement is a must in the present scenario for ensuring effective protection of forests. This is mostly an extension activity coupled with sharing of technical aspects for the management. Though VSS have been constituted for Joint Forest Management, the same is required to be consolidated for providing a sound and stable

system of forest management involving people at village level. Therefore, an overlapping working circle is constituted to encourage this aspect within the ambit of technical management as provided to the main working circle. Though a total number of 575 VSS have already been constituted with assignment of 41799.95 ha.of forest area but 41799.95 ha. are coming under the plan area and hence assigned to this working circle. Rest are revenue forest. So the area assigned to this working circle is 32631.23 ha. inclusive of 199.65 ha. of village forest declared under Orissa Forest Act, 1972. At present it covers 26.62% of the plan area. There is provision of the automatic inclusion of the additional area in this working circle in the event of constitution of more new VSS or allotment of more area to the existing VSS.

The Vana Samrakshana Samitis (VSS) have been constituted and strengthen during last plan period. The number of VSS constituted so far till the end of last Plan period along with the assignment of area for both the divisions is furnished as under.

Status of VSS

Name of the Division	No. of VSS constituted	Forest area assigned in Ha. inclusive of revenue forest
Kalahandi North Division	593	42,679.97

Amenities provided to these VSS under Entry Point Activities of the aforesaid scheme during the last plan period are construction of community hall, mandap, awareness centre, bathing ghat, repair of village road, digging of tube wells, renovation of pond and supply of usable articles like gas light, chair, table, Durrry, iron plough, music system etc. Awareness campaign, training and exposure visit have also been conducted to enhance the capacity building of the VSS for strengthening the institution of JFM.

Joint Forest Management is gaining momentum day by day in both the Divisions. The impact of this system has been felt for conservation and sustainable management of the forests. On the whole JFM is acting panacea to the problems faced by the forest officials alone in ensuring effective protection of the forests. The scope is vast and furtherance of this system is imperative for smooth management of forests of Kalahandi.

Implementation :-

VSS s are instutionalised through regular meeting with it's members

- Capacity building of VSS s in the Division are ensured through imparted training programmes.
- Preparation of Micro Plans are ensured.
- VSSs members are assigned forest areas specially forest fringe areas for protection through regular information retrieval.
- They are given understanding about the benefit of usufruct.

60nos. of VSSs are contacted through a meeting held on 4.7.2015 at Bhawanipatna, the proceedings of the meeting with VSSs .

Remarks :-

Joint Forest Management is conceptualized for protection, conservation and management of the natural forests by the forest officials and local people combinedly in consonance with the compelling need of the circumstances. Such change in the style of management of forests is really the call of the time. Government of Orissa for the first time in the country issued an resolution vide No.10F (Pron.) 47/88/17240/FFAH dt.01.08.1988 assigning a specific role to the villagers in protection of peripheral reserve forests adjoining their villages with simultaneous permission to meet their bonafide requirement of firewood and small timber from the said forest areas. This resolution was amended vide Resolution No.10F (Pron.) 47/88/23638/FFAH dt.13.10.1988 prescribing the procedure for constitution of a village level forest protection committee. The Govt. of India basing on the provisions contained in National Forest Policy 1988 emphasising the active involvement of people in protection, conservation and management of forests, have issued direction to all State Governments for implementation.

11.2.7 Annual Working scheme for the year 2017-18

As the working plan of J.S Mohanty was ended during 2016-17, the annual working scheme for the year 2017-18 was prepared for extension of the J.S Mohanty's working plan specifically to work timber coupes and Bamboo coupes as well as to rehabilitate the degraded forest for the year 2017-18.

11.2.7.1 Prescription

In this scheme three working circles have been worked out in continuation with the methods prescribed in J.S Mohanty's Working Plan. This three working circles are:

1. Selection Working Circle
2. Bamboo Working Circle
3. Rehabilitation Working Circle

11.2.7.2 Selection Working Circle

The general description**,** objectives of Management and prescription of Selection Working Circle in this working scheme remains same as before. As per the sequence of felling in the J.S Mohanty's Working Plan, coupe No. I is due for working during 2017-18. Accordingly the sequence of felling in different felling series for the year 2017-18 is furnished below.

Table no.11.21

Table Sequence of felling in different felling series for the year 2017-18

Name of the felling series	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area
Urladani East	Urladani RF	I	1	288.09	**557.23**
			2	269.14	

Urladani West	Urladani RF	I	29	104.68	**502.28**
			30	254.52	
			32	143.08	
Taparang	Taparang	I	11	407.30	**685.08**
			13	277.78	
Telen	Telen RF	I	1	628.41	**628.41**
Benaguda	Benaguda RF	I	2	276.05	**555.18**
			3	279.13	
Sunamukhi	Sunamukhi RF	I	1	235.33	**549.31**
			2	313.98	
Sulia	Sulia PRF	I	1 (part)	549.83	**549.83**
Pongabaju	Pongabaju PRF	I	1 (part)	612.34	**612.34**
Total Area				**4639.66**	**4639.66**

11.2.7.3 Implementation

As prescribed in the working scheme 2017-18 Coupe No I of felling series of Urladani East , Urladani West, Taparang, Telen, Benaguda, Sulia and Pongabaju have been demarcated and different species which were more than the exploitable girth were marked by following the marking rules diligently and the working agency (OFDC Ltd.) executed the felling work. The achievement is 4639.66 ha.(100%). The extent of working is given below

ABSTARCT OF TREE MARKED AND FELLED IN THE WORKING SCHEME 2017-18

Table no.11.22

Name of the felling series	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area	No. of trees marked		Remarks
						Sal	Non-sal	
Urladani East	Urladani RF	I	1	288.09	**557.23**	77	9	Achieved 4639.66 Ha.
			2	269.14				
Urladani West	Urladani RF	I	29	104.68	**502.28**	1	1	
			30	254.52				
			32	143.08				
Taparang	Taparang	I	11	407.30	**685.08**	304	32	
			13	277.78				
Telen	Telen RF	I	1	628.41	**628.41**	147	10	
Benaguda	Benaguda RF	I	2	276.05	**555.18**	133	50	
			3	279.13				
Sunamukhi	Sunamukhi RF	I	1	235.33	**549.31**	35	1	
			2	313.98				
Sulia	Sulia PRF	I	1 (part)	549.83	**549.83**	6	4	
Pongabaju	Pongabaju PRF	I	1 (part)	612.34	**612.34**	23	32	
Total Area				**4639.66**	**4639.66**	**726**	**139**	

11.2.7.4 Subsidiary Silvicultral Operation

After the felling was carried out in the above felling series, subsidiary Silvicultral operation were done in 4280 ha. as below

Table no.11.23

Table sso worked areas

Name of the felling series	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area	Remarks
Urladani East	Urladani RF	I	1	288.09	**557.23**	Achieved 4280 Ha.
			2	269.14		
Urladani West	Urladani RF	I	29	104.68	**502.28**	
			30	254.52		
			32	143.08		
Taparang	Taparang	I	11	407.30	**685.08**	
			13	277.78		
Telen	Telen RF	I	1	628.41	**628.41**	
Benaguda	Benaguda RF	I	2	276.05	**555.18**	
			3	279.13		
Sunamukhi	Sunamukhi RF	I	1	235.33	**549.31**	
			2	313.98		
Sulia	Sulia PRF	I	1 (Part)	549.83	**549.83**	
Pongabaju	Pongabaju PRF	I	1 (Part)	612.34	**612.34**	
Total Area				**4639.66**	**4639.66**	

11.2.7.5 Bamboo(Overlapping) Working Circle

In this working scheme the area allotted to Bamboo (Overlapping) Working Circle is 15988.80 ha. mostly confined to M.Rampur, Narla, Bhawanipatna Ranges to a great extent and Kegaon Range to some extent.

Table no.11.24

Name of Range	Name of cutting series	Name of Forest Block	Annual cutting coupe	Compt. No	Area in Ha.	Total Area
1	**2**	**4**	**5**	**6**	**7**	**8**
M.Rampur	Telen	Telen RF	A	1	628.41	**628.41**
	Taparang	Taparang RF	A	15,16,17	377.32 302.45 338.04	**1017.81**
	Satami	Satami RF	A	2	327.44	**327.44**
	Benaguda East	Benaguda RF	A	5 & 6	542.97 208.87	**751.84**
	Benaguda West	Benaguda RF	A	11 & 12	364.68 253.74	**618.42**
	Sulia	Sulia PRF	A	Part + Talnuagaon PRF	1668.00 + 393.95	**2061.95**
	Ramud	Ramud PRF	A	Part	210.31	**210.31**
	Puijhari	Puijhari PRF	A	Part	748.50	**748.50**

Kegaon	Chura 'A'East	Chura 'A' RF	A	13,14,15	397.95 347.78 391.82	**1137.55**
	Chura 'A'West	Chura 'A' RF	A	19,20	439.95 428.41	**868.36**
	Chura 'B'	Chura 'B' RF	A	6,7	273.09 320.48	**593.57**
Narla	Urladani East	Urladani RF	A	10	430.19	430.19
	UrladaniWest	Urladani RF	A	21,25	312.89 373.34	686.23
	Urladani Central	Urladani RF	A	12,16	301.80 341.12	642.92
	Porgel	Porgel RF	A	3	445.63	445.63
	Porgel Extn.	Porgel Extn. PRF & Sikelguda PRF	A	Part of Porgel Extn. PRF & Sikelguda PRF	692.88 +348.12	1041.00
Bh.Patna	Kadalighati	Kadalighati RF	A	3	318.28	**318.28**
	Brahmani East	Brahmani RF	A	10,11	343.92 226.19	**570.11**
	Brahmani West	Brahmani RF	A	7,8	233.48 199.00	**432.48**
	Alma	Alma RF	A	Alma part	479.15	**479.15**
	Poddara	Poddara RF	A	Poddara part	255.60	**255.60**
	Kanamanjur	Kanamanjur RF	A	Kanamanjur part	386.45	**386.45**
	Th.Gundi	Th.Gundi PRF	A	Th.Gundi PRF part	1336.60	**1336.60**
Total Area					**15988.8**	**15988.8**

11.2.7.6 Implementation

The coupes were demarcated as per the rules described in the J.S Mohanty's Working Plan and treatment map is prepared for each coupe. **5394.65 Ha** of area has been achieved out of the assigned target.

ABSTARCT OF SSO BAMBOO COUPE WORKED CARRIED OUT 2017-18

Table no.11.25

Name of Range	Name of cutting series	Name of Forest Block	Annual cutting coupe	Compt. No	Area in Ha.	Total Area	Yield in SU	Remarks
1	**2**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
M.Rampur	Telen	Telen RF	A	1	628.41	**628.41**		
	Taparang	Taparang RF	A	15,16,17	377.32 302.45 338.04	**1017.81**		
	Satami	Satami RF	A	2	327.44	**327.44**		
	Benaguda East	Benaguda RF	A	5 & 6	542.97 208.87	**751.84**	**36.06**	**Worked**
	Benaguda West	Benaguda RF	A	11 & 12	364.68 253.74	**618.42**	**8.74**	**Worked**
	Sulia	Sulia PRF	A	Part + Talnuagaon PRF	1668.00 + 393.95	**2061.95**	**13.76**	**Worked**
	Ramud	Ramud PRF	A	Part	210.31	**210.31**		
	Puijhari	Puijhari PRF	A	Part	748.50	**748.50**		

Kegaon	Chura 'A'East	Chura 'A' RF	A	13,14,15	397.95 347.78 391.82	**1137.55**		
	Chura 'A'West	Chura 'A' RF	A	19,20	439.95 428.41	**868.36**		
	Chura 'B'	Chura 'B' RF	A	6,7	273.09 320.48	**593.57**		
Narla	Urladani East	Urladani RF	A	10	430.19	430.19		
	UrladaniWest	Urladani RF	A	21,25	312.89 373.34	686.23		
	Urladani Central	Urladani RF	A	12,16	301.80 341.12	642.92		
	Porgel	Porgel RF	A	3	445.63	445.63	**6.34**	**Worked**
	Porgel Extn.	Porgel Extn. PRF & Sikelguda PRF	A	Part of Porgel Extn. PRF & Sikelguda PRF	692.88 +348.12	1041.00	**33.82**	**Worked**
Bh.Patna	Kadalighati	Kadalighati RF	A	3	318.28	**318.28**		
	Brahmani East	Brahmani RF	A	10,11	343.92 226.19	**570.11**		
	Brahmani West	Brahmani RF	A	7,8	233.48 199.00	**432.48**		
	Alma	Alma RF	A	Alma part	479.15	**475.81**	**11.42**	**Worked**
	Poddara	Poddara RF	A	Poddara part	255.60	**255.60**		
	Kanamanjur	Kanamanjur RF	A	Kanamanjur part	386.45	**386.45**		
	Th.Gundi	Th.Gundi PRF	A	Th.Gundi PRF part	1336.60	**1336.60**		
Total Area					**15988.8**	**15988.8**	**110.14**	

11.2.7.7 Subsidiary Silvicultural Operation

Since productive of the Bamboo forest depends on proper and timely Silvi cultural operations, SSO of the above Bamboo coupe were carried out immediately after actual harvest. Total area of 7420 Ha. has been worked out as Bamboo coupe SSO. The abstract of SSO Bamboo work carried out in 2017-18 is given below

THE ABSTRACT OF SSO BAMBOO WORK CARRIED OUT IN 2017-18

Table no.11.26

Name of Range	Name of cutting series	Name of Forest Block	Annual cutting coupe	Compt. No	Area in Ha.	Total Area	SSO work done in Ha	Remarks
1	**2**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
M.Rampur	Telen	Telen RF	A	1	628.41	628.41	0	
	Taparang	Taparang RF	A	15, 16, 17	377.32 302.45 338.04	1017.81	200	
	Satami	Satami RF	A	2	327.44	327.44	100	
	Benaguda East	Benaguda RF	A	5 & 6	542.97 208.87	751.84	600	
	Benaguda West	Benaguda RF	A	11 & 12	364.68 253.74	618.42	550	
	Sulia	Sulia PRF	A	Part + Talnuagaon PRF	1668.00 + 393.95	2061.95	750	
	Ramud	Ramud PRF	A	Part	210.31	210.31	150	
	Puijhari	Puijhari PRF	A	Part	748.50	748.50	575	

Kegaon	Chura 'A'East	Chura 'A' RF	A	13,14, 15	397.95 347.78 391.82	1137.55	595	
	Chura 'A'West	Chura 'A' RF	A	19,20	439.95 428.41	868.36	400	
	Chura 'B'	Chura 'B' RF	A	6,7	273.09 320.48	593.57	300	
Narla	Urladani East	Urladani RF	A	10	430.19	430.19	150	
	UrladaniWest	Urladani RF	A	21,25	312.89 373.34	686.23	0	
	Urladani Central	Urladani RF	A	12,16	301.80 341.12	642.92	300	
	Porgel	Porgel RF	A	3	445.63	445.63	0	
	Porgel Extn.	Porgel Extn. PRF & Sikelguda PRF	A	Part of Porgel Extn. PRF & Sikelguda PRF	692.88 + 348.12	1041.00	950	
Bh.Patna	Kadalighati	Kadalighati RF	A	3	318.28	318.28	240	
	Brahmani East	Brahmani RF	A	10,11	343.92 226.19	570.11	200	
	Brahmani West	Brahmani RF	A	7,8	233.48 199.00	432.48	180	
	Alma	Alma RF	A	Alma part	479.15	479.15	450	
	Poddara	Poddara RF	A	Poddara part	255.60	255.60	180	
	Kanamanjur	Kanamanjur RF	A	Kanamanjur part	386.45	386.45	350	
	Th.Gundi	Th.Gundi PRF	A	Th.Gundi PRF part	1336.60	1336.60	200	
Total Area					**15988.8**	**15988.8**	**7420**	

11.2.7.8 Rehabilitation Working Circle

To restored the degraded forest through suitable Silvicultural operation are artificial regeneration with emphasis on protection , the forest having low density on under shivered biotic interference are kept under rehabilitation Working Circle. Except Forest Block allocate to Selection and Protection Working circle , all other Forest Block are included in this working circle under the scheme the total area allotted to this Working Circle during 2017-18 was 8098.41 ha. Out of the assigned area 600 ha. of area has been achieved. The area allotted to different rehabilitated series and its annual achievement is given below

The area allotted to different rehabilitated series and its annual achievement

Table no.11.27

Range	Name of the series	Block	Coupe No.	Comptt. No.	Coupe Area in Ha.	Target during 2017-18 in Ha
Narla	Narla	Narla Extn PRF	I	-	402.93	402.93
	Porgel	Sikerguda PRF	I		348.12	348.12
	Pogudi	Podgudi PRF	I		816.47	816.47
Bh.Patna	Kadalighati	Kadalighati RF	I	1 2	739.51	739.51

	Kanamanjur RF	Kanamanjur	I		471	471
	Brahmani	Brahmani RF	I	1 2 3	697.26	697.26
	Th.Gundi West	Thuapadar Gudi PRF	I	-	524.63	524.63
	Th.Gundi East	Th.Gundi	I		500.93	500.93
	Gundi	Gundi PRF	I		485.5	485.5
Kesinga	Bazargarh North	Bazargarh RF	I		302.32	302.32
	Bazargarh South		I		472.55	472.55
Kegaon	Kumkot	Kumkot RF	I	1 2	540.87	540.87
	Chura A RF	Chura A	I	1 2 17	824.85	824.85
	Chura 'B'	Chura 'B' RF	I	1	275.38	275.38
	Nageswar	Nageswar RF	I	-	422.02	422.02
	Adabari	Adabari RF	I	1 (Part)	273.07	273.07
Total Area					**8098.41**	**8098.41**

11.2.7.9 Silvicultural Operation

To induce the natural Re-generation Silvicultural operation are carried out in the Rehabilitation series. The Silvicultural operation includes high stump cutting singling out the shoots, cutting of climbers , removal of culm by cleaning operation , adaption of locally important and desirable species, removal of invasive weeds etc. Soil and Moisture Conservation measure form the main component of rehabilitation operation, measures like gully plugging, loose boulder check dam ,contour bounds , Nalla bounding vegetative bounds etc.

11.2.8 Annual Working scheme for the year 2018-19

As the working plan of J.S Mohanty was ended during 2016-17, the annual working scheme for the year 2018-19 was prepared for extension of the J.S Mohanty's working plan specifically to work timber coupes and Bamboo coupes as well as to rehabilitate the degraded forest for the year 2018-19.

11.2.8.1 Prescription

In this scheme three working circles have been worked out in continuation with the methods prescribed in J.S Mohanty's Working Plan. This three working circles are:

1. Selection Working Circle
2. Bamboo Working Circle
3. Rehabilitation Working Circle

11.2.8.2 Selection Working Circle

The general description**,** objectives of Management and prescription of Selection Working Circle in this working scheme remains same as before. As per the sequence of felling in the J.S Mohanty's Working Plan , Coupe No. II is due for working during 2018-19. Accordingly the sequence of felling in different felling series for the year 2018-19 is furnished below.

Table Sequence of felling in different felling series for the year 2018-19

Table no.11.28

Name of the felling series	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area
Urladani East	Urladani RF	II	3	502.81	502.81
Urladani West	Urladani RF	II	33	241.92	628.17
			34	386.25	
Taparang	Taparang	II	10	395.45	872.70
			12	477.25	
Telen	Telen RF	II	2	435.13	858.69
			3	423.56	
Benaguda	Benaguda RF	II	4	579.73	579.73
Sunamukhi	Sunamukhi RF	II	3	405.71	405.71
Sulia	Sulia PRF	II	1 (part)	728.75	728.75
Pongabaju	Pongabaju PRF	II	1 (part)	593.23	593.23
			TOTAL	**5169.79**	**5169.79**

11.2.8.3 Implementation

As prescribed in the working scheme 2018-19 Coupe No II of felling series of Urladani East , Urladani West, Taparang, Telen, Benaguda, Sulia and Pongabaju have been demarcated and different species which were more than the exploitable girth were marked by following the marking rules diligently and the working agency (OFDC Ltd.) executed the felling work. 5169.79 ha of area has been achieved whose detail is given below

ABSTARCT OF TREE MARKED AND FELLED IN THE WORKING SCHEME 2018-19

Table no.11.29

Name of the felling series	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area	No. of trees marked		Remarks
						Sal	Non-sal	
Urladani East	Urladani RF	II	3	502.81	502.81	**176**	**4**	Worked 5169.79 Ha of area.
Urladani West	Urladani RF	II	33	241.92	628.17	**20**	**2**	
			34	386.25				
Taparang	Taparang	II	10	395.45	872.70	**300**	**127**	
			12	477.25				
Telen	Telen RF	II	2	435.13	858.69	**48**	**14**	
			3	423.56				
Benaguda	Benaguda RF	II	4	579.73	579.73	**59**	**17**	
Sunamukhi	Sunamukhi RF	II	3	405.71	405.71	**18**	**1**	
Sulia	Sulia PRF	II	1 (part)	728.75	728.75	**10**	**-**	
Pongabaju	Pongabaju PRF	II	1 (part)	593.23	593.23	**38**	**4**	
TOTAL				**5169.79**	**5169.79**	**669**	**169**	

11.2.8.4 Subsidiary Silvicultural Operation

After the felling was carried out in the above felling series, subsidiary Silvicultural operation were done as below

Table no.11.30

Name of the felling series	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area	Remarks
Urladani East	Urladani RF	II	3	502.81	502.81	**4639.66 Ha of SSO work carried out.**
Urladani West	Urladani RF	II	33	241.92	628.17	
			34	386.25		
Taparang	Taparang	II	10	395.45	872.70	
			12	477.25		
Telen	Telen RF	II	2	435.13	858.69	
			3	423.56		
Benaguda	Benaguda RF	II	4	579.73	579.73	
Sunamukhi	Sunamukhi RF	II	3	405.71	405.71	
Sulia	Sulia PRF	II	1 (Part)	728.75	728.75	
Pongabaju	Pongabaju PRF	II	1 (Part)	593.23	593.23	
TOTAL				**5169.79**	**5169.79**	

11.2.8.5 Bamboo(Overlapping) Working Circle

In this working scheme the area allotted to Bamboo (Overlapping) Working Circle is 15069.67 ha. mostly confined to M.Rampur, Narla, Bhawanipatna Ranges to a great extent and Kegaon Range to some extent

Table no.11.31

Name of Range	Name of cutting series	Name of Forest Block	Annual cutting coupe	Compt. No	Area in Ha.	Total Area
1	**2**	**4**	**5**	**6**	**7**	**8**
M.Rampur	Telen	Telen RF	B	2	435.13	435.13
	Taparang	Taparang RF	B	18,19,20	425.65 431.27 517.32	1374.24
	Satami	Satami RF	B	3	305.53	305.53
	Benaguda East	Benaguda RF	B	8	376.84	376.84
	Benaguda West	Benaguda RF	B	13	416.30	416.30
	Sulia	Sulia PRF	B	Part	798.14	798.14
	Ramud	Ramud PRF	B	Part	113.30	113.30
	Puijhari	Puijhari PRF	B	Part	531.49	531.49
Kegaon	Chura ‘A’East	Chura ‘A’ RF	B	4,5,12,16	292.24 286.96 333.90 456.86	1369.96

	Chura 'A'West	Chura 'A' RF	B	1,2,22	206.36 347.73 311.25	865.34
	Chura 'B'	Chura 'B' RF	B	3,8	336.64 324.11	660.75
Narla	Urladani East	Urladani RF	B	9	302.99	302.99
	UrladaniWest	Urladani RF	B	26,27	373.20 227.74	600.94
	Urladani Central	Urladani RF	B	13,14	349.18 314.36	663.54
	Porgel	Porgel RF	B	4	324.87	324.87
	Porgel Extn.	Porgel Extn. PRF	B	Porgel part+ Mundighati PRF	720.45 88.64	809.09
Bhawani-patna	Kadalighati	Kadlighati RF	B	4	313.55	313.55
	Brahmani East	Brahmani RF	B	5,6,12	249.27 286.71 260.84	796.82
	Brahmani West	Brahmani RF	B	9,18	229.49 266.35	495.84
	Alma	Alma RF	B	Alma part	204.12	204.12
	Poddara	Poddara RF	B	Poddara part	300.17	300.17
	Kanamanjur	Kanamanjur RF	B	Kanamanjur part	481.88	481.88
	Th.Gundi	Th.Gundi PRF	B	Th.Gundi PRF part	2528.84	2528.84
Total area					**15069.67**	**15069.67**

11.2.8.6 Implementation

The coupes were demarcated as per the rules described in the J.S Mohanty's Working Plan and treatment map is prepared for each coupe. 1225.39 Ha of Bamboo coupe area has been worked out.

Table no.11.32

ABSTARCT OF SSO BAMBOO COUPE WORKED carried out 2018-19

Name of Range	Name of cutting series	Name of Forest Block	Annual cutting coupe	Compt. No	Area in Ha.	Total Area	Yield in SU	Remarks
1	**2**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
M.Rampur	Telen	Telen RF	B	2	435.13	435.13		
	Taparang	Taparang RF	B	18,19,20	425.65 431.27 517.32	1374.24		
	Satami	Satami RF	B	3	305.53	305.53		
	Benaguda East	Benaguda RF	B	8	376.84	376.84		
	Benaguda West	Benaguda RF	B	13	416.30	416.30	17.17	**Worked**
	Sulia	Sulia PRF	B	Part	798.14	798.14		
	Ramud	Ramud PRF	B	Part	113.30	113.30		
	Puijhari	Puijhari PRF	B	Part	531.49	531.49		

Kegaon	Chura 'A'East	Chura 'A' RF	B	4,5,12,16	292.24 286.96 333.90 456.86	1369.96		
	Chura 'A'West	Chura 'A' RF	B	1,2,22	206.36 347.73 311.25	865.34		
	Chura 'B'	Chura 'B' RF	B	3,8	336.64 324.11	660.75		
Narla	Urladani East	Urladani RF	B	9	302.99	302.99		
	UrladaniWest	Urladani RF	B	26,27	373.20 227.74	600.94		
	Urladani Central	Urladani RF	B	13,14	349.18 314.36	663.54		
	Porgel	Porgel RF	B	4	324.87	324.87		
	Porgel Extn.	Porgel Extn. PRF	B	Porgel part+ Mundighati PRF	720.45 88.64	809.09	91.42	**Worked**
Bhawani patna	Kadalighati	Kadlighati RF	B	4	313.55	313.55		
	Brahmani East	Brahmani RF	B	5,6,12	249.27 286.71 260.84	796.82		
	Brahmani West	Brahmani RF	B	9,18	229.49 266.35	495.84		
	Alma	Alma RF	B	Alma part	204.12	204.12		
	Poddara	Poddara RF	B	Poddara part	300.17	300.17		
	Kanamanjur	Kanamanjur RF	B	Kanamanjur part	481.88	481.88		
	Th.Gundi	Th.Gundi PRF	B	Th.Gundi PRF part	2528.84	2528.84		
Total area					**15069.67**	**15069.67**	**108.59**	

11.2.8.7 Subsidiary Silvicultural Operation

Since productive of the Bamboo forest depends on proper and timely Silvi cultural operations, SSO of the above Bamboo coupe were carried out immediately after actual harvest. 14000 ha. of Bamboo SSO work has been carried out. The abstract of SSO Bamboo work carried out in 2018-19 is given below

THE ABSTRACT OF SSO BAMBOO WORK CARRIED OUT IN 2018-19

Table no.11.33

Name of Range	Name of cutting series	Name of Forest Block	Annual cutting coupe	Compt. No	Area in Ha.	Total Area
1	**2**	**4**	**5**	**6**	**7**	**8**
M.Rampur	Telen	Telen RF	B	2	435.13	435.13
	Taparang	Taparang RF	B	18,19,20	425.65 431.27 517.32	1374.24
	Satami	Satami RF	B	3	305.53	305.53
	Benaguda East	Benaguda RF	B	8	376.84	376.84
	Benaguda West	Benaguda RF	B	13	416.30	416.30
	Sulia	Sulia PRF	B	Part	798.14	798.14
	Ramud	Ramud PRF	B	Part	113.30	113.30

	Puijhari	Puijhari PRF	B	Part	531.49	531.49
Kegaon	Chura 'A' East	Chura 'A' RF	B	4,5,12,16	292.24 286.96 333.90 456.86	1369.96
	Chura 'A' West	Chura 'A' RF	B	1,2,22	206.36 347.73 311.25	865.34
	Chura	Chura 'B' RF	B	3,8	336.64 324.11	660.75
Narla	Urladani East	Urladani RF	B	9	302.99	302.99
	Urladani West	Urladani RF	B	26,27	373.20 227.74	600.94
	Urladani Central	Urladani RF	B	13,14	349.18 314.36	663.54
	Porgel	Porgel RF	B	4	324.87	324.87
	Porgel Ext	Porgel Extn. PRF	B	Porgel part+ Mundighati PRF	720.45 88.64	809.09
Bhawanipatna	Kadalighati	Kadlighati RF	B	4	313.55	313.55
	Brahmani East	Brahmani RF	B	5,6,12	249.27 286.71 260.84	796.82
	Brahmani West	Brahmani RF	B	9,18	229.49 266.35	495.84
	Alma	Alma RF	B	Alma part	204.12	204.12
	Poddara	Poddara RF	B	Poddara part	300.17	300.17
	Kanamanjur	Kanamanjur RF	B	Kanamanjur part	481.88	481.88
	Th.Gundi	Th.Gundi PRF	B	Th.Gundi PRF part	2528.84	2528.84
	Total				**15069.67**	**15069.67**

11.2.8.8 Rehabilitation Working Circle

To restored the degraded forest through suitable Silvicultural operation are artificial regeneration with emphasis on protection , the forest having low density on under shivered biotic interference are kept under rehabilitation Working Circle. Except Forest Block allocate to Selection and Protection Working circle , all other Forest Block are included in this working circle under the scheme the total area allotted to this Working Circle during 2018-19 was 7036.8 ha. Out of the assigned area 3748.24 ha was worked out. The area allotted to different rehabilitated series and its annual achievement is given below.

The Area Allotted To Different Rehabilitated Series And Its Annual Achievement

Table no.11.34

Range	Name of the series	Block	Coupe No.	Comptt. No.	Coupe Area in Ha.	Target during 2018-19 in Ha	Achieved during 2018-19
Narla	Narla	Karladangar RF	II	-	380.51	380.51	-
	Porgel Extn	Badibahal PRF	II	-	74.06	74.06	-

M.Rampur	Podgudi	Kutigudum PRF	II	-	631.33	631.33	50.00
Bh.Patna	Kadalighati	Kadalighati RF	II	3	318.28	318.28	-
	Kanamanjur	Kanamanjur RF	II	Part	470.00	470.00	-
	Brahmani	Brahamani RF	II	4 6	499.85	499.85	-
	Th.Gundi West	Th.Gundi PRF	II	-	422.31	422.31	-
	Th.Gundi East	Th.Gundi PRF	II	-	442.47	442.47	-
	Gundi	Gundi PRF	II	-	581.85	581.85	-
Kesinga	Bazargarh North	Bazargarh RF	II	-	911.71	911.71	120.00
	Bazargarh South	Bazargarh RF	II	-	645.27	645.27	40.00
Kegaon	Kumkot	Kumkot RF	II	3 4	745.10	745.10	170.00
	Chura 'A'	Chura 'A' RF	II	14 16	804.64	804.64	175.00
	Chura 'B'	Chura 'B' RF	II	2	232.70	232.70	-
	Nageswar	Nageswar Rf	II	-	221.23	221.23	100.00
	Adabari	Adabari RF	II	1(Part)	330.49	330.49	20.00
TOTAL					**7036.8**	**7036.8**	**3748.24**

11.2.8.9 Silviclultural Operation

To induce the natural Re-generation Silvicultural operation are carried out in the Rehabilitation series. The Silvicultural operation includes high stump cutting singling out the shoots, cutting of climbers , removal of culm by cleaning operation , adaption of locally important and desirable species, removal of invasive weeds etc. Soil and Moisture Conservation measure form the main component of rehabilitation operation, measures like gully plugging, loose boulder check dam ,contour bounds , Nalla bounding vegetative bounds etc.

11.2.9 Annual Working scheme for the year 2019-20

As the working plan of J.S Mohanty was ended during 2019-20, the annual working scheme for the year 2019-20 was prepared for extension of the J.S Mohanty's working plan specifically to work timber coupes and Bamboo coupes as well as to rehabilitate the degraded forest for the year 2019-20.

11.2.9.1 Prescription

In this scheme three working circles have been worked out in continuation with the methods prescribed in J.S Mohanty's Working Plan. This three working circles are:

1. Selection Working Circle
2. Bamboo Working Circle

3. Rehabilitation Working Circle

11.2.9.2 Selection Working Circle

The general description**,** objectives of Management and prescription of Selection Working Circle in this working scheme remains same as before. As per the sequence of felling in the J.S Mohanty's Working Plan, Coupe No. III is due for working during 2019-20. Accordingly the sequence of felling in different felling series for the year 2019-20 is furnished below.

Table Sequence of felling in different felling series for the year 2019-20

Table no.11.35

Name of the felling series	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area
Urladani East	Urladani RF	III	4	424.59	**624.04**
			5	199.45	
Urladani West	Urladani RF	III	27	227.74	**479.07**
			28	251.33	
Taprang	Taparang	III	8	474.88	**739.76**
			9	264.88	
Bidabaru	Bidabaru PRF	III	-	615.00	**615.00**
Benaguda	Benaguda RF	III	5	542.97	**751.84**
			6	208.87	
Sunamukhi	Sunamukhi RF	III	4	422.89	**604.49**
			5	181.60	
Sulia	Sulia PRF	III	1 (part)	829.12	**829.12**
Pongabaju	Pongabaju PRF	III	1 (part)	691.96	**691.96**
Total Area				**5335.28**	**5335.28**

11.2.9.3 Implementation

As prescribed in the working scheme 2019-20 Coupe No III of felling series of Urladani East , Urladani West, Taparang, Telen, Benaguda, Sulia and Pongabaju have been demarcated and different species which were more than the exploitable girth were marked by following the marking rules diligently and the working agency (OFDC Ltd.) executed the felling work. 5335.28 ha area has been achieved. The extent of working is given below

ABSTARCT OF TREE MARKED AND FELLED IN THE WORKING SCHEME 2019-20

Table no.11.36

Name of the felling series	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area	No. of trees marked		Remarks
						Sal	Non-sal	
Urladani East	Urladani RF	III	4	424.59	**624.04**	**176**	**10**	
			5	199.45				
Urladani West	Urladani RF	III	27	227.74	**479.07**	**8**	**-**	
			28	251.33				
Taprang	Taparang	III	8	474.88	**739.76**	**334**	**27**	
			9	264.88				

Bidabaru	Bidabaru PRF	III	-	615.00	**615.00**	**289**	**9**	
Benaguda	Benaguda RF	III	5	542.97	**751.84**	**244**	**32**	
			6	208.87				
Sunamukhi	Sunamukhi RF	III	4	422.89	**604.49**	**6**	**2**	
			5	181.60				
Sulia	Sulia PRF	III	1 (part)	829.12	**829.12**	**18**	**-**	
Pongabaju	Pongabaju PRF	III	1 (part)	691.96	**691.96**	**37**	**1**	
Total Area				**5335.28**	**5335.28**	**1112**	**81**	

11.2.9.4 Subsidiary Silvicultural Operation

After the felling was carried out in the above felling series, subsidiary Silvicultural operation were done as below

Table sso worked areas

Table no.11.37

Name of the felling series	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area	Remarks
Urladani East	Urladani RF	III	4	424.59	**624.04**	SSO was not worked our due to non release of fund.
			5	199.45		
Urladani West	Urladani RF	III	27	227.74	**479.07**	
			28	251.33		
Taprang	Taparang	III	8	474.88	**739.76**	
			9	264.88		
Bidabaru	Bidabaru PRF	III	-	615.00	**615.00**	
Benaguda	Benaguda RF	III	5	542.97	**751.84**	
			6	208.87		
Sunamukhi	Sunamukhi RF	III	4	422.89		
			5	181.60	**604.49**	
Sulia	Sulia PRF	III	1 (part)	829.12	**829.12**	
Pongabaju	Pongabaju PRF	III	1 (part)	691.96	**691.96**	
Total Area				**5335.28**	**5335.28**	

11.2.9.5 Bamboo(Overlapping) Working Circle

In this working scheme the area allotted to Bamboo (Overlapping) Working Circle is 18846.14 ha. mostly confined to M.Rampur, Narla, Bhawanipatna Ranges to a great extent and Kegaon Range to some extent.

Table no.11.38

Name of Range	Name of cutting series	Name of Forest Block	Annual cutting coupe	Compt. No	Area in Ha.	Total Area
1	**2**	**4**	**5**	**6**	**7**	**8**
M.Rampur	Telen	Telen RF	C	3&4	423.56 414.81	**838.37**
	Taparang	Taparang RF	C	1,2,3	443.14 346.52 261.75	**1051.41**
	Satami	Satami RF	C	4&5	446.58 476.77	**923.35**
	Benaguda East	Benaguda RF	C	7 (Balance)	223.00	**223.00**

	Benaguda West	Benaguda RF	C	1,2,3,4,14	195.77 276.05 279.13 579.73 300.32	**1631.00**
	Sulia	Sulia PRF	C	Part	2119.00	**2119.00**
	Ramud	Ramud PRF	C	Part	95.37	**95.37**
	Puijhari	Puijhari PRF	C	Part	803.53	**803.53**
Kegaon	Chura 'A' East	Chura 'A' RF	C	3,6,17	177.01 254.77 270.76	**702.54**
	Chura 'A' West	Chura 'A' RF	C	7,8,9	300.15 330.97 324.45	**955.57**
	Chura 'B'	Chura 'B' RF	C	1,2	275.38 232.70	**508.08**
Narla	Urladani East	Urladani RF	C	8	287.69	**287.69**
	Urladani West	Urladani RF	C	28,29,30	251.33 104.68 254.52	**610.53**
	Urladani Central	Urladani RF	C	15,31	223.07 354.08	**577.15**
	Porgel	Porgel RF &Jamguda PRF	C	1+ Jamguda PRF	526.77 101.29	**628.06**
	Porgel Ext	Porgel Extn. PRF	C	Part of Porgel Ext. PRF + Badibahal PRF	1195.59 + 74.06	**1269.65**
Bhawanipatna	Kadalighati	Kadlighati RF	C	5	312.00	**312.00**
	Brahmani East	Brahmani RF	C	3,4	159.63 213.14	**372.77**
	Brahmani West	Brahmani RF	C	17,19	490.12 588.75	**1078.87**
	Alma	Alma RF	C	Alma part	335.01	**335.01**
	Poddara	Poddara RF	C	Poddara part	431.21	**431.21**
	Kanamanjur	Kanamanjur RF	C	Kanamanjur part	658.52	**658.52**
	Th.Gundi	Th.Gundi PRF	C	Th.Gundi PRF part	2433.46	**2433.46**
Total					18846.14	**18846.14**

11.2.9.6 Implementation

The coupes were demarcated as per the rules described in the J.S Mohanty's Working Plan and treatment map is prepared for each coupe. 1269.65 ha was worked out.

ABSTARCT OF SSO BAMBOO COUPE WORKED carried out 2019-20

Table no.11.39

Name of Range	Name of cutting series	Name of Forest Block	Annual cutting coupe	Compt. No	Area in Ha.	Total Area	Yield in SU	Remarks
1	**2**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
M.Rampur	Telen	Telen RF	C	3&4	423.56 414.81	**838.37**	-	
	Taparang	Taparang RF	C	1,2,3	443.14 346.52 261.75	**1051.41**	-	
	Satami	Satami RF	C	4&5	446.58 476.77	**923.35**	-	
	Benaguda East	Benaguda RF	C	7 (Balance)	223.00	**223.00**	-	

	Benaguda West	Benaguda RF	C	1,2,3,4,14	195.77 276.05 279.13 579.73 300.32	**1631.00**	-	
	Sulia	Sulia PRF	C	Part	2119.00	**2119.00**	-	
	Ramud	Ramud PRF	C	Part	95.37	**95.37**	-	
	Puijhari	Puijhari PRF	C	Part	803.53	**803.53**	-	
Kegaon	Chura 'A' East	Chura 'A' RF	C	3,6,17	177.01 254.77 270.76	**702.54**	-	
	Chura 'A' West	Chura 'A' RF	C	7,8,9	300.15 330.97 324.45	**955.57**	-	
	Chura 'B'	Chura 'B' RF	C	1,2	275.38 232.70	**508.08**	-	
Narla	Urladani East	Urladani RF	C	8	287.69	**287.69**	-	
	Urladani West	Urladani RF	C	28,29,30	251.33 104.68 254.52	**610.53**	-	
	Urladani Central	Urladani RF	C	15,31	223.07 354.08	**577.15**	-	
	Porgel	Porgel RF &Jamguda PRF	C	1+ Jamguda PRF	526.77 101.29	**628.06**	-	
	Porgel Ext	Porgel Extn. PRF	C	Part of Porgel Ext. PRF + Badibahal PRF	1195.59 + 74.06	**1269.65**	**120**	**Worked out.**
Bhawanipatna	Kadalighati	Kadlighati RF	C	5	312.00	**312.00**	-	
	Brahmani East	Brahmani RF	C	3,4	159.63 213.14	**372.77**	-	
	Brahmani West	Brahmani RF	C	17,19	490.12 588.75	**1078.87**	-	
	Alma	Alma RF	C	Alma part	335.01	**335.01**	-	
	Poddara	Poddara RF	C	Poddara part	431.21	**431.21**	-	
	Kanamanjur	Kanamanjur RF	C	Kanamanjur part	658.52	**658.52**	-	
	Th.Gundi	Th.Gundi PRF	C	Th.Gundi PRF part	2433.46	**2433.46**	-	
	Total				18846.14	**18846.14**	**120**	

11.2.9.7 Subsidiary Silvicultural Operation

Since productive of the Bamboo forest depends on proper and timely Silvi cultural operations, SSO of the above Bamboo coupe has to be carried out immediately after actual harvest. The SSO work could not be done due to non release of fund.

Table no.11.40

Name of Range	Name of cutting series	Name of Forest Block	Annual cutting coupe	Compt. No	Area in Ha.	Total Area
1	**2**	**4**	**5**	**6**	**7**	**8**
M.Rampur	Telen	Telen RF	C	3&4	423.56 414.81	**838.37**
	Taparang	Taparang RF	C	1,2,3	443.14 346.52 261.75	**1051.41**
	Satami	Satami RF	C	4&5	446.58 476.77	**923.35**
	Benaguda East	Benaguda RF	C	7 (Balance)	223.00	**223.00**

	Benaguda West	Benaguda RF	C	1,2,3,4,14	195.77 276.05 279.13 579.73 300.32	**1631.00**
	Sulia	Sulia PRF	C	Part	2119.00	**2119.00**
	Ramud	Ramud PRF	C	Part	95.37	**95.37**
	Puijhari	Puijhari PRF	C	Part	803.53	**803.53**
Kegaon	Chura 'A' East	Chura 'A' RF	C	3,6,17	177.01 254.77 270.76	**702.54**
	Chura 'A' West	Chura 'A' RF	C	7,8,9	300.15 330.97 324.45	**955.57**
	Chura 'B'	Chura 'B' RF	C	1,2	275.38 232.70	**508.08**
Narla	Urladani East	Urladani RF	C	8	287.69	**287.69**
	Urladani West	Urladani RF	C	28,29,30	251.33 104.68 254.52	**610.53**
	Urladani Central	Urladani RF	C	15,31	223.07 354.08	**577.15**
	Porgel	Porgel RF &Jamguda PRF	C	1+ Jamguda PRF	526.77 101.29	**628.06**
	Porgel Ext	Porgel Extn. PRF	C	Part of Porgel Ext. PRF + Badibahal PRF	1195.59 + 74.06	**1269.65**
Bhawanipatna	Kadalighati	Kadlighati RF	C	5	312.00	**312.00**
	Brahmani East	Brahmani RF	C	3,4	159.63 213.14	**372.77**
	Brahmani West	Brahmani RF	C	17,19	490.12 588.75	**1078.87**
	Alma	Alma RF	C	Alma part	335.01	**335.01**
	Poddara	Poddara RF	C	Poddara part	431.21	**431.21**
	Kanamanjur	Kanamanjur RF	C	Kanamanjur part	658.52	**658.52**
	Th.Gundi	Th.Gundi PRF	C	Th.Gundi PRF part	2433.46	**2433.46**
Total					**18846.14**	**18846.14**

11.2.9.8 Rehabilitation Working Circle

To restored the degraded forest through suitable Silvicultural operation are artificial regeneration with emphasis on protection , the forest having low density on under shivered biotic interference are kept under rehabilitation Working Circle. Except Forest Block allocate to Selection and Protection Working circle , all other Forest Block are included in this working circle under the scheme the total area allotted to this Working Circle during 2018-19 was 7357.09 ha. Out of which 3455 ha area was worked out. The area allotted to different rehabilitated series and its annual achievement is given below.

The area allotted to different Rehabilitated series

Table no.11.41

Range	Name of the series	Block	Coupe No.	Comptt. No.	Coupe Area in Ha.
Narla	Narla	Sripali RF	III	-	46.67

	Porgel Ext.	Kamarda PRF	III	-	454.27
M.Rampur	Podgudi	Sadel 'B' RF	III	-	328.08
Bhawanipatna	Kadalighati	Kadalighati RF	III	4	625.55
				5	
	Kanamanjur	Kanamanjur RF	III	Part	460.42
	Brahamani	Brahamani RF	III	7	432.48
				8	
	Th.Gundi West	Th.Gundi PRF	III	-	353.92
	Th.Gundi East	Th.Gundi PRF	III	-	324.66
	Gundi	Gundi PRF	III	-	720.65
Kesinga	Bazargarh North	Bazargarh RF	III	-	520.71
	Bazargarh South	Bazargarh RF	III	-	563.57
Kegaon	Kumkot	Kumkot RF	III	5	584.55
				6	
	Chura 'A'	Chura 'A' RF	III	4	1082.01
				13	
				15	
	Chura 'B'	Chura 'B' RF	III	3	336.64
	Nageswar	Nageswar RF	III		247.02
	Adabari	Adabari RF	III	1(Part)	275.89
TOTAL					**7357.09**

11.2.9.9 Silviclultural Operation

To induce the natural Re-generation Silvicultural operation are carried out in the Rehabilitation series. The Silvicultural operation includes high stump cutting singling out the shoots, cutting of climbers , removal of culm by cleaning operation , adaption of locally important and desirable species, removal of invasive weeds etc. Soil and Moisture Conservation measure form the main component of rehabilitation operation, measures like gully plugging, loose boulder check dam ,contour bounds , Nalla bounding vegetative bounds etc.

11.2.10 Annual Working scheme for the year 2020-21

As the working plan of J.S Mohanty was ended during 2016-17, the annual working scheme for the year 2020-21 was prepared for extension of the J.S Mohanty's working plan specifically to work timber coupes and Bamboo coupes as well as to rehabilitate the degraded forest for the year 2020-21.

11.2.10.1 **Prescription**

In this scheme three working circles have been worked out in continuation with the methods prescribed in J.S Mohanty's Working Plan. This three working circles are:

1. Selection Working Circle
2. Bamboo Working Circle
3. Rehabilitation Working Circle

11.2.10.2 Selection Working Circle

The general description**,** objectives of Management and prescription of Selection Working Circle in this working scheme remains same as before. As per the sequence of felling in the J.S Mohanty's Working Plan ,Coupe No. IV is due for working during 2020-21. Accordingly the sequence of felling in different felling series for the year 2020-21 is furnished below.

Table Sequence of felling in different felling series for the year 2020-21

Table no.11.42

Name of the felling series	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area
Urladani East	Urladani RF	IV	6	356.57	**723.57**
			7	367.00	
Urladani West	Urladani RF	IV	25	373.34	**746.54**
			26	373.20	
Taparng	Taparang	IV	6	273.74	**525.89**
			7	252.15	
Bidabaru	Bidabaru PRF	IV	2	394.58	**394.58**
Benaguda	Benaguda RF	IV	7	560.74	**560.74**
Sunamukhi	Sunamukhi RF	IV	6	373.37	**832.42**
			7	459.05	
Sulia	Sulia PRF	IV	1(part)	743.61	**743.61**
Pongabaju	Pongabaju PRF	IV	1(part)	493.05	**493.05**
Total Area				**5020.4**	**5020.4**

11.2.10.3 Implementation

As prescribed in the working scheme 2020-21 Coupe No IV of felling series of Urladani East , Urladani West, Taparang, Telen, Benaguda, Sulia and Pongabaju have been demarcated and different species which were more than the exploitable girth were marked by following the marking rules diligently and the working agency (OFDC Ltd.) executed the felling work. The extent of working is given below

ABSTARCT OF TREE MARKED AND FELLED IN THE WORKING SCHEME 2020-21

Table no.11.43

Name of the felling series	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area	No. of trees marked		Remarks
						Sal	Non-sal	
Urladani East	Urladani RF	IV	6	356.57	**723.57**	-	-	On going
			7	367.00				
Urladani West	Urladani RF	IV	25	373.34	**746.54**	-	-	On going
			26	373.20				
Taparng	Taparang	IV	6	273.74	**525.89**	-	-	On going
			7	252.15				On going
Bidabaru	Bidabaru PRF	IV	2	394.58	**394.58**	-	-	On going
Benaguda	Benaguda RF	IV	7	560.74	**560.74**	-	-	On going
Sunamukhi	Sunamukhi RF	IV	6	373.37	**832.42**	-	-	On going
			7	459.05				
Sulia	Sulia PRF	IV	1(part)	743.61	**743.61**	-	-	On going
Pongabaju	Pongabaju PRF	IV	1(part)	493.05	**493.05**	-	-	On going
Total Area				**5020.4**	**5020.4**			

11.2.10.4 Subsidiary Silvicultural Operation

After the felling was carried out in the above felling series, Subsidiary SilviculturalOperation were done as below. The report is yet to be submitted.

Table no.11.44

Name of the felling series	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area
Urladani East	Urladani RF	IV	6	356.57	**723.57**
			7	367.00	
Urladani West	Urladani RF	IV	25	373.34	**746.54**
			26	373.20	
Taparng	Taparang	IV	6	273.74	**525.89**
			7	252.15	
Bidabaru	Bidabaru PRF	IV	2	394.58	**394.58**
Benaguda	Benaguda RF	IV	7	560.74	**560.74**
Sunamukhi	Sunamukhi RF	IV	6	373.37	**832.42**
			7	459.05	
Sulia	Sulia PRF	IV	1(part)	743.61	**743.61**
Pongabaju	Pongabaju PRF	IV	1(part)	493.05	**493.05**

11.2.9.5 Bamboo (Overlapping) Working Circle

In this working scheme the area allotted to Bamboo (Overlapping) Working Circle is **18619.25**ha. mostly confined to M.Rampur, Narla, Bhawanipatna Ranges to a great extent and Kegaon Range to some extent.

Table no.11.45

Name of Range	Name of cutting series	Name of Forest Block	Annual cutting coupe	Compt. No	Area in Ha.	Total Area
1	**2**	**4**	**5**	**6**	**7**	**8**
M.Rampur	Telen	Telen RF	D	5&6	378.35 417.62	**795.97**

	Taprang	Taparang RF	D	10,11,12,13 &14	395.45 407.30 477.25 277.78 276.71	**1834.49**
	Satami	Satami RF	D	1	313.44	**313.44**
	Benaguda East	Benaguda RF	D	7(Part)	337.74	**337.74**
	Benaguda West	Benaguda RF	D	9&10	251.17 422.12	**673.29**
	Sulia	Sulia PRF	D	Part	1037.00	**1037.00**
	Ramud	Ramud PRF	D	Part	190.07	**190.07**
	Puijhari	Puijhari PRF	D	Part	243.76	**243.76**
Kegaon	Chura 'A' East	Chura 'A' RF	D	10,11 &23	374.49 410.24 384.07	**1168.80**
	Chura 'A' West	Chura 'A' RF	D	18 &21	384.96 292.91	**677.87**
	Chura 'B'	Chura 'B' RF	D	4 &5	296.68 326.02	**622.7**
Narla	Urladani East	Urladani RF	D	7&11	367.00 455.13	**822.13**
	Urladani West	Urladani RF	D	18,20&22	202.60 248.37 204.75	**655.72**
	Urladani Central	Urladani RF	D	17,19+ Dengsur PRF	728.83 285.27 262.28	**1276.38**
	Porgel	Porgel RF	D	2	425.36	**425.36**
	Porgel Ext	Porgel Extn. PRF	D	Part of porgel Extsn	464.50	**464.5**
Bhawani-patna	Kadalighati	Kadlighati RF	D	1&2	354.62 384.89	**739.51**
	Brahmani East	Brahmani RF	D	13,14,15,16&20	162.55 170.49 504.20 464.64 320.64	**1622.52**
	Brahmani West	Brahmani RF	D	1&2	193.81 343.82	**537.63**
	Alma	Alma RF	D	Alma part	404.03	**404.03**
	Poddara	Poddara RF	D	Kutrukhai	316.92	**316.92**
	Kanamanjur	Kanamanjur RF	D	Kanamanjur Part	374.57	**374.57**
	Th. Gundi	Th.Gundi PRF	D	Th.Gundi PRF part	3084.85	3084.85
Total Area					**18619.25**	**18619.25**

11.2.9.6 Implementation

The coupes were demarcated as per the rules described in the J.S Mohanty's Working Plan and treatment map is prepared for each coupe. The work is ongoing.

ABSTARCT OF SSO BAMBOO COUPE WORKED CARRIED OUT 2020-21

Table no.11.46

Name of Range	Name of cutting series	Name of Forest Block	Annual cutting coupe	Compt. No	Area in Ha.	Total Area
1	**2**	**4**	**5**	**6**	**7**	**8**

M.Rampur	Telen	Telen RF	D	5&6	378.35 417.62	**795.97**
	Taprang	Taparang RF	D	10,11,12,13 &14	395.45 407.30 477.25 277.78 276.71	**1834.49**
	Satami	Satami RF	D	1	313.44	**313.44**
	Benaguda East	Benaguda RF	D	7(Part)	337.74	**337.74**
	Benaguda West	Benaguda RF	D	9&10	251.17 422.12	**673.29**
	Sulia	Sulia PRF	D	Part	1037.00	**1037.00**
	Ramud	Ramud PRF	D	Part	190.07	**190.07**
	Puijhari	Puijhari PRF	D	Part	243.76	**243.76**
Kegaon	Chura 'A' East	Chura 'A' RF	D	10,11 &23	374.49 410.24 384.07	**1168.80**
	Chura 'A' West	Chura 'A' RF	D	18 &21	384.96 292.91	**677.87**
	Chura 'B'	Chura 'B' RF	D	4 &5	296.68 326.02	**622.7**
Narla	Urladani East	Urladani RF	D	7&11	367.00 455.13	**822.13**
	Urladani West	Urladani RF	D	18,20&22	202.60 248.37 204.75	**655.72**
	Urladani Central	Urladani RF	D	17,19+ Dengsur PRF	728.83 285.27 262.28	**1276.38**
	Porgel	Porgel RF	D	2	425.36	**425.36**
	Porgel Ext	Porgel Extn. PRF	D	Part of porgel Extsn	464.50	**464.5**
Bhawanipatna	Kadalighati	Kadlighati RF	D	1&2	354.62 384.89	**739.51**
	Brahmani East	Brahmani RF	D	13,14,15,16& 20	162.55 170.49 504.20 464.64 320.64	**1622.52**
	Brahmani West	Brahmani RF	D	1&2	193.81 343.82	**537.63**
	Alma	Alma RF	D	Alma part	404.03	**404.03**
	Poddara	Poddara RF	D	Kutrukhai	316.92	**316.92**
	Kanamanjur	Kanamanjur RF	D	Kanamanjur Part	374.57	**374.57**
	Th. Gundi	Th.Gundi PRF	D	Th.Gundi PRF part	3084.85	3084.85
Total					**18619.25**	**18619.25**

11.2.9.7 Subsidiary Silvicultural Operation

Since productive of the Bamboo forest depends on proper and timely Silvi cultural operations, SSO of the above Bamboo coupe were carried out immediately after actual harvest. The abstract of SSO Bamboo work carried out in 2020-21 is given below

The abstract of SSO Bamboo work carried out in 2020-21

Table no.11.47

Name of Range	Name of cutting series	Name of Forest Block	Annual cutting coupe	Compt. No	Area in Ha.	Total Area

1	2	4	5	6	7	8
M.Rampur	Telen	Telen RF	D	5&6	378.35 417.62	**795.97**
	Taprang	Taparang RF	D	10,11,12,13 &14	395.45 407.3 477.25 277.78 276.71	**1834.49**
	Satami	Satami RF	D	1	313.44	**313.44**
	Benaguda East	Benaguda RF	D	7(Part)	337.74	**337.74**
	Benaguda West	Benaguda RF	D	9&10	251.17 422.12	**673.29**
	Sulia	Sulia PRF	D	Part	1037	**1037**
	Ramud	Ramud PRF	D	Part	190.07	**190.07**
	Puijhari	Puijhari PRF	D	Part	243.76	**243.76**
Kegaon	Chura ‘A’ East	Chura ‘A’ RF	D	10,11 &23	374.49 410.24 384.07	**1168.8**
	Chura ‘A’ West	Chura ‘A’ RF	D	18 &21	384.96 292.91	**677.87**
	Chura ‘B’	Chura ‘B’ RF	D	4 &5	296.68 326.02	**622.7**
Narla	Urladani East	Urladani RF	D	7&11	367 455.13	**822.13**
	Urladani West	Urladani RF	D	18,20&22	202.6 248.37 204.75	**655.72**
	Urladani Central	Urladani RF	D	17,19+ Dengsur PRF	728.83 285.27 262.28	**1276.38**
	Porgel	Porgel RF	D	2	425.36	**425.36**
	Porgel Ext	Porgel Extn. PRF	D	Part of Porgel Extsn	464.5	**464.5**
Bhawanipatna	Kadalighati	Kadlighati RF	D	1&2	354.62 384.89	**739.51**
	Brahmani East	Brahmani RF	D	13,14,15,16& 20	162.55 170.49 504.2 464.64 320.64	**1622.52**
	Brahmani West	Brahmani RF	D	1&2	193.81 343.82	**537.63**
	Alma	Alma RF	D	Alma part	404.03	**404.03**
	Poddara	Poddara RF	D	Kutrukhai	316.92	**316.92**
	Kanamanjur	Kanamanjur RF	D	Kanamanjur Part	374.57	**374.57**
	Th. Gundi	Th.Gundi PRF	D	Th.Gundi PRF part	3084.85	3084.85
Total					**18619.25**	**18619.25**

11.2.9.8 Rehabilitation Working Circle

To restored the degraded forest through suitable Silvicultural operation are artificial regeneration with emphasis on protection , the forest having low density on

under shivered biotic interference are kept under rehabilitation Working Circle. Except Forest Block allocate to Selection and Protection Working circle , all other Forest Block are included in this working circle under the scheme the total area allotted to this Working Circle during 2020-21 was 6550.84 ha. The area allotted to different rehabilitated series and its annual achievement is given below.

Table no.11.48

Range	Name of the series	Block	Coupe No.	Comptt. No.	Coupe Area in Ha.
Narla	Narla	Lumersingha RF	IV	-	156.29
	Porgel Ext.	Jamguda PRF	IV	-	101.29
M.Rampur	Podgudi	Sadel 'A' RF	IV	-	267.33
Bhawanipatna	Kadalighati	Poddar RF	IV	Part	476.988
	Kanamanjur	Kanamanjur RF	IV	Part	500.00
	Brahamani	Brahamani RF	IV	5	510.11
				12	
	Th.Gundi West	Th.Gundi PRF	IV	-	564.79
	Th.Gundi East	Th.Gundi PRF	IV	-	542.51
	Gundi	Gundi PRF	IV	-	393.92
Kesinga	Bazargarh North	Bazargarh RF	IV	-	525.92
	Bazargarh South	Bazargarh RF	IV	-	434.91
Kegaon	Kumkot	Kumkot RF	IV	7	495.91
				8	
	Chura 'A'	Chura 'A' RF	IV	5	620.86
				12	
	Chura 'B'	Chura 'B' RF	IV	4	296.68
	Nageswar	Nageswar RF	IV	-	466.48
	Adabari	Bisibarni RF	IV	-	196.86
TOTAL					**6550.84**

11.2.9.9 Silviclultural Operation

To induce the natural Re-generation Silvicultural operation are carried out in the Rehabilitation series. The Silvicultural operation includes high stump cutting singling out the shoots, cutting of climbers , removal of culm by cleaning operation , adaption of locally important and desirable species, removal of invasive weeds etc. Soil and Moisture Conservation measure form the main component of rehabilitation operation, measures like gully plugging, loose boulder check dam,contour bounds, Nalla bounding vegetative bounds etc.

11.3 Special works of improvement undertaken

Summary and results of works such as fire-protection, improvement in Communication, interface activities, amenities to staff, etc.

11.3.1 Efforts have been made to tackle this menace by taking different measures like maintenance of existing fire line, creation of new fire line, engagement of fire watchers,

deployment of fire fighting squad, supply of fire fighting tools, incentive to VSS etc. The expenditure for the same during the last plan is furnished in the table given below

Table no.11.49
Fire fighting squad in the Kalahandi North Division.

Year	Expenditure							
	Allotment	Fire watcher no.s& amount	Fire fighting squad no.s& amount	Purchase of fire fighting tools	Maintenance of fire line Kms, amount	Creation of fire line	Incentive to VSS	Misc.
1	2	3	4	5	6	7	8	9
2007-08	373500/-	10nos. 12500/-	--	25000/-	32.42Rkm 60000/-	88.17Rkm 200000/-	46000/-	30000/-
2008-09	546000/-	10 nos. 126000/-	--	100000/-	30.35 Rkm 30000/-	42.00Rkm 30000/-	200000/-	50000/-
2009-10	140000/-	08 nos. 20000/-	10 nos. 25000/-	--	--	13.4 Rkm 31870/-	50500/-	12630/-
2010-11	279800/-	--	10 nos. 64800/-	215000/-	--	--	--	--
CAMPA	1074740/-	--	20nos 270000/-	108000/-	498.10Rkm 496758/-	--	59608/-	140374/-
2011-12								
CAMPA	911961/-	--	20nos 243000/	--	500Rkm 500000/-	--	--	168961/-
2012-13								
	495000/-			80000/-	45Rkm 45000/-	--	70000/-	300000/-
CAMPA	2004000/-	--	30nos 675000/-	54000/-	500Rkm 825000/-	--	--	450000/-
2013-14								
	1145000/-	--	40 nos 720000/-	--	50Rkm 100000/-	--	130000/-	19500/-
CAMPA	2620000/-	--	40nos 900000/-	280000/-	500Rkm 825000/-	--	--	599884/-
2014-15								
	482353/-	--	10nos 180000/-	50000/-	50Rkm 100000/-	--	50000/-	102353/-
CAMPA	2950000/-	--	50nos 555000/-	70000/-	900Rkm 990000/-	--	--	385000/-
2015-16								
CAMPA	CAMPA	3730000/-		50 Nos & 2325000/-	210000/-	590 Km 1180000/-	--	--
2016-17								
CAMPA	4435000		50 Nos & 2325000/-	915000/-	590 Km 1180000/-	--	--	15000/-
2017-18								
CAMPA	4960000/-	-	50 nos. & 2425000	1355000/-		590 KM & 1180000/-	-	-
2018-19								
GENERAL	3136293/-		30 nos. & 1261800	1194960/-		619533/-	60000/-	
2019-20								
GENERAL	3121822/-		30 nos. & 1528680	820517/-		100 KM & 200000/-	570000/-	
CAMPA	4265000/-	-	50 nos. & 3000000	425000/-		300 KM & 840000/-		
2020-21								
GENERAL	1981362/-	-	20 nos & 447000/-	-	-	163 KM & 571454/-	630000/-	332908/-
CAMPA	5707000/-	-	50 nos & 3285000/-	425000/-	-	600 KM & 1788000/-	-	209000/-

11.4 Past yield, revenue and expenditure

This is given year-wise in a tabular form at 11.2.6.1.

CHAPTER 12

Statistics of growth and yield:

This is the indispensable basis for assessing the production of timber which is the most crucial criterion to formulate the management strategy of a forest. In absence of any research plot / preservation plot in the Division, there is no authentic documentation of growth of important species of the locality. So the scope of updating the data on this score is almost obliterated. The dominant species as emerged from sample point survey are Shorea robusta, Cleistanthus collinus, Lannea coromandalica, Diospyros melanoxylong, Lagerstroemia parviflora, Terminalia tomentosa, Anogeissus latifolia, Xylia xylocarpa, Buchanania lanzan, Dillenia pentagyna, Syzygium cumini, Terminalia bellirica, Schlichera oleosa, Careyaar borea, Tectona grandis, Madhuca indica, Aegle marmelos, Boswellia serrata, Dalbergia paniculata, Bombax ceiba, Ougenia dalbergiodies, Pterocarpus marsupium, Adina cordifolia, Mangefera indica etc. However the detailed method of volume determination and yield calculation of major species prescribed by different authors are furnished below individual species wise.

i) Sal: (Shorea robusta)

a) Volume and outturn tables for Sal by Mr. S.H. Haward as published in Indian Forest Records (Silvicultural series) Vol. XII – Part-I (1925).

b) General Volume table for Sal (Shorear obusta) by Sri S.H. Haward, Indian Forest records (Silvicultural series) Vol.X Part 6 (1924)

c) The yield and stand tables for Sal high forest by AL Griffith and Bakshi Santa Ram publication as Indian Forest Record (New series) (Silvicultural Series) Vol. IV A No. 4 (1943)

d) Yield table for clear felled Sal (Shorea robusta) coppice by S.H. Howard. Indian Forest records (Silviculture series) Volume XXI Part IV, 1962.

e) The uneven aged Sal forest of Ramnagar Forest Division Uttar Pradesh their condition rate of growth, etc, along with empirical yield and stand table for selection type of Sal crop by Sri G.S. Mathanda . Indian Forester Volume-84, 1958.

f) Yield table for (Shorea robusta) for the united province, by Smithys and Howard, Indian Forester Volume X Part III 1923.

g) General volume table for Sal (Shorea robusta) by A.N.Chaturbedi I.F.R (N.S) 12(13) 1972

(ii) Teak (Tectona grandis)

a) Yield table and stand table for Teak plantations (Main crop) in 52 ICFRE BR-3-1997-98 published by Indian Council of Forestry Research and Education, Dehradun for Teak.

b) Yield table and stand table for teak, Indian forest records (New series) silviculture volume IX No.-4, 1959

(iii) Halanda (Adina Cardifolia) locally called Kuruma

An approximate volume table for Halanda by E.C.Mobbs UP forest leaflet No.6

(iv) Sissoo (DalbergiaSisoo)

(a) Preliminary yield table for DalbargiaSisoo by S.H.Howard forest bulletin No. 52, (Silviculture) 1925.

(b) Standard and commercial volume table for DalbarjiaSisoo, by M.A.KaziIndianForest records (Silviculture series) Vol-II No.2 1936.

(v) Asan (Terminalia tomentosa)

(a) General standard volume tables for Terminalia tomentosa by A.N.Chaturbedi and P.K.Bhattarya, I.F.R. (New) series silviculture Vol-12, No.4 1971.

(b) General standard and commercial volume table for Asan (Terminaliatomentosa) high forest by A.L.Griffith, Bakshisantra Ram, and Jagadamba Prasad Indian, Forest Records, New series Volume IV C No.5, 1945.

(vi) Simal(Bomboxceiba)

Volume table and diameter growth for simal (Bombaxceiba) by L.D.Mahendru, Indian Forest Records. (Silviculture series) Volume XV, Part – IV, 1932.

(vii) Piasal / Bija (Pterocarpusmarsupium)

Standard and commercial volume table for (Pterocarpusmarsupium) by S.N.Dabral and P.K.Bhattacharya, Tailok Singh and D.S. Rawat.

(viii) Moi (Lenneagrandis)

Standard volume for Moi by Sri Dabaral and D.C. Sharma Indian forest records (New series) Silviculture Volume – II, No.7

(ix) Jamu (Syzygiumcuminii)

Standard volume tables for (Syzygiumcumini) by S.N. Debral, P.K.Bhattarya and P.S.Payal Indian forest records new series silviculture volume-II, No. 4, 1964.

(x) Karada (Cleistanthuscolinus)

Standard and commercial volume table for (Cleistanthuscollinus) by S.N.Babral, P.K.Bhattacharya, Tailok Singh, and R.C. Jain.

Local Volume Equation

Though the local volume equation is not available but the Forest Survey of India has developed volume equation to compute the volumes of wood in predominant trees in respect of each physiographic zone. There are 14 physiographic zone covering the entire country. Each district has been taken as the base unit for such zonation. Kalahandi has been included in 2 (two) zones namely East Deccan and Eastern Ghats. The Dongarla portion is mostly the parts of eastern ghat whereas the Pahilpar portion belongs to east deccan. Madanpur Rampur and part of Narla Range of Kalahandi North Division belong to the

physiographic zone of eastern ghat whereas Bhawanipatna, Kesinga, Kegaon and part of Narla Range of Kalahandi North Division are forming the part of East Deccan physiographic zone. The volume equation of predominant species is furnished in following table in which 'V' is the volume in Cum. and 'D' is the dbh. in meter.

Table no.12.1

For East Deccan Physiographic Zone

Sl. No.	Name of the Species		Volume equation
	Local	Botanical	
1	Dhaura	Anogeissuslatifolia	$V/D^2=-0.02958/D^2+8.05003$
2	Karla	Cleistanthuscollinus	$V=0.030925-0.567037D+5.709471D^2$
3	Kendu	Diospyrosmelanoxylon	$V=0.12401-2.00966D+10.87747D^2$
4	Sidha	Lagerstroemia parviflora	$V=0.06913-1.37605D+11.89119D^2$
5	Rajmohi	Lanneacoromandelica	$V=0.057424-1.153088D+8.542648D^2$
6	Mahula	Madhucalatifolia	$V=-0.00092-0.55547D+7.34460D^2$
7	Sal	Shorearobusta	$V=0.05823-1.22994D+10.51982D^2$
8	Sahaja	Terminaliatomentosa	$V=0.05061-1.11994D+8.77839D^2$

(Source: - State of Forest Report 2001 & 2003 prepared by Forest Survey of India)

For Eastern Ghats Physiographic Zone

Sl. No.	Name of the Species		Volume equation
	Local	Botanical	
1	Cashewnut	Anacardiumoccidentale	$V=0.06063+3.43666D-0.75571D$
2	Dhaura	Anogeissuslatifolia	$V=0.13928-2.87067D+20.22404D^2-13.80572D^3$
3	Char	Bombaxceiba	$V/D^2=0.136196/D^2-2.07674/D+10.1566$
4		Chickrassiatabularis	$V= -0.079733-0.0021006D+0.001114D^2$
5	Dhaman	Grewiatiliaefolia	$\text{Log}_e V=2.2491+2.5206 \log_e D$
6	Bija	Pterocarpusmarsupium	$V= -0.16276+2.82002D+0.04034D$
7	Sal	Shorearobusta	$V=0.19994+4.57179D-1.56823D$
8	Tangan	Xyliaxylocarpus	$V=0.098-1.52D+8.963D^2$

(Source: - State of Forest Report 2001 & 2003 prepared by Forest Survey of India)

STUDY OF GROWTH AND YIELD IN THIS PLAN

In this plan advanced technologies of Remote Sensing and Geographical Information System have been employed to make an assessment of the growing stock of the forest of Kalahandi North Division. Forest Survey of India and NRSA have perfected the methodology for use of this technology in the recent past. Satellite remote sensing and GIS based methods have been operationally employed to provide forest working plan inputs in various forest divisions across the country – Assam, Andhra Pradesh, Madhya Pradesh and Karnataka. These efforts have demonstrated that significant reductions in cost and time can be achieved by relying on stratified sampling methods based on mapping forest canopy density and forest type using satellite remote sensing.

With this background the Orissa Remote Sensing Application Center (ORSAC) and the Forest and Ecology Division of National Remote Sensing Agency (NRSA) were requested to provide working plan inputs for forest divisions in Orissa by the Orissa State Forest Department (OFD). Accordingly these organisations have provided the technological inputs.

Methodology adopted: **Fig No 8.1**presents an outline of the methodology adopted for assessment of the growing stock and yield.

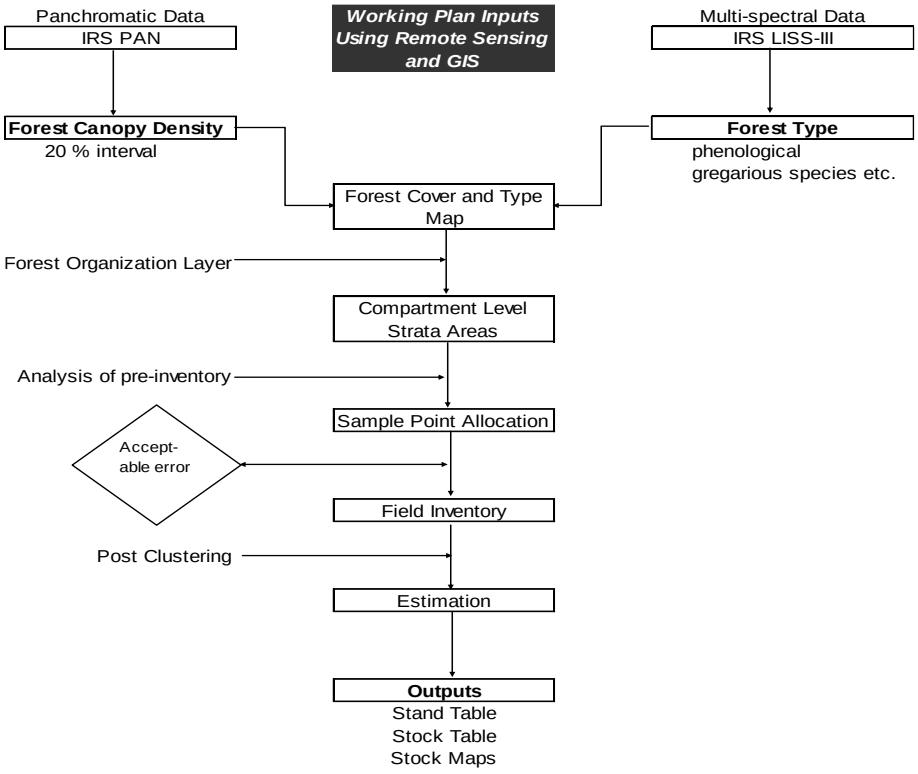


Fig.No. 8.1: Methodology Flow Chart

Development of Base layers: - As per methodology the following input layers were developed for Kalahandi North Division by NRSA and ORSAC.Preparation of Infrastructure layer (Base layer): Two infrastructure layers namely the administrative layer having details like roads, rivers, administrative boundaries of the division showing division boundary, range boundary, section boundary and beat boundary and the Management layer showing all the forest blocks covered under the revised plan was prepared by digitizing Survey of India topographic sheets at the 1:50,000 scale. This work was undertaken by ORSAC.

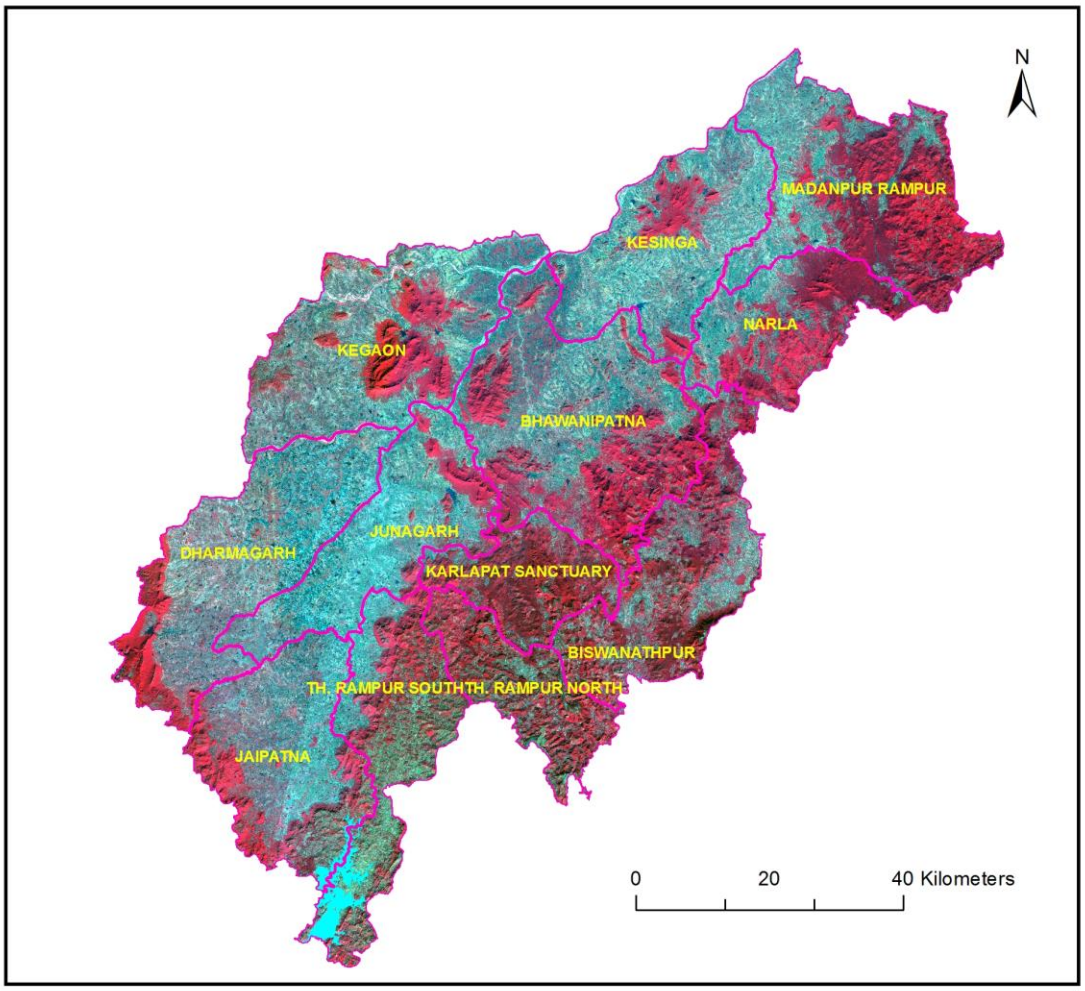
a. Satellite data preparation: - Cloud free, optimal season multi-spectral and panchromatic satellite data was used in the study by NRSA and ORSAC. All data sets were geo-corrected with respect to the base layers adopted in the study. Quality standards followed in various national projects carried out by ISRO / DOS were followed by NRSA / ORSAC.

b. Preparation of different types of map by NRSA: -

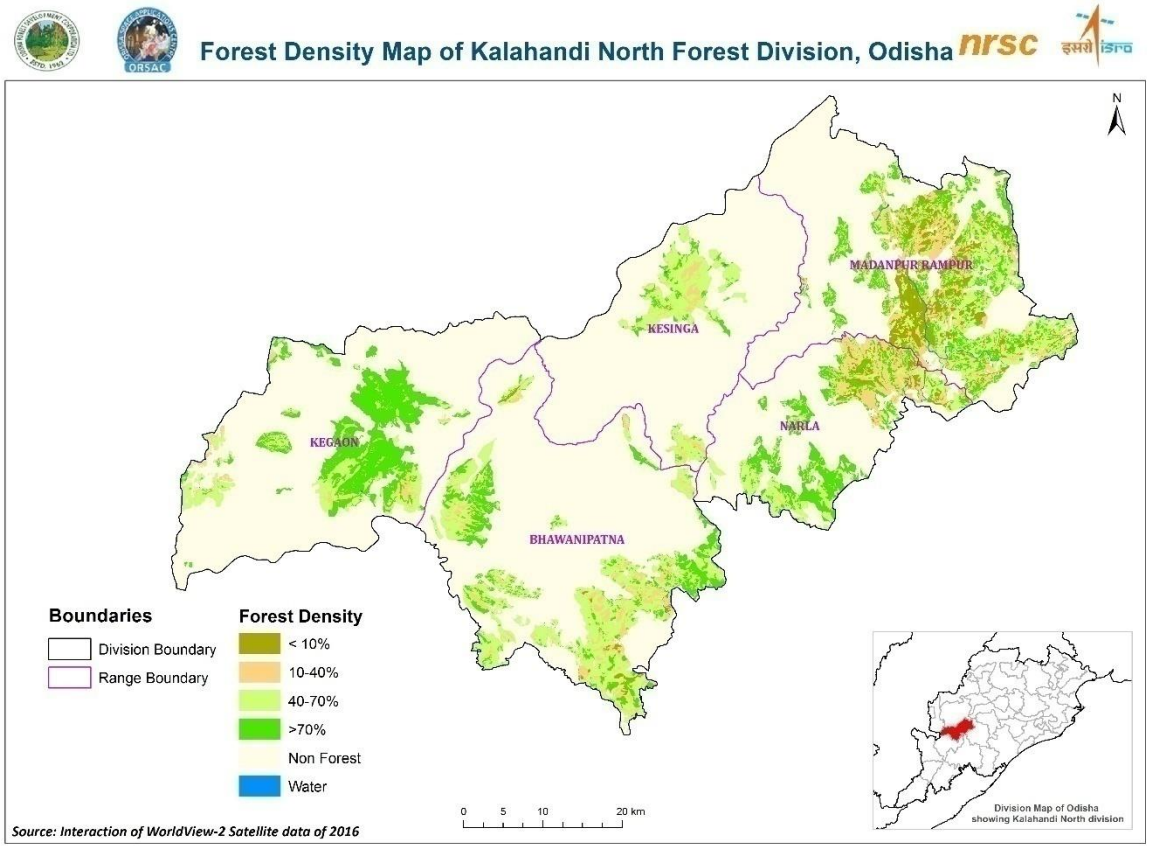
i. False Colour Composite IRS LISS III image of Kalahandi Division. It is the product generated by combining the date contained in threes different spectral bands into one image by assigning blue, green and red colour to the data in three spectral bands respectively. The said map is furnished below.

Forest Working Plan Preparation - Kalahandi Forest Division

False Colour Composite IRS P6 LISS III image of Kalahandi Division



ii.Crown Density Map: - It is also called the Canopy Density. The canopy or crown is the cover of branches and foliage formed by the crown of the trees. The percent area of the land covered by the said canopy or crown of tree is the canopy density or crown density. The area of the Forest Division has been broadly divided into 5 (five) categories namely (a) > 70%, (b) >40 to 70%, (c) >10 to 40%, (d) <10%, (e) Non-forest i.e. lands without any forest cover.



For Official Use

Sampling design

a. The objective of field inventory was to provide estimates of the growing stock of economically important species. Inventory design was based on a stratified sampling design based on the forest canopy density and forest type layers generated using satellite remote sensing. A pre-inventory was first carried out to assess the variability within and across strata.

b. Sampling intensity, inventory point allocation at the compartment/ division level and allowable sampling error, and approaches to optimize the inventory effort for the project was deliberated on and recommended by the technical committee in the meeting of Project Execution Committee and Project Management Committee.

c. The entire division was divided into Selection Working Circle (SWC) and Non-Selection Working Circle (NSWC) based on historical information of growing stock. Accordingly it was planned to generate stand and stock and yield information at compartment / coupe level for the Selection Working Circle (SWC) areas and only growing stock information at forest block level for Non-Selection Working Circle (NSWC) areas. Based on this suitable sampling design and estimation procedures were followed to address the requirements of SWC and NSWC areas.

d. An optimal sampling design with high precision in the estimate was adopted to address the large variability of forest composition and stock in the division. The precision of the sample estimate of the population depends not only on the size of the sample but also on the variability in the population. When the variability in the population was very high, the sample variance was reduced by dividing the population into number of homogenous vegetation strata and then selecting the inventory points randomly. This procedure is called as stratified random sampling. The use of stratification was very convenient with the advantage of forest type classified map and forest crown density map available from remotely sensed data. Therefore to optimize the intensity of ground inventory and enhance the precision of the estimates, stratified random sampling procedure was adopted for growing stock assessment.

e. The precise sample estimates are generated based on adequate sample size and its distribution pattern and finally estimation procedure followed against a defined error, time and cost limits. Sample size and distribution was determined in consonance with spatial variability in the strata distribution and growing stock conditions. 814 number of sample points of 0.1 Ha. area based on type stratification were distributed randomly across the entire division as pre inventory points to understand the spatial trends in the variability of growing stock and estimate the sample size. Based on the spatial semi variance estimated using geo statistical analysis of the pre inventory data, it was estimated to have ~ 0.1% intensity of sampling in < 40% crown density strata and ~ 0.3% for > 40% crown density strata with maximum distance of 1Km between each sample point. Taking this sampling intensity as a rule, sample size was determined for the six strata mentioned above. The total number of points thus allocated for each strata were further reallocated over all the compartments based on the probability proportion to the size of the strata present in each compartment. The sample points allocated over compartments were distributed randomly across the strata maintaining a maximum distance of 1 Km. between each point. The number of points distributed in different ranges and strata are given in the Table below.

f. Inventory points were allotted at the compartment level. Inventory points were located on the ground using GPS receivers. As an alternate method inventory points were also transferred onto 1:50,000 scale SOI topographic sheets for sake of convenience.

Table no.12.2

FIRST PHASE OF KALAHANDI NORTH			
Sl.No.	**Name of the Range**	**Total**	**Survey done**
1	**BHAWANIPATNA**	134	134
2	**KESINGA**	34	34
3	**KEGAON**	72	72
4	**M.RAMPUR**	411	411
5	**NARLA**	163	163
		814	**814**

FOREST INVENTORY

a. The field inventory was carried out by field staff of both Kalahandi North and South Forest Division.
b. The sample points distributed over the compartments were overlaid on the 1:50,000 scale Survey of India (SOI) map. The sample point location maps along with latitude and longitude positions were provided to the field party. Field inventory manual detailing all the steps of data collection was provided to field officers.
c. Collection of Inventory Data**:** - The enumeration sheets given to field staff consisted of 3 formats such as Form No. A, B, and C.

i. Form No. "A" meant for recording of data of situation of the point its longitude, latitude, map index, landscape, forest type, slope, soil type and texture, reference point etc. and about the identity of enumeration party including regeneration survey.
ii. Form No. "B" for recording enumeration result of different forest species of a particular point within 0.1 Ha. area beyond the girth class of 30 cm. including clear bole height and tree height.
iii. Form No. "C" meant to record information of bamboo enumeration. The growth of the bamboo, circumference of the clumps in meters, culms height in mtrs., Number of culms existing in clumps in 1st Year, 2ndYear, 3rd Year , 4th Year and above. Data generated by the field inventory crews were entered into the inventory database. The data collected through point enumeration were complied and all data are sent to NRSA for further analysis.

DATA ANALYSIS & OUTPUTS

Though inventory was done in respect of 814 nos. of Sample Points spreading over Kalahandi North in different ranges 814 nos. of Sample Points have been used in estimating different parameters. The range wise sample point used for analysis is given below.

Table no.12.3

Sample points used in estimation by NRSA

Sl.No.	Range	(>70%)	(40-70%)	(10-40%)	(<10%)	Total
1	Bhawanipatna	2	51	69	12	134
2	Kegaon		10	22	40	72
3	Kesinga		14	20		34
4	Madanpur Rampur	79	152	149	29	409
5	Narla	16	74	60	12	162
Total: -		**97**	**301**	**320**	**93**	**1619**

(Source: - NRSA, Hyderabad)

The realized sampling Intensity is quite fair for the purpose of estimation. The said sampling intensity is furnished below.

Table no.12.4

Realized Sampling Intensity

SFC				
Sl.No.	**Strata**	**Area in Ha.**	**Plots**	**Sampling intensity**
1	>70	7,089	95	0.13%
2	40-70	13,151	223	0.17%
3	10-40	14,689	186	0.13%
4	<10	11,064	32	0.03%
NON-SFC				
Sl.No.	**Strata**	**Area in Ha.**	**Plots**	**Sampling intensity**
1	>70	642	2	0.03%
2	40-70	7,738	78	0.10%
3	10-40	36,844	134	0.04%
4	<10	26,449	61	0.02%
OVERALL				
Sl.No.	**Strata**	**Area in Ha.**	**Plots**	**Sampling intensity**
1	>70	7,730	97	0.13%
2	40-70	20,890	301	0.14%
3	10-40	51,533	320	0.06%
4	<10	37,514	93	0.02%

(Source: - NRSA, Hyderabad)

Analysis – The inventory data have been analyzed by the NRSA adopting the modern technology through a special software package developed for this purpose. It has drastically reduced the time and labour required earlier in the traditional manual method. The most advantageous aspect of this computerized analysis is greater accuracy and removal of bias.

Output – A number of information has been generated from the aforesaid analysis covering different aspects. Some note worthy outputs are described below.

a. Stand Table - A table showing distribution of stems by diameter classes of each series of crop diameter, often auxiliary to a yield table. Range wise, Forest block wise and

Compartment wise stand table have been prepared for the forest blocks, canopy density wise as well as for the entire area. Considering the canopy density more than 40% as dense forest suitable for Selection Working denoted as SFC and the canopy density more than 10% and less than 40% as open forest suitable for rehabilitation purpose denoted as Non SFC or others the stand table has been prepared accordingly. The Range wise, Circle wise stand summary is furnished below in the tabular statement.

Table no.12.5

Range wise Circle wise Stand Summary

CIRCLE	MAJ.SP	30-60	60-90	90-120	120-150	>150
BHAWANIPATNA						
NONSFC	All Trees	1,848,487	843,991	427,371	189,779	223,122
		1,848,487	**843,991**	**427,371**	**189,779**	**223,122**
KEGAON						
NONSFC	All Trees	608,211	258,125	117,337	54,413	42,484
		608,211	**258,125**	**117,337**	**54,413**	**42,484**
KESINGANONSFC						
	All Trees	1,668,710	444,564	80,332	22,842	19,264
		1,668,710	**444,564**	**80,332**	**22,842**	**19,264**
MADANPUR RAMPUR						
NONSFC	All Trees	256,038	107,207	58,045	24,650	24,502
SFC						
	Anolat	177,756	65,908	46,699	24,003	18,727
	Diomel	148,807	95,064	94,034	47,191	36,633
	Misc.	2,307,341	1,236,885	705,554	300,871	278,681
	Sho rob	642,701	403,897	261,466	139,696	103,340
	Ter tom	168,117	85,174	38,230	35,136	30,442
		3,700,760	**1,994,135**	**1,204,028**	**571,547**	**492,325**
NARLA						
NONSFC	All Trees	446,489	167,649	106,006	61,308	40,253
SFC						
	Anolat	92,417	47,689	32,080	21,299	17,017
	Diomel	58,861	24,914	27,076	18,352	7,838
	Misc.	1,125,642	472,698	292,514	132,371	105,061
	Sho rob	162,558	75,943	71,336	55,355	46,825
	Ter tom	78,473	27,481	27,190	17,125	16,943
		1,964,440	**816,374**	**556,202**	**305,810**	**233,937**
		9790608	**4357189**	**2385270**	**1144391**	**1011132**
					GRAND TOTAL: -	**18688590**

(Source: - NRSA, Hyderabad)

b. Stock Table - It is indicating the volumetric contents of the trees. It is basically the local one whose application is restricted to the range of dimension of a species in coupes, compartments of a felling series usually derived from regional or general volume table. It is generally prepared with GBH as independent variable. NRSA has provided stock table in the manner identical to that of stand table. However, Range wise, Circle wise stock summary is furnished below in the tabular statement.

Table no.12.6

Range wise, Circle wise Stock summary

CIRCLE	MAJ.SP	30-60	60-90	90-120	120-150	150-300
BHAWANIPATNA NONSFC						
	All Trees	152,386	215,153	247,721	212,691	540,790
		152,386	**215,153**	**247,721**	**212,691**	**540,790**
KEGAON NONSFC						
	All Trees	47,019	62,799	70,443	61,784	96,215
		47,019	**62,799**	**70,443**	**61,784**	**96,215**
KESINGA NONSFC						
	All Trees	151,498	98,797	43,974	25,743	41,276
		151,498	**98,797**	**43,974**	**25,743**	**41,276**
MADANPUR RAMPUR NONSFC						
	All Trees	19,533	26,579	34,345	28,754	55,799
SFC						
	Anolat	16,909	22,459	36,073	32,610	40,815
	Diomel	10,085	22,551	55,340	49,603	72,787
	Misc.	162,930	306,341	406,267	328,852	605,368
	Sho rob	50,404	103,848	166,145	169,708	243,157
	Ter tom	27,101	30,203	30,444	57,275	90,952
		286,962	**511,981**	**728,614**	**666,802**	**1,108,878**
NARLA NONSFC						
	All Trees	34,858	45,234	64,375	66,447	92,706
SFC						
	Diomel	3,387	5,682	15,702	18,577	15,387
	Ter tom	77,828	116,201	164,221	137,556	223,658
	Sho rob	10,446	19,330	45,242	66,035	109,978
	Anolat	16,614	12,996	21,554	22,633	46,177
	Misc.	3,387	5,682	15,702	18,577	15,387
		146,520	**205,125**	**326,796**	**329,825**	**503,293**
		784,385	**1,093,855**	**1,417,548**	**1,296,845**	**2,290,452**
					TOTAL: -	**6,883,085**

(Source: - NRSA, Hyderabad)

YIELD CALCULATION

Yield is the volume or number of stems that can be removed annually or periodically or the area over which felling may pass annually or periodically, consistent with attainment of the objects of management. Yield shall be regulated through area with a volume check. It means the area of the coupe and the number of trees to be removed will be determined in consonance with the principle of sustained yield. In order to ensure it, the volume of the harvestable trees are to be assessed for which the yield of the crop in different girth class is necessary. NRSA has provided the stock table for the growing stock in different girth class starting from 30 cm. and above to 150 cm. and above having the range of each class as 30 cm. i.e. 30 cm. to 60 cm., 60 to 90 cm., 90 to 120 cm., 120 to 150 cm. and 150 cm. and above. The highest girth class is considered as the exploitable class whereas the next below girth class i.e. 120 cm. to 150 cm. is taken as the approach class. The yield calculation is confined to the exploitable or harvestable girth class only. On application of Smythie's

Safeguarding Formula, the yield calculated by the NRSA is furnished in Selection Working Circle.

Yield must be regulated by area with a riding factor on the number of silviculturally available trees of exploitable girth class basing on Smythie's safeguarding formula. This formula was evolved by Smythies for sustainable yield from the Sal forest of Uttar Pradesh. Certain assumptions considered for the above formula also hold good for the forest blocks allotted to this working circle and the same are furnished below.

(i) The exploitable (Selection) trees already exist and are being recruited everywhere (and not in any particular compartments only) and that fellings pass regularly through the forests in consecutive annual coupes in a felling cycle of 10 or 20 years.

(ii) The basic object of management is to ensure, as far as possible, sustained yield of exploitable trees and volume above the exploitation limit at every felling cycle.

(iii) The middle aged and younger diameter classes are well represented and the present rate of recruitment into the two highest diameter classes (I and II) is not likely to decrease in the near future.

(iv) Sustained yield of Selection trees is adequately safeguarded, if in any area, the number that may be felled is limited to the number that will pass up from below by the time fellings come round again.

According to Smythie's safeguarding formula: -

$$X = \frac{F}{T}(II - Z\ \%\ of\ II) \quad \text{---------- (1)}$$

Where

X= Number of trees in approach class that passes into the exploitable class

II= No. of trees in pre-exploitable girth class or approach class

F= Felling cycle (10 years)

T= Time period in years that takes approach class to pass into exploitable class (40 years)

Z= Percentage of Class-II trees that do not pass into class I in 'T' years, due to mortality or removal in thinning etc.

The percentage of the trees available for exploitation (Y) is calculated as follows.

$$Y = \frac{X}{(I+X/2)} \times 100 = A \quad \text{---------- (2)}$$

Where

A= Arbitrary value to get the round figure of 'Y'

X= Number of trees in approach class which passes into the exploitable class

I= Number of trees already existing in the exploitable class

If the value of 'X' as in equation (1) is substituted in the equation (2) the resulting equation is as follows

$$Y = \frac{2\ F\ II\ (100 - Z)}{200\ I\ T + F\ II\ (100\text{-}Z)} \times 100 = A \text{ ---------- (3)}$$

The value of 'T' is 36 years for average site quality III in respect of irregular Sal forests of Ramnagar Forest Division. This is slightly less than that obtained from the yield table. The values of 'T' and 'Z' as per yield table are 39 years and 43%. Since it is forests on undulating topography, the value of 'T' and 'Z' is taken as 40 years and 45 %. Substitution of these values of 'T' and 'Z' in equation (3), we get

$$Y = \frac{1100\ II}{8000\ I + 550\ II} \times 100 \pm A$$

or,

$$Y = \frac{22\ II}{160\ I + 11\ II} \times 100 \pm A$$

The NRSA, Hyderabad has calculated the yield indicating the number of trees available for harvest per ha. Adopting Smythie'sSafeguarding Formula compartment wise and forest block wise as furnished vide **Appendix XVI**. The aforesaid data has been consolidated coupe wise and felling series wise for Selection Working Circle in a tabular statement vide **Appendix XVI**.

The average number of trees that can be removed per ha. felling series wise has been indicated in the above table. Since Kalahandi is a drought prone district, retention of vegetal cover is of indispensable importance. Considering this aspect as well as accommodating the anticipated biotic interference, it is decided to reduce the quantum of removal of trees at least by 50%. Similarly other locality factors are also taken into consideration for this purpose. Encompassing all such related parameter, the number of trees prescribed for removal felling series wise is furnished as under.

Table no.12.7

Sl.No.	Name of the Felling Series	Prescribed no. of trees for removal
1	Urladani East	**1 tree per 2 ha.**
2	Urladani West	**1 tree per 3 ha.**
3	Taparang	**1 tree per 2 ha.**

4	Telen	**1 tree per 2 ha.**
5	Sunamukhi	**1 tree per 2 ha.**
6	Benaguda	**1 tree per 2 ha.**
7	Sulia	**1 tree per 4 ha.**
8	Pongabaju	**1 tree per 4 ha.**

Enumeration and analysis of Bamboo

Quality class of Bamboo

All 3 (three) quality class i.e. I, II & III are available, but the maximum representation belongs to quality class II & III. Quality class I is available in forest block namely Brahmani, Porgel and Benaguda.

Statistics of growing stock of Bamboo

Bamboo has been enumerated along with Sample Point Inventory. The abstract analysis of the assessment in respect of both the Divisions are furnished in Chapter-VI of Part-II i.e. Bamboo Overlapping Working Circle.

Estimation of Yield in Sale Units (SU)

Similarly yield has been estimated coupe wise, the details of which is furnished in Chapter-VI of Part-II i.e. Bamboo Overlapping Working Circle.

Capital Value of the Forest

Capital value of a forest is a broad term encompassing a number of parameters. The present worth of a forest capital may be expressed as cost value, expectation value, market value, rental value or replacement value. The method of estimation is governed by the circumstances of each case. These values are explained as under.

(a) Cost Value: - The capitalized present value of the total outlay on the acquisition and improvement of a property minus the capitalized present value of all incomes from the property, the capitalizing being done at current rate of compound interest.

(b) Expectation Value: - The discounted present value of all future returns from a property minus the discounted present value of all the future expenses necessary to earn those returns, the discounting being done at a given rate percent compound interest.

(c) Market Value: - The price that could be obtained by selling the forest as it stands. This is synonymous with sale value or exploitation value or devastation value.

(d) Rental Value: - The value of a property expressed as the capital corresponding to the anticipated average rental and a given rate percent of interest. It is synonymous with income value.

(e) Replacement Value: - The amount it would cost to built up the forest at present price. It should equal to the cost value but for fluctuations in money value.

Principle of valuation: - As narrated above the value of the forest will be different as per the purpose. Calculation of all those types of aforesaid value are interlinked. It is difficult to assess the value accurately. For the sake of appreciation of the worth of the forests, the cost value is the ideal one. Similarly, there are different methods to calculate the value. It is proper to adopt the methods in vogue. Both the tangible and intangible value are taken together to determine the total cost.

Method of Calculation: - The tangible aspect is well taken care of in terms of Net Present Value (NPV) of forest land as prescribed in pursuance to the order dated 01.08.2003 of Hon'ble Supreme Court of India in I.A.No.566 of Writ Petition (Civil) No.202/95. The rate has been prescribed taking quality, quantity and density of the forest land into consideration as communicated vide Govt. of India, Ministry of Environment & Forests, letter No.5-1/98-FC dated 18.09.2003. Similarly, the non-tangible value mostly the environmental services has been prescribed for the forest land vide Govt. of India letter No.11-16/85 FRY (CONS) dated 15.01.1985. Since both NPV and environmental loss are calculated basing on the rate envisaged in the aforesaid two letters throughout the country, it is proper to adopt the same here to derive the value of forests. Both the values taken together determine the total value of the forests. This process is a fair assessment of the value of the forests in the present day's context, since different aspect have been taken together to derive the formula. Moreover the above narrated method is practised throughout the country.

Net Present Value (NPV): - The rate of Rs.10.4 lakhs, Rs.9.30 lakhs and Rs.7.3 lakhs per hectare has been prescribed for the density class of>70%, 40-70% , 10-40 % and <10% respectively. As per the Letter No. 10F (L) 14/2009(pt) 21687/ F& E, Dated 22.07.2009 accordingly, the NPV for Kalahandi North have been calculated taking the density strata area furnished by NRSA into consideration in the tabular statement given below.

Table no.12.8
NPV of Forests of Kalahandi North Division

Density class	Rate per Ha.	Area in Ha.	Amount in Lakhs
>70%	10.4	7,730.47	80396.89
40-70%	9.3	20,889.56	194272.9
10-40%	7.3	50,420.68	368071
<10%	7.3	37,513.82	273850.9
Total: -		**116,554.53**	**916591.6**

Environmental Value: - Rs.126.74 lakhs have been fixed as the norm for environmental value of 1 ha. fully stocked forest having density of 1.0 for a period of 50 years as prescribed vide aforesaid letter No.11-16/85 FRY (CONS) dated 15.01.1985 of Govt. of India. So the environmental value per ha. per year comes to Rs.2.53. For sake of convenience of calculation, the forest area belonging to different density class has been converted to the area of fully stocked forests having 1.0 density. This is done by multiplying the average density of each class with the gross forest area of that class. The details of such calculation for Kalahandi North Division have been furnished in the tabular statement given below.

Table no.12.9

Valuation of environmental service of Forests of Kalahandi

Name of the Division	Density class	Average density of the class	Area in Ha. under the density class	Converted area in Ha. to fully stocked i.e. 1.0 density	Environmental value per Ha. per year	Total environmental value in Lakhs
Kalahandi North	>70%	0.55	7,730.47	4251.759	2.53	10756.95
	40-70%	0.325	20,889.56	6789.107	2.53	17176.44
	10-40%	0.175	50,420.68	8823.619	2.53	22323.76
	<10%	0.05	37,513.82	1875.691	2.53	4745.498
Division Total: -			**122343.83**	**21740.18**	**116,554.53**	**55002.64**

Total Valuation: **-** The capital value of the forests of Kalahandi has been computed as Rs.9715.942 crores taking the aforesaid calculation together. The details of which is furnished in the following table.

***Capital value of forests of Kalahandi*North**

Category of value	Amount in Lakhs
Tangible (NPV)	916591.6
Intangible (Environmental value)	55002.64
Total: -	**971594.2**

12.1 Statistics of forest carbon stock

Under the national forest inventory programme, FSI has been calculating carbon stock of forests under different types. Forest type wise and strata density wise values of carbon in tonnes/ha have been given in FSI reports for all carbon pools viz Above ground biomass(AGB), Below Ground Biomass(BGB), Dead wood, Litter and Soil Organic Carbon. These standard values mentioned in India state of Forest report 2017 have been considered to calculate carbon stock.

Forests of Kalahandi North division belong to two major types viz. Tropical dry deciduous and Tropical dry deciduous. Forest blocks of Madanpur Rampur, Narla ranges conform to Tropical moist deciduous forest while those of Kegaon, Kesinga and Bhawaniptna range conform to Tropical dry deciduous forest. Strata density wise areas in these ranges have been obtained from NRSC data available for preparation of this working plan. Accordingly carbon stock calculation has been done using standard values mentioned in India State of Forest Report 2017. Standard value per hectare given for various carbon pools for different forest type stratum and density has been multiplied by area for that particular type for carbon stock calculation in various ranges and division as a whole as detailed in table.

Summary of standard carbon stock values in tonnes for various carbon pools as mentioned in India State of Forest report 2019 has been given in table below:

Table no.12.10

Forest Type	Density	Carbon(in tonnes/ha)					
		AGB	BGB	Dead	Litter	SOC	Total

Stratum				wood			
Tropical Moist Deciduous	VDF	45.45	10.00	0.90	2.77	58.42	117.54
	MDF	31.71	6.98	0.57	3.36	56.71	99.33
	OF	20.98	4.62	0.25	1.76	55.02	82.63
Tropical Dry Deciduous	VDF	31.46	13.21	0.42	6.29	50.71	102.09
	MDF	27.07	11.37	0.20	0.62	45.81	85.07
	OF	12.52	5.26	0.09	0.42	41.38	59.67

Source: India State of Forest Report 2019

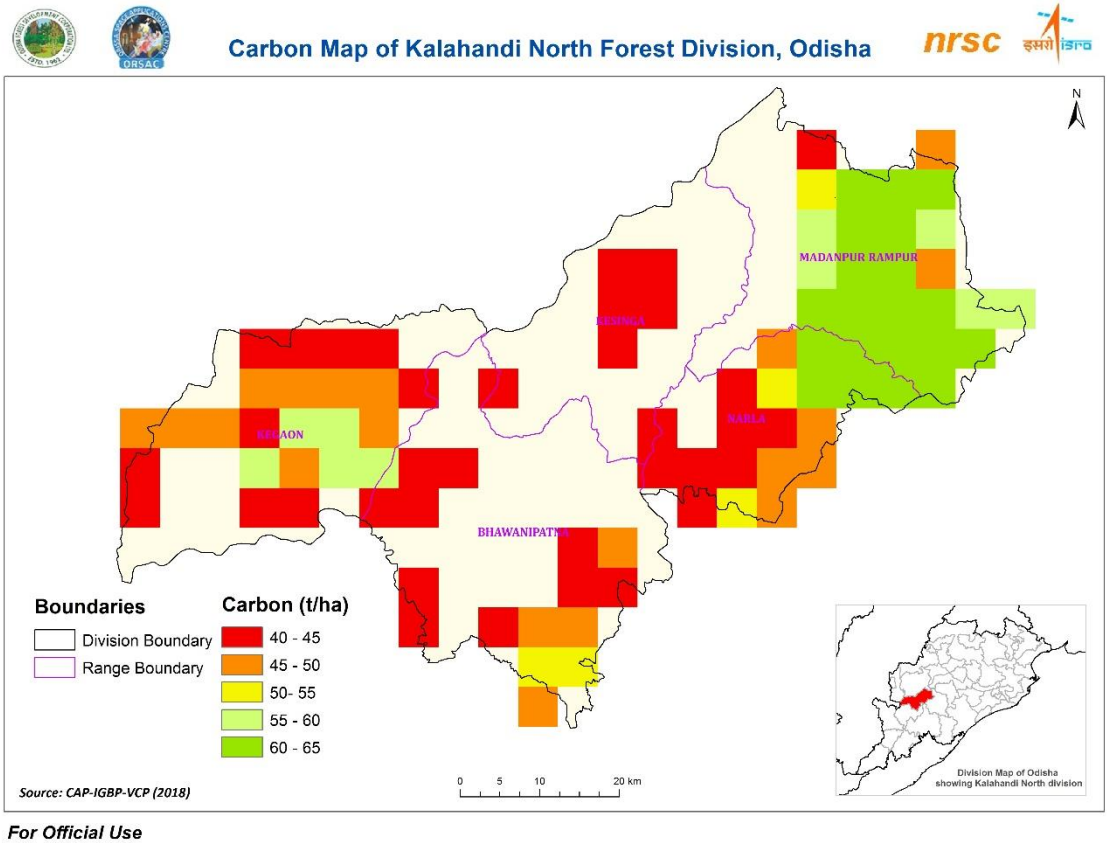
Strata density wise area(in ha) statement of various ranges from NRSC reports and their forest type has been listed below in table

Table no.12.11

Forest Type Stratum	Range	Area(in ha)		
		VDF	MDF	OF
Tropical Moist Deciduous	Madanpur Rampur	5990.65	9020.82	12294.56
	Narla	1216.91	4651.87	6556.38
Tropical Dry Deciduous	Kegaon	0.00	1382.94	6143.24
	Kesinga	7.86	1194.00	6803.05
	Bhawanipatna	515.05	4639.93	18,623.44

Source: NRSC data submitted for preparation of Kalahandi North Division working plan

The detailed Carbon stock calculation for each forest block has been annexed in **Appendix XVII.**



PART-II
FUTURE MANAGEMENT

CHAPTER 1

BASIS OF PROPOSAL

Background: -

Management is a rolling and evolving process. It should have a flexible and adaptable orientation to suit the ever-changing situation for ensuring its effectiveness all the times. Pragmatic approach is necessary to make it acceptable and viable. At present the management of forests is very crucial when the resource is dwindling coupled with galloping rise in demand. Meeting the requirement of local people with simultaneous maintenance of adequate forest cover for ecological balance and environmental stability has posed a great challenge to the managers of forests. While following the principles envisaged in National Forest Policy-1988 and honouring the directions issued by Honourable Supreme Court of India from time to time, the priority is on the increase in forest and tree cover for environmental purpose rather to generate revenue to the state exchequer. Even the encouragement for use of alternatives to timber and other forest produce has been emphasized in the policy to curtail the demand on forest produce for reducing the pressure on forests. All that said and done, it is practically not possible to overlook the age-old dependence of rural people on forests for fuel wood, small timber, fodder and other forest produce of daily use. Further a viable and self-sustaining alternative is yet to be in place for the rural mass. So to formulate the plan proposal encompassing the guiding principle of forest policy with ground reality has become most complicated and cumbersome. Correct assessment of present state of affairs, feedback from past managements and the prospective vision are the core and substratum of future management.

The forest cover of Kalahandi has been increasing from the beginning of last plan period i.e. 1997 barring a very negligible decrease during 1999 as per the report of Forest Survey of India. Till 2003 there is increase by 341 Sq. Kms. So it is evident that the process of restoration is not only started but also marching ahead in the desired direction. This is still in fluid state and required to be stabilized for sustainability and harnessing the benefits in perpetuity. The demand of local people has been enhanced due to rise in population and such demand will also continue in ascending manner. The permissible production is not keeping pace with the demand resulting in exerting unbearable pressure on the forests. The blanket ban on felling of trees even the dead ones has been lifted. Harvest of timber and firewood as per the prescription of working plan has been started since 2016-17. Procurement of bamboo is going on. Collection & trade of NTFP, being controlled by Gram Panchayat are treated indifferently without specific assignment. The Joint Forest Management is gaining momentum day by day with participation of the people through VSS.

The major outcome of the last Plan is the success derived from rehabilitation of degraded forests for which the forest cover has been increased. It has become imperative to emphasize on this activity for speedy progress in increasing the forest cover through such cost effective method. The enhancement in forest cover is not enough; enrichment is necessary to boost the growing stock for increase in production of forest produce. Unless this aspect is taken well care of, the need of the people cannot be catered. Though the production of bamboo has been declined over the years, it is still a major item of production from the forests of Kalahandi. It is a short rotation crop whose sustainability is necessary through suitable silvicultural operation. The harvest of Timber, though required as a silvicultural necessity, but it cannot be construed as a potential source of benefit. NTFP is the main thrust area in the present days' context. It is a perennial source of livelihood for the forest dwellers

particularly the tribals depending on the forest as a source of sustenance through its collection.

Kalahandi being a drought prone district, the maintenance of adequate forest cover is of vital importance as a drought proofing measure. The forest is the foster mother of agriculture. The congenial climatic condition created by a good forest cover contributes a lot in boosting production in agricultural sector, which in turn will improve the economic condition of the local people. It is necessary to emphasize, enhance and stabilize the on going rehabilitation process in degraded forests through suitable silvicultural operation and soil and moisture conservation measures. The institution of VSS should be strengthened for shouldering the responsibility of Joint Forest Management in more effective manner to protect the forest against biotic interference.

1.1 Objective of Management:-

1.1.1 The role of forest is ever changing. Once upon a time it was a fabulous source of State Revenue with objectives of profitability. Now a days it is looked upon more as a life supporting system on this Planet for the entire human kind than a source of livelihood to rural poor. Forest is a dynamic entity. Periodical harvest is necessary to remove stagnation to this precious renewable resource and ensure the vitality to provide benefit both tangible and intangible in perpetuity. The broad generalized objective is the goal, which is to be pursued through both long and short-term objectives. Clearly defined and realistic objectives are reachable by adopting suitable strategies, which are based on ecological, economical and ethnical dimensions. The duration of implementation of the working plan being ten years, the short-term objectives are focused with the intension to meet the long term and broad objectives in the long run. Hence considering all such parameters, the objectives of management of this plan are as follows: -

(i) To continue the efforts in increasing the forests and tree cover of the district with special emphasis on hill slopes, catchment area of rivers and reservoirs for regulation and betterment of water supply along with maintaining the ecological balance and environmental stability.

(ii) The forests being a renewable natural resource, this precious asset of the nature is to be protected, promoted and harvested to the permissible extent for meeting the both short term and long term requirement.

(iii) To enrich the forests and to ensure the increase in its productivity through suitable silvicultural operations for establishing the regeneration and boosting the growing stock.

(iv) To strengthen and stabilize the institution of V.S.S for enhancing the participation of local people to shoulder the responsibility of Joint Forest Management in more effective manner.

(v) To cater the need of the local people inculcating the idea of both producer and consumer of forest produce on sustained basis.

(vi) To maintain the bio-diversity to serve as gene pool resource.

(vii) To conserve and uplift the wildlife population through improvement of congenial habitat and conflict resolution.

(viii) To develop the eco-tourism for providing recreational facilities to the people and also to induce a passion for its conservation.

(ix) To create employment opportunity and source of income to the rural people especially the weaker section of the society to augment their livelihood particularly in forest fringe villages.

1.1.2 Dynamics of Forests and Stands:-

Stands structure can be defined in many ways depending on region, objectives or other biological and non-biological factors. Silvicultural choices may be thought of as determining what kind of stand development process or stage of natural succession is most desirable in a particular situation. Silvicultural practices often focus on actively encouraging stands to develop towards structures that are in short supply, recognizing that stands will become increasingly more valuable as they accumulate attributes of the desired structure.

Once the forest is established it reaches the climax stage, during this process of achieving the climax state the plants is to undergo different succession stages. No plant starts or accelerates its growth unless something dies or killed freeing up growing space (physical space, above / below ground, light, water, nutrient, carbon dioxide etc.). All silvicultural procedures are in part of a simulation of natural processes. New stand initiation events are fire, pest outbreaks, wind storms, landslides and other atmospheric agents. The basic objectives are

- To maintain tree species diversification,
- To maintain perpetual closed canopy on the hill slopes and catchments.
- To arrest soil erosion to maintain hydrological balance and regulate water yield of the streams, rivulets and the rivers.
- To improve the composition and productivity of these forests by increasing investment and through appropriate scientific management.
- To restock barren degraded and depleted forest using appropriate technology and prescriptions.
- To improve the quality and density of growing stock by suitable silvicultural practices catering the basic needs of forest dwellers, local people and industries on sustainable basis.
- To treat the forest as a renewable natural resource not a source of revenue.
- To maintain the environmental stability through preservation of forests and also restoration of ecological balance ensuring the sustainable growth of the forest.

1.1.3 Forests and soil :-

- To maintain the soil structure and texture by arresting erosion.
- To boosts up soil vitality by facilitating the growth of microorganism, like earthworm and termites to piles up humus in the forest floor.
- To maintain the soil nutrient productivity in particular and boost up the paedogenesis in large.

- To protect the soil and stream degradation from catastrophic forest fires.
- To increase forest and vegetative cover on hill slopes, in catchment of rivers, lakes and reservoirs to check soil erosion.

1.1.4 Forests and water :-

- To protect the existed riparian areas by guiding the rainwater to percolate inside the earth by adopting suitable means and recharging the groundwater in perpetuity.
- To protect road/stream interfaces

1.1.5 Forest biodiversity :-

- To prevent further degradation of ecosystem by restricting the cutting of trees and stress upon the conservation and protection of the flora and fauna.
- To protect and manage wildlife with view to conserve biodiversity.
- To maintain the amounts of all habitats at all times.
- To maintain critical habitats for key species.
- To maintain reserve areas, Old forest reserves,
- To protect the natural forests which serve as a gene pool resource and help to maintain ecological balance?
- To delineate and maintain the existing corridor for the migration of the mega fauna.

- To protect, manage and develop the wild life resource of the Division in conformity with the National Forest Policy with the ultimate goal of biodiversity conservation.

1.1.6 Climate and Forests :-

- To improve the knowledge and understanding of the impact of climate change on forests by studying changes in the different aspects of the forest ecosystem, including biodiversity, phonological (life-cycle timing) responses and tree growth.

- To adapt forest management to this changing context by concrete action and raising the awareness of forestry managers and the wider public by setting up demonstration plots and devising information and awareness-raising tools.

- To maintain low wind and fire risk.

- To maintain the carbon budget by adopting integrated effort to sink more and release less carbon.

1.1.7 Socioeconomic considerations and generation of forest based employment opportunities and livelihood options:-

- To create employment opportunities for rural people and weaker section, particularly for those who are totally dependent on forests by taking up a number of forestry activities that will develop and improve the forest cover.

- To ensure people's participation in forestry activities.
- To meet the needs of the forest produce of local people to the permissible extent subject to previously mentioned imperatives.
- To educate children and the wider public about the forest
- To promote Joint Forest Management with clear understanding of the concept of responsibilities and sharing the usufructs benefits.

1.1.8 Tool for integrated development:-

- To enhance the forest cover and productivity of the forests through application of scientific and technical inputs
- To meet the growing needs for essential goods and services which the forests provide.
- To manage the forest for sustainable production to meet the demand in perpetuity

1.2 Methods of Treatment to be adopted: -

1.2.1 To achieve the aforesaid multiple and multi-dimensional objectives, suitable method of treatment is essential, so as to enable to accomplish the desired goal. The treatment prescribed in the last Plan still holds good for the present. Though the improvement in the crop condition has been noticed to some extent, but a lot is yet to be done. Increase in forest cover is not enough; the enrichment of the crop can provide the sustained yield. Similarly the process of restoration of degraded forests through rehabilitation measures will continue till remarkable improvement is achieved. Forest blocks retrograded from good density class and the degraded forests shown substantial improvement need special treatment particularly protection for smooth and early passing to higher density class.

1.2.2 Forest Blocks namely Urladani, Dengsur, Porgel under Narla Range and Taparang, Telen, Bidabaru, Jerka, Benaguda, Sunamukhi, Ramud, Manikera, Satami, Sulia, Talnuagaon, Mudramaska, Pongabaju, Puijhari, Pudrimahul under Madanpur Rampur Range of Kalahandi North Division having good natural forests are proposed for silvicultural treatment under selection system. The forest blocks where coupe working was not possible in the previous working plan are proposed to be managed under Improvement system. Encouraging the natural regeneration till its stabilisation and enrichment in both quality and quantity of crop are emphasized to enhance the productivity. The production of Timber depends totally on these forests.

1.2.3 All the rest Forest Blocks of Kalahandi North Division are still in a struggling state for restoration. Site-specific suitable rehabilitation measures are necessary to gear up the process of restoration and improvement at a faster rate. No specific silvicultural system is prescribed for this category of forests. Regeneration cleaning and Gap planting where ever necessary is the main prescription. This is major chunk of the plan area. The treatment of this category of forests is of vital importance.

1.2.4 The existing good natural forest having higher density and quality of the crop is to be treated with selection system, as done earlier whereas the degraded forests will be provided with rehabilitation measure i.e. suitable and site-specific silvicultural treatments. In nutshell silvicultural system for good forest is selection system and for the rest is the improvement measure. Besides that bamboo crops is to be developed along with medicinal plants. Similarly eco-tourism and joint forest management is to be boosted for this purpose.

1.2.5 Bamboo forests occurring in this Divisions is in bare need of subsidiary silvicultural operations for ensuring the crop quality and quantity. Clearance of the clump along with the soil cover and moisture conservation measures are the proposed treatment to induce the production of new culms. This is the main forest produce of Kalahandi. Though the control over collection and trade of NTFP has been transferred to Panchayati Raj Institutions, the source of majority of items is forest. Hence the increase in productivity is essential to provide a good source of earning to the forest fringe villagers. The treatment cannot be generalised. Specific treatment is necessary. So also the treatment for improvement of habitat congenial to Wild Life and its development needs special attention. Treatments narrated above are general in nature. Specific and suitable treatment is necessary considering the crop condition, locality factor and the purpose to obtain the desired result for which there is need for constitution of different Working Circle.

1.3 Constitution of Working Circle: -

1.3.1 As already discussed in Part-I there is a great variation in crop composition, locality factors and also the requirement of local people. Accordingly the general objectives of management have been fixed not only to cater the present demand but also to accommodate the future necessity. After needful consideration from all such angles and also in consistent with provisions of National Working Plan Code 2014 following Working Circles have been constituted for management of forest area covered in this plan duly approved by the Working Plan Committee.

1. Selection Working Circle
2. Rehabilitation Working Circle
3. Plantation Working Circle
4. Protection (Overlapping) Working Circle
5. Bamboo (Overlapping) Working Circle
6. N.T.F.P (Overlapping) Working Circle
7. Wildlife (Overlapping) Working Circle
8. Joint Forest Management (Overlapping) Working Circle
9. Soil & Water Conservation (Overlapping) Circle.

1.3.2 Out of the aforesaid 9 (Nine) working circles, 6 (Six) are overlapping. The forest area covered in this plan has been distributed primarily among 3 (Three) main working circles like Selection Working Circle, Rehabilitation Working Circle & Plantation Working

Circle whereas the area of all the Overlapping Working Circle are secondarily allotted from the area of main working circles for emphasizing the required functional aspects.

1.3.3 Selection Working Circle

1.4.3.1 The high forests having good crop density and mature trees needs the harvest of mature crop to remove stagnation in growing stock and subsidiary operations for improvement of the crop with an intension of sustained production. The selection system is the silvicultural system which is most appropriate for those forests. Accordingly the working circle is named as Selection Working Circle comprising of forest blocks having mostly Sal and Mixed Deciduous Forests. All the forest blocks included under this working circle are in Madanpur Rampur and Narla Range of this Division. The total area allotted to this working circle is 45478.81 ha. Which is about 36.32% of the total forest area covered in this plan.

1.3.4 Rehabilitation Working Circle

1.4.4.1 As the name denotes, it is intended to restore the degraded forests through suitable silvicultural operations with emphasis on protection. The forests having low density and under severe biotic interference are kept under in this working circle to revive crop density. All the forest blocks except those allotted to Selection Working Circle and Plantation Working Circle spreading over the entire Forest Division are assigned to this working circle. A major chunk of the plan area is under this working circle. The total area allotted is 72593.40 ha. and it constitutes about 57.98 % of the total plan area.

1.3.5 Plantation Working Circle

1.3.5.1 This mandatory working circle is to take care of blank areas needing plantations as well as the areas containing old plantations requiring the protection and tending/thinning operations. The blank patches are identified by using recent satellite data with different density map of forest blocks. ORSAC has provided the mid-latitude and mid-longitude of different blank patches which were verified and the patches with slope less than 30 degree and density less than 40 have been taken for plantations. Hence, it is appropriate to confine to handle the old plantations in view of the prescription already made in Selection and Rehabilitation Working Circle to treat the blank areas by Gap Planting. Accordingly the old plantations particularly the Teak patches within the plan area which is in need of protection and tending / thinning operations has been allotted to this Working Circle under tending series. Plantation sites with less than 40% survival have been taken under Restoration Series and the encroached land along with FRA rejected claims have been taken under Eviction series. These areas mainly taken as exclusive of the area of Rehabilitation Working Circle. Total area included in this working circle is 7133.15 ha.

1.3.6 Protection (Overlapping) Working Circle

1.3.6.1 In addition to the usual protection provided to the entire forest areas of the Division, some forest blocks being vulnerable to heavy biotic interference, eco-fragile and important from bio-diversity angle are in need of some additional effort for its protection. Such areas like all the forest blocks of Selection Working Circle in both Madanpur Rampur and Narla range and natural Teak forests of Nageswar reserve forest blocks in Kegaon Range forms under Rehabilitation Working Circle have been clubbed to constitute this Overlapping Working Circle. The area allotted is 47895.3 ha. which overlaps the part of mainly two exclusive working circles i.e. Selection Working Circle and Rehabilitation Working Circle.

1.3.7 Bamboo (Overlapping) Working Circle

1.3.7.1 This Forest Division has a number of forest blocks having potentially rich in bamboo crop mostly Salia Bamboo (Dendrocalamus strictus). Bamboo is a perennial woody grass having four years rotation crop, which necessitates a separate working from the other crops. Further it is available mostly as an under storey with the main crop of forest blocks. Hence an overlapping working circle is constituted to tackle this crop suitably and exclusively. The area allotted to this working circle is 66152.07 ha. mostly confined to Madanpur Rampur, Narla, Bhawanipatna Ranges to a great extent and Kegaon Range to some extent. The Bamboo overlapping working circle which covers 52.83 % of the plan area.

1.3.8 Non-Timber Forest Produce (Overlapping) Working Circle

1.3.8.1 In a dire situation of retaining adequate vegetal cover for ecological stability compelling the restriction on harvest of mostly timber crop, the importance of tapping of N.T.F.P resource of the forests has gained momentum as the most viable, sustainable and profitable source of income from forestry sector at present. Since fruit, flower, seed, leafs etc. of a variety of plants i.e. tree, shrubs, climbers, grasses etc. are used as N.T.F.P and these are scatteredly occurring throughout the Forest Division, the constitution of this separate overlapping working circle can serve the purpose of managing the production, collection and improvement of these crops in a meaningful manner. The area kept under this overlapping working circle is 125205.36 ha. spreading throughout the Forest Division and covering the 100% of plan area.

1.3.9 Wildlife (Overlapping) Working Circle

1.3.9.1 Wildlife being an integral part of forests, its management needs special emphasis on different aspects like conservation, development and prevention of depredation and conflict. Constitution of a separate working circle is necessary in view of the management is mostly oriented for conservation and development of tree crop. Wildlife is also available in different pockets spreading over majority of the forest blocks of the Division. So an overlapping working circle can serve the interest of wildlife better. Accordingly an overlapping working circle is constituted assigning an area of 119818.97 ha. It constitutes 95.70% of the plan area.

1.3.10 Joint Forest Management (Overlapping) Working Circle

1.3.10.1 Joint Forest Management with active participation of the VSS is now days a unique panacea to address the problems faced on the account of management of forests particularly protection. People's involvement is a must in the present scenario for ensuring effective protection of forests. This is mostly an extension activity coupled with sharing of technical aspects for the management. Though VSS have been constituted for Joint Forest Management, the same is required to be consolidated for providing a sound and stable system of forest management involving people at village level. Therefore, an overlapping working circle is constituted to encourage this aspect within the ambit of technical management as provided to the main working circle. Though a total number of 593 VSS have already been constituted with assignment of 42679.97 ha. of forest area, this working circle includes all the Village Forests and Proposed Village forest area under this plan. The total area assigned to this overlapping working circle is 43153.42 ha. At present it covers 34.47% of the plan area. There is provision of the automatic inclusion of the additional area in this working circle in the event of constitution of more new VSS or allotment of more area to the existing VSS.

1.3.11 Soil and water Conservation (Overlapping) Working Circle.

1.3.11.1 Heavy rains and rapid run-off severely affect not only the top fertile soil but leads to formation of gullies within forest areas. Suitable management imperatives need to be formulated to stop forest degradation due to natural causes and calamities. Apart from silvicultural operations, it is also necessary to make appropriate prescriptions for conservation of soil and water in the forest areas.

To meet the above purpose and in accordance of the provisions NWPC 2014, one new overlapping Circle named Soil & Water Conservation Overlapping Working Circle is proposed to be included in the working plan with the following objective.

Objective :-

- Creation and Development of water tanks, contour bonds, check dams, gully filling, construction of LBCDs etc. to check soil erosion
- To improve water regimes and natural regeneration
- To improve Silvicultural operation
- Improve soil condition.

In this Division 60 nos. of sites (RFs/PRFS) have been identified where the area is affected due to soil erosion in vicinity of streams and where areas are in degraded forest due to over steep slopes. A total of 7975 ha have been identified for suitable treatment with provision construction of series of Water tanks/Check dams during the plan period.

1.4 Allocation of Area to different Working Circles

1.4.1 As already narrated in Chapter-I of Part-I that there is some variation between the notified area and the computed area of the forest blocks by NRSA, Hyderabad. The notified area is used for the plan area in synchronization with the prevailing reported documents while the aforesaid computed area is taken for allotment into different working circles for the sake of smooth working in the field. Accordingly, the range wise distribution of area in terms of forests blocks and its compartments for individual working circle have been furnished in the succeeding concerned Chapters of said working circle. However the abstract of such distribution is furnished below.

Abstract of Range wise distribution of Area to different Working Circles in ha.

Table No. 1.1

Name of the Range	Plan Area	Selection-WC	Rehabilitation WC	Plantation WC	Bamboo (O) WC	Protection (O) WC	NTFP (O) WC	WL (O) WC	JFM (O) WC	SWC(O) WC
M.Rampur	38362.27	33233.85	4801.05	327.37	23303.59	33234.05	38362.26	38350.10	(6176.68+*2014.03) = 8190.71	2430
Narla	24133.26	12244.96	11560.30	328.00	12798.35	12244.96	24133.27	24094.27	(5063.80+*749.79) = 5813.59	1465
Bh.patna	32841.99	0	29731.47	3110.52	21074.90	0	32841.99	29440.49	(10344.31+*2050.22) = 12394.53	1900
Kegaon	19787.72	0	17189.22	2598.50	8975.23	2416.28	19787.72	17997.75	(9808.48+*512.93) = 10321.41	1580
Kesinga	10080.12	0	9311.36	768.76	0	0	10080.12	9936.36	(4895.57+*1537.62) =6433.19	600
Total: -	**125205.36**	**45478.81**	**72593.40**	**7133.15**	**66152.07**	**47895.29**	**125205.36**	**119818.97**	**(36288.84+*6864.58) = 43153.43**	**7975**
% to Plan area	**100**	**36.32**	**57.98**	**5.7**	**52.83**	**38.25**	**100**	**95.7**	**34.47**	**6.37**

***JFM areas under Revenue Forest in JFM(O) Working Circle.**

1.4.2 The Range wise and Forest Block wise distribution of area into different working circles have been furnished vide Appendix-XVIII.

1.4.3 The extent of area furnished in the above tabular statement refers to the area that computed by NRSA, Hyderabad from the topo sheets which is differing with the notified area in some cases. In previous Working Plan, such discrepancy between the computation area by plan in meter and the notification area has also been mentioned. However, as per the decision of the committee approving First and Second Preliminary Working Plan Reports, the area of the notification shall be taken into consideration for the plan area in synchronizing with the prevailing document reported in various quarters. But the area of the coupe is calculated as per the computation area provided by NRSA for facilitating the smooth and proper working in the field. Kalahandi District was earlier a Feudatory State prior to its merger into the State of Orissa during 1948. Some portions of the district are still unsurveyed. So the settlement of Land Revenue system has not been completed. Hence such discrepancy can be set right only after the completion of land settlement of entire Kalahandi District.

1.4.4 Updated position of the compartments have been furnished in respective compartment history files. Stock map and enumeration data have been provided in the said files. It is prescribed to maintain these files scrupulously, meticulously and timely along with control forms and deviation statements for future use as a source of realistic database depicting the changes occurred in the plan period.

1.6 Period of Working Plan and Necessity for Intermediate Revision

1.6.1 The period of this working plan has been fixed for a 10 (ten) years term beginning from 2021-22 and ending by 2030-31. Though no necessity is anticipated at present to forecast any intermediate revision, but the option lies with the managers of the forest for any intermediate revision as per the felt need. In such cases the proposal from the Divisional Forest Officer shall be examined by Conservator of Forests (Working Plan) and Conservator of Forests (Territorial) and shall be approved by the Principal Chief Conservator of Forests on basis of their recommendation.

1.6.2 The working plan year shall be reckoned from 1st October to 30th September of the following calendar year.

CHAPTER 2
SELECTIONWORKING CIRCLE

2.1 **Name of Working Circle**

The name of the working circle is Selectiom Working circle.

2.2 General Constitution of Working Circle: -

2.2.1 High forests having more crown density, good natural regeneration and crop of different age class are constituents of Selection Working Circle. The forest blocks and compartments kept under this working circle are the high forests having good crown density, adequate natural regeneration and also crop of different age class specially matured trees required to be removed for the general hygiene of the forests. By and large the forest blocks included in this working circle are dense forests i.e. more than 0.4 crown density. However, few forest blocks though having density more than 0.4 in larger proportion but approaching dense crown density in small portion are taken under this working circle for sake of proper management in entirety to the whole of the forest blocks. The forest block has been taken as the smallest unit for considering its inclusion in the working circle. Basing on this consideration, 8 (eight) nos. of ReserveForest blocks, 8(Eight) nos. of Proposed Reserve Forests notified and 2 (two) nos. of Proposed Reserve Forests to be notified totaling an area of **45478.81** ha. are allotted to this working circle. It constitutes 36 % of total plan area of the Division.

2.2.2 Allotment of forest areas to this working circle is based on sample point inventory and crop analysis. Methodology used for crop analysis has been described in Chapter-VII of Part-I. There is considerable variation in the crop composition of the forest areas. The crop is invariably of uneven aged with some representation of all age classes. However Sal and other species above exploitable diameter are available for harvest.

Table No. 2.1

Forest Block wise area allotted to Selection Working Circle						
Name Of the Range	**Sl.No of the Forest Block**	**Name of the Forest Block**	**Total No. of Comptt.**	**Total area of the Forest Block in Ha.**	**Selection Working Circle**	
					Comp. No	**Area in Ha.**
M.Rampur	1	Benaguda RF	14	4974	1 to 14	4928.29
	2	Jerka RF	3	1019	1 to 3	1014.79
	3	Satami RF	5	1898	1 to 5	1894.23
	4	Sunamukhi RF	7	2393	1 to 7	2339.70
	5	Taprang RF	20	7181	1 to 20	6887.81
	6	Telen RF	6	2660	1 to 6	2660.00
	7	Bidabaru PRF	1	1464.8	1 to 3	1464.62
	8	Pongabaju PRF	1	2331.91	1 to 5	2331.91
	9	Puijhari PRF	1	2251.21	1 to 4	2251.21
	10	Ramud PRF	1	597.07	1 to 4	547.09
	11	Sulia PRF	1	5668	1 to 9	5617.34
	12	Talnuagaon PRF	1	277.73	1	177.47
	13	Pudrimahul PRF	1	303	1	303.00

	14	Manikera PRF	1	66.4	1	66.40
	15	Mudramaska PRF	1	750	1	750.00
Range Total	**15**			**33835.1**	**84**	**33233.85**
Narla	16	Porgel RF	4	1712	1 to 4	1712.00
	17	Urladani RF	34	10528	1 to 34	10277.90
	18	Dengsur DPF	1	255.06	1	255.06
Range Total	**3**			**12495.1**	**39**	**12244.96**
Division Total	**18**			**46330.2**	**123**	**45478.81**

Table No.2.2

Compartment wise area allotted to Selection Working Circle				
Range	**Name of the Forest Block**	**Compartment No**	**NRSC area in Ha.**	**Area taken Under this plan**
M.Rampur	Taparang	1	460.52	451.37
		2	349.94	349.94
		3	264.36	214.38
		4	313.87	313.87
		5	356.19	356.19
		6	276.49	276.49
		7	254.68	164.71
		8	479.64	479.64
		9	267.54	123.45
		10	399.4	399.40
		11	411.39	411.39
		12	482.1	482.10
		13	280.57	280.57
		14	279.42	279.42
		15	378.72	378.72
		16	301.24	301.24
		17	341.41	341.41
		18	410.19	410.19
		19	435.64	435.64
		20	437.69	437.69
	Telen	1	628.41	628.41
		2	426.9	426.90
		3	414.5	414.50
		4	409.47	409.47

		5	372.38	372.38
		6	408.34	408.34
	Bidabaru PRF	1	532.13	531.95
		2	495.7	495.70
		3	436.97	436.97
	Jerka RF	1	406.47	406.47
		2	381.7	377.13
		3	231.19	231.19
M.Rampur	Benaguda RF	1	180.34	180.34
		2	613	613.00
		3	255.45	255.45
		4	538.28	538.28
		5	504.95	504.95
		6	163.57	163.57
		7	506.25	460.54
		8	350.25	350.25
		9	229.85	229.85
		10	402.23	402.23
		11	335.95	335.95
		12	233.74	233.74
		13	383.49	383.49
		14	276.65	276.65
M.Rampur	Sunamukhi RF	1	234.75	181.45
		2	328.8	328.80
		3	412.83	412.83
		4	431.15	431.15
		5	200.24	200.24
		6	324.5	324.50
		7	460.73	460.73
	Ramud PRF	1	158.38	158.38
		2	163.34	139.26
		3	149.99	149.99
		4	99.46	99.46
	Manikera PRF	1	66.4	66.4
	Satami RF	1	313.22	313.22
		2	327.55	327.55
		3	304.34	304.34
		4	463.79	463.79
		5	489.1	485.33
	Talnuagaon PRF	1	277.73	177.47
	Sulia PRF	1	160.46	160.46

		2	546.55	503.89
		3	818.95	818.95
		4	620.61	620.61
		5	723.96	723.96
		6	845.37	845.37
		7	723.49	723.49
		8	686.41	686.41
		9	534.2	534.20
	Mudramaska PRF	1	750	750
	Pongabaju PRF	1	580.51	580.51
		2	340.22	340.22
		3	476.16	476.16
		4	521.22	521.22
		5	413.8	413.80
	Puijhari PRF	1	575.43	575.43
		2	409.33	409.33
		3	758.49	758.49
		4	507.96	507.96
	Pudrimahul PRF	1	303	303.00
Narla	Urladani RF	1	288.15	288.15
		2	266.62	251.32
		3	428.22	416.75
		4	423.75	423.75
		5	186.92	186.92
		6	355.86	355.86
		7	365.24	365.24
		8	287.12	287.12
		9	302.37	302.37
		10	429.35	429.35
		11	474.67	474.67
		12	301.2	301.20
		13	348.46	348.46
		14	313.71	313.71
		15	222.63	222.63
		16	340.42	268.45
		17	765.79	694.32
		18	197.4	197.40
		19	284.69	284.69
		20	247.86	247.86
		21	312.29	312.29
		22	204.04	204.04

		23	271.92	271.92
		24	231.27	231.27
Narla		25	373.37	373.37
		26	372.46	372.46
		27	227.27	227.27
		28	250.8	250.80
		29	104.47	104.47
		30	252.21	252.21
		31	339.28	339.28
		32	139.03	139.03
		33	241.72	241.72
		34	377.52	297.56
	Dengsur DPF	1	255.06	255.06
	Porgel RF	1	528.48	528.48
		2	428.33	428.33
		3	448.18	448.30
		4	306.89	306.89
	Total		**46297**	**45478.82**

2.3 General Character of Vegetation: -

2.3.1 In general the forest blocks allotted to this working circle belongs to Northern Moist Deciduous Forests – Moist Peninsular Sal (3C/$_c$2(e)) and Southern Dry Deciduous Forests – Dry Peninsular Sal (5B/$_c$1(e)). These forest types are found in Taparang, Benaguda, Telen, Jerka, Sunamukhi forest blocks of MadanpurRampurRange and in Urladani, Porgel forest blocks of NarlaRange. Salia bamboo is available in all those aforesaid forest blocks. These forests are uneven aged and have fairly good natural regeneration. The vegetation particularly crop composition has been described in detail under Chapter-3 of Part-I.

2.3.2 The Sal is the predominant species, which is mostly of quality III and IV. Other species are Asana, Dhaura, Kurum, which are distributed through different age class. The detail crop composition and density as well as growing stock will be furnished after completion of the sample enumeration. The regeneration status though appears to be good tentatively but the correct picture can be furnished after sample study. However, there is climber menace in different pockets. The climber cutting will be essential to free the crop from strangulation by the climbers. The most abundance is Eupatorium and Ban-Tulsi. These problems are to be tackled through suitable measures.

2.4 Felling series,cutting sections and JFM areas)

Unlike the forests created under systems of concentrated regeneration in which trees of different age-classes are found in different areas,natural forests are composed of trees of various ages mixed together.In due course mature trees die out and replaced by new ones.The Selection System follows nature in Felling & regeneration in respect of its pattern of felling. Under ideal conditions this process goes on year over the whole forest, the volume being removed being fixed by rules of management; this results in the constant maintenance throughout the whole area of an uneven-aged type of forest (Selection forest) in which trees

of all ages are mixed together.Theoretically, a forest worked under the selection systemshould contain all age-classes distributed over the area in correct proportion of stems.Such regularity is seldom actually found, the age-classes occurring more usually in small groups resulting from groups of regeneration springing up in gaps.The typical look of forest worked under the selection is shown in Fig.23.

In forests of larger size as in India, it is customary to divide the area into a number of more or less equal blocks (known as coupes), in one of which selection fellings are carried out each year, so that the whole forest is worked over during a period of years equal to the number of blocks into which the area is divided. This period is known as the 'felling cycle', which is defined as the time that elapses between successive main fellings on the same area under this arrangement fellings are more concentrated, there being an accumulation of mature trees during the interval between two successive visits to the same block, so that a larger volume per unit area is available for felling over the annual coupe than in the case of annual felling extending over the whole forest.

The term 'ideal selection system' is sometimes employed in reference to fellings carried out over the whole area each year, while the term, periodic selection systems refers to fellings carried out under a felling cycle.

8 (eight) nos. of felling series have been constituted out of which 6 (six) felling series are under the jurisdiction of Madanpur Rampur range whereas the balance 2 (two) felling series belong to Narla range.

In order to ensure the working of the entire allotted area of the working circle, each felling series has been divided into 10 (ten) nos. of coupes so as to cover the whole area during 10 (ten) years duration of the plan @ 1 (one) coupe per year.

The entire area assigned to this working circle has been categorized into eight felling series namely

a. Urladani East felling series comprises of part of Urladani RF and Dengsur PF.
b. Urladani West felling series comprises of part of Urladani RF and Porgel RF
c. Taprang Felling series comprises of Taprang RF.
d. Telen felling series comprises of Telen RF,Bidabaru PRF and Jerka RF.
e. Benaguda Felling series comprises of Benaguda RF.
f. Sunamukhi Felling series comprises Ramud PRF,Manikera PRF,Talnuagaon PRF and Satami RF.
g. Sulia Felling series comprises of Sulia PRFand Mudramaska PRF.
h. Pongabaju Felling series comprises of Pongabaju PRF,Puijhari PRF and Pudrimahul PRF.

2.5.Blocks,compartments and JFM area (marked on GIS based maps):-

Basing on the analysis of inventory data of Sample Points spreading over different Forest Blocks of the Division, the allocation of different blocks and compartments to this Working Circle has been made and the same is furnished in tabular statement as under.

Table 2.3

Allotment of Forest Blocks and Compartments to Selection Working Circle

Name of the Range	Sl.No. of the Forest Block	Name of the Forest Block	Total No. of Comptt.	Total area of the Forest Block in Ha.	Selection Working Circle	
					Compartment No.	Area in Ha.
	1	Benaguda RF	14	4974	1 to 14	4928.29
	2	Jarka RF	3	1019	1 to 3	1014.79
Madanpur Rampur	3	Satami RF	5	1898	1 to 5	1894.23
	4	Sunamukhi RF	7	2393	1 to 7	2339.70
	5	Taparang RF	20	7181	1 to 20	6887.81
	6	Telen RF	6	2660	1 to 6	2660.00
	7	Bidabaru PRF	1	1464.8	1 to 3	1464.62
	8	Pongabaju PRF	1	2331.91	1 to 5	2331.91
	9	Puijhari PRF	1	2251.21	1 to 4	2251.21
	10	Ramud PRF	1	597.07	1 to 4	547.09
	11	Sulia PRF	1	5668	1 to 9	5617.34
	12	Talnuagaon PRF	1	277.73	1	177.47
	13	Pudrimahul PF	1	303	1	303.00
	14	Manikera PRF	1	66.4	1	66.40
	15	Mudramaska PRF	1	750	1	750.00
Range Total	**15**		**64**	**33835.1**	**84**	**33233.85**
Narla	16	Porgel RF	4	1712	1 to 4	1712.00
	17	Urladani RF	34	10528	1 to 34	10277.90
	18	Dengsur DPF	1	255.06	1	255.06
Range Total	**3**		**39**	**12495.1**	**39**	**12244.96**
Division Total	**18**		**103**	**46330.2**	**123**	**45478.81**

2.6 Special Objectives of Management: -

Within the ambit of general objects of management as described earlier, the following special objectives have been set for this working circle.

1. To **S**tabilise the environment and ecology with enrichment of the vegetation both in quality and quantity through proper silvicultural treatment.

2. To **E**ncourage and establish the natural regeneration of the crop with special emphasis on hill slopes and other eco-fragile areas.

3. To **L**imit the harvest of mature crop to silviculturally and environmentally permissible extent through selection felling.

4. To **E**nsure the general hygiene of the forests through removal of causative substance like dead and uprooted trees and strangulating climbers.

5. To **C**onserve the moisture and soil through appropriate measures for ensuring the streams, nalas and ultimately the rivers to become perennial and fertility of the soil.

6. To **T**ackle the biotic interference effectively to protect and promote the forests.

I. Removal of trees of and above the exploitable diameter:-

Trees of and above the exploitable diameter, dry, dead or diseased are marked up to numerical limit fixed by the working plan provided they are silviculturally available. A selection tree is considered siliviculturally available if its removal:-

Does not create a permanent gap in the canopy;

Tends to improve the remaining crop in terms of volume production; or

Helps the growth of groups of young trees down to the sapling stage of any of the valuable species

Thinning in trees below the exploitable diameter:

In order to nurse all trees below the exploitable diameter under best conditions of growth, thinning is carried out therein.

In the year following the main felling, usual cultural operations are carried out to minimize the after-effect of felling.The following cultural operations shall be carried out with attending the natural regeneration.

Cutting back all badly grown saplings and suppressed poles if there is reasonable hope of obtaining good coppice shoots;

Removal of undergrowth hindering the growth of salregeneration.

Fencing of compact groups of young regeneration spread over about 10 hectares or more in accessible areas.

2.6.1 Analysis & Valuation of the Crop:

2.6.1.1 The density of the crop of the forest block included in this working circle has already been narrated earlier along with the basis of such inclusion. These are the best forest areas of the forest division.

2.6.1.2 The entire forest area of the Division was stratified on the basis of the forest type layer prepared from multi-spectral IRS LISS-III data and forest canopy density developed from panchromatic IRS PAN data. The two input layers were integrated along with the layer containing the administrative boundaries and forest blocks of the Division. Based on the stratified layer sample points were allotted in compartments and blocks for carrying out 0.1 ha. field inventory. Inventory points were located on the ground by using GPS receivers. Sampling intensity for field inventory is variable in the forest blocks

depending on crop composition and density. In the dense forest it is about 0.24 % where as in scrub category i.e. less than 10% of crop density it is only 0.02 %. The field inventory data of the sample points have been documented in the prescribed format and furnished to NRSA, Hyderabad which has computed, analyzed and also prepare the stand and stock table. Considering the input provided by the NRSA, Hyderabad as well as the field observation and other ancillary factors the forest blocks and compartments have been kept under this Working Circle.

2.6.1.3 Stock and stand tables prepared by NRSA, Hyderabad have been furnished vide Appendix-XIX&XX. It has indicated the number of trees available species wise in five girth classes like 30 cm. to 60 cm, 60 cm. to 90 cm, 90 cm. to 120 cm, 120 cm. to 150 cm. and 150 cm. & above. The principal species as revealed from the field inventory in the forests of this working circle are Sal, Asana, Dhaura, Kendu, Tangan etc. Computation of volumes and growing stock estimates has been done in the manner as explained in Chapter-VIII. The yield table of the forest blocks of the Division has been prepared by NRSA, Hyderabad and corrected with midified area and the same is furnished vide Appendix-XVI. The variation in number of high girth class trees per hectare in different compartments as well as forest blocks has been observed owing to the extent of biotic interference.

2.6.1.4 The regeneration is found to be moderate to good and in some compartments excellent regeneration is found. The details of the regeneration survey are given in the Chapter-IV. The enumeration results reveal that the there are fairly good number of trees in the exploitable and above exploitable girth classes. Timely harvest of these trees to the extent of silvicultural permissibility are essential to prevent the depreciation in its quality and quantity due to over retention.

Table No.2.3

Sampling Intensity

SFC				
Sl No.	**Strata**	**Area (Ha.)**	**Plots**	**Sampling Intensity**
1	>70	7089	95	0.13%
2	40-70	13151	223	0.17%
3	10-40	14689	186	0.13%
4	<10	11064	32	0.03%

NON-SFC				
Sl No	**Strata**	**Area (Ha.)**	**Plots**	**Sampling Intensity**
1	>70	642	2	0.03%
2	40-70	7738	78	0.10%
3	10-40	36844	134	0.04%
4	<10	26449	61	0.02%

OVERALL

Sl. No	**Strata**	**Area (Ha.)**	**Plots**	**Sampling Intensity**
1	>70	7730	97	0.13%
2	40-70	20890	301	0.14%
3	10-40	51533	320	0.06%
4	<10	37514	93	0.02%

As analyzed by the NRSC, the sample data of this division reveals the following inferences in the form of Stand Table in Table No.2.4.1 to 2.4.2 and, Stock Table are given in 2.5.1 and 2.5.2.

Table No.2.4.1

Stand Table of M.Rampur Range						
SWC	**Girth class (cm)**					**Number of trees**
Major Species	**30-60**	**60-90**	**90-120**	**120-150**	**150-300**	**Total**
Anogeissus latifolia	1,76,018	66,620	47,430	25,547	19,303	3,33,917
Diospyros melanoxylon	1,47,215	96,093	94,174	52,096	39,135	4,28,712
Lannea coromandelica	1,02,020	63,993	46,452	13,082	12,484	2,38,751
Misc	21,74,330	11,68,739	6,72,612	2,99,901	2,88,135	46,03,717
Shorea robusta	6,40,291	4,21,924	2,79,909	1,58,419	1,35,329	16,35,871
Terminalea tomentosa	1,74,253	83,665	40,926	38,365	34,864	3,72,074
Total	**34,14,127**	**19,01,034**	**11,81,502**	**5,87,129**	**5,29,249**	**76,13,041**

Table No.2.4.2

Stand Table of Narla Range						
SWC	**Girth class (cm)**					**Number of trees**
Major Species	**30-60**	**60-90**	**90-120**	**120-150**	**150-300**	**Total**
Anogeissus latifolia	82,137	42,964	33,615	22,930	20,102	2,01,747
Diospyros melanoxylon	61,962	24,841	30,059	18,575	8,532	1,43,970
Lannea coromandelica	36,700	30,951	31,965	29,496	23,331	1,52,443
Misc	10,36,586	4,75,072	3,01,144	1,20,684	1,04,828	20,38,313
Shorea robusta	2,01,932	78,627	79,474	61,792	64,783	4,86,608
Terminalea tomentosa	90,253	34,149	41,243	23,554	36,920	2,26,119
Total	**15,09,569**	**6,86,605**	**517499**	**277030**	**2,58,496**	**3,249,199**

Table No.2.5.1

Stock Table Summary						
RANGE-M.RAMPUR						
RWC	**Girth Class (cm)**					**Total**
Major Species	**30-60**	**60-90**	**90-120**	**120-135**	**150-300**	
Anogeissus latifolia	17,686	27,003	43,244	37,045	43,730	1,68,708
Diospyros melanoxylon	60,965	90,236	1,63,063	1,35,623	1,60,946	6,10,834
Lannea coromandelica	31,784	45,080	57,275	26,482	36,725	1,97,346
Misc	6,14,913	7,63,038	7,75,454	5,40,824	8,64,945	35,59,174
Shorea robusta	4,69,814	5,93,309	6,60,800	5,49,744	7,03,665	29,77,333
Terminalea tomentosa	41,980	50,608	45,344	63,687	1,00,874	3,02,492
	12,37,142	**15,69,273**	**17,45,180**	**13,53,406**	**19,10,885**	**78,15,886**

Table No.2.5.2

RANGE-NARLA						
RWC	**Girth Class (cm)**					
Major Species	**30-60**	**60-90**	**90-120**	**120-135**	**150-300**	**Total**
Anogeissus latifolia	8,095	16,792	30,079	33,447	45,919	1,34,332
Diospyros melanoxylon	22,191	22,833	49,994	46,743	34,269	1,76,030
Lannea coromandelica	10,456	21,579	39,925	55,539	71,930	1,99,428
Misc	2,63,167	2,95,975	3,56,509	2,10,236	2,93,639	14,19,525
Shorea robusta	1,28,807	1,08,855	1,86,017	2,10,578	3,34,034	9,68,291
Terminalea tomentosa	17,318	19,348	47,654	42,425	1,09,201	2,35,946
	4,50,033	**4,85,382**	**7,10,178**	**5,98,968**	**8,88,991**	**31,33,552**

The above tables indicated the number of trees available species wise in five girth classes like 30 cm to 60 cm, 60 cm to 90 cm,90 cm to 120 cm,120 cm to 150 cm and above. The principal species as revealed from the field inventory in the forests of this working circle are Sal,Asan,Dhaura,Kendu, Tangan etc.Computation of volumes and growing stock estimates has been done by the NRSA. The yield table has been prepared by using Smithy's safeguarding formula taking the subsidiary data supplied by the NRSA,Hyderabad.The same is furnished in Block wise here under.

2.6.2 Silvicultural System:

Selection system is prescribed for managing the forests assigned under this working circle with special emphasis on improvement of crop condition as well as regeneration. In this silvicultural system, the removal of mature crop, dead, dry or diseased crop will be selective to ensure ecological balance and environmental stability. This is imperative as a drought resisting measure for Kalahandi.

2.6.3 Rotation Period:

Rotation is the planned number of years between the formation or regeneration of a crop and its final felling. In case of a selection forest, the average age at which a tree is considered mature for felling. A tree becomes mature when it is capable of reproducing itself by seed and has attained its full height. Such stage of a tree or crop is treated as the exploitable age. Silviculturally rotation is the stage at which a species retains satisfactory vigour of the growth and reproduction on a given site. Such rotation age of crop is crucial to ensure the proper condition of the forests. Though there are different aspects to determine the rotation, the practice in vogue is the age at which maximum volume production is obtained. That means, it yields the greatest annual quantity of materials. Accordingly period of rotation is determined as the age corresponding to intersection point of Current Annual Increment (C.A.I) and Mean Annual Increment (M.A.I) graph basing on the site quality.

2.6.4 Harvestable diameters:-

It is the minimum girth at breast height of a tree which is considered as one of the qualifying criteria for harvest. Further, in the present day context the trees are only harvested to the extent after meticulously observing various safeguarding factors like silvicultural, ecological, genetical etc. So the more appropriate term is harvestable girth and the same is furnished below.

Table No.2.6

Sl.No.	Name of the species	Harvestable girth at breast height in Cm.	GBH Class of Approach Class	
			Lower	Upper
1	Sal	150	120	150
2	Teak	120	90	120
3	Asana, Kuruma, Bija, Mundi, Champa, Sirisa and Kasi	180	90	120
4	All other species	150	120	150

2.6.5 Reducing Factor & Reduced Area: -

2.6.5.1 Uninterrupted yield in equal proportion is the most ideal aspect of the management. Since a number of factors is involved in determining the yield, it is extremely difficult to ensure this exactly. However, this consideration has been taken ulmost care of while estimating the yield of the annual coupe, for which reducing factor and the reduced area are resorted to make the coupes more or less equi-productive.

2.6.5.2 Reducing factor for an area is calculated as under.

$$R = d/0.5$$

Where **'R'** is the reducing factor

'd' is the density of the compartment

2.6.5.3 Reduced Area is determined with the following formula.

$$RA = A \times R$$

Where '**RA'** is the reduced area

'**A'** is the area of the compartment

'R' is reducing factor

2.6.6 Felling Cycle: -

The felling cycle is the time that elapses between successive main fellings on the same area. It is also synonymous with cutting cycle. Till date a felling cycle of 20 years has been adopted for the forest of Kalahandi since inception of management through working plan. Earlier the duration of the working plan period was 20 years being coterminous with that of the felling cycle. With the reduction of plan period from 20 years to 10 years beginning from the plan of Sri D.S.Patnaik since 1983-84, it is observed that about half of the area of the working circle is being left without working during a 10 years plan period with 20 years felling cycle. It is necessary to ensure the working of entire area allotted to the working circle during the plan period. So deviating from the earlier practice of 20 years felling cycle in vogue, the duration of the felling cycle has been fixed as 10 years coinciding with that of the plan period to provide the management work for the allotted area in entirety.

2.6.7 Division into periods and allotment to periodic blocks (PB)

Not necessary in this type of Silvicultural system.

2.6.8 Calculation of Yield: -

2.6.8.1 Yield must be regulated by area with a riding factor on the number of silviculturally available trees of exploitable girth class basing on Smythie's safeguarding formula. This formula was evolved by Smythies for sustainable yield from the Sal forest of Uttar Pradesh. Certain assumptions considered for the above formula also hold good for the forest blocks allotted to this working circle and the same are furnished below.

(i) The exploitable (Selection) trees already exist and are being recruited everywhere (and not in any particular compartments only) and that fellings pass regularly through the forests in consecutive annual coupes in a felling cycle of 10 or 20 years.

(ii) The basic object of management is to ensure, as far as possible, sustained yield of exploitable trees and volume above the exploitation limit at every felling cycle.

(iii) The middle aged and younger diameter classes are well represented and the present rate of recruitment into the two highest diameter classes (I and II) is not likely to decrease in the near future.

(iv) Sustained yield of Selection trees is adequately safeguarded, if in any area, the number that may be felled is limited to the number that will pass up from below by the time felling come round again.

According to Smythie's safeguarding formula: -

$$X = \frac{F}{T}(II - Z\% \text{ of } II) \quad \text{---------- (1)}$$

Where

X= Number of trees in approach class that passes into the exploitable class

II= No. of trees in pre-exploitable girth class or approach class

F= Felling cycle (10 years)

T= Time period in years that takes approach class to pass into exploitable class (40 years)

Z= Percentage of Class-II trees that do not pass into class I in 'T' years, due to mortality or removal in thinning etc.

The percentage of the trees available for exploitation (Y) is calculated as follows.

$$Y = \frac{X}{(I+X/2)} \times 100 = A \quad \text{---------- (2)}$$

Where

A= Arbitrary value to get the round figure of 'Y'

X= Number of trees in approach class which passes into the exploitable class

I= Number of trees already existing in the exploitable class

If the value of 'X' as in equation (1) is substituted in the equation (2) the resulting equation is as follows

$$Y = \frac{2\ F\ II\ (100 - Z)}{200\ I\ T + F\ II\ (100\text{-}Z)} \times 100 = A \quad \text{---------- (3)}$$

The value of 'T' is 36 years for average site quality III in respect of irregular Sal forests of Ramnagar Forest Division. This is slightly less than that obtained from the yield table. The values of 'T' and 'Z' as per yield table are 39 years and 43%. Since it is forests on undulating topography, the value of 'T' and 'Z' is taken as 40 years and 45 %. Substitution of these values of 'T' and 'Z' in equation (3), we get

$$Y = \frac{1100\ II}{8000\ I + 550\ II} \times 100 \pm A$$

or,

$$Y = \frac{22\ II}{160\ I + 11\ II} \times 100 \pm A$$

2.6.8.2 The NRSA, Hyderabad has calculated the yield indicating the number of trees available for harvest per ha. adopting Smythie's Safeguarding Formula compartment wise and forest block wise as furnished vide Appendix-XVI. The aforesaid data has been consolidated coupe wise and felling series wise for Selection Working Circle in a tabular statement vide Appendix – XVI.

2.6.8.3 Since Kalahandi is a drought prone district, retention of vegetal cover is of indispensable importance. Considering this aspect as well as accommodating the anticipated biotic interference, it is decided to reduce the quantum of removal of trees at least by 50%. Similarly other locality factors are also taken into consideration for this purpose. Encompassing all such related parameter, the number of trees prescribed for removal felling series wise is furnished as under. The prescribed no. of trees for removal is further reduced considering the biotic interference and change matrix of VDF to MDF & MDF to OF in these forest blocks.

Table No.2.7

Sl.No.	Name of the Felling Series	Harvestable Trees Per Ha. as per the Yield Table	Prescribed no. of trees for removal
1	Urladani East	0.79	1 tree per 2 ha.
2	Urladani West	0.59	1 tree per 3 ha.
3	Taparang	0.73	1 tree per 2 ha.
4	Telen	0.66	1 tree per 2 ha.
5	Sunamukhi	0.64	1 tree per 2 ha.
6	Benaguda	0.76	1 tree per 2 ha.

7	**Sulia**	**0.57**	**1 tree per 4 ha.**
8	**Pongabaju**	**0.67**	**1 tree per 4 ha.**

Table No. 2.8.1 Name of the Felling Series: - Urladani East

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Available harvest per Ha		No. of trees proposed for felling	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	I	Urladani RF	1	288.15	539.47	2628	8681	1749	8121	8.75	12.09	0.8	3.6	29	131
2			2	251.32		3642	7768	2608	9195	9.38	15.05	1.4	4.7	43	146
3	II		3	416.75	416.75	11087	16006	8053	18862	9.51	14.99	2.5	5.8	132	300
4	III		4	423.75	610.67	4134	12819	2480	14183	7.92	14.14	0.8	4.3	41	227
5			5	186.92		1839	4205	1242	5042	8.87	15.23	0.9	3.4	20	80
6	IV		6	355.86	721.10	4879	13867	3012	16044	8.14	14.74	1.1	5.7	50	255
7			7	365.24		12022	14850	6338	17693	7.00	15.14	2.3	6.2	105	281
8	V		8	287.12	589.49	2347	9929	1367	10429	7.70	13.47	0.6	4.7	23	167
9			9	302.37		3743	12395	1950	13775	6.92	14.20	0.9	5.8	32	220
10	VI		15	222.63	561.91	1938	8262	1020	8661	6.98	13.45	0.6	5.0	17	139
11			31	339.28		4229	14024	2357	14859	7.38	13.58	0.9	5.6	39	238
12	VII		13	348.46	662.17	2599	18483	2455	17120	12.20	11.97	0.9	6.4	40	277
13			14	313.71		3974	12861	2212	14426	7.37	14.32	0.9	5.9	37	230
14	VIII		12	301.20	569.65	4399	13023	2456	14041	7.39	13.80	1.1	6.0	41	225
15			16	268.45		1373	10399	767	11139	7.40	13.72	0.4	5.3	13	178
16	IX		10	429.35	904.02	4362	21282	3377	19210	10.11	11.69	1.0	5.8	55	311
17			11	474.67		6856	14524	4378	18345	8.41	15.98	1.2	4.9	72	290
18	X	Dengsur	1	255.06	255.06	2467	8124	1586	7810	8.47	12.40	0.8	3.9	26	126

Table No. 2.8.2 Name of the Felling Series: - Urladani West

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Available harvest per Ha		No. of trees proposed for felling	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
19	I	Urladani RF	29	104.47	495.71	959	3735	593	4193	8.16	14.33	0.7	5.1	10	67
20			30	252.21		2656	8973	1659	9754	8.23	13.91	0.9	4.9	27	156
21			32	139.03		804	4330	628	3978	10.19	11.88	0.6	3.7	10	64
22	II		33	241.72	539.28	1337	7140	1038	6573	10.13	11.90	0.6	3.5	17	106
23			34	297.56		1709	10064	1227	9066	9.41	11.66	0.5	3.9	20	147
24	III		27	227.27	478.07	2094	9247	1116	10713	7.07	14.75	0.7	6.0	19	171
25			28	250.80		2122	9362	1202	10196	7.50	13.93	0.6	5.2	20	163
26	IV		25	373.37	745.83	2653	14565	1486	14243	7.42	12.60	0.5	4.9	25	229
27			26	372.46		3650	14830	2065	15709	7.49	13.58	0.7	5.4	34	252
28	V		22	204.04	707.23	693	2967	379	2743	7.25	11.95	0.2	1.7	6	44
29			23	271.92		1200	7031	746	6076	8.20	11.22	0.4	2.9	12	99
30			24	231.27		472	4635	262	3479	7.35	9.81	0.2	2.0	4	57
31	VI		19	284.69	596.98	2344	11222	2584	15352	14.09	17.19	1.2	6.8	41	241
32			21	312.29		2567	12096	1356	12614	7.01	13.38	0.6	5.2	22	202
33	VII		17	694.32	694.32	6582	18120	3918	18534	7.86	13.14	0.7	3.4	65	298
34	VIII		18	197.40	445.26	1381	6302	757	6478	7.26	13.20	0.5	4.2	13	104
35			20	247.86		3291	11187	1921	12392	7.72	14.15	1.0	6.4	32	198
36	IX	Porgel	1	528.48	956.81	4171	13409	2586	14669	8.18	13.99	0.6	3.5	43	234
37			2	428.33		3991	10632	2602	11761	8.58	14.14	0.8	3.5	43	188
38	X		3	448.30	755.19	1685	9197	706	12424	5.60	17.00	0.2	3.5	12	195
39			4	306.89		1697	7414	1233	6591	9.52	11.52	0.5	2.8	20	107

Table No. 2.8.3 Name of the Felling Series: - Taparang

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Available harvest per Ha		No. of trees proposed for felling	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
40	I	Taprang RF	11	411.39	691.96	3310	12064	2635	14082	10.38	14.86	0.8	4.4	43	224
41			13	280.57		3645	10549	3397	12851	12.04	15.46	1.6	5.8	55	204
42	II	Taprang RF	10	399.40	881.50	840	3055	868	3467	13.27	14.47	0.3	1.1	14	55
43			12	482.10		5293	13510	5522	15783	13.38	14.87	1.5	4.2	89	251
44	III		8	479.64	603.09	3831	14191	3446	15922	11.65	14.32	0.9	4.2	56	254
45			9	123.45		2287	6782	2108	7453	11.92	14.05	2.2	7.7	34	119
46	IV		6	276.49	441.20	2319	7445	1931	8193	10.83	14.07	0.9	3.8	31	131
47			7	164.71		2087	6542	2174	6881	13.37	13.49	1.7	5.4	35	110
48	V		16	301.24	642.65	1986	10394	2076	11685	13.41	14.35	0.9	5.0	33	186
49			17	341.41		3252	10328	3013	13514	11.98	16.51	1.1	5.0	49	213
50	VI		14	279.42	658.14	3339	9824	3236	12329	12.49	15.89	1.5	5.6	52	195
51			15	378.72		4456	13339	4136	17926	12.00	16.92	1.4	6.0	67	282
52	VII		18	410.19	845.83	6783	16822	5348	17293	10.28	13.20	1.7	5.4	87	278
53			19	435.64		8938	9440	5937	13526	8.73	17.93	1.8	3.9	98	212
54	VIII		20	437.69	437.69	4875	14205	4797	17631	12.67	15.72	1.4	5.1	77	279
55	IX		1	451.37	801.31	4070	13885	4148	15049	13.10	13.87	1.2	4.3	67	241
56			2	349.94		2196	9159	1808	10090	10.71	14.08	0.7	3.7	29	161
57	X		3	214.38	884.44	2814	8921	2508	9747	11.55	13.97	1.5	5.8	41	156
58			4	313.87		4148	11013	3648	11813	11.40	13.74	1.5	4.8	59	189
59			5	356.19		3743	11496	3281	12502	11.37	13.91	1.2	4.5	53	200

Table No. 2.8.4 Name of the Felling Series: - Telen

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Available harvest per Ha		No. of trees proposed for felling	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
60	I	Telen RF	1	628.41	628.41	5578	20458	5272	19446	12.20	12.27	1.1	4.0	85	314
61	II		2	426.90	841.40	3370	11999	3533	13531	13.45	14.39	1.1	4.0	57	216
62			3	414.50		3078	12925	2889	14277	12.12	14.12	0.9	4.4	47	228
63	III	Bidabaru PRF	2	495.70	495.70	4656	16617	4289	17917	11.91	13.80	1.1	4.6	69	287
64	IV	Jerka RF	2	377.13	377.13	4133	11707	3642	12072	11.42	13.24	1.3	4.1	59	194
65	V		1	406.47	637.66	2668	10901	2310	12042	11.24	14.12	0.7	3.8	37	192
66			3	231.19		1093	4990	1153	5643	13.52	14.43	0.6	3.1	18	90
67	VI	Bidabaru PRF	3	436.97	436.97	5113	17088	5020	19237	12.65	14.37	1.5	5.6	81	307
68	VII		1	531.95	531.95	3343	13859	3442	15310	13.22	14.12	0.8	3.7	55	245
69	VIII	Telen RF	6	408.34	408.34	2819	11607	2883	13018	13.14	14.32	0.9	4.1	46	208
70	IX		5	372.38	372.38	4142	14267	3786	13651	11.83	12.34	1.3	4.7	61	220
71	X		4	409.47	409.47	3501	11627	3645	13247	13.36	14.53	1.1	4.1	58	211

Table No. 2.8.5 Name of the Felling Series: - Benaguda

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Available harvest per Ha		No. of trees proposed for felling	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
72	I	Benaguda	2	613.00	868.45	2000	8833	1796	10122	11.63	14.61	0.4	2.1	29	161
73			3	255.45		2359	8886	1964	10185	10.83	14.61	1.0	5.1	32	162
74	II		4	538.28	538.28	6525	20878	6452	23230	12.73	14.21	1.5	5.5	104	371
75	III		5	504.95	668.52	6724	18591	6224	28790	11.97	19.24	1.6	7.1	101	447
76			6	163.57		2041	6281	1623	7054	10.37	14.34	1.3	5.5	26	113
77	IV		7	460.54	460.54	4994	20529	6586	17547	16.63	11.10	1.8	4.9	104	285
78	V		13	383.49	383.49	4417	14060	3577	16026	10.55	14.53	1.2	5.3	58	255
79	VI		1	180.34	456.99	1030	6421	933	7377	11.72	14.64	0.7	5.2	15	118
80			14	276.65		3438	10640	2827	12068	10.70	14.47	1.3	5.6	46	192
81	VII		11	335.95	569.69	2699	11386	2311	13176	11.12	14.74	0.9	5.0	38	210
82			12	233.74		2625	8771	2172	9692	10.76	14.12	1.2	5.3	35	155
83	VIII	Benaguda	10	402.23	402.23	2994	12662	2675	14111	11.57	14.23	0.9	4.5	43	225
84			9	229.85	229.85	3118	8897	2592	9352	10.81	13.48	1.5	5.2	42	150
85			8	350.25	350.25	2130	11168	1980	12900	12.01	14.71	0.7	4.7	32	205

Table No. 2.8.6 Name of the Felling Series: - Sunamukhi

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Available harvest per Ha		No. of trees proposed for felling	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
86	I	Sunamukhi	1	181.45	510.25	1645	5727	1246	6277	9.90	14.01	0.9	4.4	20	100
87			2	328.80		1561	7833	1401	8963	11.62	14.59	0.6	3.5	23	143
88	II		3	412.83	412.83	1998	9704	1695	10760	11.02	14.17	0.5	3.3	28	172
89	III		4	431.15	631.39	2002	8896	1791	10797	11.59	15.40	0.5	3.2	29	171
90			5	200.24		874	4832	764	5464	11.34	14.43	0.5	3.5	12	87
91	IV		6	324.50	785.23	635	7316	565	8518	11.53	14.82	0.2	3.3	9	136
92			7	460.73		1806	10574	1731	12303	12.36	14.81	0.5	3.4	28	196
93	V	Ramud PRF	1	158.38	547.09	738	4648	643	5475	11.30	14.98	0.5	4.4	10	87
94			2	139.26		556	4286	632	4859	14.50	14.46	0.6	4.5	10	77
95			3	149.99		315	3750	357	4304	14.46	14.63	0.3	3.7	6	69
96			4	99.46		698	2821	740	3339	13.59	15.05	1.0	4.3	12	53
97	VI	Manikera PRF	1	66.40	66.40	413	974	346	995	10.89	13.12	0.7	1.9	6	16
98	VII	Satami RF	1	313.22	640.77	3284	11094	3039	12035	11.96	13.88	1.3	4.9	49	192
99			2	327.55		3865	11806	3434	12368	11.51	13.44	1.4	4.8	56	198
100	VIII		3	304.34	768.13	2355	8763	2359	9979	12.89	14.52	1.0	4.2	38	159
101			4	463.79		4725	23558	3160	18577	8.79	10.29	0.9	5.2	52	303
102	IX		5	485.33	485.33	8263	16251	9888	16833	15.20	13.30	2.6	4.5	157	270
103	X	Talnuagaon PRF	1	177.47	177.47	3320	11188	3762	11707	14.45	13.42	2.7	8.5	60	188

Table No. 2.8.7 Name of the Felling Series: - Sulia

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Available harvest per Ha		No. of trees proposed for felling	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
104	I	Sulia PRF	9	534.20	534.20	3099	13034	3352	14333	13.84	14.06	0.8	3.4	54	229
105	II		7	723.49	723.49	5658	20011	5715	22054	12.99	14.09	1.0	3.9	92	352
106	III		6	845.37	845.37	6953	23099	4761	17773	8.99	10.05	0.7	2.7	78	290
107	IV		3	818.95	818.95	1987	26659	1837	27580	11.95	13.28	0.3	4.3	30	443
108	V		4	620.61	620.61	4387	20877	4503	19737	13.18	12.21	0.9	4.1	72	319
109	VI		1	160.46	160.46	1006	4641	939	5396	12.06	14.80	0.8	4.3	15	86
110	VII		2	503.89	503.89	2686	8665	2659	15723	12.74	22.18	0.7	3.8	43	240
111	VIII		5	723.96	723.96	4329	20364	4378	23072	13.00	14.45	0.8	4.1	70	368
112	IX		8	686.41	686.41	5550	17573	5925	18695	13.68	13.63	1.1	3.5	95	299
113	X	Mudramaska PRF	1	750.00	750.00	4871	20758	5137	22966	13.52	14.14	0.9	3.9	82	367

Table No. 2.8.8 Name of the Felling Series: -Pongabaju

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Available harvest per Ha		No. of trees proposed for felling	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
114	I	Pongabaju	5	413.80	413.80	4879	15051	3610	15380	9.68	13.13	1.1	4.8	59	247
115	II		1	580.51	580.51	5374	14663	5806	15856	13.83	13.84	1.3	3.5	93	254
116	III		2	340.22	340.22	5966	10824	6178	13687	13.29	16.00	2.3	5.1	99	216
117	IV		4	521.22	521.22	4500	12940	5085	14842	14.42	14.62	1.2	3.6	81	236
118	V		3	476.16	476.16	2863	11370	4622	11520	19.98	13.02	1.2	3.1	72	185
119	VI	Puijhari	1	575.43	575.43	4696	16430	4968	18312	13.56	14.23	1.1	4.1	80	292
120	VII		2	409.33	409.33	3803	11078	4158	12619	13.98	14.53	1.3	3.9	66	201
121	VIII		3	758.49	758.49	8668	25002	8539	26492	12.69	13.58	1.4	4.5	137	424
122	IX		4	507.96	507.96	5463	15373	5541	16024	13.04	13.37	1.4	4.0	89	257
123	X	Pudrimahul	1	303.00	303.00	3163	8596	3052	9046	12.44	13.49	1.3	3.8	49	145

The no of trees prescribed for removal in Block wise is given below.

Table No. 2.9.1

NUMBER OF TREES PRESCRIBED FOR FELLING IN URLADANI EAST FELLING SERIES								
Name of the Forest Block	**Comp.No**	**Area in Ha.**	**Shorea (Sal) available for felling**			**Other available for felling**		
			Available per ha.	**01 tree per Ha**	**Total nos of trees available**	**Available per ha**	**01 tree per ha**	**Total nos of tree available**
Urladani RF	1	288.15	0.10	10.02	29	0.46	2.20	131
	2	251.32	0.17	5.88	43	0.58	1.72	146
	3	416.75	0.32	3.16	132	0.72	1.39	300
	4	423.75	0.10	10.35	41	0.53	1.87	227
	5	186.92	0.11	9.16	20	0.43	2.33	80
	6	355.86	0.14	7.17	50	0.72	1.39	255
	7	365.24	0.29	3.47	105	0.77	1.30	281
	8	287.12	0.08	12.71	23	0.58	1.72	167
	9	302.37	0.11	9.34	32	0.73	1.37	220
	15	222.63	0.08	13.16	17	0.62	1.60	139
	31	339.28	0.11	8.70	39	0.70	1.43	238
	13	348.46	0.11	8.79	40	0.79	1.26	277
	14	313.71	0.12	8.57	37	0.73	1.36	230
	12	301.20	0.13	7.41	41	0.75	1.34	225
	16	268.45	0.05	21.15	13	0.66	1.51	178
	10	429.35	0.13	7.79	55	0.72	1.38	311
	11	474.67	0.15	6.59	72	0.61	1.64	290
Dengsur	1	255.06	0.10	9.77	26	0.49	2.03	126

Table No. 2.9.2

NUMBER OF TREES PRESCRIBED FOR FELLING IN URLADANI WEST FELLING SERIES								
Name of the Forest Block	**Comp.No**	**Area in Ha.**	**Shorea (Sal) available for felling**			**Other available for felling**		
			Available per ha.	**01 tree per Ha**	**Total nos of trees available**	**Available per ha**	**01 tree per ha**	**Total nos of tree available**
Urladani RF	29	104.47	0.09	10.69	10	0.64	1.56	67
	30	252.21	0.11	9.22	27	0.62	1.62	156
	32	139.03	0.07	13.57	10	0.46	2.16	64
	33	241.72	0.07	14.27	17	0.44	2.28	106
	34	297.56	0.07	14.81	20	0.49	2.03	147
	27	227.27	0.08	12.28	19	0.75	1.33	171
	28	250.80	0.08	12.61	20	0.65	1.54	163
	25	373.37	0.07	15.18	25	0.61	1.63	229
	26	372.46	0.09	10.90	34	0.68	1.48	252

	22	204.04	0.03	32.50	6	0.22	4.60	44
	23	271.92	0.05	22.11	12	0.36	2.76	99
	24	231.27	0.02	53.32	4	0.25	4.07	57
	19	284.69	0.15	6.90	41	0.85	1.18	241
	21	312.29	0.07	13.89	22	0.65	1.54	202
	17	694.32	0.09	10.73	65	0.43	2.33	298
	18	197.40	0.06	15.74	13	0.53	1.90	104
	20	247.86	0.13	7.81	32	0.80	1.25	198
Porgel	1	528.48	0.08	12.40	43	0.44	2.25	234
	2	428.33	0.10	10.01	43	0.44	2.28	188
	3	448.30	0.03	38.01	12	0.44	2.29	195
	4	306.89	0.07	15.20	20	0.35	2.87	107

Table No. 2.9.3

NUMBER OF TREES PRESCRIBED FOR FELLING IN TAPRANG FELLING SERIES								
Name of the Forest Block	**Comp.No**	**Area in Ha.**	**Shorea (Sal) available for felling**			**Other available for felling**		
			Available per ha.	**01 tree per Ha**	**Total nos of trees available**	**Available per ha**	**01 tree per ha**	**Total nos of tree available**
Taprang RF	11	411.39	0.10	9.58	43	0.54	1.84	224
	13	280.57	0.20	5.11	55	0.73	1.38	204
Taprang RF	10	399.40	0.03	28.67	14	0.14	7.23	55
	12	482.10	0.18	5.44	89	0.52	1.92	251
	8	479.64	0.12	8.60	56	0.53	1.89	254
	9	123.45	0.28	3.62	34	0.96	1.04	119
	6	276.49	0.11	8.81	31	0.47	2.11	131
	7	164.71	0.21	4.72	35	0.67	1.49	110
	16	301.24	0.11	9.05	33	0.62	1.62	186
	17	341.41	0.14	7.01	49	0.62	1.60	213
	14	279.42	0.19	5.36	52	0.70	1.43	195
	15	378.72	0.18	5.67	67	0.74	1.34	282
	18	410.19	0.21	4.70	87	0.68	1.48	278
	19	435.64	0.22	4.46	98	0.49	2.06	212
	20	437.69	0.18	5.67	77	0.64	1.57	279
	1	451.37	0.15	6.77	67	0.53	1.88	241
	2	349.94	0.08	11.90	29	0.46	2.17	161
	3	214.38	0.19	5.28	41	0.73	1.38	156
	4	313.87	0.19	5.31	59	0.60	1.66	189
	5	356.19	0.15	6.70	53	0.56	1.78	200

Table No. 2.9.4

NUMBER OF TREES PRESCRIBED FOR FELLING IN TELEN FELLING SERIES								
Name of the Forest Block	Comp.No	Area in Ha.	Shorea (Sal) available for felling			Other available for felling		
			Available per ha.	01 tree per Ha	Total nos of trees available	Available per ha	01 tree per ha	Total nos of tree available
Telen RF	1	628.41	0.14	7.39	85	0.50	2.00	314
	2	426.90	0.13	7.54	57	0.51	1.98	216
	3	414.50	0.11	8.89	47	0.55	1.82	228
Bidabaru PRF	2	495.70	0.14	7.15	69	0.58	1.73	287
Jerka RF	2	377.13	0.16	6.39	59	0.51	1.95	194
	1	406.47	0.09	10.85	37	0.47	2.11	192
	3	231.19	0.08	12.51	18	0.39	2.57	90
Bidabaru PRF	3	436.97	0.18	5.41	81	0.70	1.42	307
	1	531.95	0.10	9.63	55	0.46	2.18	245
Telen RF	6	408.34	0.11	8.82	46	0.51	1.97	208
	5	372.38	0.16	6.08	61	0.59	1.69	220
	4	409.47	0.14	7.00	58	0.52	1.94	211

Table No. 2.9.5

NUMBER OF TREES PRESCRIBED FOR FELLING IN SUNAMUKHI FELLING SERIES								
Name of the Forest Block	Comp.No	Area in Ha.	Shorea (Sal) available for felling			Other available for felling		
			Available per ha.	01 tree per Ha	Total nos of trees available	Available per ha	01 tree per ha	Total nos of tree available
Sunamukhi	1	181.45	0.11	8.91	20	0.55	1.81	100
	2	328.80	0.07	14.50	23	0.43	2.30	143
	3	412.83	0.07	15.00	28	0.42	2.40	172
	4	431.15	0.07	14.87	29	0.40	2.52	171
	5	200.24	0.06	16.17	12	0.44	2.30	87
	6	324.50	0.03	35.46	9	0.42	2.39	136
	7	460.73	0.06	16.51	28	0.42	2.35	196
Ramud PRF	1	158.38	0.07	15.19	10	0.55	1.82	87
	2	139.26	0.07	13.82	10	0.56	1.80	77
	3	149.99	0.04	26.35	6	0.46	2.19	69
	4	99.46	0.12	8.39	12	0.53	1.87	53
Manikera PRF	1	66.40	0.08	11.81	6	0.24	4.16	16
Satami RF	1	313.22	0.16	6.38	49	0.61	1.63	192

	2	327.55	0.17	5.89	56	0.61	1.65	198
	3	304.34	0.12	8.02	38	0.52	1.91	159
	4	463.79	0.11	8.93	52	0.65	1.53	303
	5	485.33	0.32	3.09	157	0.56	1.80	270
Talnuagaon PRF	1	177.47	0.34	2.96	60	1.06	0.95	188

Table No. 2.9.6

NUMBER OF TREES PRESCRIBED FOR FELLING IN BENAGUDA FELLING SERIES								
Name of the Forest Block	**Comp.No**	**Area in Ha.**	**Shorea (Sal) available for felling**			**Other available for felling**		
			Available per ha.	**01 tree per Ha**	**Total nos of trees available**	**Available per ha**	**01 tree per ha**	**Total nos of tree available**
Benaguda	2	613.00	0.05	21.08	29.07	0.26	3.80	161.27
	3	255.45	0.12	8.00	31.93	0.64	1.57	162.27
	4	538.28	0.19	5.18	103.83	0.69	1.45	370.89
	5	504.95	0.20	5.02	100.57	0.89	1.13	447.21
	6	163.57	0.16	6.18	26.45	0.69	1.45	112.55
	7	460.54	0.23	4.44	103.79	0.62	1.62	284.85
	13	383.49	0.15	6.58	58.24	0.67	1.50	255.43
	1	180.34	0.08	11.95	15.10	0.65	1.53	117.51
	14	276.65	0.17	6.02	45.99	0.70	1.44	192.41
	11	335.95	0.11	8.96	37.51	0.62	1.60	209.77
	12	233.74	0.15	6.62	35.32	0.66	1.51	154.82
Benaguda	10	402.23	0.11	9.29	43.32	0.56	1.79	225.27
	9	229.85	0.18	5.45	42.14	0.65	1.53	149.90
	8	350.25	0.09	10.95	31.99	0.59	1.71	205.41

Table No. 2.9.7

NUMBER OF TREES PRESCRIBED FOR FELLING IN SULIA FELLING SERIES								
Name of the Forest Block	**Comp. No**	**Area in Ha.**	**Shorea (Sal) available for felling**			**Other available for felling**		
			Available per ha.	**01 tree per Ha**	**Total nos of trees availabl e**	**Availa ble per ha**	**01 tree per ha**	**Total nos of tree availabl e**
Sulia PRF	9	534.20	0.10	9.96	54	0.43	2.33	229
	7	723.49	0.13	7.88	92	0.49	2.05	352
	6	845.37	0.09	10.82	78	0.34	2.91	290
	3	818.95	0.04	27.59	30	0.54	1.85	443
	4	620.61	0.12	8.58	72	0.51	1.95	319
	1	160.46	0.09	10.58	15	0.54	1.87	86
	2	503.89	0.08	11.78	43	0.48	2.10	240
	5	723.96	0.10	10.29	70	0.51	1.97	368
	8	686.41	0.14	7.24	95	0.44	2.29	299
Mudramaska PRF	1	750.00	0.11	9.11	82	0.49	2.04	367

Table No. 2.9.8

NUMBER OF TREES PRESCRIBED FOR FELLING IN PONGABAJU FELLING SERIES								
Name of the Forest Block	**Comp.No**	**Area in Ha.**	**Shorea (Sal) available for felling**			**Other available for felling**		
			Available per ha.	**01 tree per Ha**	**Total nos of trees available**	**Available per ha**	**01 tree per ha**	**Total nos of tree available**
Pongabaju	5	413.80	0.14	7.01	59	0.60	1.68	247
	1	580.51	0.16	6.25	93	0.44	2.29	254
	2	340.22	0.29	3.43	99	0.64	1.57	216
	4	521.22	0.16	6.43	81	0.45	2.20	236
	3	476.16	0.15	6.66	72	0.39	2.57	185
Puijhari	1	575.43	0.14	7.23	80	0.51	1.97	292
	2	409.33	0.16	6.16	66	0.49	2.04	201
	3	758.49	0.18	5.52	137	0.56	1.79	424
	4	507.96	0.18	5.71	89	0.51	1.98	257
Pudrimahul	1	303.00	0.16	6.16	49	0.48	2.09	145

2.6.9 Table / Sequence of Felling: -

The felling shall be phased and sequential in the forest blocks of this working circle to maintain the order of rotation for the next plan period. Apart from that the felling is to be evenly distributed instead of concentrating enblock for facilitating the smooth working, induce regeneration, maintaining age class distribution of crop as well as canopy cover in a proportionate manner. Accordingly the entire area of the working circle has been divided into 8 (Eight) no. of felling series. Care has been taken to restrict the area of felling series within the jurisdiction of a range for better implementation of the prescription and administrative convenience. Each felling series has been further divided into sub-units called Annual Coupes for working in a particular year. There are 10 annual coupes @ one per year to cover the entire area of the felling series within 10 years plan period. Not only the equi-productivity, the usual criterion but also the convenience for effective execution of the prescription are taken in to consideration together to constitute the coupe. Such annual coupes has been delineated in the map by taking natural features like Nallas, Rivers, Hill ridges, roads and compartment boundaries etc. into consideration. The sequence of felling in different years indicating the coupe, forest block area has been furnished in the table given below for each felling series separately.

Table No. 2.10

YEAR WISE SEQUENCE OF FELLING IN DIFFERENT FELLING SERIES

NarlaRange

Name of the felling series	Year of felling	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area
Urladani East	2021-22	Urladani RF	V	8	287.12	
				9	302.37	589.49
	2022-23	Urladani RF	VI	15	222.63	561.91
				31	339.28	

	2023-24	Urladani RF	VII	13	348.46	662.17
				14	313.71	
	2024-25	Urladani RF	VIII	12	301.20	569.65
				16	268.45	
	2025-26	Urladani RF	IX	10	429.35	
				11	474.67	904.02
	2026-27	Dengsur PF	X	1	255.06	255.06
	2027-28	Urladani RF	I	1	288.15	539.47
				2	251.32	
	2028-29	Urladani RF	II	3	416.75	416.75
	2029-30	Urladani RF	III	4	423.75	610.67
				5	186.92	
	2030-31	Urladani RF	IV	6	355.86	721.10
				7	365.24	
Total area of the Felling Series						**5830.29**

Name of the felling series	Year of felling	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area
Urladani West	2021-22	Urladani RF	V	22	204.04	707.23
				23	271.92	
				24	231.27	
	2022-23	Urladani RF	VI	19	284.69	596.98
				21	312.29	
	2023-24	Urladani RF	VII	17	694.32	694.32
	2024-25	Urladani RF	VIII	18	197.40	445.26
				20	247.86	
	2025-26	Porgel RF	IX	1	528.48	956.81
				2	428.33	
	2026-27	Porgel RF	X	3	448.30	755.19
				4	306.89	
	2027-28	Urladani RF	I	29	104.47	495.71
				30	252.21	
				32	139.03	

	2028-29	Urladani RF	II	33	241.72	539.28
				34	297.56	
	2029-30	Urladani RF	III	27	227.27	478.07
				28	250.80	
	2030-31	Urladani RF	IV	25	373.37	745.83
				26	372.46	
			Total area of the Felling Series			**6414.68**

Madanpur RampurRange

Name of the felling series	Year of felling	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area
Taparang	2021-22	Taparang	V	16	301.24	
				17	341.41	642.65
	2022-23	Taparang	VI	14	279.42	
				15	378.72	658.14
	2023-24	Taparang	VII	18	410.19	
				19	435.64	845.83
	2024-25	Taparang	VIII	20	437.69	437.69
	2025-26	Taparang	IX	1	451.37	
				2	349.94	801.31
	2026-27	Taparang	X	3	214.38	
				4	313.87	
				5	356.19	884.44
	2027-28	Taparang	I	11	411.39	
				13	280.57	691.96

	2028-29	Taparang	II	10	399.40	
				12	482.10	881.5
	2029-30	Taparang	III	8	479.64	
				9	123.45	603.09
	2030-31	Taparang	IV	6	276.49	
				7	164.71	441.20
			Total area of the Felling Series			**6887.81**

Name of the felling series	Year of felling	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area
Telen	2021-22	Jerka RF	V	1	406.47	637.66
				3	231.19	
	2022-23	Bidabaru PRF	VI	3	436.97	436.97
	2023-24	Bidabaru PRF	VII	1	531.95	531.95
	2024-25	Telen RF	VIII	6	408.34	408.34
	2025-26	Telen RF	IX	5	372.38	372.38
	2026-27	Telen RF	X	4	409.47	409.47
	2027-28	Telen RF	I	1	628.41	628.41
	2028-29	Telen RF	II	2	426.90	841.40
				3	414.50	

	2029-30	Bidabaru PRF	III	2	495.70	495.70
	2030-31	Jerka RF	IV	2	377.13	377.13
			Total area of the Felling Series			**5139.41**

Name of the felling series	**Year of felling**	**Name of the forest block**	**Coupe No.**	**Comptt. No.**	**Area in Ha.**	**Total area**
Benaguda	2021-22	Benaguda RF	V	13	383.49	383.49
	2022-23	Benaguda RF	VI	1	180.34	
				14	276.65	456.99
	2023-24	Benaguda RF	VII	11	335.95	
				12	233.74	569.69
	2024-25	Benaguda RF	VIII	10	402.23	402.23
	2025-26	Benaguda RF	IX	9	229.85	229.85
	2026-27	Benaguda RF	X	8	350.25	350.25
	2027-28	Benaguda RF	I	2	613.00	868.45
				3	255.45	
	2028-29	Benaguda RF	II	4	538.28	538.28
	2029-30	Benaguda RF	III	5	504.95	
				6	163.57	668.52
	2030-31	Benaguda RF	IV	7	460.54	460.54

			Total area of the Felling Series	**4928.29**

Name of the felling series	Year of felling	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area
Sunamukhi	2021-22	Ramud PRF	V	1	158.38	547.09
				2	139.26	
				3	149.99	
				4	99.46	
	2022-23	Manikera PRF	VI	1	66.40	66.40
	2023-24	Satami RF	VII	1	313.22	640.77
				2	327.55	
	2024-25	Satami RF	VIII	3	304.34	768.13
				4	463.79	
	2025-26	Satami RF	IX	5	485.33	485.33
	2026-27	Talnuagaon PRF	X	1	177.47	177.47
	2027-28	Sunamukhi RF	I	1	181.45	510.25
				2	328.80	
	2028-29	Sunamukhi RF	II	3	412.83	412.83
	2029-30	Sunamukhi RF	III	4	431.15	631.39
				5	200.24	
	2030-31	Sunamukhi RF	IV	6	324.5	785.23
				7	460.73	
			Total area of the Felling Series			**5024.88**

Name of the felling series	Year of felling	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area
Sulia	2021-22	Sulia PRF	V	4	620.61	620.61
	2022-23	Sulia PRF	VI	1	160.46	160.46
	2023-24	Sulia PRF	VII	2	503.89	503.89
	2024-25	Sulia PRF	VIII	5	723.96	723.96
	2025-26	Sulia PRF	IX	8	686.41	686.41
	2026-27	Mudramaska PRF	X	1	750.00	750.00
	2027-28	Sulia PRF	I	9	534.2	534.2
	2028-29	Sulia PRF	II	7	723.49	723.49
	2029-30	Sulia PRF	III	6	845.37	845.37
	2030-31	Sulia PRF	IV	3	818.98	818.95
			Total area of the Felling Series			**6367.34**

Name of the felling series	Year of felling	Name of the forest block	Coupe No.	Comptt. No.	Area in Ha.	Total area
Pongabaju	2021-22	Pongabaju PRF	V	3	476.16	476.16
	2022-23	Puijhari PRF	VI	1	575.43	575.43

	2023-24	Puijhari PRF	VII	2	409.33	409.33
	2024-25	Puijhari PRF	VIII	3	758.49	758.49
	2025-26	Puijhari PRF	IX	4	507.96	507.96
	2026-27	Pudrimahul PRF	X	1	303.00	303.00
	2027-28	Pongabaju PRF	I	5	413.80	413.80
	2028-29	Pongabaju PRF	II	1	580.51	580.51
	2029-30	Pongabaju PRF	III	2	340.22	476.16
	2030-31	Pongabaju PRF	IV	4	521.22	521.22
			Total area of the Felling Series			**4886.12**

2.6.10 Method of Executing Felling: -

2.6.10.1 Demarcation of Coupes

As already stated above, the felling will be done annual coupe wise, so it is necessary first to demarcate the coupe with the help of management maps. The Section Forester or any higher officer shall demarcate the coupe in the field with the assistance of beat Forest Guard in the month of January i.e. well ahead of the starting of work in the month of October. Use of GPS in this work should be encouraged. The demarcation shall be checked by a Forest Officer not below the rank of a Forest Ranger before the marking of tree.

Coupes have been formed with the boundaries mostly coterminous with that of forest blocks / compartments or taking natural features like nallas, prominent paths and ridges of the hills as the coupe line. So the compartment and sub-compartment lines are required to be maintained prior to demarcation of coupes by putting double white paint rings of 3 cm. width having a spacing of 15 cm. between them at the breast height of all prominent trees existing on the line. When coupe line is overlapping with compartment line, it need not be laid on the ground to the extent it overlaps while the other portion shall be demarcated by a single white paint ring of 3 cm. width at the breast height of the trees existing on the line.

The clearance of under growth of 1.0 (One)meter width with 75 cm. high white painted stone cairn at distinguishable distance will be done for the purpose of identification in case of dense under growth obstructing the clear visibility.

When coupe line of timber coupe coincides with that of bamboo coupe, the demarcation will be indicated by giving one white paint ring on upper side and another coaltar ring on the lower side at the breast height of the trees standing on the line. The dimension of the width of ring as well as the gap between them will be the same as mentioned above.

In case, a coupe overlaps two or more compartments, each portion shall be treated as a separate lot. This will ensure the proper maintenance of compartment history. In all these cases, the lot line should be demarcated with single coaltar ring along the compartment / sub-compartment line.

Coupes shall be indicated by signboards at corners or at points of intersection with roads, inspection paths, boundary lines of reserved forests. The signboards should contain the name of the felling series, the serial number of the coupe, its area, year of working and number of the compartment. Good coating of coaltar should be given to withstand the weathering by rains, light etc. so that the demarcation will be well exhibited.

2.6.10.2 Marking Officer

Marking of tree is the most crucial aspect of management for a Selection Working Circle. Since the felling will be selective considering silvicultural and other locality factors, the knowledge and experience of the Marking Officer count a much for this task. A Forest Officer not below the rank of a Forest Ranger shall be entrusted with the job of marking and the same will be checked as per the provisions of Orissa Forest Department Code 1979 as modified by the Government from time to time. It shall strictly be governed by an explicit and definite rule, which is described in the following paragraphs.

2.6.10.3 Marking Rule

1. All dead and uprooted trees excluding the retention of those absolutely necessary for congenial habitat of Wild Life shall be marked for felling throughout the entire coupe area.

2. Marking is strictly prohibited in the areas where slope of the terrain is more than 30^0 except for dead and uprooted trees.

3. No live standing tree shall be marked within 50 meters of roadside and either side of the bank of nallas, streams, rivers and other water bodies.

4. Marking shall not be done within 50 meters radius around the key habitats of wild animals such as den, saltlick, wallows, game tank and water holes.

5. No fruit bearing trees namely Mahula, Mango, Tamarind, Kusuma, Karanja, Amla, Harida, Bahada, Chara, Bela, Ambada, Kendu, Jamu etc. having significant importance shall be marked.

6. Trees above the prescribed exploitable / harvestable girth at breast height are eligible for marking, but the number and location of the trees to be marked for felling shall be controlled by the prescribed ceiling of number of trees for the coupe as per yield calculation and the silvicultural permissibility.

7. Notwithstanding the general principle and practice of silviculture, a tree is considered as silviculturally permissible / available for marking on following criteria.

    a. That its removal shall not create a permanent gap in the canopy.

    b. That it removal will not affect the regeneration and fauna particularly the habitat of wild animals.

    c. That its removal will not allow the invasion of weed growth.

    d. That its removal will promote the growth of crop of middle and under storey.

    e. That its removal will encourage regeneration.

    f. That it is not putting on a valuable increment and has become unsound, diseased and deformed.

8. Climbers strangulating the growth of tree crop shall be cut to facilitate the development of the crop.

1. Instead of species preference, growing vigour, dominance and healthy conditions shall be taken into considerations while choosing among the trees of exploitable girth for retention.

2.6.10.4 Marking of Trees

Before marking the trees for felling, the Marking Officer shall do the following exercise to assess the number of trees to be marked.

1. To determine the maximum number of trees that can be marked for felling in the coupe as per the yield calculation and say the figure is ‘A’.

2. To assess the irregular removal of trees after the last felling through illicit felling, salvage of dead / uprooted trees and fire burnt etc. and say the figure is ‘B’.

3. To enumerate the existing dead and uprooted tree in the coupe after allowing the retention for wildlife habitat and say the figure is ‘C’ which is to be removed definitely.

4. To enumerate the available standing live trees of exploitable / harvestable girth as per Marking Rule and say the figure is ‘D’.

5. To add ‘B’ (already removed) and ‘C’ (to be removed definitely) and obtain the quantum of total removal and say the figure is ‘E’.

6. To compare between ‘A’ and ‘E’ and if ‘E’ is more than ‘A’ then no further marking of standing live tree is necessary since it is exceeding the prescribed limit of removal. Only the dead and uprooted trees shall be marked for removal.

7. To determine the number of standing live tree to be marked say ‘F’ = ‘A’ – ‘E' in the event of ‘E’ is less than ‘A’.

The Marking Officer shall exercise utmost care to properly select the required number of standing live tree i.e. ‘F’ in the coupe following the marking rules scrupulously and the marking on the trees shall be done in the following manner.

1. All trees to be marked for felling shall be given two blazes approximately of size 15 cm. x 15 cm., one at breast height and other at the base as close as to the ground facing the lower slope in opposite direction to the upper blaze.

2. The marking hammer issued to the Marking Officer shall be branded alongwith numbering the trees serially with mechanical digit on these two blazes.

3. If a tree is forked below breast height, it shall be taken as two trees and if its forked above the breast height then it will taken as one tree.

4. Sound, dominant and vigorously growing trees of exploitable girth retained in the coupe shall be painted with single white paint ring at the breast height and at base and serially numbered in each coupe. The list of such trees shall be maintained in the compartment history and coupe register.

2.6.10.5 Working Agency

Though Orissa Forest Development Corporation Limited (OFDC) is entrusted with the working of timber coupes of this Division at present, but the discretion lies with the Government / Higher Authorities of Forest Department whose decision shall be followed for assigning the task to any working agency.

2.6.10.6 Execution of Felling

1. Method of disposal of trees marked for felling shall be as per the provisions laid down in Chapter-XIV of Orissa Forest Department Code 1979 as modified by the Government from time to time and also the instruction of the Government and Higher Authorities of Forest Department.

2. Prior to felling, a reconnaissance survey shall be done by the felling party to decide the direction of felling to ensure the prevention of damage to the surrounding crop, maximum outturn of timber and smooth logging and dragging to truckable point.

3. Trees shall be lopped before felling for preventing damage to the nearby standing crop and regeneration.

4. In hilly terrain, felling shall be started from upper portion of a slope and proceed in a downward manner. Felling during cyclonic weather i.e. strong wind period should be avoided as it may not fall in the desired direction and at times lead to some casualty.

5. Power saw should be used for felling and logging of trees and use of traditional axe and handsaw shall be avoided.

6. Trees shall be felled as close to the ground as possible leaving the lower blaze impressed with marking hammer, felling hammer and digit number impression intact.

7. Felling and extraction shall be allowed from 1st October to 30th June. No felling, logging, passing and dragging shall be allowed between the periods of 1st June to 30th September.

8. The competent authority shall consider any proposal for extension of time only after the recommendation of Divisional Forest Officer.

9. Works undertaken, number of lots formed, detailed passing list, deviations if any must be mentioned in the compartment history and control forms.

2.6.11 Subsidiary silvicultural operations cleaning and thinning:-

In general it denotes all operations carried out immediately after the main felling to induce the growth and development of the crop. This is most vital operation for the forests allotted to Selection Working Circle and usually carried out in the year following the main felling. Removal and disposal of slash and debris of main felling coupled with some hygienic operations like climber cutting, soil conservation measures etc. are the major components of this operation. However the details are furnished below.

1. A systematic approach shall be adopted through preparation of treatment plan and treatment map of the coupe well in advance.

2. All fallen pieces of branches, lops and tops, small woods left during the main felling which would cause fire hazard shall be removed.

3. All marked trees left standing shall be felled and removed.

4. All the trees damaged in the main felling and having no scope for survival shall be felled and removed.

5. All high stumps shall be cut flush to the ground.

6. The left over climbers creating hindrance to the growth of the crop shall be cut.

7. Soil and moisture conservation measure shall be taken up after assessing the requirement for individual nalla / stream basis. Loose

boulder check dams / dry stone packing / gully plugging etc. shall be taken up starting from the upper end of the nalla towards down side.

8. Blank area of more than half hectare shall be tackled through gap planting of indigenous species.

9. Wildlife habitat if disturbed during the main felling shall be restored as per the prescription of Wildlife Overlapping Working Circle with special emphasis on water holes, salt licks, meadows and special and unique habitats.

2.6.12 Regeneration:-

Regeneration shall be ensured as per existing stand dynamics. All the negative drivers should be modified through simultaneous silvicultural operations to ensure the establishment of the existed regeneration. Assisted Natural Regeneration shall be carried out which include deweeding of invasive weeds,Clearing of debrises from the forest floor,Soil and moisture conservation activities,Climber cutting and multiple shoot cutting to minimize the competition and enhance the rate of growth.

2.6.13 Associated regulations and measures:-

Besides the prescriptions provided in the foregoing paras, some other regulations are necessary to augment the former for effective results. These are the following: -

2.6.13.1 Fire Protection: - During summer season, the forest crop are susceptible to fire hazard. So it is essential to protect the crop from fire by maintaining the fire lines on the boundaries of each coupe during the month of January since the incident of fire is usually started during February in Kalahandi. The Orissa Forest Fire Protection Rules, 1979 and provisions of Chapter-XVII of Orissa Forest Department Code shall be followed. Further firewatchers should be engaged from month of February till June. VSS wherever existing shall also be motivated to prevent fire as well as to take instant steps to extinguish the same if occurs. The engagement of watcher shall form an integral component of subsidiary silvicultural operation.

2.6.13.2 Grazing: -Grazing is another obstacle for regeneration and further improvement of crop. So the coupe shall be closed for grazing at least for 5 (five) years including the year of working Grazing will be regulated according to the carrying capacity in other areas on basis of rotation. The watcher should be engaged to ensure the strict prohibition on grazing within the prescribed period mentioned above. The VSS wherever functioning shall also be involved in this process.

2.6.13.3 Rights & Concessions: - The Government of Orissa in Forest Environment Department vide their Notification No.7420/F&E dt.08.05.2006 has allowed special concession in the area of timber working through OFDC Ltd. to the local people in supplying timber on retail sale basis up to 1 Cum. per family per year at a subsidiary rate of Rs.200/- per Cft. in the girth of 3 to 4 feet for sound Sal logs. However, for Sawn sizes / higher girth class round timber, appropriate sale rates shall be fixed by OFDC Ltd. on this basis. All the firewoods and 30% of the out turn of timber received at central depot of OFDC Ltd. shall be kept for local retail sale. While prescribing to continue the same in the plan period some additional concession should be considered for the people belonging to BPL (Below Poverty Line) category. Apart from the above

the right and concession shall be regulated as per the provision of Orissa Act and Rules made there under and also the policies of the Government made from time to time.

2.6.13.4 Establishment of Saw Mill: - At present there is no Saw Mill at Kalahandi for which the local people are facing a great difficulty in getting sawn size timber for their bonafide requirement. The OFDC Ltd. should take steps to establish a Saw Mill for catering the local need on priority basis. This will not only prevent the wastage of timber but also reduce the requirement.

2.6.13.5 Sample Plot: - At least one sample point of 0.1 ha. size, which was inventoried for enumeration of crop, shall be maintained in each felling series for monitoring the success of implementation of the prescription of this working circle. These plots will be useful in mid term evaluation of the plan.

2.6.13.6 Maintenance of Record: - Compartment histories, control forms and other relevant records shall be maintained for each coupe/ compartment and felling series in accordance with the provisions of working plan code.

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CHAPTER 3

REHABILITATION WORKING CIRCLE

3.1 Name of Working Circle:-

The name of the working circle is Rehabilitation Working circle.

3.2 General Constitution of working circle: -

3.2.1 The forests which are badly depleted due to the severe biotic interference but having adequate potentiality to rejuvenate are kept in this working circle. The first and foremost task is to restrict the further degradation by reducing the biotic interference and then to induce the process of restoration by reversing the trend through suitable rehabilitation measures. Accordingly it is named as Rehabilitation Working Circle. A major chunk of the plan area of this Division is kept under this working circle considering the success obtained from last plan period. This is not only cost effective but also a speedy process of revival of the vegetal cover which is evident from substantial increase in the forest cover as per the report of Forest Survey of India. During last plan period 89 forest blocks including VFs totalling an area of 74,711.32 ha. were allotted to this working circle and during this plan period 81 forest blocks excluding VFs with 72,593.40 ha of forest land has been allotted which covers 57.98% of the plan area.

3.2.2 A majority of the forest blocks of this Division have been allotted to this working circle. These are Bazargarh, Nangalguda, Brahmani, Alma, Poddhar, Chura, Kumkot, Bisiberni, Kerbandi, Nageswar etc. Some portion of the forest blocks have also been assigned to the VSS for Joint Forest Management and also during the course of implementation of this plan further area will be allotted to the VSS. So Joint Forest Management is under application over a sizable extent of area of this working circle.

Table 3.1

Range wise detail forest area allotted to this Working Circle							
Name of Range	RF	Area in ha.	PRF	Area in ha.	DPF/UDPF	Area in ha	Range wise Total Area
Bhawanipatna	12	14065.74	1	6455.03	2	9210.70	**29731.47**
M.Rampur	5	1315.00	3	1362.97	8	2123.08	**4801.05**
Narla	6	3016.00	6	4414.44	4	4129.86	**11560.30**
Kesinga	2	8594.22	0	0	6	717.14	**9311.36**
Kegaon	10	16153.47	0	0	16	1035.75	**17189.22**
Total	**35**	**43144.43**	**10**	**12232.44**	**36**	**17216.53**	**72593.40**

3.3 General Characteristics of Vegetation: -

In view of inclusion of major chunk of the area of the Division in this working circle, the vegetation of the forest almost belong to all the types as described under Chapter-II A of Part-I. These are both Tropical Moist and Dry Deciduous Forest. Due to relentless biotic interference the vegetation is in degraded condition. The vegetation is mostly bushy growth and pole sized crop with scatteredly available mature trees. The growing stock is struggling against the biotic interference for its improvement. Similarly the regeneration is though occurring, but not progressing further being victim of the said interference.

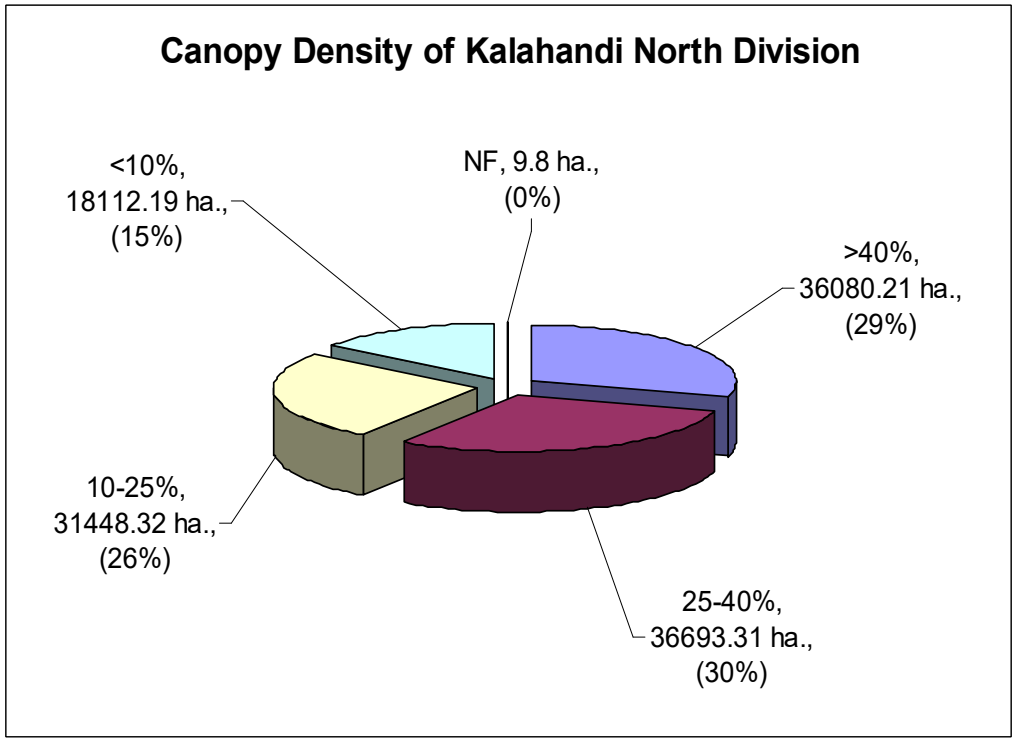
The main species available in those forest blocks are Sal, Karda, Asana, Dhaura, Moi, Kendu, Simal, Kangada, Tangan, Char etc. Bamboo mainly Salia Bamboo is also occurring in a number of forest blocks either mixed with the tree crop or in pure patches over some sites. The range wise representation of dominant species is furnished below.

Table No. 3.2

Sl.No.	Dominant Species	Name of the Range
1	Shorea robusta	Bhawanipatna, Kegaon, Kesinga, M.Rampur, Narla.
2	Cleistanthus collinus	Bhawanipatna, Kegaon, Kesinga, M.Rampur, Narla.
3	Lannea coromandalica	Bhawanipatna, Kegaon, Kesinga, M.Rampur, Narla,
4	Diospyros melanoxylon	Bhawanipatna, Kegaon, Kesinga, M.Rampur, Narla,
5	Terminalia tomentosa	Kegaon, Kesinga, M.Rampur, Narla, Bhawanipatna
6	Lagerstroemia parviflora	Bhawanipatna, M.Rampur, Narla.
7	Anogeissus latifolia	Kegaon, Narla, M.Rampur, Narla
8	Xylia xylocarpa	M.Rampur, Narla
9	Buchanaania lanzan	M.Rampur, Kesinga.
10	Feronia limonia	Bhawanipatna
11	Tectona grandis	Kesinga
12	Madhuca indica	Kesinga
13	Aegle marmelos	Kesinga
14	Boswellia serrata	Bhawanipatna
15	Dalbergia paniculata	Bhawanipatna
16	Pterocarpus marsupium	Kegaon
17	Adina cordifolia	Kegaon

Crop density of the forest blocks assigned to this working circle are variable and categorised under three groups i.e. <10%, 10-25% and 25-40%. This belongs to open category i.e. below 0.4% of crown density and these forest blocks are generally located in close proximity to human habitation. Though the forest is mostly open but having sufficient rootstock capable of rejuvenation through rehabilitation measure.

The aforesaid density class wise distribution of the plan area excluding the scattered small patches of village forest is depicted in the following Chart.



It is seen that 30% of the plan area is in the range of crown density of 25-40%, the class approaching to become dense forest i.e. >40%. It is followed by the dense category in 29% of the forest area. So both dense and nearing dense crown cover are dominating category of this Forest Division. Similarly, 26% of the area belongs to 10-25% of crown density and leaving the rest 15% of the area under <10% density cover. So the thrust area is aforesaid later two categories. The most vulnerable area is having the crown density <10% where efforts are necessary to restrict the biotic interference to maximum possible extent for ensuring a halt to further degradation. After ensuring the restriction, the process of restoration is to be inculcated. The other category having the density cover of 10-25% where the restoration is going on is in need of accelerating the said process to reach the higher density class. In nutshell an effective check to the degradation is to be vigorously pursued coupled with expediting the continuing process of restoration measure for smooth and successful passing over to dense forest category.

3.4 Felling series,cutting sections and JFM Areas:-

Not relevant to this Working Circle.

3.5 Blocks,Compartments and JFM area (Marked on GIS based maps)

Not relevant to this Working Circle.

3.6 Special Objectives of Management: -

Within the ambit of general objects of management as described earlier, the following special objectives have been set for this working circle.

To **Re**strict the degradation by reducing the biotic interference to barest minimum and reverse the trend towards the process of restoration.

To **D**evelop the forest by providing site-specific required silvicultural treatment.

To **F**acilitate the boosting of natural regeneration and ensure its establishment.

To take up soil and moisture conservation measures to improve the soil and moisture regime with special emphasis on upper reaches of the hill slope to ensure the perennial nature of the streams, nallas etc.

To conserve the area for bio diversity.

To improve the microclimate of the area as a whole, thereby ensuring environmental stability.

3.6.1 Analysis of the crop:-

The crop composition along with major species has already been described in Para-3.2. Similarly the major chunk of the area is under open category of forest. There is variation in the crop condition of different forest block but rehabilitation measures are necessary to promote natural regeneration and also boosting the growth of existing crop so that they can smoothly pass to dense category. The Stock and stand table of the blocks allotted to this working circle have already been furnished in Appendix-XIX & XX.

3.6.2 Silvicultural System

As the forest include in the Working Circle are in different stages of degredation and that the prime objective is to re-stock such areas by tending operations supplemented by gap –lanting and protection measures (including JFM). No formal silvicultural system is prescribed in view of no harvest of mature crop, which is scatteredly available. The prime objective is to restock the area with appropriate rehabilitation measures. Protection of the area from biotic interference is of paramount importance for this working circle.

3.6.3 Rotation period:-

As no harvest of timber is prescribed, the rotation and conversion period is not applicable for this working circle. However part of the rehabilitation measures removal of dead and uprooted trees alongwith thinning of congested pole crop can be considered while approving the site-specific treatment plan by the Divisional Forest Officer.

3.6.4 Harvestable diameters:-

As no harvest of timber is prescribed, the harvestable diameter is not applicable for this Working Circle.

3.6.5 Reducing Factors and reduced area:-

As no harvest of timber is prescribed, the reducing factors and reduced areas are is not applicable for this Working Circle.

3.6.6 Felling cycle:-

A 10 (Ten) years Rehabilitation Cycle is to be adopted coinciding with the working plan period.

After detailed field verification, different rehabilitation series have been constituted and each such series further divided into annual rehabilitation coupes. While constituting such series care has been taken to restrict the series as far as possible within the Range jurisdiction to which the particular forest belongs. This has been done mainly for administrative convenience and better implementation of the presriptio. Eleven numbers of such series have been constituted.

3.6.7 Division into periods and allotment to periodic blocks (PB):-

Not applicable to the Working Circle.

Division into Annual Rehabilitation Coupe:

The trend of rehabilitation measures of different blocks and compartments shall be taken up as per the Annual Coupes**,** which have been constituted by dividing each series into 10 segments intending to take up one such segment per year so that the entire area can be treated during the plan period. Care has been taken to constitute such Annual Coupe taking the permanent features like Nallas, Ridges, Compartment lines etc. Into consideration.Such coupes have been delineated on the management map. Care has been taken to treat the area on micro watershed basis.The objective in doing so to ensure that there should be a regular continuity in treating the micro watershed phase wise. The block and compartments included in the coupe have been shown rehabilitation series wise for each Range and the same are furnished in the following eleven Tables. These Tables give the annual coupe for each rehabilitation series with its number and the year of treatment along with the name of the forest block, its compartment number and area included in the coupe.

Method of treatment:

Keeping the major objectives of Mnagement of this Working Circle in view appropriate Soil & moisture Conservation measure shall form an integral part of all annual site-specific treatment plans.In addition, the following prescriptions shall be applied.

High stumps shall be cut back to encourage young coppice shoots.

Singling out the multiple coppice shoots shall be taken up to retain only the most promising one.

Whenever there is congestion in the crop cleaning operation shall be undertaken to boost up natural growth of local species.

The forest shall be strictly protected against uncontrolled grazing, forest fires and unauthorised removal only dead, dry & fallen trees shall be allowed to remove.

There are 16 Nos of Rehabilitation series which are given below:-

Table No.3.3

Rehabilitation Working Circle

Year	Coupe No.	Range	Forest Block	Status	Compartment No.	Area in ha	
						Compartment Area	Coupe area
1. Narla Rehabilitation Series							
2021-22	V	Narla	Kamei	RF	1	136	136
2022-23	VI	Narla	Narla	RF	1	339	339
2023-24	VII	Narla	Narla	RF	2	486	486
2024-25	VIII	Narla	Narla	RF	3	349	349
2025-26	IX	Narla	Kerbandi	RF	1	484	484
2026-27	X	Narla	Kerbandi	RF	2	692	692
2027-28	I	Narla	Narla Ext.	PRF	1	292.5	292.5
2028-29	II	Narla	Karladangor	RF	1	339	339
2029-30	III	Narla	Sripali	RF	1	16	16
2030-31	IV	Narla	Lumersinga	RF	1	175	175
	-		Belgaon	DPF	-	3826.994	3826.9947
TOTAL						**7135.5**	**7135.5**
2. Porgel Extension Rehabilitation Series							
2021-22	V	Narla	Mundighati	DPF	1	88.2	88.2
	-	Narla	Barpati	DPF	-	148.67	148.67
2022-23	VI	Narla	Porgel Ext.	PRF	1	491.12	491.12
2023-24	VII	Narla	Porgel Ext.	PRF	2	499	499
2024-25	VIII	Narla	Porgel Ext.	PRF	3	736.15	736.15
2025-26	IX	Narla	Porgel Ext.	PRF	4	755.42	755.42
2026-27	X	Narla	Porgel Ext.	PRF	5	700.31	700.31
2027-28	I	Narla	Sikerguda	PRF	1	343	343
2028-29	II	Narla	Badibahal	PRF	1	44.94	44.94
2029-30	III	Narla	Kamarda	PRF	1	444.6	444.6
2030-31	IV	Narla	Jamguda	PRF	1	107.4	107.4
	-	Narla	Lamer	DPF	-	66	66
TOTAL						**4424.81**	**4424.81**
3. Podgudi Rehabilitation Series							
2021-22	V	M.Rampur	Turchi	RF	1	257	257
	-	M.Rampur	Kuthiheju	DPF	-	208	208
2022-23	VI	M.Rampur	Bhatel	RF	1	32	32
	-	M.Rampur	Dengidongor	DPF	-	575.77	575.77
2023-24	VII	M.Rampur	Chandanpinda	DPF	1	173.25	173.25
	-	M.Rampur	Sulia Extn	DPF	-	138.05	138.05
2024-25	VIII	M.Rampur	Karla	DPF	1	432.11	432.11
2025-26	IX	M.Rampur	Gochhadengen	PRF	1	321.34	321.34
	-	M.Rampur	Goutami	DPF	-	388	388
2026-27	X	M.Rampur	Dengen	RF	1	456	456
2027-28	I	M.Rampur	Podgudi	PRF	1	683.52	683.52
	-	M.Rampur	Mugei	DPF	-	26.4	26.4
2028-29	II	M.Rampur	Kutigudum	PRF	1	358.107	358.107
2029-30	III	M.Rampur	Sadel ‘B’	RF	1	307	307
2030-31	IV	M.Rampur	Sadel ‘A’	RF	1	263	263

	-	M.Rampur	Sihidi	DPF	-	181.5	181.5
TOTAL						**4801.05**	**4801.05**

4. Kadalighati Rehabilitation Series

2021-22	V	Bhawanipatna	Pordhar	RF	2	377.705	377.705
					3	205.44	205.44
2022-23	VI	Bhawanipatna	Madakhola 'B'	RF	1	532	532
2023-24	VII	Bhawanipatna	Madakhola 'A'	RF	1	243	243
2024-25	VIII	Bhawanipatna	Madakhola 'A'	RF	2	453.785	453.785
2025-26	IX	Bhawanipatna	Dhanupanchan	RF	1	706	706
2026-27	X	Bhawanipatna	Dhangada dhanigidi	RF	1	179	179
2027-28	I	Bhawanipatna	Kadalighati	RF	1	112.2	112.2
					2	400.132	400.132
2028-29	II	Bhawanipatna	Kadalighati	RF	3	324.36	324.36
2029-30	III	Bhawanipatna	Kadalighati	RF	4	312.57	312.57
					5	193.27	193.27
2030-31	IV	Bhawanipatna	Pordhar	RF	1	230.29	230.29
	-		Kadalighati Extension	-	-	68	68
TOTAL						**4337.75**	**4337.75**

5. Kanamanjur Rehabilitation Series

2021-22	V	Bhawanipatna	Alma	RF	1	359.54	359.54
2022-23	VI	Bhawanipatna	Alma	RF	2	425.43	425.43
		Bhawanipatna	Alma	RF	3	220.21	220.21
2023-24	VII	Bhawanipatna	Alma	RF	4	324.82	324.82
2024-25	VIII	Bhawanipatna	Sinang	RF	1	559.89	559.89
2025-26	IX	Bhawanipatna	Sinang	RF	2	475.867	475.867
		Bhawanipatna	Bhalu	RF	1	19	19
2026-27	X	Bhawanipatna	Kutrukhai	RF	1	304.9721	304.9721
2027-28	I	Bhawanipatna	Kanamanjur	RF	4	302.5295	302.5295
2028-29	II	Bhawanipatna	Kanamanjur	RF	3	284.93	284.93
2029-30	III	Bhawanipatna	Kanamanjur	RF	1	372.43	372.43
2030-31	IV	Bhawanipatna	Kanamanjur	RF	2	599.47	599.47
TOTAL						**4249.09**	**4249.09**

6. Brahmani Rehabilitation Series

2021-22	V	Bhawanipatna	Brahmani	RF	10	324.43	324.43
		Bhawanipatna	Brahmani	RF	11	229.1	229.1
2022-23	VI	Bhawanipatna	Brahmani	RF	9	163.48	163.48
		Bhawanipatna	Brahmani	RF	18	260.24	260.24
2023-24	VII	Bhawanipatna	Brahmani	RF	19	520.0664	520.0664
2024-25	VIII	Bhawanipatna	Brahmani	RF	17	483.33	483.33
2025-26	IX	Bhawanipatna	Brahmani	RF	13	164.62	164.62
		Bhawanipatna	Brahmani	RF	14	122.7	122.7
		Bhawanipatna	Brahmani	RF	16	460.04	460.04
2026-27	X	Bhawanipatna	Brahmani	RF	15	382.04	382.04
		Bhawanipatna	Brahmani	RF	20	291.08	291.08
2027-28	I	Bhawanipatna	Brahmani	RF	1	197	197
		Bhawanipatna	Brahmani	RF	2	336.2	336.2
		Bhawanipatna	Brahmani	RF	3	161.69	161.69
2028-29	II	Bhawanipatna	Brahmani	RF	4	218.08	218.08
		Bhawanipatna	Brahmani	RF	6	275.4	275.4

2029-30	III	Bhawanipatna	Brahmani	RF	7	236.5	236.5
		Bhawanipatna	Brahmani	RF	8	202.4	202.4
2030-31	IV	Bhawanipatna	Brahmani	RF	5	250.42	250.42
		Bhawanipatna	Brahmani	RF	12	268.08	268.08
TOTAL						**5546.90**	**5546.90**

7. Thuapadar Gundi West Rehabilitation Series

2021-22	V	Bhawanipatna	Thuapadar Gundi	DPF	13	629.13	629.13
2022-23	VI	Bhawanipatna	Thuapadar Gundi	DPF	18	421.57	421.57
2023-24	VII	Bhawanipatna	Thuapadar Gundi	DPF	19	333.6	333.6
2024-25	VIII	Bhawanipatna	Thuapadar Gundi	DPF	20	454.84	454.84
2025-26	IX	Bhawanipatna	Thuapadar Gundi	DPF	17	442.46	442.46
2026-27	X	Bhawanipatna	Thuapadar Gundi	DPF	12	294.46	294.46
2027-28	I	Bhawanipatna	Thuapadar Gundi	DPF	4	503.48	503.48
2028-29	II	Bhawanipatna	Thuapadar Gundi	DPF	9	405.28	405.28
2029-30	III	Bhawanipatna	Thuapadar Gundi	DPF	14	330.7	330.7
2030-31	IV	Bhawanipatna	Thuapadar Gundi	DPF	16	542.02	542.02
TOTAL						**4357.54**	**4357.54**

8. Thuapadar Gundi East Rehabilitation Series

2021-22	V	Bhawanipatna	Thuapadar Gundi	DPF	15	564.41	564.41
2022-23	VI	Bhawanipatna	Thuapadar Gundi	DPF	7	507.37	507.37
2023-24	VII	Bhawanipatna	Thuapadar Gundi	DPF	2	551.59	551.59
2024-25	VIII	Bhawanipatna	Thuapadar Gundi	DPF	1	527.1	527.1
2025-26	IX	Bhawanipatna	Thuapadar Gundi	DPF	6	360.9	360.9
2026-27	X	Bhawanipatna	Thuapadar Gundi	DPF	8	553.74	553.74
2027-28	I	Bhawanipatna	Thuapadar Gundi	DPF	3	480.04	480.04
2028-29	II	Bhawanipatna	Thuapadar Gundi	DPF	5	409.01	409.01
2029-30	III	Bhawanipatna	Thuapadar Gundi	DPF	10	311.12	311.12
2030-31	IV	Bhawanipatna	Thuapadar Gundi	DPF	11	519.88	519.88
TOTAL						**4785.16**	**4785.16**

9. Gundi Rehabilitation Series

2021-22	V	Bhawanipatna	Gundi	PRF	6	600.63	600.63
2022-23	VI	Bhawanipatna	Gundi	PRF	5	1045.58	1045.58
2023-24	VII	Bhawanipatna	Gundi	PRF	7	801.25	801.25
2024-25	VIII	Bhawanipatna	Gundi	PRF	8	538.2	538.2
2025-26	IX	Bhawanipatna	Gundi	PRF	9	688.72	688.72
2026-27	X	Bhawanipatna	Gundi	PRF	10	607.95	607.95
2027-28	I	Bhawanipatna	Gundi	PRF	1	487.78	487.78
2028-29	II	Bhawanipatna	Gundi	PRF	2	574.77	574.77
2029-30	III	Bhawanipatna	Gundi	PRF	4	705.06	705.06
2030-31	IV	Bhawanipatna	Gundi	PRF	3	405.0889	405.0889
TOTAL						**6455.03**	**6455.03**

10. Kumkot Rehabilitation Series

2021-22	V	Kegaon	Kumkot	RF	9	308.2039	308.2039
2022-23	VI	Kegaon	Kumkot	RF	10	318.33	318.33
		Kegaon	Kumkot	RF	11	274.83	274.83
2023-24	VII	Kegaon	Kumkot	RF	12	200.47	200.47
		Kegaon	Kumkot	RF	13	199.51	199.51
2024-25	VIII	Kegaon	Kumkot	RF	14	199.97	199.97
		Kegaon	Kumkot	RF	17	149.54	149.54
2025-26	IX	Kegaon	Kumkot	RF	15	408.07	408.07

2026-27	X	Kegaon	Kumkot	RF	16	290.51	290.51
2027-28	I	Kegaon	Kumkot	RF	1	181.49	181.49
		Kegaon	Kumkot	RF	2	285.53	285.53
2028-29	II	Kegaon	Kumkot	RF	3	333.77	333.77
		Kegaon	Kumkot	RF	4	405.83	405.83
2029-30	III	Kegaon	Kumkot	RF	5	381.86	381.86
		Kegaon	Kumkot	RF	6	221.33	221.33
2030-31	IV	Kegaon	Kumkot	RF	7	165.29	165.29
		Kegaon	Kumkot	RF	8	269.7809	269.7809
TOTAL						**4594.31**	**4594.31**

11. Chura 'A' Rehabilitation Series

2021-22	V	Kegaon	Chura ‘A’	RF	6	393.00	393.00
		Kegaon	Chura ‘A’	RF	11	163.48	163.48
2022-23	VI	Kegaon	Chura ‘A’	RF	9	365.13	365.13
		Kegaon	Chura ‘A’	RF	10	296.91	296.91
		Kegaon	Chura ‘A’	RF	23	125.93	125.93
2023-24	VII	Kegaon	Chura ‘A’	RF	8	325.38	325.38
		Kegaon	Chura ‘A’	RF	22	239.97	239.97
2024-25	VIII	Kegaon	Chura ‘A’	RF	3	316.37	316.37
		Kegaon	Chura ‘A’	RF	7	127.48	127.48
2025-26	IX	Kegaon	Chura ‘A’	RF	20	433.81	433.81
		Kegaon	Chura ‘A’	RF	21	295.2	295.2
2026-27	X	Kegaon	Chura ‘A’	RF	18	221.99	221.99
		Kegaon	Chura ‘A’	RF	19	291.47	291.47
2027-28	I	Kegaon	Chura ‘A’	RF	1	6.93	6.93
		Kegaon	Chura ‘A’	RF	2	248.67	248.67
		Kegaon	Chura ‘A’	RF	17	275.95	275.95
2028-29	II	Kegaon	Chura ‘A’	RF	14	109.32	109.32
		Kegaon	Chura ‘A’	RF	16	337.23	337.23
2029-30	III	Kegaon	Chura ‘A’	RF	4	251.00	251.00
		Kegaon	Chura ‘A’	RF	13	90.49	90.49
		Kegaon	Chura ‘A’	RF	15	286.95	286.95
2030-31	IV	Kegaon	Chura ‘A’	RF	5	293.03	293.03
		Kegaon	Chura ‘A’	RF	12	87.83	87.83
TOTAL						**5583.52**	**5583.52**

12. Chura 'B' Rehabilitation Series

2021-22	V	Kegaon	Chura ‘B’	RF	5	309.6165	309.6165
2022-23	VI	Kegaon	Chura ‘B’	RF	6	268	268
	-	Kegaon	Makardani	DPF	-	30.3	30.3
2023-24	VII	Kegaon	Chura ‘B’	RF	7	323.43	323.43
2024-25	VIII	Kegaon	Chura ‘B’	RF	8	215.15	215.15
	-	Kegaon	Baijalpur	DPF	-	52	52
2025-26	IX	Kegaon	Daka	RF	1	252.3771	252.3771
2026-27	X	Kegaon	Ammuda	PF	1	241.94	241.94
2027-28	I	Kegaon	Chura ‘B’	RF	1	115.97	115.97
2028-29	II	Kegaon	Chura ‘B’	RF	2	132.11	132.11
	-	Kegaon	Chanchermunda	DPF	-	73	73
2029-30	III	Kegaon	Chura ‘B’	RF	3	204.95	204.95
2030-31	IV	Kegaon	Chura ‘B’	RF	4	268.315	268.315
	-	Kegaon	Gandamer	DPF	-	70	70

TOTAL						**2557.16**	**2557.16**
13. Nageswar Rehabilitation Series							
2021-22	V	Kegaon	Nageswar	RF	9	321.14	321.14
2022-23	VI	Kegaon	Nageswar	RF	10	168.3906	168.3906
2023-24	VII	Kegaon	Nageswar	RF	7	270.87	270.87
2024-25	VIII	Kegaon	Nageswar	RF	4	261.88	261.88
2025-26	IX	Kegaon	Nageswar	RF	3	144.07	144.07
2026-27	X	Kegaon	Nageswar	RF	6	121.4	121.4
2027-28	I	Kegaon	Nageswar	RF	8	434.58	434.58
		Kegaon	Kirkakani	DPF	-	26	26
2028-29	II	Kegaon	Nageswar	RF	5	130.33	130.33
2029-30	III	Kegaon	Nageswar	RF	2	203	203
2030-31	IV	Kegaon	Nageswar	RF	1	304.1255	304.1255
TOTAL						**2385.79**	**2385.79**
14. Adabari Rehabilitation Series							
2021-22	V	Kegaon	Gojia	RF	1	347	347
2022-23	VI	Kegaon	Jayantpur	DPF	1	159.2	159.2
2023-24	VII	Kegaon	Ghatual	RF	1	211	211
		Kegaon	Sikuan	PF	1	23.19	23.19
		Kegaon	Masigaon & Kalamdei	DPF	1	34	34
2024-25	VIII	Kegaon	Lini	RF	1	114	114
		Kegaon	Banakdei	PF	1	62.5	62.5
2025-26	IX	Kegaon	Kankeri ‘A’	PF	1	2	2
		Kegaon	Kankeri ‘B’	PF	1	26.5	26.5
		Kegaon	Goilbindha	DPF	1	80	80
2026-27	X	Kegaon	Sindhbadi	DPF	1	72.4	72.4
		Kegaon	Patramara	DPF	1	82.72	82.72
2027-28	I	Kegaon	Adabari	RF	1	186.0254	186.0254
2028-29	II	Kegaon	Adabari	RF	2	224.49	224.49
2029-30	III	Kegaon	Adabari	RF	3	265.4193	265.4193
2030-31	IV	Kegaon	Bisiberni	RF	1	178	178
TOTAL						**2068.44**	**2068.44**
15. Bazargarh North Rehabilitation Series							
2021-22	V	Kesinga	Bazargarh	RF	5	517.38	517.38
	-	Kesinga	Gudang	DPF	-	54.88	54.88
2022-23	VI	Kesinga	Bazargarh	RF	6	611.91	611.91
2023-24	VII	Kesinga	Bazargarh	RF	7	501.42	501.42
2024-25	VIII	Kesinga	Bazargarh	RF	9	418.21	418.21
2025-26	IX	Kesinga	Bazargarh	RF	14	385.40	385.40
2026-27	X	Kesinga	Bazargarh	RF	10	158.23	158.23
	-	Kesinga	Biripura	DPF	-	332.80	332.80
2027-28	I	Kesinga	Bazargarh	RF	1	182.27	182.27
	-	Kesinga	Turlakhaman	DPF	-	150	150
2028-29	II	Kesinga	Bazargarh	RF	2	806.9017	806.9017
2029-30	III	Kesinga	Bazargarh	RF	3	477.41	477.41
	-	-	Laitara	DPF	-	83.00	83.00
2030-31	IV	Kesinga	Bazargarh	RF	4	585.54	585.54
	-	Kesinga	Dumermunda	DPF	-	45.76	45.76
TOTAL						**5311.11**	**5311.11**

16. Bazargarh South Rehabilitation Series

2021-22	V	Kesinga	Bazargarh	RF	15	321.19	321.19
2022-23	VI	Kesinga	Bazargarh	RF	16	249.52	249.52
2023-24	VII	Kesinga	Nangalguda	RF	2	301.1	301.1
	-	Kesinga	Brahmanidongor	DPF	-	50.7	50.7
2024-25	VIII	Kesinga	Nangalguda	RF	1	312.65	312.65
2025-26	IX	Kesinga	Nangalguda	RF	3	337.45	337.45
2026-27	X	Kesinga	Nangalguda	RF	4	461.8	461.8
2027-28	I	Kesinga	Bazargarh	RF	8	454.77	454.77
2028-29	II	Kesinga	Bazargarh	RF	11	650.16	650.16
2029-30	III	Kesinga	Bazargarh	RF	12	524.26	524.26
2030-31	IV	Kesinga	Bazargarh	RF	13	336.66	336.66
TOTAL						**4000.26**	**4000.26**
G.TOTAL						**72593.40**	**72593.40**

3.6.8 Calculation of Yield: -

It is not applicable for this working circle in absence of any prescription for harvest.

3.6.9. Table of felling:-

Not applicable to this Working circle.

3.6.10 Method of executing the felling:-

It is not applicable for this working circle in absence of any prescription for felling.

3.6.11 Subsidiary silvicultural operations cleaning and thining:-

Method of executing the operation: -

Prior to taking up any operation, it is necessary to prepare a plan so that the work can be executed smoothly and properly in time. However following operations are prescribed to be carried out the work systematically in order to accomplish the special objectives of management effectively.

Demarcation of Annual Rehabilitation Coupe

The Annual Rehabilitation Coupe shall be demarcated on the ground in the preceding season of treatment with small stone cairns of half meter height erected at visible distance on the periphery in case of blank patches or by painting coal-tar rings on the trees standing on the coupe line in the manner as prescribed for Selection Working Circle**.**

Preparation of Rehabilitation Plan

Site specific plan is required to be formulated taking the local factors and site conditions into consideration. These plans will not only result oriented but also suitable to address the issues perfectly. The Range Officer shall prepare the plan for eah annual rehabilitation copue in consulation with the VSS if operating in that area. Efforts shall be made to constitute VSS in all the areas where it is feasible.

The plan prepared by the Range Officer shall be scrutinised by Assistant Conservator of Forests and will be approved by the Divisional Forest Officer. All these works shall be completed in the previous year of the implementation.

The plan shall include the following components.

- Preparation of a rehabilitation map in the copy of the management map indicating the SCM work, gap planting, silvicultural cleaning etc.as far as practicable.
- The current site condition narrating the terrain, slope, drainage, soil type and depth.
- Vegetation and the status of natural regeneration.
- Watershed number.
- Details of operations proposed to be taken up.
- Cost norm and the schedule of operations.

3.6.11.1 Rehabilitation Measures

Through the rehabilitation plan will specify the details of operations to be carried out for a particular site but the following major operations are prescribed in general as the rehabilitation measurs to restock the degraded forests.

3.6.11.2 Silvicultural Operations

The Rehabilation coupes shall be subjected to the following treatment :-

High stumps of good coppicer species like Sal, Kurum, Moi, Sissoo shall be cut back flush to the ground for encouraging emergence of coppice shoots from ground level. The number of such high stumps cut shall be recorded on the relevant vouchers and on each such coppiced stump a coal tar cross marking should be given for identification. Multiple coppice shoots on any stump shall be cut retaining the one that is the most promising shoot for faster growth. The number of all such stumps with multiple shoots which are subjected to singling out operation shall be recorded in the relevant vouchers.

- Wherever a climber is creating hindrance in the growth of a promising pole/ tree the said climber shall be cut back at two points : close to the ground and at a height of 3 ft.
- *Combretum decandrum* (Atundi) climber should be eliminated. So also invasive species like Eupatorium, Lantana etc. shall be uprooted before flowering/seedling period for their elimination.
- Wherever there is a congested patch of pole crop of Sal and its associate species, light thinning should be carried out to retain stems according to the formula

  - $D=0.5 \times (G/10 + 2)$

    - Where D = Distance between 2 adjacent stems in meters, and

- G = Average girth of the stems in cms.
- In the congested crops where thinning is desired, the area is to be demarcated by GPS. Prior approval of the Regional Chief Conservator of Forests shall be taken for such thinning and the grade of thinning. Number of such poles removed in thinning shall be mentioned in the voucher.

- Trees like Mahua, Mango, Tamarind, Char, Harida, Bahada, Kusum, Bel which yield edible fruits for local consumption shall not be thinned out.
- Removal of weeds such as Parthenium, Eupatorium and Lantana shall be taken up as last priority after fulfilling all other prescribed treatments and after obtaining coupe-wise approval of the Regional Chief Conservator of Forests on the weed removal treatment plan.
- Gap planting shall be carried out whenever the blank / gap is a patch of minimum 0.2 ha. (0.5 Ac.) of area. Each such gap shall be assigned a serial number, which should be indicated by a metalic tag to be hung on an adjacent tree. The number of seedlings planted in the gaps should also be mentioned in the Plantation Journal. The Plantation Map in 1:50,000 scale should indicate the approximate location of each gap.
- In the absence of any such gap in the treatment area no gap planting shall be carried out.
- The seedlings to be planted in gaps shall be minimum of 2 ft. in height.
- Soil and moisture conservation measures shall be carried out before the gap plantings. But contour trenches and staggard trenches shall be adopted carefully with last priority.

3.6.11.3 Soil & Moisture Conservation Measures (SCM)

Soil and moisture conservation measures should form the main component of rehabilitation operations. Appropriate soil and water conservation measures shall be taken up to reduce the velocity of the water flow and to retain the topsoil. Measures like gully plugging, loose boulder check dams, contour bunds, nalla bunding and vegetative bunds are prescribed. It should be implemented on watershed basis so as to ensure maximum conservation of moisture and soil, which will act as drought proofing measures. This is essential for a drought prone district like Kalahandi.

(a) Watershed Co-relation: - The annual coupe map shall be co-related with the watershed map of that area for emphasising the treatment of nallas, streams etc. to maximise the conservation of both moisture and soil.

(b) Gully Plugging: - (1) Check dams are required to be erected across gullies. Loose boulder check dams are medium sized mechanical structures, provided in the middle reaches of the gullies having a width of 1.0 mt. to 3.0 mt. Rough stones of size of 0.15 to 0.3 cum are required for the construction of these structures. Earthen bunds should be provided in both sides of the structure. Height of the check dam should be regulated 1/3rd to ½ of the gully depth. These check dams should be constructed at regular intervals depending on the gradient, steeper the slope, more check dams are required. More number of check dams are required in Category-II areas since the slopes are steep and the velocity of runoff is high. (2) Gully plugging

can also be done with brushwood depending on the availability of material, requirements of sites and cost norms. The gully beds should be planted with soil binders like Sabai grass, Vetiver grass and Agave. Generally for brushwood check dams, the height of the fall taken into consideration is 1 meter, the maximum width of the gully is 3 meter and depth is 0.6 meter.

(c) Palisading, AgavePlanting & VegetativeBuilding: - With the available materials palisading has to be prepared along the contours to counteract the force of water movement. 10 to 20 meters apart depending on the slope, plantation of grass like Khus Khus, Napier grass, Sachrum etc. should be done. 10 to 20 meters from the second line Agave should be planted.

(d) Contour Bunds: - Contour bunds are constructed along the contour to arrest the water velocity. Grass turfing is given on the side slope and top of the bund. The soil binding species like Vetiver grass are to be planted on the upper slope of the bund with spacing of 0.23 meter.

(e) Staggered Trenches: - These trenches would be constructed along the contours. The trench should be correct size (2 mt. x 0.5 mt. x 0.5 mt.), if it is undersize for any reason, equal trenches of more number to be dugout. The soil dug from the trenches should be kept at least one foot away from the trench in an inverted trapezium manner. This soil should be compacted and dribbled with the seeds. These trenches should not be resorted to when the slope is more than 30%. In these areas the trenches half the original size (2 mt. x 0.5 mt. x 0.5 mt.) can be taken up along the contour line. Generally the distance between the two trenches can be 3 meters along the contour and also 3 meters along the slope.

(f) Percolation Tanks: - These tanks are to be constructed on the flat areas of the highest points. Generally each tank is to be dug out with dimensions of 5 mt. x 5 mt. x 0.5 mt. The width and the depth can vary depending on the availability of the flat surface. The earth dugout from the tanks should be placed in the inverted trapezium and the soil should be compacted. No inlet and outlet to be provided from the percolation tank. The bunds should be treated with seeds Dhanicha (*Sesbania aculeala*), Sun hemp or even Horse gram.

3.6.11.4 EROSION CONTROL AND DRAINAGE LINE TREATMENTS IN WATERSHED PROGRAMMES

Soil erosion is the process of detachment and transports of soil from one place other place by water or wind. The water or wind first detaches the soil particle and then transports them from one place to another place with surface runoff. When this surface runoff becomes large enough to have significant dynamic force, then it starts cutting the bed and sides of the area of contact of flow and transports it further. Hence, the main objective of any erosion control practice/measure is to check or reduce the kinetic energy of falling rain drop and to reduce surface runoff (which can be achieved by increased the opportunity time for water to infiltrate down) and this is the principle behind all soil and water conservation practices/ measures. Erosion control measures can be grouped under biological measures, engineering or mechanical measures and bioengineering measures. Biological measures are normally adopted without any disturbance/movement of surface soil or modification of land surface. However, the vegetation canopy dissipates the kinetic energy associated with the falling rain thus minimizing the detachment of soil particles which is the first process in soil erosion. The canopy also does signification interception which then falls rather slowly to the ground surface. This helps in the increased infiltration which

ultimately brings down the surface runoff. The roots of the vegetation bind the soil and develop soil fertility by way of adding humus in the soil and the stems above the ground retard the velocity of surface runoff. However in situations where these biological measures are insufficient to check the erosion to a desired level, the arable lands are required to be treated with mechanical measures or combination of mechanical and biological measures. Mechnical erosion control measures break the slope length and degree of slope either through surface soil movement and change of land topography or through construction of some structures. These measures serve the dual purpose of arresting erosion and improving moisture regime of the area. The principles behind design of these structural measures are:

1. Increasing the time of concentration and thereby allowing more runoff to be absorbed and held in the soil profile.

2. Intercepting a long slope into several short ones so as to maintain the velocity of runoff water less than the critical velocity.

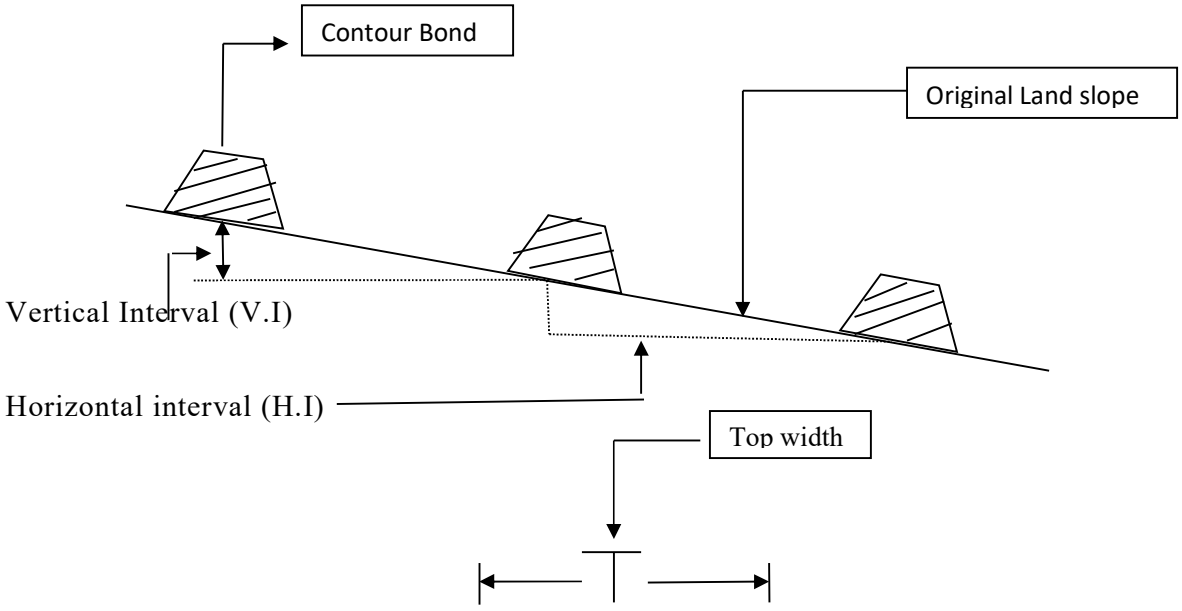
3. Protection against damage due to excessive runoff.

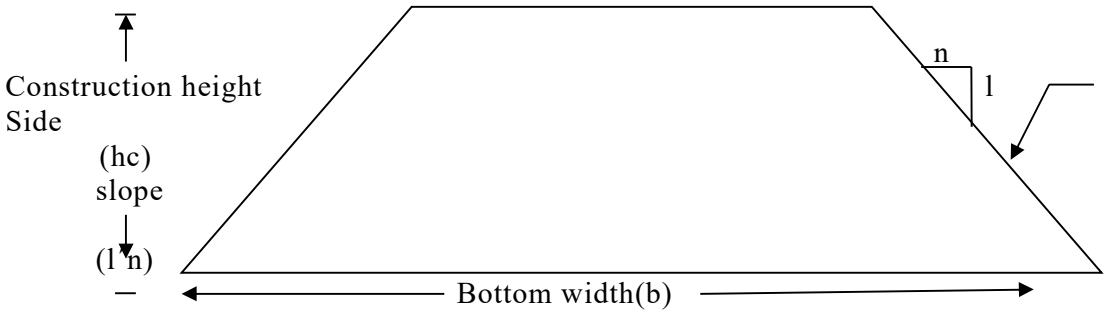
3.6.11.5 Mechanical Measures for Arable Lands:-

The choice of the structural measures is mainly dependent on the rainfall ,vegetation and land characteristics. The storage type structures are required in low rainfall area. Where as the drainage type structures are preferred in high rainfall areas.the feld slope also decides the type of the structure to be adopted.

Bunding:-

This is adopted up to 8% land slope and therefore is an engineering measure for mildly sloping lands. The main objective of bunding is to reduce the slope length. Bunding or narrow based terracing is adopted normally at those places where rainfall is low and suface runoff is to be stored for inducing infiltration. It has a height up to 100 cm and the area under bunding is not available for cultivation. These are constructed as bund on contour and are of two types. The one which is laid on contour for storage and absorption of runoff is called as contour bunding and the one which is used for safe disposal of excess surface runoff is called graded bunding.





Trenching:

Construction of any form of depression or micro pit or trench (fig.2) over the land surface is done to arrest both excess surface runoff and silt carried with it.

Continious contour trenches:-

It is the trench along the ontour (across the slope) at the specified horizontal interval depends upon the slope with the dimension of 0.45 m depth, 0.30 m width throughout the field width. The excavated soil has to be heap at a downstream side of the trench and the soil has to be sprea uniformly for the surface width of 30 cm.

Continuous contour trenches are recommended for storage of water in low rainfall relatively flat areas receiving storms of mild intensity. These trenches demand high skill for construction and layout on contour.

Trenches on contour lines over long stretches is very difficult and they eventually become trenches with variable slopes. They may act as drainage system and induce non-uniform moisture conservation. Water from a major part of the trench generally collects into a small low lying portion followed by breaching. Subsequently many trenches downwards also get breached with more cumulative effect progressively. In this way instead of conserving rainwater they become drainage channels and prove counterproductive. So equalizer should be provided at regular intervals to prevent concentration of runoff in any of the trenches.

Staggered contour trenches:-

It is trench to be excavated along the contour in a staggered manner with the dimension of 2 m(L) x 0.45 m(D) x 0.03m(W). The excavated soil has to be spread uniformly for the surface width of 30 cm.

In high rainfall areas with highly dissected topography staggered trenches are usually adopted. Since length of the trench is 2-3 m there are very little chances of deviating from the contour even by an unskilled worker and lack of supervision. Since breaches are very uncommon, they provide better as well as uniform in situ moisture conservation.

Semi-elliptical trenches:-

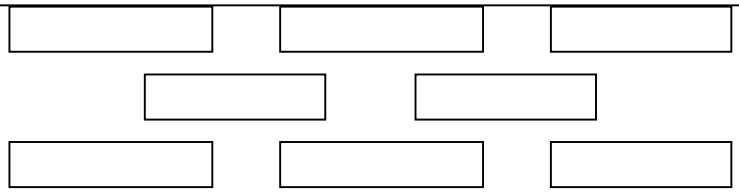
These trenches have to be excavated in respect to each plant at the upstream side of the plant at 1.5 m distance from the plant in a semi elliptical manner with the dimension of 2m (L) x 0.45m (D) x 0.30m(W). The excavated soil has to be heap at downstream side of the trench and the soil has to be spread uniformly for the surface width of 30 cm.

Graded trenches:-

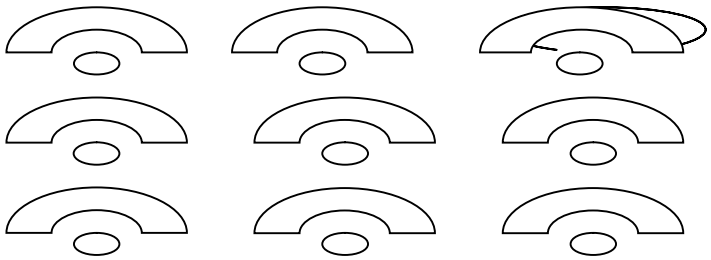
The trenches for field length with the width of 0.30 m and depth of 0.45m were made on 1 per cent grade. Side channels have to be provided for safe disposal of water.

These are drainage type trenches for intercepting and safe disposal of surface flow in very high rainfall areas and impermeable black soil. Graded trenches are identical to contour trenches in all respects, expect in that they are excavated with a longitudinal bed grade.

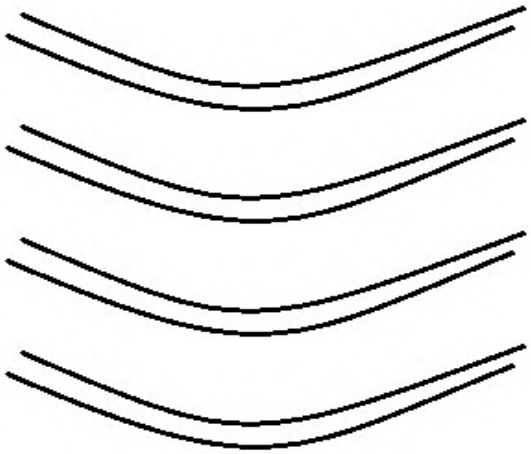
Terracing:-



Staggered Contour Trench



Semi circular trench



Continious contour trench

It is an engineering soil conservation practice,used to control soil erosion in highly sloping area (greater then (8%). The effective length and degree of the slope is changed by constructing steps like structures across the land slope to check the flow of runoff and to reduce the soil loss. Large quantity of surface soil is moved from one place to another place.

Drain:-

Safe disposal of excess surface runoff from any land / field is very necessary through waterways. If the excess surface runoff is not properly guided then it erodes the streams, which may lead to gully formation or widening of stream this damaging valuable land.

Revetment:-

In some cases, it becomes necessary to slope back the vertical cut and pitched it with stone which otherwise would have slided or slipped, this is known as revetment.

3.6.15.2 Selection of conservation measures:-

The selection of various erosion control measures is done basing on the

a. Land slope

b. Soil depth

c. Rainfall

The types of soil and moisture conservation measures to be taken are mentioned in the Table No 3.4.

Table No.3.4

ypes of SMC measures			
Slope in degree	Depth	Rainfall in mm	Types of measures prescribed
<8	Shallow and light	<700	Narrow based terracing (Contour bunding)
<8	Shallow and light	>700	Narrow based terracing (Contour bunding)
<8	Heavy clay	<700	
<8	Medium to deep	<1500	Contour Trenching (Continuous)
<8	Shallow	<800	Contour Trenching (staggered)
<33	Medium to deep but well drained	<2000	
<33	Medium to deep soil but well drained	2000-3000	Contour trenching (Graded)
<33	Medium to deep	<2500-3000	Level Terracing
<33	Medium to deep	<2500-3000	Inward Slopping
<33	Shallow	<1200	Outward Slopping
<33	Shallow to deep	<1500	Puertorican type
<33	Shallow to medium	<1500	Stonewall (Contour)
<33	Shallow to medium	1500-2000	Stonewall (Graded)
<33	Shallow to medium	<1200	Zing Terracing & Conservation Bench Terracing

The most common control measures for arable land are bunding, trenching and terracing. They have their own limitations with respective to design, layout, execution and cost.

The specification regarding the suitability and adaptability of various engineering erosion control measures given here should be considered only as a guideline. Slight or marginal modification / adjustment is necessary to suit the prevailing conditions at a particular location.

3.6.11.6 Non Arable Lands

The first principle in gully control is to reduce maximum possible amount of water running through them. Gully heads in particular have to be completely protected by interception ditches, which should spread the water over the area treated. Diversion ditches all along the gully walls at small intervals and in a herring bone pattern should further divert water from the gully side slopes,away pattern should further divert water from the gully side slopes ,away from the gully walls and spread it over the same protected area/gully bed (Stream). If the gully id V shaped, this can easily be done,on U shaped gullies with straight walls,these ditches should start as close as possible to the upper edge of the vertical walls. On the gully floors, gully plugs and split traps should be used. Local materials found on the gully should be used to the maximum extent possible. Gabions may be one of the best uses of stone, both for the plugs and along the gully walls to prevent scouring. The installation of sophisticated engineering structure should be avoided expect in very special cases. Special emphasis is again to the basic principles that the only way for gully control is from the top, the above gully head and along the walls on both sides. It should be left to the nature to heal the world with the assistance as necessary to start the process, which may take years to complete.

The gully control structures are normally used for

a. Gully grade control and stabilization

b. Sediment discharge

c. Water level control

d. Surface water disposal etc.

Stabilization of gully through vegetation is a difficult work as these are very much used for conveying runoff during the time plantation. Under such conditions mechanical or engineering measures have to be adopted to prevent washing away of the plantation by way of large volume of runoff. Such protective measures need to be only temporary as the vegetation once established will be able to take care of the gully.

Where mechanical measures are a necessary in badly degraded gully for its control and temporary structures are unlikely to serve the purpose, permanent structures such as masonry check dam or earth dams supplemented by vegetation should be provided to convey the runoff over critical portions of the gully.

3.6.11.7 Gully Control structures:-

For control of gullies, the erosive velocities are reduced by flattering out the steep uniform gradients of the gully, by constructing a series of checks which transforms the longitudinal gradients into a series of steps with low risers and long flat treads. When temporary structures are used, they are intended only to provide necessary protection until the vegetation becomes well established. Check dams of this type are usually made up brush wood, wire pole or loose rock. Substantial checks

of masonry concrete or earth are built where it is necessary to relay upon these alone for permanent control. Temporary check dams constructed across the bed of a gully serve two purposes

a. To collect sufficient soil and water to enable the proper growth of vegetative cover and

b. To check channel erosion until sufficient stabilizing vegetation can be established at that critical point.

The vertical interval between the check dams is equal to the height of a check dam. For stone check dam, it is usually 1m check dam can easily be applied in all gullies of less then 2 m depth and 5 m width. The gully control structures can be classified under

a. Temporary gully control structure

b. Semi permanent gully control structure

c. Permanent gully structure

3.6.11.8 Temporary gully control structure:-

These are temporary in nature and normally last for a very short period say up to 2 to 4 years i.e till the vegetation is established. The first order and or second order streams where runoff contributing areas is within 20-40 ha.,depth within 2 m and width within 5-6 m, the temporary gully control measure are very useful. They are usually made of wooden poles,wire,sand filled plastic bag,wooden plank,loose boulder etc.,these have to be repaired annually or after every monsoon .Design details of this structures are

a) One row or single row wooden post check dam

b) Two row or double row wooden check dam filled with brush wood.

c) Two row or double row wooden check dam filled with boulders.

d) Woven wire –wooden post check dam

e) Loose boulder check dam

f) Sand filled plastic bag check dam

g) Woodenplank/post check dam

3.6.11.9 Semi permanent gully control structure:-

These usually have a longer life,say of 10-15 years,and normally do not require regular maintainance. They do not enquire the aasistance of vegetative growth for controlling the gully by helps the vegetation to come up on gully sides. They are constructed in places where materials are available in sufficient quantity. These are very effective in steep gullies traversing hilly and mountationous region. They are also useful in ravines where passage for livestock has to be provided. These are very much suited in second and third order streams with a runoff contributing area of 40 to 100 ha. and where the depth of gully is usually less than 4 m. Various types of semi-permanent gully control structures are:

(1) Loose boulder check dam

(2) Log check dam

(3) Gabion check dam

Concrete and masonry structures are efficient supplemental control measures. Good vegetative practices together with proper land use are indispensable in a sound soil and water conservation programme. But there are many instances where vegetative measures and simple practices alone are inadequate to handle a concentration of water. In such cases, permanent structure of masonry and concrete play an important part inreinforcing or supplementing the other practices.

The main function of the structure is to safely dispose the peak rate of runoff for a given frequency, from a higher elevation to a lower elevation. It should have arrangements to dissipate the kinetic energy of discharge within the structure in a manner and degree that will protect both the structure and sown stream channel from damage.

There are also instances where a high degree of safety and permanence and desirable. Vegetative control measures are subjected to the influences of uncertain factors as climate, insects, etc and therefore, are not too dependable. On the other hand, properly designed and installed structures are of longer life and dependable.

3.6.11.10 Straight drop spillway:-

The drop spillway is a weir structure. Flow passes through the weir opening, drops to an approximately level apron or stilling basin and then passed into the downstream channel.

A. Functional use

- Important uses of a straight drop spillway are as follows:
- Grade stabilization in lower reaches of waterways and outlet
- Erosion control for protection of fields, roads, building and other improvements from gullies.
- Grade control stabilizing channel.
- Reservoir spillway where the total drop is relatively low.
- Protection of the outlet and of grassed water ways.
- Outlet for tile and surface at the upper reaches and along drainage ditches.

B. Adaptability: The drop spillway is an efficient structure for controlling relatively low heads, normally up to 3 m.

C. Advantages: The likelihood of serious structure damage is less than for other types of structure. The rectangular weir is less likely to be clogged by debris than the openings of other structures of comparative discharge capacities. It is relatively easy to construct.

D. Limitations: It is more costly than some other types of structures, where the required discharge capacity is less than 3cum cusec, and the total head or drop is grater than 3.m It is not favourable structure: where temporary spillway storage is needed to obtain a large reduction in discharge. A stable grade below the structure is essential.

3.6.11.11 Drop inlet spillway.

A drop inlet spillway is a closed conduit generally designed to carry water under pressure from about an embankment to a lowerelevation. An earthen embankment is required to direct the discharge through the spillway. Thus, the usually function of a drop inlet is to convey a portion of the runoff though or under an embankment without erosion. Vegetated or earth spillways around one of both of the embankment should always be used in conjunction with drip inlet spillway

A. Functional uses.

- Important uses of a drop inlet spillway are listed below.
- Grade stabilization.
- Dispoasl system at lower end
- Principal spillways for debris basins
- Flood prevention structures

B. Adaptability: It is a very efficient structure for controlling relatively high gully heads, usually above 3 m. It is well adapted to sites providing an appreciable amount of temporary storage above the inlet. It may also be used in connection with relatively low leads.

C. Advantages: For high heads, it requires fewer materials than a drop spillway. Where an appreciable amount of temporary storage is available, the capacity of the spillway can be reduction of discharge results in a lower peak channel flow below, and can be favourable factor in downstream channel grade stabilization and flood prevention.

D Limitations : Small drop inlets are subjected to blockage by debris. They are limited to locations where satisfactory earth embankment can be constructed.

E.Materials: The inlet of a drop inlet spillway may be of plain concrete, reinforced concrete blocks, masonry or pipe. The barrel may be of reinforced concretes, concrete or clay tile or corrugated or smooth metal pipe have water tight joints.

3.6.11.12 Chute spillway

A chute spillway is an open channel with a steep slope, in which flow is carried at supercritical velocities. It usually consists of an inlet, vertical curve section, steep-sloped channel and outlet. The major part of the drop in water surface takes place in a channel. Flow passes though the inlet and down the paved channel to the floor of the outlet.

A. Functional uses.

- Important uses of a drop inlet spillway are listed below:
- To control the gradient in either natural or constructed channel
- To serve as a spillway for flood prevention, water conservation and sediment collection structure.

B. Adaptability: Thebchute, specifically the concrete , is particularly adapted to high over fall. Hwere a full flow structure is required and hwere site conditions do not permit the use of a detention type structure. It may also be used with detention dams, taking advantage of the temporary storage to reduce the required capacity and the cost of the chute.

C. Advantages: It is usually more economical than a drop inlet structure, when large capacities are required.

D. Limitations: There is a considerable danger of undermining of the structure by rodents. In poor drainage location, seepage may weaken the foundation. It must be placed on compacted fill or on undisturbed soil in an abutment.

E.Material: Reinforced concrete is the most widely used and safest material for large chutes, plain concerte and masonry, though not as suitable as reinforced concrete, can also be used.

3.6.11.13 Slope stabilization measures

- Diversion Drains
- Diversion drain is provided above the head of the slide or mined area, 3 to 5 m uphill side, to drain off the water safely away from the unstable area. A suitable grade is provided to the diversion drain, preferably around 0.5%.

3.6.11.14 Contour Vegetative Wattling

Wattling is a method of breaking the length of slope into shorter portion by providing contour wattles at 3 to 5 interval up to 33% slope. Trenches 0.3m wide and 1m deep are dug up on contour and filled with brushwood bundles (5-6 cm diameter) lying horizontally. On the downhill side of the trenches, posts of species whichsprouts on planting are placed at 100-125 cm spacing. Example – Erythrina suberosa, Vitex negundo, Ficus infectoria, Lannea coromandelica etc.. if posts of the said species are not available, posts of any other hardwood species can be used. The trench is then filled back with dug up earth till about 10 cm from the ground level. The posts are woven around with locally available shrubs up to about 20 cm above the ground level.

These are now live contpur wattles and they obstruct movement of debris and allow runoff to pass through. These are preferred on fragile slopes where soil working for trenching is difficult.

Mulching and Planting:-The slide face in the inter wattle area or the inter trench area is further protected by spreading a thick layer of locally available grasses over the area. Wooden peg and binding wire can be tied to prevent displacing of mulch out of position.Recently geo-textiles (natural/synthetic) have also been used for suchpurposes to support mulches and help initial establishment of plantation. Some of the grass may include *Chrysopogon fulvus, Tripsacum laxum, Cymbopogon spp, Pennisetum cladestinum, cynodon dactylon, Saccharum spp etc*. In between the

trenches, sowing / planting with the local species of grasses and shrubs and easy to establish with quick growth may be planted to provide reinforced protective cover over the slide face. The common species may *include Acacia spp, Eucalyptus, Bombax ceiba, Lannea grandis, Erythrina spp, Terminalia spp, Cassia fistula.* Etc.

Brush Layering:-

The use of rooted layers is one of the best methods to stabilize loose rock slopes. Fresh, green cutting and rooted plants are layered on 1-1.5 m wide berms on the face of the slope. The berms should have an angle of inclination (sloping up) of 10-20% to the outside and are dug out by hand or machine. Whenever there is a risk of slope failure, ditches should only be dug in short segments. The plants are placed close together and the tips or the leafy ends should be allowed to protrude slightly beyond the face of the slope.

Rooted and unroofed plants should be used as vegetation and these should be resistant to rock fall and rubble and have the ability to produce adventateous root systems. The plants are buried with the materials from the next ,above berm,so that 15-20 cm of the tips protrudes. Vertical spacing between layers is dictated by the erosion potential of the slope and may be between 1 and 2 m.

Vegetative stone wall:-

Vegetated stone walls are useful for the stabilization of slope toes or steep slope cuts. They are flexible, permeable and durable and can be adopted to every slope angle. During the building of the stone wall, live plants are placed into the joints between the stones so that they reach into the soil behind the stone.

The joints must be filled with soil material to ensure plant growth.Green Ficus branches and rooted plants, which have ability to produce adventitious rooting system, should be used as vegetarian The branches should not protrude from the wall more than 10cm to prevent desiccation. Additionally, a greening with hydro seeding is possible.

Vegetative gabion:-

Vegetative gabion is used to stabilize slopes and toes where a lot of smaller stones are available. They are constructed with a wire mesh that is filled with coarse gravel or smaller stones,earth,live cutting and container plants. To ensure that the plants are covered with material. It is necessary to lift the mesh and shake it to settle the gravel.

The plants should protrude slightly beyond the face of the gabion but not more than 10 cm to prevent desiccation. Finally, the wiremesh is pulled together and shut with wire. Moreover vegetated gabions are a fast and simple construction to secure wet slopes because they are elastic and improve drainage through plant transpiration. Root systems form a mat that strengthens the soil and removes excess slope moisture.

Check Dams:-

First order gullies / channels receiving small quantities of runoff can be stabilized by temporary check dams (loose masonary,brush wood, log wood check dam). The gabion check dams may be constructed in middle and lower reaches of the gullies / channels for retention of debris and soil accumulation without ponding. The debris carrying capacity within the inter structure reach reduces due to reduction in

channel gradient.Gabion structures are preferred in soil conservation works as they are

a. Flexible (bend without breaking)

b. Porous

c. Stable

d. Economical, as compared to cement structures

Retaining Wall:-

A retaining wall works as revetment on steep slopes near the toe i.e. lower bank in protecting bank from erosion or deep cut on road side. It acts as a toe wall. as a rule of thumb, for gabion structures the bottom width is kept 2/3 the height for walls up to 6m in height with 1 m top width and for stone wall it may be kept a minimum one third of the height. When there is surcharge, a 2m top width may be adapted.

Stream Bank Protection:-

The most common measures are given below

Spurs:-

Spurs are commonly used for stream bank erosion control spurs are structures constructed at an angle to the stream flow, extending from the bank into the stream. Their main functions are to guide the stream flow along a desired alignment and to prevent bank erosion. A well designed series of spurs build along an eroding bank will, firstly, check the erosion and secondly induce siltation in between the spurs. The silted banks may be put under perennial plantations subsequently.

Retards:-

The retards sever the purpose of dampening stream velocity sufficiently near the bank to prevent erosive velocity sufficiently near the bank to prevent erosion of the banks or scour its toe by inducing deposition. There are three types of retards.

Live hedges:-

Live hedges are commonly employed in small streams successfully. Shoots of *Ipomea carnea, Arundo donax, jatropha curcas etc*. may be planted in trenches (60cm wide) to serve as live hedges. *Arurod donax* has very strong rood and shoot systems to resist the flood flows.

Jacks

Jacks are wooden posts of 8 cm dia and 2 to 3 m in length, which are placed in series along the eroding bank and are tied together.

Jetted Posts:-

These are green posts of 2 to 2.5m in length and 6 to 12cm dia which are erected along the actively eroding banks in two rows, 1.0m apart. Fuel, fodder, fibre and even horticultural plantations can be raised in the reclaimed lands along the banks of the torrents.

Drainage channels / gullies in the arable and non-arable lands, natural waterways or streams are different forms of drainage line in a watershed. These drainage lines / systems are the carriers of runoff and sediment in a watershed. Network of these gullies, if not controlled or stabilized, may go on extending and render adjoining arable or forest lands degraded. Drainage Line Treatments (DLT) are therefore necessary for reducing the channel gradient (or bed slope) in order to reduce flow velocity, protect banks/side slopes from undercutting (or scouring) and protect adjoining lands and forest plantations. DLT forms a major component of any watershed development project.

3.6.11.15 ARTIFICIAL RECHARGE METHODS

3.6.11.15.1 Percolation ponds:-Percolation ponds are small storage structures constructed across natural streams and nalas to collect spread and impound surface runoff to facilitate infiltration and percolation of water into the sub-soil for augmenting ground water recharge.

The site should have highly porous soil and sites with heavy soils or impervious strata should be avoided. There should be a number of irrigation wells in the zone of influence up to about 1 km from the pond to benefit from the ground water recharge.

The ponds may be designed to store about one-third of the annual water yield from the catchments and 1 ½ to 2 fillings during the monsoon are assumed.

3.6.11.15.2 Sub-surface water harvesting pond

Some specific locations in the valley portions of undulating topography in the hilly region yield sub-surface runoff due to different monolith layers of soil profile. This provides an ample scope of harvesting sub-surface flow, which is free of sediments.

Constructing diaphragm ponds and / or sub-surface barriers to arrest and store sub-surface runoff for storage and recycling can achieve this.

Springs are the manifestations of the ground water hydrology of hilly regions.

There are small or large springs depending upon the degree of concentration and seasonal or perennial springs in nature depending upon the whether the supply is variable or constant.

3.6.11.15.3 Sunken wells

Smaller shallow wells from 2 to 3 m deep with 2 to 3m diameter, which has to construct where the springs or sub surface flow is available. The subsurface water can be harvested and can be used for irrigation.

3.6.11.15.4 Sunken ponds:-

These pits are made to capture rainwater for rechargeing ground water. These are usually created in small gullies where sediment discharge is less.

It can be also created upstream side of the wells in either common or private land. But, side of the drainages lines on the bunds should be avoided. The depth of pits is limited to 2.00 m, in most cases only 1.00m. The width of pit depends upon gully bottom may vary from 1m to 3m. The length of pit may be 4.00 m or 2 m

diameter in case of circular shape. The excavated soil is deposited in thin layers at downstream leaving provision of surplus arrangements,

- Suitable vegetation is planted around the pit.
- Silt trap is provided at upstream.
- Revetment is provided an inlet side.
- These are usually made in series.

Percolation trenches :-Medium size of trenches with the length of 4 to 6 m, width of 0.5 to 1 m and depth of up to 1 m can excavate at up streamside in common and community lands. These trenches will recharge the ground water at down streamside.

3.6.11.15.5 Permanent structures

Permanent gully control structures are used in medium to large gullies carrying more runoff, especially in the lower reaches. Gully heads are generally steep and may even have almost vertical fall.

If the fall or drop at gully head is limited to 3 or 4 m straight drop structure is recommended to control gully head.

If the fall is more than 3 or 4 m and no impounding of water exist on upstream of the gully head, chute spillway is recommended.

The site with appreciable amount of temporary storage and a drop of over 3 m, may be provided with drop inlet or pipe spillway where satisfactory earth embankments or earthen gully piugs can be constructed.

3.6.11.15.6 Planting

The blank area which has least chance of restocking through promotion of existing growing stock, shall be covered through planting. Choice of species for planting shall be based on its suitability to the site, need of the local people and easy propagation. Though emphasis shall be given on indigenous species but NTFP, fruit bearing, medicinal plant species shall be preferred alongwith bamboo, the poor man's timber. Generally species like Asana, Arjuna, Mahula, Bamboo, Teak, Khaira, Babool, Karanja, Amla, Sirisa, Bija, Champa etc. are suitable for different areas proposed in this working circle. In the areas close to villages Ficus species and fruit bearing species like Mango, Jackfruit, Tamarind, Mahula, Karanja, Neem, Kusum and others shall be tried. On much eroded and degrades sites species like Acacia catechu, Acacia leucophloea, Zizyphus species, Aegle marmelos, Babul and Agave shall be tried along bunds and gullies. The species described above are only indicative; the particular species shall be specified while preparing treatment plan. Apart from that, the treatment of some problematic sites is furnished below

Table 3.5

Species suitable for problematic sites

Site	Measure to be taken	Species to be planted
Ravine	1. Soil and water conservation measures 2. Full protection from grazing and fire 3. Safe disposal of run off	Dalbergia sissoo, Albizzia lebbeck, Prosopis juliflora, Acacia catechu, Acacia niloteca, Azadirachta indica,

	4. Grassland development	Agave Americana, Agave sisalana, Eulaliopsis binata.
	5. Afforestation	
Laterite Soil	1. Soil and water conservation measures	Dendrocalamus strictus, Madhuca indica, Acacia auriculiformis,Bombax ceiba, Soymida febrifuga, Cleistanthus collinus, Albizzia lebbek, Agave species, Cassia siamea, Hardwickia binata, Azadirachta indica, Acacia nilotica, Acacia leucophloea, Derris indica, Dalbergia sisoo, Tamarindus indica, Eulaliopsis binata, Ailanthus excelsa, Acacia catechu.
	2. Full protection from grazing and fire	
	3. Afforestation	
Skeletal Soils	1. Contour bunding, trenching	
	2. Afforestation	
	3. Soil and water conservation measures	
	4. Protection from grazing and fire	
	5. Showing grasses	
	6. Seed dibbling / Afforestation	
Water logged areas	1. Preparation of mounds	Anthocephalus chinensis, Syzygium cumini, Terminalia arjuna, Bombax ceiba, Lagerstroemia speciosa, Dalbergia sisoo, Derris indica, Acacia nilotica.
	2. Planting of tall plants	
	3. Application of anti termite chemicals	
	4. Early planting	
	5. Drainage	

(Source: Handbook of Afforestation Technique by Sri R.C.Ghosh)

3.6.11.15.7 Sowing / Planting of Grasses

Apart from the tree species, the grasses are found more suitable for the exposed soils in eroded areas due to their soil binding capacity. Such grasses can be raised either through planting or dibbling of seeds or both depending on the degree of eroded condition of the site. However, a list of such grasses is furnished below.

Table No. 3.6

Important Grass Species

Species	Type	Habitat Factor
Aristida setacea	Fodder	Brown soil, Sandy loam with gravel, PH 7.0
Arundinella bengalnensis	Fodder	Yellowish brown soil, Sandy loam, PH 6.2
Arundinella nepalensis	Fodder	Slopes having good drainage and permeability, Sandy loam PH 6.5
Bothriochloa intermedia	Fodder	Grows on a variety of soil in subtropical conditions in level and hilly topography.
Cenchrus ciliavis	Fooder	Grows in semi arid zone and sandy soil, PH 7.5 to 7.7
Chrysopogon aciculatus	Fooder	It is a creeping rhizome and prefers sandy loam, acidic soils on level or moist slopes, PH 5.1 to 6.1 can withstand heavy grazing, cannot survive on dry stones and sandy soils. Promising species for stabilisation of embankments.
Chrysopogon fulvus	Fodder	Prefers hilly gravely, black cotton soils and red soils and low level of moisture.
Chrysopogon gryllus	Fodder	Strong acidic soil on high hills, PH 4.2
Cymbopogon coloratus	Non-fodder	Occurs on a variety of sites of dry areas having gravely to sandy loam exposed rocks, acidic to neutral soil and hill and plains.
Cymbopogon jwarancusa	Non-fodder	Prefers level to hilly topography, sandy and rocky soil, PH 6.5 to 7.5
Cymbopogon martini	Non-fodder	Wide distribution, PH 5.2 to 7.0
Cynodon dactylon	Fodder	Wide distribution, prefers moist and level land, withstands moderate grazing and trampling.

Dactyloctenium sindicum	Fodder	Dry areas, prefers slightly alkaline soil.
Demostachya bipinnate	Fodder	Prefers semiarid and arid condition, can tolerate PH up to 9.5
Dichanthium annulaltum	Fodder	A species of level and prefers sandy loam to loamy soil moist areas.
Dichanthium caricosum	Fodder	A species of level and prefers sandy loam to loamy soil moist areas.
Dimeris fuscescens	Fodder	Prefers good drainage and permeability, PH 4.2
Eleusine compressa	Fodder	A grass of arid region.
Eragrostis coarctata	Fodder	A xerophytic grass
Eremopogon foveolatus	Fodder	Grows in skeletal soil, PH 6.6 to 7.5
Eulalia trispicata	Fodder	Prefers deep soil and low land.
Eulaliopsis binata	Non-fodder	Can grow in slopes up to 50% hot dry localities, withstand forest fire.
Heteropogon contortus	Non-fodder	Shallow eroded, black or red soil, PH 6.8 to 7.0
Imperata cylindrica	Fodder	Prefers moist swampy areas, PH 4.0 to 7.5
Ischaemum indicum	Fodder	Low lying wet area, heavy black soil, PH 7.1 to 8.5
Ischaemum timorense	Fodder	Damp land.
Iseilema species	Fodder	Low lying area, black soil, PH 6.1 to 7.4
Lasiurus species	Fodder	Brown sandy soil, PH 8.5, cannot stand grazing.
Leersia hexandra	Fodder	Prefers low lying lands, semi aquatic condition.
Narenga porphyrocoma	Fodder	Level land with good drainage and permeability.
Neyraudia regnaudiana		Favors moist sandy loam area, PH 5.0
Paspalum conjugatum		Moist area.
Pharagmites karka		Low lying land, PH 4.5
Pseudanthistria hispida		Clay soil with good drainage, PH 6.0
Saccharum species		Mesophytic habitat
Sclerostachya fusca		Clay soil in depression of Sal forest, PH 4.75
Sehima nervosum	Fodder	Wide range of soil, deep soil, PH 6.5
Sporobolus indicus	Fodder	Withstand inhospitable soil, drought, PH 4.5
Sporobolus narginatus	Fodder	Level sandy tract of arid zone.
Themeda triandra	Fodder	Gravelly soil on hills, PH acidic to neutral.
Vetiveria zizaniodes	Non-fodder	Ill drained land where water table is high. Soil sandy loam to clay, PH 4.0 to 7.5

(Source: - The grass cover of India by P.N.Dabaghao and R.A.Shankar Narayan, Indian Council of Agricultural Research)

Similarly basing on soil factor, some grasses have been short listed for soil conservation measure basing on the findings of ICAR. The said shortlist is furnished below.

Table 3.7

Grasses suitable for the Division

Habitat Factor	Species	Type
Red Soil	Chrysopogon fulvus	Fodder
Black Cotton Soil	Chrysopogon fulvus	Fodder
Heavy Black Soil	Iseilema species	Fodder
Skeletal Soil	Eremopogonfoveolatus	Fodder
Deep Soil	Sehima nervosum	Fodder
Sandy Soil	Heteropogon contortus	Non-Fodder
Eroded Soil	Cymbopogon martini	Non-Fodder
WideRange of Soils	Cynodon dactylon	Fodder

3.6.11.16 Protection against Biotic interference

It is the most crucial component of rehabilitation measures. Past experience reveals that though different operations are being carried out successfully but the desired out come is not obtained due to lack of measures to restrict the degradation by reducing the biotic interference to barest minimum. So adequate protection is essential to accomplish this task. It is further observed that proper protection has enhanced the quality and quantity of the existing crops. This can be done combinedly with the involvement of VSS and engagement of watchers up to five years from the year of initiating rehabilitation work. At least one watcher per 1 Sq.Km of area shall be engaged to safe guard against fire, grazing, illicit removal and other biotic interference.

3.6.12 Regeneration

Gap planting shall be carried out whenever the blank / gap is a patch of minimum 0.2 ha. (0.5 Ac.) of area. Each such gap shall be assigned a serial number, which should be indicated by a metallic tag to be hung on an adjacent tree. The number of seedlings planted in the gaps should also be mentioned in the Plantation Journal. The Plantation Map in 1:50,000 scale should indicate the approximate location of each gap.

3.6.13 Associated regulations and measures:-

Other Regulations: -

Besides the prescriptions provided in the foregoing paras, some other regulations are necessary to augment the former for effective results. These are the following: -

Fire Protection: - During summer season, the forest crops are susceptible to fire hazard. So it is essential to protect the crop from fire by maintaining the fire lines on the boundaries of each coupe during the month of January since the incident of fire is usually started during February in Kalahandi. The regeneration crop particularly ground flora and the pole crops to some extent are mostly the victim of fire which is almost the ground fire in this locality. In addition to the crop, the soil condition is also deteriorated due to fire. It becomes hard, impermeable and infertile. So it is necessary to prevent the fire. The Orissa Forest Fire Protection Rules, 1979 and provisions of Chapter-XVII of Orissa Forest Department Code shall be followed. Further firewatchers should be engaged from month of February till June. VSS wherever existing shall also be motivated to prevent fire as well as to take instant steps to extinguish the same if occurs. The engagement of watcher shall form an integral component of subsidiary silvicultural operation.

Grazing: - Grazing is another obstacle for regeneration and further improvement of crop. So the coupe shall be closed for grazing at least for 5 (five) years including the year of working Grazing will be regulated according to the carrying capacity in other areas on basis of rotation. The watcher should be engaged to ensure the strict prohibition on grazing within the prescribed period mentioned above. The VSS wherever functioning shall also be involved in this process.

Perimeter Barriers: - Perimeter barriers to keep off biotic interference in the form of hedge, stone walling or trench fencing should be attempted as far as possible.

Resource Mobilisation: - The Divisional Forest Officer shall make efforts to secure funding from all possible sources (e.g. non-plan sector, State and Central Plan sector, District Plans Schemes) to ensure that sufficient funds to implement prescription of this working circle are available. He shall also include requirement of funds for this purpose in his annual budget and estimates.

Record Keeping: - The journals and other records will be maintained for each coupe at range level. The copy of such journal shall be submitted to Division Office for reference and record. In addition necessary entries shall also be made in respective compartment history file indicating the details of operations carried out. The observations on the results should also be recorded.

CHAPTER-4

PLANTATION WORKING CIRCLE

4.1 Name of working circle:-

The name of the working circle is Plantation Working circle.

4.2 General Constitution of working circle: -

An exclusive plantation working circle has been prescribed in this plan. The blocks having permanent blank, devoid of root stock, lacking natural regeneration due to heavy biotic pressure and requiring artificial/aided regeneration have been included in this working circle in addition to some old plantation which are in need of tending operation for further development. Accordingly compact blank patches more than 10ha. in size, scattered gap inside natural/plantations raised in previous plan periods under different schemes including Village Forest and existing old plantations having more than 40% canopy density in need of tending operation for further improvement/enrichment are also included in this working circle. The total area allotted to this working circle comes to **7133.15** ha. The abstract of area allotted to this Working Circle is given in Table No 4.1.

Table 4.1

Forest Range Wise Plantation Working Circle Area

Sl. No.	Name of Range	Forest Block	Type	Plantable in Ha.	Planted in Ha.	FRA Rejected Areas/Encroached Area in Ha.	Total in Ha.
1	Bhawanipatna	Alma RF	RF		30		30
2	Bhawanipatna	Brahmani RF	RF	20	280		300
3	Bhawanipatna	Dhangada dhangadi RF	RF		50		50
4	Bhawanipatna	Dhanupanchan RF	RF	20	0		20
5	Bhawanipatna	Kanamanjur RF	RF		255		255
6	Bhawanipatna	Kutrukhai RF	RF	10	0		10
7	Bhawanipatna	Madhakhola (B) RF	RF		65		65
8	Bhawanipatna	Pordhar RF	RF		20		20
9	Bhawanipatna	Sinang RF	RF		185		185
10	Bhawanipatna	Bhalu RF	RF		35		35
11	Bhawanipatna	Kadalighati RF	RF		375		375
12	Bhawanipatna	Madhakhola (A) RF	RF		48		48
13	Bhawanipatna	Gundi PRF	PRF		260		260

14	Bhawanipatna	Thuapadar Gundi DPF	DPF		45		45
15	Bhawanipatna	Adastala	Proposed DPF		50		50
16	Bhawanipatna	Baringdar	Proposed DPF		200		200
17	Bhawanipatna	Batua	Proposed DPF		300		300
18	Bhawanipatna	Jhikimi B	Proposed DPF		100		100
19	Bhawanipatna	Admunda VF	VF		5		5
20	Bhawanipatna	-do-	VF		5		5
21	Bhawanipatna	-do-	VF		10		10
22	Bhawanipatna	Matia VF	VF		10		10
23	Bhawanipatna	Bhejipadar VF	VF		8		8
24	Bhawanipatna	Jajaldeipur VF	VF		5.1		5.1
25	Bhawanipatna	Jhikimiki VF	VF		3.28		3.28
26	Bhawanipatna	Dumerbahal VF	VF		8.044		8.044
27	Bhawanipatna	Khairbhadi VF	VF		3.6		3.6
28	Bhawanipatna	Gopinathpur VF	VF		2		2
29	Bhawanipatna	Khairmal VF	VF		5		5
30	Bhawanipatna	Sarlanji VF	VF		8.5		8.5
31	Bhawanipatna	Bramhani VF	VF		6		6
32	Bhawanipatna	Jhikimiki VF	VF		10		10
33	Bhawanipatna	Upper Gochhakola	CA		436		436
34	Bhawanipatna	Dungripadar	Proposed VF		22		22
35	Bhawanipatna	Suben	Proposed VF		22		22
36	Bhawanipatna	Durla	Proposed VF		11		11
37	Bhawanipatna	Sagram	Proposed VF		22		22
38	Bhawanipatna	Kuhura	Proposed VF		33		33
39	Bhawanipatna	Goilibindha	Proposed VF		11		11
40	Bhawanipatna	Saked	Proposed VF		22		22
41	Bhawanipatna	Kendugupka	Proposed VF		11		11
42	Bhawanipatna	Jhikimi A	Proposed VF		17		17
43	Bhawanipatna	Salepali	Proposed VF		22		22
44	Bhawanipatna	Dambarupadar	Proposed VF		11		11
45	Bhawanipatna	Bhejapadar	Proposed VF		22		22
46	Bhawanipatna	Kandakhal	Proposed VF		11		11
	Range Total			**50**	**3060.52**	**0**	**3110.52**
47	Kegaon	Adabari RF	RF		20		20
48	Kegaon	Bisibarni RF	RF		20		20
49	Kegaon	Chura (A) RF	RF	20	1295		1315
50	Kegaon	Chura (B) RF	RF	10	490	11.8	511.8
51	Kegaon	Daka RF	RF	20	50	7.2	77.2

52	Kegaon	Ghatual RF	RF		65		65
53	Kegaon	Kumkot RF	RF		243		243
54	Kegaon	Lini RF	RF		20		20
55	Kegaon	Nageswar RF	RF		30	26.5	56.5
56	Kegaon	Jayantpur DPF	DPF		40		40
57	Kegaon	Kankeri (A) DPF	DPF		30		30
58	Kegaon	Patramara DPF	DPF		50		50
59	Kegaon	Goilbindha DPF	DPF		80		80
60	Kegaon	Banakdei DPF	DPF		30		30
61	Kegaon	Baijalpur DPF	DPF		20		20
62	Kegaon	Daspur	VF		20		20
	Range Total			**50**	**2503**	**45.5**	**2598.5**
63	Kesinga	Bazargarh RF	RF	40	500		540
64	Kesinga	Nangalguda RF	RF	10	65		75
65	Kesinga	Turlakhaman DPF	DPF		10		10
66	Kesinga	Jamjore VF	VF		6		6
67	Kesinga	Brahmani VF	VF		10		10
68	Kesinga	Jamjore VF	VF		10		10
69	Kesinga	Dendrobahali VF	VF		3.6		3.6
70	Kesinga	-do-	VF		5		5
71	Kesinga	Khairmal VF	VF		3		3
72	Kesinga	Palam VF	VF		2		2
73	Kesinga	Matia VF	VF		2		2
74	Kesinga	Kurlupada VF	VF		1.96		1.96
75	Kesinga	Rengali VF	VF		11.36		11.36
76	Kesinga	Balsi VF	VF		9.2		9.2
77	Kesinga	-do-	VF		13.64		13.64
78	Kesinga	Kumarpur	Proposed VF		22		22
79	Kesinga	Surujore	Proposed VF		11		11
80	Kesinga	Kantesir	Proposed VF		22		22
81	Kesinga	Ghantsola	Proposed VF		11		11
	Range Total			**50**	**718.76**	**0**	**768.76**
82	M.Rampur	Dengen RF	RF	20	0		20
83	M.Rampur	Sadel (A) RF	RF	10	0		10
84	M.Rampur	Bhatel RF	RF		5		5
85	M.Rampur	Podgudi PRF	PRF	10	100		110
86	M.Rampur	Gochhadengen PRF	PRF		25		25
87	M.Rampur	Kutigudum PRF	PRF		20		20
88	M.Rampur	Chandanpinda DPF	DPF		125		125
89	M.Rampur	Pipalbhadi VF	VF		6.22		6.22
90	M.Rampur	Saling VF	VF		5.2		5.2

91	M.Rampur	Kuten VF	VF		0.948		0.948
	Range Total			**40**	**287.37**	**0**	**327.37**
92	Narla	Kamei RF	RF	20	0		20
93	Narla	Kerbandi RF	RF	20	35		55
94	Narla	Narla RF	RF		119		119
95	Narla	Sripali RF	RF		30		30
96	Narla	Karladangar RF	RF	10	0		10
97	Narla	Porgel Extension PRF	PRF	10	30		40
98	Narla	Sikerguda PRF	PRF		15		15
99	Narla	Nuapada	Proposed VF		11		11
100	Narla	Chapatkhanda	Proposed VF		28		28
Range Total				**60**	**268**	**0**	**328**
Division Total				**250**	**6837.65**	**45.50**	**7133.15**

4.3 General Character of Vegetation: -

- The barren areas having negligible vegetation or weed growth are in need of complete artificial regeneration.

- Established old plantations having more than 40% density in bare need of tending operation to boost its growth for maturity ultimately leading to final harvest.

- Some plantations raised in previous plan periods having scattered opening susceptible for invasive weed growth are required to be restocked for enrichment both in density & quality will be treated with gap planting along with ancillary silvicultural operation.

4.4 Felling series,cutting sections and JFM areas:-

Not required

4.5 Blocks,compartments and JFM areas (marked on GIS based maps):- The total area allotted to this working circle is 7133.15 ha. Blocks and Compartment allotted to **Planting Series under** this Working Circle is given in Table No.4.1.

Table 4.2 Plantation Series

Name of the Range	Name of the Forest Block	Legal status	Total area of Forest Bock	Area under plantation under this Circle
Bhawanipatna	Dhanupachanan	RF	726	20
	Kutrukhai	RF	314.97	10
	Brahmani	RF	5846.89	20
Kegaon	Chura A	RF	6898.52	20
	Chura B	RF	2349.34	10
	Daka	RF	329.58	20
Kesinga	Bazargarh	RF	7721.22	40
	Nangalguda	RF	1488	10

M.Rampur	Degen	RF	476	20
	Sadel(A)	RF	273	10
	Podgudi	PRF	793.52	10
Narla	Porgel Extension	RF	3222	10
	Kamei	RF	156	20
	Kerbandi	RF	1231	20
	Karladangor	RF	349	10
TOTAL				**250**

4.6 Special Objectives of Management: -

The following special objectives have been set for this working circle. All plantable both block & gap, tendable & restorable area included in this working circle shall be planted/tended within 10years synchronizing the plan period.

I. Block plantations to be raised in blank area identified in different forest blocks with site specific treatment plan.
II. Seedlings of 6month old of indigenous species to be planted.
III. The plantation area shall be provided with suitable soil moisture conservation measures.
IV. All plantations shall be maintained for 3 years with proper watch and ward.
V. To recover eco-system biodiversity thereby creating space for small wildlife and aviary population.
VI. To create space for carbon stocks thereby creating carbon sink.

Within the ambit of general objects of management as described earlier, the following special objectives have been set for this overlapping working circle.

1. To **P**romote the growth of existing plantation through suitable tending/thinning operations.
2. To **L**essen the biotic interference to the barest minimum with the active participation of VSS and ensure proper protection.
3. To **A**dopt suitable soil and moisture conservation measures to enhance the moisture regime of the area for nourishment and improvement of the plantation.
4. To **N**urture the suppressed plants till reaching the desired growth.
5. To **T**reat the failure blank patch with planting of older, tall and fast growing seedlings suitable to the site.

4.6.1 Analysis of the crop:-

The plantations included in this working circle have inadequate stocking for which no enumeration has been carried out. These plantations are thinly populated due to continued biotic interference coupled with neglect in general after the

maintenance work as per the provision of the cost norm is over. However, the plantations are almost Teak plantations which are economically and commercially valuable. Hence all these plantations require complete protection measures alongwith tending operations to boost their growth.

4.6.2 Silvicultural System: -

Since the area of this working circle are to be treated under 4 broad categories, site specific silvicultural system suitable to different category have been prescribed under

4.6.2.1 Planting Series area:

Only block plantation will be taken up on compact blank area requiring site preparation and artificial regeneration through planting. No yield is expected. Further plantations are to be raised afresh & maintain as per prescription of Plantation Manual considering the site characteristics in to consideration. The DFO is required to prepare a site specific micro plan before executing this operation. However prescription in general has been prescribed.

Table No.4.3
Planting Series

Year	Annual Tending Unit No	Range	Name of Forest Block	Compartment Area in ha	Coupe Area in Ha.
2021-22	I	Bhawanipatna	Kutrukhai	10	10
2022-23	II	Bhawanipatna	Dhanupachanan	20	40
		Kegaon	Chura A	20	
2023-24	III	Kegaon	Chura B	10	20
		M.Rampur	Sadel A	10	
2024-25	IV	Kegaon	Daka	20	30
		Kesinga	Nangalguda	10	
2025-26	V	M.rampur	Dengen	20	30
		Narla	Porgel Extension	10	
2026-27	VI	M.Rampur	Podgudi	10	30
		Narla	Kamei	20	
2027-28	VII	Narla	Kerbandi	20	20
2028-29	VIII	Narla	Karladangor	10	10
2029-30	IX	Bhawanipatna	Brahmani	20	20
2030-31	X	Kesinga	Bazargarh	40	40
TOTAL					250

4.6.2.2 Tending Series:

Old & established plantations having more than 40% stocking requiring operations to boost growth for maturity leading to final harvest will be treated exclusively through tending operation for which detail prescription has been prescribed under that series.

4.6.2.3 Treatment For Existing Plantations of Last Working Plan Period:

The plantations raised during outgoing plan period as per the list in **Appendix XLIV** were checked. These plantations are grouped into two categories. Plantation having more than 40%

survival is kept under category A as detailed in **Table No.4.4** with the prescription of tending operation for further growth to become harvestable.
Plantations having less than 40% survival is furnished in **Table No.4.5** with the prescription of restocking the barren patches. Old plantations raised prior to the outgoing plan will be verified by the Divisional Forest Officer during the first year of implementation of this plan through responsible field functionaries to treat those plantation as per the silvicultural requirement. The plantation raised prior to this working plan overlaps over the rest working circles for which no separate prescription has been formulated. Tending operation is to be carried out over an area of **6020 Ha**. situated in the respective forest blocks and year of operation is prescribed in the following table.

Table No.4.4
Tending Series (Survival > 40%)

Year of Operation	Year Of Plantation	Annual Tending /Unit No.	Range	Name of the Plantation Site	Forest Block Name	Status	Tending area in Ha.	Total Area in Ha.
2021-22	2004-05	I	Bhawanipatna	Dengen, Upper Gochhakhola	Upper Gochhakhola	CA	436	676
	2007-08		Kegaon	Chura	Chura A RF	RF	50	
	2008-09		Bhawanipatna	Dalguma	Alma RF	RF	30	
	2008-09		Narla	Mahinal	Porgel Extn. PRF	PRF	30	
	2008-09		Kesinga	Badmal	Bazargarh RF	RF	20	
	2008-09		Kegaon	Goindimunda	Goilbindha	DPF	10	
	2008-09		Kegaon	Kanduljhar	Kumkot RF	RF	20	
	2008-09		Kegaon	Baijalpur	Adbari RF	RF	20	
	2008-09		Bhawanipatna	Ulikupa	Madakhola B RF	RF	30	
	2008-09		Bhawanipatna	Dambarupadar	Dh. Dhangdi RF	RF	30	
2022-23	2008-09	II	Kesinga	Kantesir	Bazargarh (N) RF	RF	25	480
	2008-09		Kesinga	Tulangpadar	Bazargarh (N) RF	RF	25	
	2008-09		Kesinga	Tundla	Bazargarh	RF	20	
	2008-09		Kegaon	Bianrpada	Goilbindha	DPF	20	
	2008-09		Kegaon	Bhatipada	Lini	RF	20	
	2008-09		Bhawanipatna	Bhalu RF	Bhalu RF	RF	25	
	2008-09		Bhawanipatna	Kadalighati RF	Kadalighati RF	RF	25	
	2008-09		Kegaon	Chura A RF	Chura A RF	RF	20	
	2009-10		Bhawanipatna	Herateka	Kanamajur RF	RF	100	
	2009-10		Bhawanipatna	Karkata	Kadalighati RF	RF	100	
	2009-10		Kesinga	Bijkhaman	Bazargarh (N) RF	RF	100	
2023-24	2010-11	III	Bhawanipatna	Singhjharan	Sinang RF	RF	125	758
	2010-11		M.Rampur	Chandanpinda	Chandanpinda DPF	DPF	125	
	2010-11		Kegaon	Kalipur	Chura A RF	RF	125	
	2010-11		Bhawanipatna	Pairmal	Kanamanjur RF	RF	115	

	2010-11		Bhawanipatna	Tagankona	Gundi PRF	PRF	60	
	2010-11		Bhawanipatna	Ampada	Sinang RF	RF	60	
	2010-11		Bhawanipatna	Talabrahmani	Madakhola A RF	RF	48	
	2010-11		Bhawanipatna	Jamkona	Th.Gundi	DPF	30	
	2010-11		Bhawanipatna	Podmundi	Brahmani	RF	20	
	2010-11		Kegaon	Jamgudabahali	Chura A RF	RF	50	
2024-25	2010-11	IV	Kegaon	Karli	Chura A RF	RF	100	922
	2010-11		Kegaon	Kamalabari	Chura A RF	RF	150	
	2010-11		Kegaon	Sanchergaon	Chura A RF	RF	150	
	2010-11		Kegaon	Phatamunda	Chura B	RF	110	
	2010-11		Kegaon	Sialjodi	Kumkote RF	RF	63	
	2010-11		M.Rampur	Gopalpur	Podgudi PRF	PRF	90	
	2010-11		Narla	Samarkanta	Narla RF	RF	104	
	2010-11		Narla	Sikerguda	Sikerguda PRF	PRF	15	
	2010-11		Narla	Kurmel	Narla RF	RF	15	
	2010-11		Kesinga	Kumarpur	Bazargarh (N) RF	RF	50	
	2010-11		Kesinga	Salebhata	Bazargarh (N) RF	RF	35	
	2010-11		Kesinga	Kinerkela	Bazargarh (N) RF	RF	40	
2025-26	2010-11	V	Kesinga	Taparang	Bazargarh (S) RF	RF	35	674
	2010-11		M.Rampur	Kachhadengan	Gochadangen	PRF	25	
	2011-12		Kesinga	Kumarpur	Kumerpur VF(propsoed)	Proposed VF	22	
	2011-12		Kesinga	Surujore	Surujore VF(proposed)	Proposed VF	11	
	2011-12		Narla	Nuapada	Nuapada VF(proposed)	Proposed VF	11	
	2012-13		Kegaon	Banjipadar	Bisibarni RF	RF	20	
	2012-13		Bhawanipatna	Adastala	Adastala	proposed DPF	50	
	2012-13		Bhawanipatna	Baringdara	Baringdara	proposed DPF	200	
	2012-13		Bhawanipatna	Batua	Batua	proposed DPF	300	
2026-27	2013-14	VI	M.Rampur	Kutigudum	Kutigudum PRF	PRF	20	352
	2013-14		Bh.Patna	Dungripada Donger	Dungripadar	proposed VF	12	
	2013-14		Bh.Patna	Suben Donger	Suben	proposed VF	22	
	2013-14		Bh.Patna	Durla Donger	Durla	proposed VF	11	
	2013-14		Kesinga	Sagram Donger	Sagram	proposed VF	22	
	2013-14		Kegaon	Kuhura Donger	Kuhura	proposed VF	33	

	2013-14		Kegaon	Goilbindha Donger	Goilbindha	DPF	10	
	2013-14		Bh.Patna	Themra	Brahmani	RF	8	
	2013-14		Bh.Patna	Mahagaon	Madakhola B RF	RF	20	
	2013-14		Bh.Patna	Tentulipada	Brahmani	RF	12	
	2013-14		Kesinga	Dampadar	Bazargarh (S) RF	RF	20	
	2013-14		Kegaon	Borguma	Banakdei	DPF	20	
	2013-14		Kegaon	Gandabasa	Kumkot RF	RF	20	
	2013-14		Kegaon	Bhutpada	Goilbindha	DPF	10	
	2013-14		Kegaon	Bordi	Ghatual RF	RF	15	
	2013-14		Bh.Patna	Jhikimiki A	Jhikimi A	proposedVF	17	
	2013-14		Kegaon	Bhutpada	Goilbindha	DPF	10	
	2013-14		Bh.Patna	Kanarla	Th.Gundi	DPF	15	
	2013-14		Bh.Patna	Ulikupa	Madakhola B RF	RF	15	
	2013-14		Kesinga	Bagad	Bazargarh (S) RF	RF	20	
	2013-14		Kegaon	Karangamunda	Nageswar RF	RF	20	
	2013-14		Kegaon	Kankri-A	Kankeri A	DPF	20	
	2013-14		Kegaon	Kankri -A	Kankeri A	DPF	10	
	2013-14		Bh.Patna	Jhikimiki-B	JHIKIMIKI B	Proposed DPF	100	
	2013-14		Kegaon	Goilbindha Donger	Goilbindha	proposed VF	11	
	2013-14		Narla	Chapatkhanda	Chapatkhanda	proposed VF	28	
	2014-15		Kegaon	Purnapani	Kumkot RF	RF	30	
	2014-15		Kegaon	Karlaguda	Chura B	RF	20	
	2014-15		Kegaon	Nuagaon	Chura A RF	RF	20	
	2014-15		Kegaon	Karlaguda	Chura B	RF	10	
2027-28	2014-15	VII	Narla	Dudlu	Kerbandi	RF	30	403
	2014-15		Bh.Patna	Saked	Saked	proposed VF	22	
	2014-15		Kegaon	Goindamunda	Goilbindha	DPF	10	
	2014-15		Kegaon	Baijalpur	Baijalpur	DPF	20	
	2014-15		Kegaon	Jaintput	Jayantpur	DPF	20	
	2014-15		Kegaon	Kholpada	Banakdei	DPF	10	
	2014-15		Bhawanipatna	Fukjodi	Brahamani	RF	10	
	2014-15		Bhawanipatna	Kundugupa	Kendugupa	proposed VF	11	
	2014-15		Kesinga	Turlakhaman	Turlakhaman	DPF	10	
	2014-15		Kesinga	Ghantsola	Ghantsola	proposed VF	11	
	2014-15		Kesinga	Bilat	Nangalguda	RF	50	
	2015-16		Kegaon	Golamunda	Jayantpur	DPF	20	
2028-29	2015-16	VIII	Kegaon	Golamunda	Daka RF	RF	30	550
	2015-16		Bhawanipatna	Bhawanipatna	Brahmani	RF	200	

	2015-16		Bhawanipatna	Baddharpur	Kadalighati R.F	RF	250	
2029-30	2015-16	IX	Narla	Narla	Sripali RF	RF	20	575
	2015-16		Bhawanipatna	Bhawaniptna	Brahmani	RF	15	
	2015-16		kegaon	Golamunda	Goilbindha	DPF	10	
	2015-16		narla	Narla	Sripali RF	RF	10	
	2015-16		Bhawanipatna	Bhawanipatn a	Poddara R.F	RF	20	
	2015-16		Bhawanipatna	Lanjigarh	Gundi PRF	PRF	200	
	2015-16		Kegaon	Golamunda	Chura B	RF	300	
2030-31	2015-16	X	Kegaon	Golamunda	Chura A RF	RF	100	630
	2015-16		Kegaon	Golamunda	Chura A RF	RF	200	
	2015-16		Kegaon	Golamunda	Chura A RF	RF	200	
	2015-16		Kegaon	Golamunda	Chura A RF	RF	100	
	2015-16		Bhawanipatna	Bhawanipatn a	Kumkot RF	RF	20	
	2015-16		M.rampur	M.Rampur	Podgudi PRF	PRF	10	
TOTAL							**6020**	**6020**

4.6.2.4 Operation in Tending Series :

The following major operations are prescribed in general as the tending measures to improve the condition of plantation and enhance its growth. Silvicultural operations like weeding, pruning, thinning and climber cutting are quite necessary for improvement of the crop. However the following works shall be carried out in the annual coupes.

1. Weeding shall be done for the good health of the plantation.
2. Pruning should be done in the plantations to encourage the growth.
3. High stumps should be cut flush to the ground to encourage coppice shoots.
4. Singling out of multiple coppice shoots to retain the most promising one.
5. Cutting up all climbers strangulating the growth of plants.
6. Loranthus attacked branches should be lopped off and moribund trees to be removed.
7. Areas under bamboo plantation should be treated as per the provision of Bamboo Silviculture operation like cleaning of clumps, soil mounding around the clump should be done to facilitate the new shoots and other SMC measures shall be done as per requirement.

4.6.2.5 Plantation Restoration Series:

Plantations with less than 40% stocking are to be treated for restocking through gap plantations coupled with ancilliary cultural operations. The detailed prescription has been prescribed in that series.

As mentioned above plantations having <40% survivals are taken up for restoration. Site specific suitable species should be included for restoration. The Village Forest notified during SIDA are taken under this series to improve the vegetation cover. Restoration operation is to be carried out over an area of 817.652 Ha. situated in the respective forest blocks and year of operation is prescribed in **Table no. 4.5**

Table No. 4.5
Restoration Series (Survival < 40%)

Year of Operation	Year Of Plantation	Annual Restoration/Unit No.	Range	Name of the Plantation Site	Forest Block Name	Status	Restoration Area in Ha.	Total Area in Ha.
2021-22	2011-12	I	Bhawanipatna	Dakibundel	Kanamanjur RF	RF	40	122
	2011-12		Bhawanipatna	Dumal	Dhangada Dhangidi RF	RF	20	
	2011-12		Kesinga	Kantesir	Kantesir	Proposed vF	22	
	2011-12		Kesinga	Dumermunda	Bazargarh (S) RF	RF	20	
	1991-92		Bhawanipatna	Fatkamal G.P	Admunda VF	VF	5	
	1991-92		Bhawanipatna	Fatkamal G.P	Admunda VF	VF	5	
	1991-92		Bhawanipatna	Fatkamal G.P	Admunda VF	VF	10	
2022-23	2011-12	II	Kegaon	Dumuria	Kumkot RF	RF	20	108.1
	2011-12		Kegaon	Barfa	Kumkot RF	RF	20	
	2011-12		Kegaon	Gandbasa	Kumkot RF	RF	20	
	2011-12		Kegaon	Betrajpali	Ghatual RF	RF	25	
	1991-92		Bhawanipatna	Utkela GP	Matia VF	VF	10	
	1991-92		Bhawanipatna	Karlapada GP	Bhejipadar VF	VF	8	
	1991-92		Bhawanipatna	Dadpur	Jajaldeipur VF	VF	5.1	
2023-24	2011-12	III	Kegaon	Kodobhata	Ghatual RF	RF	25	104.924
	2011-12		Kegaon	Rengsapali	Patramara PRF	PRF	25	
	2011-12		Kegaon	Padampur	Patramara PRF	PRF	25	
	2011-12		Kegaon	Pitaguda	Chura B RF	RF	15	
	1991-92		Bhawanipatna	Dadpur GP	Jhikimiki VF	VF	3.28	
	1991-92		Bhawanipatna	Dadpur GP	Dumerbahal VF	VF	8.044	
	1991-92		Bhawanipatna	Deypur GP	Khairbhadi VF	VF	3.6	
2024-25	2011-12	IV	Kegaon	Bodelpali	Chura B RF	RF	10	75.5
	2011-12		Kegaon	Sakripali	Chura B RF	RF	15	
	2012-13		Bhawanipatna	Turpi	Bramhani RF	RF	15	
	2012-13		Kegaon	Lanji	Kumkot RF	RF	20	
	1991-92		Bhawanipatna	Deypur GP	Gopinathpur VF	VF	2	
	1991-92		Bhawanipatna	Deypur GP	Khairmal VF	VF	5	
	1991-92		Bhawanipatna	Medinipur GP	Sarlanji VF	VF	8.5	
2025-26	2012-13	V	Kegaon	Daspur	Chura A	RF	20	98
	2012-13		Kesinga	Turlakhaman	Bazargarh (N) RF	RF	10	
	2012-13		Kesinga	Balbaspur	Nangalguda RF	RF	10	
	2013-14		Bh.Patna	Salepali	Salepali	Proposed VF	22	
	1991-92		Bhawanipatna	Kandel GP	Bramhani VF	VF	6	
	1991-92		Bhawanipatna	Dadpur GP	Jhikimiki VF	VF	10	
	1992-93		Kegaon	Daspur GP	Daspur	VF	20	

2026-27	2013-14	VI	Bh.Patna	Dambarupadar	Dambarupadar	Proposed VF	11	77
	2013-14		Kegaon	Batirmunda	Daka RF	RF	20	
	2013-14		Kegaon	Gandbasa	Kumkot RF	RF	10	
	2013-14		Kegaon	Karmath	Chura B RF	RF	10	
	1991-92		Kesinga	Gokuleswar GP	Jamjore VF	VF	6	
	1991-92		Kesinga	Kandel GP	Brahmani VF	VF	10	
	1991-92		Kesinga	Gokuleswar GP	Jamjore VF	VF	10	
2027-28	2013-14	VII	Bh.Patna	Bhejapadar	Bhejapadar	Proposed VF	22	84.6
	2013-14		Bh.Patna	Kandakhal	Kandakhal	Proposed VF	11	
	2013-14		Kesinga	Singhjharan	Bazargarh (N) RF	RF	25	
	2013-14		Kesinga	Kurlupada	Bazargarh (S) RF	RF	15	
	1991-92		Kesinga	Rupra Road GP	Dendrobahali VF	VF	3.6	
	1991-92		Kesinga	Rupra Road GP	-do-	VF	5	
	1991-92		Kesinga	Dalam GP	Khairmal VF	VF	3	
2028-29	2013-14	VIII	Kesinga	Limgaon	Bazargarh (N) RF	RF	10	50.96
	2013-14		Kesinga	Ghantsola	Bazargarh (N) RF	RF	15	
	2013-14		Bhawanipatna	Bhalu	Bhalu	RF	10	
	2014-15		Bh.Patna	Dungripadar	Dungripadar	Proposed VF	10	
	1991-92		Kesinga	Palam GP	Palam VF	VF	2	
	1991-92		Kesinga	Utkela GP	Matia VF	VF	2	
	1992-93		Kesinga	NAC Kesinga	Kurlupada VF	VF	1.96	
2029-30	2014-15	IX	Kesinga	Dumermunda	Bazargah	RF	5	59.2
	2014-15		Kesinga	Kinerkela	Bazargah	RF	5	
	2014-15		Kesinga	Phatakabahali	Nangalguda	RF	5	
	2014-15		Kegaon	Patelpada	Nageswar	RF	10	
	1992-93		Kesinga	Balsi GP	Rengali VF	VF	11.36	
	1992-93		Kesinga	Balsi GP	Balsi VF	VF	9.2	
	1992-93		Kesinga	Balsi GP	Balsi VF	VF	13.64	
2030-31	2015-16	X	Narla	Bhatel	Bhatel RF	RF	5	37.368
	2015-16		Narla	Kerbandi	Kerbandi RF	RF	5	
	2015-16		Kesinga	Bazargarh	Bazargarh RF	RF	5	
	2015-16		Kegaon	Chura	Chura 'A'RF	RF	10	
	1990-91		M.Rampur	Pipalbhadi GP	Pipalbhadi VF	VF	6.22	
	1991-92		M.Rampur	Muskuti GP	Saling VF	VF	5.2	
	1991-92		M.Rampur	Muskuti GP	Kuten VF	VF	0.948	
TOTAL							**817.65**	**817.65**

4.6.2.6 Eviction Series :

Kalahandi district being the pioneer in providing individual and community forest rights to the tribal and other forest dwellers, the rights and concessions are well defined in nature. The rejected claims under Forest Rights Act, 2006 by District Level Committee are needed to be free from encroachment. Some encroachment cases before 2006 have already been granted titles to the beneficiaries. Total 45.50 Ha of encroached area need to be evicted. The year wise operation is given below.

Table No. 4.6
Eviction Series

Year of Operation	Annual Eviction/Unit No.	Range	Forest Block Name	Status	Evicted area in Ha
2021-22	I	xx	xx	xx	xx
2022-23	II	Kegaon	Daka	RF	5
2023-24	III	Kegaon	Nageswar	RF	5
2024-25	IV	Kegaon	Daka	RF	2.2
2025-26	V	Kegaon	Chura B RF	RF	5
2026-27	VI	Kegaon	Nageswar	RF	5
2027-28	VII	Kegaon	Nageswar	RF	5
2028-29	VIII	Kegaon	Nageswar	RF	5
2029-30	IX	Kegaon	Nageswar	RF	6.5
2030-31	X	Kegaon	Chura B RF	RF	6.8
TOTAL					**45.5**

After eviction, the land will be demarcated properly and block plantation will be taken up.

4.6.3 Rotation period:-

Not required

4.6.4 Harvestable diameters:-

Not applicable

4.6.5 Reducing factors and reduced areas:-

Not applicable

4.6.6 Felling cycle:-

Not applicable

Choice of species: -

Keeping the special objectives of management in view indigenous species shall be given priority in all planting series because they are better adapted to local environment. Economically important species including Gambhar(*Gmelina arborea*), Sisoo(*Dalgergia sissoo*) Dharua (*Anogeissus latifolia*) Asan (*Terminalia*

alata),Bija(*Pterocarpus marsupium*), Bandhan (*Ougenia oogenesis*), and Tangan (*Xyliaxylocarpa*) as far as possible shall be planted in areas away from villages and other human habitations.Tall seedlings are prescribed to be planted.

In case of tending series gap shall be planted with only those species, which are already thriving well. Block Plantation will be taken in different forest blocks during the plan period is given in **Table No. 4.2.**

4.6.7 Division into periods and allotment to Periodic Blocks

Not Applicable

4.6.8 Calculation of the Yield

Not Applicable

4.6.9 Table of felling

Not Applicable

4.6.10 Method of executing the operation: -

4.6.10.1 Prior to taking up any operation, it is necessary to prepare a plan so that the work can be executed smoothly and properly in time. However following operations are prescribed to be carried out the work systematically in order to accomplish the special objectives of management effectively.

4.6.10.2 Demarcation of Annual Tending Unit

4.6.10.2.1 The Plantations included in the Annual Tending shall be demarcated on the ground in the preceding season of tending operation with small stone cairns of half-meter height erected at visible distance on the periphery of the plantations area. The demarcation will be done by the concerned Forester, which will be checked by the Range Officer to ensure the correctness.

4.6.10.3 Preparation of Tending Plan

4.6.10.3.1 As already discussed earlier due to non uniformity in the condition of the plantation it is not proper to prescribe in general. So site-specific plan is required to be formulated taking the local factors and conditions of the plantations into consideration. These plans will not only result oriented but also suitable to address the issues perfectly. The Range Officer shall prepare the plan for each plantation in consultation with the VSS if operating in that area. Efforts shall be made to constitute VSS in all the areas where it is feasible.

4.6.10.3.2 The plan prepared by the Range Officer shall be scrutinised by Assistant Conservator of Forests and will be approved by the Divisional Forest Officer. All these works shall be completed in the previous year of the implementation.

4.6.10.3.3 The plan shall include the following components.

a. Preparation of a tending map for each plantation indicating the tending operation, SCM work, gap planting etc. as far as practicable.

b. The current site condition narrating the terrain, slope, drainage, soil type and depth.

c. Condition of the plantation particularly growth of the plants species wise in terms of height and girth.

d. Extent of biotic interference.

e. Details of operations proposed to be taken up.

f. Cost norm and the schedule of operations.

4.6.10.4 Tending Measures

5.10.4.1 Though the tending plan will specify the details of operations to be carried out for a particular site but the following major operations are prescribed in general as the tending measures to improve the condition of the plantations and enhance its growth.

4.6.11 Subsidiary Silvicultutral Operations, cleaning and thinning

4.6.11.1 Tending Operations

4.6.11.1.1 It is the most vital component which shall be carried out scrupulously and meticulously. These operations are mostly weeding, pruning, climber cutting, thinning etc. However the following works are prescribed in a general manner with the provisions to allow some variations depending on the site requirement particularly condition of the plantation.

- Weeding shall be done till the growth of the plantations overrides the weed growth.
- Pruning should be done in the plantations to encourage the vertical growth.
- High stumps will be cut flush to the ground to encourage coppice shoots.
- Singling out of multiple coppice shoots to retain the most promising one.
- Cutting of all climbers strangulating the growth of the plants.
- Loranthus attacked branches shall be lopped.
- Pest and disease control measures shall be taken whenever and wherever necessary.

4.6.11.2 Thinning Operation

4.6.11.2.1 As thinning is to be done very sparingly with meticulous application of mind and extreme silvicultural restraint, this should be assessed by the Range Officer, scrutinised by the Assistant Conservator of Forests and finally approved by the Divisional Forest Officer prior to the execution of this operation. Some stipulations are furnished below for carrying out thinning in Teak plantations.

- The first thinning shall be the mechanical thinning carried out in the 8^{th} year of formation of the plantation and includes removal of alternate plants in each row. During this thinning operation, all the growths including climbers interfering with teak shall be cut back.

- The second and subsequent thinning to be done will be silvicultural thinning. It should be restricted to the congested crop only. There shall be four such thinning to be carried out in 16^{th}, 25^{th}, 41^{st} and 65^{th} year respectively.

- These silvicultural thinning to be executed shall be on the lines of 'C' grade thinning. The removal through such thinning shall be restricted to only 'dominated' and 'suppressed' stems besides removal of some 'co-dominant' stems as well with distance of growing space after thinning to be determined by the formula R=0.75(D+4) where 'R' is the radius of the growing space in feet &'D' is the average diameter in inches.

- All the trees coming within this circle of growing space shall be felled besides those crops, which are found to be interfering with the crown of the 'predominant'& 'co-dominant' trees.

- Thinning shall not be carried out in already open areas. Further, it shall be ensured that these operations do not create a permanent gap in the canopy.

- As thinning are to be done very sparingly with meticulous reflection of mind and extreme silvicultural restrains, this will therefore need prior approval of the Divisional Forest Officer.

4.6.11.2.2 For plantations other than teak, thinning shall be done on the lines of 'A' grade and 'B' grade thinning only provided the crop is congested.

4.6.11.3 Soil & Moisture Conservation Measures (SCM)

4.6.11.3.1 The vital factor is to provide nourishment to the plantations by improving the moisture regime of the area through appropriate Soil and moisture conservation measures. In a drought prone district like Kalahandi the plantation particularly at the early stage is vulnerable to the scarcity of water. As a result the survival of the plantations is drastically reduced. Further it is not possible for the provision of watering to the plantations as it is cost prohibitive. In such circumstance retention of soil moisture through soil and moisture conservation measures is the possible solution to the problem. The soil and conservation measures described in detail under Rehabilitation Working Circle shall be applicable to this working circle.

The Range Officer while preparing the tending plan shall adopt the type of work suitable to the site from the different type of prescription provided in Rehabilitation Working Circle.

4.6.12 Re-Planting/ Restoration

4.6.12.1 Plantation shall be carried after clearance of the standing growth and burning of the felled material in the month of February – March. After a thorough burning pits shall be dug by alignment and staking and all pitting work must be completed by end of March to allow weathering of dug out soil. The normal spacing of pits will be 2.5 mt. X 2.5 mt, i.e. 1600 plants/ Ha. If the plantation site has standing poles/tree crop of species namely Sal, Mahul, Piasal then those standing poles/ trees shall be retained without being felled. In making alignment for pitting such spots where trees are to be retained shall be left out from pitting. However, if any standing tree/pole crop is to be retained in a Plantation site the total number of such retained poles/ trees should not exceed 80/ Ha. The pit spacing has to be adjusted so as to accommodate 1600 planting pits per Ha., on average in the whole plantation site.

4.6.12.1 Protection

4.6.12.1.1 It is the most crucial aspect for this working circle. Protection from fire is most important in addition to grazing and other biotic interference. VSS shall be motivated to render needful cooperation in reducing the biotic interference to barest minimum. Emphasis must be given on this aspect in comparison to other operations of tending measures. Watchers should be engaged to ensure the protection work more effective. Such engagement in terms of number and duration shall be left to the discretion of Divisional Forest Officer on recommendation of the concerned Range Officer.

4.6.13 Other Regulations

Besides the prescriptions provided in the foregoing paras, some other regulations are necessary to augment the former for effective results. These are the following.

a. Efforts should be made to activate the VSS in ensuring their effective cooperation in protection of the plantation.

b. Necessary entries shall be made in the compartment history file as well as relevant journals for future reference.

c. Intermediary benefits shall be given to the VSS free of cost and the economics of sharing of final harvest shall also be explained to them clearly.

Table 4.7 Tentative Schedule of Planting Operation

Operation	Tentative period of execution
0^{th} year Operation	
Raising of Nursery	September-October
Advance preparation of site	October-December
Alignment and Stacking	February

Soil and Moisture conservation (Mechanical Part)	February-March
Digging of pits (Part Major Work)	February-March
Planting and Post planting operation 1st year	
Digging of pits (Balance left over)	April
Soil and Moisture Conservation(Balance)	April- May
Scooping of Pits already Dug	May-June
Polypot Planting	June last to 1st week of July
Casualty replacement	July last to August
1stSoil working ,weeding ,manuring	August –September
2nd Soil working ,and weeding	December
Mulching	January-February
Fire tracing	February –March
Posting planting operation in 2nd year	
Casualty replacement	Within July
One weeding ,soil working &manuring	August –September
Fire Tracing	February-March
Post planting operation in 3rd and subsequent years	
Soil working and casualty replacement	July – August
Pruning and other cleaning operation as required	May-June or November
Fire tracing	February-March

Table No.4.8 The cost norm for block plantation per Ha

Cost Norm For Block Plantation @1600 Plants per Hectare (6 month old seedling) WAGE RATE ₹308/- Per Day						
Sl. No.	**Item of work**	**Preferable period of Exeution**	**Labour in Mandays**	**Labour Cost(₹)**	**Material cost (₹)**	**Total Cost (₹)**
1	**2**	**3**	**4**	**5**	**6**	**7**
0th Year (Advance work) preplanting operation						
1	Survey, demarcation & pillar posting	Nov/Dec	2	616	0	616
2	Site preparation	Nov/Dec	12	3696	0	3696
3	Alignment and stacking of pits	Jan/Feb	2	616	0	616
4	Digging of pits (30 cm cube)	Feb/Mar	40	12320	0	12320
5	Nursery cost (6 months old seedling) part @ Rs.12.43/- seedling (Rs.8.67 in 0th year +Rs.3.76 in 1st year) for 1760 seedlings (160+160)	Jan-Mar	44	13552	2939	16491
	Total		100	30800	2939	33739
6	Monitoring & Supervision charge 5% of the total cost					1686.95
Grand Total			**100**	**30800**	**2939**	**35,426**

1st Year planting Year/Year of Creation						
7	Nursery cost (6 months seedling) balance @ Rs.3.76 for 1760 seedlings	Apr-June	21.5	6622	593	7215
8	Fencing for an average of 250 meters/ha @ Rs.76.80/- per meter for bamboo twigs and bamboo thorn fencing	May/June	38	11704	8560	20264
9	Carriage & planting, Casuality Replacementand application of insecticides , manure etc.	Jul/Aug	21	6468	0	6468
10	Cost of insecticide & fertilizer					
	a) NPK @ 50 gms/ plant as basal dose= 80 kg @ Rs. 24/- per kg=Rs.1920.00	Jul/Aug	0	0	1920	1920
	b) Urea @ 70 gms/ plant in two subsequent doses @ Rs.6/- per kg= Rs.672.00		0	0	672	672
	c) Granular insecticide (Themet, Forate etc.) @ 5 gms/plant @ Rs. 80/- per kg= Rs.640.00		0	0	640	640
11	1st weeding (Complete weeding)	Aug/Sep	7	2156	0	2156
12	Manuring Urea 35 gm	Aug/Sep	5	1540	0	1540
13	2nd Weeding (complete weeding)	Sep/Oct	5	1540	0	1540
14	Soil working (50 cms, Radius around plants) & Manuring Urea 35 gms per plant	Sep/Oct	7	2156	0	2156
15	Soil conservation measures in the form of staggered trenches of 2 m. X 0.5m X 0.5m @ 30 nos per ha	Sep/Oct	10	3080	0	3080
16	Fire Line Tracing & Inspection path	Feb/Mar	3	924	0	924
17	Watch & ward	Aug-Mar	7	2156	0	2156
	Total		124.5	38346	0	50731
18	Montoring & Supervision charge 5% of the cost					2537

	Grand Total		**124.5**	**38346**	**0**	**53268**
2nd year Maintenance						
19	Casualty replacement (10%) with Nursery Cost	Jul/Aug	4	1232	2096	3328
20	Weeding (Complete weeding)	Sep/Oct	6	1848	0	1848
21	Cost of fertilizer (NPK @70 gms/ plant) (Rs.24/- per kg & Insecticide @ 5 gms/ plant for 160 plants 800gms @ Rs.80- per kg)	Sep/Oct	0	0	2752	2752
22	Repair and maintenance of Bamboo fence including material cost	May/June	20	6160	5080	11240
23	Soil working (50 cms Radius around plants)	Oct/Nov	7	2156	0	2156
24	Application Fertilizer & Insecticide	Sep/Oct	4	1232	0	1232
25	Fire line Tracing (2m wide fire line over 400 m long)	Feb/Mar	3	924	0	924
26	Watch & Ward	Apr-Mar	15	4620	0	4620
	Total		**59**	**18172**	**9928**	**28100**
27	Montoring & Supervision charge 5% of the total cost					1405
	Grand Total		**59**	**18172**	**9928**	**29505**
3rd year Maintenance						
28	Weeding, pruning & application of fertilizer	Aug/Sep	7	2156	0	2156
29	Cost of fertilizer (NPK @ 50 gms/ plant) @ Rs.24/- per kg				1920	1920
30	Repair and maintenance of Bamboo fence including material cost	May/June	20	6160	1000	7160
31	Soil working (50 Cms, Radius around plants) & application of fertilizer	Oct/Nov	7	2156	0	2156
32	Fire Line Tracing (2m, Wide fire line over 400 m long) & Cultural operation	Feb/Mar	3	924	0	924
33	Watch & ward	Apr-Mar	15	4620	0	4620
	Total		52	16016	2920	18936

34	Montoring & Supervision charge 5% of the total cost					947
	Grand Total					**19882.8**
4th year Maintenance						
35	Fire line tracing (2m wide fire line over 400m length) & cultural operation	Feb/Mar	3	924	0	924
36	Watch & Ward	Apr-Mar	15	4620	0	4620
	Total		18	5544	0	5544
37	Monitoring & Supervision Charge 5% of the total cost					277
	Grand total					5821

ABSTRACT

Sl No	Year	No. person Day	Labour cost @ ₹ 308/- per day	Material Cost (₹)	Monitoring & supervision charge 5% of the total cost	Total Cost (Rs)
1	0th Year	100	30800	2939	35426	69165
2	1st Year	124.5	38346	12385	53268	103999
3	2nd Year	59	18172	9928	29505	57605
4	3rd Year	52	16016	2920	19882.8	38818.8
5	4th Year	18	5544	0	5821	11365
Grand Total		**353.5**	**108878**	**28172**	**143902.8**	**280952.8**

4.6.13.1 Encroached forest area requiring eviction followed by plantation

As per the records available the total area 46.5 acre of Forest land (including 1 acre of revenue forest) in Kegaon Range has been encroached by the individuals and applied for Patta (Title Card) under FRA 2006 but those have been rejected by the DLC. Steps should be taken to evict the above encroach land and to take up plantation in the said blank patches. The details of such rejected claims are given below.

Table No. 4.9
Area under FRA Rejected Claims

Sl No.	DLC Sl No	Name of the Applicant		Village	Area in Ha	Range	Section	Latitude	Longitude	Name of FB
1	43	Jubagobinda	S/o- Maheswar	Bodelpalli	3	Keg	Daspur	19 59	82 58	Chura B

	4	Khamari	khamari			aon		17.8	0.4	RF
2	435	Dharmu Bag	S/o- Gunju Bag	Bodelpalli	6.3	Keg aon	Daspur	19 59 15.9	82 57 41.1	Chura B RF
3	436	Sumanta Sunani	S/o- Khageswar Sunani	Bodelpalli	0.5	Keg aon	Daspur	19 59 14.9	82 57 45.8	Chura B RF
4	437	Manjari Bag	D/o- Maheswar Bag	Bodelpalli	2	Keg aon	Daspur	19 59 14.5	82 57 46.8	Chura B RF
5	450	Muge Bag	S/o- Pandara Bag	Ainli	1.5	Keg aon	Gargab	20 04 44.3	83 02 28.6	Daka RF
6	451	Bhaskar Bag	S/o- Pandara Bag	Ainli	1	Keg aon	Gargab	20 04 43.3	83 02 30.5	Daka RF
7	452	Koili Saraf	S/o- Lakhana Saraf	Ainli	1	Keg aon	Gargab	20 04 49.6	83 02 31.1	Daka RF
8	453	Budu Bag	S/o- Bhaskar Bag	Ainli	1.5	Keg aon	Gargab	20 04 56.2	83 02 07.2	Daka RF
9	454	Kabi Bag	S/o- Bhaskar Bag	Ainli	1	Keg aon	Gargab	20 04 38.0	83 02 22.4	Daka RF
10	455	Balaram Bag	S/o- Dhanful Bag	Ainli	1.2	Keg aon	Gargab	20 04 44.4	83 02 28.7	Daka RF
11	459	Muni Mirdha	S/o- Gangadhar Mirdha	Ramchandrapur	1	Keg aon	Gargab	20 03 22.2	82 59 42.6	Revenue Forest
12	589	Tikchan Sunani	S/o- Madhu harijan	Amurlapadar	2	Keg aon	Golamunda	20 00 00	82 46 31.9	Nageswar RF
13	590	Dhoba Harijan	S/o- Motilal Harijan	Amurlapadar	2	Keg aon	Golamunda	20 00 23.4	82 46 29.1	Nageswar RF
14	591	Ugre Sunani	S/o- Sanyasi Sunani	Amurlapadar	2	Keg aon	Golamunda	19 59 51.4	82 47 02.1	Nageswar RF
15	592	Raj Sunani	S/o- Parsu Sunani	Amurlapadar	1	Keg aon	Golamunda	20 00 20.9	82 46 33.6	Nageswar RF
16	593	Gurubaru Sunani	S/o- Ugre Sunani	Amurlapadar	1	Keg aon	Golamunda	20 00 19.2	82 46 30.1	Nageswar RF
17	594	Sarojini Sunani	W/o- Padmalochan Sunani	Amurlapadar	1	Keg aon	Golamunda	20 00 17.3	82 46 29.2	Nageswar RF
18	595	Sobha Sunani	S/o- Ganbudi Sunani	Amurlapadar	2	Keg aon	Golamunda	19 59 51.4	82 47 02.1	Nageswar RF
19	596	Chitramani Harijan	S/o- Dhotia Harijan	Amurlapadar	2	Keg aon	Golamunda	20 00 19.6	82 46 32.2	Nageswar RF
20	597	Sitaram Suna	S/o- Khengai Suna	Amurlapadar	2	Keg aon	Golamunda	19 59 51.4	82 47 02.1	Nageswar RF
21	598	Tularam Durga	S/o- Kabi Durga	Tipiguda	1.2	Keg aon	Golamunda	19 58 25.2	82 44 13.4	Nageswar RF
22	599	Pradipta Senapati	S/o- Harban Senapati	Tipiguda	1.3	Keg aon	Golamunda	19 58 25.8	82 44 22.6	Nageswar RF
23	600	Trinath Durga	S/o- Dhanmal Durga	Tipiguda	2.7	Keg aon	Golamunda	19 58 21.5	82 44 17.0	Nageswar RF
24	601	Pabitra Durga	S/o- Bashistha Durga	Tipiguda	1	Keg aon	Golamunda	19 58 23.4	82 44 19.7	Nageswar RF
25	602	Lachham Rout		Kirkakani	5.3	Keg aon	Golamunda	19 58 45.8	82 44 53.7	Nageswar RF
		Total			45.50					

Steps should be taken to take up plantation in the areas after verifying the eviction position in the field. After eviction the land will be demarcated with boundary and at firest SMC structures will be dug and then plantation in the upcoming year.

CHAPTER- 5

PROTECTION (OVERLAPPING) WORKING CIRCLE

5.1 Name of Working Circle:-

The name of the working circle is Protection (overlapping) Working circle.

5.2 General Constitution of Working circle:

The first and foremost responsibility of the managers of the forests is to ensure the protection of forests. Though it is provided to the entire forest area of the Division in a duty bound manner by the forest personnel and in the Joint Forest Management area with the support of VSS but some additional effort is necessary to protect some vulnerable, sensitive, eco-fragile areas of the Forest Division from biotic interference like illicit felling, fire, encroachment, shifting cultivation, poaching etc. Accordingly this overlapping working circle has been constituted to cover all those forest blocks, which needs special protection measures from biotic interference.

All the forest blocks included in Selection Working Circle are good high forests of the Division and also rich in valuable crop and important wild animals. So it is obviously the target of forest offenders even from neighbouring District. Similarly Nageswar Reserve Forest having the unique character of possessing natural Teak forests under Rehabilitation Working Circle is in need of focussed attention for protection. This natural Teak forest though in a process of revival from the operations of last plan period is still in need of special protection measures. Being a part of transitional zone of Teak, it is having unique importance for proper conservation from bio-diversity point of view. 19 forest blocks comprising an area of 47895.3 ha. have been assigned to this overlapping working circle and it covers 38.25% of the plan area.

5.3 General Characteristics of Vegetation:

Since the entire area of Selection Working Circle has been kept in this working circle, the vegetation described in Para-2.2 holds good for this purpose. The sole remaining forest block is Nageswar Reserve Forest, the vegetation of which belongs to $5A/_{c1}$ i.e. Southern Dry Deciduous Forest – DryTeakForest. The main species is Teak, which is mostly in pole stage due to biotic interference in the past. The improvement in the crop condition has been observed due to the protection measure taken during the last plan period. The same is to be pursued during this plan to ensure the restoration fully.

5.4 Felling series,cutting sections and JFM areas:-

Not required.

5.5 Allotment Blocks, compartments:-

Table 5.1

Name of the Range	Sl No	Forest Block Category	Area in Ha.
Narla	1	Urladani RF	10277.9
	2	Porgel RF	1712
	3	Dengsur DPF	255.06
M.Rampur	4	Jerka RF	1014.7947
	5	Satami RF	1894.23

	6	Sunamukhi RF	2339.9
	7	Taparang RF	6887.8069
	8	Telen RF	2660
	9	Benaguda RF	4928.2938
	10	Ramud PRF	547.092
	11	Sulia PRF	5617.337
	12	Manikera PRF	66.4
	13	Mundramuska PRF	750
	14	Talnuagaon PRF	177.4654
	15	Puijhari PRF	2251.21
	16	Pongabaju PRF	2331.91
	17	Bidabaru (Harlanga) PRF	1464.615
	18	Pudrimahul DPF	303
Kegaon	19	Nageswar RF	2416.2821
Total			**47895.3**

Table 5.2

Protection Overlapping WC

Year	Unit No.	Range	Forest Block	Status	Compartment No.	Area in ha	
						Compartment Area	Coupe area
Urladani East Protection Series							
2021-22	I	Narla	Urladani	RF	1	273.13	524.6873
					2	251.5573	
2022-23	II	Narla			3	416.7469	416.7469
2023-24	III	Narla			4	423.75	610.67
					5	186.92	
2024-25	IV	Narla			6	355.86	721.1
					7	365.24	
2025-26	V	Narla			8	287.12	589.49
					9	302.37	
2026-27	VI	Narla			15	222.63	561.83
					31	339.2	
2027-28	VII	Narla			13	348.46	662.17
					14	313.71	
2028-29	VIII	Narla			12	301.2	569.651
					16	268.451	
2029-30	IX	Narla			10	429.35	904.02
					11	474.67	
2030-31	X	Narla	Dengsur	RF	1	255.06	255.06
	TOTAL					**5815.4252**	**5815.4252**
Urladani West Protection Series							
2021-22	I	Narla	Urladani	RF	29	104.47	495.71
					30	252.21	
					32	139.03	
2022-23	II	Narla			33	241.72	554.1318
					34	312.4118	

2023-24	III	Narla			27	227.27	478.07
					28	250.8	
2024-25	IV	Narla			25	373.37	745.83
					26	372.46	
2025-26	V	Narla			22	204.04	707.23
					23	271.92	
					24	231.27	
2026-27	VI	Narla			19	284.69	596.98
					21	312.29	
2027-28	VII	Narla			17	694.323	694.323
2028-29	VIII	Narla			18	197.4	445.26
					20	247.86	
2029-30	IX	Narla	Porgel	RF	1	528.6	956.93
					2	428.33	
2030-31	X	Narla			3	448.18	755.07
					4	306.89	
	TOTAL					**6429.5348**	**6429.5348**

Taparang Protection Series

2021-22	I	M.Rampur	Taprang	RF	11	411.39	691.96
					13	280.57	
2022-23	II	M.Rampur			10	395.4	877.5
					12	482.1	
2023-24	III	M.Rampur			8	479.64	739.73
					9	260.09	
2024-25	IV	M.Rampur			6	260.49	421.1971
					7	160.7071	
2025-26	V	M.Rampur	Taprang	RF	16	285.24	626.65
					17	341.41	
2026-27	VI	M.Rampur			14	279.42	658.14
					15	378.72	
2027-28	VII	M.Rampur			18	395.19	815.83
					19	420.64	
2028-29	VIII	M.Rampur			20	412.69	412.69
2029-30	IX	M.Rampur			1	448.52	779.46
					2	330.94	
2030-31	X	M.Rampur			3	212.9898	864.6498
					4	301.47	
					5	350.19	
	TOTAL					**6887.8069**	**6887.8069**

Telen Protection Series

2021-22	I	M.Rampur	Telen RF	RF	1	628.41	628.41
2022-23	II	M.Rampur			2	426.9	841.4
		M.Rampur			3	414.5	
2023-24	III	M.Rampur	Bidabaru	PRF	-	502.235	502.235
2024-25	IV	M.Rampur	Jerka	RF	2	381.7	381.7
2025-26	V	M.Rampur			1	401.9047	633.0947
					3	231.19	
2026-27	VI	M.Rampur	Bidabaru	PRF	-	430.25	430.25
2027-28	VII	M.Rampur			-	532.13	532.13
2028-29	VIII	M.Rampur	Telen	RF	6	408.34	408.34
2029-30	IX	M.Rampur			5	372.38	372.38
2030-31	X	M.Rampur			4	409.47	409.47
	TOTAL					**5139.4097**	**5139.4097**

Benaguda Protection Series

2021-22	I	M.Rampur	Benaguda	RF	2	613	868.45
					3	255.45	
2022-23	II	M.Rampur			4	538.28	538.28
2023-24	III	M.Rampur			5	504.95	668.52
					6	163.57	
2024-25	IV	M.Rampur			7	487.5438	487.5438
2025-26	V	M.Rampur			13	370.49	370.49
2026-27	VI	M.Rampur			1	180.34	456.99
					14	276.65	
2027-28	VII	M.Rampur			11	321.95	555.69
					12	233.74	
2028-29	VIII	M.Rampur			10	402.23	402.23
2029-30	IX	M.Rampur			9	229.85	229.85
2030-31	X	M.Rampur			8	350.25	350.25
	TOTAL					**4928.2938**	**4928.2938**

Sunamukhi Protection Series

2021-22	I	M.Rampur	Sunamukhi	RF	1	220.75	536.55
					2	315.8	
2022-23	II	M.Rampur			3	402.83	402.83
2023-24	III	M.Rampur			4	420.15	615.29
					5	195.14	
2024-25	IV	M.Rampur			6	324.5	785.23
					7	460.73	
2025-26	V	M.Rampur	Ramud	PRF	1	547.092	547.092

2026-27	VI	M.Rampur	Manikera	PRF	1	66.4	66.4
2027-28	VII	M.Rampur	Satami	RF	1	313.22	640.77
					2	327.55	
2028-29	VIII	M.Rampur			3	304.34	768.13
					4	463.79	
2029-30	IX	M.Rampur			5	485.33	485.33
2030-31	X	M.Rampur	Talnuagaon	PRF	1	177.4654	177.4654
	TOTAL					**5025.0874**	**5025.0874**

Sulia Protection Series

2021-22	I	M.Rampur	Sulia	PRF	9	534.2	534.2
2022-23	II	M.Rampur			7	723.49	723.49
2023-24	III	M.Rampur			6	845.37	845.37
2024-25	IV	M.Rampur			5	723.96	723.96
2025-26	V	M.Rampur			1	160.46	160.46
2026-27	VI	M.Rampur			4	628.61	628.61
2027-28	VII	M.Rampur			2	495.887	495.887
2028-29	VIII	M.Rampur			3	818.95	818.95
2029-30	IX	M.Rampur			8	686.41	686.41
2030-31	X	M.Rampur	Mudramaska	PRF	1	750	750
	TOTAL					**6367.337**	**6367.337**

Pongabaju Protection Series

2021-22	I	M.Rampur	Pongabaju	PRF	1	580.51	580.51
2022-23	II	M.Rampur			2	340.22	340.22
2023-24	III	M.Rampur			3	476.16	476.16
2024-25	IV	M.Rampur			4	521.22	521.22
2025-26	V	M.Rampur			5	413.8	413.8
2026-27	VI	M.Rampur	Puijhari	PRF	1	560.43	560.43
2027-28	VII	M.Rampur			2	437.72	437.72
2028-29	VIII	M.Rampur			3	745.1	745.1
2029-30	IX	M.Rampur			4	507.96	507.96
2030-31	X	M.Rampur	Pudrimahul	PRF	1	303	303
	TOTAL					**4886.12**	**4886.12**

Nageswar Protection Series

2021-22	I	Kegaon	Nageswar	RF	8	420.4602	420.4602
2022-23	II				5	150.33	150.33
2023-24	III				2	203	203
2024-25	IV				1	292.9243	292.9243
2025-26	V				9	311.1076	311.1076
2026-27	VI				10	250.1831	250.1831
2027-28	VII				7	257.2763	257.2763
2028-29	VIII				4	261.88	261.88
2029-30	IX				3	153.0664	153.0664
2030-31	X				6	116.0582	116.0582
	TOTAL					**2416.2861**	**2416.2861**
	G. TOTAL					**47895.30**	**47895.30**

5.6 Special Objectives of Management:

Within the ambit of general objects of management as described earlier, the following special objectives have been set for this working circle.

1. To **P**rovide strict vigil against illicit felling, encroachment, poaching and shifting cultivation etc.
2. To **R**educe the biotic interference to barest minimum.
3. To **O**ver come the impediments with active participation of the local people through strengthening the institutions of VSS for effective Joint Forest Management.
4. To **T**ighten the fire protection measures.
5. To **E**nhance the performance of the staff through regular monitoring.
6. To **C**ontrol the forest crime through secret collection of information.
7. To **T**rain the field functionaries in building up intelligence network and effective handling of arms and ammunitions and modern fire fighting methods

5.6.1 Analysis & Valuation of Crop:

As narrated above, the area included in this working circle are good high forests and the natural teak forests. The growing stock and stem density for all these blocks have been described in **Chapter-II of Part-I.** The crop is economically the most valuable asset of the Division and also ecologically important for environmental stability of the locality. Intensive protection is necessary not only to save these forests from biotic onslaught but also to conserve it for perpetual benefit.

5.6.2 Silvicultural System:

As the cardinal objective of this overlapping working circle is to protect the important chunk of forest of the Division, the necessity for silvicultural aspect is not felt here since this has been taken care of in the main working circle. So there is no need to prescribe any silvicultural system in this working circle.

Protection Series:

Table 5.3

Protection series				
Sl No	**Name of the Protection series**	**Name of the Forest Block**	**Area in (ha)**	**No of protection squad to be engaged**
1	Urladani East	Urladani RF	5560.3652	
		Dengsur PRF	255.06	
		Total	**5815.4252**	**4**
2	Urladani West	Urladani RF	4717.5348	
		Porgel RF	1712	
		Total	**6424.5348**	**4**
3	Taparang	Taparang RF	6887.8069	
		Total	**6887.8069**	**2**
4	Telen	Telen RF	2660	

		Bidabaru (Harlanga) PRF	1464.615	
		Jerka RF	1014.7947	
		Total	**5139.4097**	**2**
5	Benaguda	Benaguda RF	4928.2938	
		Total	**4928.2938**	**2**
6	Sunamukhi	Sunamukhi RF	2339.9	
		Ramud PRF	547.092	
		Manikera PRF	66.4	
		Satami RF	1894.23	
		Talnuagaon PRF	177.4654	
		Total	**5025.0874**	**4**
7	Sulia	Sulia PRF	5617.337	
		Mundramuska PRF	750	
		Total	**6367.337**	**2**
8	Pongabaju	Puijhari PRF	2251.21	
		Pongabaju PRF	2331.91	
		Pudrimahul DPF	303	
		Total	**4886.12**	**4**
9	Nageswar	Nageswar RF	2416.2821	
		Total	**2416.2821**	**2**
	Grand Total		**47895.3**	**26**

5.6.3 Rotation period:-

Not required

5.6.4 Harvestable diameters:-

Not required

5.6.5 Reducing factors and reduced areas:-

Not required

5.6.6 Felling cycle:-

Not required.

5.6.7 Division into periods and allotment to periodic blocks (PB):

Not required

5.6.8 Calculation of the yield:-

Not required

5.6.9 Table of felling:-

Not required

5.6.10 Method of executing the felling:-

Not required

5.6.11 Subsdiary silvicultural operations cleaning and thinning:-

Not required

5.6.12 Regeneration:-

Not required

5.6.13 Associated regulations and measures:-

Not required

5.7. Composition of Protection Squad:-

The Crew member of the protection squad comprises of 5 Nos.of young energetic, enthusiastic local youth preferably from the Joint Forest Management Committee/ Eco Development Committee to be stationed at a strategic place of the Protection series. They should be equipped with all the amenities of Para Forest staff.

Duties and responsibilities of the squad

To patrol inside their earmarked protection areas in daily basis to check.

a. Illicit felling
b. Poaching
c. Encroachment
d. Grazing
e. Shifting Cultivation

These group should report the direct and indirect sighting of wildlife in their respective areas and report it to the Head of the Protection squad who preferably would be a forest official of not below the rank of a Forester. The head of the protection squad would record all the activities of the sighting of wildlife as well as protection activities of squad in the following format in day to day basis for the entire plan period.

5.8 Strengthening of Infrastructure

- For the accommodation of the crew members of the protection,fire and wildlife squads construction of 3 (three) number of barracks @cost of Rs 2174000(Rupees ten lakhs) each are proposed during this plan period.
- Construction of two numbers of three storied watch towers @ 1 lakh each are proposed at Khandual Mali and Krishnamali. To

5.8.1 A functional Divisional Mobile Squad with vehicle, required staff and arms will be constituted. The Divisional Mobile will be deployed by the Divisional Forest Officer for regular patrolling and supporting field staff in emergencies.

5.8.2 It is high time to provide a vehicle to each range for effective control of the forest crime. On priority basis it shall be provided to Madanpur Rampur, Narla and Kegaon range of this Division. This will definitely enhance the functioning of the staff at range level.

5.8.3 A prosecution cell with a Range Officer in charge shall be constituted at the Division Office to ensure proper liaison between the prosecuting officials and the public prosecutors. This will remarkably help in proper submission of prosecution report and other documents to the courts and also to keep a track on the trial of the case.

5.8.4 Trainings should be imparted to the field staff particularly Forest Guard, Forester and Range Officer to handle the arms and ammunition, collection of intelligence and modern fire fighting method.

5.8.5 Engagement of Anti Smuggling Squad

In view of multifarious assignment of the forest officials as well as tremendous pressure on the forests, it is not humanly possible on the part of the forest officials to control the crime alone. Supporting hands like Anti Smuggling Squad consisting of daily wage watchers can yield good results as evident from such deployment during previous plan. These squads shall be constituted by engaging the local youths who are well acquainted with the topography of the forests as well as physically and mentally sound to resist the smugglers and face any untoward situation. Such squad shall consist of 6 (six) local youth under the control of the concerned Forester. One such squad is prescribed for each protection unit. The deployment of the squad shall be subject to rotational change in different localities and the same shall be decided by the Range Officer with periodical check and review by Assistant Conservator of Forests.

5.9 Fire Protection measures

1. The extent and causes of the fire along with the damage done to the forests has been narrated in Part-I. Protection against fire requires concerted effort of field and the forest fringe dwellers during the period from February to June.

2. Though Anti Smuggling Squad has been proposed for each protection unit but during fire season some additional hand i.e. firewatchers are necessary for effective control of this menace. Depending on the vulnerability of the area, the Range Officer shall be entrusted for such engagement of firewatchers.

3. The VSS should be involved in containing forest fires. Incidence of annual fire should be entered in the compartment history. Fire prone areas should be identified and precautionary measures taken in time. Every protection incentive schemes may be developed.

4. Annual fire line clearance of 1 to 2 chain width in fire sensitive areas coupled with controlled burning shall be done under the personal supervision of the Forester / Range Officer. Moreover, old fire lines, forest roads, boundary lines, village ring shall be kept clean by taking up control burning in 1 chain strip on both sides of it.

5. Modern fire fighting methods should be adopted.

6. Awareness on the damage caused by fire to be created amongst the people.

Grazing

The forests under this Working Circle are closed absolutely for grazing, The squads engaged for the protection Working Circle shall ensure the forest free from grazing.

5.10 Communication System

The areas of the Division not covered by the network of different mobile phone operating companies shall be provided with VHF system. In rest areas prepaid mobile phone with a monthly ceiling shall be provided to the staff for effective communication in transmitting information. The VHF system shall be replaced as and when the area comes under the network of any mobile phone system. It is observed that communications through mobile phone both oral and written are very fruitful now days. This is not only cost effective but also functioning very nicely. In the past it is experienced that VHF system is remaining out of order or in need of frequent repair for most of the time due to cyclone / strong wind etc. Moreover a person is required to be deployed for transmitting the message and so also the same requirement at the receiving end. Such elaborate arrangement is not necessary for mobile phones. A person while wandering in the forest can may call from the spot if the area is covered by the network or he can come to the nearest network area to communicate. So it is suggested to emphasise on mobile phones to build up an effective communication system

5.11 Intelligence Network

Collection of information secretly through an intelligence network is of paramount importance to combat the forest crime successfully. Very often it is observed that enormous physical efforts are ended in no result without obtaining proper information which is vital to strike. The Range Officer shall be entrusted to build up such a system in his range for which some secret fund shall be placed with him. Similarly at the division level, some secret fund shall be placed with the Assistant Conservator of Forests (Enforcement) who will utilise the same under guidance of Divisional Forest Officer for collection of information regarding the forest offence. A list of hardcore smugglers shall be prepared for each range and compiled at the division level by the Assistant Conservator of Forests (Enforcement).

5.12 Reward & Incentives

There shall be provision for reward to the staff for their outstanding performance in protection matter. This is ascertained from the review of all the monthly performance reports during the year. These performance reports have been narrated above

Incentives shall be paid to the VSS for their exemplary action in protection matter. This will encourage the participation of local people in protection of forests. Individuals shall also be considered for it.

5.13 Other Regulations

No rights and concession will be admitted in this Working Circle.

5.14 Evaluation

Periodical assessment is necessary to improve the implementation by removing the bottlenecks noticed. Normally the monitoring is done regularly through departmental staff but the evaluation should be done by an independent agency for providing the correct position. The evaluation shall be made in an objective manner

for which the Divisional Forest Officer should prescribe a suitable format containing point wise scoring system. Reputed local NGO can be entrusted for such evaluation. Each year in the month of April, such evaluation shall be done for the performance of preceding financial year. The shortcomings noticed shall be taken care of in future to ensure the effective implementation.

5.15 Peoples' participation

It is doubtless to say that at present the protection of forests is incomplete without the participation of the local people for which Joint Forest Management is being encouraged to ensure the involvement of the forest fringe villagers. So while making efforts to fortify the infrastructure to combat the menace, simultaneous steps shall be taken to motivate the local people for participating in the process through constitution of VSS and assigning the area to them.

5.16 Maintenance of Records

All the works undertaken in the protection unit shall be entered in the respective compartment history files along with the results obtained. This will be a data base for further analysis and reference.

PROFORMA								
Date	**Protection activities Related to timber /firewood/encroachment**	**Place with GPS coordinate**	**Wildlife sighting Direct/ indirect. Single/ herd (No of individual). Gender .Health status**	**Place with GPS coordinate**	**Man animal conflict Intensity of damage Crop(in ha) Lives etc**	**Place with GPS coordinate**	**Forest fire Extent of damage**	**Place with GPS coordinate**
01	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**

This record will depict the status of the forest as well as the movement of the spill over population of wild animal of the Division.

In addition to protection measures stated in foregoing paras, if the Range officer realizes any specific soil and moisture conservation measures needed to be taken up within the ambit of the Working Circle then a specific SMC plan is to be prepared and get it approved by the Divisional Forest Officer before commencement of the work.

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CHAPTER- 6
BAMBOO (OVERLAPPING) WORKING CIRCLE

6.1 Name of working circle:-

The name of the working circle is Bamboo (Overlapping) working circle.

6.2 General Constitution of working circle:-

6.2.1 Being an overlapping working circle, it extends over the forest blocks assigned to Selection and Rehabilitation main working circle which contains commercially exploitable bamboo crops. Most of the Forest Blocks, which were under this Overlapping Working Circle in the previous plan, have been retained in this plan. The addition/deletion of some Forest Blocks has been made taking the increase/decrease of the condition of the crop into consideration.

6.2.2 Madanpur Rampur, Narla and Bhawanipatna Range of this Division are having the bamboo forests to a considerable extent while few forest blocks in Kegaon Range have the potentiality for commercial harvest. No forest block of Kesinga Range has potentiality for commercial production. So all the Ranges of this Division except Kesinga are viable for harvest of bamboo.

6.2.3 The area assigned to this overlapping working circle **is 66152.07 ha. spreading over 25 nos. of forest blocks (RF 14 nos., PRF notified 8 nos., DPF to be notified 3 nos.)** in aforesaid four Ranges of this Division. It covers **52.83%** of the plan area.

6.3 General Characteristics of Vegetation:

6.3.1 The vegetation of this working circle is almost similar to the general crop composition of the entire plan area, since a major chunk of the plan area has been assigned to this working circle. The focus of attention of this working circle is confined to bamboos only. Bamboos are arborescent grasses having erect long culms arise from underground rhizomes. Though belong to the family of grasses, it is mostly tree like in habit. So it is popularly called as Poor man's timber. The important aspect here is to describe the available bamboo species. Salia bamboo i.e. *Dendrocalamus strictus* is undoubtedly the most common species available throughout the Forest Division. But species like Kanta bamboo i.e. *Bambusa arundinacea* and Bolangibans i.e. *Gigantochloa hasskarliana* are also found in very small extent along perennial streams and other water source.

6.3.2 Salia bamboo (*Dendrocalamus strictus*) is the bamboo of commercial importance in this Forest Division in view of its wide occurrence. Culms usually erect from a densely branched rhizome. Central cavity usually small. Leaves narrowly oblong. Flowering is sporadic and usually in the month of November. It is found in plains, on hills and ridges has an under story and also in some places as pure crop. This bamboo occurs abundantly in Madanpur Rampur, Narla and BhawanipatnaRange as already stated above. In Kegaon Range, its availability in commercial quantity is confine to Chura 'A' and 'B' ReserveForests. Kanta Bamboo (*Bambusa arundinacea*) is large densely thorny bamboo. Culms are bright green and shining. The height and

girth of the culms is higher than that of Salia Bamboo. Leaves are smooth but sheaths are hairy. It is harvested to very small extent by the working agency whereas other species namely Bolangibansa i.e. Gigantochloa hasskarliana is of not much significance due to limited occurrence. Bolangibansa (*Gigantochloa hasskarliana*) is evergreen tufted bamboo. Culms are usually dark green some times marked with longitudinal yellow stripes.

6.3.3 Since the description of the vegetation of the plan area holds good for this working circle. However, major types of forests in which bamboos are found are Southern Dry Mixed Deciduous Forests ($5A/C_3$) or NorthernDryMixedDeciduousForests ($5B/C_2$) besides Dry Bamboo Brakes ($5/E_9$). The species with which bamboos are found associated are Piasal, Sisoo, Asan, Dhaura, Kurum, Kasi and Kangada etc. Dry Bamboo Brakes i.e. the pure crop is found in hilly terrain preferably on steep and dry localities, which were subjected to Podu cultivation in the past and have given space for bamboos to come up. Such pockets are available in all the 4 (four) ranges of this Division having the potentiality of bamboo as already narrated earlier.

6.3.4 The production of bamboo in this Division has shown a declining trend over the years as revealed from the statistics of bamboo production already furnished in Chapter-III of Part-I. 1 (one) felling series are found to be unproductive fully whereas another partly from commercial point of view in this Division. But the quantum of production has decreased in some felling series leading to overall decrease in the production. The reasons have already been ascribed in Chapter-II of Part-I for such degradation in the crop. The significant fact in case of bamboo is that over extraction in easily accessible lower slope and under extraction or sometimes no extraction in the high slopes of difficult terrain. This has resulted in degradation of crop in plain and foothill portion whereas congestion has occurred in the upper slopes. It is further observed that minimum numbers of culms required for healthy growth of rhizomes are not possessed by the clumps to a considerable extent. Similarly collection of Kardi i.e. the young new shoot during rains is a great menace to the natural regeneration. However the bamboo forest of this Division has still the potentiality for commercial production but it is in need of appropriate silvicultural operations to enhance the harvest on sustained basis.

6.4 Felling series,cutting sections and JFM areas:-

Cutting series shall be constituted in the division basis. Each cutting series has four annual coupes coterminous with the cutting cycle of 4 (four) years. These annual coupes are named as A,B,C,D.

6.4.1 Constitution of Cutting Series and Annual Coupe:

For smooth regulation of harvest of bamboo the total area of the working circle is divided into small units called felling series or cutting series which is in turn further divided in to sub units of annual cutting area named annual coupes. These annual coupes are named as A,B,C,D. Considering the potentiality of the crop as well as the topography of the area,4 nos. Of cutting series have been constituted for ensuring smooth harvest and executing the prescribed operations. The details of felling series with forest blocks, compartments and annual coupes are furnished below in the Table 6.1.

Table 6.1

3.Bamboo Overlapping Working Circle

Year	Anuual cutting Coupe No.	Range	Forest Block	Status	Compartment No.	Area in ha	
						Compartment Area	Coupe area
Telen Cutting Series							
2021-22	A	M.Rampur	Telen	RF	1	628.41	628.41
2022-23	B	M.Rampur	Telen	RF	2	426.9	426.9
2023-24	C	M.Rampur	Telen	RF	3	414.5	414.5
		M.Rampur	Telen	RF	4	409.47	409.47
2024-25	D	M.Rampur	Telen	RF	5	372.38	372.38
		M.Rampur	Telen	RF	6	408.34	408.34
2025-26	A	M.Rampur	Telen	RF	1	628.41	628.41
2026-27	B	M.Rampur	Telen	RF	2	426.9	426.9
2027-28	C	M.Rampur	Telen	RF	3	414.5	414.5
		M.Rampur	Telen	RF	4	409.47	409.47
2028-29	D	M.Rampur	Telen	RF	5	372.38	372.38
		M.Rampur	Telen	RF	6	408.34	408.34
2029-30	A	M.Rampur	Telen	RF	1	628.41	628.41
2030-31	B	M.Rampur	Telen	RF	2	426.9	426.9
Taparang Cutting Series							
2021-22	A	M.Rampur	Taprang	RF	15	377.32	1017.81
		M.Rampur	Taprang	RF	16	302.45	
		M.Rampur	Taprang	RF	17	338.04	
2022-23	B	M.Rampur	Taprang	RF	18	425.65	1374.24
		M.Rampur	Taprang	RF	19	431.27	
		M.Rampur	Taprang	RF	20	517.32	
2023-24	C	M.Rampur	Taprang	RF	1	443.14	1001.43
		M.Rampur	Taprang	RF	2	346.52	
		M.Rampur	Taprang	RF	3	211.77	
2024-25	D	M.Rampur	Taprang	RF	10	395.45	1834.49
		M.Rampur	Taprang	RF	11	407.3	
		M.Rampur	Taprang	RF	12	477.25	
		M.Rampur	Taprang	RF	13	277.78	
		M.Rampur	Taprang	RF	14	276.71	
2025-26	A	M.Rampur	Taprang	RF	15	377.32	1017.81
		M.Rampur	Taprang	RF	16	302.45	
		M.Rampur	Taprang	RF	17	338.04	
2026-27	B	M.Rampur	Taprang	RF	18	425.65	1374.24
		M.Rampur	Taprang	RF	19	431.27	
		M.Rampur	Taprang	RF	20	517.32	
2027-28	C	M.Rampur	Taprang	RF	1	443.14	1001.43

		M.Rampur	Taprang	RF	2	346.52	
		M.Rampur	Taprang	RF	3	211.77	
2028-29	D	M.Rampur	Taprang	RF	10	395.45	1834.49
		M.Rampur	Taprang	RF	11	407.3	
		M.Rampur	Taprang	RF	12	477.25	
		M.Rampur	Taprang	RF	13	277.78	
		M.Rampur	Taprang	RF	14	276.71	
2029-30	A	M.Rampur	Taprang	RF	15	377.32	1017.81
		M.Rampur	Taprang	RF	16	302.45	
		M.Rampur	Taprang	RF	17	338.04	
2030-31	B	M.Rampur	Taprang	RF	18	425.65	1374.24
		M.Rampur	Taprang	RF	19	431.27	
		M.Rampur	Taprang	RF	20	517.32	
Satami Cutting Series							
2021-22	A	M.Rampur	Satami	RF	2	323.775	323.775
2022-23	B	M.Rampur	Satami	RF	3	304.34	304.34
2023-24	C	M.Rampur	Satami	RF	4	463.79	952.89
		M.Rampur	Satami	RF	5	489.1	
2024-25	D	M.Rampur	Satami	RF	1	313.22	313.22
2025-26	A	M.Rampur	Satami	RF	2	323.775	323.775
2026-27	B	M.Rampur	Satami	RF	3	304.34	304.34
2027-28	C	M.Rampur	Satami	RF	4	463.79	952.89
		M.Rampur	Satami	RF	5	489.1	
2028-29	D	M.Rampur	Satami	RF	1	313.22	313.22
2029-30	A	M.Rampur	Satami	RF	2	323.775	323.775
2030-31	B	M.Rampur	Satami	RF	3	304.34	304.34
Benaguda East Cutting Series							
2021-22	A	M.Rampur	Benaguda East	RF	5	504.95	504.95
		M.Rampur	Benaguda East	RF	6	163.57	163.57
2022-23	B	M.Rampur	Benaguda East	RF	8	350.25	350.25
2023-24	C	M.Rampur	Benaguda East	RF	7(Part)	313.07	313.07
2024-25	D	M.Rampur	Benaguda East	RF	7(Balance)	147.47	147.47
2025-26	A	M.Rampur	Benaguda East	RF	5	504.95	504.95
		M.Rampur	Benaguda East	RF	6	163.57	163.57
2026-27	B	M.Rampur	Benaguda East	RF	8	350.25	350.25
2027-28	C	M.Rampur	Benaguda East	RF	7(Part)	313.07	313.07
2028-29	D	M.Rampur	Benaguda East	RF	7(Balance)	147.47	147.47
2029-30	A	M.Rampur	Benaguda East	RF	5	504.95	504.95
		M.Rampur	Benaguda East	RF	6	163.57	163.57
2030-31	B	M.Rampur	Benaguda East	RF	8	350.25	350.25
Benaguda West Cutting Series							
2021-22	A	M.Rampur	Benaguda West	RF	11	335.95	569.69
		M.Rampur	Benaguda West	RF	12	233.74	

2022-23	B	M.Rampur	Benaguda West	RF	13	383.49	383.49
2023-24	C	M.Rampur	Benaguda West	RF	1	180.34	1863.72
		M.Rampur	Benaguda West	RF	2	613	
		M.Rampur	Benaguda West	RF	3	255.45	
		M.Rampur	Benaguda West	RF	4	538.28	
		M.Rampur	Benaguda West	RF	14	276.65	
2024-25	D	M.Rampur	Benaguda West	RF	9	229.85	632.08
		M.Rampur	Benaguda West	RF	10	402.23	
2025-26	A	M.Rampur	Benaguda West	RF	11	335.95	569.69
		M.Rampur	Benaguda West	RF	12	233.74	
2026-27	B	M.Rampur	Benaguda West	RF	13	383.49	383.49
2027-28	C	M.Rampur	Benaguda West	RF	1	180.34	1863.72
		M.Rampur	Benaguda West	RF	2	613	
		M.Rampur	Benaguda West	RF	3	255.45	
		M.Rampur	Benaguda West	RF	4	538.28	
		M.Rampur	Benaguda West	RF	14	276.65	
2028-29	D	M.Rampur	Benaguda West	RF	9	229.85	632.08
		M.Rampur	Benaguda West	RF	10	402.23	
2029-30	A	M.Rampur	Benaguda West	RF	11	335.95	569.69
		M.Rampur	Benaguda West	RF	12	233.74	
2030-31	B	M.Rampur	Benaguda West	RF	13	383.49	383.49
Sulia Cutting Series							
2021-22	A	M.Rampur	Sulia	PRF	Part	1571	1943
		M.Rampur	Sulia	PRF	Part	372	
		M.Rampur	Sulia	PRF	Talnuagaon	177.4654	177.4654
2022-23	B	M.Rampur	Sulia	PRF	Part	752	752
2023-24	C	M.Rampur	Sulia	PRF	Part	1945.332	1945.332
2024-25	D	M.Rampur	Sulia	PRF	Part	977	977
2025-26	A	M.Rampur	Sulia	PRF	Part	1571	1943
		M.Rampur	Sulia	PRF	Part	372	
		M.Rampur	Sulia	PRF	Talnuagaon	177.47	177.47
2026-27	B	M.Rampur	Sulia	PRF	Part	752	752
2027-28	C	M.Rampur	Sulia	PRF	Part	1945.332	1945.332
2028-29	D	M.Rampur	Sulia	PRF	Part	977	977
2029-30	A	M.Rampur	Sulia	PRF	Part	1571	1943
		M.Rampur	Sulia	PRF	Part	372	
		M.Rampur	Sulia	PRF	Talnuagaon	177.47	177.47
2030-31	B	M.Rampur	Sulia	PRF	Part	752	752
Ramud Cutting Series							
2021-22	A	M.Rampur	Ramud	PRF	Part	186.33	186.33
2022-23	B	M.Rampur	Ramud	PRF	Part	156.20	156.20

2023-24	C	M.Rampur	Ramud	PRF	Part	111.07	111.07
2024-25	D	M.Rampur	Ramud	PRF	Part	93.49	93.49
2025-26	A	M.Rampur	Ramud	PRF	Part	186.33	186.33
2026-27	B	M.Rampur	Ramud	PRF	Part	156.20	156.20
2027-28	C	M.Rampur	Ramud	PRF	Part	111.07	111.07
2028-29	D	M.Rampur	Ramud	PRF	Part	93.49	93.49
2029-30	A	M.Rampur	Ramud	PRF	Part	186.33	186.33
2030-31	B	M.Rampur	Ramud	PRF	Part	156.20	156.20
Puijhari Cutting Series							
2021-22	A	M.Rampur	Puijhari	PRF	Part	724	724
2022-23	B	M.Rampur	Puijhari	PRF	Part	514	514
2023-24	C	M.Rampur	Puijhari	PRF	Part	777.21	777.21
2024-25	D	M.Rampur	Puijhari	PRF	Part	236	236
2025-26	A	M.Rampur	Puijhari	PRF	Part	724	724
2026-27	B	M.Rampur	Puijhari	PRF	Part	514	514
2027-28	C	M.Rampur	Puijhari	PRF	Part	777.21	777.21
2028-29	D	M.Rampur	Puijhari	PRF	Part	236	236
2029-30	A	M.Rampur	Puijhari	PRF	Part	724	724
2030-31	B	M.Rampur	Puijhari	PRF	Part	514	514
Chura A East Cutting Series							
2021-22	A	KEGAON	Chura 'A' East	RF	13	96.30	839.12
		KEGAON	Chura 'A' East	RF	14	349.18	
		KEGAON	Chura 'A' East	RF	15	393.65	
2022-23	B	KEGAON	Chura 'A' East	RF	4	293.60	1002.71
		KEGAON	Chura 'A' East	RF	5	288.30	
		KEGAON	Chura 'A' East	RF	12	135.55	
		KEGAON	Chura 'A' East	RF	16	285.26	
2023-24	C	KEGAON	Chura 'A' East	RF	3	177.84	705.82
		KEGAON	Chura 'A' East	RF	6	255.96	
		KEGAON	Chura 'A' East	RF	17	272.02	
2024-25	D	KEGAON	Chura 'A' East	RF	10	276.28	968.35
		KEGAON	Chura 'A' East	RF	11	312.15	
		KEGAON	Chura 'A' East	RF	23	379.92	
2025-26	A	KEGAON	Chura 'A' East	RF	13	96.30	839.12
		KEGAON	Chura 'A' East	RF	14	349.18	
		KEGAON	Chura 'A' East	RF	15	393.65	
2026-27	B	KEGAON	Chura 'A' East	RF	4	293.60	1002.71
		KEGAON	Chura 'A' East	RF	5	288.30	
		KEGAON	Chura 'A' East	RF	12	135.55	
		KEGAON	Chura 'A' East	RF	16	285.26	
2027-28	C	KEGAON	Chura 'A' East	RF	3	177.84	705.82
		KEGAON	Chura 'A' East	RF	6	255.96	
		KEGAON	Chura 'A' East	RF	17	272.02	
2028-29	D	KEGAON	Chura 'A' East	RF	10	276.28	968.35
		KEGAON	Chura 'A' East	RF	11	312.15	

		KEGAON	Chura 'A' East	RF	23	379.92	
2029-30	A	KEGAON	Chura 'A' East	RF	13	96.30	839.12
		KEGAON	Chura 'A' East	RF	14	349.18	
		KEGAON	Chura 'A' East	RF	15	393.65	
2030-31	B	KEGAON	Chura 'A' East	RF	4	293.60	1002.71
		KEGAON	Chura 'A' East	RF	5	288.30	
		KEGAON	Chura 'A' East	RF	12	135.55	
		KEGAON	Chura 'A' East	RF	16	285.26	
Chura A West Cutting Series							
2021-22	A	KEGAON	Chura ‘A’ West	RF	19	442.00	872.41
		KEGAON	Chura ‘A’ West	RF	20	430.41	
2022-23	B	KEGAON	Chura ‘A’ West	RF	1	207.32	869.06
		KEGAON	Chura ‘A’ West	RF	2	349.35	
		KEGAON	Chura ‘A’ West	RF	22	312.39	
2023-24	C	KEGAON	Chura ‘A’ West	RF	7	301.55	960.02
		KEGAON	Chura ‘A’ West	RF	8	332.51	
		KEGAON	Chura ‘A’ West	RF	9	325.96	
2024-25	D	KEGAON	Chura ‘A’ West	RF	18	386.75	681.03
		KEGAON	Chura ‘A’ West	RF	21	294.28	
2025-26	A	KEGAON	Chura ‘A’ West	RF	19	442.00	872.41
		KEGAON	Chura ‘A’ West	RF	20	430.41	
2026-27	B	KEGAON	Chura ‘A’ West	RF	1	207.32	869.06
		KEGAON	Chura ‘A’ West	RF	2	349.35	
		KEGAON	Chura ‘A’ West	RF	22	312.39	
2027-28	C	KEGAON	Chura ‘A’ West	RF	7	301.55	960.02
		KEGAON	Chura ‘A’ West	RF	8	332.51	
		KEGAON	Chura ‘A’ West	RF	9	325.96	
2028-29	D	KEGAON	Chura ‘A’ West	RF	18	386.75	681.03
		KEGAON	Chura ‘A’ West	RF	21	294.28	
2029-30	A	KEGAON	Chura ‘A’ West	RF	19	442.00	872.41
		KEGAON	Chura ‘A’ West	RF	20	430.41	
2030-31	B	KEGAON	Chura ‘A’ West	RF	1	207.32	869.06
		KEGAON	Chura ‘A’ West	RF	2	349.35	
		KEGAON	Chura ‘A’ West	RF	22	312.39	
Chura B Cutting Series							
2021-22	A	KEGAON	Chura ‘B’	RF	6	272.32	590.39
		KEGAON	Chura ‘B’	RF	7	318.07	
2022-23	B	KEGAON	Chura ‘B’	RF	3	336.64	660.75
		KEGAON	Chura ‘B’	RF	8	324.11	
2023-24	C	KEGAON	Chura ‘B’	RF	1	75.47	234.35
		KEGAON	Chura ‘B’	RF	2	158.88	
2024-25	D	KEGAON	Chura ‘B’	RF	4	296.68	591.22
		KEGAON	Chura ‘B’	RF	5	294.54	
2025-26	A	KEGAON	Chura ‘B’	RF	6	272.32	590.39
		KEGAON	Chura ‘B’	RF	7	318.07	

2026-27	B	KEGAON	Chura ‘B’	RF	3	336.64	660.75
		KEGAON	Chura ‘B’	RF	8	324.11	
2027-28	C	KEGAON	Chura ‘B’	RF	1	75.47	234.35
		KEGAON	Chura ‘B’	RF	2	158.88	
2028-29	D	KEGAON	Chura ‘B’	RF	4	296.68	591.22
		KEGAON	Chura ‘B’	RF	5	294.54	
2029-30	A	KEGAON	Chura ‘B’	RF	6	272.32	590.39
		KEGAON	Chura ‘B’	RF	7	318.07	
2030-31	B	KEGAON	Chura ‘B’	RF	3	336.64	660.75
		KEGAON	Chura ‘B’	RF	8	324.11	
Urladani East Cutting Series							
2021-22	A	Narla	Urladani East	RF	10	415.26	415.26
2022-23	B	Narla	Urladani East	RF	9	292.47	292.47
2023-24	C	Narla	Urladani East	RF	8	277.70	277.70
2024-25	D	Narla	Urladani East	RF	7	354.26	793.59
		Narla	Urladani East	RF	11	439.33	
2025-26	A	Narla	Urladani East	RF	10	415.26	415.26
2026-27	B	Narla	Urladani East	RF	9	292.47	292.47
2027-28	C	Narla	Urladani East	RF	8	277.70	277.70
2028-29	D	Narla	Urladani East	RF	7	354.26	793.59
		Narla	Urladani East	RF	11	439.33	
2029-30	A	Narla	Urladani East	RF	10	415.26	415.26
2030-31	B	Narla	Urladani East	RF	9	292.47	292.47
Urladani West Cutting Series							
2021-22	A	Narla	Urladani west	RF	21	302.03	662.41
		Narla	Urladani west	RF	25	360.38	
2022-23	B	Narla	Urladani west	RF	26	360.25	580.08
		Narla	Urladani west	RF	27	219.83	
2023-24	C	Narla	Urladani west	RF	28	242.61	589.34
		Narla	Urladani west	RF	29	101.05	
		Narla	Urladani west	RF	30	245.69	
2024-25	D	Narla	Urladani west	RF	18	195.57	632.96
		Narla	Urladani west	RF	20	239.75	
		Narla	Urladani west	RF	22	197.64	
2025-26	A	Narla	Urladani west	RF	21	302.03	662.41
		Narla	Urladani west	RF	25	360.38	
2026-27	B	Narla	Urladani west	RF	26	360.25	580.08
		Narla	Urladani west	RF	27	219.83	
2027-28	C	Narla	Urladani west	RF	28	242.61	589.34
		Narla	Urladani west	RF	29	101.05	
		Narla	Urladani west	RF	30	245.69	
2028-29	D	Narla	Urladani west	RF	18	195.57	632.96
		Narla	Urladani west	RF	20	239.75	
		Narla	Urladani west	RF	22	197.64	
2029-30	A	Narla	Urladani west	RF	21	302.03	662.41

		Narla	Urladani west	RF	25	360.38	
2030-31	B	Narla	Urladani west	RF	26	360.25	580.08
		Narla	Urladani west	RF	27	219.83	
Urladani Central Cutting Series							
2021-22	A	Narla	Urladani Central	RF	12	291.32	548.63
		Narla	Urladani Central	RF	16	257.31	
2022-23	B	Narla	Urladani Central	RF	13	337.06	640.51
		Narla	Urladani Central	RF	14	303.45	
2023-24	C	Narla	Urladani Central	RF	15	215.33	557.12
		Narla	Urladani Central	RF	31	341.79	
2024-25	D	Narla	Urladani Central	RF	17	632.06	1275.73
		Narla	Urladani Central	RF	19	275.37	
		Narla	Urladani Central	RF	1(part)+Dengsur DPF	368.30	
2025-26	A	Narla	Urladani Central	RF	12	291.32	548.63
		Narla	Urladani Central	RF	16	257.31	
2026-27	B	Narla	Urladani Central	RF	13	337.06	640.51
		Narla	Urladani Central	RF	14	303.45	
2027-28	C	Narla	Urladani Central	RF	15	215.33	557.12
		Narla	Urladani Central	RF	31	341.79	
2028-29	D	Narla	Urladani Central	RF	17	632.06	1275.73
		Narla	Urladani Central	RF	19	275.37	
		Narla	Urladani Central	RF	1(part)+Dengsur DPF	368.30	
2029-30	A	Narla	Urladani Central	RF	12	291.32	548.63
		Narla	Urladani Central	RF	16	257.31	
2030-31	B	Narla	Urladani Central	RF	13	337.06	640.51
		Narla	Urladani Central	RF	14	303.45	
Porgel Cutting Series							
2021-22	A	Narla	Porgel	RF	3	418.29	418.29
2022-23	B	Narla	Porgel	RF	4	304.94	304.94
2023-24	C	Narla	Porgel	RF	1	494.45	696.92
		Narla	Porgel	RF	1(PART)+ Jamguda	202.47	
2024-25	D	Narla	Porgel	RF	2	399.26	399.26
2025-26	A	Narla	Porgel	RF	3	418.29	418.29
2026-27	B	Narla	Porgel	RF	4	304.94	304.94
2027-28	C	Narla	Porgel	RF	1	494.45	696.92
		Narla	Porgel	RF	1(PART)+ Jamguda	202.47	
2028-29	D	Narla	Porgel	RF	2	399.26	399.26
2029-30	A	Narla	Porgel	RF	3	418.29	418.29
2030-31	B	Narla	Porgel	RF	4	304.94	304.94
Porgel Extn. Cutting Series							
2021-22	A	Narla	Porgel Extn.	PRF	PART	622.85	1293.79
		Narla	Porgel Extn.	PRF	PART(Sikerguda)	670.94	
2022-23	B	Narla	Porgel Extn.	PRF	PART	647.64	815.52

		Narla	Porgel Extn.	PRF	PART (Mundighati)	167.88	
2023-24	C	Narla	Porgel Extn.	PRF	PART	1074.76	1186.27
		Narla	Porgel Extn.	PRF	PART (Badibahal)	111.52	
2024-25	D	Narla	Porgel Extn.	PRF	PART	417.56	417.56
2025-26	A	Narla	Porgel Extn.	PRF	PART	622.85	935.79
		Narla	Porgel Extn.	PRF	PART	312.94	
2026-27	B	Narla	Porgel Extn.	PRF	PART	647.64	727.32
		Narla	Porgel Extn.	PRF	PART	79.68	
2027-28	C	Narla	Porgel Extn.	PRF	PART	1074.76	1141.33
		Narla	Porgel Extn.	PRF	PART	66.58	
2028-29	D	Narla	Porgel Extn.	PRF	PART	417.56	417.56
2029-30	A	Narla	Porgel Extn.	PRF	PART	622.85	935.79
		Narla	Porgel Extn.	PRF	PART	312.94	
2030-31	B	Narla	Porgel Extn.	PRF	PART	647.64	727.32
		Narla	Porgel Extn.	PRF	PART	79.68	
Kadalighati Cutting Series							
2021-22	A	Bhawanipatna	Kadalighati	RF	3	326.16	326.16
2022-23	B	Bhawanipatna	Kadalighati	RF	4	321.31	321.31
2023-24	C	Bhawanipatna	Kadalighati	RF	5	319.72	319.72
2024-25	D	Bhawanipatna	Kadalighati	RF	1	363.40	750.34
		Bhawanipatna	Kadalighati	RF	2	386.95	
2025-26	A	Bhawanipatna	Kadalighati	RF	3	326.16	326.16
2026-27	B	Bhawanipatna	Kadalighati	RF	4	321.31	321.31
2027-28	C	Bhawanipatna	Kadalighati	RF	5	319.72	319.72
2028-29	D	Bhawanipatna	Kadalighati	RF	1	363.40	750.34
		Bhawanipatna	Kadalighati	RF	2	386.95	
2029-30	A	Bhawanipatna	Kadalighati	RF	3	326.16	326.16
2030-31	B	Bhawanipatna	Kadalighati	RF	4	321.31	321.31
Brahmani East Cutting Series							
2021-22	A	Bhawanipatna	Bramahni East	RF	10	344.62	571.27
		Bhawanipatna	Bramahni East	RF	11	226.65	
2022-23	B	Bhawanipatna	Bramahni East	RF	5	249.78	774.48
		Bhawanipatna	Bramahni East	RF	6	269.24	
		Bhawanipatna	Bramahni East	RF	12	255.46	
2023-24	C	Bhawanipatna	Bramahni East	RF	3	159.95	373.53
		Bhawanipatna	Bramahni East	RF	4	213.57	
2024-25	D	Bhawanipatna	Bramahni East	RF	13	162.88	1601.68
		Bhawanipatna	Bramahni East	RF	14	165.30	
		Bhawanipatna	Bramahni East	RF	15	503.25	
		Bhawanipatna	Bramahni East	RF	16	465.58	
		Bhawanipatna	Bramahni East	RF	20	304.66	
2025-26	A	Bhawanipatna	Bramahni East	RF	10	344.62	571.27
		Bhawanipatna	Bramahni East	RF	11	226.65	
2026-27	B	Bhawanipatna	Bramahni East	RF	5	249.78	774.48
		Bhawanipatna	Bramahni East	RF	6	269.24	

		Bhawanipatna	Bramahni East	RF	12	255.46	
2027-28	C	Bhawanipatna	Bramahni East	RF	3	159.95	373.53
		Bhawanipatna	Bramahni East	RF	4	213.57	
2028-29	D	Bhawanipatna	Bramahni East	RF	13	162.88	1601.68
		Bhawanipatna	Bramahni East	RF	14	165.30	
		Bhawanipatna	Bramahni East	RF	15	503.25	
		Bhawanipatna	Bramahni East	RF	16	465.58	
		Bhawanipatna	Bramahni East	RF	20	304.66	
2029-30	A	Bhawanipatna	Bramahni East	RF	10	344.62	571.27
		Bhawanipatna	Bramahni East	RF	11	226.65	
2030-31	B	Bhawanipatna	Bramahni East	RF	5	249.78	774.48
		Bhawanipatna	Bramahni East	RF	6	269.24	
		Bhawanipatna	Bramahni East	RF	12	255.46	
Brahmani West Cutting Series							
2021-22	A	Bhawanipatna	Brahmani West	RF	7	233.95	433.36
		Bhawanipatna	Brahmani West	RF	8	199.40	
2022-23	B	Bhawanipatna	Brahmani West	RF	9	229.96	496.85
		Bhawanipatna	Brahmani West	RF	18	266.89	
2023-24	C	Bhawanipatna	Brahmani West	RF	17	491.12	1059.24
		Bhawanipatna	Brahmani West	RF	19	568.12	
2024-25	D	Bhawanipatna	Brahmani West	RF	1	194.20	536.49
		Bhawanipatna	Brahmani West	RF	2	342.29	
2025-26	A	Bhawanipatna	Brahmani West	RF	7	233.95	433.36
		Bhawanipatna	Brahmani West	RF	8	199.40	
2026-27	B	Bhawanipatna	Brahmani West	RF	9	229.96	496.85
		Bhawanipatna	Brahmani West	RF	18	266.89	
2027-28	C	Bhawanipatna	Brahmani West	RF	17	491.12	1059.24
		Bhawanipatna	Brahmani West	RF	19	568.12	
2028-29	D	Bhawanipatna	Brahmani West	RF	1	194.20	536.49
		Bhawanipatna	Brahmani West	RF	2	342.29	
2029-30	A	Bhawanipatna	Brahmani West	RF	7	233.95	433.36
		Bhawanipatna	Brahmani West	RF	8	199.40	
2030-31	B	Bhawanipatna	Brahmani West	RF	9	229.96	496.85
		Bhawanipatna	Brahmani West	RF	18	266.89	
Alma Cutting Series							
2021-22	A	Bhawanipatna	Alma	RF	PART	458.16	458.16
2022-23	B	Bhawanipatna	Alma	RF	PART	195.18	195.18
		Bhawanipatna	Alma	RF	Kutrukhai	314.97	314.97
2023-24	C	Bhawanipatna	Alma	RF	PART	320.33	320.33
2024-25	D	Bhawanipatna	Alma	RF	PART	386.33	386.33
2025-26	A	Bhawanipatna	Alma	RF	PART	458.16	458.16
2026-27	B	Bhawanipatna	Alma	RF	PART	195.18	195.18
		Bhawanipatna	Alma	RF	Kutrukhai	314.97	314.97
2027-28	C	Bhawanipatna	Alma	RF	PART	320.33	320.33
2028-29	D	Bhawanipatna	Alma	RF	PART	386.33	386.33
2029-30	A	Bhawanipatna	Alma	RF	PART	458.16	458.16
2030-31	B	Bhawanipatna	Alma	RF	PART	195.18	195.18
		Bhawanipatna	Alma	RF	Kutrukhai	314.97	314.97

Pordhar Cutting Series							
2021-22	A	Bhawanipatna	Pordhar	RF	PART	166.23	166.23
2022-23	B	Bhawanipatna	Pordhar	RF	PART	195.22	195.22
2023-24	C	Bhawanipatna	Pordhar	RF	PART	265.88	265.88
2024-25	D	Bhawanipatna	Pordhar	RF	PART	206.11	206.11
2025-26	A	Bhawanipatna	Pordhar	RF	PART	166.23	166.23
2026-27	B	Bhawanipatna	Pordhar	RF	PART	195.22	195.22
2027-28	C	Bhawanipatna	Pordhar	RF	PART	265.88	265.88
2028-29	D	Bhawanipatna	Pordhar	RF	PART	206.11	206.11
2029-30	A	Bhawanipatna	Pordhar	RF	PART	166.23	166.23
2030-31	B	Bhawanipatna	Pordhar	RF	PART	195.22	195.22
Kanamanjur Cutting Series							
2021-22	A	Bhawanipatna	Kanamanjur	RF	PART	308.53	308.53
2022-23	B	Bhawanipatna	Kanamanjur	RF	PART	365.08	365.08
2023-24	C	Bhawanipatna	Kanamanjur	RF	PART	482.03	482.03
2024-25	D	Bhawanipatna	Kanamanjur	RF	PART	658.72	658.72
2025-26	A	Bhawanipatna	Kanamanjur	RF	PART	308.53	308.53
2026-27	B	Bhawanipatna	Kanamanjur	RF	PART	365.08	365.08
2027-28	C	Bhawanipatna	Kanamanjur	RF	PART	482.03	482.03
2028-29	D	Bhawanipatna	Kanamanjur	RF	PART	658.72	658.72
2029-30	A	Bhawanipatna	Kanamanjur	RF	PART	308.53	308.53
2030-31	B	Bhawanipatna	Kanamanjur	RF	PART	365.08	365.08
Th. Gundi Cutting Series							
2021-22	A	Bhawanipatna	Th.Gundi	PRF	Part	3020.40	3020.40
2022-23	B	Bhawanipatna	Th.Gundi	PRF	Part	1308.68	1308.68
2023-24	C	Bhawanipatna	Th.Gundi	PRF	Part	2476.01	2476.01
2024-25	D	Bhawanipatna	Th.Gundi	PRF	Part	2382.62	2382.62
2025-26	A	Bhawanipatna	Th.Gundi	PRF	Part	3020.40	3020.40
2026-27	B	Bhawanipatna	Th.Gundi	PRF	Part	1308.68	1308.68
2027-28	C	Bhawanipatna	Th.Gundi	PRF	Part	2476.01	2476.01
2028-29	D	Bhawanipatna	Th.Gundi	PRF	Part	2382.62	2382.62
2029-30	A	Bhawanipatna	Th.Gundi	PRF	Part	3020.40	3020.40
2030-31	B	Bhawanipatna	Th.Gundi	PRF	Part	1308.68	1308.68

6.5 Blocks, compartments and JFM area (marked on GIS based maps):-

Forest blocks allotted to the Bamboo (Overlapping) Working Circle is given in Table 6.2.

Table 6.2

Forest Blocks allotted to this OverlappingWorking Circle				
Sl No	**Name of Range**	**Name of Forest Block**	**Area of forest Block (in ha.)**	**Area allotted to bamboo Overlapping Working Circle**

1	M.Rampur	Satami RF	1894.22	1894.22
2		Taprang RF	6887.81	5227.97
3		Telen RF	2660	2660
4		Benaguda RF	4928.29	4928.29
5		Ramud PRF	547.09	547.09
6		Sulia PRF	5617.34	5617.34
7		Talnuagaon PRF	177.46	177.46
8		Puijhari PRF	2251.21	2251.21
9	Narla	Porgel RF	1712	1712
10		Urladani RF	10277.90	7010.75
11		Porgel extension PRF	3222	3222
12		Badibahal PRF	44.94	44.94
13		Sikerguda PRF	358	358
14		Jamguda PRF	107.4	107.4
15		Dengsur DPF	255.06	255.06
16		Mundighati DPF	88.2	88.2
17	Bhawanipatna	Alma RF	1360	1360
18		Brahmani RF	5846.90	5846.9
19		Kanamanjur RF	1814.36	1814.36
20		Kutrukhai RF	314.97	314.97
21		Pordhar RF	833.43	833.43
22		Kadalighati RF	1717.53	1717.53
23		Thuapadar Gundi DPF	9187.7	9187.7
24	Kegaon	Chura ‘A’ RF	6898.52	6898.52
25		Chura ‘B’ RF	2349.34	2076.71
TOTAL			**71351.69**	**66152.07**

6.6 Special Objectives of Management: -

1. To **B**oost and sustain the production through suitable silvicultural operation and systematic management of bamboo forests.

2. To **A**ccelerate the natural regeneration through protection of the young bamboo particularly the slender shoots i.e. Kardi from being collected indiscriminately by the local people.

3. To **M**eet the bonafide demand of local people, bamboo artisans and bamboo based industries.

4. To **B**enefit the people dwelling in and around the forests especially the weaker section of the society through creation of employment opportunity.

5. To **O**pt for site-specific treatment to revive the unproductive coupe to commercially viable production.

6. To **O**ptimise the production in elephant dominated area to cater their food need.

6.6.1 Analysis of the Crop: -

6.6.1 Salia bamboo (Dendrocalamus strictus) is the most dominant species, which occurs almost the entire area allotted to this working circle except some moist localities along with Nalla banks where Kanta bamboo (Bambusa arundinacea, and Bolangi bamboo (Gigantochloa hasskarliana) occurs in limited patches. Due to biotic interference, the deterioration in both quality and quantity of the crop has been observed. This is further aggravated in absence of required silvicultural operations.

6.6.2 Enumeration of bamboo clumps has been carried out simultaneously with that of tree crop in sample point inventory and the same have been analysed to determine the number of bamboo clumps per ha. along with average number of culms per clumps. An abstract of the aforesaid analysis for the forest blocks assigned to this overlapping working circle is furnished in the Table given below.

Table 6.3
Abstract analysis of Enumeration Data

Name of the Range	Name of the Forest Block	Status	Area in Ha.	Number of clumps per Ha.	Average number of culms per clumps	Quality
1	**2**	**3**	**4**	**5**	**6**	**7**
Bhawanipatna	Alma	RF	1360	49	18	II,III
	Kanamajur	RF	1814.36	52	20	I,II
	Brahamani	RF	5846.9	55	25	I,II,III
	Kadalighati	RF	1717.53	35	16	II,III
	Poddara	RF	833.43	20	16	II,III
	Kutrukhai	RF	314.97	10	12	II,III
	Th.Padar Gundi	DPF	9187.7	48	17	II,III
Kegaon	Chura A	RF	6898.52	29	15	II,III
	Chura B	RF	2076.71	38	15	III
Narla	Porgel	RF	1712	15	10	I,II,III
	Urladani	RF	7010.75	80	8	II,III
	Porgel Extn	PRF	3222	33	8	I,II,III
	Jamguda	PRF	107.4	16	10	III
	Sikerguda	PRF	358	33	8	II,III
	Mundighati	PRF	88.2	25	8	II,III
	Badibahal	PRF	44.94	47	8	II,III
	Dengsur	PRF	255.06	50	1	II,III
M.Rampur	Benaguda	RF	4928.29	62	11	I,II,III
	Satami	RF	1894.22	67	11	II,III
	Taprang	RF	5227.97	16	10	II,III
	Telen	RF	2660	36	11	II,III
	Sulia	PRF	5617.34	73	11	II,III
	Ramud	PRF	547.09	95	10	II,III

	Puijhari	PRF	2251.21	60	10	II,III
	Talnuagaon	PRF	177.46	65	10	III

6.6.2 Silvicultural System: -

6.6.2.1 Since mostly Salia Bamboo and to small extent Kanta Bamboo are commercially harvested in this Division the prescribed Silvicultural System for these two categories of bamboos are furnished under separately considering the silvicultural characteristics.

a. For Salia Bamboo – The prescribed system is culm selection cum clump improvement with subsidiary silvicultural operation.

b. For Kanta Bamboo – Clump improvement with subsidiary silvicultural operation is the system to be followed in the plan period.

6.6.3 Rotation period: -

6.6.3.1A 4 (Four) year rotation as followed in the last plan period is reiterated for this plan period.

6.6 4 Harvestable diameters:-

Not Required.

6.6.5 Reducing factors and reduced areas:-

Not required.

6.6.6 Felling cycle:-

Coinciding with the period of rotation, a cutting cycle of 4 (four) year is adopted for this plan.

6.6.7 Division into periods and allotment to periodic blocks (PB):-

Not required

6.6.8 Calculation of the yield:-

Yield will be regulated by area. The bamboo felling (cutting) rules communicated vide letter No.13/FCWP/OS-Gen dated 24th Dec 1990 of the Government of India, Ministry of Environment & Forests shall be followed for determining as well as regulating the yield. The coupes of each felling series shall be worked out through rotation.

Yield estimation is done basing on the quality of the crop, and number of harvestable culm per clump as per the aforesaid cutting rule. It is revealed from the enumeration data that, the clumps are either of quality II or quality III thus the average height of the culms is taken as 7.5 meter and 3 meter respectively for the aforesaid two quality classes of clumps. Yield is calculated in terms of sale units as per the practice in vogue but since 2004-05 the weighment system has been introduced to determine the yield for calculation of royalty. Still then the system of bundle and

sale unit is in practice to indicate the production in the field. The details of this system of measurement of the yield is furnished below.

Industrial Bamboo

Salia Bamboo

- 1 full Bundle = 21 pieces
- Length per piece = 2.3 meters
- 1 full bundle = (21 pcs. x 2.3 running meters) = 48.3 Running Meter
- 1 Sale Unit =49.68 bundle x 48.3 Running Meter = 2400 Running Meter
- Approximate weight of 1 Sale Unit = 1 MT
- Half Bundle = 21 pieces
- Length per piece = 1.15 meters
- 1 Sale Unit = 99.37 bundles x 24.15 Running Meter = 2400 Running Meter

Kanta Bamboo

- 1 Full Bundle = 7 pieces
- Length per piece = 2.3 meters
- 1 Sale Unit = 0.006708 x 1 bundle x 2.3 meters

Commercial / Long Bamboo

Both Salia & Kanta Bamboo

- Length per piece = 6.85 meters
- 1 Sale Unit = 350 nos. of Long / Commercial Bamboo
-

Considering the sale unit as the unit of expression for yield, the following formula is adopted for calculation of yield.

$$Y = \frac{A \times N_1 \times N_2 \times H}{2400}$$

Y = Yield of Felling Series (or Annual Coupe) in Sale Unit

A = Area of Felling Series (or Annual Coupe) in Hectare

N_1 = Number of Clumps / Hectare

N_2 = Number of Harvestable Culms / Clump

H = Average Culm height

The calculation of growing stocks of Bamboo present within the limits of the Bamboo (Overlapping) Working Circle as calculated from the enumeration conducted in the 25 forest blocks are given in Table 6.4.

Table No. 6.4

Growing stock of Bamboo present in this oOverlapping Working Circle						
Name of the Range	**Name of the Forest Block**	**Area in Ha.**	**Number of clumps per Ha.**	**Average culms per Clump**	**Total Culms per Ha**	**Total Bamboo culms of the area (G.S of Bamboo)**
1	**2**	3	4	5	6	7
Bhawanipatna	Alma	1360	49	20	980	1332800
	Kanamajur	1814.36	52	22	1144	2075628
	Brahamani	5846.9	55	25	1375	8039488
	Kadalighati	1717.53	35	18	630	1082044
	Poddara	833.43	20	18	360	300034.8
	Kutrukhai	314.97	10	12	120	37796.4
	Th.Padar Gundi	9187.7	48	20	960	8820192
Kegaon	Chura A	6898.52	29	15	435	3000856
	Chura B	2076.71	38	15	570	1183725
Narla	Porgel	1712	15	10	150	256800
	Urladani	7010.75	80	8	640	4486880
	Porgel Extn	3222	33	8	264	850608
	Jamguda	107.4	16	10	160	17184
	Sikerguda	358	33	8	264	94512
	Mundighati	88.2	25	8	200	17640
	Badibahal	44.94	47	8	376	16897.44
	Dengsur	255.06	50	1	50	12753
M.Rampur	Benaguda	4928.29	62	18	1116	5499972
	Satami	1894.22	67	18	1206	2284429
	Taprang	5227.97	16	17	272	1422008
	Telen	2660	36	18	648	1723680
	Sulia	5617.34	73	18	1314	7381185
	Ramud	547.09	95	17	1615	883550.4
	Puijhari	2251.21	60	17	1020	2296234
	Talnuagaon	177.46	65	17	1105	196093.3

From the data collected through sampling methods the total numbers of clumps and culms in the area assigned in the forest blocks mentioned are extrapolated and found to be 53312989 culms. All the 25 blocks in this overlapping Working Circle have been categorised into Type I, II and III according to average length of the culms enumerated during the field inventory. Now that the standard length of each class are taken as average of the lower limit and the higher limit of the class and multiplying it with the total number of culms the length in running meters are computed, which is divided by 2400 (Sale unit) we get the total yield of the overlapping working circle which come to 99261 Sale unit. Total yield of the Bamboo is given in Table 6.5.

Table No. 6.5

Total Yield calculation of Bamboo in Kalahandi North Division

Name of the Forest Block	Area in Ha.	Number of clumps per Ha.	Total Culms per Ha.	Total Bamboo culms of the area (G.S Of bamboo)	Quality	Average length of the culm in Mts.	Total length of bamboo in Mts	Total Sale unit	Average Sale Units per Ha.
1	2	3	4	5	6	7	8	9	10
Alma	1360	49	980	1332800	II,III	4.5	5997600	2499	1.84
Kanamajur	1814.36	52	1144	2075628	I,II	4.7	9755452	4065	2.24
Brahamani	5846.9	55	1375	8039488	I,II,III	4.5	36177694	15074	2.58
Kadalighati	1717.53	35	630	1082044	II,III	4.5	4869198	2029	1.18
Poddara	833.43	20	360	300034.8	II,III	4.5	1350157	563	0.68
Kutrukhai	314.97	10	120	37796.4	II,III	4.5	170083.8	71	0.23
Th.Padar Gundi	9187.7	48	960	8820192	II,III	4.5	39690864	16538	1.80
Chura A	6898.52	29	435	3000856	II,III	4.5	13503852	5626	0.82
Chura B	2076.71	38	570	1183725	III	3	3551174	1480	0.71
Porgel	1712	15	150	256800	I,II,III	4.5	1155600	482	0.28
Urladani	7010.75	80	640	4486880	II,III	4.5	20190960	8413	1.20
Porgel Extn	3222	33	264	850608	I,II,III	4.5	3827736	1595	0.50
Jamguda	107.4	16	160	17184	III	3	77328	32	0.30
Sikerguda	358	33	264	94512	II,III	4.5	425304	177	0.50
Mundighati	88.2	25	200	17640	II,III	4.5	79380	33	0.38
Badibahal	44.94	47	376	16897.44	II,III	4.5	76038.48	32	0.71
Dengsur	255.06	50	50	12753	II,III	4.5	57388.5	24	0.09
Benaguda	4928.29	62	1116	5499972	I,II,III	4.5	24749872	10312	2.09
Satami	1894.22	67	1206	2284429	II,III	4.5	10279932	4283	2.26
Taprang	5227.97	16	272	1422008	II,III	4.5	6399035	2666	0.51
Telen	2660	36	648	1723680	II,III	4.5	7756560	3232	1.22
Sulia	5617.34	73	1314	7381185	II,III	4.5	33215331	13840	2.46
Ramud	547.09	95	1615	883550.4	II,III	4.5	3975977	1657	3.03
Puijhari	2251.21	60	1020	2257076	II,III	4.5	10156844	4232	1.91
Talnuagaon	177.46	65	1105	196093.3	III	3	882419.9	368	2.07
Total	66152.1			53312989			238228073	99261	

For calculation of the exploitable bamboo only 3 years and above culms are taken in to calculation and the exploitable bamboo come to 54322 Sale units in the entire rotation period. Exploitable yield of Bamboo of this division is given in Table 6.6

Table No. 6.6

Exploitable yield Calculation of Bamboo in Kalahandi North Division											
Name of the Range	Name of the Forest Block	Area in Ha	Number of clumps per Ha	Total no of 3rd year and above culms per clump	Total nos of exploitable Culms (> 3 years old per Ha.)	Total exploitable Bamboo clums (> 3 years old) in the	Quality	Average length of the culm in mts	Total length of bamboo in mts	Total Sale Units	Average Sale Units per Ha.
1	2	3	4	5	6	7	8	9	10	11	12
Bhawanipatna	Alma	1360	49	9	441	599760	II,III	4.5	2698920	1125	0.8
	Kanamajur	1814.36	52	9	468	849120	I,II	4.7	3990866	1663	0.9
	Brahamani	5846.9	55	9	495	2894216	I,II,III	4.5	13023970	5427	0.9
	Kadalighati	1717.53	35	9	315	541022	II,III	4.5	2434599	1014	0.6
	Poddara	833.43	20	9	180	150017	II,III	4.5	675078	281	0.3
	Kutrukhai	314.97	10	9	90	28347	II,III	4.5	127563	53	0.2
	Th.Padar Gundi	9187.7	48	10	480	4410096	II,III	4.5	19845432	8269	0.9
Kegaon	Chura A	6898.52	29	18	522	3601027	II,III	4.5	16204623	6752	1.0
	Chura B	2076.71	38	19	722	1499385	III	3	4498154	1874	0.9
Narla	Porgel	1712	15	6	90	154080	I,II,III	4.5	693360	289	0.2
	Urladani	7010.75	80	5	400	2804300	II,III	4.5	12619350	5258	0.8
	Porgel Extn	3222	33	5	165	531630	I,II,III	4.5	2392335	997	0.3
	Jamguda	107.4	16	5	80	8592	III	3	25776	11	0.1
	Sikerguda	358	33	5	165	59070	II,III	4.5	265815	111	0.3
	Mundighati	88.2	25	5	125	11025	II,III	4.5	49613	21	0.2
	Badibahal	44.94	47	5	235	10561	II,III	4.5	47524	20	0.4
	Dengsur	255.06	50	5	250	63765	II,III	4.5	286943	120	0.5
M.Rampur	Benaguda	4928.29	62	9	558	2749986	I,II,III	4.5	12374936	5156	1.0
	Satami	1894.22	67	9	603	1142215	II,III	4.5	5139966	2142	1.1
	Taprang	5227.97	16	10	160	836475	II,III	4.5	3764138	1568	0.3
	Telen	2660	36	9	324	861840	II,III	4.5	3878280	1616	0.6
	Sulia	5617.34	73	9	657	3690592	II,III	4.5	16607666	6920	1.2
	Ramud	547.09	95	10	950	519736	II,III	4.5	2338810	975	1.8
	Puijhari	2251.21	60	10	600	1350726	II,III	4.5	6078267	2533	1.1
	Talnuagaon	177.46	65	9	585	103814	III	3	311442	130	0.7
	Total	66152.1				29471397			130373425	54322	

6.6.9 Table of Felling: -

Bamboo felling more commonly known as Cutting shall be executed annual coupe wise in a systematic sequence like A, B, C and D coupes coinciding with the period of cutting cycle. Such annual coupes shall be opened for working from 1st October of the year to 30th June of the succeeding year. If the cutting operation cannot be executed in a particular year for some unavoidable reasons then such arrear coupes shall be worked in the next cutting cycle following the sequence. Since the cutting cycle is of four year duration, there will be 2 (two) full cutting cycle and 1 (one) half cycle during the plan period of 10 (ten) years. Accordingly out of total 4 nos. of coupes, 3 (three) annual cuttings will be taken up in 2 (two) coupes while the rest 2 (two) coupes will have 2 (two) annual cuttings in the entire plan period. Keeping the prevailing sequence of cutting of coupes in order, the year wise sequence of coupes to be worked during the plan period is furnished in the following table 6.7.

Table No. 6.7

Year wise sequence of working of Bamboo Coupes

Coupe A	Coupe B	Coupe C	Coupe D
2021-22	2022-23	2023-24	2024-25
2025-26	2026-27	2027-28	2028-29
2029-30	2030-31		

6.6.9.1 Demarcation of Coupes

As already stated above, the cutting will be done annual coupe wise, so it is necessary first to demarcate the coupe with the help of management maps. Coupes have been formed with the boundaries mostly coterminus with that of forest blocks / compartments or taking natural features like nallas, prominent paths and ridges of the hills as the coupe line.

The section Forester shall demarcate the coupe in the field with the assistance of beat Forest Guard in the month of April / May i.e. well ahead of the starting of work in the month of October. Use of GPS in this work shall be encouraged. After demarcation, the coupe will be divided into 4 (four) sections running along the contours and numbered as 1 to 4 serially from uphill side to downwards. Two coaltar rings of 3 cm. width each at a spacement of 15 cm. between them shall be given at the breast height of all prominent trees distinctly visible from each other standing on the coupe lines. The demarcation of the sections within the coupe will be indicated by giving one coaltar ring in the aforesaid manner. Where coupe line meets the boundary of block crosses roads or prominent paths, signboard showing the name of felling series, coupe number, are of the coupe and year of working etc. should be fixed. Good coating of coaltar should be given to withstand the weathering by rains, light etc. so that the demarcation will be well exhibited.

6.6.9.2 Working Agency: -

The working of bamboo is entrusted to Orissa Forest Development Corporation Limited as the agent of the Government since nationalisation of bamboo in the State. At present the OFDC Ltd. is working through Raw Material Procurer (RMP) and for this Division the J.K.Paper Ltd., Rayagada is functioning as RMP. The agency for working of bamboo shall be decided by the Government.

6.6.9.3 Estimation of Yield for fixation of Target: -

Production from a coupe is variable depending on a number of factors like rainfall, flowering of clumps, incident of fires and other biotic factors. So the enumeration of clumps as well as culms through stratified sampling shall be conducted to estimate the yield in accordance with the formula stated in preceding Para-7.10.3. Such exercise should be done jointly by the Range Officer and Sub-Divisional Manager of OFDC Ltd. so as to prevent the disagreement with regard to the anticipated production. This should be completed by the month of June.

6.6.9.4 Preparation of Treatment Map: -

After demarcation of the coupe and before taking of working, preparation of treatment map is very much essential and this shall be prepared jointly by the officials of Working Agency i.e. S.D.M., OFDC Ltd. and Range Officer on a copy of the available management map indicating Salia and Kanta bamboo areas separately. This work shall be carried out and completed simultaneously with that of yield estimation by the month of June.

6.6.9.5 Period of Felling or Cutting: -

The felling / cutting of bamboo shall commence from 1st October and continue up to 31st May of the following year. In case of gregarious flowering, the working period will be extended up to end of June. The extraction of cut bamboo shall be carried out simultaneously and the transportation from the coupe to depot shall be completed within 30th June. No work shall be allowed to be done in the coupe between 1st July to 30th September.

6.6.9.6 Sequence of Cutting: -

A definite sequence of felling is essential for bamboo coupes to ensure the smooth and proper working. The coupe shall be divided into four sections running along the contours. The sections from the uphill side should be worked first and the first section shall be completed in all respect before the work commences in the second section and so on.

As per the exploitable yield calculated in the Table the total SU of bamboo which can be harvested comes to be 54322 SU but due to undulating terrain and high slope the yield is marginalised as per the field condition so as to meet the demand of fodder by wild elephants and by getting inputs from the last few years Bamboo coupe working. The final exploitable yield suggested for felling coupe wise with area is given in the Table 6.8.

Cutting Series & Bamboo Coupe Wise Yield Estimation in Sale Units

Table No. 6.8

Felling Series	Coupes A		Coupe B		Coupe C		Coupe D		Total	
	Area in Ha.	Yield in SU	Area in Ha.	Yield in SU	Area in Ha.	Yield in SU	Area in Ha.	Yield in SU	Area in Ha.	Yield in SU
1	2	3	4	5	6	7	8	9	10	11
Alma	458.16	308	510.15	343	320.33	215	386.33	259	**1674.97**	**1125**
Kanamajur	308.53	283	365.08	354	482.03	442	658.72	604	**1814.36**	**1683**
Poddar	166.23	56	195.22	66	265.88	90	206.11	69	**833.44**	**281**
Brahamani East	571.27	516	774.48	700	373.53	337	1601.68	1447	**3320.96**	**3000**
Brahamani West	433.36	395	496.85	452	1059.24	964	536.49	489	**2525.94**	**2300**
Kadalighati	326.16	190	321.31	187	319.72	186	750.34	437	**1717.53**	**1000**
Th.Padar Gundi	3020.4	1381	1308.68	598	2476.01	1132	2382.62	1089	**9187.71**	**4200**
Chura East A	839.12	239	1002.71	285	705.82	201	968.35	275	**3516**	**1000**
Chura West A	872.41	387	869.06	386	960.02	426	681.03	302	**3382.52**	**1500**
Chura B	590.39	284	660.75	318	234.35	113	591.22	285	**2076.71**	**1000**
Porgel	418.29	68	304.94	50	696.92	96	399.26	65	**1819.41**	**280**
Porgel Extn.	1293.79	290	815.52	226	1186.27	354	417.56	130	**3713.14**	**1000**
Urladani East	415.26	233	292.47	164	277.7	156	793.59	446	**1779.02**	**1000**
Urladani West	662.41	415	580.08	363	589.34	369	632.96	353	**2464.79**	**1500**
Urladani Central	548.63	290	640.51	339	557.12	295	1275.73	577	**3021.99**	**1500**
Benaguda East	668.52	1130	350.25	592	313.07	529	147.47	249	**1479.31**	**2500**
Benaguda West	569.69	413	383.49	278	1863.72	1351	632.08	458	**3448.98**	**2500**
Satami	323.775	256	304.34	241	952.89	755	313.22	248	**1894.225**	**1500**
Sulia	2120.47	1132	752	402	1945.332	944	977	522	**5794.802**	**3000**
Ramud	186.33	307	156.2	257	111.07	183	93.49	154	**547.09**	**900**
Puijhari	724	482	514	343	777.21	518	236	157	**2251.21**	**1500**
Telen	628.41	354	426.9	241	823.97	465	780.72	440	**2660**	**1500**
Taprang	1017.81	195	1374.24	263	1001.43	192	1834.49	351	**5227.97**	**1000**
Total	**17163.42**	**9604**	**13399.23**	**7448**	**18292.97**	**10313**	**17296.46**	**9406**	**66152.08**	**36769**

The aforesaid yield estimation is based on the sample enumeration but it is subject to change on the account of variation in climatic, locality and biotic factors. Moreover it is a short rotation crop of only four years cycle. So the aforesaid estimation shall be taken just as a guiding factor. Since the plan period is of Ten years duration and the cutting cycle is of four years so there will be two full and One half cutting cycle in the plan period. However, the yield should be estimated in each year prior to cutting basing on the sample enumeration and using the formula provided in Para-6.6.8.

6.6.9.7 Working of Bamboos: -

Though the working of bamboo is a broadly speaking term, it mainly means the execution of felling / cutting of bamboo and its related activities. The C.C.F. (Central) Eastern Regional Office, Ministry of Environment and Forest, Government of India stationed at Bhubaneswar have prescribed a definite set of rules for working of bamboo. The details of the same has been narrated in the following paragraphs along with some additional prescription for adopting in bamboo operation.

6.6.9.8 Treatment Maps

- The procedure for preparation of this map has already been described in the Para-7.12.4.1.
- Treatment types to be distinguished shall be based on the assessment of the standard Salia bamboo quality classes and actual clump condition.
- In both these cases areas less than 4 ha. in extent will not be separated out as distinct treatment types.

Treatment types of Salia Bamboos: - The following treatment types have been identified for Salia bamboo area. Salia bamboo forest is categorised for different treatments as described below.

Treatment Type – A: - Areas with healthy and well-stocked bamboo clumps consisting of

i. Clump Quality- I: - Culm height of bamboos from 9 meters and up.

ii. Clump Quality- II: - Culm height of bamboos between 6 meters to 9 meters.

iii. Clump Quality- III: - Culm height of bamboos below 6 meters.

Treatment Type – B: - Areas with well-stocked but degraded, damaged, congested and or fire burnt bamboo clumps.

Treatment Type – C: - Areas where bamboo clumps are sparse and scattered.

If necessary, the treatment types A and B may further be classified into the above mentioned three clumps quality classes.

6.6.10 Method of executing the felling

Felling (Cutting) Rules for Salia Bamboos: - Salia bamboo (Dendrocalamus strictus) will be worked as per the following prescriptions.

Rules, which are uniformly applicable to all the treatment types

i. Karadi (culm up to one year of age) and the bamboo culm over one year but under two years of age will not be cut under any circumstances. Such more than one-year-old culms and the culms, which are older than 2 years but less then 3 years of age, shall be

retained in the clump and their number, should not be less than number of Karadis.

ii. The minimum number of culms to be retained in a clump is fixed on the basis of quality of the clump and it is as follows: -

1. Clump quality I – 20 culms

2. Clump quality II – 15 culms

3. Clump quality III – 10 culms

iii. Clumps having the minimum or less than minimum prescribed number of culms shall not be commercially exploited. Only broken, dead, dry, badly damaged and mal-formed bamboos will be felled.

iv. A clump will be distinguished, as an independent clump where its periphery is easily discernible from others. Only where such a distinction is not possible, two clumps within one-meter distance will be regarded as one.

v. The retained culms in a clump should be well spaced, preferably at the periphery in the following order of preference

1. Karadi bamboos

2. Kasi bamboos (older than one year but less than 2 years)

3. Pakala bamboos (young green bamboos)

4. Older live bamboos.

5. Other as may be available.

vi. Rhizomes will not be dug.

vii. The height above which culms are cut shall not be less than 15 cm. or more than 45 cm. from the ground level and in no case below the first prominent node from the ground.

viii. The cut shall be made with a sharp instrument to ensure that the stump remains intact without splitting.

ix. Lops and tops of bamboos will be simultaneously cleared to a distance of at least one meter away from the periphery of the worked out clumps to avoid fire hazard.

x. Climbers shall be cut from all the bamboo clumps during working of the coupes.

xi. Bamboo strips will not be used in tying bamboo bundles.

xii. Bamboo cutting will not be done from 1st July to 30th September.

xiii. In case of sporadic flowering of bamboo, the flowered clumps will be clear-felled, once the seeds from such clumps have fallen.

xiv. In case of gregarious flowering, the clumps will be clear-felled and extracted early just after the shedding of ripe seeds, so that the bamboo do not dry or deteriorate or become prone to fire damage. Disposal of such bamboos should be expeditiously arranged to prevent deterioration in quality and the prescribed treatment as mentioned below shall be adopted in the gregariously flowered areas.

xv. Lopping of bamboos either for feeding livestock or otherwise is strictly prohibited.

xvi. As far as possible, bamboo cutting should be completed by the end of May.

xvii. Bamboo forests should be rigidly protected from the fire. In any case, forest fire should not occur during the year of working and the year following it.

xviii. No grazing shall be permitted during rains in bamboo forests,

xix. which have been worked in the previous season.

Rules applicable to specific treatment types:

1. Treatment Type- A

a. Commercial felling will be done in those clumps, which have more than the prescribed minimum number of culms in each.

b. Cultural operations will be carried out in clumps having less than the prescribed minimum number of culms in each. In such clumps commercial felling will not be done.

2. Treatment Type- B

i. There will be no commercial fellings in any clump.

ii. Only cultural operations will be carried out which will

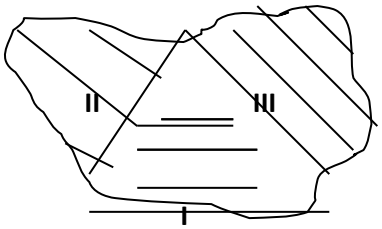
Include;-

a. Felling of all dead, dried, over-matured, burnt, broken and grossly damaged bamboos.

b. Broken or cut bamboos or high stumps in green condition, having length of 2.5 meters or more, may be retained, if necessary to maintain size of the clumps.

c. The minimum number of culms to be retained per clump as prescribed in foregoing paragraphs for various quality classes may not be strictly followed if necessity so arises.

d. The congested bamboo clumps shall be clear felled by forming segments. The maximum number of segments, under which a congested clump shall be worked will be three and at each working not more than one segment will be cut. Where three segments are formed, the middle segment will be in the shape of a triangle having apex at the periphery. Only this middle segment shall be felled at the first working. In subsequent cycles, side segments should be felled. Diagram showing divisions of the clump in these segments is given below.



2. Treatment Type- C

i. Only cultural operations will be carried out in the existing bamboo clumps.

ii. The bamboo potentiality of such forests will be augmented by raising bamboo plantation. The minimum are to be planted annually will be 40 ha. or one third of the area under this type.

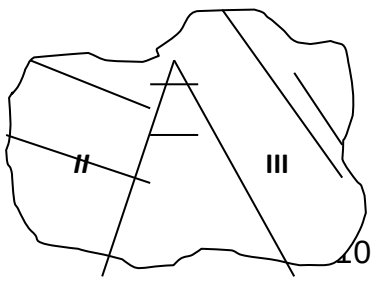
iii. Tending and cultural operations in the area planted with bamboo will be done as per the standard practice.

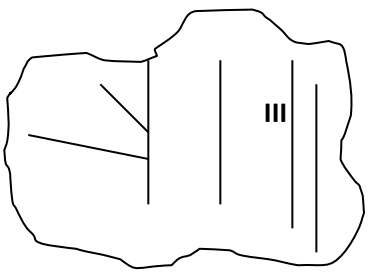
iv.

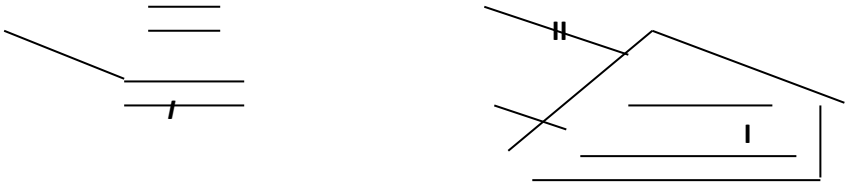
Cutting Rules for Daba Bamboo (Bambusa arundinacea)

i. All bamboo culms in a clump, which are more than 3 years old shall be harvested on culm selection basis provided the number of culms, left uniformly distributed in a clump shall not be less than 10.

ii. In case of congested clumps where culm selection is not possible, the clump should be carefully felled by forming segments as per any of the two diagrams given below depending on the interlacing of bamboos with a view to provide support to the remaining segments against wind damage.







1. First preference 2. Second preference

iii. The maximum number of segments, under which a congested clump shall be worked, will be three and at each working not more than one segment will be cut. Stumps higher than 50 cm. or more than two internodes should not be left.

iv. Where three segments are formed, the middle segment will be in the shape of a triangle. Only the middle segments (I) shall be felled at the first working.

6.6.11 Subsidiary Silvicultural Operations, cleaning and thinning:-

6.6.11.1 Since productivity of the bamboo forest depends on proper and timely silvicultural operations, it should be ensured to carry out such operations during or immediately after the year of actual harvest. Even, the early stage established natural regeneration shall also be taken care of at that time of silvicultural operations so as to add to the future crop of the bamboo forests. Simultaneous silvicultural operations shall preferably be done along with the main cutting. But the working of bamboo usually continues up to end of June as per the prevailing practice and by that time rainy season has already been started. So the silvicultural operations is usually taken up from the month of October onwards after the rainy season is over. It follows the main cutting period and is called as subsidiary silvicultural operations in practical sense. The operation comprises of the following components.

i. All cutting debris shall be removed and the clump shall be left cleaned.

ii. If any clump has not been cleaned at the time of felling, such clumps shall also be attended to through pruning in addition to the climber cutting. If any high stumps have been left, those shall also be rectified.

iii. The exposed rhizomes shall be covered with soil scrapped from the uphill side of a hilly or undulating terrain. Wherever necessary stonewall shall also be erected on the down hill side to support the soil till its stabilisation, this shall be concentrated mainly in steep slope areas. However, in the process care should be taken to ensure that no damage is caused to the rhizomes and rootstock.

iv. As a moisture conservation measure, half-moon trenching shall also be dug on the uphill side of the clump in concave shape. No damage shall be caused to rhizomes and rootstock.

v. Besides, pulverisation and sufficient soil working around the clumps shall be done to improve the overall quality and productivity of the bamboo forests.

6.6.11.2 Treatment of Gregariously Flowered Areas

i. Bamboo seedlings at a spacement of about 4 m. x 4 m. are to de adopted and retained and the rest are to be thinned out.

ii. Cleaning, soil working and seeding is to be done around the adopted bamboo seedlings up to a radius of 50 cm.

iii. To maintain the continuity, planting up of bamboo rhizomes is also to be resorted to especially in big gaps.

iv. All the flowered clumps are to be worked up following the prescriptions of the working plan.

v. The area shall be closed for grazing.

vi. Elaborate fire protection measures shall be taken.

6.6.11.3 Flowering in Bamboo

In selection forests, the age of clump varies and accordingly varies the intensity of gregarious / sporadic flowering. The delay in flowering in poor sites is due to poor growth and storage of starch, sugar and other substances in the clump, which help in flowering. In well-managed forests, intensity of flowering is less in comparison to an un-worked forest containing congested clumps. Similarly intensity of flowering is more in area having more biotic interference in the form of grazing and fire in comparison to protected area. This probably is nature's typical way of dealing with adversity. It is important to identify the characters of flowering in Salia bamboo to decide appropriate management techniques. A comparative statement showing the distinction between two types of flowering is given in the table 6.9.

Table No. 6.9

Characteristics of flowering in Salia Bamboo

	Sporadic flowering		**Gregarious flowering**
1	Scattered nature of flowering, only few clumps are involved in flowering.	1	Flowering occurs almost in the entire area.
2	Only few culms flower in a clump.	2	It involves almost all or some proportion of place in all the culms in clump.
3	The culm may or may not die after flowering.	3	All the culms of a clump die after flowering.

4	The culm does not die.	4	Flowering is followed by the death of the clump.
5	It takes place usually irregularly almost every alternate year.	5	It follows a cycle of long interval of 20 to 65 years.
		6	It progresses in a definite direction like an epidemic wave.
		7	It takes 2 to 4 years to complete the flowering in the area.

6.6.11.4 Main Threats to Bamboo Forests

6.6.11.5 Some of the main threats to the management of bamboo forests are listed below.

a. Indiscriminate cutting of bamboos for local consumption.

b. Annual forest fire.

c. Excessive grazing.

d. Over felling and improper working of coupes by the lessee.

e. Insufficient silvicultural operations coupled with irregular flow of funds for all such activities.

6.6.11.6 While these factors need to be checked, techniques should be developed in improve the quality and quantity of the clumps, in order to conserve the deteriorating bamboo forests. Decreasing trend in production of bamboo has already indicated the deterioration. Appropriate silvicultural techniques to manage the bamboo forest will therefore be essential in restoring the valuable bamboo forest of the Division.

6.6.11.7 Morphological Characters of Culms of Different Age

6.6.11.8 Distinguishing morphological characters of the culms of different ages are given in the table 6.10.

Table No. 6.10
Morphological characters of the Culms of different ages

Culm Age	Morphological Character
Karadi (the first year culm)	Culm sheath present on lower half of culm. Branches present throughout the length of culm. Culm green uniformly, bloom is abundantly present and comes off easily on finger. A fresh cut just under the node shows the same fresh coloration even after one or two minutes.
Kasi (the second year culm)	Culm sheath mostly absent except for some remainances. Culm dark in colour, branches present practically at all nodes. Bloom is patchy, greyish-white in colour and comes off less easily on finger. A fresh cut just under the node shows the same fresh coloration even after one or two minutes.
Pakala (the 3rd& 4th year culm)	Culm sheath absent. White bloom absent. Blackish grey or dark blotches appear which come off on finger slightly, on rubbing. A fresh cut just under the node shows reddish-brown coloration after one or two minutes.

6.6.12 Regeneration:-

Enrichment planting in Bamboo coupes:

As already discussed earlier Bamboo is an important forest produce of this Forest Division. It provides sustenance to a large number of people particularly the forest fringe dwellers. Over the time the crop has been degraded which ultimately leads to make the coupe on productive in future. In order to prevent such situation and to make sustain production it is necessary to maintain adequate Bamboo crop in the Forest Blocks. Accordingly enrichment plantation of Bamboo particularly Salia Bamboo (Dendrocalamus strictus) is prescribed.

B & C type Bamboo coupes are normally chosen for such plantation. However, the discretion lies with Divisional Forest Officer for making regular assessment since the cutting cycle is only four years in comparison to ten years duration of plan period. The Forest Block having less number of clamps per ha coupled with degraded vegetation are considered for such enrichment planting. Considering the present situation only Gap planting @200 plants per ha is prescribed. An annual scheduled of such plantation is furnished below in Table 6.11.

Table No. 6.11

Year	Range	Forest Block	Status	Target in Ha.
2021-22	Bhavanipatna	Brahmani	RF	20
		Th.Padargundi	PRF	20
	Kegaon	Chura A	RF	20
		Chura B	RF	10
	Narla	Porgel	RF	10
		Porgel Extn.	PRF	20
2022-23	Bhavanipatna	Brahmani	RF	20
		Th.Padargundi	PRF	20
	Kegaon	Chura A	RF	20
		Chura B	RF	10
	Narla	Porgel	RF	10
		Porgel Extn.	PRF	20
2023-24	Bhavanipatna	Brahmani	RF	20
		Th.Padargundi	PRF	20
	Kegaon	Chura A	RF	20
		Chura B	RF	10
	Narla	Porgel	RF	10
		Porgel Extn.	PRF	20
2024-25	Bhavanipatna	Brahmani	RF	20
		Th.Padargundi	PRF	20
	Kegaon	Chura A	RF	20
		Chura B	RF	10
	Narla	Porgel	RF	10
		Porgel Extn.	PRF	20
2025-26	Bhavanipatna	Brahmani	RF	20
		Th.Padargundi	PRF	20
	Kegaon	Chura A	RF	20
		Chura B	RF	10
	Narla	Porgel	RF	10

		Porgel Extn.	PRF	20
2026-27	Bhavanipatna	Brahmani	RF	20
		Th.Padargundi	PRF	20
	Kegaon	Chura A	RF	20
		Chura B	RF	10
	Narla	Porgel	RF	10
		Porgel Extn.	PRF	20
2027-28	Bhavanipatna	Brahmani	RF	20
		Th.Padargundi	PRF	20
	Kegaon	Chura A	RF	20
		Chura B	RF	10
	Narla	Porgel	RF	10
		Porgel Extn.	PRF	20
2028-29	Bhavanipatna	Brahmani	RF	20
		Th.Padargundi	PRF	20
	Kegaon	Chura A	RF	20
		Chura B	RF	10
	Narla	Porgel	RF	10
		Porgel Extn.	PRF	20
2029-30	Bhavanipatna	Brahmani	RF	20
		Th.Padargundi	PRF	20
	Kegaon	Chura A	RF	20
		Chura B	RF	10
	Narla	Porgel	RF	10
		Porgel Extn.	PRF	20
2030-31	Bhavanipatna	Brahmani	RF	20
		Th.Padargundi	PRF	20
	Kegaon	Chura A	RF	20
		Chura B	RF	10
	Narla	Porgel	RF	10
		Porgel Extn.	PRF	20

6.6.12.1 Nursery for aforesaid Bamboo plantation shall be done one year in advance. The healthy Bamboo rhizomes will be picked up from the mother bed and transplanted in the polypots at least three months before the plantation. The sprouted seedlings from the rhizomes in the polypots will be utilized for plantation purpose. Only Salia Bamboo (Dendrocalamus strictus) is prescribed since it is of both commercial and domestic use. Polypots used for Bamboo seedlings will be of higher dimension i.e. 12 cm X 7 cm X 150 gauge. All nalah in the Bamboo coupes shall be treated for Soil Moisture Conservation. It will boost both culm production and clump improvement. The Divisional Forest Officer basing on the treatment map prepared for the Bamboo coupes will decide the exact location of the plantation. The plantation will be taken up in the subsequent year of Bamboo cutting. The treatment map as prescribed earlier shall be prepared which will indicate the exact site specific plantation area.

6.6.13 Associated regulations and measures:-

Besides the prescriptions provided in the foregoing paras, some other regulations are necessary to augment the former for effective results. These are the following: -

6.6.13.1 **Fire Protection:** - During summer season, the forest crop specially bamboos are susceptible to fire hazard. So it is essential to protect the bamboo crop from fire by maintaining the fire lines on the boundaries of each coupe during the month of January since the incident of fire is usually started during February in Kalahandi. The Orissa Forest Fire Protection Rules, 1979 and provisions of Chapter-XVII of Orissa Forest Department Code shall be followed. Further firewatchers should be engaged from month of February till June. VSS wherever existing shall also be motivated to prevent fire as well as to take instant steps to extinguish the same if occurs.

6.6.13.2 **Protection of young slender shoot (Karadi)**: - Though a number of new shoots comes up every year in a clump but indiscriminate and irrational removal of such young slender shoots as locally called Karadi is a great impediment for the production of sufficient number of culms in a clump. This ultimately affects the production of bamboo. Hence it is necessary to protect the young shoots during rainy season. Watchers should be engaged from month of July to September for this purpose in addition to the involvement of VSS in this matter.

6.6.13.3 **Grazing**: - Grazing will be regulated according to the carrying capacity of the area. It shall be strictly prohibited in the area for 1 (one) year following the silvicultural operation in order to ensure the growth of young slender shoots.

6.6.13.4 **Rights & Concessions**: - As already discussed earlier, bamboo is a major item of use by the local people. Apart from the policy of the government for supply of bamboo to the artisans as well as local people in general, some more concession is necessary for this district considering the production potential as well as the dependence of local people.

6.6.13.5 **Skill Upgradation**: - It is observed that due to lack of proper preservation as well as processing, the requirement of bamboo as well as its frequency by the local people become high, thereby exerting more pressure on the forests to fulfil the need. In order to curtail th ent skill upgradation of the local people is necessary to enhance the durab nboo through traditional methods like water curing and smoke curing. Similarly primary processing like cross cutting, splitting, internal not removing, slicing and stick making shall be done through simple machines by the artisans to prevent the wastage and reduce the requirement. Necessary trainings shall be imparted for this purpose to maximise the utilisation and minimise the wastage.

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6.6.13.6 **Maintenance of Records**: - Compartment history files and control forms besides other records shall be maintained for each Coupe / Compartment.

Working of Bamboo of Belgaon PRF by Jamguda Gramsabha of Narla Range

Jamguda Gramsabha under Narla Range of the Division has been assigned with an area of 50 ha of forest land from Belgaon PRF for which Title card has been issued by DLC bearing No.22/2010 under community Right of Forest Right Act 2006. The

Gramsabha has been allowed for collection and dispose of the bamboo in their assigned area as per the provision land down in FR Act 2006 (Ammended) Rule 2012. A Microplan has been prepared by the Gramsabha for cutting the Gramsabha for cutting of Bamboo with cutting series and treatment type there of. The gramsabha has been allowed for collection and transport pf their assigned area from 07.03.2013 isseda T.T Permit book in pursuance to Govt. Notification KL12/12-24314 dt.28.12.2012. Now the Gramsabha is collected the Bamboo and earing a good amount in selling the Bamboo every year. This is the 1st incident in Odisha for Gram sabha for working of Bamboo under the provision of FRA which is also 2nd incident of the our country.

Similarly 8 nos. of Gramsabha have also been allowed for collection of Bamboo in scientific method of cutting under the provision of ST & other Tradtional Forest Dwellers (Recognisition of FR) Act 2006 and Ammendment Rule 2012. The details are furnished below in the table 6.12.

Table No. 6.12

Gram Sabhas Allowed for collection of Bamboo in scientific menthod of Cutting

Sl No	Name of Range	Name of Gramsabha	Name of Forest	Assigned area In Acre	Letter No. & Date in which allowed for Bamboo working
1	Narla	Tarkabahali	Belgaon PRF	61.75	4894 Dt.21.12.2016
2		Lamer	Belgaon PRF	163.02	281 Dt.13.01.2017
3		Dholpada	Belgaon PRF	98.8	6730Dt.18.12.2018
4		Gundrupi	Belgaon PRF	172.9	3310 Dt.11.07.2018
5		Pipadi	Dandimeda VF	49.4	3232 Dt.04.07.2018
6		Sadalguchha	Belgaon PRF	49.4	1736 Dt.16.03.2021
7		Baksandi	Belgaon PRF	98.8	6725 Dt.18.12.2018
8	Bhawanipatna	Bhoiguda	Revenue Forest	4.5	1754 Dt.17.03.2021
TOTAL				**698.57**	

CHAPTER- 7
NON-TIMBER FOREST PRODUCE (OVERLAPPING) WORKING CIRCLE

7.1 Name of working circle:-

The name of the working circle is Non- Timber Forest Produce (Overlapping) Working circle.

7.2 General Constitution of working circle: -

Since time immemorial, we are indispensably dependent on non-timber forest produce for its use in daily consumables, socio cultural, spiritual and health care. The magnitude of dependence is more in rural and acute in tribal pockets. As the name denotes, it is the product derived from the parts of the plant other than timber. It may be leaf, flower, fruit, seed, root, tuber, rhizome, bark etc. Though its utility is age old, it was considered earlier as minor forest produce in view of the focus on timber as a major product of the forests. In the changing scenario for conservation of forests necessitating a stringent check on removal of tree crop, the attention is shifted to the products other than timber with a view to ensure the steady flow of benefit to the people from the forests in perpetuity. Most of the N.T.F.P are the annual products and also having medicinal properties for which it is considered as a potential source of income from forests.

In the recent years the use of herbal medicine, herbal cosmetics and other herbal products have increased substantially. It will go on an ascending trend in the future as per the forecast of market survey. This has resulted a great demand for a number of N.T.F.Ps. At present most of the N.T.F.P are procured from the forests. Unless the production is enhanced, it cannot keep pace with the requirement and ultimately lead to aggravate the current precarious situation of over and destructive collection from forest. In this process the possibility of extinction of some species cannot be ruled out. So N.T.F.P has emerged as an important thrust area in forestry sector now a days.

Quite a sizable proportion of population of Kalahandi are forest dwellers. They owe their sustenance to forest to a great extent. Inadequate attention to the livelihood of the aforesaid stakeholders will affect the protection of forests adversely. Their interest can be served better through N.T.F.P sector only on a sustained basis with conservation of forest simultaneously. This can suitably address the growing discontentment of the forest dwellers / forest fringe villagers with regard to their interest vis-à-vis the protection of forests. Therefore Non-Timber Forest Produce (Overlapping) Working Circle has been constituted with assignment of the entire plan area of the division. This comes to 125205.36 ha. in Kalahandi North Forest Division.

7.3 General Character of the Vegetation: -

Since the entire plan area has been allotted to this working circle, the general crop composition as described under Chapter-2A of Part-I holds good for this purpose. Further N.T.F.P being the focus of attention of this overlapping working circle, have also been described in detail in Chapter-III of Part-I. Outturn of different items have been indicated in the said Chapter. It is observed that there is a declining trend in the

production of N.T.F.P items which has been attributed to the degradation of crop as well as destructive method of harvest / collection by the local people.

7.4 Felling series, cutting sections and JFM areas:-

Not necessary to this Overlapping Working Circle

7.5 Blocks, compartments and JFM area(marked on GIS based maps):-

The area assigned to this overlapping working Circle are given in Table No.7.1

Table No.7.1.

Forest Block wise area allotted to NTFP Working Circle				
Sl No	**Range**	**Name of the Forest Block**	**Area under this plan in ha**	**Area under NTFP overlapping WC in ha.**
1	Bhawanipatna	Alma RF	1360	1360
2	Bhawanipatna	Brahmani RF	5846.8964	5846.8964
3	Bhawanipatna	Dhangada dhangadi RF	229	229
4	Bhawanipatna	Dhanupanchan RF	726	726
5	Bhawanipatna	Kanamanjur RF	1814.3595	1814.3595
6	Bhawanipatna	Kutrukhai RF	314.9721	314.9721
7	Bhawanipatna	Madhakhola (B) RF	597	597
8	Bhawanipatna	Pordhar RF	833.435	833.435
9	Bhawanipatna	Sinang RF	1220.7572	1220.7572
10	Bhawanipatna	Bhalu RF	54	54
11	Bhawanipatna	Kadalighati RF	1717.532	1717.532
12	Bhawanipatna	Madhakhola (A) RF	744.785	744.785
13	Bhawanipatna	Gundi PRF	6715.0289	6715.0289
14	Bhawanipatna	Thuapadar Gundi DPF	9187.7	9187.7
15	Bhawanipatna	Kadalighati Extn DPF	68	68
16	Bhawanipatna	Adastala	50	50
17	Bhawanipatna	Baringdar	200	200
18	Bhawanipatna	Batua	300	300
19	Bhawanipatna	Jhikimi B	100	100
20	Bhawanipatna	Admunda VF	5	5
21	Bhawanipatna	-do-	5	5
22	Bhawanipatna	-do-	10	10
23	Bhawanipatna	Matia VF	10	10
24	Bhawanipatna	Bhejipadar VF	8	8
25	Bhawanipatna	Jajaldeipur VF	5.1	5.1
26	Bhawanipatna	Jhikimiki VF	3.28	3.28
27	Bhawanipatna	Dumerbahal VF	8.044	8.044
28	Bhawanipatna	Khairbhadi VF	3.6	3.6
29	Bhawanipatna	Gopinathpur VF	2	2
30	Bhawanipatna	Khairmal VF	5	5

31	Bhawanipatna	Sarlanji VF	8.5	8.5
32	Bhawanipatna	Bramhani VF	6	6
33	Bhawanipatna	Jhikimiki VF	10	10
34	Bhawanipatna	Upper Gochhakola	436	436
35	Bhawanipatna	Dungripadar	22	22
36	Bhawanipatna	Suben	22	22
37	Bhawanipatna	Durla	11	11
38	Bhawanipatna	Sagram	22	22
39	Bhawanipatna	Kuhura	33	33
40	Bhawanipatna	Goilibindha	11	11
41	Bhawanipatna	Saked	22	22
42	Bhawanipatna	Kendugupka	11	11
43	Bhawanipatna	Jhikimi A	17	17
44	Bhawanipatna	Salepali	22	22
45	Bhawanipatna	Dambarupadar	11	11
46	Bhawanipatna	Bhejapadar	22	22
47	Bhawanipatna	Kandakhal	11	11
TOTAL			**32841.99**	**32841.99**
48	Kegaon	Adabari RF	695.935	695.935
49	Kegaon	Bisibarni RF	198.00	198.00
50	Kegaon	Chura (A) RF	6898.5179	6898.5179
51	Kegaon	Chura (B) RF	2349.3415	2349.3415
52	Kegaon	Daka RF	329.5771	329.5771
53	Kegaon	Ghatual RF	276	276
54	Kegaon	Gojia RF	347	347
55	Kegaon	Kumkot RF	4837.3148	4837.3148
56	Kegaon	Lini RF	134	134
57	Kegaon	Nageswar RF	2416.2821	2416.2821
58	Kegaon	Jayantpur DPF	199.2	199.2
59	Kegaon	Nasigaon DPF	30.8	30.8
60	Kegaon	Sikuan DPF	23.19	23.19
61	Kegaon	Kankeri (A) DPF	32	32
62	Kegaon	Kankeri (B) DPF	26.5	26.5
63	Kegaon	Sindabhadi DPF	72.4	72.4
64	Kegaon	Ammuda DPF	241.94	241.94
65	Kegaon	Patramara DPF	132.72	132.72
66	Kegaon	Goilbindha DPF	160	160
67	Kegaon	Banakdei DPF	92.5	92.5
68	Kegaon	Gandamer DPF	70	70
69	Kegaon	Makardani DPF	30.3	30.3
70	Kegaon	Baijalpur DPF	72	72
71	Kegaon	Chanchermunda DPF	73	73
72	Kegaon	Kirkakani DPF	26	26

73	Kegaon	Kalamdei	3.2	3.2
74	Kegaon	Daspur	20	20
TOTAL			**19787.718**	**19787.718**
75	Kesinga	Bazargarh RF	7721.22	7721.22
76	Kesinga	Nangalguda RF	1488	1488
77	Kesinga	Dumermunda DPF	45.76	45.76
78	Kesinga	Biripura DPF	332.8	332.8
79	Kesinga	Gudang DPF	54.88	54.88
80	Kesinga	Turlakhaman DPF	160	160
81	Kesinga	Laitara DPF	83	83
82	Kesinga	Brahamanidonger DPF	50.7	50.7
83	Kesinga	Jamjore VF	6	6
84	Kesinga	Brahmani VF	10	10
85	Kesinga	Jamjore VF	10	10
86	Kesinga	Dendrobahali VF	3.6	3.6
87	Kesinga	-do-	5	5
88	Kesinga	Khairmal VF	3	3
89	Kesinga	Palam VF	2	2
90	Kesinga	Matia VF	2	2
91	Kesinga	Kurlupada VF	1.96	1.96
92	Kesinga	Rengali VF	11.36	11.36
93	Kesinga	Balsi VF	9.2	9.2
94	Kesinga	-do-	13.64	13.64
95	Kesinga	Kumarpur	22	22
96	Kesinga	Surujore	11	11
97	Kesinga	Kantesir	22	22
98	Kesinga	Ghantsola	11	11
TOTAL			**10080.12**	**10080.12**
99	M.Rampur	Dengen RF	476	476
100	M.Rampur	Jerka RF	1014.7947	1014.7947
101	M.Rampur	Sadel (A) RF	273	273
102	M.Rampur	Sadel (B) RF	307	307
103	M.Rampur	Satami RF	1894.225	1894.225
104	M.Rampur	Sunamukhi RF	2339.6953	2339.6953
105	M.Rampur	Taparang RF	6887.8069	6887.8069
106	M.Rampur	Telen RF	2660	2660
107	M.Rampur	Turchi RF	257	257
108	M.Rampur	Benaguda RF	4928.2938	4928.2938
109	M.Rampur	Bhatel RF	37	37
110	M.Rampur	Podgudi PRF	793.52	793.52
111	M.Rampur	Ramud PRF	547.092	547.092
112	M.Rampur	Sulia PRF	5617.337	5617.337
113	M.Rampur	Manikera PRF	66.4	66.4

114	M.Rampur	Mundramaska PRF	750	750
115	M.Rampur	Gochhadengen PRF	346.34	346.34
116	M.Rampur	Kutigudum PRF	378.107	378.107
117	M.Rampur	Talanuagaon PRF	177.4654	177.4654
118	M.Rampur	Puijhari PRF	2251.21	2251.21
119	M.Rampur	Pongabaju PRF	2331.91	2331.91
120	M.Rampur	Bidabaru (Harlanga) PRF	1464.615	1464.615
121	M.Rampur	Pudrimahul DPF	303	303
122	M.Rampur	Chandanpinda DPF	298.25	298.25
123	M.Rampur	Karla DPF	432.11	432.11
124	M.Rampur	Sulia Extn. DPF	138.05	138.05
125	M.Rampur	Kuthiheju DPF	208	208
126	M.Rampur	Sihidi DPF	181.5	181.5
127	M.Rampur	Mugei DPF	26.4	26.4
128	M.Rampur	Dengidonger DPF	575.77	575.77
129	M.Rampur	Goutami DPF	388	388
130	M.Rampur	Pipalbhadi VF	6.22	6.22
131	M.Rampur	Saling VF	5.2	5.2
132	M.Rampur	Kuten VF	0.948	0.948
TOTAL			**38362.2601**	**38362.2601**
133	Narla	Porgel RF	1712	1712
134	Narla	Kamei RF	156	156
135	Narla	Kerbandi RF	1231	1231
136	Narla	Lumersinga RF	175	175
137	Narla	Narla RF	1293	1293
138	Narla	Sripali RF	46	46
139	Narla	Urladani RF	10277.9032	10277.9032
140	Narla	Karladangar RF	349	349
141	Narla	Narla Extension PRF	292.5	292.5
142	Narla	Kamarda PRF	444.6	444.6
143	Narla	Porgel Extension PRF	3222	3222
144	Narla	Badibahal PRF	44.94	44.94
145	Narla	Sikerguda PRF	358	358
146	Narla	Jamguda PRF	107.4	107.4
147	Narla	Barpati DPF	148.67	148.67
148	Narla	Dengsur DPF	255.06	255.06
149	Narla	Mundighati DPF	88.2	88.2
150	Narla	Lamer DPF	66	66
151	Narla	Belgaon DPF	3826.994	3826.994
152	Narla	Nuapada	11	11
153	Narla	Chapatkhanda	28	28
TOTAL			**24133.2672**	**24133.2672**
G.Total			**125205.36**	**125205.36**

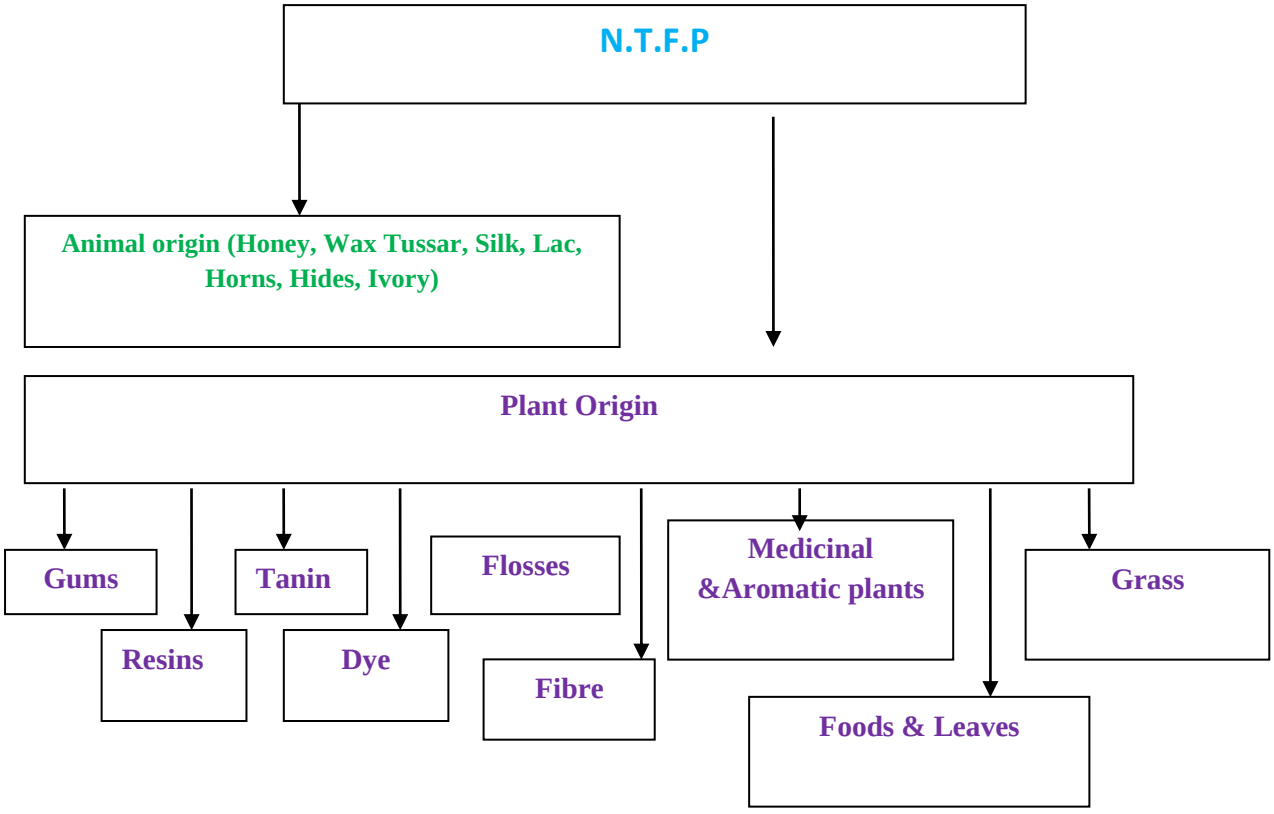
7.6 Special Objective of Management: -

Within the ambit of general objects of management as described earlier, the following special objectives have been set for this overlapping working circle.

1. To **N**urture the crops having the potentiality of N.T.F.P including medicinal plant species for their improvement through suitable silvicultural treatment to increase the production on perpetuity.
2. To **T**ake up measures on priority basis to prevent destructive harvesting method with a view to check the further degradation of the crop and to ensure the collection to the permissible extent.
3. To **F**acilitate the marketing of the products collected by the local people.
4. To **P**romote the local skill for value addition, processing and marketing of some major products to enhance the income.

7.6.1 Analysis of the crop:-

Kalahandi North Forest Division is a treasure of wide numbers of NTFP species. Some of the prominent and commercially important NTFP found are described below:-



7.6.2 N.T.F.P species available in the Division

As already discussed in Chapter-II as well as Chapter-III of Part-I, the forest of this Division contains a number of N.T.F.P. species. These species are almost covering 69 items transferred to Gram Panchayats for regulating the collection and trade in phases vide Government of Orissa, Forest and Environment Department Resolution No.5503 dt.31.03.2000 (60 items), Resolution No.13285 dt.23.08.2000 (7 Items) Resolution No.15325 dt.21.09.2000 (1 Item) and Resolution No. 3695 dt.02.03.2006 (1 item). Such species along with their local name, trade name, botanical name, parts used, purpose of use and collection period are furnished in a Tabular Statement below.

Table 7.2

Sl. No.	Trade Name of NTFP	Botanical Name	English Name	Local Name	Parts used	Uses	Collection period
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	Tamarind, deseeded Tamarind, Tamarind seeds	*Tamarindus* indica Linn	Tamarind	Tentuli	Fruits, Pulp and Seeds	Used in food preparation. Pulp is principal souring agent for food preparation due to its acidic property. It is also carminative, laxative Tamarind Kernel Powder (TKP) is used as an adhesive in book binding, card board manufacture. The fatty oil from seed used in paint & varnishes.	March, April
2	Mahua Flower	*Madhuca indica* Gmel	Mowra Butter Tree, Mahua Tree	Mahul	Flower	Used in preparation of liquor & vinegar.	March, April
3	Hill Broom	*Thysanolaena maxima* (Ruxb) Kuntze	Broom Grass, Tiger Grass	Phul Jhadu	Stem	Stems used for making reed pens for writing	December, January
4	Thorn Broom Jhadu or Ghoda Lanji	*Aristida setacea* Retz	Thorn Broom	Khadi, Khadika grass Kanta Jhadu	Culms	Culms used for making brooms & brushes.	January, February
5	Phula Jhadu	*Thysanolaena maxima*(Roxb) Kuntze	Broom, grass, Tiger grass	Phul Jhadu	Panicles	Panicles made into soft broom. Stems used for making reed pens for writing.	December-January
6	Broom Grass	*Arundinella setosa* Trin	Broom grass	Jhadu Ghas	Grass	Grass used for making brooms	January-February
7	Kochila seeds	*Strychnos nuxvomica* Linn	Nux-vomica, Snake wood	Kochila	Seeds	Used in manufacturing Ayurvedic medicines for rheumatism and nervous disorders. It	December-January

						is used as emetic. The active ingredient strychnine is used for destroying stray dogs, rats, mice of vermin.	
8	Harida	*Terminalia chebula* Retz	Chebulic myrobalan	Harida, Harda	Fruit rind	Laxative, tonic, stomachic. Used in preparation of Ayurvedic medicines. It is also used as an important tanning material for its richness of tannin.	January-March, Bal-Harida is collected during October
9	Bahada	*Terminalia bellirica* Roxb	Belliric myrobalan	Bahada	Fruit rind	For manufacturing of Ayurvedic medicines used as tonic and laxative & other ailments Seed kernels yield oil, which is used as hair oil & for soap manufacture. Fruit rind used as tanning material. Also used in preparation of food items.	December, January
10	Amla	*Emblica officinalis*Gaertn	Emblic myrobalan, Indian goose berry	Aonla	Fruit rind	Used in preparation of Ayurvedic medicines as tonic, laxative, diuretic and other ailments. Very rich with Vitamin 'C'. Used as hair dye & hair oil. Also used as tanning material.	December-January
11	Ritha Fruit	*Sapindus emarginata* Vahl	Soap –nut Tree	Ritha	Fruit	Used for soap manufacture, Hard black shell of the seed yields a black dye.	November December
12	Bhalia fruit	*Semecarpus anacardium* Linn	Marking Nut Tree, Oriental cashew	Bhalia	Fruit	Pericarp is used for marking linen, ink. The vesicant juice from the fruit known in the trade as Bhilwan shell liquid (BSL) is processed to non-vesicating solid resins which are used as bases for manufacture of varnishes, paint enamels, insulating electrical materials, Kernels yield an oil used as wood preservative & lubricant for wooden axles of carts.	November December

13	Clearing Nut	*Strychnos potatorum* Linnf	Clearing nut tree	Nirmala, Nirmali, Kaya, Kataka	Seeds	Seeds used as tonic, stomachic, emetic, diuretic & for cleaning dirt from water.	January - March
14	Honey	Product of honey bees	Honey	-	Honey	Used in preparation of Ayurvedic medicines. It is a food supplement commonly used in every household.	October, June
15	Siali leaf	*Bauhinia Vahlii* Wight & Arn	-	Siali	Leaves	Used for preparing leaf plate and also used for thatching & preparing umbrellas.	October-December, 15th April to 30th June
16	Sabai grass	*Eulaliopsis binnata* (Retz) Hubbard	Sabai Grass	Sabai	Grass	Used for making ropes, mats and paper manufacture	December, January
17	Mango Kernel	*Mangifera indica* Linn	Mango	Amba	Kernel	Used as food & feed at the time of scarcity. It contains amino acids and has an astringent taste & anthelmintic property.	May, June
18	Khar Grass(Chhana Ghas) Daba Chhara, Thatch Grass	*Imperata cylindrica* (L) Raeusch,	Thatch Grass	Chhan Grass, Daba Chhan	Grass	Grass used for ropes, brushes, mats, basket, bags & packing material. Used in mixture with long fibred paper pulp. Also used for thatching of roof.	December, February
19	(Simuli Tula) Simul cotton	*Bombax ceiba* Linn	Silk cotton Tree	Simuli, Simel	Cotton	Used for preparing pillows etc.	March-April
20	Palua (Tikhur)	*Curcuma angustifolia* Roxb	East Indian Arrowroot	Palua	Tubers	Tubers yield easily digestible starch. Used as food commodity.	January, February
21	(Dhatuki phul) Dhatuki flower	*Wood fordia fruiticosa* Kurz	Fire flame bush(Shiranji tea)	Dhatuki, Dhatki.	Flowers	Used in preparation of Ayurvedic medicines specially asavaas & aristaas. Flowers yield red dye. Also contains tannin. It is astringent & stimulant.	February, March
22	Putrani	*Pygmaeopremna herbacea (Roxb.) Bold*	-	Putrani,	Roots	Roots used in Asthma, Rheumatism & Dropsy.	December-January
23	Shikakai	*Acacia sinuate* (lour) Merr	-	Shikakai Ban ritha	Pods	Pods used as a detergent. It is commonly used for hair washing & soap manufacture.	February, March

24	Jungle Jada (Jatropha)	*Jatropha curcas* Linn	Physic Nut, Purging Nut	Jungle jada, Jahaji gaba, Baigaba	Seeds	Seed oil used for production of bio-diesel, manufacturing candles, soaps, varmishes, lubricants. It is powerful purgative, illumination	December, January
25	Palas seeds	*Butea monosperma* (Lam) Kuntze	Flame of the forest/Bastard Teak	Palsa, Palas	Seeds	Used as anthelmintic	May, June
26	Siali seeds	*Bauhiniu vahlii* wight & Arn	-	Siali	Seeds	Seeds eaten raw or fried when ripe they taste like Cashew nuts.	February, March
27	Indrajava	*Holarrhena pubescens* (Buch-Ham) wallex G.Don	Kurchi, Conessi bark tree	Kure	Seeds	Used in preparation for Ayurvedic medicines for dysentery, intestinal worms, stomach disorders.	December-February
28	Gila	*Caesalpinia boduc(L)* Roxb	Fever nut, Bonduc Nut	Gilo	Seeds	Antipyretic. Seeds yield a fatty oil used as cosmetics. Seeds used for manufacturing Ayurvedic medicine for malaria.	January-March
29	Bena Cher	*Vetiveria zizanioides*(Linn)Nash	Vetiver, Khas-khas, Khus-khus	Bena	Roots	Roots yield essential oil called vetiver oil used in perfumery & cosmetics. It is also used in colic, flatulence. Roots are used for door & windows screens for cooling in the summer. Used for basket & mat making. Dried grass is used for brooms & thatching.	December-February
30	Banahaldi	*Curcuma aromatica* Salisb	Wild Turmeric, Yellow zedoary	Vanhaldi	Rhizome	Rhizome used for bruises and sprains. In medicine it is used as an aromatic adjunct but not as a condiment.	January-February
31	Bana kolath, Kolathia, Sharapunkha	*Tephrosia purpurea*(L) pers	Wild Indigo, Purple tephrosia	Ban Kolath, Kolthia, Sharapun-kha	Roots & Seeds	Used as insecticide, laxative, diuretic, dyspepsia, rheumatism, elephantiasis, asthma, scabies, Piles. Plant used as green manure.	October to June

32	Gaba	*Ricinus* communis L	Castor	Jada	Seeds	Seeds yield caster oil used as a cathartic, lubricants, illumination, hair oil, soap making and typewriter ink.	Most part of the year
33	Basil	*Hyptis suaveo* lens(L) poit	-	Van Tulsi, Ganga Tulsi, Jungle Tulsi	Seeds	Seeds yield fatty oil, which is anti microbial.	December, January
34	Kanta padma Makhana	*Euryale ferox* Salisb	Fox nut, Gorgaon Nut	Kanta Padma, Makhana seeds	Seeds	Seeds are roasted and eaten. It is sold in the market as Makhana seeds. The flour used as substitute of arrowroot. It is used as tonic.	May, June
35	Talmakhana Seeds, Koilekha seeds	*Hygrophylla auriculata*(Schum) Heine	-	Koilekha & Talmakhana Kikri Kanta	Seeds	Used in manufacturing Ayurvedic medicines for arthritis. tonic and other ailments. It has aphrodisiac property.	January, February
36	Baidanka Seeds	*Mucuna pruriens* (L) DC	Cowhage, Common cow itch	Bai-khujen, Baidanka	Seeds	Seeds used as nervine tonic, aphrodisiac, anthelmintic. The active ingredient L-DOPA used for Parkinsonism.	January, April
37	Baghanakhi seeds	*Martynia annua* Linn	Tiger claw, Devel's claw	Bagh nakhi	Seeds	Anti-inflammatory Seeds yield oil.	December, January
38	Kamala gundi fruit	*Mallotus philippensis* (lam)muel-Arg	Kamala Tree, Monkey face Tree	Kamala gundi	Fruits	Glandular hairs from fruits yield a dye called Kamala powder. Seeds yield a fatty oil used in paints & varnishes. Seeds are also anthelmintic	February, March
39	Landa Baguli	*Ocimum canum* Sims	Hoary Basil	Landa Baguli, Ghoda Tulsi	Seeds	Seed oil used in soaps and cosmetics. Seeds are diuretic & tonic and used in preparation of a cooling drink.	February, March
40	Bela	*Aegle marmelos*(L) corr	Bael Tree	Bael	Fruits	Unripe or half ripe fruit pulp used for Ayurvedic medicines used as digestive, stomachic and laxative. Gummy substance around seeds used as adhesive for paint and watercolour paint.	March, April

41	Bhuin Neem	*Andrographis paniculata* (Burmf)wak.ex Nees	Creat, King of Bitters	Bhuin Neem	All parts	It is bitter tonic for liver and fefrifuge & anthelmintic. Used in preparation of Ayurvedic medicines.	October-December
42	Khajuripati,Ban-khajuri,Bhuin-Khajuri, Kan-Khajuri	*Phoenix acualis* Buch Ham ex-Roxb	-	Ban-khajuri, Bhuin-khajuri, Kan-kajuri	Leaves	Leaves used for thatching & making mats, brooms ropes etc.	December, January
43	Rohini fruit	*Soymida febrifuga*(Roxb) A-juss	Indian Red wood, Bastard cidar	Rohini	Fruits	Used for preparation of ornamental & artistic materials.	May, June
44	Bhursunga Leaves	*Murraya koenigi* (L)Spreng	Curry leaf tree	Bhur sunga, Bhir sunga	Leaves	Used as a flavouring agent for preparation of food. It is also a common condiment. Essential oil used for soap perfume.	October to June
45	Rasna root	*Vanda tessellata* (Roxb) Hook ex G.don	-	Rasna	Roots	Roots used in manufacturing Ayurvedic medicines for rheumatism, inflammation, nervous disorders and liver tonic.	June
46	Phanphana fruit	*Oroxylum* indicum (L) vent.	Indian Trumpet flower, Midnight Horror	Phana phana, Phaphen, Phanphania	Fruits	Used for preparation of ornamental articles. Tender fruits are stomachic and expectorant. Seeds used as purgative.	February, March
47	Siddha fruits	*Lagerstroemia parviflora* Roxb	-	Sihina, Sidha	Fruits	Used in making ornamental articles.	November, December
48	Satabari	*Asparagus racemosus* Willd	Asparagus	Satabari, Debadhun	Roots	Used as tonic, galactagogue, nervous & rheumatic complaints.	February-March
49	Katha Lai	*Pentapetes phoenicea* Linn	-	Kathlai, Satghodia, Puipathria	Capsule	Mucilaginous capsule used for disease of bowels & as an emolient.	November, December
50	Atundi Lai	*Combretum roxburghii* Spreng	-	Atundi, Denulaha, Kandher	Creeper	Used for basket making	October, June
51	Khelua lai Suama lai	*Ichnocarpus frutescens*(L) R.Br	-	Thapa laha sunani	Branches	Used for fishing nets and basket making	October, June
52	Suam Loi	*Ichnocarpus frutescens* (L) R.Br	-	Suam Noi, Khetua Noi, Thapa	Roots	Roots used as tonic, diuretic for fever dyspepsia, diabetes etc.	December, January

				laha			
53	Eksira fruit	*Schrebera swietenioides* Roxb.	Weavers Beam Tree	Makha	Fruit	Fruit used as medicine for hydrocele.	February, March
54	Katha chhatu	Mushroom grown on fallen branches- *Polyporous* species	-	Katha Chhatu	Mushroom	It is edible mushroom	October
55	Mat reed, Sapa mashina grass	*Typha angustata* Bory & Chaub	Cat's Tail, Lesser Indian Reedmace	Sapa mashina ghas	Leaves & stems	Used for thatching, screens, mats, ropes, stuffing, fishing nets etc.	December, February
56	Ananta Mula	*Hemidesmus indicus* (L) R,Br	Indian Sarsaparilla	Auanta more, Sugandhi Baskhapri	Roots	Used in preparation of Ayurvedic medicines for skin disease, impurity of blood, diuretic, rhematism, Urinary diseases.	February-March
57	Antia rope	*Heticteres isora* linn	East Indian screw Tree	Modi-modika, Kukur-bichhia	Bark	Bark yields fibre used for cordage Stem bark is also used as expectorant, astringent & antigalactagogue, diarrhoea & dysentery.	February, March
58	Nageswar Flower	*Mesua ferrea* Linn	Mesua Tree, Iron wood	Nageswar	Flower	Flower used in manufacturing Ayurvedic medicines for gynaecological disorders, dysentery, anaemia, expectorant, stoma chic, rheumatism, anthelmintic etc.	March-June
59	Mankad Kendu	*Diospyros malabarica* (Desr)Kostel	Goub persimmon	Makad Kendu	Fruits	Ripe fruit edible. Raw fruits contain tannin. Pulped fruits used as preservatives for fishing nets.	March, April
60	Atundi fruit	*Combretum roxburghii* Spreng	-	Atundi Denulaha, Kandher	Fruit	Used in making ornamental articles	May, June
61	Mahua Seeds	*Madhuca indica* Gmel	Mahua Tree, Butter Tree	Mahul	Seeds	Seed oil used for edible purposes, soap manufacturing, also used in rheumatism, Mahua cake used as manure and bio-pesticide.	May, June
62	Kusum seeds	*Schleichera oleosa* (lour) Oken	Lac tree, Macassar oil Tree, Ceylon oak	Kusum	Seeds	Seeds yield fatty oil called Macassar oil used for hairdressing, culinary, lighting purposes, lubricant	June

						for machinery and skin disease and rheumatism.	
63	Karanj Seeds	*Pongamia pinnata*(L) Pierre	Pongam oil Tree, Indian beech, Karanj	Karanj	Seeds	Fatty oil suitable for bio-diesel production, used in tanning industry, Preparation of soaps & candles, lubricant for engines, It is applied on skin disease. Cakes used as manure and bio-pesticide.	March-April
64	Neem Seeds	*Azadirachta indica* A.Juss	Neem Tree, Margosa Tree	Neem, Lim, Limba	Seeds	Neem seed oil used as bio-pesticide, fungicide and for soap making. It is also a suitable species for bio-diesel production. Oil used for skin disease. Neem seed kernel used in preparation of Ayurvedic medicine. Cake used as manure and bi0-pesticide.	May, June
65	Char Seeds	*Buchanania Lanzan* Spreng	Almondette Tree, Cheronjee	Char, Chahanr	Seeds	Seed kernel eaten, nutritious & palatable. It is a substitute of Almond in confectionery. Fatty oil from seed substituted for olive and almond oil and used for glandular swellings of the neck.	April, May
66	Chakunda seeds	*Cassia tora* Linn	Ring-worm plant	Chakunda	Seeds	Seeds used as substitute for coffee and as a mordant in dyeing. Leaves and seeds also used in skin disease specially ring worm and scabies etc.	November, December
67	Babul seeds	*Acacia nilotica* (L) Willd	Babul Tree	Bamur	Seeds	Pods contain tannin. Seeds yield a fatty oil. Seeds used as cattle feed. Pods used in Urino-genital disorders.	March, April
68	(Vidanga) Baribiranga seeds	*Embelia ribes* Brumf	-	Vidanga	Seeds	Used as stoma chic, anthelmintic, tonic, astringent, Dried fruits used as adulterant of black pepper. Fruits used in preparation of Ayurvedic medicines.	October, November

69	Sal seeds	*Shorea robusta* Gaertnf.	Sal Tree	Rengal, Sargi, Sal	Seeds	Seeds yield a fatty oil called Sal butter used for cooking, lighting and as an adulterant of Ghee, used for manufacture of chocolate, Cake used as cattle and poultry feed.	May June

Though the aforesaid Table provides a detail list of N.T.F.P. species available in the Division but some of them are commercially viable having production potentiality as well as market demand. It is prudent to converge the attention on those major species for obtaining remarkable result during the plan period instead of tackling all in a general manner. These important species are described in detail narrating the collection, value addition, processing and marketing etc. as under.

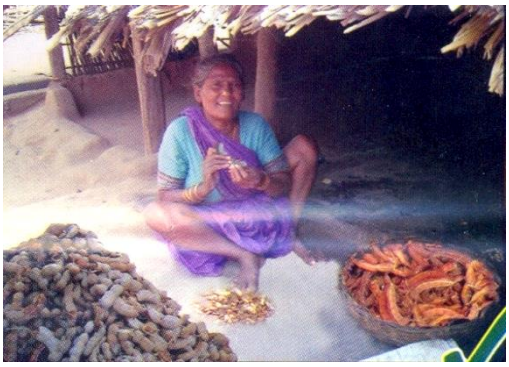
Tamarind (*Tamarindus indica* Linn)

It is a large and evergreen tree attaining a height of about 60 to 80 feet. The crown is round and spreading with pinnate leaves carrying 10 to 20 pairs of leaflets. Its fruit is a long pod with 6 to 10 radish brown seeds and contain about 55% of its weight as pulp. It occurs frequently in natural forests besides being cultivated on private lands. It thrives well in a warm climate and can withstand drought. Flowering occurs during August followed by fruiting in September and finally ripening of the fruit during March to April. A full-grown tree yields about 180 to 225 Kg. fruit per season. The fruiting vigour continues up to 60 years of age of the tree.

Both the pulp and seed are used for a variety of purposes. The fruit pulp is a common flavouring and souring substance in the food particularly South Indian dishes. It contains adequate amount of Vitamin C and has both laxative and digestive properties. The concentrate prepared from the pulp is now a day used in instant soft drinks, soup & noodles, cough syrup, candies and as a preservative in food processing. The seed kernel which is about 70% weight of the seed is more proteinous than maize and also purgative and stimulant. The most important form of use of the kernel is Tamarind Kernel Powder popularly known as TKP. It is used as a sizing material in Textile Industry being advantageous over common starch. It is also used in Jute Industry, Paper Industry and Plywood Industry as an adhesive. The seed kernel is now a day is being used in Agarbatti Industry at Deheradun due to its adhesive property. The seeds are also used as cattle feed and poultry feed.

When the fruit is ripen, the outer shell of the pods becomes dry and it begins to fall on the ground. This is the appropriate stage of collection of the fruit. This is done through shaking the branches of the tree with the help of a long stick for facilitating the fully ripen fruits to fall on the ground for collection. After that, the fruit is de-shelled with bare hand by applying little pressure over the pod to break the outer shell and remove it. Then the pulp is dried and de fibred manually. Usually the dried pulp either with fibre or without it are sold by the primary gatherers.

(Wrong deshelling)



(Proper deshelling)

Value addition through de seeding not only reduces the vulnerability of the insect attack but enhances the storing longevity of the pulp, there by fetching more prices in the market. Before deseeding sun drying is necessary for two days. Decorticator machine of Tamarind have already been developed and also available locally. Deseeding is found to be easier and smoother with the help of this machine. VSS having rich potentiality of Tamarind production in their area shall be provided with such machines for value addition. Sun dried, deseeded and de fibred Tamarind are mixed with common salt and made in to handful sized capsule. It is further subjected to alternate drying in daylight and bare exposure in night for a week before packaging for storage and marketing. Another forward step in value addition is preparation of Tamarind brick by pressing the deseeded and de fibred pulp in a simple machine made of steel. In this process inner white layer of the pulp is exposed outside of the brick, which is more convenient for transportation and marketing than the handmade capsules.

There is a good demand of Tamarind in the present market and it will go on an ascending trend in the future. Simple value addition through deseeding fetches about 40% hike in the price over that of seeded one. This process of value addition is very simple involving easy method with the use of low cost decorticator machine. The women can handle this process effectively and earn substantial income. The seed kernel can also be used locally for production of Agarbatti by the self-help groups to improve their economic condition.

Hill Broom or Phul Jhadu(*Thysanolaena maxima* (Roxb) Kuntze)

This is also known as Bouquet grass or Tiger grass. It is a tall perennial grass of 1.5 to 3 meters long having large, flat and oblong-lanceolate leaves and usually occurs on shady forest slopes particularly near water streams. It grows well in soil having high moisture content. It is available throughout the Division but Madanpur Rampur, Narla and BhawanipatnaRanges have much potentiality. The panicles of this grass containing the inflorescence is the part used for preparing the broom. The size and weight of the panicle vary depending on soil quality and other locality factors. The panicle is usually 1 meter long having the inflorescence of about 45 cm. This broom is almost meant for sweeping the fine dust on polished surfaces because of its cleaning effectiveness and good look.

The common method of harvest is cutting of the broom grasses close to the ground with the help of a sickle. While cutting care should be taken not to disturb the rootstock for regeneration. Sometimes it is observed that reckless cutting leads to the

damage of rootstock, which affects regeneration adversely. Such destructive method of harvest shall be prevented through proper awareness and training to the primary collectors. After cutting, loose grass stalks are made into bundles and carried to the drying yard. The rural women folk mostly do this job. Since the inflorescence is the vital part of utility, the ideal period of collection is the time of its occurrence during January. At this stage it looks greenish and also fine textured which is considered as the best quality. With advent of time the inflorescence grows to become flower, thereby changing both colour and texture to brown and coarse as well as deteriorating the quality. The stalk with inflorescence so collected are dried in the sun for three days by spreading evenly on a dry surface or on thatch roofs of the hut with frequent turning for ensuring proper drying. These dried materials are at times sold off by the primary collectors.

Value addition through binding / tying to prepare brooms, fetches quite high price. This can be done manually with little expertise. The dried broom stalks are first shaved with the help of knife for removing loose-leaf sheaths to ensure binding strength. It is followed by gentle beating on the mud floor to shed the dried flowers if any. Thereafter sorting and grading is done basing on the length of the stalk as well as the quality of inflorescence particularly the thick or thin. The next step is to cut across the upper portion of the stalk to maintain uniform size and prepare small bundles through binding / tying of specified size and weight. Normally one bundle is about one meter long having 350 gms. weight. The traditional tying is done with Siali fibre. But now a days it is done with plastic strings of different colours. Various patterns like spiral, diamond etc. are adopted for tying with the help of plastic strings to make the broom more attractive. Further some plastic covers are put in the basal stalk portions to make the broom durable and comfortable for use. In nutshell, value addition to the broom is mostly tying in shape of attractive design along with a cover cap for the stalk portion. Sometimes the broom after binding is kept inside a thin polythene cover for safe transport and marketing at far away urban areas.

These value additions involve very simple technique and the illiterate rural women can be groomed through short duration training at their locality. It is estimated that the cost of the broom is increased two and half times through value addition involving very small amount for the coloured plastic string and cover with easy technique. This is a potential source of income generation to the illiterate rural women folk.

Thorn Broom or Kanta Jhadu(***Aristida setacea*** **Retz**)

This is popularly known as Kanta Jhadu grass. It is stouter grass of about 90 to 120 cm. long and having erect culms glumes awned. It is the pricking substance for which it is called Kanta Jhadu. The culm of this grass is used for preparing the broom. This broom it mostly used for mud house particularly earthen floor or any type of rough surface. It has a great demand in the rural households for sweeping most of the area. Locally it is called as Badhun.

The method of harvest is similar to that of hill broom so also the period of harvest but after the cutting, the culms are tied up at the bottom end in an interlocked stitch method leaving all the rest portion of the culm free. The culms are also used as a string for this stitching purpose. The rural women folk have the indigenous skill for such stitching. After such stitching upto 20 feet length, it is put to sun drying for 2 to

3 days by spreading on the ground with alternate turning. In this process the pricking substance i.e. the awned glume automatically shed off. After the removal of the pricking substance, it is cut into pieces according to the proposed size of the broom and tied up. Normally a piece of 5 to 6 feet length is made into one bundle and used / sold as one broom. The ideal period of harvest is just after the culm becomes mature. Further delay in harvesting will deteriorate the quality of the broom.

The value addition of this item has not been taken up in view of its utility and marketing being confined to mostly the rural areas. Now a days this broom is also used in urban areas for cleaning up the courtyards, lawns, roads and areas other than the smooth / polished surfaces. However, it is necessary to provide value addition to this commodity, which has a great market potentiality.

Amla- *Phyllanthus emblica* (L.)

Family- Euphorbiaceae

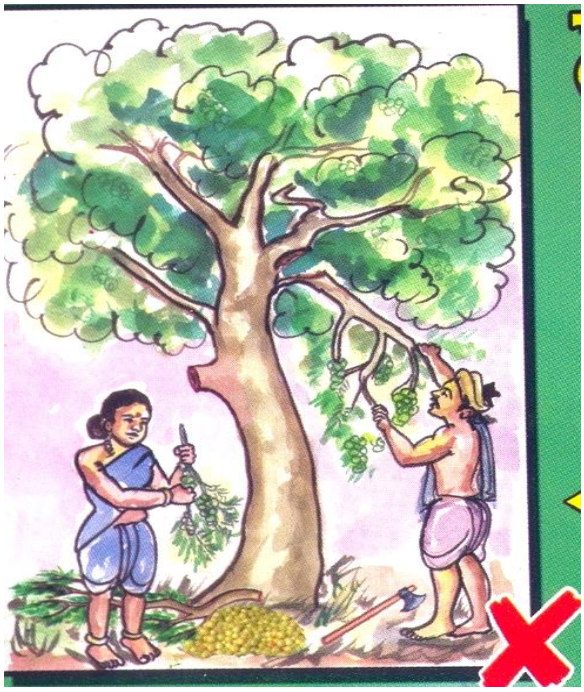
Amla occupies an esteemed place in Ayurveda and the tree itself is regarded sacred in the Hindu culture and religion. It is a moderate sized deciduous tree attaining 62 to 75 cm. in girth and 10 to 12 meter in height. Very small and narrow leaves are light green in colour, light coloured bark which peels off in stripes, flowers yellowish on the new shoots. Fruit is greenish when tender and yellow or pink when ripe and about 1.8 - 2.5 cm. in diameter. The picture of a branch of the tree containing ripe and mature fruit is furnished below. It flowers from February to May and the fruits ripen during February to March. The fruit is six-lobed and contains six seeds. The tree is seen mostly in the wild. It is a strong light demanding species and susceptible to both drought and frost.

Mature Amla fruit

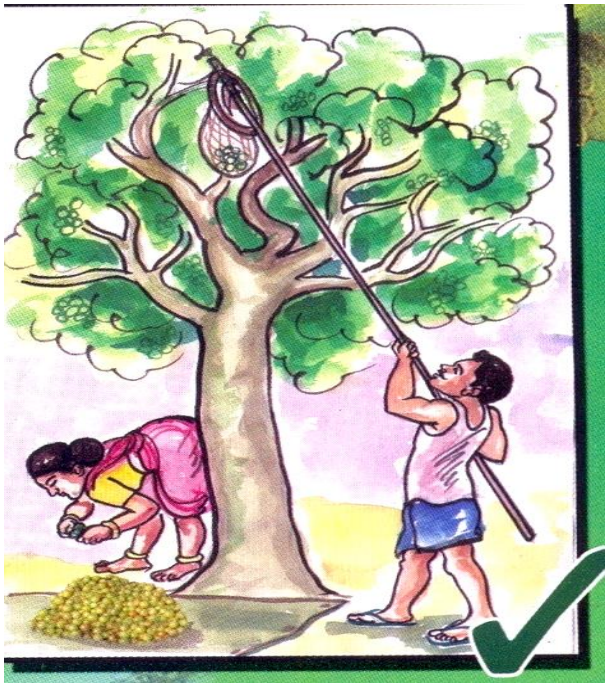
Processed Amla fruit rind

Its fruit is of great medicinal value. It is one of the richest sources of Vitamin-C. The fresh fruit is refrigerant, tonic, antiscorbutic, diuretic and laxative. It is used in fevers, vomiting, indigestion, habitual constipation and other digestion troubles. The dried fruit is a good astringent and blood purifier. The infusion of seeds is useful eyewash in ophthalmic diseases.

Best time for collection of fruits of Amla is said to be the month of Chaitra (March) when it is matured and ripe. The fruits are either carefully plucked using long poles / bamboos with a hook. Cutting of branches for collection of fruits is prohibited. Collection is preferred in the morning because increasing solar heat may turn the fruits black. Amla must be processed within two days of its collection.



(Destructive Harvesting)



(Proper Harvesting)

Fresh Amla is delivered at the pharmaceutical industries for preparation of Chaivanpras within 48 hours of collection. Immature and blackened fruits should be separated and the selected ones are boiled for 3 to 5 minutes only that too by keeping the fruits in bamboo basket on an earthen pot. It is steam boiled to facilitate depulping. The boiled fruits are then deseeded in a neat and clean place and sun dried on bamboo mats or fine cloth. In case of cloudy weather, drying should be done in well-ventilated places. Processed Amla (fruit rind) should be stored in gunny bags / woven sacks in dry place with a normal room temperature. But boiling destroys the germination capacity of the seeds and also reduces the nutritive richness for which steam boiling is preferable. Fruits are depulped manually after they become soft during drying after two days. Amla shredding unit for depulping and solar tunnel dryer have been developed by Maharaja Ranapratap University of Agriculture and Technology, Udaipur, Rajasthan which can be installed and used for value addition and to facilitate marketability.

Amla happens to be India's most saleable herbal raw materials. Raipur, main centre of this trade receives most of the production of Kalahandi. Besides this, there are a number of domestic consumers in Orissa who depend on the local supply for Ayurvedic drug manufacturing. But the primitive method of collection and processing decreases the trade in this locality and does not fetch the actual return. However processing of 100 Kg. raw Amla yields approximately 20 Kg. of processed (deseeded) Amla which @ Rs.24/- per Kg. fetches Rs.480/-. On the other hand collection and processing of one quintal Amla cost of Rs.415/- approximately. Hence, there is a profit of Rs.65/- per quintal approximately.

(Faulty processing)

(Proper processing)

Bahada- ***Belleric myrobalan* (*Terminalia bellirica*, Gaertn.)**

Family- Combretaceae

Bahada is the fruit of Terminalia bellirica, a large deciduous tree attaining a height of 40 meters and a girth of 3 meters or more. Bark ashy-grey with many small longitudinal cracks, leaves are 7.5-20 cm. long broadly elliptic or obovate, clustered at the ends of the branches, green in colour. Leaves fall in January and are renewed in March to April. The flowers are small; greenish-white appears in spikes from March to May with the new leaves and smells very strongly of honey. The single seeded fruit is ovoid or globix, fleshy about 1.8 cm. in diameter with a grey velvety covering. It ripens in December – January. This tree is chiefly available in mixed forest associated with Sal usually in moist localities. It is also frequently seen in village lands. This light demanding tree is very sensitive to frost but hardy to drought. It coppices well and grows rapidly. A ten year old tree yield 15 to 20 kg. Bahada annually. The picture of mature Bahada fruit is furnished below.

Dry Belliric myrobalan fruits / rind

Mature fruits of Belliric myrobalan

Bahada is one component of "Trifala" and occupies a significant position in "Ayurveda". The half ripe dry fruit is used as an astringent. It is also given in piles, dropsy, diarrhoea, leprosy and headache. The fruit is also used in leather industry for tanning. The kernels are used for hair oil and bahada powder for preparation of liquor in Tamilnadu.

Best time for collection of Bahada is December-January. Cutting of branches for collection of fruits is prohibited. After collection it is sun dried for 7 to 10 days otherwise it may decompose. Processed Bahada should be stored in a dry place after packing in gunny bags. But unfortunately Bahada is not commercially collected and marketed in an organised way for which it is difficult to assess the annual production of the district. However 1 quintal of Bahada costs Rs.350/- to 400/-.

Harida- ***Terminalia chebula*** **(Retz.)**

Family- ***Combretaceae***

From time immemorial, Harida is considered as an indispensable ingredient in many Ayurvedic medicines. It is the fruit of a small or moderate sized deciduous tree attaining a height of 15 to 20 meter and girth of 1.5 to 1.8 meter. It has rounded crown, short bole and heavy branches. The leaves are oval or elliptic, 10-19 cm. long by 5-10 cm. broad. The new leaves are often copper coloured. Flowers whitish with the new leaves in April – May. The fruit is an ovoid or ellipsoid drupe, 2.5-3 cm. long, light brown in colour and five ribbed when dry. It ripens from January to March. The tree is very tolerant of poor dry soil. It is a common associate of Sal but is perhaps more typical of open village forests. It is a light demander but stands shade in youth. It resists drought, frost and fire well.

The fruit is the Chebulic myrobalan of commerce. It is an efficacious laxative, astringent, stomachic, tonic and alterative. The fruit pulp is given in chronic diarrhea, dysentery, asthma, urinary disorder, vomiting, enlarged spleen and lever etc.

Best period for harvesting is January to March. The fruits collected during January contains more tannin than any other time. Collected Harida is sun dried for a period of about three weeks until it is light yellow in colour. Such Harida fetch more amount. The fruit rind of Harida commercially known as Kacheria is removed for export in order to save freight. Our nearest trade centre of this products is Jabalpur in Chhatisgarh. Bal Harida / Kala Harida / Choti Harida is collected during first fortnight of October before seed development fetches as much as Rs.40/- per Kg. Bal Harida is primarily used for medicines whereas mature Harida fruits are used as tannin material. The pictures of Bal Harida and mature fruits are furnished below. Pulper should be installed for destoning of harida fruits as most pharmaceutical Industries need fruit rind for manufacturing medicines. There is also good market demand of fruit rind (Kacheria) in export market.

Bal / Kala / Chhoti
Chebulic myrobalan fruits

Chebulic myrobalan fruits

Siali- **Bauhinia bahlii (Siali leaves)**

Family- **Caesalpiniaceae**

Siali is a huge climber, so immense that the mature climber can exert much pressure on the host trees and more times the latter collapse under its load. This species is available on the uphills and less with plain areas. The large leaves of Siali are shaped like camel's foot and appears as twin. The leaves are green in colour. Siali leaves have been used by some tribal communities as a thatching materials for their small holds. Commercial use of this leaves is in the form of packing materials (when loose) as well as in the form of caps (Dana) and plates (Khali). As packing materials, the leaves are used by the local junk food makers as well as some fish suppliers. A lesser know the use of Siali leaves is as a protective cover during rains, used by the rural agricultural labourers of Kalahandi which is named "Chhatur".

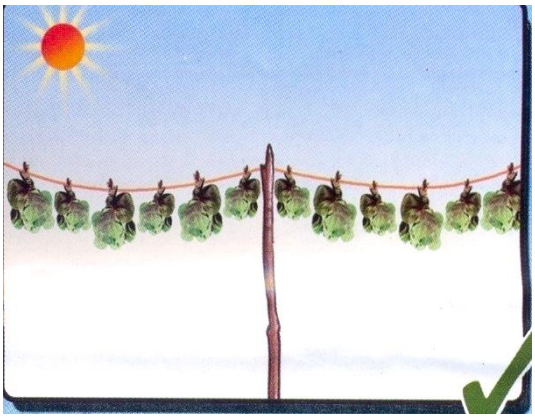
Siali leaves are available between the month of October and February both in terms of quality and quantity. The lean period is during March to 15th April. Leaves are also collected during 15th April to 30th June. Leaves are collected by the primary collectors by plucking the leaves. It is very often noticed that the male collectors loose patience in plucking the leaves one by one and instead cut down the climbers but the women collectors are usually careful and they pluck the leaves of requisite size and thickness leaving the immature and old leaves on the climber itself. Leaves not mature or old are usually not collected because immature or small sized leaves would take additional time in stiching of leaf plates while old leaves are less flexible.

(Destructive Collection)

(Proper Collection)

The leaves are dried in small bundles of 7-8 leaves and hanged over a rope so as to prevent blackening of the surface. Unlike Sal leaves, Siali leaves take only a few hours for drying. Drying however is limited to an extent beyond which the leaf would loose its flexibility. Dried leaves are stable for a lesser period. For immediate use in plate making these leaves are sprayed with little water so as so regain their flexibility and softness which is necessary for stitching. Siali leaves are sold in loose @ Rs.3.5 per Kg. whereas the standard size leaf plates are sold @ Rs.10 to 12 per Chakki which contains 80 plates. These leaves as well as the plates and cups have a market both inside and outside the State. Machine stitched leaf plates which are also sized by machine, fetch higher price for which support should be extended to active VSS. Presently such value added leaf plates are sold @ Rs.18/- per Kg. in Madanpur.

(Faulty Processing)



(Proper Processing)

Char- Buchanania lanzan, Spreng. (Char seed)

Family- Anacardiaceae

A small or moderate sized deciduous tree, seldom exceeding 60 cm. in girth with a straight trunk and a rough dark grey or black bark. The leaves are stiff and strongly nerved 12-20 cm. long, ovate-oblong. This tree sheds its leaves in April to May and renews them in June. The small greenish white flowers appears in dense pyramidal panicles from January to March. The black ovoid fruits are about 1.25 cm. long and ripen in April to May. It is found especially in dry hill forests. The tree is a moderate light demander, very sensitive to frost, fairly resistant to drought and suffers a little from grazing. The fruit of Char is considered as poor man's grape. The fruit is eaten by the tribes. It is also used as medicine. Char seed is also used in sweets, biscuits, cake etc. The oil of Char seed is used as medicine for skin disease. One ten-year-old tree yields 20 to 25 kg. Seeds annually.

The ripe fruit is collected by plucking from the trees by using a long bamboo with hook or by collecting fallen fruits from the ground. The fruit pulp is removed by rubbing with sand after they are kept in warm water over night. Then seeds are dried. The collected seeds are grinded to get the kernels by using Chaki. The seeds are sun dried to minimize the moisture contents. The seeds are stored in a bamboo basket by covering it with leaves. In the traditional method of processing, kernels are damaged very often. To overcome the problem, electric driven decorticators are used to get good result. Big sized and unbroken kernels fetch good money. Good quality Char seeds are sold @ Rs.40 to 50 per kg. and the seed kernels (Cheronjee) @ Rs.150/- to Rs.200/- per Kg.

Char

Mahua-Madhuca indica, Gmel. (Mahul)

Family- Sapotaceae

Mahua (called Mahul in Oriya) is the flower of Madhuca indica, a tree also named after its flower. It is a large deciduous tree with a dense rounded crown spreading branches and a short bole often 1.8 meter in girth and sometimes more. Leaves are large 12-20 cm. long and 6-10 cm. broad elliptic or oblong and rather rough. The tree is generally leafless from March to May and the new leaves come out in May. The brown flower buds are first seen in clusters at the end of the branch lets in January or early February and open chiefly in February and March. The flowers ovoid about 2 cm. long, creamy white in colour and fleshy. They have an unpleasant odour and are sweet to taste. The fruit is an ovoid drupe, 0.8-1.2 cm. long with a green fleshy covering and a shiny brown ovoid seed about 2.5 cm. long. It sometimes contains as many as 4 seeds, fruits ripe in June-July. The flowers and seeds are the most important product of tree which are widely used as below: -

Mahua Flower

Mahua flowers are rich in sugar being widely used as an article of food specially by the jungle tribes. They are eaten fresh but are usually cooked with rice and eaten after they have been dried in the sun that helps the tribe during famine. But the most popular use of Mahua is in liquor making. The distilled liquor thus prepared is known as Mohuli and in stronger in its effect than that made from fermented rice.

During March and April, the cream coloured corollas of Mahua fall on the ground by themselves after their moulting on the tree. Usually the showering takes place between 4 O'clock to 10 O'clock in the morning. The primary collectors clean the ground under the tree to get Mahua flower free from unwanted materials like leaf, grass etc. But spreading mat on the ground can still improve quality of materials. Sugar content of corollas is maximum when flower is matured and ready to fall. So the primary collectors do not apply any pressure on the tree for harvesting the flowers and wait for the showers. The collection season lasts for 3 to 4 weeks maximum. The flowers collected are sun dried preferably on a cemented floor / drying yard to lessen the moisture content. Racking is needed twice or thrice a day to avoid blocking and to ensure uniform drying. After three or four days of good sun drying, the flower turns reddish. Cloudy weather makes the flower blackish. The dried flowers become storable for a longer period than the raw flower. Mahua if undried should be preferably stored in a well ventilated house to avoid accumulation of inflammable gases created from it. The primary collectors often set fire to leaves and grasses underneath the tree. This practice should be stopped and awareness be created not to set fire as such as fire offence spreads to the other forest areas.The price of Mahua is usually highest in the month of December and January. Total cost of production comes to Rs.740/- per quintal approximately and selling price comes to Rs.810/- per quintal. So the average margin without the storage cost comes to Rs.115/- per quintal.

(Mahua Flower)

Mahua Seeds

Mahua fruits are either collected from the ground or plucked from the tree and dried in the sun and seeds removed by threshing with stone. The seeds cannot be stored for a long period. But if moisture content is 5 to 6% and treated with aluminum phosphate it can be stored for a longer period. The seeds yield a greenish yellow oil. Mahua oil is used mainly in the manufacture of laundry soap. It is also used for cooking purpose in some rural areas, for candle manufacturing, as a batching oil in jute industry and as a raw materials for the production of stearic acid. It has emollient properties and is used in skin diseases, rheumatism and headache.

(Mahua Fruit)

Kusum- Schleichera oleosa (Lour.)

Family- Sapindaceae

It is a large deciduous tree with a comparatively short bole and dense foliaged spreading crown leaves. The tree is very striking when in new leaves during March, the young leaves being red in colour. The tree attains a large girth of 2 to 2.5 meter but no great height. The greenish yellow flowers appear in February – March. The globose fruits ripen in June - July. It is usually found in mixed deciduous forests of dryish type, particularly near streams where it reaches its best growth.

The fruit of Kusum is eaten and kernels yield a good quality cooking oil which is yellow in colour. The oil is mainly used in soap industry and also frequently used for adulterating ‘Ghee’. The seeds of Kusums are collected during June – July. The fruits fallen on the ground are collected or the fruits are plucked from the twigs by climbing the tree. The collected fruits are sun dried for 7 to 8 days and seeds are separated.

Karanja- Pongamia pinnata (L.)

Family- Papilionaceae

It is a moderated size tree with a short bole and a spreading crown, almost evergreen. Bark thin, smooth and grey in colour. Leaves compound, 20-35 cm. long with 5 to 7 oblong or ovate shinning leaflets 5-7 cm. long. Flowers appear in May – June. Pod woody, one seeded, ripening in February- April. The trees is leafless for a very short period in May. It attains a girth of 1.5 meter in the wild state. Karanja is easily raised from seed, the seeds retains its vitality for at least one year. The seed yield a thick brown oil which is used for burning and for lubricating heavy machines and as a cure for skin disease. Karanja cake is a good manure and is said to keep off white ants.

Sal- Shorea robusta (Roxb. ex Gaertn.)

Family- Dipterocarpaceae

Sal Seeds

Sal or Shorea robusta is one of the common most widespread and dominant species in the forests of Kalahandi. In fact, it is among the few species which have developed natural forests more or less exclusively of their own and as such, Sal forests are widely distributed throughout the district. One of the Sanskrit name of Sal is Chiraparna, which means evergreen. The botanists consider this tree as a deciduous tree but the period during which the leaves are shed and renewed is so short that it appears evergreen almost throughout the year. Hence some prefer to call it as a semi-deciduous tree. The mature leaves are somewhat coriaceous, ovate – oblong with a corolate base, 10-25 cm. long. The crown is conical in youth, afterward rounded with a strong branching system. The bole is clean and straight. This tree can grow upto 45 meter in height and 1.5 to 2 meter in girth. The flowers are cream colour in panicles 12-20 cm. long. They appear in March – April. The fruit is about 1.3 cm. in diameter with wings 5-10 cm. long. It ripens in June – July. The dried fruit is popularly known as Sal seeds. It contains five unequal sepals or segments of the calyx extending upwards as wings. What is marketable is the kernel produced from the seed and when the term "Sal seed" is used, it usually refers to the kernel itself.

Fruits / seeds of Sal are used occasionally by the forest dwellers of this district for medicinal purpose since long. Extraction of oil from Sal seeds for domestic use has been in practice since decades. But Sal seeds gained considerable importance when use of their oil for the manufacturing of soaps and chocolates was discovered. This created a scope for the industrial use of Sal seed oil and as such its demand got increased significantly. The kernels produce oil which is a natural hard fat, non-greasy even without chemical refining. Hence it has the credit of revolutionising its use in the confectionary industry.

The seeds are collected and sun dried for 5-6 days which makes the sepals friable and easier for removal through manual crushing. Local level processing of Sal seeds involve decortication of the seeds and extraction of fat from it. Another way is that the seeds are spread under the trees immediately after collection and then are set fire in a control manner so that the tribal sepals can be removed manually and decortication becomes easier. The seeds thus heated are then subjected to rolling under a plank or piece of stone to yield kernels. In traditional domestic processing, the kernels are boiled in water and fat is obtained from the oil thus produced by skimming of the oil using the feather of peacock. About 10 Kg. kernels are required to produce 1 Kg. oil which takes almost a day consuming 1 quintal of firewood.

Sal seeds were first sent to the other states without further processing after decortication. But gradually oil mills were established in Orissa and some of the production was thus consumed within the state so far commercial processing is concerned. But till today Raipur is the main trade centre of Sal seed. Pilferage of Sal seeds to Chhatisgarh has been facilitated because of (i) the procurement price in Orissa is very low, (ii) the border is porous, (iii) inability of the Orissa agents to fully and properly harness the production potential of the seeds. The primary collectors of Sal seeds need to be assured with effective policy. Promotion of processing of Sal seeds in the State can ensure assured procurement from gatherers.

Sal Leaves

Use of Sal leaves for making cups (Dona or Chaupadi) and plates (Khali) is an old practice in tribal areas. But now a days it is widely used for the above purpose in a commercial basis throughout the state. The leaves are often used in some localities for making Pika (Bidi like country cigarettes). The Forest Research Institute, Deheradun has confirmed that Sal leaves can be substituted for Kenduleaves for Bidi making. The raw leaves are used as wrapper in betel shops and by junk food seller. They are also fodder for some animals. The leaves are of some therapeutic use as these are anthelmintic, elexeteric, cure ulcers and wounds, enrich blood and are good in cough, itch, leprosy etc. In throat pain, the green leaf is shown on fire and then put on the affected part for relief.

Pluckers usually go for the collection early in the morning and return home before the sun is unbearable. A plucker can collect 2000 leaves in 4 hours. Leaves that are tender enough or over matured are usually not plucked as they would not tolerate the pressure of processing. Hence the middle aged leaves are plucked. Collection of Sal leaves should be allowed in JFM areas. Plucking of Sal leaves from young regeneration within 2 meter height is prohibited to ensure better growth of seedling and saplings. Between September to January the collection reaches its culmination. Method of primary processing vary to some extent in different area. In one method, the collected leaves are unloaded on the open ground for sun drying. The dried leaves are left in the same position till next morning to absorb moisture from the atmosphere and get softened. Next morning, the softened leaves are made to a stratum of their own by placing one on another and then packed tightly into bundles which are subject to pressure. These leaves are then stitched together using fine bamboo sticks to form what is known as Dipatri (two leaves). These Dipatris are used in cup making. In some other areas people make plates and cups out of the leaves collected by them. They work till late night to stitch the collection of the day and then sun dry the plates and cups for a day or two depending on the weather condition. No special arrangements are made by the traders for storage of the cups and plates except that these are protected for rains. Within a few months the materials become too brittle for use as the flexibility is lost due to moisture loss. Indirect exposure to rains followed by sun drying causes discoloration turning the greenish colour into chocolate red and brittleness also increases highly. Pressed leaf cups fetch higher price specially in urban areas. Support of pressing machines can be extended to active VSS for their economic upliftment.

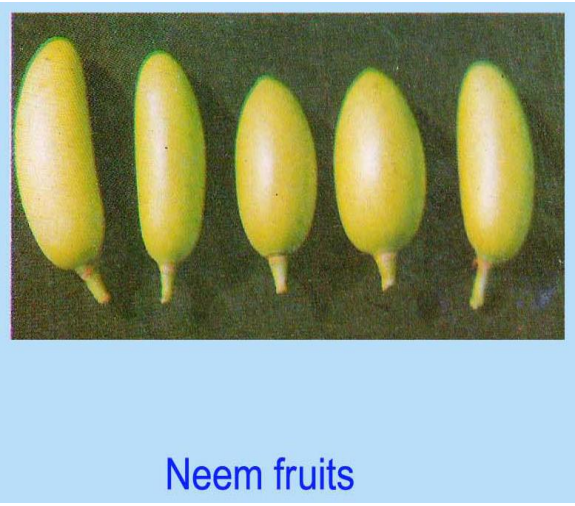
Neem- Azadirachta indica (A. Juss.)

Family- Meliaceae

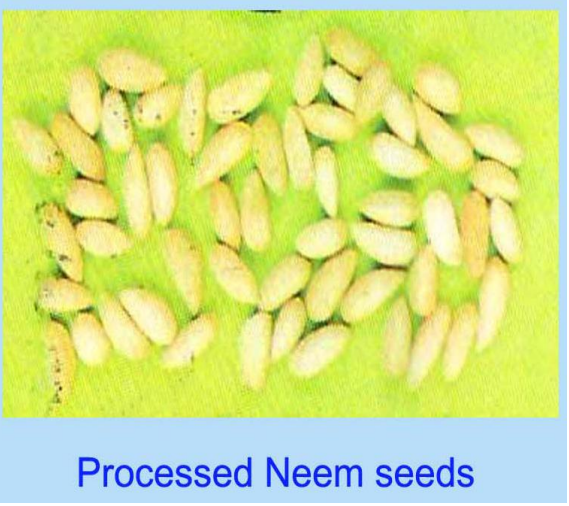
Neem Seed

It is described in the Hindu mythology that during "Samudramanthan" some drops of nectar fell on the earth which took shape of Neem tree. Since time immemorial Neem occupies a vital position in Ayurved. Hence it is very often considered as a "rural medicine store" due to its medicinal value. It is a moderate sized, usually evergreen tree with rounded crown and pinnate leafs. The bark is dark grey furrowed, moderately thick and red inside. Small white flowers appear from March – May and the fruit ripen from June – July. Leaves are carminative, expectorant, anthelmintic, antidotal and insecticidal. The fresh juice of the leaf is given for intestinal worms, with honey the juice prescribed for Jaundice and skin diseases. The twigs are used for tooth brushing. Neem flower is eaten to prevent measles and skin diseases. The fruit is recommended for urinary diseases, piles, leprosy etc. The seeds are emetic, laxative and anthelmintic. Seeds oil is applied as an antiseptic dressing in leprosy and chronic skin diseases and used as bio-pesticide. All the medicine farms prefer Neem oil due to its bitterness. Neem oil is also used in manufacturing of mosquito repellant. Oil cake is popularly used as effective fertilizer in farming. Neem oil has increasing potential for production of bio diesel.

Best time for harvesting Neem fruits is June – July. It is collected when the fruits become yellowish. The twigs of the trees are shaken and the fruits fallen on the ground are collected. It is good to clean the ground surface under the tree before collection and gunny bags or tarpolins are spread on the ground. After collection, the fruits are treated with warm water so that it can be depulped easily to obtain the seeds. The picture of mature and ripen fruits as well as the seeds are furnished below. Then the seeds are dried in moderate sunlight. Moisture content should be brought down to 10% or less. After drying the seeds are stored in perforated sacks. It is estimated that 8 to 10 MT. fruits are harvested from 1 ha. area. The trading of Neem seeds in this district is not so promising. The primary collectors are loosing interest due to under payment by the agents of various organisations. Value addition of Neem seeds by use of low cost Neem seed decorticators can help to produce seed kernel and further processing of seed kernels to oil and oil cake shall help in marketability and economic upliftment of primary collectors.



Neem fruits



Processed Neem seeds

Dhataki- Woodfordia fruticosa (Salisb.)

Family- Lythraceae

Dhataki is a large branched deciduous shrub with narrow lanceolate leaves, 3.7-10 cm. long and very beautiful when in flower and covered in mashes of small red blossoms from January to March. It is leafless from February to March. Fruits are small, grey in colour and ripen during January – April. This is a non-browsing species. As it is an ornamental plant, very often found planted in the gardens. A red dye is extracted from the flowers. The flowers and leaves contains a good deal of tannin and are used in medicine as a cure for dysentery. Flower dust used to heal wound. The flower is commonly used in preparing "Asavs" and "Aristas" by the Ayurvedic pharmaceuticals. The flowers are collected when they are rich with gummy substance. Therefore the flowers need to be dried on a cement platform or on a mat and preferably dry under shed to maintain the colour and quality. The dried materials should be sold within three months to prevent deterioration in quality.

Satabari- Aspargus recimosus (Willd.)

Family- Liliaceae

Satabari is a thorny bushy climber with perennial roots. In the early summer the roots develop into a full-blown climber. Instead of true leaves cladodes occurs. Flower white in colour and occurs during November. Fruits are rounded, red when ripe, one seeded and ripe in December. The root have tuber. Both the root and tuber are used as medicine. Tuber is used in malnutrition, asthma etc. It promotes secretion and flow of milk. Even it is useful in case of cow and buffalo. Satabari is used in dysentery.

Satabari should only be harvested in JFM areas during February-March, when the shedding of leaves is started. The roots and tubers are dugout of the soil. It is easier to harvest if floodwater is taken up before digging. 50% of the roots of one direction are dug in a year and rest is dug in the next year. On third of the healthy plants should also be left intact evenly to facilitate regeneration. After harvesting the thin bark of the root is removed with sharp knife because the barks are somewhat poisonous and woody portion of the root is also removed. After removal of the bark the roots are cut into small pieces and dried under the shade. About 25 quintal of Satabari root is harvested from one acre. It is estimated that there is a net profit of Rs.34,000/- in an acre. As there is increasing demand of Satabari in Ayurved, it occupies a vital position in marketing. Cultivation of the species on the private land should be promoted to minimize pressure on the forest and to meet the demand.

(Destructive Harvesting) ***(Sustainable Harvesting)***

Honey

Honey is considered as nectar on the earth. Honey and wax are the two most important and useful products which we get from honey bees. This products are in use of human being since Vedic Era. It is of great economic importance and is widely used in medicine and as antiseptic. It has its own food value and gives high calorific value and energy. It is used in candies, cakes, breads and cool drinks. Alcoholic drinks, livestock feeds and poison baits are also made from honey. It is the only substance which requires minimum energy for its digestion that is why it is given to newborn infants. Bee wax is also used in floor polishes, water proofing of leather goods, shoes polishes, cosmetics, lipsticks, face creams etc.

Despite of modern technical know how human being is still unable to prepare honey in the laboratory. It is prepared by the bees only. It contains variety of minerals like calcium, iron, silicon, magnesium, manganese, chlorine, sulpher, aluminum and phosphorous. Besides these some enzymes and acids are also present in honey. The traditional method of honey extraction has certain drawbacks. It not only damages the hive but kills the brood also. The honey thus extracted is much more contaminated. Today a variety of hives are used to rear the bee. It includes a wooden box of a definite size kept on a wooden frames and contains an outlet near the base. The outlet is made more scientifically from which drones and workers can come out but not the queen. Sometimes the bee hives are provided with two holes, one entrance and other exit. It contains a stand and a bottom wooden base and a brood chamber. Brood chamber is the largest and contains a network of wooden and wire mesh. The mesh is hang vertically with the help of two twigs and bees start making cell among the net mesh. Promotion of bee keeping shall help to improve the economic condition of the rural poor, specially the landless. Moreover the forest has diversities of plants with different flowers almost throughout the year except a brief period of rainy season. The OFDC / TDCC can install one honey processing unit in Kalahandi district. Exposure visit of primary collectors to Oottacamand in Tamilnadu on sustainable harvesting of wild honey can prevent destructive harvesting from wild. Such collectors should also be provided with gloves so that they do not set fire to collect honey

Mango

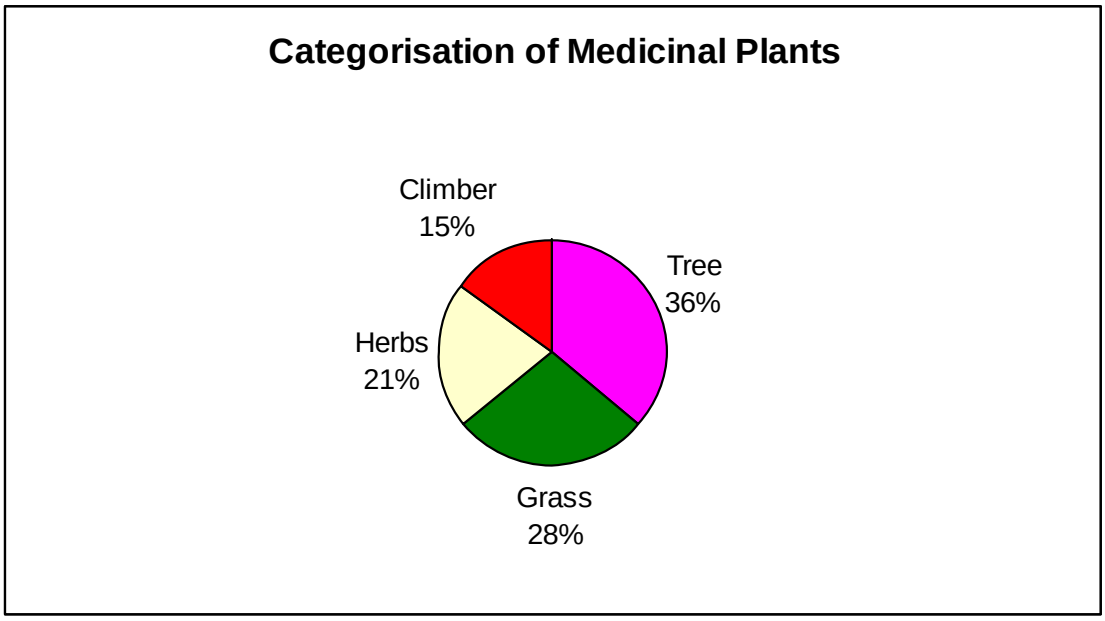
*Mangifera indic*a (Family Anacardiaceae) .The raw and ripefruits areused as food.The chemical composition of the raw and ripe mango is given in Table 8.4.

Table No.7.3

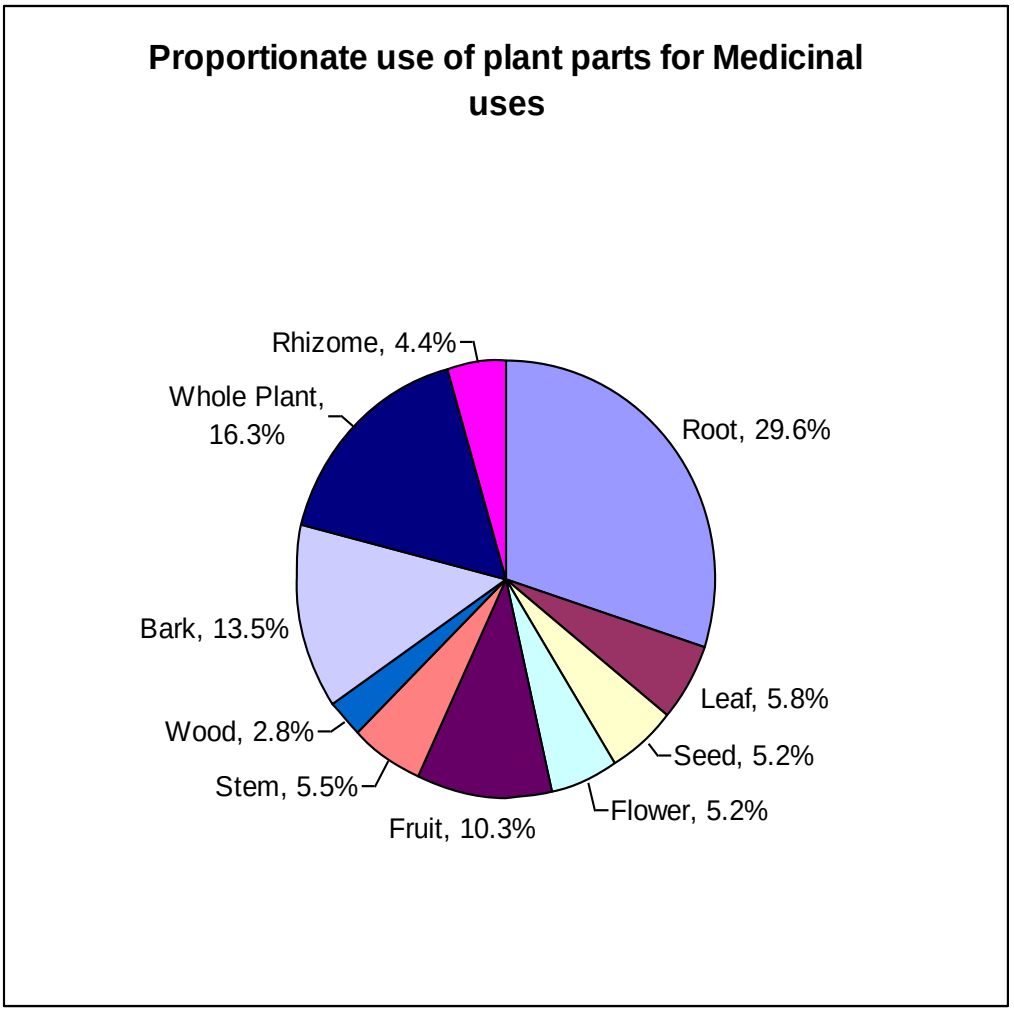
Food Value	Green Fruit	Ripe fruit
Water	90.00 %	86.00 %
Protein	0.70 %	0.60%
Fat	0.10 %	0.10 %
Mineral Material	0.40%	0.30 %
Cellulose	--	1.10 %
Carbohydrates	8.80%	11.80 %

Medicinal Plants

Almost all plants have some medicinal properties but the plants used predominantly for the health care are popularly known as medicinal plants. Though all categories of plants like trees, herbs, climbers, grasses are the source of ingredient for medicine, but the proportionate use of tree is about 36% only as depicted from the following pie diagram.



Similarly different parts of the plants are utilised for the medicinal purpose due to high contents of the required alkaloid in that portion. It is seen that roots is the most dominant part whose utility is about 30% of the total requirement. The proportionate use of parts for medicine is furnished in the following pie diagram. It may be observed from the pie diagram that about 50% of medicinal plants mostly herbs are being harvested in destructive way. Therefore, there is urgent need of cultivation of such plants to meet the market demand and monitor the harvesting so as to prevent any possible theft from the forests.



As already stated earlier, the medicinal plants are in great demand at present due to growing preference for herbal health care all over the world. In India the practice of herbal health care is oldest since the time immemorial. Though a number of medicinal plants are in great demand, the most highly demanded 10 (ten) medicinal plant species which account for about half of the total demand in our country during 2004-05 is furnished below.

Table No. 7.4

Sl.No.	Local Name	Botanical Name	% of the Total Demand
1	Anla	Phyllanthus emblica	12.5
2	Satabari	Asparagus racemosus	6.8
3	Aswagandha	Withania somnifera	4.9
4	Harida	Terminalia chebula	4.5
5	Ashok	Saraca asoca	4.4
6	Bela	Aegle marmelos	3.7
7	Sunamukhi	Cassia senna	3.6
8	Basanga	Adhathoda zeylanica	3.5
9	Pipali	Piper longum	2.4
10	Brahmi	Bacopa monnieri	2.2
		Total: -	**48.5**

In the forest blocks of this Division, Anla, Harida, Satabari, Bela, Basanga are available adequately. Besides that there is potentiality for Dhatuki flower, Kurei seeds and Bhuin Neem. The method of collection, utility and other general description for all these species has already been described earlier. However, in view of its medicinal importance, special efforts shall be made to promote these species as a source of good income to forest fringe villagers. Marketing link up shall also be established for fetching good value of the product alongwith required processing and value addition wherever feasible. The Divisional Forest Officer shall assess the economic viability and take necessary step accordingly in the concerned localities.

Some medicinal species like Serpentina, Rasna, Asparagus, Vetiver, Anantamula, Arrow root and Ban Haldi and Putrani which were abundant in the forests of this Division earlier have become very sparse due to uncontrolled and destructive method of collection. In order to maintain the bio-diversity of the area, it is prescribed not to allow the collection of any part of these plants during the plan period. This prescription is intended to protect these plant species from extinction in this Division. However cultivation of the species by the VSS in cluster should be promoted to meet the market demand. During the plan period if the availability of any species decreases causing a concern, the Divisional Forest Officer can put a ban on collection of part / whole of the said species. The Divisional Forest Officer shall assess the threat status at interval of two years and ensure needful action to protect such valuable species.

VSS shall be induced to take up cultivation of medicinal herbs as an income generating activity. In this forest division, during 2005 cultivation of Aswagandha was introduced in 3 (three) VSS. The result is encouraging. The Range Officer should assess the feasibility while examining the Micro Plan for Joint Forest Management and recommend species suitable for the locality. This will serve the dual purpose of cultivation and propagation of medicinal plants as well as augmenting to the earning of the people. In Kalahandi there are a good number of Vaidyas i.e. traditional healers who are depending on the forests for their raw materials. So it is prescribed to explore this aspect while preparing the Micro Plan for the VSS. These traditional healers also need training on sustainable harvesting of medicinal plants.

No bark or gum be collected from the forests. However, the OFDC / TDCC may take up harvesting of Arjun bark from private lands on Indravati ayacut area, keeping in view of the increasing market demand by adopting scientific harvesting practice. Arjun bark cutter has been developed by FRI, Deheradun and National Medicinal Plant Board has been extending financial support for planting of the species. The Tropical Forest Research Institute has also standardised scientific technique for harvesting of Arjun bark.

Focus Species & Locality

Though quite a good number of NTFP species are available in this Division which has already been furnished earlier alongwith the method of harvest, processing, value addition and marketing. It is felt to focus the attention on some commercially important selected species in some identified localities for processing, value addition and marketing during the plan period so that some remarkable and appreciable result can be exhibited for inducing motivation of the people in NTFP

sector. This is the arena in forest sector to provide some tangible recurring income to the people. The items, locality and the action proposed for focus of attention during the plan period is furnished below in a tabular statement.

Table No. 7.5

Processing / Value addition / Installation of Small Scale Unit of NTFP Items in Kalahandi North Division

Sl. No.	Name of the NTFP item	Type of processing / value addition	Locality	Name of the Range	Type of machinery required
1	Siali Leaves	a. Pressed leaf place & Cup	1.Bhawanipatna	Bhawanipatna	Siali leaf pressing unit and stitching machines and sizing machine
		b. Hand stitched	2.Jurakhaman	M.Rampur	
			3. Manikera	M.Rampur	
2	Tamarind	a. De-seeding	1. Manikera	M.Rampur	De-seeding Machine & Source extracting Machine
		b. Sauce extracting			
3	Hill Broom	a. Hill Broom Processing Unit (Bound Hill Brooms)	1. Urladani	Narla	Plastic Holders for processing of Hill Brooms are available at Tarava (Orissa) and Vilai (Chhatisgarh)
			2. Mohangiri	M.Rampur	
			3.Bhawanipatna	Bhawanipatna	
			4. Manikera	M.Rampur	
4	Harida/Bahada /Amla	a. Powder of Harida / Bahada / Amla /pulper to produce fruit rind	1. Jurakhaman	M.Rampur	Pulveriser required for value addition / pulper for producing fruit rind
5	Amla	Pachana Amla/ Amla shedding unit/ Solar tunnel drier	1. Jurakhaman 2. Kegaon 3. Rupra Road	M.Rampur Kegaon Narla	Pulper and solar drier / Pulveriser
6	Mohua Seed	1. Oil	1. Mohangiri	M.Rampur	Oil extraction unit
		2. Cake	2. Sagada	Bhawanipatna	
			3. Kegaon	Kegaon	
7	Honey	Purification	1.Jurakhaman	M.Rampur	Honey processing unit. (A honey purifying machine has been installed by Sarbodaya Samiti, Koraput or Jasipur in Mayurbhanj District by OFDC Ltd.
8	Neem Seed	Seed decorticating / pulper for depulping	Narla, Kegaon	Narla, Kegaon	Neem seed decorticator developed by IIT, Delhi and Oil Extraction Unit.
9	Char Seed	Decorticating of seeds	Kegaon, Mohangiri, Jurakhaman	Kegaon, M.Rampur, M.Rampur	Char seed decorticators available at Raipur should be supplied.

7.6.2 Silvicultural system:-

In order to accomplish the special objectives of management of this Overlapping Working Circle as well as promoting the prospects of non-timber forest produce in this Division the following prescriptions are made :-

Skill Upgradation

The primary collectors are very often deprived of getting proper value due to lack of proper harvesting and processing for ensuring desired quality this is the major deficiency which shall be removed through imparting necessary training. Further, value addition will enhance the sale price of the product significantly. People are adopting their age-old practice for such work. In the present day of sophistication, refinement of the work is necessary to compete in the market. So the skill of the local people is required to be upgraded. The processing technique, value addition and storage have already been described for major NTFP items individually. The area as indicated in the Table given earlier should be tagged for such skill upgradation on priority basis. The skill for marketing is also a crucial factor. Without right marketing strategy it is also not possible to get the fabulous price. So information regarding the market trend with proper link up shall be collected. This aspect shall be a part of training curriculum for skill up gradation.

7.6.3 Rotation period:-

Not required

7.6.4 Harvestable diameters:-

Most of the NTFP are produced annually for which it is considered as an alternate source of livelihood of the forest dwellers. In order to make this tapping source of livelihood sustainable the growth and regeneration of the source plant shall be ensured. Though prescriptions have been made in the main working circle to take care of this aspect, it needs reiteration in this Overlapping Working Circle. To make the prescription specific here, promotion of NTFP species particularly medicinal plants in Joint Forest Management areas shall be emphasised on priority basis. This will not only augment the income of the VSS but built up a potential and perpetual source of income for future generation. This shall be strictly adhered in preparation of Microplan.

7.6.5 Reducing factors and reduced area:-

Not required to this Overlapping Working Circle

7.6.6 Felling cycle:-

Not required to this Overlapping Working Circle

7.6.7 Division into periods and allotment to periodic block:-

Not required to this Overlapping Working Circle

7.6.8 Calculation of the yield:-

Already discussed in Part-I

7.6.9 Table of felling:-

Not required to this Overlapping Working Circle

7.6.10 Method of executing the felling:-

Method of Execution

The prescriptions of the main working circles like Selection and Rehabilitation have covered some of the treatment proposed for this overlapping working circle. However, it is necessary to provide the following prescriptions in order to accomplish the special objectives of management of this Working Circle as well as promoting the prospects of non-timber forest produce in this Division.

Awareness Campaign

The main reason attributed to destructive method of harvest is the poor knowledge of the primary collectors / gatherers regarding the proper mode and time of collection as well as subsequent processing. Due to such haphazard and whimsical collection not only lot of time and labour is wasted but huge damage is caused to the source plant. Further monetary gain is also very less in comparison to labour input since the quality of the produce is not up to the required market standard. Such destructive method is a matter of serious concern, which needs to be tackled on priority basis. Awareness campaign to educate the people particularly the inhabitants of forest fringe villages shall be made through organisation of regular meetings to explain them the need of proper harvesting and processing method. Leaflets containing the period, method of collection along with processing as well as cost benefit in local dialect should be distributed. Calendar containing pictorial view of both wrong and right method for some important items shall be prepared for circulation. This will immensely help in checking the degradation of the source crop and preventing the over collection which in turn will lead to gradual improvement of the source crop along with the increase in production. Exposure visit of VSS / SHG federation to places of successful harvesting and processing specially to Andhra Pradesh State help the primary collectors to a great extent to maintain the quality. Interface workshop of traders / pharmaceutical industries / exporters that with the VSS / SHG federation / cooperation shall greatly help in providing two-way market linkage between the stakeholders creating frequent awareness through meetings / workshops on prevailing market price of NTFP shall greatly help to prevent exploitation of primary gatherers by the traders / pharmaceutical industries. Examples of few such diagrammatic view is furnished below.

Sustainable Production

Most of the NTFP are produced annually for which it is considered as a rich source of income even the sustenance to the forest dwellers. In order to make this tapping source of livelihood uninterrupted, the growth and regeneration of the source plant shall be ensured. Though prescriptions have been made in the main working circle to take care of this aspect, it needs reiteration in this Overlapping Working Circle. To make the prescription specific here, promotion of NTFP species particularly medicinal plants in Joint Forest Management areas shall be emphasised on priority basis. This will not only augment the income of the VSS but built up a potential and perpetual source of income for future generation. This shall be strictly enforced in preparation of Microplan.

7.6.11 Subsidiary silvicultural operations cleaning and thinning:-

Not required to this Overlapping Working Circle

7.6.12 Regeneration:-

Not required to this Overlapping Working Circle

7.6.13 Associated regulation and measures:-

Besides the prescriptions provided in the foregoing paras, some other regulations are necessary to augment the former for effective results. These are the following.

7.6.13.1 Training to Panchayati Raj Institutions

The control and management of trade for 69 NTFP items have been vested with Gram Panchayats till now since the year of transfer of management during 2000. So barring few items, the Gram Panchayat is the controlling authority for NTFP items. During last six years it is observed that improvement in capacity building of such institutions is highly essential to ensure flow of desired benefit to the forest dwellers for which such deregulation has been intended. Necessary training for PRI members shall be organised to equip them with adequate knowledge and technique to handle the matter for optimum benefit to the primary collectors. Similarly field functionaries particularly the Range Officers and the Foresters shall actively participate in price fixation of the NTFP items by the Panchayat Samiti and Gram Panchayat respectively. The OFDC / TDCC should extend cooperation in sharing prevailing market price of varies NTFP with the field staff for fixation of reasonable price of NTFP.

7.6.13.2 Infrastructure for processing, storing and Marketing

Most of the villages have no such facility. Drying Yards shall be constructed in the demand driven villages along with storage godown to augment the infrastructure already exist as well as constructed in recent years by the Forest Department. These drying yard can also serve for drying of various food commodities of forest dwellers. Gram Panchayats of forest fringe villages should have one godown each. Similarly Central godown on the main road or near railhead should be constructed to facilitate the transportation round the year to different distant destination for fetching better price. Market stall at District headquarters / important commercial centres should be available to the VSS / SHG federation / cooperatives for retail sale to meet local demand. The success story of GCC (Ganjam Cooperative Corporation) in Andhra Pradesh in value addition and marketing of NTFP can be replicated in Kalahandi District with great success. The NTFP godowns already constructed in Kalahandi under WFP and FDA should be brought to use for proper storage of collected NTFP.

7.6.13.3 Marketing of N.T.F.P

Due to fluctuations in the market trend, the primary gatherers are suffering. After deregulation the procurement is not mandatory for any trader. So it becomes a buyers' market in the event of bumper production. There is no provision to compel the traders to procure the product though the enforcement is envisaged for payment of the minimum purchase price fixed by the Panchayat Samiti. The traders are taking advantage by refraining from purchase. It ultimately affects the poor primary

collectors who cannot wait by storing the product till the revival in market trend for good price. Sometimes such situation leads to distress sale in clandestine manner. In order to mitigate this problem, OFDC / TDCC / SHG co-operatives should ensure procurement as is being done by GCC in Andhra Pradesh and UFDC in Uttaranchal State or GFDC in Gujarat.

It shall be the endeavour of the Divisional Forest Officer and staff to see that the gatherers of various NTFP items get the fair price for each item as fixed by the respective Panchayat Samitis. The price payable to a gatherer for various NTFP items for any year should be given wide publicity and Executive Committee of the VSS should be mobilized in this task.

7.6.13.4 Formation of Co-operatives, Price Support Mechanism & Micro-enterprises for Processing and Marketing :

It shall aos be the endeavour of the DFO to organize Self Help Groups (SHG) of NTFP gatherers of 2 to 3 adjacent VSSs and empower such SHGs to step in to offer the minimum price fixed when the traders are not paying the requisite price. SHGs will be enabled to organize storage, processing, value addition and packaging of the NTFP items procured from the gatherers, and to market the same at remunerative price. Shops in good market places may be set up to facilitate marketing of the processed commodities or packaged by the SHG.

DFO may provide revolving fund at the disposal of such SHGs and may also organize NTFP gathering, processing, and marketing as micro-enterprise and as a business unit. It should be possible to set up many such units within a division to tap the potential of NTFP for enhancing livelihood and income.

The formation of co-operatives of VSS / SHG in different NTFP rich areas and an apex cooperative at district level can help for marketing of NTFP. But the capacity building of the cooperatives is required at the initial stage. This would improve the economic condition of primary collectors. Participation of this cooperatives in the district and state level exhibitions can facilitate market. Appropriate market linkage with these cooperatives and the consumers / pharmaceuticals need to be developed. Support from the State Medicinal Plant Board can also be extended to the cooperatives. The cooperatives also need to obtain sales tax registration as per Orissa Vat Act, 2004 to promote inter-state trading.

Suitable places for maintaining Mandies

Kalahandi North Division	Bhawanipatna, Kesinga, Rupra Road, Kegaon, Madanpur Rampur, Jurakhaman, Mohangiri.

7.6.13.5 Maintenance of Records and Database

Steps should be taken to ensure proper maintenance of records at Gram Panchayat level with flow of information regularly. A database shall be created through T.D.C.C. with the support from Gram Panchayat to provide market linkage. The Divisional Forest Officer shall coordinate the entire matter to formulate a procedure in consultation with Collector of the District to ensure this aspect. This is

essential for marketing linkage as well as formulating different plan strategy for the promotion of NTFP.

7.6.13.6 Involvement of VSS

It is necessary to involve the VSS to maximum extent for effective implementation of the management by the Gram Panchayat. The traders can only be registered on recommendation of at least three VSS of the Panchayat. VSS being the grass root level people's institution for forest management must be given a leading role in this affair.

7.6.13.7 Establishment of Nursery for Medicinal Plants and NTFP species

People should also be encouraged for cultivation of medicinal plants as well as raising NTFP species on their own land. This will definitely enhance the plant resource as well as income generation. Quality planting material is necessary for this purpose. Herbal nursery should be established to cater to the needs of the people as well as to impart training to the willing farmers. The high-tech nursery established by Forest Research Division, Rayagada at Jaring can cater to the needs of the people to a great extent for which proper coordination is required. There should be cluster approach with a minimum area of 10 ha. for cultivation of medicinal plants / NTFP species for effective supervision and market linkage.

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CHAPTER-8

WILDLIFE (OVERLAPPING) WORKING CIRCLE

8.1 Name of working circle:-

The name of the working circle is wildlife (Overlapping) Working circle.

8.2 General Constitution of working circle:-

8.2.1 Any plant or animal which is neither domesticated nor reared / cultivated and inhabits a wild landscape which may include even land, wetland and sea are coming under the purview of Wildlife. It is an integral part of forests. Both are inseparable just like body and soul. The importance of wildlife for maintaining the stability of forest eco-system and also the biodiversity is very much felt along with the forest cover. The prescription for improvement of the forest crop, though in general is beneficial for wildlife, cannot provide a holistic approach to promote the wildlife.

8.2.2 The occurrence of wildlife varies depending on the composition and the density of vegetation. Considering the present concept of wildlife, there is practically no area devoid of wildlife. Notwithstanding the degradation in forest and wildlife habitat, Kalahandi still continues to retain a wide range of wildlife as already narrated in Chapter- II B of Part-1. Further, the forest area covered under this Working Plan is neither forming a part nor whole of any protected area. Considering the matter in entirety, this Overlapping Working Circle extends to almost all the plan area excluding the small patches of village forests / non-forestland mutated in favour of Forest Department not only for the protection of existing wildlife but also for its promotion and conservation of biodiversity. The area assigned to this working circle is 119818.97 ha. in Kalahandi North Division which is about 95.69% of the plan area.

8.3 General Characteristics of Vegetation

Since the entire plan area barring few fragmented small patches have been kept under this Overlapping Working Circle, the vegetation both flora and fauna described under Chapter-III of Part-I holds good for this. The well stocked as well as the degraded areas have been included. The important mammals, birds, reptiles and fishes have also been described in detail in the aforesaid Chapter. As already told earlier, Kalahandi Forest Division is rich in both floristic composition and faunal diversity. The census data of important animals furnished in Chapter-II (B) indicate the population.

8.4 Felling series, cutting sections and JFM areas:-

Not required

8.5 Blocks, compartments and JFM area(marked on GIS based maps):-

Forest blocks allotted to this Overlapping Working Circle is given in Table No.8.1

Table No.8.1

Forest Block wise area allotted to Wildlife Overlapping Working Circle				
Sl No	**Range**	**Name of the Forest Block**	**Area under this plan in ha**	**Wildlife Overlapping WC**
1	Bhawanipatna	Alma RF	1360	1360
2	Bhawanipatna	Brahmani RF	5846.8964	5846.8964
3	Bhawanipatna	Dhangada dhangadi RF	229	0
4	Bhawanipatna	Dhanupanchan RF	726	0
5	Bhawanipatna	Kanamanjur RF	1814.3595	1814.3595
6	Bhawanipatna	Kutrukhai RF	314.9721	0
7	Bhawanipatna	Madhakhola (B) RF	597	0
8	Bhawanipatna	Pordhar RF	833.435	833.435
9	Bhawanipatna	Sinang RF	1220.7572	1220.7572
10	Bhawanipatna	Bhalu RF	54	0
11	Bhawanipatna	Kadalighati RF	1717.532	1717.532
12	Bhawanipatna	Madhakhola (A) RF	744.785	744.785
13	Bhawanipatna	Gundi PRF	6715.0289	6715.029
14	Bhawanipatna	Thuapadar Gundi DPF	9187.7	9187.7
15	Bhawanipatna	Kadalighati Extn DPF	68	0
16	Bhawanipatna	Adastala	60	0
17	Bhawanipatna	Baringdar	200	0
18	Bhawanipatna	Batua	300	0
19	Bhawanipatna	Jhikimi B	100	0
20	Bhawanipatna	Admunda VF	5	0
21	Bhawanipatna	-do-	5	0
22	Bhawanipatna	-do-	10	0
23	Bhawanipatna	Matia VF	10	0
24	Bhawanipatna	Bhejipadar VF	8	0
25	Bhawanipatna	Jajaldeipur VF	5.1	0
26	Bhawanipatna	Jhikimiki VF	3.28	0
27	Bhawanipatna	Dumerbahal VF	8.044	0
28	Bhawanipatna	Khairbhadi VF	3.6	0
29	Bhawanipatna	Gopinathpur VF	2	0
30	Bhawanipatna	Khairmal VF	2	0
31	Bhawanipatna	Sarlanji VF	8.5	0
32	Bhawanipatna	Bramhani VF	6	0
33	Bhawanipatna	Jhikimiki VF	10	0
34	Bhawanipatna	Upper Gochhakola	436	0
35	Bhawanipatna	Dungripadar	22	0

36	Bhawanipatna	Suben	22	0
37	Bhawanipatna	Durla	11	0
38	Bhawanipatna	Sagram	22	0
39	Bhawanipatna	Kuhura	33	0
40	Bhawanipatna	Goilibindha	11	0
41	Bhawanipatna	Saked	22	0
42	Bhawanipatna	Kendugupka	11	0
43	Bhawanipatna	Jhikimi A	17	0
44	Bhawanipatna	Salepali	22	0
45	Bhawanipatna	Dambarupadar	11	0
46	Bhawanipatna	Bhejapadar	22	0
47	Bhawanipatna	Kandakhal	11	0
TOTAL			**32848.9901**	**29440.494**
48	Kegaon	Adabari RF	695.935	695.935
49	Kegaon	Bisibarni RF	198	0
50	Kegaon	Chura (A) RF	6898.5179	6898.5179
51	Kegaon	Chura (B) RF	2349.3415	2349.3415
52	Kegaon	Daka RF	329.5771	0
53	Kegaon	Ghatual RF	276	0
54	Kegaon	Gojia RF	347	0
55	Kegaon	Kumkot RF	4837.3148	4837.3148
56	Kegaon	Lini RF	134	134
57	Kegaon	Nageswar RF	2416.2821	2416.2821
58	Kegaon	Jayantpur DPF	199.2	199.2
59	Kegaon	Nasigaon DPF	30.8	0
60	Kegaon	Sikuan DPF	23.19	0
61	Kegaon	Kankeri (A) DPF	32	0
62	Kegaon	Kankeri (B) DPF	26.5	0
63	Kegaon	Sindabhadi DPF	72.4	0
64	Kegaon	Ammuda DPF	241.94	241.94
65	Kegaon	Patramara DPF	132.72	132.72
66	Kegaon	Goilbindha DPF	160	0
67	Kegaon	Banakdei DPF	92.5	92.5
68	Kegaon	Gandamer DPF	70	0
69	Kegaon	Makardani DPF	30.3	0
70	Kegaon	Baijalpur DPF	72	0
71	Kegaon	Chanchermunda DPF	73	0
72	Kegaon	Kirkakani DPF	26	0
73	Kegaon	Kalamdei	3.2	0
74	Kegaon	Daspur	20	0

TOTAL			**19787.7184**	**17997.7513**
75	Kesinga	Bazargarh RF	7721.22	7721.22
76	Kesinga	Nangalguda RF	1488	1488
77	Kesinga	Dumermunda DPF	45.76	45.76
78	Kesinga	Biripura DPF	332.8	332.8
79	Kesinga	Gudang DPF	54.88	54.88
80	Kesinga	Turlakhaman DPF	160	160
81	Kesinga	Laitara DPF	83	83
82	Kesinga	Brahamanidonger DPF	50.7	50.7
83	Kesinga	Jamjore VF	6	0
84	Kesinga	Brahmani VF	10	0
85	Kesinga	Jamjore VF	10	0
86	Kesinga	Dendrobahali VF	3.6	0
87	Kesinga	-do-	5	0
88	Kesinga	Khairmal VF	3	0
89	Kesinga	Palam VF	2	0
90	Kesinga	Matia VF	2	0
91	Kesinga	Kurlupada VF	1.96	0
92	Kesinga	Rengali VF	11.36	0
93	Kesinga	Balsi VF	9.2	0
94	Kesinga	-do-	13.64	0
95	Kesinga	Kumarpur	22	0
96	Kesinga	Surujore	11	0
97	Kesinga	Kantesir	22	0
98	Kesinga	Ghantsola	11	0
TOTAL			**10080.12**	**9936.36**
99	M.Rampur	Dengen RF	476	476
100	M.Rampur	Jerka RF	1014.7947	1014.7947
101	M.Rampur	Sadel (A) RF	273	273
102	M.Rampur	Sadel (B) RF	307	307
103	M.Rampur	Satami RF	1894.225	1894.225
104	M.Rampur	Sunamukhi RF	2339.6953	2339.9
105	M.Rampur	Taparang RF	6887.8069	6887.8069
106	M.Rampur	Telen RF	2660	2660
107	M.Rampur	Turchi RF	257	257
108	M.Rampur	Benaguda RF	4928.2938	4928.2938

109	M.Rampur	Bhatel RF	37	37
110	M.Rampur	Podgudi PRF	793.52	793.52
111	M.Rampur	Ramud PRF	547.092	547.092
112	M.Rampur	Sulia PRF	5617.337	5617.337
113	M.Rampur	Manikera PRF	66.4	66.4
114	M.Rampur	Mundramaska PRF	750	750
115	M.Rampur	Gochhadengen PRF	346.34	346.34
116	M.Rampur	Kutigudum PRF	378.107	378.107
117	M.Rampur	Talanuagaon PRF	177.4654	177.4654
118	M.Rampur	Puijhari PRF	2251.21	2251.21
119	M.Rampur	Pongabaju PRF	2331.91	2331.91
120	M.Rampur	Bidabaru (Harlanga) PRF	1464.615	1464.615
121	M.Rampur	Pudrimahul DPF	303	303
122	M.Rampur	Chandanpinda DPF	298.25	298.25
123	M.Rampur	Karla DPF	432.11	432.11
124	M.Rampur	Sulia Extn. DPF	138.05	138.05
125	M.Rampur	Kuthiheju DPF	208	208
126	M.Rampur	Sihidi DPF	181.5	181.5
127	M.Rampur	Mugei DPF	26.4	26.4
128	M.Rampur	Dengidonger DPF	575.77	575.77
129	M.Rampur	Goutami DPF	388	388
130	M.Rampur	Pipalbhadi VF	6.22	0
131	M.Rampur	Saling VF	5.2	0
132	M.Rampur	Kuten VF	0.948	0
TOTAL			**38362.2601**	**38350.0968**
133	Narla	Porgel RF	1712	1712
134	Narla	Kamei RF	156	156
135	Narla	Kerbandi RF	1231	1231
136	Narla	Lumersinga RF	175	175
137	Narla	Narla RF	1293	1293
138	Narla	Sripali RF	46	46
139	Narla	Urladani RF	10277.9032	10277.9032
140	Narla	Karladangar RF	349	349
141	Narla	Narla Extension PRF	292.5	292.5
142	Narla	Kamarda PRF	444.6	444.6
143	Narla	Porgel Extension PRF	3222	3222
144	Narla	Badibahal PRF	44.94	44.94
145	Narla	Sikerguda PRF	358	358
146	Narla	Jamguda PRF	107.4	107.4
147	Narla	Barpati DPF	148.67	148.67
148	Narla	Dengsur DPF	255.06	255.06

149	Narla	Mundighati DPF	88.2	88.2
150	Narla	Lamer DPF	66	66
151	Narla	Belgaon DPF	3826.994	3826.994
152	Narla	Nuapada	11	0
153	Narla	Chapatkhanda	28	0
TOTAL			**24133.2672**	**24094.2672**
G.Total			**125212.356**	**119818.97**

8.6 Special Objectives of Management

Within the ambit of general objects of management as described earlier, the following special objectives have been set for this overlapping working circle.

1. To **W**ork wisely and widely to ensure the protection and improvement of wildlife habitat and natural eco-system.

2. To **I**mperatively protect and promote the wildlife emphasising on endangered ones.

3. To **L**essen elephant depredation and human-wildlife conflict to the maximum possible extent.

4. To **D**evelop eco-tourism for nature conservation with people's participation.

8.6.1 Analysis of the crop:-

Not required to this Overlapping Working Circle.

8.6.2 Silvicultural System:-

Not required to this Overlapping Working Circle

8.6.3 Rotation period:-

Not required to this Overlapping Working Circle

8.6.4 Harvestable diameters:-

Not required to this Overlapping Working Circle

8.6.5 Reducing factors and reduced areas:-

Not required to this Overlapping Working Circle

8.6.6 Felling cycle:-

Not required to this Overlapping Working Circle

8.6.7 Division into periods and allotment to periodic blocks(PB):-

Not required to this Overlapping Working Circle

8.6.8 Calculation of the yield:-

Not required to this Overlapping Working Circle

8.6.9 Table of felling:-

Not required to this Overlapping Working Circle

8.6.10 Method of executing the felling:-

Not required to this Overlapping Working Circle

8.6.11 Subsidiary silvicultural operations cleaning and thinning:-

Not required to this Overlapping Working Circle

8.6.12 Regeneration

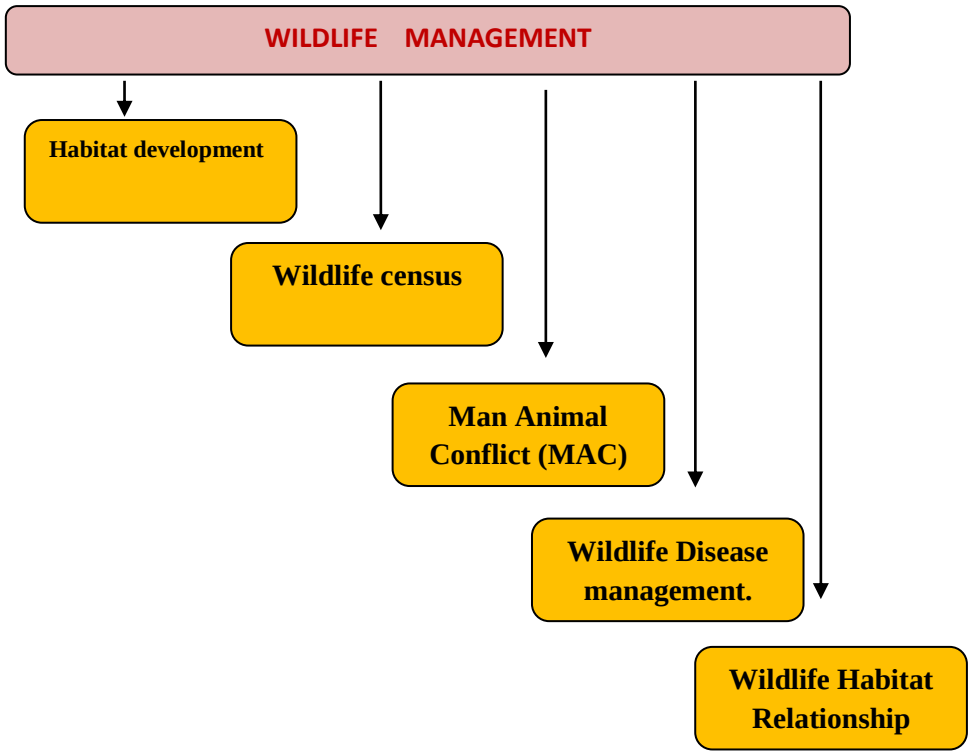
Not required to this Overlapping Working Circle

8.6.13 Associated regulations and measures

Not required to this Overlapping Working Circle

8.7 Activities of the Working Circle

This working circle revolves around the following activities



Habitat Development

Wild life habitat include forest cover, pastures and water sources, some special habitats consists of burrows and crevices at the foothills, Cracks in rocky patches on steep slopes provide nice habitat for herpeto fauna like snakes, lizards. Special habitats like snags, sang recruits, down wood, isolated large old trees, trees with fluting boles, buttresses, lianas, some species of fruit bearing trees and shrubs provide habitat functions in the forests. Some geo-morphological structures like caves, overhangs, dens, cliffs, ledges etc. are unique habitats for some other wild life.

Objectives of habitat development

a. To maintain quality habitat existed in a natural ecosystem.

b. To develop habitat where it is deteriorated or where limiting factor/ factors have developed.

Principle of habitat management

a) It should be framed after thorough studies and justification in accordance with the needs of the wildlife.

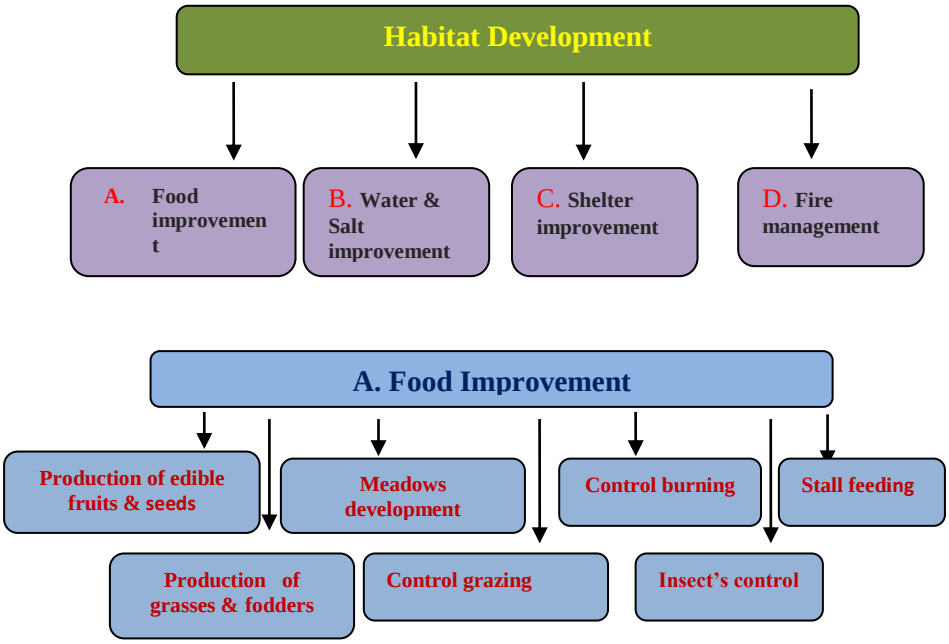
b) The practice must be evaluated for their effect on other natural resources land uses etc. So the proposed practices should not be against the benefits of the other species and natural resources along with the target species.

c) The improvement practices must simulate natural conditions/ ecosystem perpetuating native flora and fauna.

d) Manipulation should be engineered following topographical characteristics of the area.

Habitat development is a vital part of the wildlife management which include the Meadows development, creation and maintenance of Waterholes, Salt licks. Habitat is a simple part or a relatively complex entity regarded as a part of an area or type of environment in which an organism or biological population normally lives or occurs. For the sake of wildlife, it is not necessarily the plant communities and their succession stages, but includes the special and unique habitats which are other than the former. Though entire area of this division is having some sorts of wildlife activities but there are some pockets which are rich in wildlife particularly the animals and birds.

Though improvement of the habitat shall be made in general through sound silvicultural practice, but the effort shall be focussed on the wildlife rich areas to provide adequate food, water and shelter to the wildlife. The measures prescribed are furnished as follows:-



Production of edible fruits & seeds: -Herbivores live on foraging leaves, barks, twigs, flowers, fruits and seeds of species like *Mallotus philippinensis, Dendrocalamus strictus, Adina cordifolia, Albizzia lebbek, Aegle marmelos, Cassia fistula, Ficus bengalensis,Ficus religiosa, Ficus racemosa, Ougeinia ougenensis, Shorea robusta, Syzygium cumini, Terminalia alata, Terminalia belerica, Zizyphus mauritiana, Bombax ceiba* etc. Deer, Monkey, Langur, Rat and Hare are fond of the fruits of *Terminalia belercia, Buchanania lanzan, Aegle marmelos, Syzygium cumini, Emblica officinalis, Zizyphus mauritiana, Diospyros melanoxylon, Grewia hirtsuta, Ficus spp.*etc. Hence, the cutting of fruit bearing trees is prohibited under Selection cum Improvement Working Circle.

Production of grasses & fodders: - Grasses constitute a major food item for the herbivores. It is highly preferred and palatable. The grassland in the plateau locally called "Malis" shall be developed along with other suitable localities. Malis can serve the purpose of meadow. The grasses like *Azonopus compresses, Eragrostis pilosa, Saccharum bengalensis, Stylanthus hemata* etc. shall be raised to meet the food requirement of herbivores.

Meadows development: - Meadows shall be created wherever feasible in the available blank patches. But care should be taken not to create such meadows at the cost of natural vegetation if occurring or can be occurred through suitable silvicultural method. The extent of meadow should be limited and preferably inside dense vegetation by the side of natural stream. The existence of meadow and dense vegetation side by side can provide the edge effect, which is an important ingredient for development of wildlife

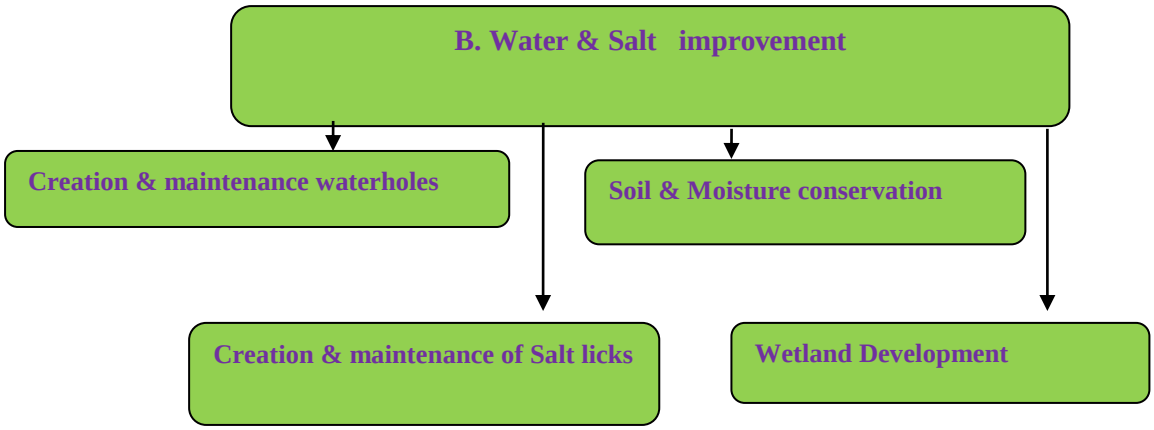
Control grazing:-This practice must be preferred area wise and period wise .Such periodical grazing will be helpful in proper growth of the vegetation and germination of the seeds and production of the sufficient food quality.

Control burning:-Herbivorous mostly preferred new delicate succulent parts of the vegetation, it is more nutritive as well as liked by the animals. Old and hard parts including bushes become unpalatable and hence lessen the carrying capacity of the habitat. In such conditions, control burning is essential to regain new delicate plants. In such practice care should be taken to avoid burning of the wild animals and other valuable plants species.

Burning should be preferably be done in winter when the temperature remain low and fire doesn't spread to the undesired areas. Burning should be avoided also in the area where even long and old grasses are liked though not by all, but certain wild animals like Indian Gour (*Bos gaurus)*. In certain areas even burning does not help in germination of delicate grass. Hence a full proff strategy is needed to be workout before execution.

Insects control: - To maintain food chain of the ecosystem and its natural balance in the habitat, it is essential to keep the population of each species up to the optimum level. In this view the insect population is an important link in the food chain providing feeding to the insectivorous birds and animals. The race of insects are to be maintained, otherwise the existence of the animals depending upon them come in peril. For the purpose, all dead and dying trees should be removed. They should be retained as such in certain ratio so that the insects living on such trees may survive keeping ecological balance. If situation is adverse, the predators of insects will perish and the population of the insects will grow enormously and lead to epidemic, as the consequences insecticides are to be used to control them which is disastrous to the wild animals as well as causing environmental pollution and hence not feasible everywhere and every time in the forest area. That is why " Integrated Pest Management IPM" technology is preferred. Overall as the preventive measure , at least 5 snag trees per ha should be left in all wildlife habitat at the time of silvicultural operation in the forest.

Stall feeding:-Though the artificial feeding to the wild animals should not be preferred because the animals lose their natural wild instinct and getting stall feeding, they inclined to be pet, but sometimes in pinch periods on the adverse natural condition artificial feeding becomes essential to save them specially the target species. Kalahandi North Division doesn't need this practice at present.



Creation & maintenance of Waterholes: -

It is an important ingredient of food material for the wild animals. The availability of water shall be ensured throughout the year particularly in the peak summer. The wild life very often stray outside the forests in search of water during hot season and become the prey of unnatural death. The existing nallas and streams shall be made perennial through construction of check dams on its course starting from uphill side.

Such prescription has been provided under soil and moisture conservation measure in Rehabilitation and Working Circles. The existing water bodies and water holes shall be maintained through proper renovation as and when required in addition to creation of new such structures at appropriate locations. The Range Officer shall assess the necessity of such structures location wise, which shall be scrutinised and approved by the Assistant Conservator of Forests and Divisional Forest Officer respectively. The creation of such new structures like water holes, water bodies, salt lick and meadows are to be done very meticulously so as to ensure the desired manipulation of the habitat to cater the need of the wild animals.

Creation of Artificial Shelter

This has a special function not provided by plant communities and successional stages. It includes riparian zones, snags, dead and down woody materials. Being biological in nature it can be created or altered by management. This is a sound technique for habitat manipulation. It is not proper to provide a general prescription for maintenance / creation of such habitat since the effective result can only be obtained from site-specific treatment. This aspect of management is left to the discretion of the Divisional Forest Officer for retaining number of snags, snag recruits, Den tree, large old trees, trees with fluting boles and buttresses and boles at the base, lianas and tangled climber, roosting / nesting trees in the pockets after assessing the necessity as well as considering silvicultural aspect for general hygiene of the forests.

Afforestation & Reforestation: - Regular fruit and shade bearing species should be afforested and taken care up in the area allotted to this Working Circle to enrich the vegetation for upbringing of the wild animals and birds.

Caves & Rock Cliff Shelters This is another wildlife habitats of special function not included within plant communities and successional stages or special habitat. It is geomorphic in nature and includes cliffs, caves, dens, overhangs, shelves or ledges, talus, crevices etc. These rocky structures available in the forests, serves as ideal shelter for numerous wildlife and their various activities like hibernation, mating, laying of eggs etc. These are to be maintained and if necessary such structures can be created after assessing its requirement in the locality. Like special habitat, the creation of these habitats is also left to the discretion of Divisional Forest Officer

Development of Brush piles:- Some small animals and birds require their shelter in bushes . They use them as their roosting and nesting covers. Therefore, such covers should be accessed in the habitats and if needed, must be developed artificially. For the purpose, the branches of fallen trees, cutting of bushes left during boundary clearance of the forest blocks, fire line etc and such other left out parts of the fellings materials of the regular coupes in Selection cum Improvement Working Circle practices, should be used to form artificial brush to serve as shelter by the desired wild animals. Such unwanted materials should be collected and dumped at certain places at least 2 mts height having 6 mts dia. in the bottom, thick branches should be placed to serve as platform at least of 15 cm height. In the middle of the brush, a pole should be placed and covered around by leaves and twigs as loose heap. Such brush-pilling serves as an ideal cover for certain animals as well as also helps to come out grasses and bushes inside it after sometimes. Such cover is used by certain birds especially for gallinaceous birds. The development of such bash piles are very much helpful in providing ideal shelter for certain wild animals enabling them to enhance their growth.

Corridor Development

Generally speaking corridor means a long and narrow strip of land connecting two different localities. More clearly it is the route traversed by the wild animals for their movement in search of food, shelter and other related activities. These corridors are the connecting links between different habitats. So it is imperative that the corridor shall be maintained and improved to render adequate safety to the wild animals for their movement / other activities. This is very much essential for the large animals particularly the elephant. The elephants usually adopt the same corridor for several years until and unless, there is some pressing need to change it. In this division, the elephants are mostly confined to two habitats for most part of the year. These are Pilibanji on the side of river Utei in Urladani RF of Narla range and Bordajhola on the side of river Raul in Taparang RF of Madanpur Rampur range. The water is available throughout the year in these localities surrounded by dense vegetation, for which the elephants have preferred to stay there. Besides they move to nearby areas particularly during the harvesting period through some trajectory path which is called "Corridors". The important corridors in the division are furnished as under.

a. Taparang – Sulia/Manikera – Benaguda – Sikerpat (Bolangir East Division) and back.

b. Urladani – Jerka – Pongabaju – Puijhari – Lubengarh and back.

c. Urladani – Belgaon – Porgel – Kiding (Kalahandi South Division) – Hatisal (Kalahandi South Division) and back.

d. Pilibanji – Budhipadar – Sikuli – Dumeria and Lankagarh (Balliguda Division) and back.

e. Pilibanji (Urladani) – Kasighati (Urladani) – Tindharia (Urladani) – River Utei – Kendughati (Taparang) – River Raul – Bordajhola (Taparang) – Corridor between two habitat of the Division.

f. Karlapat (Kalahandi South Division) – Nehela (Kalahandi South Division) – Alma (Kalahandi North Division) – Kanamanjur (Kalahandi North Division) – Ghana (Kalahandi South Division) – Pariagarh (Kalahandi South Division) – Panigaon (Kalahandi South Division) – river Tel – Chura (Kalahandi North Division) and back.

These forest blocks shall be protected and improved through suitable silvicultural methods prescribed under respective working circles to ensure both enhancement and enrichment of the vegetation for providing the food and shelter. The corridor between the two habitats i.e. Pilibanji and Bordajhola shall be given top priority so that the elephants can move smoothly and safely inside the forest area with least disturbance to the human habitation.

Artificial nesting: - Whenever required the artificial nesting in the form of baskets of variable shapes made up of wood should be hanged. Such nets are generally required for the game birds in the area which is devoid of vegetation.

Modification of Silvicultural Operation:- To provide adequate food and shelter in the forest to the wild animals and birds following modification are needed while carrying out different silvicultural operations .Some of which are as follows

- Felling of shade and fruit bearing trees are prohibited in the entire plan area.
- While raising plantations, mixed plantation shall be preferable over the monoculture.
- All forestry operations shall be avoided during the dark to maintain the privacy of the wild animals.

Fire management

Forest fire is the most dangerous foe of the wild life. It makes irreparable damages to the wildlife in the forest. Hence it is utmost important to take preventive measures like fire line creations and maintenance, provisions of adequate surveillance and combative measures like extinguishing the forest fire by the modern equipments like blowers etc. The local people, the VSS members should be involved in managing the forest fire for sustainability of the operations.

Wildlife census

Although it is called wildlife census ,in practice total count of wild animals in their natural habitat is not possible .Hence , wildlife managers generally go for wild animal estimates with the help of some indices and through a calculation arrive at a figure as close as possible to the actual number of animals in a given area.

Objectives:-

a. To study the status of wild population.

b. Management and monitoring the various changes in animal numbers

c. Study of population dynamics.

Selection of estimation method: - An estimation method varies with a given situation .So, before deciding upon a particular method following factors are looked into:-

a. The management objectives

b. Nature of the habitat.

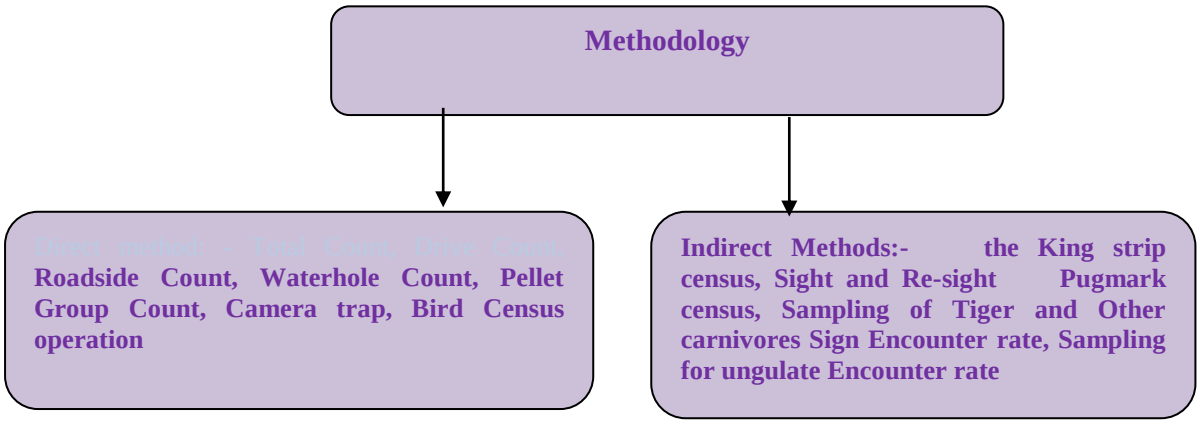
c. Special attributes of the animal.

d. Size of the area.

e. Availability of time, money and field personnel.

Methodology:-

All the practical method employed for census can be categorised into Direct and Indirect methods



Total count:-

It involves counting of every animal available in the habitat. However chances of double counting as well as missing some animals, during the process always exist and it's difficult to access the magnitude of the error. Therefore to reduce the errors it is preferable to combine total count with some suitable sampling procedure.

Direct visual counts are preferable for larger mammals like Spotted Deer, Sambar, Gur, Barking Deer, Mouse Deer, Wild Dog, Wild Pig, Jackal, Wolf, Hyena, Macaques, Langurs and Sloth Bear.

Usually the area to be counted is conveniently divided into counting sectors of 10 to 15 sq Km, the sectors are serially numbered and indicated in th map. The size of the sectors is kept such that it can be covered by 4 to 5 enumerator spaced at a distance of 100 metres within three to four hours.

$$\text{Total distance covered in Km} = \frac{\text{Total number of steps covered}}{1000} \times \frac{\text{distance covered in 100 steps in mtrs}}{100}$$

`

1000 100

Counting of animals is done on two successive days for four hours soon after the sun rise, during which the enumerator should count the animals seen by them.

Simultaneously counting is done by all the enumerators by starting from a base line and maintaining a distance of 100 mts between themselves thanking into the notes of only those animals seen at their left. During the count, details regarding approximate age, sex, and other related evidences should be recorded; the figures are subsequently pooled and expressed for the area counted.

Drive Count:- This is suitable for animals that are not found in the open area .Drive counts are easy if the terrain is not formidable. The field execution involves

- A set of persons for driving the animals
- A set of enumerators counting the flushed animals.
- The enumerators are placed equidistantly on machans on one side of the area to prevent double counting.

- The distance between the machans (enumerators) is fixed in such a way that they can see each other. The counting is done on one either left or right side only

Roadside count:-This is very common method for knowing the abundance of animals along a roadside. Here, the observer, travelling at a fixed speed, records the number of animals seen per kilometre of the road at a particular time of the day. Such counts of relative abundance are very cheap and involve less time, therefore, it is possible to undertake extensive surveys covering large areas.

Waterhole Technique:- A census technique where large animals are counted from a hideout as they visit the waterholes. It is used where all dry season water sources are known, and animals are not too numerous and are distinct and not meandering streams of rivers. The method does have value as an index count, but the large number of untested assumptions means that there is no validity for its use to estimate actual population size.

Assumption:- That there is a linear relationship for each animal species between the number of the animal seen drinking per time period and the number of animals in the area. That field staff are able to record an unbiased estimate of animal numbers during drinking at a waterhole, ie staff remains awake, are literate and their presence in the hide does not deter animals from drinking.

Methods:-

The census should be carried out at the extreme hot season, with limited active waterholes. Strategically the arrangement of hides or machan should be prepared beforehand. Census period during full moon should be chosen. Staff should be well conversed with the objectives of the operation. Census should start in the evening of the day one, with staff having rested during the day. Data collection should start an hour after the arrival in the machan to eliminate the disturbance period. The census should continue for full 24 hours after the data collection begins. The crew members should be supplied with binoculars and digital cameras to accurately determine the sex and age classes. After completion of the census operation the data are collected and analyzed in the office.

Pellet Group Count: -This methodology is applied for the Deers **.**Every deer defecates a number of times in every 24 hours as pellets deposited in groups. Each group belongs to one animal. The rate of defecation, on an average is constant for a given species. If the condition of terrain and climate permit, then one can estimate the population densities of some large ungulates by finding out their pellet densities and the rates at which they have been deposited. It is suited for animals that use the entire habitat, and are well distributed, throughout the area such as Spotted Deer, Sambar etc. the term "pellet group" is used for the small pellets deposited during a single defecation at one place. This is irrespective of quantum of defecation. This method consists of keeping the sample area clean of all the faecal matter and subsequently counting the same after a fixed period of time, which is statistically determined. Using this data, the total population of the species is calculated

Camera trap Method: -This methodology is meant for the census of big cats it involves the use of infrared cameras. These trap (Camera) are placed tied to trees at a height of two to three feet. When a tiger moves in front of the camera it intercepts the infrared rays that constantly get emitted from the camera. The moment it intercepts, the camera flashes light and takes a photograph automatically. Periodically, the cameras are removed to collect the photographs and finally these are analyzed for identifying the number of tigers.

Bird census operation Water fowl census is done in the forenoon hours of the mid-winter.

Methods: - Familiarity with the wetlands topography is important so that one can decide on the point of observation from where the entire wetland can be focused. When the size of the wetland is big, more such point of observation can be taken. Counting of fowl has to be done by scanning them in a particular direction (left to right and vice versa). In one scan of the wetland or sector of the wetland as the case may be only one species must be counted. Repeated scans are required to exhaust all the species. The number so observed must be written down on the data sheets against the respective species . In case of water fowl which often occur in mixed flocks the identification may be restricted to male birds as it is difficult to tell apart females of different species. The numbers recorded must specify only males. For population estimation of the water fowl these may be doubled.

Human-Wildlife Conflict (HWC)

It's about Human-Wildlife Conflict HWC describes any situation where wild animals cause problems for people. Wild animals may damage people's crops, they may destroy people's houses and property, and they may even endanger people's lives. There are different forms of conflict, but they are all similar in that they have a negative effect upon the people involved. Wild animals that cause conflict with people are often called 'problem animals'.

HWC happens across the world, from elephant, Wild pigs raiding the crops in the forest fringe villages to the Sloth killing and injuring the human of human and monkey conflict. Wherever people and wildlife come into contact there is potential for conflict. However, the people who are most likely to be affected are those living in forest fringe villages surrounded by woodland where many animals live. In Kalahandi North Division, rural farmers suffer from conflict with wildlife because they share the landscape with wild animals.

Many of the big animals like Elephant need large areas of land to survive. Depleting forests do not always cover all the land which these large animals need and so they move outside. But people have settled on the land that wild animals once used and this is one reason why animals like elephants and buffaloes come into conflict with humans. In other cases people have settled around sources of permanent water and in the dry season the animals are forced to enter the villages in order to drink.

A wide range of animals cause problems for people in Kalahandi. Many animals raid crops: elephants and Wild pigs eat all food crops; Langur and Rhesus eat maize and fruits; Wild pigs love potatoes and ground nuts; and birds eat the seeds from sorghum. Large and dangerous animals such as Sloth Bears and elephants may injure or kill people. They move around at night so that people living nearby are often too scared to travel after dark. Elephants and wild pigs may use the same water holes as people. When the animals are there, people may be too scared to use them. Leopards and Hyaenas may eat domestic cattle and goats, and may also attack people occasionally.

HWC makes it more difficult for a farmer to withstand. When animals damage crops or eat livestock, it become harder for a farmer to feed his or her family. The same applies when livestock are killed by wild animals. But the most serious form of conflict is when human is killed by a wild animal.

The onus of the control of this problem animals lie always with the forest department The most common way of dealing with problem animals is either to scare them away using crackers or to build fences to protect crops and livestock. In serious cases the problem animal may be tranquilized and translocated. However, these methods are not always very effective. Animals stop being scared of gun shots and may find ways to break through fences. Where some animals have been shot and killed, others often take their place.

Big cats such as leopards may occasionally kill goats and other livestock, and thus can be a problem to farmers. However, they also perform a vital role in controlling wildlife pests. Leopards and tiger kill deer and antelope for food, and in doing so control the size of their population. If the carnivores were to disappear, the Deer and Antelopes herds would get bigger and bigger, and would cause more damage to people's crops as well as the natural regeneration. Therefore it is important to conserve the top carnivores and recognize the pest control service they provide.

The best way to reduce conflict with wildlife is to use a combination of different methods. Conflict reduction methods are known as deterrents, because they aim to deter (stop) the animal from causing the problem. For example, if elephants are damaging the crops then fences can be built and form co-operative guarding groups. One can try new methods such as chilli dung bricks and bangers. . By using a variety of new and traditional methods one stand the best chance of protecting the crops and livestock against wildlife. .

It is important to monitor conflict. This means recording the type of animal that causes the problem, and the damage that it does. Monitoring conflict will help one to pinpoint where the worst conflict occurs. This information will help you to direct your deterrent efforts to where they are most needed. If the deterrents work well, then the amount of conflict should become less over time. Some common HWC in Kalahandi North Division are the crop damage in Narla & M.Rampur Ranges by elephant .

Wildlife Crime & Poaching

Wildlife crime comprises of poaching of scheduled animals alongwith capture, possession, transport or trade of living scheduled animals and plants or their parts, products and derivatives. The use of parts of some animals as the raw materials for the medicines to cure some serious diseases is a potential factor for killing those animals. Sometimes the craze for auspicious gain due to possession of the parts of the rare animals becomes a strong motive to kill such animals. Apart from those, the wildlife is killed as a sports or fancy for its meat and quick monitory gain through disposal of those products. Due to astonishing price of the derivatives of wild animal in international market, the smuggling of these items is said to be the next to the narcotic trade in the world. The smugglers operate through the network of middleman up to the level of poor forest dwellers who usually receive a paltry amount even though a primary gatherer of high priced item.

In this division, the wild animals killed during last plan period have already been furnished in Chapter-II (B). These animals are elephant, leopard, barking deer, chital, wild boar. Most of the poaching of birds, reptiles and sometimes-small herbivores goes either undetected or unreported. The elephants had been killed for the ivory. An inter state racket of poachers were nabbed. They were from Arunachal Pradesh. Similarly leopards have been killed for the skin, nail etc. The other herbivorous were killed for the sake of meat and skin. Barking Deer, Wild Boar and Chital being strayed into human habitations were the victim of the villagers. This is

mostly due to the allurement for the meat of such animals. The custom of mass hunting is not of great magnitude in this division, though the tribal people particularly Kutia and Dongria Kandha are fond of taking meat of different animals on various social ceremonies.

Method adopted for killing the wild animals vary from place to place and also from animal to animal. Shooting is a common method for killing of all kinds of mammals and also birds. The barking deers are usually killed through trapping followed by use of a sharp instrument called "Tenta". Even a leopard was killed during 2005 with the help of Tenta after being trapped in the climber growth of cowpea. The wild boar is trapped through flesh bomb locally called "Gola" containing explosive material as the core substance and flesh as the outer cover. Soon after taken by the wild boar, the Gola bursts killing the animal instantly. The traditional use of bow and arrow is also a method common to the tribal people for killing many animals. The investigation in to the killing of elephant by the poachers from Arunachal Pradesh during 2002-03 has revealed that the arrow made of small piece of iron about 2 inch long having ½ inch wide sharp edged head being smeared with some poisonous tuber juice was used to kill the elephant within one to two hours by two shots of such attack. The birds are mostly killed through snaring. Different types of snaring with the help of rope, stick and glue are in use.

Control of Man Wild animal Conflicts - As already narrated in Chapter-II (B) of Part-I, the major problem is the elephant depredation. It is almost confined to the crop damage; the other animals causing harm through attack to human beings are the bear and wild boar. The crop raid by the elephants during the harvest season is a matter of great concern. The villages usually affected from such menace are furnished as under.

Sl.No.	Name of the Range	Name of the Villages
1	Madanpur Rampur	Benaguda, Anlatara, Chandanpinda, Madanpur Rampur, Burat, Bhatel, Gourkela, Ramud, Anlapali, Damkarlakhunta, Madanpur, Kandheigaon, Jayantipada, Pankamal, Ambagaon, Nunpur, G.Karlakhunta, Jamunapur, Bankel, Bamak, Sarabahali, Bhatapala, Kabichandrapur, Goindamunda, Buglamunda, Bagad, Pajibahali, Kurupadar.
2	Narla	Budhipadar, Pipadi, Sitarampali, Kadhel, Ratulpadar, Bankel, Sripali, Pujiladu, Bimlapadar, Guanangbeda, Belgaon, Jamguda, Lumersingha, Sadelgochha, Turkabahali, Kusumkhal, Lamer, Kujmahul.
3	Kegaon	Sankripali, Ramchandrapur, Putiachura.
4	Bhawanipatna	Bundelguda, Dakibundel, Dalguma.

The aforesaid villages are the focus of attention particularly during the harvest period. Precautionary measures like raising of elephant repellent crop in the forest fringe lands and preventing the movement of elephants to the crop field through raising of some barrier like elephant proof trench shall be emphasised. Awareness campaign shall be intensified in those villages along with imparting necessary training to drive the elephant safely into the forests. The leaflets containing suitable advice in local dialect shall be distributed in the localities. The VSS in those villages shall be activated and capacity-building measures should be taken up to tackle such situation. The first and foremost work is to manage the people during the time of depredation.

The safety of human beings is the top most priority in such situation. The people should be motivated to refrain from combating the invasing herds directly in order to avoid human casualty. The VSS showing exemplary actions shall be rewarded. Elephant trackers and anti-poaching squad shall be deployed keeping pace with movement of elephants during the ensuing period. The Range Officer shall be entrusted with the deployment as well as movement of the squads in the area after assessing the day today situation. This shall be checked by the Assistant Conservator of Forests weekly and the Divisional Forest Officer shall review the matter fortnightly. Advance planning is necessary at range level to control the situation. Adequate funds shall be placed with the Divisional Forest Officer for making instant payment to the affected persons in order to curb the resentment of the people. The rate of payment should be at per with the market value of the properties lost. Both preventive and curative methods shall be adopted to reduce the conflict and keep it under control.

(a) Anti Poaching Squad

Anti-poaching squad shall be deployed at vulnerable sites in addition to the anti smuggling squad prescribed for the protection of forests and wildlife in general. These squads shall be constituted by engaging the local youths having keen interest for the nature and wildlife and also having the courage and the physical fitness to face the poacher and any untoward situation. Each squad should consist of 6 (six) local youth headed by a Forester and assisted by 1 (one) Forest Guards along with one vehicle. 3 (three) trackers per each herd of elephants shall also be engaged. The Range Officer shall be entrusted for engagement of the local youth after assessing their aptitude and ability as well as verifying their antecedent. Some secret fund shall also be placed with the Range Officer to collect intelligence regarding wildlife crime. As already stated above, the deployment and movement of the squad shall be vested with Range Officer with periodical check and review by Assistant Conservator of Forests and Divisional Forest Officer respectively. The number of squads and elephant trackers to be engaged in different range is left to the wisdom of Divisional Forest Officer.

(b) The Strategy Prescribed

The strategy prescribed for control of wildlife crime consist of 3 (three) vital components. First of all the information both covert and overt shall be collected by the Range Officer through the field staff as well as informants. The second step is the analysis of the information by the Range Officer and chalking out the action plan by himself. The third step is the implementation of the action plan by the Anti Poaching Squad and field staffs. As already described earlier the movement of the anti poaching squad and their camping at different locations shall be decided by the Range Officer considering the aforesaid aspects. An inventory of all the gun license holders with special emphasis on those residing within 10 km radius of the forest blocks rich in wildlife shall be prepared and maintained at both range level and division level. The vehicles used by the anti poaching squad shall be fitted with VHF sets for communications in remote areas. The anti poaching squad shall be trained in handling of arms and ammunitions as well as proper identification of wildlife species and their parts.

(c) Establishment of Anti Poaching Gates

Anti poaching gates at certain places are necessary to prevent the entry of vehicle of poachers to the forests having wildlife rich pockets. This is essential in order to avoid the organised poaching by the outsiders who usually come in a vehicle with sophisticated arms and ammunitions. Strong iron gates shall be erected with lock and key system. Only the authorised persons will be allowed to move through this gate after necessary entry in a register. The list of such anti poaching gates prescribed for erection is as under.

Sl.No.	Name of the Forest Road	Location
1	Jurakhaman – Bagdera	At the beginning of the road close to NH-217.
2	Tulapada – Manikera	Near village Taparang at the entry point to forest.
3	Tulapada – Manikera	Near village Nagjhari at the entry point to forest.
4	Araskupa – Borighat	Near village Araskupa at the entry point to forest.

(d) Awareness among the local people

This is most vital to have a lasting solution to the problems encountered with wildlife crime. The poor and innocent dwellers of forest fringe villages are becoming the toys in the hands of the hardcore wildlife criminals and smugglers who are actually the hand in glove for all such crimes. Both the indispensability for conserving the wildlife and also the penal provisions for its offences shall be explained to the local people through leaflets in local dialect. The endanger animals like Leopard or Panther (Kalara Patria bagha, Pendra) Panthera pardus (Meyer), Indian Wolf (Gadhia, Ramsiali): Canis lupus pallipes (Sykes), Honey badger or Ratel (Gada Bhalu) Mellivora capensis indica (Kerr), Indian Bison or Gaur (Gayala) Bos gaurus gaurus (Smith), Indian Elephant (Hati) Elephas maximus indicus (G.Cuvier), The Indian Pangolin or Scaly Anteater (Bajra Kapta) Manis Crassicaudata (Gray) available in the division shall be described with photographs in the leaflets to inculcate the inspiration for its conservation. Similarly the penal provisions like the duration of imprisonment, quantum of fine and non-bailable nature of offence should be narrated in the leaflets. Periodical meetings along with celebration of Wildlife Week, Elephant Day and Habitat Day shall be done. The eco-clubs established in various schools shall be mobilised to propagate the message of conservation of forests and wildlife. Reward / prize shall be instituted for the exemplary work done by the local people at division level to motivate them.

Wildlife Disease:-

The new economic and cultural values attached to wild species have altered the conception of health problems as well as veterinary attitudes towards them. Several diseases are the important decimating factor in case of wild animals. Heavy loss is caused by them. It's very difficult to diagnose and treat the disease in wild animals because they are free ranging animals. The diseased animal hides itself in very remote or core area of the woods.

However preventive measure must be taken to check the epidemic condition and to save the population. After getting the sign of disease in the individual ,proper action should be taken for its treatment, In this respect ,modern technologies evolving day by day for identifying individuals and its health checking should be applied .The staff of the field should be trained in this regard. Some of the important diseases found in wild animals are-

Blackleg, **black quarter**, **quarter evil**, or **quarter ill** (*gangraena emphysematosa*) is an infectious bacterial disease most commonly caused by Clostridium chauvoei, a Gram-positive bacterial species. It is seen in livestock all over the world, usually affecting cattle, sheep, and goats. It has been seen occasionally in Indian Gaur and Deer. The critical nature of the disease makes successful treatment difficult, and the efficacy of the commonly used vaccine is disputed.

Most losses due to blackleg occur when the cattle are between the ages of six months and two years, although it can occur when they are as young as two months. Typically, cattle that have a high feed intake and are well-conditioned tend to be the most susceptible to blackleg. Furthermore, many blackleg cases occur during the hot and humid summer months or after a sudden cold period, but cases can occur at any time during the year.

Blackleg is caused by infection with Clostridium bacteria. The most common causative agent is *C. chauvoei*, but the disease can also be caused by C. septicum, C. sordelli, and C. Novyi C. *chauvoei* is Gram-positive, rod-shaped, anaerobic, and motile, and can produce environmentally persistent spores when conditions are not ideal for growth. These spores can remain in the soil for years in an inactive state, and return to their infectious form when consumed by grazing livestock.

Contaminated pasture is a predominant source of these organisms, which are also found naturally in the intestines of animals. Cases can occur over many years in areas where soil or manure is contaminated with the bacteria, and it is exceedingly difficult to remove the spores from the environment. *C. chauvoei* can produce a large amount of gas as a metabolic byproduct when growing and reproducing, hence the alternate name gas gangrene, present in humans. This gas builds up in infected tissue, usually large muscles, and causes the tissue to make a crackling or popping sound when pressed. Large gas-filled blisters can also form, which can be extremely painful as they build up in the tissues.

When infection begins, the animal may develop a fever, and the affected limb can feel hot to the touch. The limb usually swells significantly, and the animal can develop lameness on the affected leg. Crepitation (the sensation of air under the skin) can be noticed in many infections, as the area seems to crackle under pressure.

Once clinical signs develop, the animal may only live a short while, sometimes as few as 12 hours. Occasionally, cattle succumb to the disease without showing any symptoms, and only a necropsy reveals the cause. During a necropsy, a diagnosis is usually made very quickly, as the affected muscle is usually mottled with black patches, which are dead tissue, killed by the toxins the bacteria release when they infect live tissue. If viewed under a microscope, small rod-like bacteria can be seen to confirm the diagnosis

Vaccination :-The use of clostridial vaccination is the most common and cost effective preventative measure taken against blackleg, however, its efficacy is disputed Burning the upper layer of soil to eradicate left-over spores is the best way to stop the spread of blackleg from diseased cattle. Diseased cattle should be isolated. Treatment is generally unrewarding due to the rapid progression of the disease, but penicillin is the drug of choice for treatment. Treatment is only effective in the early stages and as a control measure

Hemorrhagic septicemia (HS) is a severe bacterial disease caused by certain strains of *Pasteurella multicoda*. It primarily affects cattle and water buffalo, but infrequently affects pigs, small ruminants, and other hoof-stock. It is rapidly fatal. **Haemorrhagic septicaemia** is one of the most economically important pasteurelloses. Haemorrhagic septicaemia in cattle and buffaloes was previously known to be associated with one of two serotypes of P. multocida: Asian B:2 and African E:2 according to the Carter-Heddleston system, or 6:B and 6:E using the Namioka-Carter system The disease occurs mainly in cattle and buffaloes, but has also been reported in goats (*Capra aegagrus hircus*), pigs infected by serogroup B, and in wild elephants (*Elephas indicus*).[Serotypes B:1 have caused a septicaemic disease in antelope like Nilgai (*Boselaphustragocamelus*) Serotype B:4 was associated with the disease in Indian Gaur (*Bos gaur*). The incubation periods (the time between exposure and observable disease) for buffalo calves 4–10 months of age varies according to the route of infection. The incubation period is 12–14 hours, approximately 30 hours and 46–80 hours for subcutaneous infection, oral infection and natural exposure, respectively. There is variability in the duration of the clinical course of the disease. In the case of experimental subcutaneous infection, the clinical course lasted only a few hours, while it persisted for 2–5 days following oral infection and in buffaloes and cattle that had been exposed to naturally-infected animals.

Generally, progression of the disease in buffaloes and cattle is divided into three phases. Phase one is characterised by fever, with a rectal temperature of 40–41 °C (104–106 °F), loss of appetite and depression. Phase two is typified by increased respiration rate (40–50/minute), laboured breathing, clear nasal discharge (turns opaque and mucopurulent as the disease progresses), salivation and sub-man dibular oedema spreading to the pectoral (brisket) region and even to the forelegs. Finally, in phase three, there is typically recumbency, continued acute respiratory distress and terminal septicaemia. The three phases overlap when the disease course is short. In general, buffaloes have a more acute onset of disease than cattle, with a shorter duration. On post-mortem examination (necropsy), the most obvious gross lesion is subcutaneous oedema in the submandibular and pectoral (brisket) regions. Petechial haemorrhages are found subcutaneously and in the thoracic cavity. In addition, congestion and various degrees of consolidation of the lung may occur. Animals that die within 24–36 hours, have only few petechial haemorrhages on the heart and generalised congestion of the lung, while in animals that die after 72 hours, petechial and ecchymotic haemorrhages were more evident and lung consolidation are more extensive.

Foot and Mouth Disease

Foot-and-mouth disease (FMD) is a highly contagious viral disease that primarily affects cloven-hooved livestock and wildlife. Although adult animals generally recover, the

morbidity rate is very high in naïve populations, and significant pain and distress occur in some species. Sequelae may include decreased milk yield, permanent hoof damage and chronic mastitis. High mortality rates can be seen in young animals.

The foot-and-mouth disease virus (FMDV) is a member of the genus *Aphthovirus* in the family Picornaviridae. There are seven immunologically distinct serotypes - O, A, C, SAT 1, SAT 2, SAT 3 and Asia 1 - and over 60 strains within these serotypes. New strains occasionally develop spontaneously.

Species Affected

FMDV can infect most or all members of the order Artiodactyla (cloven-hooved mammals), as well as a few species in other orders. Each species varies in its susceptibility to infection and clinical disease, as well as its ability to transmit the virus to other animals. Livestock susceptible to FMD include cattle, pigs, sheep, goats and water buffalo . FMDV can also infect at least 70 species of wild animals including Gaur, Spotted Deer, Sambar, Nilgai.

On most cases, cattle are usually the most important maintenance hosts for FMDV, but some virus strains are primarily found in pigs, sheep or goats. Cattle and Buffalo are the usual maintenance hosts for FMDV in India;

Transmission

FMDV can be found in all secretions and excretions from acutely infected animals, including expired air, saliva, milk, urine, faeces and semen. Pigs, in particular, produce large quantities of aerosolized virus. Animals can shed FMDV for up to four days before the onset of symptoms. This virus is also found in large quantities in vesicle fluid, and peak transmission usually occurs when vesicles rupture. Transmission can occur by direct or indirect contact with infected animals and contaminated fomites; routes of spread include inhalation of aerosolized virus, ingestion of contaminated feed, and entry of the virus through skin abrasions or mucous membranes. The importance of each of these routes varies with the species. For example, pigs are less susceptible to aerosolized virus than cattle or sheep. Sheep may have less obvious symptoms than other species, and have been important in disseminating the virus in some outbreaks.

Some animals carry FMDV for prolonged periods after recovering from acute disease. Animals with natural or vaccine-induced immunity can also become carriers if they are later exposed to virus; these animals can remain asymptomatic. FMDV can persist for up to nine months in sheep and up to four months in goats. Most cattle carry this virus for six months or less, but some animals remain persistently infected for up to 3.5 years.

Incubation Period

In cattle, the incubation period varies from two to 14 days, depending on the dose of the virus and route of infection. In pigs, the incubation period is usually two days or more,

but can be as short as 18-24 hours. The incubation period in sheep is usually 3 to 8 days. Incubation periods as short as 24 hours and as long as 12 days have been reported in this species after experimental infection.

Clinical Signs

Foot-and-mouth disease is characterized by fever and vesicles (blisters) on the feet, in and around the mouth, and on the mammary gland. Occasionally, vesicles may occur at other locations including the vulva, prepuce or pressure points on the legs. Vesicles often rupture rapidly, becoming erosions. Pain and discomfort from the lesions leads to a variety of symptoms including depression, anorexia, excessive salivation, lameness and reluctance to move or rise. Lesions on the coronary band may cause growth arrest lines on the hoof. In severe cases, the hooves may be sloughed. Although FMDV does not cross the placenta, abortion may occur in pregnant animals. Most adults recover in two to three weeks, although secondary infections may extend the recovery time. Possible complications include temporary or permanent decreases in milk production, chronic lameness or mastitis, weight loss and loss of condition. Deaths usually occur only in young animals, as the result of multifocal myocarditis; vesicles are not always found. In some outbreaks, the mortality rate in young animals can be high. Severe disease may also cause sudden deaths among older animals, particularly some species of wildlife, but this is rare.

The symptoms and severity of FMD vary with the species of animal, and the serotype and strain of the virus. Cattle usually become febrile and develop lesions on the tongue, dental pad, gums, soft palate, nostrils or muzzle. The vesicles on the tongue often coalesce, rupture quickly, and are highly painful, and the animal becomes reluctant to eat. Profuse salivation and nasal discharge are common; the nasal discharge is mucoid at first, but becomes mucopurulent. Affected animals become lethargic, may lose condition rapidly, and have gradual or sudden, severe decreases in milk production. Hoof lesions occur in the area of the coronary band and inter digital space. Foot lesions cause reluctance to rise, or stamping or shaking of the feet. Pregnant animals may abort. Young calves can die of heart failure without developing vesicles. In areas where cattle are intensively vaccinated, the entry of FMD into the herd can sometimes cause swelling of tongue and severe symptoms that resemble an allergic disease.

In pigs, the most severe lesions usually occur on the feet. The first symptoms may be lameness and blanching of the skin around the coronary bands. Vesicles develop on the coronary band and heel, and in the inter digital space. The lesions may become so painful that pigs crawl rather than walk. The horns of the digits are sometimes sloughed. Lesions at other sites are less common and less severe. Vesicles are sometimes found on the snout or udder, as well as on the hock or elbows if the pigs are housed on rough concrete floors. Mouth lesions are usually small and less apparent than in cattle, and drooling is rare. Affected pigs may also have a decreased appetite, become lethargic and huddle together. Fever may be seen, but the temperature elevation can be short or inconsistent. In some cases, the temperature may be near normal or even below normal. Young pigs up to 14 weeks may die suddenly due to heart failure; piglets less than eight weeks of age are particularly susceptible.

Foot-and-mouth disease tends to be mild in sheep and goats. Common symptoms include fever and mild to severe lameness of one or more legs. Vesicles may develop in the inter digital cleft and on the heel bulbs and coronary band, but they may rupture and be hidden by foot lesions from other causes. Mouth lesions are often not noticeable or severe, and generally appear as shallow erosions. Vesicles may also be noted on the teats, and rarely on the vulva or prepuce. Milk production may drop, and rams can be reluctant to mate. Ewes may abort. Up to 25% of infected sheep remain asymptomatic, and 20% have lesions only at one site. Young lambs and kids may die due to heart failure, without vesicles. In some epidemics, large numbers of lambs may fall down dead when stressed.

The symptoms in wildlife resemble those seen in domesticated livestock. Vesicles and erosions may be found at various sites, particularly on the feet and in the mouth. More severe lesions occur where there is frequent mechanical trauma, e.g. on the feet and snout of suids or the carpal joints of warthogs. Loss of horns has also been seen. Some wildlife species typically experience subclinical infections or mild disease, while others develop severe, acute disease. Young animals of any species can die suddenly of myocarditis.

Control

Vaccination as preventive measure, in cattle should be done .As remedial measure the case should be reported to the veterinary doctor for proper treatment .The appropriate measures should also be applied which can cure the disease. Regular vaccination against FMD is prescribed for the cattle exposed to forest for grazing

Rinderpest:-

It is caused by Paeamyxo virus (Morbilli virus) as epidemic in ruminants such as cattle, Cheetal, Sambhar, Gaur, Wild buffalo etc. It is also infected in the wild animals through the cattle. The symptoms are excess fever up to 106^0 F, watering through eyes and nose, intestinal ulcer, diarrhea, bleeding with faeces etc. The diseased animal should be separated by other individuals of the herd because it would generally, die within fifteen days .It is spread by the faeces, pus of the wound, urine etc. The diseased animal should be watched and the dead animals should be buried immediately preferably mixed with Potassium Permanganate, lime and phenyl to avoid its spreading through scavengers. Vaccination, as preventive measure, in the cattle is very essential and veterinary doctor should be reported for proper treatment.

Anthrax:-

This disease is caused by *Bacillus anthrasis* .There is enlargement of spleen in this disease in the mammals. This is dangerous disease because its symptom is convulsive only, from few minutes to few hours. Bleeding occur through mouth, nose and anus and vulva in

females. Swellings are on certain places of the body which rupture with oozing black blood. Affected animal may die within three days. It is very infectious disease and spread very rapidly .Men is also infected by this disease and so the treatment of such disease should be through knowledgeable and experienced doctors. Proper treatment should be done .The body of the animal should be buried to avoid its spreading through scavengers.

Tuberculosis

There are numerous instances of inadvertent infection with mycobacteria, particularly in species of wild animals kept in captivity in zoos, where they are exposed to human infection. These cases resulted from wild animals coming into contact with human beings or domestic animals.

Wildlife Habitat Relationship:-

The habitat in this division is mostly terrestrial except some portion traversed by the rivers. The river Utei and Raul have passed through the forest blocks of Urladani, Taparang, Benaguda under both Narla and Madanpur Rampur range. Similarly river Tel though passes through the jurisdiction of both Kegaon and Kesinga range but mostly confined to the non-forestland. River Udanti runs through a portion of Kegaon range. All these rivers are mostly dry during the summer. However the areas adjoining to the routes of these rivers provide congenial aquatic habitat for wild life to some extent. Besides these rivers, a number of both seasonal and perennial streams crisscross the forest blocks of the division providing water source for the wild life. Sub-terrestrial habitats consists of burrows and crevices along with the accumulated rock pieces at the foothills. Cracks in rocky patches on steep slopes provide good habitat for reptiles like snakes, lizards etc. Special habitats like snags, sang recruits, down wood, isolated large old trees, trees with fluting boles, buttresses, lianas, some significant species of fruit bearing trees and shrubs being originated biologically provide habitat functions in the forests. Some geomorphical structures like caves, overhangs, dens, cliffs, ledges etc. are unique habitats for some wild life.

Species Structure

Both flora and fauna have been described in detail under Chapter-II of Part-I. However the synopsis of the description is furnished under two major heads i.e. Autotrophs (mostly flora) and Heterotrophs (mostly fauna).

Autotrophs

The forests of this division belong to tropical deciduous forest both moist and dry. Top storey is represented by Shorea robusta Terminalia tomentosa, Terminalia belerica, Xylia xylocarpa, Pterocarpus marsupium, Anogeisus latifolia, Diospyrus melanoxylon, Lagerstromia parvifolia, Gmelina arborea, Bridelia reutsa, Stereospermum suaveloens, Madhuca indica, Dalbergia paniculata, Alibizzia procera, Albizzia chinensis, Bombex ceiba, Hymenodictyon excelsus, Schelichera oleosa,

Dillenia pentagyna, In moist sites Syzygium cumini, Mangifera indica, Terminalia arjuna, Anogeisus acuminata, Michelia champaca also occur. Dendrocalamus strictus and in few pockets Bambusa arundinacea are found.

The under storey consists of Cleistanthus collinus, Ougenia oogenensis, Emblica officinalis, Buchnania lanzan, Bauhinia retusa, Bauhinia recemosa, Randia uliginosa, Grewia tiliafolia, Cassia fistula, Mallotus phillipanensis, Ficus cunia, Ficus olomeratta, Ficus infectoria, Semicarpus anacardium, Miliusa veiutina. In dry rocky areas Gardenia latifolia and Chloroxylon swetenia are seen.

Ground flora consists of good Sal indicators like Indigofera pulchella, Clerodendron infortunatum, Flemingia chappar besides Murraya koengii, Desmodium pulchella, Petalidium barleriodes, Asparagus racemosus, Holarrhena anitdysentrica, Helictreris isora, Wrightia tomentosa, Pogostemon plectranthoides, Glycosmis pentaphylla and weeds like Eupatorium, Ageratum, Phoneix acaulis etc. are seen.

The climbers noticed frequently are Bauhinia vahli, Milletia auriculata, Smilax sylinica, Combretum decadrum, Butea superba and Accacia pinnata are most commonly seen growing over the trees and covering the crowns. Also twiners like Ichnocarpus frutescens are noticed.

Grasses like Thysanoloena agrostis, Themeda triandra and Arundilla species are mostly found.

Heterotrophs

The species structures of major communities are as follows.

- Primary heterotrophs are Sambar (Cervus unicolor); Cheetal (Axis axis); Barking deer (Muntiacus muntjak). Common Indian Hare (Lepus nigricollis).
- Secondary heterotrophs are Leopard (Panthera pardus); Jungle cat (Felis chaus).
- Scavengers and other animals are Hyaena (Hyaena hyaena); Jackal (Canis aureus); Wolf (Canis lupus); Fox (Vulpes bengalensis); Wild dog (Cuon alpinus); Sloth bear (Melursus ursinus); Mongoose (Herpestes edwardsii); large Indian squirrel (Ratufa indica) and Otters (Lutrogale perspiciclata) Pangolin (Manis crassicaudata); Wild boar (Sus scrofa) etc.

- The primates are represented by the Common Langur or Hanu (Presbytis entellus) and the Common Pati (Macaca mullata).
- Amongst the snakes, Banded Krait (Rana) Bungarus fasciatus, Cobra (Naga or Gokhar Sapa) Naja naja, Common Blind Snake (Teli Sapa) Typhlops brahminus, Russell's Earth Boa (Domundia Sapa) Eryx conicus, Indian Rat Snake (Dhamana) Ptyas mucosus, Water Snake (Dhanda) Natrix piscator are mostly available.

- The avifauna includes Indian Red Jungle fowl (Bana Kukuda) Gallus gallus murghi (Robinson & Kloss), Pariah kite (Matia Chila) Milvus mirgrans govinda (Sykes), Indian Roller (Bhadabhadalia/Terra) Coracias benghalensis benghalensis (Linnaeus), House Crow (Kau or Indian house crow) Corvus splendens splendens (Viellot), Spotted Dove (Kapota or Indian Spotted Dove) Streptopelia chinensis suratensis (Gmelin), Cattle egret (Gaya Baga) Bubulcus ibis coromandus (Boddaert), Indian House Sparrow (Ghara Chatia)–Passer domesticus indicus (Jerdire & selby), Yellow legged green pigeon or Harada Chadhei -Teron Phoenicopitera phoenicopitera (lathum), Indian Pond Heron (Kantia Baga) Ardeola grayii grayii (Sykes), Kajalpati or King Crow or Common Drongo- Dicrurus adsimilis macrocercus (Vieillot), North Brown Crowned Pigmy Wood Pecker (Katha ana)- Picoides nanus nanus (Vigors), Indian Koel (Koili)–Eudynamys scolopacea scolopacea (Linnaeus),Common Crow Pheasant or Kumbhatua–Centropus sinensis sinensis (Stephens), Barn Owl or Indian Barn Owl or Pecha–Tyto alba stertens (Hartert), Rose-ringed Parakeet (Sua)–Psittacule krameri manillensis (Bechstein), Southern Hill Myana (Sari)–Gracula religiosa indica (Cuvier) and Bani or Indian Common Myana – Acridotheres tristis etc.

Methods of Treatment

Improvement of Wildlife Habitat

Habitat is a simple part or a relatively complex entity regarded as a part of an area or type of environment in which an organism or biological population normally lives or occurs. For the sake of wildlife, it is not necessarily the plant communities and their successional stages, but includes the special and unique habitats which are other than the former. Though all the area possesses some sort of wildlife but there are certain pockets which are rich in wildlife particularly the animals and birds and also liked by the wild animals for their habitation. The name of such important localities are furnished below.

Name of the Range	Name of the Forest Block	Name of the Locality
Madanpur Rampur	Taparang RF	Bordajhola, Bahadapadar, Chichipata, Kendughati, Tindharia, Handidara, Sapjharan, Bordanalla.
	Benaguda RF	Borighat, Juger, Kamaranga, Amakuna.
	Puijhari PRF	Puijhari, Drama, Balibaju.
Narla	Urladani RF	Pilibanji, Nagjhari, Udayagiri, Badadongor, Kasighati, Garudaghati, Rajagharakhalia, Amjharan, Karlakhunta, Pijuladu, Chochobahali.
	Porgel RF	Bhurti, Mundagaon
Kegaon	Chura RF	Karanjkot, Bhitarkot, Sankripali, Putiachura, Phatamunda.
	Gojia RF	Jayantapur.
Bhawanipatna	Alma RF	Bundelguda.
	Gundi PRF	Khaing.

Though improvement of the habitat will be made in general through sound silvicultural practice, but the effort will be focussed on the wildlife rich areas to provide adequate food, water and shelter to the wildlife. The measures prescribed are furnished in the following paragraphs.

Enhancement of Forest Cover

Adequate forest cover to different wild animal within their habitat is necessary for shelter and protection from weather, predators and enemies. Suitable prescriptions have already been made for enhancement and enrichment of forest in Selection as well as Rehabilitation Working Circle. Retention of mature trees near water hole, along nalla bank, salt lick and also the trees whose removal may create permanent gap in the canopy are intended to provide adequate shelter and protection to the wildlife. These trees shall be maintained and improved for providing good canopy as well as other benefits. In the areas under Rehabilitation Working Circle, it has been prescribed to go for mixed plantation to create ground flora and middle storey to provide cover for different types of wild animals.

Increase in Food Availability

Herbivores depend on plant materials like leaves, bark, twigs, flowers, fruits and seeds of species like Mallotus philippinensis, Dendrocalamus strictus, Adina cordifolia, Albizzia lebbek, Aegle marmelos, Cassia fistula, Ficus bengalensis, Ougeinia ougenensis, Shorea robusta, Syzygium cumini, Terminalia alata, Terminalia belerica, Zizyphus mauritiana, Bombax ceiba etc. The fruits of some plants are delicacy of deer, monkey, langur, rats and hare. These plants species are Terminalia belercia, Buchanania lanzan, Aegle marmelos, Syzygium cumini, Emblica officinalis, Zizyphus mauritiana, Diospyros melanoxylon, Grewia hitsute etc. The felling of fruit bearing trees has been prohibited in the marking rule prescribed under Selection Working Circle. Grasses constitute a major food item for the herbivores. It is highly preferred and palatable. The grassland in the plateau locally called “Malis” shall be developed alongwith other suitable localities. Malis can serve the purpose of meadow. The grasses like Azonopus compresses, Eragrostis pilosa, Saccharum bengalensis etc. shall be raised to meet the food requirement of herbivores. Meadows shall be created wherever feasible in the available blank patch. But care should be taken not to form such meadows at the cost of natural vegetation if occurring or can be occurred through suitable silvicultural method. The extent of meadow should be limited and preferably inside dense vegetation by the side of natural stream. The existence of meadow and dense vegetation side by side can provide the edge effect, which is an important ingredient for development of wildlife.

Special Habitats

This has a special function not provided by plant communities and successional stages. It includes riparian zones, snags, dead and down woody materials. Being biological in nature it can be created or altered by management. This is a sound technique for habitat manipulation. It is not proper to provide a general prescription for maintenance / creation of such habitat since the effective result can only be obtained from site-specific treatment. This aspect of management is left to the discretion of the Divisional Forest Officer for retaining number of snags, snag

recruits, down tree, large old trees, trees with fluting boles and buttresses and boles at the base, lianas and tangled climber, roosting / nesting trees in the pockets after assessing the necessity as well as considering silvicultural aspect for general hygiene of the forests.

Unique Habitats

This is another wildlife habitats of special function not included within plant communities and successional stages or special habitat. It is geomorphic in nature i.e. cliffs, caves, dens, overhangs, shelves or ledges, talus, crevices etc. These rocky structures available in the forests serves as ideal shelter for a number of different wildlife and their different activities like hibernation, mating, laying of eggs etc. These are to be maintained and if necessary such structures can be created after assessing its requirement in the locality. Like special habitat, the creation of these habitats is also left to the discretion of Divisional Forest Officer.

Development of Water Source & Salt Lick

Water and salt are two important ingredient of food material for the wild animals. The availability of water shall be ensured throughout the year particularly in the lean period during summer. The wild animals very often stray outside the forests in search of water during summer season and become the victim of unnatural death. The existing nallas and streams shall be made perennial through construction of check dams on its course starting from uphill side. Such prescription has been provided under soil and moisture conservation measure in respective working circles. The existing water bodies and water holes shall be maintained through proper renovation as and when required in addition to creation of new such structures at appropriate locations. The Range Officer shall assess the necessity of such structures location wise, which will be scrutinised and approved by the Assistant Conservator of Forests and Divisional Forest Officer respectively. Similarly the salt licks shall be maintained along with the creation of new ones as per the above procedure. The creation of such new structures like water holes, water bodies, salt lick and meadows are to be done very meticulously so as to ensure the desired manipulation of the habitat to cater the felt need of the wild animals.

8.8 Other Regulations:

Besides the prescriptions provided in the foregoing paras, some other regulations are necessary to augment the former for effective results. These are the following.

8.8.1 Infrastructure & Training

Without adequate infrastructure, it is not possible to obtain the desired result. Provision of adequate infrastructure is also not enough. The proper training of the field staff is necessary to handle the situation perfectly. Wildlife is a special subject, which needs better technique for smooth management. The field staff should undergo refresher training regularly to update their knowledge for coping with prevalent standard. Such refresher training shall be organised at frequent interval. Handling of arm and ammunitions and knowledge in photography particularly the use of digital / zoom cameras are essential. So vehicle, arm and ammunition, camera, computer etc. are to be provided along with periodic training.

8.8.2 Establishment of an animal rescue-cum-rehabilitation Centre

Sometimes wild animals are rescued either from unlawful confinement or being wounded / injured. Such animals need some treatment to come over to normalcy before its release to the natural forest. The Forest Divisions are facing a lot of difficulty to ensure proper convalescing of the animals in absence of adequate infrastructure. So the injured animals are shifted to Nandankanan very often. In order to mitigate this problem, the establishment of an animal rescue-cum-rehabilitation centre is essential at circle level at Bhawanipatna.

8.8.3 Information Network, Record Keeping & Database

To build up an intelligence network is of prime importance. In the present situation of inadequate staff and infrastructure, the collection of information is very vital to contain the wildlife crime. The Range Officer shall be entrusted to collect intelligence under the supervision of Assistant Conservator of Forests and the guidance of Divisional Forest Officer. All such information shall be documented secretly and correctly to develop a database at both Range and Division level. It includes the following items:

Schedule species available in the range.

List of the license holder of gun.

(i) Pictorial directory of all identified poachers.

(ii) List of traders in cattle and other animals as well as tanneries / slaughterhouse.

(iii) List of Dhaba / Hotels suspected to serve meat of wild animal.

(iv) Timely and proper documentation of all incidence of poaching and man animal conflict.

8.8.4 Prosecution of Wildlife Crime

It is observed that the effort and sincerity shown during the detection of wildlife crime is gradually diminishing in subsequent stages i.e. investigation and trial. As a result most of the wildlife cases are ended either with acquittal or mild punishment. Very often the accused are able to escape due to technical flaws, perfunctory prosecution report or shoddy investigation. Hence it is prescribed that whenever a wildlife crime is detected, an officer of and above the rank of Assistant Conservator of Forests shall visit the spot forthwith. The investigation shall be done by the Assistant Conservator of Forests duly assisted by the concerned Range Officer. Prior to submission of the prosecution report, it shall be examined by the Public Prosecutor / Assistant Public Prosecutor whose guidance shall be taken during the course of investigation and preparation of prosecution report. A case diary shall be maintained for each wildlife case to record the progress in trial. The Divisional Forest Officer shall review this matter at least once in a month.

8.8.5 Wildlife Depredation

It is the bone of contention between the human and wildlife. Public resentment leading to revengeful action by resorting to killing of wild animals shall be contained with

instant solace by the forest officials. On receipt of information regarding any wildlife depredation, an officer of and above the rank of Assistant Conservator of Forests shall visit the spot immediately. It would have been better to calm down the agitated people through instant payment of the compassionate amount. Since there is some paraphernalia to be maintained, the sanction of compassionate amount shall be done at earliest and such sanction order shall be handed over to the affected person. The affected family should be provided some additional benefit under other schemes of the department.

8.8.6 Control of Grazing & Fire Protection Measure

Though necessary prescription has been made for these works in respective working circles, the attention shall be focussed on wildlife rich pockets of the forest blocks as a special measure. Proactive steps should be taken to prevent fire in those localities.

8.8.7 Incentives & Rewards

As already stated earlier there shall be provision for rewards and incentives to the public whose laudable efforts have ensured the protection and promotion of wildlife. In addition to the public, the devoted and dedicated field staff should also be rewarded. Such persons should be felicitated in different ceremonial occasions like Wildlife Week, Vana Mahotsava Week and World Forestry Day etc.

CHAPTER-9

JOINT FOREST MANAGEMENT (OVERLAPPING) WORKING CIRCLE

9.1 Name of working circle:-

The name of the working circle is Joint Forest Management (Overlapping) Working Circle.

9.2 General Constitution of working circle: -

9.2.1 Forest being a bounty of nature is considered as a common property resource for human kind. While the invaluable and intangible product of this precious asset is indispensable for the very existence of life on this planet, the valuable and tangible products are the essential commodities of our living. Age-old dependence of the local people on the forests is irrevocable. It necessitates a people revolving management.

9.2.2 Scientific and systematic management of forests in our country as well as state dates back to the later part of 19th Century. The forests of Kalahandi though managed with the implementation of first working plan by Mr.F.A.A.Hart during 1934-35, the scientific management was initiated during 1914-15 with the working of Nistar Working Circle with adoption of Coppice silvicultural system and 20 (twenty) years rotation period to exploit the forest for meeting the demand of firewood. The detail history of forest management has already been described under Chapter-VII of Part-I. It is seen that the involvement and participation of the local people was not seriously felt up to the fourth plan prepared by Sri D.S.Pattnaik. This is not the isolated case of Kalahandi rather a common phenomenon throughout the country. Up to that time the management was done by the forest officials exclusively with practically no participation from the local people who used to procure and consume the forest produce only. The management specially the productivity of the forests was of no concern to them. The forest officials were looked upon as the protector and producer of the forest materials whereas the people behaved like spectator and consumer. The pressure on the forests mounted heavily due to abnormally high population growth resulting in both qualitative and quantitative degeneration. Attempts were made during 70's of the last century through launching of Social Forestry Project to meet the demand of local people through raising of plantation mostly in community wastelands with their active participation. This is the beginning of involvement of local people, but it did not yield the desired result to reduce the pressure on natural forests, which was kept out of their hold. The situation deteriorated day by day leading to the degradation of forests, which is directly proportional to the increase in demand of forest produce by the ever-rising population and their alienation from the management process. In such scenario the protection of forests is extremely difficult on the part of the forest officials alone. The involvement of local people is barely felt for this purpose. Participation of the local people cannot be ensured without considering their bonafide need. In order to make the matter broad based particularly people's friendly, **Joint Forest Management** is conceptualised for protection, conservation and management of the natural forests by the forest officials and local people combined in consonance with the compelling need of the

circumstances. Such change in the style of management of forests is really the call of the time.

9.2.3 Government of Orissa for the first time in the country issued an resolution vide No.10F (Pron.) 47/88/17240/FFAH dt.01.08.1988 assigning a specific role to the villagers in protection of peripheral reserve forests adjoining their villages with simultaneous permission to meet their bonafide requirement of firewood and small timber from the said forest areas. This resolution was amended vide Resolution No.10F (Pron.) 47/88/23638/FFAH dt.13.10.1988 prescribing the procedure for constitution of a village level forest protection committee. The Govt. of India basing on the provisions contained in National Forest Policy 1988 emphasising the active involvement of people in protection, conservation and management of forests, have issued direction to all State Governments for implementation. Though Orissa have taken steps in this matter much earlier i.e. during 1988, still issued another resolution vide No.10F (Pron.) 4/90/29825/FFAH dt.11.12.1990 containing an elaborate guideline in this direction superseding the earlier two resolutions state above. In fact the process of involving the people in protection and management of forests got an impetus during 1990 with issue of a detailed guideline regarding the constitution of Vana Samrakshyana Smitis (VSS) and their Executive Committee, duties and responsibilities of VSS and their Executive Committees, preparation of JFM Micro Plan, usufructuary benefits of the VSS and provision of MOU etc. vide Resolution No.10F (Pron.) 20/93-16700/F&E dt.03.07.1993.

9.2.4 Till the completion of last plan period 593 nos. of VSS have already been constituted in the Division assigning **42679.97 ha.** of forest area of different categories. Undoubtedly Joint Forest Management has emerged as a unique panacea to address the problems faced on account of protection of forest. Participation of local people through V.S.S is gaining momentum day by day on this score. In the present circumstances there is no alternative except resorting to this suitable option for ensuring better protection. A sincere, specific and special effort is essential to stabilise this ongoing process for sustainability. Hence Joint Forest Management (Overlapping) Working Circle is constituted for this purpose.

9.2.5 As already mentioned above, the area protected by the VSS are of different types i.e. reserve forest, proposed reserve forest, village forest etc. The details of category wise forest area protected by the VSS individually have already been furnished vide Appendix XIII. The portion of the forest blocks coming under the purview of the plan area comes to 43153.42 ha. This working circle mainly overlaps the Rehabilitation Working Circle. It covers about 30% of the plan area.

9.2.6 The erstwhile Social Forestry Project Division, Kalahandi created plantations in community lands which had subsequently been declared as village forest as per section 30 of Orissa Forest Act 1972. Total 30 plantations of 199.65 Ha. had been notified as Village Forest. As per Village Forest Rule forests are being managed by village forest committee comprising of Sarpanch(s) of the concerned Gram Panchayats and Ward Member(s) belonging to the village of a group forest for which the Village Forest is notified. The Committee also include Foresters or Revenue Inspectors and 3-5 selected persons of the village. Participation of people through VSS in forest protection is the main aim. Out of 199.65 ha, VSS has already been constituted in 29.2 ha and Rest **170.45 Ha** area of notified VF are added to this Working Circle. Hence, Village Forest of Kalahandi North Division are kept under this Working Circle though prescription for these forests are different. All the

plantations on revenue forest carried out during the last plan period are taken as Proposed VF (19 nos. 342 ha) which are also added to this working circle. Out of 342 ha., VSS has already been constituted in 39 Ha. Rest **303 Ha** is assigned to JFM(O) Working Circle.

9.2.6 The constitution of VSS and assignment of area has yet to be saturated. So it will continue in the plan period. All the new area out of the plan area assigned to the VSS in course of implementation of this working plan will automatically become the part of this working circle. The prescriptions of this working circle shall be applicable to them. Further these prescriptions should also be adopted for the areas protected by the VSS beyond the purview of plan area.

Sl No	RANGE	Name of the Forest Block	Forest Block Area under this plan in ha	JFM (O) WC	(VF area + Proposed VF Area)
1	Bhawanipatna	Alma RF	1360	298	
2	Bhawanipatna	Brahmani RF	5846.8964	2386	
3	Bhawanipatna	Dhangada dhangadi RF	229	229	
4	Bhawanipatna	Dhanupanchan RF	726	726	
5	Bhawanipatna	Kanamanjur RF	1814.3595	790	
6	Bhawanipatna	Kutrukhai RF	314.9721	230	
7	Bhawanipatna	Madhakhola (B) RF	597	597	
8	Bhawanipatna	Pordhar RF	833.435	200	
9	Bhawanipatna	Sinang RF	1220.7572	982	
10	Bhawanipatna	Bhalu RF	54	54	
11	Bhawanipatna	Kadalighati RF	1717.532	605	
12	Bhawanipatna	Madhakhola (A) RF	744.785	744.785	
13	Bhawanipatna	Gundi PRF	6715.0289	1296	
14	Bhawanipatna	Thuapadar Gundi DPF	9187.7	880	
15	Bhawanipatna	Admunda VF	5	5	5
16	Bhawanipatna	-do-	5	5	5
17	Bhawanipatna	-do-	10	10	10
18	Bhawanipatna	Matia VF	10	10	10
19	Bhawanipatna	Bhejipadar VF	8	8	8
20	Bhawanipatna	Jajaldeipur VF	5.1	5.1	5.1
21	Bhawanipatna	Jhikimiki VF	3.28	3.28	3.28
22	Bhawanipatna	Dumerbahal VF	8.044	8.044	8.044
23	Bhawanipatna	Khairbhadi VF	3.6	3.6	3.6
24	Bhawanipatna	Gopinathpur VF	2	2	2
25	Bhawanipatna	Khairmal VF	5	5	5
26	Bhawanipatna	Sarlanji VF	8.5	8.5	8.5
27	Bhawanipatna	Bramhani VF	6	6	6
28	Bhawanipatna	Jhikimiki VF	10	10	10
29	Bhawanipatna	Dungripadar	22	22	22
30	Bhawanipatna	Suben	22	22	22
31	Bhawanipatna	Durla	11	11	11
32	Bhawanipatna	Sagram	22	22	22
33	Bhawanipatna	Kuhura	33	33	33
34	Bhawanipatna	Goilibindha	11	11	11

35	Bhawanipatna	Saked	22	22	22
36	Bhawanipatna	Kendugupka	11	11	11
37	Bhawanipatna	Jhikimi A	17	17	17
38	Bhawanipatna	Salepali	22	22	22
39	Bhawanipatna	Dambarupadar	11	11	11
40	Bhawanipatna	Bhejapadar	22	22	22
41	Bhawanipatna	Kandakhal	11	11	11
TOTAL			**31687.99**	**10344.31 + *2050.22 = 12394.53**	**326.52**
42	Kegaon	Adabari RF	695.935	495	
43	Kegaon	Bisibarni RF	198	198	
44	Kegaon	Chura (A) RF	6898.5179	3840	
45	Kegaon	Chura (B) RF	2349.3415	600	
46	Kegaon	Daka RF	329.5771	275	
47	Kegaon	Ghatual RF	276	200	
48	Kegaon	Gojia RF	347	230	
49	Kegaon	Kumkot RF	4837.3148	2000	
50	Kegaon	Lini RF	134	126.38	
51	Kegaon	Nageswar RF	2416.2821	1350	
52	Kegaon	Jayantpur DPF	199.2	50	
53	Kegaon	Kankeri (A) DPF	32	30	
54	Kegaon	Kankeri (B) DPF	26.5	20	
55	Kegaon	Sindabhadi DPF	72.4	72	
56	Kegaon	Ammuda DPF	241.94	50	
57	Kegaon	Goilbindha DPF	160	160	
58	Kegaon	Banakdei DPF	92.5	92.1	
59	Kegaon	Daspur	20	20	20
TOTAL			**19326.51**	**9808.48 + *512.93 = 10321.41**	**20**
60	Kesinga	Bazargarh RF	7721.22	3729.05	
61	Kesinga	Nangalguda RF	1488	703	
62	Kesinga	Dumermunda DPF	45.76	45.76	
63	Kesinga	Biripura DPF	332.8	250	
64	Kesinga	Laitara DPF	83	24	
65	Kesinga	Jamjore VF	6	6	6
66	Kesinga	Brahmani VF	10	10	10
67	Kesinga	Jamjore VF	10	10	10
68	Kesinga	Dendrobahali VF	3.6	3.6	3.6
69	Kesinga	-do-	5	5	5
70	Kesinga	Khairmal VF	3	3	3
71	Kesinga	Palam VF	2	2	2
72	Kesinga	Matia VF	2	2	2
73	Kesinga	Kurlupada VF	1.96	1.96	1.96
74	Kesinga	Rengali VF	11.36	11.36	11.36
75	Kesinga	Balsi VF	9.2	9.2	9.2
76	Kesinga	-do-	13.64	13.64	13.64

77	Kesinga	Kumarpur	22	22	22
78	Kesinga	Surujore	11	11	11
79	Kesinga	Kantesir	22	22	22
80	Kesinga	Ghantsola	11	11	11
TOTAL			**9814.54**	**4895.57 + *1537.62 = 6433.19**	**143.76**
81	M.Rampur	Dengen RF	476	205	
82	M.Rampur	Sadel (A) RF	273	200	
83	M.Rampur	Sadel (B) RF	307	307	
84	M.Rampur	Satami RF	1894.225	320	
85	M.Rampur	Sunamukhi RF	2339.6953	510	
86	M.Rampur	Taparang RF	6887.8069	670	
87	M.Rampur	Turchi RF	257	257	
88	M.Rampur	Benaguda RF	4928.2938	500	
89	M.Rampur	Podgudi PRF	793.52	600	
90	M.Rampur	Ramud PRF	547.092	400	
91	M.Rampur	Sulia PRF	5617.337	502.34	
92	M.Rampur	Manikera PRF	66.4	66.4	
93	M.Rampur	Mundramaska PRF	750	50	
94	M.Rampur	Gochhadengen PRF	346.34	150	
95	M.Rampur	Kutigudum PRF	378.107	378.107	
96	M.Rampur	Talanuagaon PRF	177.4654	177.4654	
97	M.Rampur	Puijhari PRF	2251.21	78	
98	M.Rampur	Pongabaju PRF	2331.91	128	
99	M.Rampur	Bidabaru (Harlanga) PRF	1464.615	315	
100	M.Rampur	Pudrimahul DPF	303	120	
101	M.Rampur	Chandanpinda DPF	298.25	100	
102	M.Rampur	Karla DPF	432.11	130	
103	M.Rampur	Pipalbhadi VF	6.22	6.22	6.22
104	M.Rampur	Saling VF	5.2	5.2	5.2
105	M.Rampur	Kuten VF	0.948	0.948	0.948
TOTAL			**33132.75**	**6176.68 + *2014.03 = 8190.71**	**12.37**
106	Narla	Porgel RF	1712	839.75	
107	Narla	Kamei RF	156	156	
108	Narla	Kerbandi RF	1231	1148	
109	Narla	Lumersinga RF	175	100	
110	Narla	Narla RF	1293	945	
111	Narla	Sripali RF	46	46	
112	Narla	Urladani RF	10277.9032	527.05	
113	Narla	Porgel Extension PRF	3222	303	
114	Narla	Badibahal PRF	44.94	40	
115	Narla	Barpati DPF	148.67	40	
116	Narla	Dengsur DPF	255.06	148	
117	Narla	Mundighati DPF	88.2	40	
118	Narla	Belgaon DPF	3826.994	692	

119	Narla	Nuapada	11	11	11
120	Narla	Chapatkhanda	28	28	28
TOTAL			**22515.77**	**5063.80 + *749.79 = 5813.59**	**39**
GRAND TOTAL			**116477.55**	**36288.84 + *6864.58 = 43153.42**	**541.65**

*** JFM Area under Revenue Forest**

9.3 General Characteristics of Vegetation: -

Being an overlapping working circle, the vegetation of the area has already been described in the main working circle to which it has been primarily assigned. The area of this working circle is mostly overlaps some portion of the area of Rehabilitation Working Circle. So the vegetation as described under the aforesaid working circle holds good for this purpose. In general the vegetation is in degraded condition and under the process of restoration with the support of VSS on the pattern of Joint Forest Management. The forest blocks kept under this Working Circle have the potentiality for speedy rejuvenation due to the availability of rooted waste, coppice shoot and pole crop. The further development is stagnant owing to relentless biotic pressure, which compels the crop to remain in the stagnant condition of shrubby growth.

9.4 Felling series,cutting sections and JFM areas:-

The detail list of Vana Samrakshyana Samitis and assigned area is furnished in **Appendix XIII**

9.5 Blocks, Compartments and JFM area (marked on GIS based maps):-

Not Required

9.6 Special Objectives of Management: -

Within the ambit of general objects of management as described earlier, the following special objectives have been set for this overlapping working circle.

1. To **J**ointly shoulder the responsibility of management of forest by the VSS with Forest Officials and discharge the required duties effectively on sustained basis through their capacity building and empowering this village level people's institution.

1. To **F**oster the degraded forest for speedy and steady restoration of the vegetation with active participation of the local people.

2. To **M**otivate the local people for inculcating the attitude of both producer and consumer of the forest produce and becoming self-reliant through rational use of renewable natural community resource.

9.6.1 Analysis of the crop:-

Not required

9.6.2 Silvicultural system:-

No specific system in general has been prescribed for this Overlapping Working Circle. The prescription for the main working circle to which the assigned area is primarily allotted is applicable for the purpose. As per the provisions of Joint Forest Management Resolution 1993 the management is regulated through a Microplan which is specific to the area assigned. Such Microplan is also in conformity with the prescriptions of main working circle. As narrated above, the area of this working circle overlaps mostly some portion of Rehabilitation Working Circle, only tending and after care treatment has been prescribed without any silvicultural system.

9.6.3 Rotation period

Not required.

9.6.4 Harvestable diameters

Not required.

9.6.5 Reducing factors and reduced areas

Not required.

9.6.6 Felling cycle

Not required.

9.6.7 Division into periods and allotment to periodic blocks (PB

Not required.

9.6.8 Calculation of the yield

Not required.

9.6.9 Table of felling

Not required.

9.6.10 Method of executing the felling

Not required.

9.6.11 Subsidiary silvicultural operations cleaning and thinning

Not required.

9.6.12 Regeneration

Not required.

9.6.13 Associated regulations and measures

9.6.13.1 Methods of Execution: -

The resolution No.10F(Pron.)20/93-16700/F&E dt.03.07.1993 issued by Government of Orissa during 1993 contains the guideline as well as procedure for implementation of Joint Forest Management the copy of which is enclosed at Appendix-XXIII. This resolution is under modification for which Draft Joint Forest Management Resolution 2005 has already been circulated and debated. The notification of final resolution is awaited. The control and management is always subject to the prevalent guideline and instruction of the Government. However, in addition to the Government policy and resolution for Joint Forest Management, it is necessary to provide the following prescriptions in order to accomplish the special objectives of management of this Working Circle as well as facilitating the effective working of Joint Forest Management.

Institutionalisation of V.S.S

VSS plays a pivotal role in successful implementation of Joint Forest Management. It is highly essential to strengthen this grass root level people's institution. The constitution of VSS should not be made through routine approach. Prior to formation, it is first necessary to know about the people and their mindset, behaviour, attitude, need etc. through repeated interaction. A sense of belongingness shall be created to make the people feel that the forest is theirs and it is meant for them. This should be followed by to help them in assessing the magnitude of the problem and the possible remedial measures. Efforts should be made to make them fully aware of their duties and responsibilities to become an active partner with the forest officials for Joint Forest Management. Frequent and regular interaction with the villagers will help the forest officials to achieve this.

Capacity Building

Regular training camp and awareness campaign shall be organised to ensure this aspect. Only through such process the VSS can be stabilised and built up necessary capacity to discharge their function effectively. The field level functionaries particularly Forester and Forest Guard being the cutting edge of forest establishment should concentrate on this matter. Once this foundation is consolidated, it can march ahead smoothly and steadily surpassing any type of obstacle coming in the way. Hence it is reiterated that the field level functionaries shall adopt a devoted approach in the beginning for formation of VSS. Meetings shall be conducted regularly and sincerely. Instead of acting as an arbitrator, the forest officials should play the role of facilitator or moderator for the people who should be groomed to solve their own problem. Protection mechanism, benefit sharing, Conflict resolution, and participation of women actively are the focal points. These are valuable ingredients of a strong VSS. Very often it is observed that VSS having dominated women and youth executive committee is successful one. So efforts shall be made to encourage the participation of women and youth actively in VSS.

Preparation of Micro Plan

This is the elementary document of Joint Forest Management. Though elaborate procedure has already been prescribed for preparation of such Micro Plan in the guidelines issued by Government, still three basic aspects namely (i) Need of villagers for forest produce, (ii) Need of the forests for rejuvenation and improvement and (iii)

The need for other supporting non-forest activities shall be assessed properly and considered as a guiding factor for preparation of the plan document. This is the micro treatment plan for that area within the ambit of the prescription of the main working circle to which the area is assigned. The Forester being the ex-officio Member Secretary of the VSS shall prepare the micro plan with the villagers in a participatory process. The micro plan so prepared by the Forester will be examined by the Range Officer and forwarded to the Division Office. The Assistant Conservator of Forests will ratify the aforesaid proposal recommended by the Range Officer. In case of any disagreement, he will refer the matter to the Divisional Forest Officer whose decision shall be the final.

Protection Mechanism

The first and foremost task in tackling the degraded forests is to restrict the deterioration, which is caused by mostly biotic interference. The details has been described in Chapter-2A of Part-I. The protection is the prescribed treatment, which should be administered at the very beginning to halt the process of degradation. Various protection methods like watching on roster basis, social sanction, cowherd boys for domestic cattle, contribution either in shape of kind or money for engagement of watcher etc. are in practice by the villagers. It is not prudent to prescribe any method in a general manner. The method suitable to the VSS shall be explored and adopted. This is the crucial task which should be done with utmost care. Once this is accomplished properly, the success of Joint Forest Management is almost certain. The field functionaries particularly the Foresters and Forest Guards shall apply their mind seriously to this matter. Site-specific strategy shall be chalked out to encounter the hazards inter alia uncontrolled grazing, illicit cutting and fire to contain them.

Rejuvenation & Development Process

After arresting the degradation through control of biotic interference by suitable protection mechanism, the vegetation starts rejuvenating in the areas having potential rootstock and shrubby growth. This is the beginning of reversal in prevailing trend forwarding towards restoration. Silvicultural treatment is necessary to augment and accelerate this process. The details of such treatment including gap/block planting wherever necessary have been described in Rehabilitation Working Circle. However, the operations as spelt out in the Micro Plan shall be carried out. Silvicultural Cleaning and Soil & Moisture Conservation measure must be executed scrupulously and meticulously. Care shall be taken to prevent any type of destructive disturbance during this phase, failing which not only the restoration but also the development of the forests will be jeopardised. The Forester and Forest Guard shall visit the area frequently alongwith the VSS members to enable them for perceiving the results from implementation of Micro Plan. This will boost the morale of the VSS and encourage their mindset for Joint Forest Management.

Benefit of Usufruct

This is the most vital component, which is intended to cater the bonafide need of the villagers in a legalised manner. All the intermediary benefit and half of the final/major harvest are meant for the VSS as per the existing provisions of Joint Forest Management resolution. It is observed that various products are collected without systematic documentation for which the tangible benefits from the assigned area is not properly appreciated. All sorts of collection shall be regulated quantified and

documented. The VSS should be technically guided regarding the method, period and quantum of collection of usufruct, but these activities shall be executed by them. The sharing of usufruct is a very delicate issue, which sometimes leads to the collapse of the system. Of course such incidence is rare in this Division but the Forester and Forest Guard shall be extra cautious to ensure that VSS should evolve a suitable and sustainable distribution mechanism for themselves. It is experienced that equitable distribution on household basis is the most accepted one. In this process the VSS shall be encouraged to play an active and major role for infusing the idea of both producer and consumer of forest produce. Further, the quantum of collection of produce shall be compared with that of pre JFM period for pronouncing the increase from the result of management. This will consolidate the mindset of the VSS for Joint Forest Management as well as to become self-reliant.

Support Activities

Apart from enjoying the usufruct from the assigned area for catering the bonafide need, other income generating activities shall be explored. NTFP collection, processing, value addition and marketing should be given top priority as first choice if it is feasible for the VSS. Herbal medicinal plantation shall also be emphasised. Similarly the production of bamboo can be taken up since bamboo is occurring in most forest blocks of this Division. Being a four-year rotation crop it can provide fabulous income at short period. This is essential to prevent the desperation of the people in awaiting the long gestation period of timber harvest. Other non forestry activities like Pisciculture, mushroom production, cultivation of banana, pineapple, Papaya, drumstick, ginger, onion and cotton, processing of pulses and rice etc. shall be encouraged to augment their income and livelihood. The aforesaid items have a good demand in Kalahandi. However this list is only indicative but not exhaustive. The Forester and Forest Guard shall assess the skill and adaptability of the VSS and provide them a galaxy of options with the cost benefit analysis for choice. The Range Officer and if necessary the D.F.O. should make the marketing arrangement of the items produce by the VSS for ensuring appreciable income. This is essential to make the system sustainable.

Expansion of Joint Forest Management

At present 575 no. of VSS have been constituted in this Division assigning an area of 41799.97 ha. belonging to different category of forests. Efforts should be made in the plan period to cover all the uncovered forest fringe villages under the fold of Joint Forest Management. Besides that, VSS shall be formed in villages not included in the list but has the feasibility. Similarly the village forests assigned to this working circle shall be brought under the fold of Joint Forest Management after following due procedure. On the whole Joint Forest Management being unique panacea to address the current problems of forest conservation should be extended to cover maximum people and maximum area to the permissible extent as per the policy of the Government.

9.7 Other Regulations: -

Besides the prescriptions provided in the foregoing paras, some other regulations are necessary to augment the former for effective results. These are the following.

9.7.1 Monitoring & Evaluation

Periodical assessment is necessary to improve the implementation by removing the bottlenecks noticed. Normally the monitoring is done regularly through departmental staff but the evaluation should be done by an independent agency for providing the correct position. The evaluation shall be made in an objective manner for which the Divisional Forest Officer should prescribe a suitable format containing point wise scoring system. Reputed local NGO can be entrusted for such evaluation. Each year in the month of April, such evaluation shall be done for the performance of preceding financial year.

9.7.2 Review

The evaluation report shall be examined through a review by a committee comprising of all Range Officers under the Chairmanship of Assistant Conservator of Forests. This committee will finalise the list of best three VSS basing on the scores in the evaluation report and also shortlist the shortcomings alongwith remedial measures. This will be treated as a guiding factor for the next course of action on Joint Forest Management.

9.7.3 Rewards

Recognition of any meritorious work is always the best stimulant for any person or organisation to proceed further. VSS showing praiseworthy performance should be rewarded as a token of recognition to their work. It will encourage a healthy competition among the VSS to propagate the Joint Forest Management. So it is prescribed to reward three best VSS each year with a citation and cash. Such VSS will be felicitated either on Independence Day or Republic Day celebration.

9.7.4 Conflict Resolution

Sometimes conflict arises with the inhabitants of other villages for their unauthorised and forcibly collection of forest produce from the assigned area of the VSS. It is necessary to resolve the same from the very beginning. In such cases the Range Officer shall visit the area at earliest and try to settle the matter amicably. If not legal action shall be taken departmentally. It is observed that good VSS become disillusioned without adequate support from the department in this regard. Hence all sort of support shall be provided to the VSS in time. Similarly any conflict within the VSS if arises shall be resolved forthwith. The Range Officer shall discuss the matter with the VSS and help them in sorting out the problem instead of acting as an adjudicator.

9.7.6 Convergence with other Rural Development Activities

Joint Forest Management cannot be fully successful in isolation. An integrated approach alongwith other developmental activities will make the process easier and quicker for achievement. The local Range Officer shall explore this aspect in consultation with his counter parts of other departments particularly B.D.O., Tahasildar, V.A.S., Agriculture Officer, Horticulturist etc. and ensure the needful coordination for converging various activities in the village.

9.7.7 Publicity

Wide propaganda is of immense help for successful implementation of Joint Forest Management. Though the villagers so interest and appreciate the benefit of

Joint Forest Management but they suffers from scepticism regarding the ultimate success. So exposure visit to the successful VSS area as well as the success story shall be circulated. Frequent awareness programme shall be organised to allure the villagers towards the usefulness of Joint Forest Management. The Range Officer shall take initiative for discussion on this issue in various Village / Gram Panchayat / Panchayat Samiti level forums through regular interaction with the concerned PRI members. The Forester and Forest Guard shall assist the Range Officer in ensuring due publicity of the programme.

9.8 Area Allotment

9.8.1 Area of this working circle is subject to change with the constitution of new VSS along with assignment of the portion of forest blocks included in the plan area. However, at present 42679.97 ha. of the plan area has been assigned to the VSS in different Ranges of the Division. The Range wise details of VSS with assignment of the area covered in this plan is furnished in Appendix XI.

Formation of VSS & Financial Benefits received by different VSS from felling of Trees:

514 nos. of VSS were formed in Kalahandi North Forest Division at the beginning of the Outgoing Plan and at the end of the plan 593 nos. of VSS has been formed the details of which furnished below alongwith financial benefits received by the VSS.

Table No. 9.2

No. of Vss formed at the beginning of the plan 2006-07	Total assigned area in ha	No. of Vss formed at the end of the plan/ approved scheme i.e. (2020-21)	Total assigned area in ha
514	38490.520	593	42679.97

The only VSS named Talnuagaon VSS of M. Rampur Range have received financial benefits of Rs. 67410/- from felling of trees over 20 nos. during the year 2016-17 in the outgoing plan.

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CHAPTER-10
SOIL & WATER CONSERVATION OVERLAPPING WORKING CIRCLE

10.1 Name of the Working Circle:-

The name of the working circle is Soil and Water Conservation (Overlapping) working circle.

10.2 General constitution of Working Circle

10.2.1 Soil is a valuable natural resource which supports the vegetation and is the basis for conservation of flora, fauna and water regime. The problem of soil erosion has assumed a serious dimension in this division. Considerable portion of the division is susceptible to water erosion which has resulted in formation of deep gullies, widening of raus etc. Man himself is aggravating the problem and causing accelerated erosion through various practices some of which are mentioned below:

i. Uncontrolled heavy grazing by domestic animals, particularly by heavier cattle, compact the soil and reduces its porosity which in turn results in increased soil erosion.

ii. Annual forest fire affects the productive capacity of the forests by destroying grasses, shrubs, small trees etc. Fire increases soil erosion as it destroys the protective vegetation cover.

iii. The deep ruts formed during the rains become small rills scouring the soil and making the rut deeper and with the passage of the time, these turn in to deep gullies.

iv. All these factors result in drying up of the natural water sources of the areas. This in turn results in water scarcity in the areas.

10.2.2 Heavy rains and rapid run-off severely affect not only the top fertile soil but also leads to formation of gullies within forest areas. Suitable management imperatives need to be formulated to stop forest degradation due to natural causes and calamities. Apart from silvicultural operations, it is also necessary to make appropriate prescriptions for conservation of soil and water in the forest areas. It is expected that the prescriptions will recuperate the water holes in the forests and conserve the natural water sources of the division.

10.3 General characteristics of Vegetation

The general description of the crop has already been given in Chapter 2.

10.4 Special objectives of Management

10.4.1 To meet the above purpose and in accordance of the provisions NWPC 2014, one new overlapping Circle named Soil & Water Conservation Overlapping Working Circle is proposed to be included in the working plan with the following objective.

Objective:-

- Creation and Development of water tanks, contour, check dams, gully filling, construction of LBCDs etc. to check soil erosion
- To improve water regimes and natural regeneration
- To improve Silvicultural operation
- Prioritization of critical areas with an aim to effective preventive as well as remedial soil and water conservation measures.

10.5 Area Statement

10.5.1 In this Division 60 nos. of sites (RF/PRFs) have been identified where the area is affected due to soil erosion in vicinity of streams and where areas are in degraded forest due to steep slopes. A total of 7975 ha have been identified for suitable treatment with provision construction of series of Water tanks/ Check dams during the plan period. Lists of such areas are given below:-

Table No. 10.1

Sl No	RANGE	Name of the Forest Block	Type	Area under this plan in ha	SMC WC
1	Bhawanipatna	Alma RF	RF	1360	250
2	Bhawanipatna	Brahmani RF	RF	5846.8964	200
3	Bhawanipatna	Dhangada dhangadi RF	RF	229	0
4	Bhawanipatna	Dhanupanchan RF	RF	726	0
5	Bhawanipatna	Kanamanjur RF	RF	1814.3595	200
6	Bhawanipatna	Kutrukhai RF	RF	314.9721	100
7	Bhawanipatna	Madhakhola (B) RF	RF	597	0
8	Bhawanipatna	Pordhar RF	RF	833.435	0
9	Bhawanipatna	Sinang RF	RF	1220.7572	100
10	Bhawanipatna	Bhalu RF	RF	54	**0**
11	Bhawanipatna	Kadalighati RF	RF	1717.532	350
12	Bhawanipatna	Madhakhola (A) RF	RF	744.785	0
13	Bhawanipatna	Gundi PRF	PRF	6715.0289	700
14	Bhawanipatna	Thuapadar Gundi DPF	dpf/udp	9187.7	
15	Bhawanipatna	Kadalighati Extn DPF	dpf/udp	68	
16	Bhawanipatna	Adastala	Proposed DPF/UDPF	50	
17	Bhawanipatna	Baringdar	Proposed DPF/UDPF	200	
18	Bhawanipatna	Batua	Proposed DPF/UDPF	300	
19	Bhawanipatna	Jhikimi B	Proposed DPF/UDPF	100	
20	Bhawanipatna	Admunda VF	VF	5	
21	Bhawanipatna	-do-	VF	5	

22	Bhawanipatna	-do-	VF	10	
23	Bhawanipatna	Matia VF	VF	10	
24	Bhawanipatna	Bhejipadar VF	VF	8	
25	Bhawanipatna	Jajaldeipur VF	VF	5.1	
26	Bhawanipatna	Jhikimiki VF	VF	3.28	
27	Bhawanipatna	Dumerbahal VF	VF	8.044	
28	Bhawanipatna	Khairbhadi VF	VF	3.6	
29	Bhawanipatna	Gopinathpur VF	VF	2	
30	Bhawanipatna	Khairmal VF	VF	5	
31	Bhawanipatna	Sarlanji VF	VF	8.5	
32	Bhawanipatna	Bramhani VF	VF	6	
33	Bhawanipatna	Jhikimiki VF	VF	10	
34	Bhawanipatna	Upper Gochhakola	C. Affn.	436	
35	Bhawanipatna	Dungripadar	Proposed VF	22	
36	Bhawanipatna	Suben	Proposed VF	22	
37	Bhawanipatna	Durla	Proposed VF	11	
38	Bhawanipatna	Sagram	Proposed VF	22	
39	Bhawanipatna	Kuhura	Proposed VF	33	
40	Bhawanipatna	Goilibindha	Proposed VF	11	
41	Bhawanipatna	Saked	Proposed VF	22	
42	Bhawanipatna	Kendugupka	Proposed VF	11	
43	Bhawanipatna	Jhikimi A	Proposed VF	17	
44	Bhawanipatna	Salepali	Proposed VF	22	
45	Bhawanipatna	Dambarupadar	Proposed VF	11	
46	Bhawanipatna	Bhejapadar	Proposed VF	22	
47	Bhawanipatna	Kandakhal	Proposed VF	11	
TOTAL				**32875.2801**	**1900**
48	Kegaon	Adabari RF	RF	695.935	150
49	Kegaon	Bisibarni RF	RF	198.00	50
50	Kegaon	Chura (A) RF	RF	6898.5179	300
51	Kegaon	Chura (B) RF	RF	2349.3415	250
52	Kegaon	Daka RF	RF	329.5771	70
53	Kegaon	Ghatual RF	RF	276	50
54	Kegaon	Gojia RF	RF	347	60
55	Kegaon	Kumkot RF	RF	4837.3148	400
56	Kegaon	Lini RF	RF	134	40
57	Kegaon	Nageswar RF	RF	2416.2821	210
58	Kegaon	Jayantpur DPF	DPF/UDPF	199.2	
59	Kegaon	Nasigaon DPF	DPF/UDPF	30.8	
60	Kegaon	Sikuan DPF	DPF/UDPF	23.19	

61	Kegaon	Kankeri (A) DPF	DPF/UDPF	32	
62	Kegaon	Kankeri (B) DPF	DPF/UDPF	26.5	
63	Kegaon	Sindabhadi DPF	DPF/UDPF	72.4	
64	Kegaon	Ammuda DPF	DPF/UDPF	241.94	
65	Kegaon	Patramara DPF	DPF/UDPF	132.72	
66	Kegaon	Goilbindha DPF	DPF/UDPF	160	
67	Kegaon	Banakdei DPF	DPF/UDPF	92.5	
68	Kegaon	Gandamer DPF	DPF/UDPF	70	
69	Kegaon	Makardani DPF	DPF/UDPF	30.3	
70	Kegaon	Baijalpur DPF	DPF/UDPF	72	
71	Kegaon	Chanchermunda DPF	DPF/UDPF	73	
72	Kegaon	Kirkakani DPF	DPF/UDPF	26	
73	Kegaon	Kalamdei	DPF/UDPF	3.2	
74	Kegaon	Daspur	VF	20	
TOTAL				**20192.7337**	**1580**
75	Kesinga	Bazargarh RF	RF	7721.22	500
76	Kesinga	Nangalguda RF	RF	1488	100
77	Kesinga	Dumermunda DPF	DPF/UDPF	45.76	
78	Kesinga	Biripura DPF	DPF/UDPF	332.8	
79	Kesinga	Gudang DPF	DPF/UDPF	54.88	
80	Kesinga	Turlakhaman DPF	DPF/UDPF	160	
81	Kesinga	Laitara DPF	DPF/UDPF	83	
82	Kesinga	Brahamanidonger DPF	DPF/UDPF	50.7	
83	Kesinga	Jamjore VF	VF	6	
84	Kesinga	Brahmani VF	VF	10	
85	Kesinga	Jamjore VF	VF	10	
86	Kesinga	Dendrobahali VF	VF	3.6	
87	Kesinga	-do-	VF	5	
88	Kesinga	Khairmal VF	VF	3	
89	Kesinga	Palam VF	VF	2	
90	Kesinga	Matia VF	VF	2	
91	Kesinga	Kurlupada VF	VF	1.96	
92	Kesinga	Rengali VF	VF	11.36	
93	Kesinga	Balsi VF	VF	9.2	
94	Kesinga	-do-	VF	13.64	
95	Kesinga	Kumarpur	Proposed VF	22	
96	Kesinga	Surujore	Proposed VF	11	

97	Kesinga	Kantesir	Proposed VF	22	
98	Kesinga	Ghantsola	Proposed VF	11	
TOTAL				**10080.12**	**600**
99	M.Rampur	Dengen RF	RF	476	100
100	M.Rampur	Jerka RF	RF	1014.7947	100
101	M.Rampur	Sadel (A) RF	RF	273	50
102	M.Rampur	Sadel (B) RF	RF	307	50
103	M.Rampur	Satami RF	RF	1894.225	300
104	M.Rampur	Sunamukhi RF	RF	2339.6953	200
105	M.Rampur	Taparang RF	RF	6887.8069	250
106	M.Rampur	Telen RF	RF	2660	150
107	M.Rampur	Turchi RF	RF	257	50
108	M.Rampur	Benaguda RF	RF	4928.2938	200
109	M.Rampur	Bhatel RF	RF	37	10
110	M.Rampur	Podgudi PRF	PRF	793.52	150
111	M.Rampur	Ramud PRF	PRF	547.092	120
112	M.Rampur	Sulia PRF	PRF	5617.337	300
113	M.Rampur	Manikera PRF	PRF	66.4	0
114	M.Rampur	Mundramaska PRF	PRF	750	100
115	M.Rampur	Gochhadengen PRF	PRF	346.34	0
116	M.Rampur	Kutigudum PRF	PRF	378.107	0
117	M.Rampur	Talanuagaon PRF	PRF	177.4654	0
118	M.Rampur	Puijhari PRF	PRF	2251.21	150
119	M.Rampur	Pongabaju PRF	PRF	2331.91	150
120	M.Rampur	Bidabaru (Harlanga) PRF	PRF	1464.615	0
121	M.Rampur	Pudrimahul DPF	DPF/UDPF	303	
122	M.Rampur	Chandanpinda DPF	DPF/UDPF	298.25	
123	M.Rampur	Karla DPF	DPF/UDPF	432.11	
124	M.Rampur	Sulia Extn. DPF	DPF/UDPF	138.05	
125	M.Rampur	Kuthiheju DPF	DPF/UDPF	208	
126	M.Rampur	Sihidi DPF	DPF/UDPF	181.5	
127	M.Rampur	Mugei DPF	DPF/UDPF	26.4	
128	M.Rampur	Dengidonger DPF	DPF/UDPF	575.77	
129	M.Rampur	Goutami DPF	DPF/UDPF	388	
130	M.Rampur	Pipalbhadi VF	VF	6.22	
131	M.Rampur	Saling VF	VF	5.2	
132	M.Rampur	Kuten VF	VF	0.948	
TOTAL				**38362.2601**	**2430**
133	Narla	Porgel RF	RF	1712	50
134	Narla	Kamei RF	RF	156	0
135	Narla	Kerbandi RF	RF	1231	400

136	Narla	Lumersinga RF	RF	175	0
137	Narla	Narla RF	RF	1293	150
138	Narla	Sripali RF	RF	46	5
139	Narla	Urladani RF	RF	10277.9032	700
140	Narla	Karladangar RF	RF	349	
141	Narla	Narla Extension PRF	PRF	292.5	50
142	Narla	Kamarda PRF	PRF	444.6	0
143	Narla	Porgel Extension PRF	PRF	3222	100
144	Narla	Badibahal PRF	PRF	44.94	10
145	Narla	Sikerguda PRF	PRF	358	
146	Narla	Jamguda PRF	PRF	107.4	
147	Narla	Barpati DPF	DPF/UPDF	148.67	
148	Narla	Dengsur DPF	DPF/UPDF	255.06	
149	Narla	Mundighati DPF	DPF/UPDF	88.2	
150	Narla	Lamer DPF	DPF/UPDF	66	
151	Narla	Belgaon DPF	DPF/UPDF	3826.994	
152	Narla	Nuapada	Proposed VF	11	
153	Narla	Chapatkhanda	Proposed VF	28	
TOTAL				**24133.2672**	**1465**
G.Total				**125205.36**	**7975**

10.5.2 The above proposal SMC work is to be taken up with in the plan period considering the funds allotted/ received from higher authority. The plan of work should be chalked out by Divisional Forest Officer/Assistant Conservator of Forests /Range Officers considering the funds allotted to the Division. Selection of site for construction of soil conservation and water harvesting measures should be done by the ACF and approved by the DCF. Drainage pattern should be studied in detail before fixing the location for construction of SMC structures. Assistance from the Watershed Development Department may be obtained in selection of site, design and preparation of estimates.

10.5.3 Technical Intervention in Site Selection

10.5.3.1 At first the GPS Coordinates of the Nalla under treatment is taken physically and data was put into excel and saved in .csv format. Open the .csv file in Google Earth and save the layer as .kml file. Now visit to Bhuvan website (www.bhuvan.in) and select Bhuvan 2D and upload the .kml layers in the layer section of Bhuvan 2D. Now the catchment boundary can be created from Hydrology map of Bhuvan. Now click Tools>draw tools>click colours>click polygon and then draw boundary. From the boundary, Drainage map, Erosion map, geomorphology map, slope map can be obtained which will further help in identifying the points at nalla where the both biological and mechanical measures will be taken up.

10.6 Preventive measures:

10.6.1 Prevention is better than cure should be the guiding principle on control of soil erosion, because the damage once done can only be partially recovered later on and that too require heavy investments. Following steps should be taken for preventing occurrence of soil erosion:

a. Steep slopes and the areas besides river, nalas and natural water sources should have permanent green cover and no felling should be done in such places.

b. Eroded areas should be treated on priority to prevent channel and gully formation to widen and to spread in adjoining areas.

c. Grazing should be controlled in such areas & they must be protected from repeated fire.

d. The local people should be convinced to adopt such land use practices (like organic farming) which are beneficial for their land in the long run and which simultaneously can provide economic benefits to them.

e. Control of human activities, which lead to soil erosion in and around forest area by effective enforcement of rules, regulation and relevant laws.

10.7 Remedial Measures

10.7.1 Soil and water conservation should be achieved by maintaining proper vegetative cover and interception of slopes by suitable treatments. The following measures are suggested.

- **Biological measures:** Vegetative barriers should be created by planting Agaves to reclaim ravines and gullies. Agave should also be planted along the contours in steep slopes.
- **Mechanical measures:** Mechanical structures like check dams. Boulder bunds, ravine reclamation structures will be constructed at strategic points. These measures are useful to prevent further erosion of the gullies. Design considerations should be worked out as per the requirement of the site. The work should start near the head and proceed downstream.

10.7.2 It is prescribed to have a visual documentation in the form of photographs and video clips annually for each of the above treated forest block, so as to assess the effect of treatment given. As a part of conservation programme, public awareness should be created by extension methodologies like deploying audio-visual aids, mass media, etc. School children and women are to be visualized as target groups. The importance of living in harmony with nature should be highlighted during these campaigns.

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CHAPTER – 11

GENERAL FINANCIAL FORECAST & FINANCIAL PLAN OF OPERATION

11.1 General

11.1.1 The financial implication of the plan is the most vital aspect for ensuring effective implementation. It is essential to assess the requirement of fund for different sectors year wise coinciding with the financial year so that budgetary provision as well as resource mobilization from other sources can be made accordingly. Not only the financial outlay for execution of the prescriptions of the working plan but also the expected revenue during the plan period needs to be assessed. So both expected revenue and estimated expenditure are assessed meticulously for preparing the budget of this plan.

11.2 Cost of the Plan

11.2.1 The revision of the working plan of Kalahandi North Division was entrusted to Sri Nitish Kumar, IFS, Divisional Forest Officer, Kalahandi North Division as per the instruction of the Principal Chief Conservator of Forests, Odisha, Bhubaneswarwith existing staff. The sample point survey as well as other related work has been completed with the existing staff in addition to their normal duties. The allotment provided for this purpose and expenditure incurred to that effect is furnished below which is less than the actual cost. The allotment and expenditure is given in Table No.11.1.

Table No.11.1

Allotment / expenditure for preparation of Working Plan (Rs. in Lakh)			
Year	Head of Account	Expenditure on Working in Rs.	
2015-16	22-2406-01-005-0484-78124 (Field Estt.)	75000	175000
	22-2406-01-101-1012-78124	100000	
2016-17	22-2406-01-101-1012-78124	100000	1400000
	22-2406-01-101-2399-20002	1300000	
2017-18	22-2406-01-005-0484-78124 (Field Estt.)	27000	383021
	22-2406-01-101-1012-78124	166659	
	22-2406-01-789-0484-78124 (Field Estt.)	43000	
	22-2406-01-789-1012-78124	146362	
2018-19	22-2406-01-101-1012-78124	2040799	3136699
	22-2406-01-789-0484-78124	976500	
	22-2406-01-796-0484-78124 (Field Estt.)	49000	
	22-2406-01-796-1012-78124	70400	
2019-20	22-2406-01-005-0484-78124 (Field Estt.)	580200	1210000
	22-2406-01-789-0484-78124 (Field Estt.)	279800	
	22-2406-01-789-1012-78124	350000	
2020-21	22-2406-01-005-0484-78124 (Field Estt.)	68200	1310000

	22-2406-01-101-1012-78124	910000	
	22-2406-01-796-0484-78124 (Field Estt.)	331800	
Grand Total		**7614720.00**	**7614720.00**

11.2.2 The aforesaid expenditure is incurred mostly for purchase of equipment, sample point inventory work, Survey demarcation of Forest Blocks, preparation of Boundary pillars, Repairs of Boundary pillar ,contingency etc.

11.3 Financial Forecast

11.3.1 The estimated expenditure for implementation of the plan is assessed basing on the prevailing norm as well as the anticipated escalation. Such is the Financial Forecast for the plan. The major component wise requirement of fund is furnished as under.

(a) **Establishment**: - With the existing cadre strength of staff, the total expenditure incurred on establishment inclusive of contingent expenditures like MV, POL etc. during the year 2020-21 is Rs.682.60 Lakhs. Assuming 15% hike in each succeeding years, the total requirement of this component comes to Rs.15938.21578 Lakhfor the plan period.

Year	Expenditure Outlay in Rs Lakh
2021-22	784.99000
2022-23	902.73850
2023-24	1038.14928
2024-25	1193.87167
2025-26	1372.95242
2026-27	1578.89528
2027-28	1815.72957
2028-29	2088.08901
2029-30	2401.30236
2030-31	2761.49771
Total	**15938.21578**

(b) **Execution of Selection Working Circle**: - The execution involves 3 (three) items namely (i) Demarcation and marking of coupes, (ii) Harvesting i.e. felling, logging and transport of timber and firewood, (iii) Subsidiary silvicultural operation. The harvesting is entrusted to the working agency OFDC,whereas the department carries out the rest two operations. So the financial requirement assessed for demarcation, marking, and subsidiary silvicultural operations are as under.

Table 11.2

Expenditure for 1 Ha unit area (Labour Rate @311 Rs.)					
Sl. No.	**Item of work**	**Mandays (in No.)**	**Labour cost in**	**Material cost in Rs**	**Total in Rs**

			Rs		
1	Demarcation of Coupe	0.3	93.3	15	108.3
2	Marking of Coupe	0.3	93.3	15	108.3
3	Subsidiary Silvicultural Operation	10			3110
Total					**3326.6**

Assuming Rs. 3326.60 as the estimated expenditure per ha. the total requirement of fund for execution of this working circle comes to Rs.2437.17 Lakh for the entire area of 45478.81 ha. with an 10% hike in the expenditure per year.

Table No.11.3

Year wise expenditure of the Felling Series during the plan period					
Year of felling	**No of Felling Series**	**No. of Forest Block**	**Total Area in ha**	**@ 3294 per ha in Rs**	**Total in Lakh**
2021-22	8	7	4604.38	3326.60	153.17
2022-23	8	7	3513.2	3659.26	128.56
2023-24	8	7	4857.95	4025.19	195.54
2024-25	8	7	4513.75	4427.70	199.86
2025-26	8	7	4944.07	4870.48	240.80
2026-27	8	7	3884.88	5357.52	208.13
2027-28	8	7	4682.25	5893.27	275.94
2028-29	8	7	4934.04	6482.60	319.85
2029-30	8	7	4673.03	7130.86	333.23
2030-31	8	7	4871.23	7843.95	382.10
Total			**45478.8**	**53017.4367**	**2437.17267**

(c) **Execution of Rehabilitation Working Circle**: - As envisaged in the working circle, the rehabilitation plan shall be prepared for each coupe wherein the details of operations specific and suitable to that site will be chalked out. In general silvicultural operation, soil & moisture conservation measure, gap planting and protection etc. are the main items of work. On an average Rs.11023.30 /-(@ Rs.311/- per Man days) is assessed for 1 ha. to carry out the rehabilitation work and mention in the following Table 12.4

Table No 11.4

Unit calculation of expenditure per Ha @311 rs						
Sl. No.	**Item of work**	**Unit**	**Mandays (in No.)**	**Labour cost in Rs**	**Material cost in Rs**	**Total in Rs**
1	Demarcation of Coupe	Per ha.	0.3	93.3	15	108.3
2	Silvicultural Operation	Per ha.	15	4665	30	4695
3	Soil and Moisture conservation	Per ha	20	6220	40	6260
Total						**11023.30**

The year wise break up is calculating be escalating 10% expenditure from the base year and mentioned in the Table No 11.5. Accordingly, Rs.12922.59 Lakh is needed

for this working circle covering an area of 72593.42 ha. The detail financial year wise requirement has been furnished in the consolidated table

Table No 11.5

Year wise expenditure of the operation of the area allotted to Rehabilitation Series				
Year	**No. of Rehabilitation Series**	**Total Area**	**Rs.**	**Total in Lakh Rs**
2021-22	16	6864.15	11023.3	756.66
2022-23	16	7882.22	12125.63	955.77
2023-24	16	6751.67	13338.193	900.55
2024-25	16	6764.16	14672.0123	992.44
2025-26	16	7753.94	16139.21353	1251.43
2026-27	16	6736.81	17753.13488	1196.00
2027-28	16	6874.66	19528.44837	1342.51
2028-29	16	6437.02	21481.29321	1382.75
2029-30	16	6421.32	23629.42253	1517.32
2030-31	16	10107.48	25992.36478	2627.17
Total		**72593.42**	**175683.01**	**12922.59**

(d) Execution of Plantation Working Circle:

The total area under Plantation Working Circle is 7133.152 Ha. which includes 250 ha. plantable area for pure block plantation,6837.65 Ha old plantation area which are to be treated in two categories such as tending series having more than 40% more than survival percentage (6020 Ha) and restoration series less than 40% survival (817.652 Ha) and 45.50 Ha area which are to be treated under eviction series in block mode of plantation. The pure block plantation is to be taken up by raising 1 ½ years seedlings. All plantation will be taken up by using 18 months old seedlings.

Under Plantation series, the cost of block plantation per Ha – Rs. 122355, Under Tending Series, the cost of tending Operation per Ha- Rs. 4650, Under Restoration series, the cost of ANR plantation @400 plant per Ha.- Rs. 50521, Under Eviction series, the cost of Block Plantation per Ha- Rs. 122355 with a cost escalation of 10% on each year.

Year	Plantation Series		Tending Series		Restoration Series		Eviction series		Total Cost in Rs. Lakh
	Area in ha	Cost per Ha	Area in ha	Cost per Ha	Area in ha	Cost per Ha	Area in ha	Cost per Ha	
2021-22	10	1.22355	676	0.04650	122	0.50521	0	1.22355	105.30512
2022-23	40	1.34591	480	0.05115	108.1	0.55573	5	1.34591	145.19225
2023-24	20	1.48050	758	0.05627	104.924	0.61130	5	1.48050	143.80173
2024-25	30	1.62855	922	0.06189	75.5	0.67243	2.2	1.62855	160.27192

2025-26	30	1.79140	674	0.06808	98	0.73968	5	1.79140	181.07378
2026-27	30	1.97054	352	0.07489	77	0.81365	5	1.97054	157.98043
2027-28	20	2.16759	403	0.08238	84.6	0.89501	5	2.16759	163.10588
2028-29	10	2.38435	550	0.09062	50.96	0.98451	5	2.38435	135.77443
2029-30	20	2.62279	575	0.09968	59.2	1.08296	6.5	2.62279	190.92947
2030-31	40	2.88507	630	0.10964	37.368	1.19126	6.8	2.88507	248.61217
Total	**250**		**6020**		**817.652**		**45.5**		**1632.04718**

(e) **Execution of Protection Working Circle**: - Prescription under this working circle is intended to provide concentrated effort on the vulnerable portions of the Division. Execution of this working circle consist of engagement of Anti Depredation Squad one unit consisting 10 members and Protection Squad consisting 10 members. The annual estimated expenditure for this item along with other infrastructure and contingent expenditure is furnished in Table No.11.6

Table No.11.6

Estimated Annual Expenditure							
Sl. No.	**Item of work**	**Unit**	**Nos. of persons engaged**	**Establishment cost (One time)**	**Wage cost per annum**		**Total in lakh**
1	Anti Depredation Squad	1	10		15.15 Lakh		151.50
2	Construction of Barrack for Anti pocching Squad	2		20.00 Lakh			40.00
3	Construction of Watch Towers	2		15.00 Lakh			30.00
4	Hiring of Vehicle	2			7.44 Lakh		74.4
5	Constitution of Prosecution Cell						
6	Protection Squad	1	10		15.15 Lakh		151.50
7	Training & Others				1.00 Lakh		10.00
8	Incentives and rewards				1.00 Lakh		10.00
Total: -				**35 Lakh**	**39.74 Lakh**		**467.4**

The total cost for the first year comes to Rs. 74.74 lakhs with an annual recurring expenditure of Rs **39.74. Expolating the escalation of 10% of the recurring expenditure per annum the total expenditure come to Rs 667.99** Lakhs for the entire plan period which is reflected in Table 11.13.

(f) **Execution of Bamboo (Overlapping) Working Circle**: - The bamboo operations in this working circle revolves around the following items

(i) Demarcation of coupes,

(ii) Preparation of treatment map

(iii) Harvesting i.e. cutting, bundling and transport to depot (To be carried out by the working agencies like OFDC Ltd)

(iv) SubsidiarySilvicultural Operation (SSO).

The financial requirement for the unit area as well as year wise total funds required is mentioned in Table 11.7 and 11.8 simultaneously.

Table No.11.7

Financial requirement per Ha					
Sl. No.	**Item of work**	**Mandays (in No.)**	**Labour cost in Rs**	**Material cost in Rs**	**Total in Rs**
1	Demarcation of Coupe	0.3	93.3	15	108.3
2	Preparation of treatment map of the Coupe	0.1	31	15	46
3	Simultaneous Silvicultural Operation	08	2488	116	2604
Total					**2758.3**

Assuming Rs.2758.30/- as the estimated expenditure per ha, and giving escalation of 10 % in each succeeding year from the base year the total requirement of fund for execution of this working circle comes to Rs. 71.23 Crores in the plan period .

Table 11.8

Year of felling	**No. of Cutting Series**	**No. of Forest Block**	**Area**	**@in Rs**	**Total in Rs**
2021-22	23	18	17163.41	2758.3	47341833.8
2022-23	23	18	13399.23	3034.13	40655005.72
2023-24	23	18	18292.96	3337.54	61053485.72
2024-25	23	18	17296.45	3671.29	63500283.92
2025-26	23	18	17163.41	4038.42	69313058.21
2026-27	23	18	13399.23	4442.26	59522863.46
2027-28	23	18	18292.96	4886.48	89388183.18
2028-29	23	18	17296.45	5375.13	92970667.29
2029-30	23	18	17163.41	5912.64	101481064.5
2030-31	23	18	13399.23	6503.9	87147252
Total			**162866.74**	**43960.09**	**712373697.8**

(g) **Execution Wildlife (Overlapping) Working Circle**: - The important activities envisaged for implementation under this Overlapping Working Circle and the requirement of fund as assessed for this purpose is furnished in the Table No.11.9.

Table No.11.9

Estimated Annual Expenditure		
Sl. No.	Item of work	Annual Expenditure (in lakh)
1	Improvement of wildlife habitat	2.0
2	Maintenance and improvement of corridor	0.5
3	Development of water source and salt lick	0.5
4	Control of man wildlife conflict	10.0
6	Elephant trackers for 2 groups @ Rs.2,90,500/- per each	5.81
7	Awareness campaign	1.0
8	Incentive & Reward	1.0
9	Secret fund	2.0
10	Development of Eco-tourism	10.00
Total: -		**33.71**

With an annual hike of 10% of the expenditure calculated for the entire plan period the amount come to 537.21 lakhs which is mentioned in Table 11.13

(h) **Execution N.T.F.P (Overlapping) Working Circle**: - The important ingredients of the prescriptions and the requisite fund for its implementation has been assessed in Table No.11.10

Table No.11.10

Estimated Annual Expenditure		
Sl. No.	**Item of work**	**Anticipated expenditure in Lakh**
1	Awareness campaign	5.0
2	Skill up gradation	5.0
3	Training to PRI members	5.0
4	Infrastructure development	5.0
5	Medicinal plant cultivation	10.0
6	Establishment of Nurseries for medicinal plant and NTFP species	5.0
	Total: -	**35**

Assuming Rs.35.00 Lakhs as the estimated expenditure per annum and with an escalation of 10% per annum the total expenditure would be Rs. 557.77 lakhs for the entire plan period .

(h) **Execution Joint Forest Management (Overlapping) Working Circle**: - The prescribed items of work for implementation and the probable cost involvement has been assessed for this working circle as in Table No.11.11.

Table No.11.11

Estimated Annual Expenditure		
Sl. No.	**Item of work**	**Anticipated expenditure in Lakhs**
1	Capacity building of VSS	15.00
2	Expansion of JFM	15.00

3	Publicity & awareness campaign	15.00
4	Support activities	2.00
5	Contingent grant to VSS	20.00
6	Incentive & Rewards	5.00
Total: -		**72.00**

Assuming Rs.72.00 lakhs as the estimated expenditure per annum and with a hike of 10% per annum the total expenditure for this overlapping working circle come to Rs.1147.45 Lakhs .

(j) Execution of miscellaneous Regulation:- Apart from the execution of different Working Circles, certain items of work are prescribed for implementation under Miscellaneous Regulation for which the requirement of fund has been estimated individual item wise as under.

(i) **Irregular Harvest (Petty Fellings)**

The main activity is the salvage operation of dead uprooted, wind fallen and illicitly felled trees. Assuming Rs.6,00,000/- as the estimated expenditure per annum, and with escalation of 10% per annum the total requirement would be Rs. 95.62 Lakh the entire plan period .

(ii) Permanent Sample Plots (PSP)

Creation of Permanent Sample Plots in the Division for phyto climatic study of different species including carbon sequestration and carbon release has been taken. Hence out of total 814 sample points of this Division,10% i.e 81 nos. of PSP are needed to be revisited biennially for collection of different data as mentioned for which Rs 0.81 Lakhs have been earmarked in the 1st year of the plan for survey and by escalation of 10% in each year the total requirement would be Rs. 4.93 Lakh for five years only as per Memo No.20725 Dtd. 28.11.2019 of Additional Principal Chief Conservator of Forests, Odisha , Bhubaneswar .

(iii) Forest Roads

Besides annual maintenance of the forest roads, some new structures over 80 nos. have also been prescribed for construction during the plan period. Accordingly the estimated expenditure to be incurred has been assessed and furnished in the Table No.11.12.

Table No.11.12

Name of the Range	Sl. No.	Name of the Forest Road	Total length in Km.	Annual maintenance cost in Lakhs @ 69,000/- per Km.	No. of structures proposed for construction
Kegaon	1	Golamunda-Bokrasil	11.0	7.59	10
	2	Sikuan-Ramchandrapur	8.0	5.52	10

Kesinga	3	Kasrupada-Saling	17.0	11.73	6
M.Rampur/ Narla	4	Tulapada-Manikera	48.0	33.12	20
	5	Mohangiri-Surang-Urladani	32.0	22.08	20
	6	Araskupa-Borighat	5.6	3.86	2
	7	Jurakhaman-Bagbeda	3.5	2.41	6
Narla	8	Kamarda-Bhurti	8.3	5.72	6
		Total: -	**133.4**	**92.04**	**80**

The annual maintenance cost has been assessed as Rs.92.04 lakhs in the initial year whereas the construction work is estimated as Rs.30 lakhs per annum for 8 nos. of structure per year. Assuming the 10% hike in each successive year, the total maintenance cost as well as the construction comes to Rs. 19.45 Crore. The year wise break up has been furnished in the consolidated table.11.13

(iv) Buildings

Rs.20.0 crores is earmarked for repair and maintenance of Residential and Non-residential building during the plan period. The year wise break up has been furnished in the consolidated Table No.11.13.

(vi) Forest Consolidation

The forest blocks not notified U/S-4 of Odisha Forest Act but included in the plan and the forest blocks neither notified nor included in the plan but required to be assessed as per the decision in the meeting of First Preliminary Working Plan Report shall be given priority in addition to the other forest blocks. Rs.5.0 Lakh /- per annum has been assessed to accomplish the items of works prescribed. Accordingly, the total requirement of fund comes to Rs.50.0 Lakh with year wise break up indicated in the consolidated table 11.13.

(vii) Maintenance of Boundaries of Forest Blocks

Five-year cycles of maintenance of boundaries have been prescribed along with construction of new pillars as well as maintenance of the existing good ones. A total sum of Rs.15 lakhs per annum is earmarked for the purpose. Hence, Rs.2.39 Crore has been projected for the entire plan period.

(viii) Control of Forest Fire

Assuming Rs.75 lakhs as the estimated expenditure per annum in the initial year and by escalation 10% successive year the total requirement of fund for execution of work comes to Rs. 11.95 Crores.

(ix) Monitoring and Evaluation of Implementation of Plan Prescriptions

Rs.1.0 Lakh has been estimated per annum for this activity. the total requirement of fund comes to Rs.10.00 lakhs for the plan period and the year wise break up has been furnished in the consolidated table No.11.13.

(l) Library, Equipments & Tools: -

An amount of Rs.5,00,000/- is estimated on lump sum basis, total requirement of fund for the entire plan period is Rs.50.00 lakhs with year wise break up furnished in the consolidated table No11.13

(m) Miscellaneous Contingency: - An amount of Rs.5,00,000/- is estimated Accordingly, total requirement of fund for the entire plan period is Rs.50.00 lakhs with year wise break up furnished in the consolidated table No11.13.

(n) Eco-Tourism

A detailed focus regarding Eco-tourism has been mentioned in Chapter-8 of Part- I.

Table No.11.13

Abstract of Projected Cost of Plan Implementation in Lakh											
Item of work	**2021-22**	**2022 - 23**	**2023 - 24**	**2024 - 25**	**2025 - 26**	**2026 - 27**	**2027 - 28**	**2028 - 29**	**2029 - 30**	**2030 - 31**	**Total**
Selection W C	153.17	128.56	195.54	199.54	240.8	208.13	275.93	319.85	333.23	382.1	**2436.85**
Rehabilitation WC	756.66	955.77	900.55	992.44	1251.43	1196	1342.51	1382.75	1517.32	2627.17	**12922.6**
Plantation WC	105.3	145.19	143.8	160.27	181.07	157.98	163.1	135.77	190.92	248.61	**1632.01**
Protection WC	38.48	42.328	46.5608	51.21688	56.33857	61.97242	68.16967	74.98663	82.4853	90.73383	**613.2721**
Bamboo (O)WC	473.41	406.55	610.53	635	693.13	595.22	893.88	929.7	1014.81	871.47	**7123.7**
Wildlife (O)WC	74.74	43.71	48.08	52.89	58.18	64	70.4	77.44	85.18	93.7	**668.32**
N.T.F.P (O)WC	35	38.5	42.35	46.58	51.24	56.36	62	68.2	75.02	82.52	**557.77**
JFM (O)WC	72	79.2	87.12	95.83	105.41	115.95	127.54	140.29	154.32	169.76	**1147.42**
Petty Felling	6	6.6	7.26	7.986	8.7846	9.66306	10.62937	11.6923	12.86153	14.14769	**95.62455**
Permanent Sample Plot	0.81	0	0.89	0	0.98	0	1.07	0	1.18	0	**4.93**
Forest Roads											
i) Maintenance	92.04	101.244	111.3684	122.5052	134.7558	148.2313	163.0545	179.3599	197.2959	217.0255	**1466.881**
ii) Construction of Structure	30	33	36.3	39.93	43.92	48.31	53.14	58.45	64.29	70.72	**478.06**
Buildings	200	200	200	200	200	200	200	200	200	200	**2000**
Forest Consolidation	5	5	5	5	5	5	5	5	5	5	**50**
Boundary Maintenance	15	16.5	18.15	19.97	21.96	24.16	26.57	29.23	32.15	35.37	**239.06**
Forest Fire	75	82.5	90.75	99.825	109.8075	120.7883	132.8671	146.1538	160.7692	176.8461	**1195.307**
M & E	1	1	1	1	1	1	1	1	1	1	**10**
Misc. Contingency	5	5	5	5	5	5	5	5	5	5	**50**
TOTAL	**2138.61**	**2290.652**	**2550.249**	**2734.98308**	**3168.806**	**3017.765**	**3601.861**	**3764.873**	**4132.832**	**5291.173**	**32691.8**

11.3.3 Possible Sources of Funding

Plan, Non-Plan Budget, Finance Commission Grant, Grant in Aid from, NREGA and other prevailing schemes satisfying the criteria for forestry sector are the major source of funding. The Divisional Forest Officer shall access all possible sources to ensure the required funds for smooth and timely implementation of the plan prescription.

CHAPTER- 12

Miscellaneous Regulations

12.1 GENERAL CONSIDERATIONS :

This Chapter includes prescription on important activities which are not discussed earlier. Some of the prescription given in earlier chapter had been emphasized in this chapter also.

12.2 FOREST CONSOLIDATION :

During the period of outgoing plan no new Protected Forests have been notified. Eighteen numbers of PRFs have already been notified from 1959 to 1984. Steps should be taken to declare all these Proposed Forest Blocks as Reserve Forests.

Thirty Seven numbers of Demarcated Protected Forest should be resurveyed and efforts should be made for its notification as Reserve Forest. Most of the Reserve Forest have been notified since 1959. One Undemarcated Protected Forest i.e., Kalamdei of Kegaon range need to be demarcated first. The last settlement had been carried out during 1984 to 1989 in the Division. Significant variations in the area in the different parts have been observed. There is an urgent need for verification and reconciliation of these Forest Blocks with DGPS. Forest Department has taken steps to survey all the Forest Blocks of Forest Divisions in four phases using DGPS. This division has already been included in first phase. The area are being resurveyed by Forest Revenue Joint Verification Committee constituted at each range. After DGPS again the forest blocks will be resurveyed and the final area may vary with the current management area. Within this Working Plan period discrepancies in the boundary line and area of all the Forest Blocks need to be resolved.

12.2.1 **Consolidation of area under Compensatory Afforestation** :

Action has already been initiated for declaration of one number of compensatory afforestation area U/s-4 of Odisha Forest Act, 1972. Till date the proposal is pending for declaration of PRF. The areas have been mutated in favour of Forest Department. Hence, its adequate protection should be ensured. The details of area transferred to Forest Department are given in the Table No. 12.1.

12.1. List of Compensatory Afforestation pending for declaration of PF

Kalahandi North Forest Division.						
Sl.No.	Range	Location	Name of Block	Area (In Ha.)	Whether mutated	**Whether proposed for U/s 4**
1	Bhawanipatna	Upar gochhakhola	Upar gochhakhola	436	No	No

2	Bhawanipatna	Adastala	Adastala	50	No	No
3	Bhawanipatna	Baringdar	Baringdar	200	No	No
4	Bhawanipatna	Batua	Batua	300	No	No
5	Bhawanipatna	Jhikimi B	Jhikimi B	100	No	No
Source : PWPR						

12.3 MAINTENANCE OF FOREST BLOCK BOUNDARIES :

The boundaries of all the Forest Blocks are in disarray. The boundary pillars are required to be properly maintained. Details of block boundary i.e. length of forest boundary, number of pillars, pillar to pillar bearing and distances and record of maintenance of boundary should be maintained in the Divisional Office.

The inter divisional/inter district forest boundary shall be cleared to the width of 15 mtrs, block boundary to boundaries to 10 mtrs and interior village lying to 5 mtrs. Compartment lying where they do not follow nature features like nallahs etc. should be cut to the width of 6 mtrs. The boundaries shall be inspected regularly by the F.G, Forester and R.O as per Codal provision. The DFO and ACF should annually inspect 10% of boundary lines of the Division.

Borassus flabellifer (Tala) shall be planted along the block boundary. This type of plantation along the block boundary helps for early detection of encroachment.

The annual boundary pillar maintenance programme of Kalahandi North Forest Division is given in the Appendix 34.

12.4 IRREGULAR AND PETTY FELLING :

Irregular felling shall be discouraged. All the dead, wind fallen and uprooted trees not favoured by wildlife shall be salvaged departmentally and to be handed over to OFDC Ltd for disposal within the ambit of guideline issued by PCCF, Odisha. However, to carry out these operations, the Range officer shall submit an Annual Plan of Operation to the DFO in advance indicating location, anticipated quantity of timber and firewood, reason of availability, fund required etc. for approval. All timber and firewood shall be removed on the strength of departmental permit.

The following kind of trees may be marked for petty felling.

i) Trees required for scientific investigation.
ii) Trees required for establishing new fire line
iii) Trees required for establishment of new nursery etc.

Prior permission from competent authority is required before carrying petty felling.

12.5 DISPOSAL OF SEIZED PRODUCE UNDER FOREST OFFENCE CASES :

In this context guidelines issued by the Govt. vide their Letter No. 10F(TR)-23/02-15398/F&E dated Bhubaneswar, the 31st August'2005 shall be followed.

12.6 DEVIATION :

Any unusual operation from target, like target for plantation, and other activities provided in control forms of the Working Plans constitutes a deviation. All deviations which permanently altered the basis of management laid down in the working plan will require prior sanction of the PCCF office. All deviations which do not permanently alter the basis of management and with the necessity of which the DFO agrees, may be approved and sanctioned by the Officer in Charge of Working Plan on behalf of the Principal Chief Conservator of Forests. The PCCF or CCF before sanctioning the major deviations of following nature will necessarily take prior approval of the Regional Addl. PCCF of the Ministry of Environment and Forests.

1. Change in Silvicultural system.
2. Formation of new felling series.
3. Large scale felling due to natural calamities which cannot be adjusted against future yield.

For all major deviations with respect to prescriptions sanction of MoEF is mandatory and explanatory note along with the request for regularisation has to be sent by PCCF, HoFF to Regional Chief Conservator of Forests, MoEF. The following format for deviation statement should be used.

Year :……..
Division…….

Sl. No. of deviation	Control book, name, form No. Page	Reference to Working Plan		Nature of deviation requiring sanction
		Paragraph	Nature of prescription	

Initiation of deviation proposal is to be carried out by DFO (T) and should send typed copies in triplicate. The head dealing with working plan as per situation given above after sanction will return one copy of statement to the DFO, territorial circle and the other copy will be sent to the WPO for record. On major deviations without altering on the basis of management, the prior sanction of the PCCF, HoFF should have been obtained in advance; the sanction number and date should be quoted in the last column.

12.7 CONSTRUCTION OF ROADS/LINK ROADS :

No construction of new roads/link roads passing through the forest shall be allowed without the sanction of the competent authority as they attract the provisions of Forest (Conservation) Act, 1980.

12.8 FIRE PROTECTION :

This subject has been dealt with in Part-I in detail. The following miscellaneous regulations are necessary to combat forest fire.

1. Annual maintenance of fire lines should be done in the month of December each year, clearing of all vegetative materials.
2. Detail instruction should be given by Divisional Forest Officer to the staff depicting preparatory work to be carried out and necessary preventive measures to be taken before the onset of fire season.
3. The meetings of the VSS should be convened by the Range Officer and co-operation should be solicited for detection of fire, reporting and early suppression.
4. Entry of people inside the forest for extraction of MFP should be restricted.
5. Disposal of felling refuse should be done well before the fire season.
   The DFO should visit the fire affected areas immediately after it comes to his knowledge and should submit the report to Conservator of Forests giving all the detail of occurrence of fire, cause of fire and damaged occurred to the crop and remedial measures for future.
6. Forest road should be closed for vehicular traffic as per rule, 284 of Odisha Forest Code.
7. All over the standard operating procedure prescribed by PCCF, Odisha from time to time shall be followed strictly.

12.9 CONTROL OF GRAZING :

The Odisha forests (Grazing of Cattle) Rules,1980 should be strictly enforced. Special care should be taken in the early years of plantation. There is urgent need to check the grazing inside forest area. From social survey it is found the almost all the cattle of forest fringe villages are dependent upon forest for their fodder. This is very alarming situation. Therefore, following prescription has been suggested to lessen this problem.

1) Govt. unproductive land common land or gochar lands should be utilised for fodder plantation. Specifically, the weeds grown in Govt. unproductive land lying between village boundary and forest would be uprooted to allow grass to come up for cattle consumption.
2) By awareness creation, large unproductive cattle can be replaced with few cross breed high yielding cattle.
3) Lopping of trees for fodder should be discouraged.
4) All plantations shall be closed for grazing at least for a period of 5 years.
5) The areas which have good regeneration should be closed.

12.10 ENCROACHMENT :

The existing encroachments should be marked with geo reference immediately on the field. Their numbers, area shall be recorded in compartment and block wise. The DFO shall review the case of encroachment periodically and shall take steps for eviction of the encroachers. Fresh encroachment shall be prevented at any cost. The Range Officer shall review the new encroachment case in every month and submit the report to the Divisional Forest Officer.

12.11 MAINTENANCE OF BUILDING :

Buildings: Buildings are very important infrastructure for forest management. It is necessary to provide accommodation for the staff who is working in remote areas. The detail position regarding the existence of building and its condition has been furnished in Appendix 33 Considering the condition of buildings, following prescription shall be adopted.

1) All the habitable buildings should be repaired as per requirement.
2) The building which require special maintenance should be undertaken only after analysis of anticipated expenditure and fresh construction.
3) To cater the requirement of additional space, the tile roofs should be replaced with R.C.C ones considering the formation to enhance its longevity above which super structures can be made.
4) In every beat and section, office building should be constructed for accommodation of staff.
5) Drinking water facility, electric facility as well as sanitary facility should be there in all the buildings.

The Divisional Forest Officer shall approve the annual maintenance work of the buildings prepared by the Assistant Conservator of Forests basing on the requisition received from Range officer. The Divisional Forest Officer shall make such assessment and prepare a calendar of action plan to construct new buildings in the plan period by mobilising resource from different quarters. Furthermore, Divisional Forest Officer should ensure the presence of every frontline staff.

12.12 MAINTENANCE OF COMPARTMENT HISTORY AND CONTROL FORMS :

The compartment history of all the compartments has been prepared de novo and given in duplicate to the DFO for use in his Division. The compartment history and control form shall be maintained as per Chapter-IX & X respectively of National Working Plan Code 2014. The DFO shall be responsible for maintenance of the compartment history and timely submission of control forms to the appropriate authority, so that the working plan officer do not face problems during the revision of this place

12.13 ESTABLISHMENT OF CENTRAL NURSERY :

At present there is one Mega Nursery at Kutrukhai in the Division. As priority is given to free distribution of seedlings to increase the tree outside the forest which helps directly to combat climate change, therefore it is important to establish a central nursery or permanent nursery at a suitable location to meet the challenge. Also to maintain seedlings of 2 to 3 years for quality seedlings.

12.14 MAINTENANCE OF MAPS :

Divisional maps of stand and stock etc. should be preserved.

12.15 RIGHTS AND CONCESSION :

The rights and concessions presently available has been described in detail under Para No. 8.8 and 8.9 of Part-I. While reiterating the same, it is further prescribed that the policy/instructions of the Government in the matter from time to time shall be followed scrupulously.

12.16 PROTECTION FROM THEFT :

For protection of forest and wildlife following measures should be scrupulously followed.

a) Maintenance of Forest Road: There are 08 Nos. of forest roads stretching over a distance of 133.40 Kms in this Division, the details of which has been furnished in Appendix I.
b) Maintenance of communication: All the forest staff should be supplied with mobile phones which is necessary for transmission of information. In interior pockets communication through VHF mode should be strengthened.
c) Forest protection squad: The theft prone areas of the division should be figured out and accordingly position of squads should be stationed.
d) Improvement of Intelligence network.
e) Awareness creation among the VSS members :

12.17 FOREST RIGHT ACT.

12.17.1 FRA'2006 was enacted in India so as to do the justice & help the traditional forest dwellers claim back their land & forest areas. The law provides right and power to conserve community forest resources. Both individual and community right do not give full right or ownership over the forests. That titles issued do not mean that they would just cut down the forest at their will. They are entrusted to protect forest and Wildlife.

The greatest concern in this aspect is misuse of the Forest Right Act. It is time to settle all pending applications immediately. There may be some tribals/forest dwellers who are ignorant till date. Their claims should be settled immediately. Fresh clearing of forest area for making their claims should not be allowed at any cost.

12.17.2 **Demarcation of settled areas under FRA'2006** :

Although 939 numbers of individual titles issued over an area of 1016.20 Ha and 44 nos of community rights have been issued over an area of 2917.69 Ha, all these areas have not yet been demarcated in the field.

- As a result of this the actual possession of land is much more than the title issued to them.
- There should not be any ambiguity in the title. That means the name of RF should be properly depicted in the title not just 'Reserve Forest/Sangrakshita Jungle'. It is proposed to write the name of R.F, Compartment number, and location (Lat/Long) in the title issued by the Collector.
- The application form of the claimant claiming forest land should be checked

properly at the SDLC committee by the member from forest department.

To overcome all the above difficulties, it is proposed to demarcate all the areas settled under FRA'2006 within coming 3 years as enshrined in SOP of DGPS survey.

The demarcation of IFR and CFR has already been started by the division using Forest Rights Survey app.

12.17.3 **Management of FRA Areas** :

1. After demarcation of the titles issued under FRA'2006, the left out areas (encroached) should be planted with trees of indigenous species as per the need of the tribal or forest dweller.
2. Species like *Accacia nilotica*, should be planted in the agricultural bunds of the FRA beneficiaries.
3. At the backyard or front yard wherever possible, horticulture species like Guava, mango Jackfruit, Drum stick, Papaya etc. should be planted.
4. Again after issuing title by the District Magistrate, monthly meeting may be conducted with the dwellers through Gram Sabha for awareness regarding protection of Wildlife, Forest & protection of Biodiversity and adjoining catchment areas.
5. With interdepartmental co-ordination, the financial condition of the dwellers can be uplifted so as to lessen their dependency on forest.
6. Provision of fuel efficient challah, cooking gas facility (under Ujjala Scheme) would help a lot in this regard.

12.18 STUDY ON PRESERVATION PLOT, REGENERATION PLOTS AND PERMANENT SAMPLE PLOTS

Protection should be given to preservation plots, permanent sample plots and regeneration plots, so that studies can be taken up in subsequent years.

CHAPTER 13
SCIENCE & RESEARCH OF FORESTRY IN KALAHANDI NORTH FOREST DIVISION

13.1 Introduction

13.1.1 Kalahandi North Division is blessed with varied assemblages of Flora and Fauna of Socio Economic and Ecological significance. The presence of Rare, endangered and threatened species add the ecological importance of this Division. Conservation, protection and management of these biological resources and its sustainable uses needs high research activities. Protection and conservation of our valuable biological resources for the benefit of the future generation is the measure challenge.

13.1.2 The research activities in Kalahandi District i.e. both Kalahandi North and South Division is Limited to Silviculture Division Rayagada and is confined within 150 ha area of Pariagarh RF near Jaring under the Jurisdiction of Kalahandi South Division where Hi-Tech nursery is established in the year 2005-06. The only objective of the said Hi-Tech nursery is production of quality planting materials for the plantation in different forest Divisions. Hence, all the research on enhancement of the forest quality and the improvement of the eco-system , research institutes should be developed.

13.2 Research Work

13.2.1 Research on Teak (*Tectonagrandis*)

As Kalahandi North Forest Division is coming under the eco-tonal zone of the Sal and Teak forest and during the last two plan periods a large chunks of the forests have been planted with Teak under various afforestation activities, it is quite practical to have this research on the species in the ex situ condition so that the best methodology of planting technique for future plantation can be devised for the division.

13.2.2 Bamboo Plantation

Babmboo plantation have been carried out every year in this Division under various scheme during last plan period. Bamboo seedlings (Dendrocalamus strictus) are raised every year at Hi-Tech nursery at Kutrukhai at also in other nurseries of this Division for raising plantation and distribution to the public.

13.2.3 Creation of stump banks:-The seeds of following species are profusedly sown in the mother beds as a stock for the plantations

I. Tectona grandis

II. Dalbergia latifolia

iii. Azadirachta indica

13.2.4 Faunal Research

To study faunal diversity, camera traps have been extensively used in wildlife movement areas and this process needs regular approach with technical guidance to the field staff. There

are ample of scope to explore the faunal treasure of this Division as well as their ethology, Wildlife Habitat Relationship, Man Wild animal conflict etc.

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CHAPTER 14

TREE OUTSIDE FOREST (TOF)

14.1 Introduction

14.1.1 Trees outside forests or TOF can be defined as all trees excluded from the definition of forest and other wooded lands. Trees outside forest are located in other lands like farmlands and built-up areas both in rural and urban areas. Trees outside forest include trees in Agro forestry system, in orchards, in farms, gardens, parks, house hold backyards, fruit tree plantation, Canal bank, along rivers, Roadsides etc.

14.1.2 Kalahandi is a drought prone district. The other land than the forested area of this division is used as cultivable land with paddy and other crop being the cash crop., land with miscellaneous tree grooves (Tree Outside Forest) 858ha., Permanent pasture and other grazing lands, land with no cultivation, barren uncultivable land and fallow land. The details of the land use pattern of the division other than the forested land is given in Table No.14.1.

Table No.14.1

Land Utilisation Pattern of Kalahandi North Forest Division in ha

Sl No	Name of the Blocks	Misc. tree, crops and groves not included	Permanent pasture and other grazing lands	Cultivable waste	Land put non-agril. used	Barren unculti-vable land	Current fallows	Other fallows
1	**Bhawanipatna**	**266**	**1808**	**3035**	**5868**	**3801**	6526	4525
2	**Golamunda**	37	2349	2231	3586	1215	5755	1208
3	**Karlamunda**	71	886	884	1882	245	3108	709
4	**Kesinga**	191	907	1823	3668	1027	6831	2349
5	**M.Rampur**	155	1132	2074	2684	5354	2688	543
6	**Narla**	138	1973	1574	4412	314	5387	1936
		858	**9055**	**11621**	**22100**	**11956**	**30295**	**11270**

14.1.3 In view of the massive biotic pressure imposed over the forest of this division side by side the constantly decline economic standard of the people has forced the planner to think over the sustainable alternate livelihood .TOF is one of the most viable alternative as there is a huge timber consuming centre the JK paper Mills at Raygada at a close proximity.So it would be wise to motivate the people in this division to grow quick growing hybrid Eucalyptus and other softwood species.

14.1.4 JK paper mills has already taken the initiative to raise TOF with the people in this area during the plan period and they supply the root trainer nursery of hybrid eucalyptus species which grow 40 feet in four years and another 40 feet in next four years and once more 40 feet in the last rotation of four years with an assurance to procure all the biomass obtained

from this plantation as raw materials of their industry. The details of the stakeholders growing such plantations are given year wise in Table 14.2, 14.3 and 14.4.

Fig:55

Table No.14.2

List of the farmers of Kalahandi North Division growing Eucalyptus in 2013						
Sl. No	Name of the Farmer	Village	GP	CD Block	Area in ha	Total Seedling Planted
1	Rabindranath Maharana	Beherapati	Bagpur	Norla	18.22	41000
2	Kalandi Pattnaik	T.Kantabanji	T.Kantbanji	Bh.patna	0.51	1140
3	Niranjan Sahu	Phatkamal	Pastikudi	Kesinga	0.44	1000
4	Debendra Bhujabal	Suknabhata	Kasrupada	Kesinga	1.33	3000
5	Bed Prasad Das	Bh.patna	Bh.patna	Bh.patna	0.44	1000
6	Satyaprasad Ratha	Deypur	Deypur	Bh.patna	0.23	520
7	Devaki GTO UP School	Deypur	Deypur	Bh.patna	0.21	480
8	Amit Agrawal	Bh.patna	Bh.patna	Bh.patna	1.33	3000
9	Satyanarayan Biswal	Kundabandh	Kundabandh	Kesinga	0.44	1000

10	Daljit Singh	Bh.patna	Bh.patna	Bh.patna	2.44	5495
11	Subhransu Sekhar Mohaptra	Bhanpur	Ghodaband h	Norla	2.56	5750
12	Jagadish Mandal	Suknabhata	Mahijore	Bh.patna	2.22	5000
13	Biren Ku. Sahu	M.Rampur		M.Rampu r	1.78	4000
14	Azad Debendra Singh	Kauguda	Sikerkupa	Norla	1.78	4000
15	Ashok Ku. Singh	Kauguda	Sikerkupa	Norla	0.89	2000
16	Sujit Swain	Bhaluchanchar a	Sikerkupa	Norla	0.67	1500
17	Dambarudhar Durga	Bhejipadar	Bhejipadar	Bh.patna	0.84	1900
18	Jaymal Karuan	Sikerkupa	Sikerkupa	Norla	0.71	1600
19	Nilambar Sahu	Chicharla	Boria	Kesinga	0.27	600
20	Subrat Ku. Namdeo	Kundeijharan	Kundeijhara n	Norla	1.33	3000
21	Sanjay Ku. Naik	Mandel	Mandel	Norla	0.36	800
22	Pitambar Patra	Kespala	Ghantamal	Narla	1.20	2700
23	Sukadev Patra	Kespala	Ghantamal	Narla	1.20	2700
24	Khirasindhu Patra	Kespala	Ghantamal	Narla	0.80	1800
25	Kapura Pujhari	Kespala	Ghantamal	Narla	1.20	2700
26	Purusottam Patra	Kespala	Ghantamal	Narla	1.20	2700
27	Debraj Pujhari	Kespala	Ghantamal	Narla	1.20	2700
28	Krupasindhu Majhi	Ranipata	Gadebandh	Narla	1.20	2700
29	Mansing Majhi	Ranipata	Gadebandh	Narla	1.20	2700
30	Prasanna Ku. Majhi	Ranipata	Gadebandh	Narla	1.20	2700
31	Madhusudan Majhi	Ranipata	Gadebandh	Narla	1.20	2700
32	Sushila Majhi	Gadebandh	Gadebandh	Narla	2.40	5400
33	Lalit Ku. Sahu	Ranipata	Gadebandh	Narla	0.80	1800
34	Brundabati Munda	Ranipata	Gadebandh	Narla	0.40	900
35	Rangacharan Majhi	Khairmal	Kurmel	Narla	1.20	2700
36	Nandakishor Majhi	Kurmel	Kurmel	Narla	1.20	2700
37	Ganeswar Majhi	Kurmel	Kurmel	Narla	1.20	2700
38	Gokula Majhi	Kurmel	Kurmel	Narla	1.20	2700
39	Kousalya Mjahi	Kurmel	Kurmel	Narla	0.89	2000
40	Dinabandhu Mahananda	Karme	Rupra	Narla	2.40	5400
41	Jagjiban Mahananda	Karme	Rupra	Narla	1.20	2700
42	Miniketan Mahananda	Karme	Rupra	Narla	1.20	2700
43	Bhagaban Mahananda	Karme	Rupra	Narla	2.00	4500
44	Bishnu Naik	Pipalpadar	Bagpur	Narla	2.40	5400
45	Bhaskara Naik	Pipalpadar	Bagpur	Narla	1.20	2700
46	Purusottam Naik	Pipalpadar	Bagpur	Narla	1.20	2700
47	Anmol Chand	Norla	Narla	Narla	4.00	9000
48	Basudev Majhi	Kurmel	Kurmel	Narla	1.20	2700
49	Basista Majhi	Khairmal	Kurmel	Narla	1.20	2700
50	Chandra Pujhari	Kespala	Ghantamal	Narla	0.80	1800
51	Banita Patra	Kespala	Ghantamal	Narla	1.20	2700
52	Thabira Patra	Kespala	Ghantamal	Narla	1.20	2700

53	Purnami Patra	Kespala	Ghantamal	Narla	1.20	2700
54	Chinu Majhi	Naktipanimunda	Nisanpur	Narla	1.20	2700
55	Dhaneswar Majhi	Naktipanimunda	Nisanpur	Narla	1.20	2700
56	Ambika Majhi	Naktipanimunda	Nisanpur	Narla	1.20	2700
57	Ghasiram Tandi	Sankarmal	Nisanpur	Narla	0.80	1800
58	Dambarudhar Majhi	Naktipanimunda	Nisanpur	Narla	1.20	2700
59	Debaraj Goud	Panimunda	Nisanpur	Narla	1.60	3600
60	Sashi Goud	Panimunda	Nisanpur	Narla	1.20	2700
61	Suru Majhi	Gadebandh	Gadebandh	Narla	1.60	3600
62	Bishnu Majhi	Gadebandh	Gadebandh	Narla	0.80	1800
63	Bramha Majhi	Gadebandh	Gadebandh	Narla	0.80	1800
64	Bansidhar Majhi	Khairmal	Kurmel	Narla	1.20	2700
65	Golekha Deep	Karme	Rupra	Narla	1.20	2700
66	Khirasindhu Suna	Phalsapada	Bhimkela	Narla	2.00	4500
67	Gurudev Majhi	Karme	Rupra	Narla	0.40	900
68	Gobinda Mahananda	Karme	Rupra	Narla	0.40	900
69	Kapila Mahananda	Karme	Rupra	Narla	1.20	2700
70	Ambika Majhi	Ramchandrapur	Madhupur	Narla	2.00	4500
71	Artta Majhi	Ramchandrapur	Madhupur	Narla	2.00	4500
72	Sukeswar Deep	Rekhpur	Rupra	Narla	1.20	2700
73	Madan Patra	Kespala	Ghantamal	Narla	1.20	2700
74	Jaysankar Patra	Kespala	Ghantamal	Narla	0.80	1800
75	Ganapati Patra	Kespala	Ghantamal	Narla	1.20	2700
76	Sudam Charan Pradhan	Ghantamal	Ghantamal	Narla	0.60	1350
77	Chaitanya Majhi	Khairmal	Kurmel	Narla	1.20	2700

Table No.14.3

List of the farmers of Kalahandi NorthDivision growing Eucalyptus in 2014						
Sl. No	Name of the Farmer	Village	GP	CD Block	Area in ha	Total Seedling Planted
1	Susanta ku Naik	Malagaom	Bh.Patna	Bh.Patna	0.44	990
2	Rioz Mahammad	Mahijor	Bh.Patna	Bh.Patna	2.67	6007.5
3	Soumyaraj Patel	Palsipada	Bh.Patna	Bh.Patna	0.89	2002.5
4	Artaranjan Chand	K.Bandhapala	Risigam	Bh.Patna	0.8	1800
5	Girish Ch. Behera	Risigam	Risigam	Bh.Patna	2.22	4995
6	Alokranjan Panda	Attangguda	Duarsuni	Bh.Patna	1.11	2497.5
7	Debaraj Sha	Saradpur	BH.patna	Bh.Patna	0.27	607.5
8	Dama Rana	Tiljodi	Barajhola	Bh.Patna	0.44	990
9	Brundaban Naik	Kumerpeta	M.Rampur	M.Rampur	0.36	810

10	Kumarmani Sa	Saradhapur	Saradhapur	BHAWANIPATNA	0.4	900
11	Satwant Singh	Bh.patna	Bh.patna	BHAWANIPATNA	1.6	3600
12	Sarada Prasanna Swani	Bh.patna	Bh.patna	BHAWANIPATNA	0.44	990
13	Sasidev Sahu	Bhatakhamar	Norla	Norla	1.33	2992.5
14	Daitari sahu	saling	Rupra	Norla	0.44	990
15	Gour Ch. Sa	Rengali	Kisinga	Kisinga	0.44	990
16	Nitiranjan Chand	Indramal	Norla	Norla	1.33	2992.5
17	Girish Ch. Behera	Tikirapada	Norla	Norla	0.89	2002.5
18	Chittranjan Mohanty	Bh.patna	Bh.Patna	Bh.Patna	0.36	810

Table No.14.4

List of the farmers of Kalahandi North Division growing Eucalyptus in 2015

Sl. No.	Name of the Farmer	Village	Gram Panchayat	Block	No of saplings	Area in Ha.
1	Rabindranath Maharana	Kundeijhoran	Kundeijhoran	Narla	2000	0.89
2	Prasanta Ku. Jena	Norla Road	Sargiguda	Narla	900	0.40
3	Riaz Mahammad	Mahizor	Mahizor	Bh.Patna	5200	2.31
4	Rajashri Pradhan	Dukermala	Dukermala	Karlamunda	4800	2.13
5	Dharanidhar Sahu	Salebhata	Matia	Bh.Patna	600	0.27
6	Gunam Prasad Rao	Turchi		M.Rampur	8000	3.56
7	Purna Chandra Panda	Balizor	Baner	Jayapatna	18000	8.00
8	Biren sahu	Salebhata	Matia	Bh.Patna	2000	0.89
9	Ghanashyam Rana	Alatara ,		M.rampur	2000	0.89
10	Jadumani Sahoo	Paria,	Maing,	Bh.Patna	2000	0.89
11	Bhagaban Biswal	Kundabandha	Utkela	Kesinga	1000	0.44
12	Pawan Kumar Agrawal,	Sardapur	Sardapur	Bh.Patna	1000	0.44
13	Subrat Kumar Rana	Phapsi	Borda	Bh.Patna	2250	1.00
14	Surendra Sahu	Kilbeda		Narla	3600	1.60
15	Kumar Gourab Parida	Panimunda	Panimunda	Narla	2300	1.02
16	Jagamohan Agrawal	Thakapali	Trabha		5000	2.22
17	Sai Gopal Sahu ,	Khatuluguda	Khatuluguda	Dharmgarh	1900	0.84
18	Rajeswar Thakur	Tenulichuan	Tenulichuan	Bh.Patna	4000	1.78
19	Jana Sahajya	Kucheijor	Santapur	Norla	20000	8.89
20	Sudhansu Meher,	Deogaon			5000	2.22
21	Subhranta Padhan	Sripur	Gigina	Narla	3600	1.60
22	Amarendra Kumar	Sripur	Gigina	Narla	4500	2.00
23	Lipan Padhan	Sripur	Gigina	Narla	1350	0.60
24	Hemanta Sahu	Sripur	Gigina	Narla	450	0.20
	Dhiroj padhan	Bhanpur	Bhapur	Narla	2700	1.20

25	Nilamani padhan	Bhanpur	Bhapur	Narla	2700	1.20
26	jagdish padhan	Bhanpur	Bhapur	Narla	4900	2.18
27	Sukanta chand	Narla	Narla	Narla	900	0.40
28	Gopal majhi	jampada	Bagpur	Narla	900	0.40
29	Dhabaleswar Majhi	jampada	Bagpur	Narla	900	0.40
30	Syamaghana Majhi	Kerandikhunti	Bagpur	Narla	1800	0.80
31	Ratha Bag	Bagpur	Bagpur	Narla	900	0.40
32	Taruna Harijan	Bagpur	Bagpur	Narla	900	0.40
33	Utara sunani	Bagpur	Bagpur	Narla	900	0.40
34	Subash Majhi	Boringpadar	Balsingha	Narla	2700	1.20
35	Bharat Ma1h5	Boringpadar	Balsingha	Narla	2700	1.20
36	Jina Majhi	Jodabandh	Ghodabandha	Narla	1800	0.80
37	Gangadhar Jani	Jodabandh	Ghodabandha	Narla	450	0.20
38	Kunja Majhi	Jodabandh	Ghodabandha	Narla	450	0.20
39	Antaram Jani	Jodabandh	Ghodabandha	Narla	900	0.40
40	Umakanta Gadtiya	Jodabandh	Ghodabandha	Narla	900	0.40
41	Gopinath Gadtiya	Jodabandh	Ghodabandha	Narla	900	0.40
42	Dayanidhi Gadtiya	Jodabandh	Ghodabandha	Narla	900	0.40
43	Digamber Gadtiya	Jodabandh	Ghodabandha	Narla	900	0.40
44	Bansidhar Sahu	Kasurpada	Kasurpada	,Kesinga	2000	0.89
45	Bijoy Ku. Padhi	Gopalpur	Gopalpur	Narla	1300	0.58
46	Sanjoy Kumar Naik	Mandel	Mandel	Narla	1000	0.44

Table No.14.5

List of the farmers of Kalahandi NorthDivision growing Eucalyptus in 2016						
Sl. No	Name of the Farmer	Village	GP	CD Block	Total Seedling Planted	Area in ha
1	GOURA CH. THAKUR	BEHERAGUDA	DURSANI	Bh.Patna	1000	0.45
2	KALINDI CH. PATTANAIK	T.KANTABANJI	MEDINIPUR	Bh.Patna	1000	0.45
3	SUMAN TRIPHTY	BH.PATNA	BH.PATNA	Bh.Patna	1500	0.7
4	PRAMOD KU. RATHA	KENDUGADA	TALBELGAM	Bh.Patna	1000	0.45
5	SUJATA JOSHI	TENTULIPADAR	SAGADA	Bh.Patna	1000	0.45
6	KALPANA BABU	NAGJHARI	SAGADA	Bh.Patna	1000	0.45
7	RATANBALA ROUT	PAJIBHALI	SANTAPUR	Norla	2000	0.9
8	BASUDEV NAIK	BURAT	M.RAMPUR	M.Rampur	4000	1.7
9	SURANKANTA PRADHAN	RUPRA	RUPRA	Narla	2000	0.9
10	SANTOSH KU. SAHU	NISHANPUR	SANTPUR	Narla	1500	0.7

11	KUMAR GOURAB PARIDA	PANIMUNDA	PANIMUNDA	Narla	3000	1.3
12	HAMSAGAR SAHU	K.BAHALI	RUSUDA	Narla	2400	1
13	DIGAMBAR SAHU	KILBEDA	KURMEL	Narla	3500	1.5
14	KAILASH NAIK	KERBANDI	KURMEL	Narla	1000	0.45
15	LALIT HARPAL	KUSMEL	KURMEL	Narla	1900	0.8
16	SANTOSH PRADHAN	DUNGRIPALI	TUSARA	Narla	3100	1.3
17	SUNIL KU. SENAPATI	KHAMPADA	KARME	Narla	2300	1
18	PRESIDENT S.S.M	KARLAMUNDA	KARLAMUNDA	Karlamunda	5600	2.5
19	TIKUNU MAJHI	RAKSI	DUARSUNI	Bh.Patna	1780	0.7
20	I.M. C PVT LTD	BHATANGPADAR	BHATANGPADAR	Bh.Patna	138400	61.5
21	RAGHU MAJHI	RAJENDRAPUR	PRATIBEDA	Lanjigarh	2000	0.9

14.1.5 Kalahandi North Division is having good nursery networks and growing different species and distributing to the local for raising in their recorded land .It is prescribed in this plan to raised root trainer hybrid eucalyptus and target the unused land of the farmers to raise the same so that the need of wood based industry the JK Paper at Raygada can get the raw material and the beneficiaries would be benefitted financially. Also the plantations of the said beneficiaries shall be monitor and if need arises the technical knowhow of felling, logging and extraction shall be provided to them free of cost .In this way the promotion of the TOF within the ambit of the division would lessen the pressure over the pristine forest.

14.2 Plantation of trees outside forest area (Outside the working Plan area) in respect of Kalahandi North Division (TOF)

11.2.1 954 RKM of Avenue plantation and 180 ha of Urban Tree Plantation has been taken up for the year from 2012-13 to 2020-21 in Kalahandi North Forest Division under different scheme.

11.2.2 The above plantations are to be treated like thinning climber cutting, weeding, Soil and moisture Conservation, restocking as the Survival percentage of the above plantations are required for better growth as the survival percentage are about 90%.The details are furnished below.

Table No. 14.6

Avenue Plantation

Sl No.	Range	Section	Beat	Plantation Site Name	Area	Year of Plant	Name of the Scheme	No. of Seedling
1	Bh.patna	Bhpatna	Dambarupadar	Village Road	5	2012-13	MGNREGS Avenue	1250
2	Kegaon	Daspur	Dhamanpur	PMGSY Road	10	2012-13	MGNREGS Avenue	2500
3	Kesinga	Kesinga	Dumermunda	RD Road	5	2012-13	MGNREGS Avenue	1250
4	Kesinga	Rupra road	Dampadar	PMGSY Road	5	2012-13	MGNREGS Avenue	1250
5	Bhawanipatna	Karlapada, Kesinga	Karlapada, Kundabandha	Karlapada-Utkela Road	15	2013-14	State Plan Avenue	3750
6	Narla	Narla	Kerbandi	Boringpadar-Tulapada Rd.	15	2013-14	State Plan Avenue	3750
7	Narla	Narla	Narla	Narla-Railway Gate Road	10	2013-14	State Plan Avenue	2500
8	Bhawanipatna	Bhatangpadar	Sarlanji	Balarampur-Dadpur Road	10	2013-14	MGNREGS Avenue	2500
9	Bhawanipatna	Bhatangpadar	Sarlanji	Dadpur Ulikupa Road	10	2013-14	MGNREGS Avenue	2500
10	Bhawanipatna	Santpur	Burat	Gohirapadar Ulikupa PMGSY Rd	8	2013-14	MGNREGS Avenue	2000
11	Bhawanipatna	Santpur	Burat	Gohirapadar Ulikupa PMGSY Road	10	2013-14	MGNREGS Avenue	2500
12	Kegaon	Golamunda	Golamunda	Golamunda-Chapria PMGSY Road	10	2013-14	MGNREGS Avenue	2500
13	Kesinga	Kesinga	Podkham	Kandel-Brahmani PMGSY Road	10	2013-14	MGNREGS Avenue	2500
14	Narla	Kamarda	Kamarda	Mundagaon-Pipalpada PMGSY Road	10	2013-14	MGNREGS Avenue	2500
15	M.Rampur	Madanpur		Khaliapali-Karlamunda Road	10	2013-14	MGNREGS Avenue	2500
16	Narla	Narla	Kerbandi	Boringpadar-Kaleijore PMGSY Rd	10	2014-15	State Plan Avenue	2500
17	Kesinga	Rupra road	Dampadar	Joradobra-Muding PMGSY Road	10	2014-15	State Plan Avenue	2500
18	Kegaon	Kegaon	Kegaon	Kegaon - Gargab RD Road	10	2014-15	State Plan Avenue	2500
19	Kegaon	Kegaon	Nuagaon	Nuagaon to Gargab RD Road	20	2014-15	MGNREGS Avenue	5000
20	Kegaon	Gargab	Gargab	Gargab to Uchhala RD Road	5	2014-15	MGNREGS Avenue	1250
21	Narla	Narla	Narla	Narla to Asurgarh PMGSY Road	5	2014-15	MGNREGS Avenue	1250
22	Narla	Narla	Kerbandi	Balisinga to Belgaon PMGSY Road	10	2014-15	MGNREGS Avenue	2500

23	Kesinga	Rupra road	Rupra Road	Rupra to Julkhabhadi RD Road	10	2014-15	MGNREGS Avenue	2500
24	Kesinga	Kashrupada	Palam	Pipalpadar to Palam SH Road	10	2014-15	MGNREGS Avenue	2500
25	Kesinga	Kesinga	Deogaon	Boria to Bahadurpadar PMGSY Road	10	2014-15	MGNREGS Avenue	2500
26	M.Rampur	Madanpur		Risida to Karlamunda RD Road	5	2014-15	MGNREGS Avenue	1250
27	M.Rampur	Madanpur	Kumerpeta	Sikelkupa to Budhikhaman RD Road	5	2014-15	MGNREGS Avenue	1250
28	Narla	Kamarda	Kamarda	Uligunjer to Kadamguda PMGSY Road	10	2014-15	MGNREGS Avenue	2500
29	M.Rampur	Madanpur	Madanpur	Sagarpali to Bhatapala	10	2015-16	State Plan Avenue	2500
30	Narla	Narla	Narla	Narla - Rekhpur	4	2015-16	State Plan Avenue	1000
31	Narla	Narla	Narla	Tulagaon - Bhatang	6	2015-16	State Plan Avenue	1500
32	Kesinga	Rupra Road	Gigina	Gigina to Thuapadar PMGSY Road	10	2015-16	State Plan Avenue	2500
33	Bh.Patna	Bhawani patna	Sirliguda	Atangguda-Chancher	10	2015-16	MGNREGS Avenue	2500
34	Bh.Patna	Karlapada	Kurmachuan	Fukjodi-Kamthana	10	2015-16	MGNREGS Avenue	2500
35	M.Rampur	M.Rampur	Goudkela	Karlakhunta to Chandanpinda	4	2015-16	MGNREGS Avenue	1000
36	M.Rampur	M.Rampur	M.Rampur	Motoganda to Ganjapadar	12	2015-16	MGNREGS Avenue	3000
37	M.Rampur	M.Rampur	M.Rampur	Mandirpada to Andhariburei	4	2015-16	MGNREGS Avenue	1000
38	Narla	Belgaon	Belgaon	Tulapada - Manikera Forest Road	10	2015-16	MGNREGS Avenue	2500
39	Narla	Belgaon	Belgaon	Tulapada - Manikera Forest Road	10	2015-16	MGNREGS Avenue	2500
40	Kesinga	Rupra Road	Rupra Road	Palsapada to mandel PMGSY Road	20	2015-16	MGNREGS Avenue	5000
41	Kegaon	Kegaon	Kegaon	Kegaon to Lanji	10	2015-16	MGNREGS Avenue	2500
42	Kegaon	Kegaon	Jayantpur	Mahaling to Bhatipada	10	2015-16	MGNREGS Avenue	2500
43	M.Rampur	Mohangiri	Mohangiri	Mohangiri to Pandapadar	10	2016-17	MGNREGS Avenue	2500
44	Kesinga	Rupra Road	Gadebandh	Ghantmal to Ranipata PMGSY Road	10	2016-17	State Plan Avenue	2500
45	Bh.Patna	Bhatangpadar	Nuagaon	Talbelgaon	3.2	2016-17	GIM Avenue	800
46	Bh.Patna	Bhatangpadar	Bhatangpadar	Bhawanipr to Bhatangpadar	3.2	2016-17	GIM Avenue	800

47	Bh.Patna	Santpur	Santpur "A"	Chhatiguda-Kadam	10	2016-17	MGNREGS Avenue	2500
48	Bh.Patna	Bhatangpadar	Sarlanji	Bijepur-Gundri	10	2016-17	MGNREGS Avenue	2500
49	M.Rampur	M.Rampur	Ramud	Nunpur-Bamak PMGSY Road	12	2016-17	MGNREGS Avenue	3000
50	M.Rampur	M.Rampur	Ramud	Talijore-Aranjharan PMGSY Road	8	2016-17	MGNREGS Avenue	2000
51	Narla	Narla	Kerbandi	Pipalpada - Panga	10	2016-17	MGNREGS Avenue	2500
52	Narla	Kamarda	Bhurti	Mundighati - Kadamguda	10	2016-17	MGNREGS Avenue	2500
53	Kesinga	Rupra Road	Dampadar	Dangapata to Muding PMGSY Road	7	2016-17	MGNREGS Avenue	1750
54	Kesinga	Rupra Road	Gigina	Titkela to Sirpur PMGSY Road	3	2016-17	MGNREGS Avenue	750
55	Kesinga	Kesinga	Deogaon	Goudtola-Khajurpada PMGSY Road	10	2016-17	MGNREGS Avenue	2500
56	Kegaon	Daspur	Putiachura	Bandhagaon to Rengsapali	10	2016-17	MGNREGS Avenue	2500
57	Kegaon	Daspur	Daspur	Brundabahal to Daspur	10	2016-17	MGNREGS Avenue	2500
58	Bhawanipatna	Bh.Patna	Damrupadar	Dangripadar to Jamunabahal	5	2017-18	MGNREGS Avenue	1250
59	Bhawanipatna	Bhatangpadar	Bhatangpadar	Bhatangpadar to Rabandora	5	2017-18	MGNREGS Avenue	1250
60	Bhawanipatna	Santpr	Burat	Pajibahal to Sankarmal	5	2017-18	MGNREGS Avenue	1250
61	Bhawanipatna	Karlapada	Tiljodi	Podmundi to Kholandi	5	2017-18	MGNREGS Avenue	1250
62	M.Rampur	M.Rampur	Ramud	Borbhata to Podelkuna	10	2017-18	MGNREGS Avenue	2500
63	M.Rampur	Mohangiri	Pandapadar	Tejipada to Dalabahali	10	2017-18	MGNREGS Avenue	2500
64	Narla	Harlanga	Urladani B	Sikuli - Mahulpada	10	2017-18	MGNREGS Avenue	2500
65	Narla	Kamarda	Kamarda	Pipalpada - Goten	10	2017-18	MGNREGS Avenue	2500
66	Narla	Belgaon	Sripali	Sripali - Gumu	10	2017-18	MGNREGS Avenue	2500
67	Kesinga	Rupra Road	Gigina	Taprang to Muskuti	10	2017-18	MGNREGS Avenue	2500
68	Kesinga	Kasurpada	Singjharan	Kashrupada to Singjharan	10	2017-18	MGNREGS Avenue	2500
69	Kesinga	Rupra Road	Gigina	Kuten to Thuapadar	10	2017-18	MGNREGS Avenue	2500
70	Kegaon	Golamunda	Antarla	Antarla- Naktikani	10	2017-18	MGNREGS Avenue	2500
71	Kegaon	Golamunda	Kirkakani	Gargab- Latabanji	10	2017-18	MGNREGS Avenue	2500

72	Bhawanipatna	Bhawanipatna	Surli	Bhoiguda to Pairal PMGSY Road	5	2018-19	MGNREGS Convergence State Plan	1250
73	Bhawanipatna	Bhatangpadar	Nuagaon	Nuagaon to Khaing PMGSY Road	5	2018-19	MGNREGS Convergence State Plan	1250
74	Bhawanipatna	Karlapada	Kurmachuan	Pastipada to Palshijharan PMGSY Road	5	2018-19	MGNREGS Pure	1250
75	Bhawanipatna	Karlapada	Kurmachuan	Singjharan to Rajnaguda PMGSY Road	5	2018-19	MGNREGS Pure	1250
76	Bhawanipatna	Bhatangpadar	Bhatangpadar	Bhatangpadar to Rabandoro PMGSY Road	5	2018-19	MGNREGS Pure	1250
77	Bhawanipatna	Santpur	Burat	Ulikupa to Saria PMGSY Road	5	2018-19	MGNREGS Pure	1250
78	M.Rampur	Madanpur	Paramandapur	Khaliabandh - Gochhadengen PMGSY Road	10	2018-19	MGNREGS Pure	2500
79	M.Rampur	Madanpur	Kumerpeta	Dhumabhata chowk to Kansil Road	10	2018-19	MGNREGS Pure	2500
80	Narla	Belgaon	Sirpali	Padampada to Belgaon PMGSY Road	10	2018-19	MGNREGS Pure	2500
81	Narla	Kamarda	Kamarda	Uligunjer to Regdimal PMGSY Road	10	2018-19	MGNREGS Pure	2500
82	Kesinga	Rupra road	Gigina	Takarla to Ainlapada PMGSY Road	10	2018-19	MGNREGS Pure	2500
83	Kesinga	Kesinga	Deogaon	Dendoguda to Deogaon PMGSY Road	10	2018-19	MGNREGS Pure	2500
84	Kegaon	Golamunda	Golamunda	Golamunda to Kendupani Road	10	2018-19	MGNREGS Pure	2500
85	Kegaon	Golamunda	Golamunda	Kadlimunda to Tingipadar Road	10	2018-19	MGNREGS Pure	2500
86	Kegaon	Borda	Borda	Kantamal to Bhatipada Road	10	2018-19	MGNREGS Convergence State Plan	2500
87	Bhawanipatna	Bhatangpadar	Nuagaon	Khaing	10	2019-20	Green India Mission	2500
88	Bhawanipatna	Bhawanipanta	Kutrukhamar	Kapsara to NH-26	5	2019-20	MGNREGS Avenue	1250
89	Bhawanipatna	Bhawanipanta	Kutrukhamar	Badfunda to Rangiguda	5	2019-20	MGNREGS Avenue	1250
90	Bhawanipatna	Karlapada	Turpi	Turpi to Podmundi	5	2019-20	MGNREGS Avenue	1250
91	Bhawanipatna	Karlapada	Kurmachuan	Palsijharan to Kurmachuan	5	2019-20	MGNREGS Avenue	1250
92	Bhawanipatna	Bhatangpadar	Nuagaon	Khaing to Talbelgaon	5	2019-20	MGNREGS Avenue	1250
93	Bhawanipatna	Santpur	Burat	Nishanpur to Gunpur	5	2019-20	MGNREGS Avenue	1250

94	Kegaon	Kegaon	Nuagaon	Baramud	8	2019-20	Green India Mission Avenue	2000
95	Kegaon	Borda	Balipati	Pendramal	7	2019-20	Green India Mission Avenue	1750
96	Kesinga	Kasurpada	Tundla	Bandhpada to Khairmal	10	2019-20	MGNREGS Avenue	2500
97	Kesinga	Kesinga	Podkham	Sourapadar to Balsi	10	2019-20	MGNREGS Avenue	2500
98	M.Rampur	M.Rampur	Ramud	Nunpur to Kadhel via Mankadkhola	10	2019-20	MGNREGS Avenue	2500
99	M.Rampur	Madanpur	Gochhadengen	Gochhadengen to Benaguda	10	2019-20	MGNREGS Avenue	2500
100	Narla	Belgaon	Belgaon	Jamguda to Barabandha	10	2019-20	MGNREGS Avenue	2500
101	Narla	Narla	Narla	Narla Vet. Chhak to Kurmel	10	2019-20	MGNREGS Avenue	2500
102	Bh.Patna	Bhatangpadar	Bhatangpadar	Kanikupa	5	2020-21	GIM Avenue	1250
103	Kegaon	Daspur	Daspur	Daspur	5	2020-21	GIM Avenue	1250
104	Bh.Patna	Karlapda	Kurmachuan	Ghusrigudi to Kougopna	5	2020-21	MGNREGA Convergence	1250
105	Bh.Patna	Santpur	Santpur	Pajidohoni to Santpur	5	2020-21	MGNREGA Convergence	1250
106	M.Rampur	M.Rampur	M.Rampur	M.Rampur to Pandakamal	5	2020-21	MGNREGA Convergence	1250
107	M.Rampur	M.Rampur	Ramud	Damkarlakhunta to Kandagaon	5	2020-21	MGNREGA Convergence	1250
108	Bh.Patna	Bhawanipatna	Surli	Pairmal to Dakibandel	5	2020-21	MGNREGS Pure	1250
109	Bh.Patna	Bhatangpadar	Bhatangpadar	Bhawanipur to Kenduguda	5	2020-21	MGNREGS Pure	1250
110	M.Rampur	Madanpur	Alatara	Alatara chowk to Gochhadengen	5	2020-21	MGNREGS Pure	1250
111	M.Rampur	Madanpur	Gochhadengen	Gochhadengen to Badsurda	5	2020-21	MGNREGS Pure	1250
112	Narla	Harlanga	Urladani 'A'	Rangparu-Chitra	10	2020-21	MGNREGS Pure	2500
113	Kesinga	Kashrupada	Tundla	Rajapada to Digsira	10	2020-21	MGNREGS Pure	2500
114	Kesinga	Rupra Road	Rupra Road	Rupra Road to Chhatamahul	5	2020-21	MGNREGS Pure	1250
115	Kesinga	Rupra Road	Gadebandh	Gokhra to Fatkabahali	5	2020-21	MGNREGS Pure	1250
Total								238600

UTP Plantation

Sl No.	Range	Section	Beat	Plantation Site Name	Area	Year of Plant	Name of the Scheme	No. of Seedling
1	Bhpatna	Bhpatna	Dambarupadar	Bh.Patna	20	2012-13	State Plan UTP	20000
2	Bhpatna	Bhpatna	Dambarupadar	Bh.Patna	30	2012-13	State Plan UTP	30000
3	Kesinga	Kesinga	Kesinga	Kesinga Town	10	2013-14	State Plan UTP	10000
4	Bhawanipatna	Bhawanipatna	Kutrukhamar	Engineering Collage Campus	8	2014-15	State Plan UTP	7500
5	Narla	Narla	Narla	Novadaya Vidyalaya Campus	8	2014-15	State Plan UTP	7500
6	Kegaon	Kegaon	Kegaon	Kegaon Basti	15	2015-16	State Plan UTP	15000
7	Kegaon	Kegaon	Kegaon	Sanchergaon College	5	2015-16	State Plan UTP	5000
8	Bh.Patna	Bhawanipatna	Purnapada	Bhawanipatna	10	2016-17	State Plan UTP	10000
9	Kesinga	Kesinga	Kesinga	Tahansir	32	2018-19	State Plan GMM (UTP)	32000
10	Kesinga	Kesinga	Kesinga	Kesinga Railway	12	2018-19	State Plan GMM (UTP)	12000
11	Bhawanipatna	Bhawanipatna	Kutrukhamar	Kutrukhamar	5	2019-20	State Plan-GMM UTP	5000
12	Bhawanipatna	Bhawanipatna	Kutrukhamar	Kutrukhamar Railway Station	3.6	2019-20	State Plan- IGC UTP	3600
13	Kesinga	Kesinga	Kesinga	Kesinga NAC	20	2019-20	State Plan-GMM UTP	20000
14	Bh.Patna	Bhawanipatna	Purnunapada	RMC Bhawanipanta	2	2020-21	State Plan UTP	2000
Total					**180**			**179600**

Distribution of Seedling

Year	Name of Scheme	Amount of seedlings distributed in lakh for TOF
2009-10	RLTAP	1.50000
2010-11	RLTAP	1.50000
	CAMPA	2.00000
2011-12	13th FCG	5.00000
2012-13	13th FCG	5.00000
2013-14	13th FCG	7.40000
2014-15	13th FC	7.40000
2014-15	Agro forestry	5.00000
2015-16	TOF	7.40000
	Agro forestry	6.00000
2016-17	TOF	7.40000
	Agro forestry	6.00000
2017-18	TOF	2.50000
2018-19	TOF	2.50000
	Agro forestry	6.00000
2019-20	TOF	0
	Agro forestry	0
2020-21	TOF	2.50000
	Agro forestry	6.50000
Total		**81.60000**

14.3 Quality Planting Material (QPM)

14.3.1 Tree cover Planting material of authentic vegetative or seed origin produced in advanced technology nurseries or tissue culture labs,with proven track record of high survival percentage in the field,faster growth, higher yield, resistance to pest and diseases, adaptability to local bio-physical, climatic and socio-economic conditions,and with high market demand, will be eligible to qualify as Quality Planting Material. It should originate from properly established seed orchards, clonal orchards, plus trees, produced by advanced technology nurseries. The mother stock used for production of QPM in hi-tech and satellite nurseries (temporary nurseries established near the plantation sites) should be of diverse genetic origin.

14.3.2 Production of Quality Planting Material (QPM):- The time of sowing/initiation of propagules production depend on how long the seedlings will take to reach an optimum size characteristic for the species and site and purpose of planting. The plantable size of plants should be ready at the time of initiation of monsoon (July for South-West monsoon and October for North-East monsoon areas).Generally, it is assumed that the area of nursery should be about 1 acre for every 30,000 plants to be produced with an assured daily supply of about 200 litres water per 1000seedlings.

14.3.3 Packages of practices for quality planting material production:-For raising the important agro forestry species in TOF, packages of practices are considered in following steps that are most suited for better production of the planting materials.

i. Workers of a registered nursery should receive professional training on production of QPM imparted by an institution, where, apart from the techniques to be used in production of QPM, they should be sensitized to the importance and ethics behind production of QPM.
ii. Required seeds should be collected from designated and well-maintained seed orchards. If no seed orchard is available for the species, nurseries would need to be supported by a scientific institution to select 'candidate plus trees' based on the morphology/phenotype method, and seed should then be collected only from Superior Trees.
iii. Mature pods/fruits should be collected just prior to falling and seeds should be extracted as early as possible without damage. Using fresh seed for seedling production is advocated. If seed has a long viability period it can be stored to be used later. In case of vegetative propagules, fresh scion or buds should be collected from the identified mother plant and used for grafting or budding within 12 hours.
iv. Where feasible, fruits/pods should be collected directly from trees to protect them from getting exposed to soil moisture or soil microorganisms.
v. Seed should be collected from several mother trees to ensure genetic diversity on the mother's side. Also, collection of mature seed maximizes seed viability, seed storability and results in good quality seedlings.
vi. In order to collect good quality seed, information on seed collection period is essential. A few MPTS produce seed every year, while some other species produce

seed only in cycles of multiple years. However, most species produce seed only during a certain period of the year.

vii. Seed can be collected from (i) seed orchards (ii) seed production areas (iii) natural forest or plantations, or (iv) populations of seed trees (e.g. scattered trees in farmland). Same amount of seed should be collected from at least 20-30 parent trees with spacing depending on species and type of seed sources.

viii. Seed can be collected from the floor below trees for such species as *Tectona grandis* (teak) and *Gmelina arborea* during the peak seed maturation season. For other species, mature fruit can be dislodged and collected by shaking the tree.

ix. To facilitate collection by in this method, polyethylene/plastic sheets or gunny bags should be placed below the tree before shaking. Seed can be directly collected from trees which are small to medium sized such as *Calliandra calothrysus, Gliricidia sepium*and *Leucaena leaco cephala* and others. For medium to large trees seeds can be collected by using ladders or directly climbing by a trained person. Mature fruit may also be collected from trees that are harvested for other purposes.

x. About 50% more seed than the estimated requirement should be collected to compensate for poor germination rate, nursery and early field mortality.

xi. In order to maintain seed quality, seed collection must be followed by proper seed processing and handling, which includes such activities as sorting, extraction, cleaning, grading, drying, storage and transportation.

xii. All fruits collected in the field may not be mature or of good quality; therefore, fruits should be sorted. Mature fruits should be processed for seed extraction. Fruits that are undeveloped or infected with insects and disease should be discarded. Also, those fruits that are not fully mature should be separated and allowed to after-ripen. After-ripening is important, because seed extracted from immature fruits can get damaged.

xiii. Extraction is the further process of removing seed from fruits which varies by species and fruit type. Seeds of *Leucaena*spp and *Calliandra calothrysus* are extracted by rubbing and crushing the fruits; seeds of *Gliricidia sepium* and *Acacia mangium* are extracted by placing their fruits in sacks and beating them lightly with a stick; seeds of *Santalum* species (sandalwood) are extracted by scrapping with an abrasive material such as sand and ash to remove fleshy material; seeds of *Gmelina arborea*, *Azadirachta indica* (neem) and *Tamarindus indica* (tamarind) are extracted by scrubbing and washing with water to remove fleshy material; while seeds of *Swietenia macrophylla* (mahogany) are extracted simply by breaking open the fruits and

removing the seed and fruits of *Tectona grandis* (teak) and *Calamus* species (rattans) are processed by firmly rubbing together to remove the outer skin and other debris. Extraction methods should be conducted carefully to avoid damage to seed.

xiv. If seed extraction and processing cannot be conducted immediately, place sacks or containers of seed in a room with good air circulation. Sacks may also be hung from the ceiling and only mature fruits should be processed for seed extraction. Some common tools used in extraction include sacks, tarps, trays, buckets, tanks and sandpaper (or other abrasive material).

xv. In order to maintain high seed quality and viability during storage all debris must be removed. A number of simple cleaning methods such as winnowing and sieving, removing wings from winged seeds of *Swietenia macrophylla* (mahogany) and other species, washing and drying are common. After cleaning these edit is appropriate to grade it according to relevant characteristics.

xvi. If seed is to be sown immediately after extraction and cleaning, no further processing is required. However, if it will be stored, even for a short period, the seed of most species requires drying in order to maintain viability during storage.

xvii. Seed storage is necessary for a number of reasons such as time of seed ripening and collection often varies which affects seedling production and tree planting, far away location of the seed sources, and for species that do not produce seed every year. In addition, seed storage is needed before its transportation to place of requirement.

xviii. The length of time the seed will remain viable varies greatly by species and storage conditions. Under fair to good conditions orthodox seed of most species will remain viable when stored for one to two years. However, seed will remain viable for a longer period when stored at a consistent cool temperature, with low moisture content and under low air humidity.

xix. Seed should be stored in the dark or in covered non-transparent containers or sacks, bags, baskets, tins, plastic or glass jars with air-tight lids. Some organic pesticides such as neem oil or leaves, gliricidia leaves, can be used to protect seeds.

xx. When vegetatively active plant parts are used for propagation, it is referred to as the asexual or clonal propagation.The vegetatively active plant parts also known as primary plant parts, such as the stem, root and leaf, are most

commonly used for producing plants. Their cuttings produce new copies of the parent tree or mother plant. Plants produced from a single plant asexually are called clones. One can take cuttings from the branches, roots and even from the leaf in certain species .A branch may be made to root while still attached to the tree through air layering and separated after the roots have developed well. The cuttings could be classified into hardwood, semi-hardwood, and softwood or active, green, immature cuttings.

xxi. Hardwood cuttings are generally used for propagating deciduous and softwood trees. Many of these plants can also be propagated with semi-hardwood cuttings with care. Softwood or green tip cuttings are mostly used in propagating herbs, vegetables, flowers,etc.

xxii. Asexual propagation can be categorized into apomictic seed, and specialized vegetative active part used for cutting, layering, grafting, budding, etc.

Table No. 14.7

Seed collection period, pre-sowing treatments and other parameters in respect of some important agro forestry species

S.No.	Common name	Scientific name	No. of seeds per kg	Best seed collection period	Pre-sowing treatment	Viability (months)	Germination (%)
1	Eucalypts, Safeda	*Eucalyptus tereticornis*	>357000	Sept.-December	Fresh, mixed with ash/ sand	24	90
2	Subabul	*Leucaena leucocephala*	8000-10000	April	Hot water treatment for 2-3 minutes	24	90
3	Alder	*Alnus nepalensis*	18 lakh	Nov. -December	Stratification	3	58
4	Whistling tree, Jhau	*Casuarina equisetifolia*	760000	June-December	Fresh, mixed with ash	12	70
5	Indian Lilac, Neem	*Azadirachta indica*	1750-4000	June-July	Fresh, de-pulping and sowing	2 weeks	50
6	Kadamb	*Anthocephalus cadamba*	16 lakh	Jan.-Feb., Oct.-Nov.	Overnight water soaking	6	76
7	Maharukh, Ardu	*Ailanthus excels*	9500	April-May	De-winking, water soaking 12-24 hrs.	6	70
8	Teak, Sagaun	*Tectona grandis*	2500-3000	Nov.-January	Alternate wetting and drying for 7-10 days	24	30-60
9	Indian siris	*Albizia lebbeck*	9200	Nov-Feb	Water soaking for 24 hr	48-60	40-60
10	Anjan	*Hardwickia binnata*	3900	April-May	Fresh, no treatment	12	60-80
11	Gum Arabic, Babul	*Acacia nilotica*	700-11000	April-June	Fresh, 40-50 min H2SO	> 24	88

					scarification		
12	Mangium, Black wattle	*A. mangium*		Jan.-June	Soak seed in hot water for 2-5 minutes then in cool water for a day	24	60-80
13	Karanj	*Pongamia pinnata*	800-1500	Mar.-May	Fresh, no treatment	12	80
14	Tamarind, Imli	*Tamarindus indica*	1000-1200	Oct.-Dec.	Fresh, 15 min H2SO scarification	36	>60
15	Jamun	*Syzygium cuminii*	1200	June-Aug.	Fresh, no treatment	1	50

Table No. 14.8

Propagation technique and quantitative standards of planting stock of major agro forestry species

S. No.	Common name	Scientific name	Period in nursery	Age (months)	Height (cm)	Collar diameter (cm)	Stock type*
1	Poplar	*Populus deltoides*	Jan./Feb. to Jan./Feb.	12	300-400	3-4	Entire Transplant
2	Eucalypts, Safeda	Eucalyptus (different species and hybrids)	Throughout the year (Under controlled conditions)	3	30	0.3-0.5	Clonal
3	Eucalypts, Safeda,	*Eucalyptus tereticornis*	Feb. – August	5	40	0.3-0.5	Seedling
4	Bakain, Dek,	*Melia composita*	Feb. – August	8	50-60	0.5 -0.6	Seedling
5	Bead tree, Bakain	*M. azedarach*	Feb. – August	8	50-60	0.5 -0.6	Seedling
6	Malabar Neem	*M. dubia*	Feb. – August	8	50-60	0.5 -0.6	Seedling
7	Ipil-ipil, Subabul	*Leucaena leucocephala*	Feb.-July	5-6	40-50	0.4-0.5	Seedling
8	Alder, Utis, Kosh	*Alnus nepalensis*	January-Feb.	13	40-50	0.4-0.5	Seedling
9	Whistling tree, Jhau	*Casuarina equisetifolia*	Dec.-May	5-6	40-50	0.3-0.4	Clonal
10	Indian rosewood, Shisham	*Dalbergia sissoo*	Feb.-July	4-5	40	0.5-0.6	Seedling/ clonal
11	Robinea	*Robinia pseudoacacia*	March-Dec.	9-10	0.5-0.8	0.5-0.7	Seedling/ grafts
12	White willow	*Salix alba*	Jan.-Dec.	12	80-120	0.6-0.8	Clonal
13	Elm	*Ulmus villosa*	March-Feb.	12	50-60	0.4-0.5	Seedling
14	Neem	*Azadirachta indica*	June-Feb.	7-8	30-40	0.3-0.4	Seedling
15	Bhimal, Buel	*Grewia optiva*	March-June	15	60-80	0.4-0.5	Seedling

16	Khejri	*Prosopis cineraria*	July-June	12	30 -40	0.3-0.4	Seedling/ grafts
17	Kadamb	*Anthocephalus cadamba*	Feb.-July	4-5	35-50	0.4-0.6	Seedling
18	Toon	*Toona ciliate*	June-Feb.	7-8	30-40	0.5-0.6	Seedling
19	Mulberry, Toot	*Morus alba*	Jan.- July	6	0.7-0.8	0.5-0.7	Clonal/ cutting
20	Sandal, Chandan	*Santalum album*	June – Feb./Feb.-Aug.	7-8	30	0.3-0.5	Seedling
21	Mehndil	*Lawsonia inermis*	March-July	4	30	0.2-0.3	Seedligs
22	Maharukh, Ardu	*Ailanthus excelsa*	Dec. – July	6	40	0.4-0.5	Seedling
23	Mahogany	*Swietenia mahoganii*	Dec.-July	6-8	40	0.4-0.5	Seedling
24	Mahua	*Madhuca indica*	July - Jan.	6-7	30	0.3-0.4	Seedling
25	Pilu	*Salvadora oleoides*	July-May	10-12	20-30	0.3-0.4	Seedling
26	Arjun	*Terminalia arjuna*	June- April	10	30-40	0.3-0.4	Seedling
27	Beheda	*Terminalia bellirica*	March-July	3-4	20-30	0.5	Seedling
28	Harar	*Terminalia chebula*	June –May	12	40	0.4	Seedling
29	Semul	*Bombax ceiba*	June-May	12	50	0.4	Seedling
30	Teak, Sagaun	*Tectona grandis*	Jan. - Aug.	6-7	30-40	0.5	Stump planting
31	White teak, Gumhar	*Gmelina arborea*	Jan. - Aug.	6-7	40-60	0.5	Seedling
32	Pink cedar	*Acrocarpus fraxinifolius*	May-Feb.	8	40	0.3	Seedling
33	Indian siris white	*Albizia lebbeck*	Jan.-June	4-5	35	0.3-0.5	Seedling
34	Albizia	*Albizia chinensis*	Jan.-June	4-5	35	0.3-0.5	Seedling
35	Indian siris black	*Albizia procera*	Jan.-June	4-5	35	0.3-0.5	Seedling
36	Anjan	*Hardwickia binnata*	May/June-June	12	40-50	0.4-0.6	Seedling
37	Gum Arabic, Babul	*Acacia nilotica*	Jan.-June	4-5	30-40	0.3-0.4	Seedling
38	Khair	*A. catechu*	Jan.-June	4-5	30-40	0.3-0.4	Seedling
39	Mangium, Black	*A. mangium*	Jan.-June	4-5	30-40	0.3-0.4	Seedling
40	Acacia	*A. auriculiformis*	Jan.-June	4-5	30-40	0.3-0.4	Seedling
41	Aonla	*Phyllanthus emblica*	Feb.-April (seed sowing Feb.)	4-5	30-40	0.5	Grafted

42	Tamarind , Imli	*Tamarindus indica*	March-July	3-4	30-40	0.8-1.2	Seedling
43	Jamun	*Syzygium cuminii*	Sowing seeds: June-July	12-18	30-40	0.8-1.2	Seedling
44	Coconut	*Cocos nucifera*	Feb.-Aug.	8-12	50-75	0.5-0.8	Seedling
45	Bael	*Aegle marmelos*	June-July	12	30-40	0.5-0.8	Seedling
46	Ber	*Zyziphus jujube*	March-April seed sown June –Sept. budding	8-15	30-40	0.8-1.2	Grafted
47	Bamboo	*Bambusa spp.*	Jan.-June	6	60-80	0.2-0.4	Seedling/ clonal

Carbon Stock Estimation of Tree Outside Forest :In this working plan attempt has been made to estimate the carbon stock of the plantations raised by Kalahandi North Division in the outside Forest areas. For the estimation of biomass regression equations formulated by Brown etal.(1989) for the dry forest in India, further modified and published in Food & Agriculture Organization (FAO) paper of UNO during 2006 has been used as

Y=exp{-1.996+2.32*ln(D)}

Where *Y- Biomass per tree in kg.*

D-DBH in cm(5cm to 40cm)

For taking survival as 50% of Avenue Plantation outside forest area , the carbon stock of all avenue plantation comes to be 4567.9 ton. And by taking survival as 80% for UTP, total carbon stock comes to be 20167.15 ton. The detailed calculation is given in **Appendix XLV.**

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CHAPTER- 15

WATER RESOURCE MANAGEMENT UNDER KALAHANDI NORTH FOREST DIVISION

15.1 Introduction:

Living organisms need water to survive. All oxygen-dependent organisms need water to aid in the respiration process; some organisms, such fish, cannot breathe outside its presence, while other organisms need water to help break down food molecules or generate energy during the respiration process. Water is also used to help regulate metabolism and dissolve compounds going into or out of the body.

Water scarcity is being driven by two converging phenomena: growing freshwater use and depletion of usable freshwater resources. Water resource management, is the need of time. It is the management of water resources for the coming generations. It involves the activity of planning, developing, distributing and managing the optimum use of water resources.

15.2 Use of Water:

There are four basic uses for water living organisms: as a solvent, as a temperature buffer, as a metabolite, and as a living environment.

As a solvent, water dissolves molecules such as sugar, as a temperature buffer, it helps regulate body temperature; as a metabolite, it regulates important chemical reactions within the body and as a living environment, it enables organisms such as fish to breathe.

(i) Water as a Solvent: Water attracts both positive and negative ions because of the nature of the chemical bonds in water. Thus, positive ions are attracted to the oxygen in water, while negative ions are attracted to the hydrogen. This allows water to dissolve compounds important for survivals, such as glucose gleaned from ingesting food.

(ii) Water as temperature buffer: Temperature regulation is vital for chemical reactions important to cellular activity, such as cellular respiration. Enzymes, or proteins that act as catalysts to start chemical reactions, are heat sensitive and will operate only at specific temperature. Water has a relatively high specific heat capacity. Thus, water absorbs much heat without the temperature of the organisms being raised. This prevents enzymes from becoming overheated and failing to function.

(iii) Water as a metabolite: Cell works via chemical reactions. The sum total of chemical reactions within an organism is called metabolism. Water is a metabolite, or a chemical involved reactions. It is necessary for the continued survival of plants and animals.

In plants, water aids in photosynthesis, the process by which plants convert sunlight into food. During the first state of photosynthesis, water is split into hydrogen and oxygen atoms. Oxygen is released into the atmosphere, while

hydrogen is used in the rest of the chemical reaction to produce glucose to feed the plant.

In animals, water aids in respiration. Water is used to split adenosine triphosphate (ATP) into adenosine diphosphate (ADP) and phosphoric acid. Cellular energy is released as a byproduct of this process. Water formation from oxygen and depleted hydrogen also moves waste products out of the body after the respiration cycle is complete.

(iv) Water as living environment: Water-based organisms such as fish require water to breathe. These organisms directly breathe oxygen dissolved in water. Without water supply, they cannot access oxygen and would suffocate. Water also helps insulate the living environment for these organisms.

15.3 Effects of water pollution on trees and plants:

- ❖ It causes disruption in photosynthesis in aquatic plants with eventual negative impact on ecosystem.
- ❖ Contaminated water destroys flora and fauna in the water.
- ❖ Excessive sodium chloride in water affects the growth of the plants in the water.

15.4. Effects of water pollution on animal life:

- ❖ Pollution nutrients cause excessive growth of toxic algae leading to the outbreak of diseases in fish.
- ❖ Chemically contaminated water suppress frog and tadpole biodiversity
- ❖ Polluted water retards the reproductive efficiency of animals.
- ❖ Persistent organic pollutants contain the growth of fish and wipe out their breed.
- ❖ Excessive quantity of sodium chloride in water may kill animals.

15.5. Importance of water as wildlife habitat:

Water replenishment is essential for wild animals. Presence of abundant food in a wildlife habitat is rendered useless, if water is not available in close proximity. A habitat becomes poor from the wildlife point of view if it is devoid of water source. Good Wildlife areas have well distributed water points. Many manor animals replenish their water by drinking from the available source.

15.6. Water resource of Kalahandi District:

The river Tel and its tributaries constitute the main drainage system in the district. Some important rivers like Indravati, Nagavalli and Vansadhara owe their origin to the hill ranges in the south-eastern parts of the district. The hilly streams are perennial in nature and many of the tributaries are ephemeral in nature. The drainage pattern of the district is of dendrite, radial and centripetal types. The drainage is effluent in nature. The river Tel, a major tributary of river Mahanadi, originates in the Nawarangpur highlands and enters the district

near Dharamgarh. Udanti, Indra, Sagada, Ret, Hatti and Uttei are important tributaries of river Tel. These streams are ephemeral in nature.

The Upper Idravati and Uttei are the main irrigation projects providing irrigation facilities in the district. There are 109 operational Minor Irrigation Projects (Flow), 364 government Lift Irrigation Projects and 174 private Lift Irrigation Projects in the district. Ground water contributes about 24% during *Kharif* and 44% during *rabi* of the total irrigation potential created so far for the two crop seasons respectively in the district. However there is a vast scope of creating additional irrigation potential through ground water in the district, as most part of the ground water resource remain unutilized. As per available data total irrigation potential created from all sources in the district.

The Ground Water Resources of the district has been assessed adopting the methodology recommended by the Ground water Estimation committee (1997), constituted by the Govt. of India. The task was jointly carried out by the Central Ground Water Board and Ground water Survey & Investigation Department of Water Resources, Govt. of Odisha. The block wise computation of ground water resource in the district has been presented in following Table. The Annual replenishable ground water resources in the district are computed as 74911 Ham, out of which the existing Ground Water Draft for irrigation is 9618 Ham.

STAGE OF GROUND WATER DEVELOPMENT OF ODISHA, BLOCKWISE AS ON 31ST MARCH – 2009

Table No.15.1 **(In ha m)**

Sl, No.	Assessment Unit/District	Net Annual Ground Water availability	Existing Gross Ground Water Draft for irrigation	Existing Gross Ground Water draft for domestic and industrial water supply	Existing Gross Ground water draft for all uses (4+5)	Allocation for domestic and industrial requirement supply upto next 25 years	Net Ground Water availability for future irrigation development (3-4-7)	State of Ground Water Development {(6/3)*100}
1	2	3	4	5	6	7	8	9
1	Bhawanipatna	6412	1358	529.00	1887	1204	3850	29.43
2	Dharamgarh	5355	647	356.34	1003	809	3899	18.73
3	Golamunda	6208	1020	306.00	1326	702	4486	21.36
4	Jaipatna	4761	324	339.00	663	762	3675	13.93
5	Junagarh	9686	882	479.25	1360	1076	7729	14.04
6	Kalampur	3044	444	167.91	611	346	2254	20.07
7	Karlamunda	4965	359	152.97	512	321	4285	10.31
8	Kesinga	5365	1231	343.00	1574	752	3382	29.34
9	Koksara	8691	838	342.67	1181	727	7126	13.59
10	Lanjigarh	5481	588	215.00	803	488	4405	14.65
11	M. Rampur	3910	618	297.63	916	1834	1457	23.43
12	Narla	4797	998	424.00	1422	964	2835	29.64
13	Th. Rampur	6236	311	283.00	594	659	5266	9.53
		74911	**9618**	**4236.00**	**13852**	**10644**	**54649**	**18.49**

SOURCE:- ***Ground Water Information Booklet, South Eastern Region, Bhubaneswar, May 2013***

15.7. Water level in the wells in the vicinity (up to 5Km) of forest area

In this division no periodic monitoring of water level with respect to annual rain fall has been conducted in the past.

15.8. Ground Water:

The ground water level increase in rainy season and the depth of water goes down to the maximum in April. The chemical quality of ground water in the district has been assessed on the basis of ground water monitoring, hydrogeological surveys and ground water exploration. The rand of different chemical constituents in shallow and deeper aquifers is as follows:

Range of Chemical Constituents in shallow Aquifers
Table No.15.2

Sl. No.	Parameters	Range	
		Shallow aquifer	Deeper aquifer
1	pH	7.32 – 9.07	6.8 – 8.28
2	Electrical conductivity (In us/cm at 25^0C)	110 - 4805	255 - 1856
3	Carbonate CO_3) (in mg/1)	Nil – 42	0 – 420.42
4	Bicarbonate (HCO_3) (in mg/1)	37-787	93-628
5	Chloride (CL) (in mg/1)	7.1-1304	7.1-283
6	Sulphate (SO_4) (in mg/1)	Nil-625	0.5-153
7	Nitrate (NO_3) (in mg/1)	Nil-492	0.3-300
8	Fluoride (F) (in mg/1)	0.26-4.0	0.2-5.3
9	Total Hardness as C_aCO_3 (TH) (in mg/1)	40-2130	70-720
10	Calcium (C_a) (in mg/1)	8-216	12-194
11	Magnesium (M_g) (in mg/1)	2.4-399	1.2-88
12	Sodium ($N_{a)}$ (in mg/1)	4.1-432	12-186
13	Potassium (K) (in mg/1)	0.59 – 39	<1-37
14	Total dissolved solid (TDS) (in mg/1)	66-976	204-1095
15	Fe (mg/1)		<0.01 – 5.8
16	SiO_2(mg/1)		17-79

SOURCE:- ***Ground Water Information Booklet, South Eastern Region, Bhubaneswar, May 2013***

15.9. Collection of water samples and analysis:

The specific conductance and chloride values generated from the chemical analysis of the region are found to be comparatively higher in the Badabasul – Daspur – Narla – Pastikudi. In localized patches of shallow aquifer at Moter, Ranmal, Ladugaon, Baldiamal, Badabasul, Chhilpa, Golamunda, Tundla, Santpur and in deeper aquifer at Nunpur, Madanpur, Ranmal concentration of fluoride is above 1.5 mg/1 otherwise everywhere it is below the permissible limit. The chemical analysis data suggests that the quality of ground water both from shallow and deeper aquifers are well within the permissible limit of utilisation for drinking purposes expect in the pockets of high fluoride. The suitability of ground water for irrigation in shallow aquifer in the district has been assed by use of US salinity diagram prepared

on the basis of sodium absorption ratio (SAR) and specific conductance. The classification of water in the district is given in table below:

US Salinity Classification
Table No.15.3

Classification based on Salinity diagram	Grade	No. of Samples	
		Shallow aquifer	Shallow aquifer (%)
C_1S_1	Good	5	27.8%
C_1S_2	Moderately Good		
C_1S_3	Unsuitable		
C_1S_4	Highly Unsuitable		
C_2S_1	Good	11	61.1
C_2S_2	Moderately Good		
C_2S_3	Unsuitable		
C_3S_1	Moderately Good	2	11.1

It may be noted that about 100% of the ground water samples collected from the phreatic and deeper aquifers are good for irrigation purpose.

There are different methods through which water management preservation can be done, some of them are explained below.

Rainwater harvesting : Rainwater harvesting (RWH) is the collection and storage of rain, rather than allowing it to run off. Rainwater is collected from a roof-like surface and redirected to a tank, cistern, deep pit (well, shaft, or borehole), aquifer, or a reservoir with percolation. Dew and fog can also be collected with nets or other tools. Rainwater harvesting differs from stormwater harvesting as the runoff is collected from roofs, rather than creeks, drains, roads, or any other land surfaces. The harvested water can also be committed to longer-term storage or groundwater recharge.

Groundwater recharge : Groundwater recharge is the enhancement of natural groundwater supplies using man-made conveyances such as infiltration basins, trenches, dams, or injection wells. Aquifer storage and recovery (ASR) is a specific type of groundwater recharge practiced with the purpose of both augmenting groundwater resources and recovering the water in the future for various uses.

Artificial groundwater recharge : Groundwater levels are declining across the country as our withdrawals exceed the rate of aquifers to naturally replenish themselves, called recharge. One method of controlling declining water levels is by using artificial groundwater recharge. Artificial recharge is the practice of increasing the amount of water that enters an aquifer through human-controlled means.

Aquifer storage and recovery : Aquifer storage and recovery (ASR) is the direct injection of surface water supplies such as potable water, reclaimed water (i.e. rainwater), or river water into an aquifer for later recovery and use. The injection and extraction is often done by means of a well. In areas where the rainwater cannot percolate the soil or where it is not capable of percolating it fast enough (i.e. urban

areas) and where the rainwater is thus diverted to rivers, rainwater ASR could help to keep the rainwater within an area. ASR is used for municipal, industrial and agricultural purposes. The objective of AR is to replenish water in an aquifer.

15.10. Prescription:

- Year wise assessment of flow level of the perennial water sources should be carried out.
- Year wise assessment of water sample analysis should be done at different locations.
- The reason of pollution should be ascertained and its impact on Forest & Wildlife should be found out.

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CHAPTER-16
CLIMATE CHANGE AND REDD+

16.1 CLIMATE CHANGE :

Climate is nothing but the weather at a location over a period of time. Within a span of 30 years normal variation may occur. Climate change means more than changes in the weather. The United Nations Framework Conventionon Climate Change (UNFCCC) defines climate change as a change of climate which is attributed directly or indirectly to human activity and alters the composition of global atmosphere which is in addition to natural climate variability observed over comparable time periods.

Evidence of Global Warming can be observed in global average air & ocean temperatures widespread melting of snow & ice for rising the Sea level. Causes of Global Warming is the increased emission of green house gases with Carbon dioxide ($C0_2$) being the main component.

Some of the main human activities that contribute to global warming are :

1) Increasing atmospheric concentrations of greenhouse gases, for warming effect.
2) Global changes to land surface such as deforestation for a warming effect.

16.2 IMPORTANCE OF FOREST FOR CLIMATE CHANGE:

Forests are linked to climate change in 3 ways.

i. They are source of green house gas (GHC) emissions.
ii. They offer mitigation opportunities to stabilize GHG concentration because they act as both Sink & Pool. Carbon Pools are forest biomass & forest can act as sink through the tree growth & resultant biological carbon sequestration.
iii. They are impacted by climate change.
Changing biodiversity, pattern of growth of species, physiological changes in plant life cycles, changes boundaries of eco systems and other biotic & abiotic response.

As Global community is increasingly concerned about Climate change, attention has been drawn to the role of forest in this regard. Forest plays an important role in the Global carbon Cycle because they store larger quantities of carbon in vegetation and soil.

Studies reveals that 17% of global green house gas emission is only contributed by deforestation. The increase in green house gases is projected to lead 1-3.5° in Global Mean Surface Temperature by the year 2100.

16.3 REDD+

REDD+Reducing emission from deforestation and degradation, along with conservation of forests has been recognised as a very innovative way to tackle

climate change. During REDD+ decision taken in the meeting of conference of parties in Cancun, Govt. of India agreed to boost action to curb emissions from deforestation and forest degradation with the technological and financial support of the developed countries. It has also been decided to incentivize local communities, who are involved in this endeavour.

Pursuant to various decisions taken at the Conference of Parties of UNFCCC on REDD+, following actions are required to be initiated at National level in India.

(i) To develop National REDD+ Strategy and results-based action that should be fully measured, reported, and verified
(ii) To identify drivers of deforestation and forest degradation and also the activities that result in reduced emissions and increased removals, and stabilization of forest carbon stocks
(iii) To estimate anthropogenic forest related Greenhouse gas emissions by sources and removals by sinks, forest carbon stocks and forest area changes
(iv) To develop and implement the Monitoring Reporting and Verification (MRV) protocols and fair benefit sharing mechanisms at National and State levels, and
(v) To protect & safeguard, ensuring the full participation of local people and local communities, and conserving biodiversity.

To implement specific REDD+ action in the Kalahandi North Division following interventions are required to be taken for forest management.

16.3.1. Addressing Drivers of Deforestation & Degradation :

Due to dependence of local people on the forests, the forests of Kalahandi North Division are in various stages of degradation. As per report of ORSAC and NRSC, three is empty-forest syndrome. Following interventions are needed to be implemented to manage the situation.

16.3.2 Provision of alternative Energy Sources :

In VSS meetings the forest personnel should persuade the villagers to use LPG instead of fuelwood.
Energy efficient chullahs should be provided to the household of forest fringe villages.

16.3.3 Enhancement of fodder availability :

Almost all the cattle of villagers of nearby forest areas are dependent on forest for their fodder. Hence, livestock grazing in forests should be effectively addressed by securing enhanced fodder availability beyond across forests, grasslands/agro ecosystem. For this Interdepartmental co-ordination is necessary.

16.3.4 Conservation and Enhancement of Forest Carbon Stocks : There is a wide scope in this Division for enhancing carbon stocks.

I) Enhancing forest carbon stocks in Moderately Dense Forests. Approximately 30797.89 ha. (as per FSI report,2017) of forests of Kalahandi North Division are moderately dense forests. Better protection, fire protection and control, regulated grazing, eradication of invasive species, management of insects and other pathogens required soil moisture conservation are the key intervention to increase the stocking density, enhance biomass and carbon stocks.

II) Restoration of open Forests. About 62131.01 ha (as per FSI report,2017) of forest land is available as open forests, Mostly on the fringes of villages with crown density 10-40%. Such areas are subjected to intense biotic and abiotic pressure and biomass removal.

Following interventions are required to be carried out which has already been discussed in concerned Working Circle.

- ANR plantation of indigenous species.
- Plantation of grasses in Gochar/non-forest land.
- Construction of soil-moisture conservation measures or rain water. harvesting structures.
- Protection from fire.

III) Restoration of Scrub forests : The lands with less than 10% cover amounting to some 18114.90 ha are under Scrub category. These lands can be restored through following methods.

- Plantation of scrub species with palatable grasses.
- Intensive soil moisture conservation methods.

IV) Enhancing carbon stocks in trees of Urban Areas. Trees in urban areas have been providing Environmental services along with supply of fuel wood to Urban poor. Urban forests emerge as an existing opportunity to mitigate Climate change, ameliorate air pollution, and help in improving water regime & biodiversity in Urban environment.

V) Agro-forestry for creation of carbon sinks outside forests.

To cater to the need of growing population, planting of trees or creation of forest outside traditional forest area is necessary. Trees on non-agriculture rural lands like homesteads, school yards, compounds of various offices, Private/Public establishments, Road side, Canal side etc can be planted.

16.3.5 **Sustainable Management of Forests :**

Sustainable management is the management which is Economically feasible, Socially acceptable & Environmentally sound. If the drivers of REDD would be addressed then it is expected to bring positive change in Environment and Climate change.

16.3.6 **Safeguards under REDD+** :

As per Cancun agreements, there is a need to ensure social and environmental

safeguard for successful implementation of REDD+

Environmental Safeguard :

- In no case natural forestsbe converted to plantations.
- Land use change should be arrested.
- Native species should be conserved & restored.

Social Safeguard

Committees have already been engaged in protection of forest through JFM. Total 593 nos of VSS have been formed and there is a wide scope to increase this number.

CHAPTER 17
SUMMARY OF PRESCRIPTIONS

Plan is an elaborate document in which facts, figures and features of operations have been described in detail. Very often the necessity is felt to find out a concise version of any particular operation just through a glimpse of the plan. So a synopsis of the prescriptions is required to cater this need. It is not only intended for the senior officers but also quite useful to the field functionaries for quick reference.

Chapter-I

Chapter	Heading	Prescriptions	Para	Page
Basis Of Proposal	**Objectives of management**	• To continue the efforts in increasing the forests and tree cover of the district with special emphasis on hill slopes, catchment area of rivers and reservoirs for regulation and betterment of water supply along with maintaining the ecological balance and environmental stability.	1.1	369-372
		• The forests being a renewable natural resource, this precious asset of the nature is to be protected, promoted and harvested to the permissible extent for meeting the both short term and long term requirement.		
		• To enrich the forests and to ensure the increase in its productivity through suitable silvicultural operations for establishing the regeneration and boosting the growing stock.		
		• To strengthen and stabilize the institution of V.S.S for enhancing the participation of local people to shoulder the responsibility of Joint Forest Management in more effective manner.		
		• To cater the need of the local people inculcating the idea of both producer and consumer of forest produce on sustained basis.		
		• To maintain the bio-diversity to serve as gene pool resource.		
		• To conserve and uplift the wildlife population through improvement of congenial habitat and conflict resolution.		
		• To develop the eco-tourism for providing recreational facilities to the people and also to induce a passion for its conservation.		

		• To create employment opportunity and source of income to the rural people especially the weaker section of the society to augment their livelihood particularly in forest fringe villages.		

	Constitution of Working Circles	9 (Nine) Working Circles are prescribed for this Division as under 1. Selection Working Circle. 2. Rehabilitation Working Circle 3. Plantation Working Circle 4. Protection Working (Overlapping)Circle 5. Bamboo (Overlapping) Working Circle 6. N.T.F.P. (Overlapping) Working Circle. 7. Wild Life (Overlapping) Working Circle. 8. J.F.M. (Overlapping) Working Circle 9. Soil & Water Conservation (Overlapping) Working Circle	1.3	373-376

Chapter-II

Chapter	Heading	Prescriptions	Para	Page
Selection Working Circle	Special objectives of management	• To **S**tabilise the environment and ecology with enrichment of the vegetation both in quality and quantity through proper silvicultural treatment.	2.6	385-386
		• To **E**ncourage and establish the natural regeneration of the crop with special emphasis on hill slopes and other eco-fragile areas.		
		• To **L**imit the harvest of mature crop to silviculturally and environmentally permissible extent through selection felling.		
		• To **E**nsure the general hygiene of the forests through removal of causative substance like dead and uprooted trees and strangulating climbers.		
		• To **C**onserve the moisture and soil through appropriate measures for ensuring the streams, nalas and ultimately the rivers to become perennial and fertility of the		

		soil.		
		• To **T**ackle the biotic interference effectively to protect and promote the forests.		
		• To remove congestion in the coppice crop by way of thinning operations so that conducive situation (ambience) is created for the better growth of the existence crop and the upcoming of the natural regeneration		
		• To stabilise the environment and ecology with enrichment of the vegetation both in quality and quantity with practicing required silvicultural treatment		
		• To limit the harvest of mature crop to silviculturally and environmentally permissible extent through selection felling		
		• To ensure the general hygiene of the forests through removal of causative substance like dead and uprooted trees and strangulating climbers.		
		• To Conserve the moisture and soil through appropriate measures for ensuring the streams, nalas and ultimately the rivers to become perennial and fertility of the soil.		
		• To tackle the biotic interference effectively to protect and promote the forests.		
		• To ensure ANR gap planting in the forests where ever those are required		
		• To conserve and maintain the forest cover for environmental protection.		

Chapter-III

Chapter	Heading	Prescriptions	Para	Page
Rehabilitation Working Circle	Special objectives of management	• To **Re**strict the degradation by reducing the biotic interference to barest minimum and reverse the trend towards the process of restoration. • To **D**evelop the forest by providing site-specific required silvicultural treatment. • To **F**acilitate the boosting of natural regeneration and ensure its	3.6	423-424

		establishment. • To take up soil and moisture conservation measures to improve the soil and moisture regime with special emphasis on upper reaches of the hill slope to ensure the perennial nature of the streams, nallas etc. • To conserve the area for bio diversity. • To improve the microclimate of the area as a whole, thereby ensuring environmental stability.		

Chapter-IV

Chapter	Heading	Prescriptions	Para	Page
Plantation Working Circle	Special objectives of management	• To **P**romote the growth of existing plantation through suitable tending/thinning operations. • To **L**essen the biotic interference to the barest minimum with the active participation of VSS and ensure proper protection. • To **A**dopt suitable soil and moisture conservation measures to enhance the moisture regime of the area for nourishment and improvement of the plantation. • To **N**urture the suppressed plants till reaching the desired growth. • To **T**reat the failure blank patch with planting of older, tall and fast growing seedlings suitable to the site.	4.6	456

Chapter-V

Chapter	Heading	Prescriptions	Para	Page
Protection (O) Working	Special objectives of	• To **P**rovide strict vigil against illicit felling, encroachment, poaching and shifting cultivation etc.	5.6	479

Circle	management	• To **R**educe the biotic interference to barest minimum. • To **O**ver come the impediments with active participation of the local people through strengthening the institutions of VSS for effective Joint Forest Management. • To **T**ighten the fire protection measures. • To **E**nhance the performance of the staff through regular monitoring. • To **C**ontrol the forest crime through secret collection of information. • To **T**rain the field functionaries in building up intelligence network and effective handling of arms and ammunitions and modern fire fighting methods		

Chapter-VI

Chapter	Heading	Prescriptions	Para	Page
Bamboo (Overlapping) Working Circle	Special objectives of management	• To **B**oost and sustain the production through suitable silvicultural operation and systematic management of bamboo forests. • To **A**ccelerate the natural regeneration through protection of the young bamboo particularly the slender shoots i.e. Kardi from being collected indiscriminately by the local people. • To **M**eet the bonafide demand of local people, bamboo artisans and bamboo based industries. • To **B**enefit the people dwelling in and around the forests especially the weaker section of the society through creation of employment opportunity. • To **O**pt for site-specific treatment to revive the unproductive coupe to commercially viable production. • To **O**ptimise the production in elephant dominated area to cater their food need.	6.6	497

Chapter-VII

Chapter	Heading	Prescriptions	Para	Page
N.T.F.P (Overlapping) Working Circle.	Special objectives of management	• To **N**urture the crops having the potentiality of N.T.F.P including medicinal plant species for their improvement through suitable silvicultural treatment to increase the production on perpetuity. • To **T**ake up measures on priority basis to prevent destructive harvesting method with a view to check the further degradation of the crop and to ensure the collection to the permissible extent. • To **F**acilitate the marketing of the products collected by the local people. • To **P**romote the local skill for value addition, processing and marketing of some major products to enhance the income.	7.6	524

Chapter-VIII

Chapter	Heading	Prescriptions	Para	Page
Wildlife (Overlapping) Working Circle	Special Objectives of Management	• To **W**ork wisely and widely to ensure the protection and improvement of wildlife habitat and natural eco-system. • To **I**mperatively protect and promote the wildlife emphasising on endangered ones. • To **L**essen elephant depredation and human-wildlife conflict to the maximum possible extent. • To **D**evelop eco-tourism for nature conservation with people's participation.	8.6	563

Chapter-IX

Chapter	Heading	Prescriptions	Para	Page
Joint Forest Management (Overlapping) Working Circle	Special objectives of management	• To **J**ointly shoulder the responsibility of management of forest by the VSS with Forest Officials and discharge the required duties effectively on sustained basis through their capacity building and empowering this village level people's institution. • To **F**oster the degraded forest for speedy and steady restoration of the vegetation with active participation of the local people. • To **M**otivate the local people for inculcating the attitude of both producer and consumer of the forest produce and becoming self-reliant through rational use of renewable natural community resource.	9.6	595

Chapter-X

Chapter	Heading	Prescriptions	Para	Page
Soil & Water Conservation (Overlapping) Working Circle	Special objectives of management	• Creation and Development of water tanks, contour, check dams, gully filling, construction of LBCDs etc. to check soil erosion • To improve water regimes and natural regeneration • To improve Silvicultural operation • Prioritization of critical areas with an aim to effective preventive as well as remedial soil and water conservation measures.	10.4	602

LIST OF APPENDICES

APPENDIX-I

List of Forest Road in Kalahandi North Forest Division

Name of Range	Sl No	Name of the Forest Road	Length in Km
1	**2**	**3**	**4**
M.Rampur & Narla	1	Tulapada-Manikera	48.00
M.Rampur	2	Urladani-Mohangiri	32.00
Narla	3	Narla-Kamarda-Bhurty	8.30
M.Rampur	4	Araskupa-Borighat	5.60
M.Rampur	5	Jurakhaman-bagbeda	3.50
Kesinga	6	Kasrupada-Saling	17.00
Kegaon	7	Sikuan-Ramchandrapur	8.00
Kegaon	8	Golamunda-Bokrasil	11.00
		Grand Total	**133.40**

APPENDIX-II

LIST OF BUILDINGS OF KALAHANDI NORTH DIVISION

Sl No	Name of Range	Place	Name of Building	Plinth Area in Sq.ft.	Year of construction	Cost of construction	Type
1	2	3	4	5	6	7	8
1	Bhawanipatna	Bhawanipatna	Range Officer Residence	900	2020-21	1454000	Pucca
2		Bhawanipatna	Forester Quarter	670	2020-21	1119000	Pucca
3		Bhawanipatna	FG Quarter	500	2020-21	812000	Pucca
4		Bhawanipatna	Animal Rescue Centre & Veterinary Treatment Facilities for Wild Animals	1650	2020-21	1000000	Pucca
5		Bhawanipatna	Extension of Division	-	2019-20	3100000	Pucca
6		Karlapada	Forester Quarter	670	2019-20	942000	Pucca
7		Karlapada	FG Quarter	500	2019-20	684000	Pucca
8		Tiljodi	FG Quarter	500	2019-20	684000	Pucca
9		Bhatangpadar	Forester Quarter	670	2018-19	750000	Pucca
10		Bhatangpadar	FG Quarter		2018-19	530000	Pucca
11		Bhawanipatna	Wildlife Crime Control & Coordination Center at Circle Head Quarter		2018-19	2500000	Pucca
12		Kutrukhai	Pump House		2016-17	123000	Pucca
13		Kutrukhai	Office Building		2016-17	1000000	Pucca
14		Kutrukhai	Seed Godown		2016-17	985000	Pucca
15		Kutrukhai	Store House		2016-17	1474000	Pucca
16		Santpur	Forester Quarter	670	2015-16	665000	Pucca
17		Santpur - A	FG Quarter	500	2015-16	480000	Pucca
18		Santpur - B	FG Quarter	500	2015-16	480000	Pucca
19		Bhawanipatna	Ministerial Quarter		2015-16	607000	Pucca
20		Bhawanipatna	Ministerial Quarter		2015-16	607000	Pucca
21		Bhawanipatna	Class IV Quarter		2015-16	408000	Pucca
22		Bhawanipatna	Class IV Quarter		2015-16	408000	Pucca
23		Bhawanipatna	Class IV Quarter		2015-16	408000	Pucca
24		Bhawanipatna	Range Office	1123	2014-15	1100000	Pucca
25		Bhawanipatna	Barrack No. 1		2014-15	1087000	Pucca
26		Bhawanipatna	Barrack No. 2		2014-15	1087000	Pucca
27		Sulia	FG Quarter	500	2014-15	480000	Pucca
28		Tikrapada	FG Quarter	500	2014-15	480000	Pucca
29		Bhawanipatna	Ministerial Quarter		2014-15	568000	Pucca
30		Bhawanipatna	Ministerial Quarter		2014-15	568000	Pucca
31		Bhawanipatna	Ministerial Quarter		2014-15	568000	Pucca
32		Bhawanipatna	Class IV Quarter		2014-15	382000	Pucca
33		Bhawanipatna	Class IV Quarter		2014-15	382000	Pucca
34	M.Rampur	Manikera	FG Quarter	500	2020-21	812000	Pucca
35		M.Rampur	Anti Poaching Barrack		2020-21	2000000	Pucca
36		Madanpur	Forester Quarter	670	2019-20	942000	Pucca
37		Jamunapur	FG Quarter	500	2019-20	684000	Pucca

Sl No	Name of Range	Place	Name of Building	Plinth Area in Sq.ft.	Year of construction	Cost of construction	Type
38		Parmanandpur	FG Quarter	500	2019-20	684000	Pucca
39		Gochhadengen	FG Quarter	500	2019-20	684000	Pucca
40		M.Rampur	Range Officer Residence	900	2018-19	1223000	Pucca
41		M.Rampur	Forester Quarter	670	2018-19	942000	Pucca
42		M.Rampur	FG Quarter	500	2018-19	684000	Pucca
43		M.Rampur	Range Office	1123	2018-19	1500000	Pucca
44		M.Rampur	FG Quarter	500	2018-19	530000	Pucca
45		Madanpur	FG Quarter	500	2015-16	480000	Pucca
46		Mohangiri	FG Quarter	500	2015-16	480000	Pucca
47		Bhatel C/N	Nursery Shed		2015-16	400000	Pucca
48		Urladani	FG Quarter	500	2014-15	480000	Pucca
49		Mohangiri	FG Quarter	500	2014-15	480000	Pucca
50	Narla	Harlanga	FG Quarter	500	2020-21	812000	Pucca
51		Narla	Range Officer Residence	900	2019-20	1223000	Pucca
52		Gunangbeda	FG Quarter	500	2019-20	684000	Pucca
53		Belgaon	FG Quarter	500	2019-20	684000	Pucca
54		Kamei	FG Quarter	500	2019-20	684000	Pucca
55		Narla	Forester Quarter	670	2018-19	942000	Pucca
56		Narla	FG Quarter	500	2018-19	684000	Pucca
57		Sripali	Forester Quarter	670	2018-19	750000	Pucca
58		Kamarda	Forester Quarter	670	2014-15	665000	Pucca
59		Sripali	FG Quarter	500	2014-15	480000	Pucca
60		Chochobahali	FG Quarter	500	2014-15	480000	Pucca
61	Kesinga	Kesinga	Forester Quarter	670	2020-21	1119000	Pucca
62		Gigina	FG Quarter	500	2020-21	812000	Pucca
63		Kashrupada	FG Quarter	500	2019-20	684000	Pucca
64		Taparang	FG Quarter	500	2019-20	684000	Pucca
65		Kesinga	Range Office	1100	2018-19	1500000	Pucca
66		Kesinga	Range Officer Residence	900	2018-19	1000000	Pucca
67		Kesinga	FG Quarter	500	2018-19	530000	Pucca
68		Rupra Road	Forester Quarter	670	2015-16	665000	Pucca
69		Gadebandh	FG Quarter	500	2015-16	480000	Pucca
70		Amath	FG Quarter	500	2014-15	480000	Pucca
71		Rupra Road	FG Quarter	500	2014-15	480000	Pucca
72	Kegaon	Chahaka	FG Quarter	500	2020-21	812000	Pucca
73		Borda	Forester Quarter	670	2019-20	942000	Pucca
74		Kendupani	FG Quarter	500	2019-20	684000	Pucca
75		Antarla	FG Quarter	500	2019-20	684000	Pucca
76		Dumuria	FG Quarter	500	2019-20	684000	Pucca
77		Sikuan	FG Quarter	500	2019-20	684000	Pucca
78		Daspur	FG Quarter	500	2019-20	684000	Pucca
79		Kegaon	Range Office	1100	2018-19	1500000	Pucca
80		Balipati	FG Quarter	500	2018-19	530000	Pucca
81		Kegaon	Range Officer Residence	900	2017-18	1000000	Pucca
82		Kegaon	Forester Quarter	670	2017-18	750000	Pucca

Sl No	Name of Range	Place	Name of Building	Plinth Area in Sq.ft.	Year of construction	Cost of construction	Type
83		Gargab	Forester Quarter	670	2017-18	750000	Pucca
84		Turechhada	FG Quarter	500	2017-18	530000	Pucca
85		Bagmunda	FG Quarter	500	2017-18	530000	Pucca
86		Gargab	FG Quarter	500	2017-18	530000	Pucca
87		Karmath	FG Quarter	500	2017-18	530000	Pucca
88		Golamunda	Forester Quarter	670	2015-16	665000	Pucca
89		Nuagaon	FG Quarter	500	2015-16	480000	Pucca
90		Kegaon	Malkhana		2014-15	575000	Pucca
91		Khaliapali	FG Quarter	500	2014-15	480000	Pucca
92		Borda	FG Quarter	500	2014-15	480000	Pucca

APPENDIX- III

LIST OF RESERVE FORESTS OF KALAHANDI NORTH DIVISION AS PER NOTIFICATION NO.9365-12-42 (m/2)58 Dt.14.3.59 OF DEVELOPMENT DEPARTMENT, GOVERNMENT OF ORISSA

Sl.No.	Name of the Range	Name of R.F	Area in Ha. As per Notification
1	Bhawanipatna	Alma	1360
2	Bhawanipatna	Brahmani	5919
3	Bhawanipatna	Dhangada dhangadi	229
4	Bhawanipatna	Dhanupanchan	726
5	Bhawanipatna	Kanamanjur	1902
6	Bhawanipatna	Kutrukhai	326
7	Bhawanipatna	Madhakhola (B)	597
8	Bhawanipatna	Pordhar	848
9	Bhawanipatna	Sinang	1221
10	Bhawanipatna	Bhalu	54
11	Bhawanipatna	Kadalighati	1725
12	Bhawanipatna	Madhakhola (A)	746
13	Kegaon	Adabari	921
14	Kegaon	Bisibarni	198
15	Kegaon	Chura (A)	7782
16	Kegaon	Chura (B)	2384
17	Kegaon	Daka	335
18	Kegaon	Ghatual	276
19	Kegaon	Gojia	347
20	Kegaon	Kumkot	5124
21	Kegaon	Lini	134
22	Kegaon	Nageswar	3020
23	Kesinga	Bazargarh	7987
24	Narla	Karla Dangar	349
25	Kesinga	Nangalguda	1488
26	M.Rampur	Dengen	476
27	M.Rampur	Jerka	1019
28	M.Rampur	Sadel (A)	273
29	M.Rampur	Sadel (B)	307
30	M.Rampur	Satami	1898
31	M.Rampur	Sunamukhi	2393
32	M.Rampur	Taparang	7181
33	M.Rampur	Telen	2660
34	M.Rampur	Turchi	257
35	M.Rampur	Benaguda	4974
36	M.Rampur	Bhatel	37
37	Narla	Porgel	1712
38	Narla	Kamei	156
39	Narla	Kerbandi	1231
40	Narla	Lumersinga	175
41	Narla	Narla	1293
42	Narla	Sripali	46
43	Narla	Urladani	10528
TOTAL: -			**82614**

APPENDIX-III(A)

List of P.R.F. in Kalahandi North Division -

Sl.No	Name of the Range	Name of the Forest Block	Area as per Notification	Notification No./Dt
1	M.Rampur	Podgudi	793.52	6963 Dt.14.02.70
2	M.Rampur	Ramud	597.07	66154 Dt.24.10.68
3	M.Rampur	Sulia	5668	28312 Dt.30.06.59
4	M.Rampur	Manikera	66.4	60267 Dt.03.09.80
5	M.Rampur	Mundramaska	750	66746 Dt.24.12.68
6	M.Rampur	Gochhadengen	346.34	28589 Dt.05.06.68
7	M.Rampur	Kutigudum	628	59937 Dt.02.09.80
8	M.Rampur	Talanuagaon	277.73	59933 Dt.02.09.80
9	M.Rampur	Puijhari	2251.21	35510 Dt.03.07.85
10	M.Rampur	Pongabaju	2331.91	22062 Dt.24.04.70
11	M.Rampur	Bidabaru (Harlanga)	1464.8	60252 Dt.03.09.80
12	Narla	Narla Extension	292.5	61749 Dt.14.09.84
13	Narla	Kamarda	444.6	59083 Dt.27.08.80
14	Narla	Porgel Extension	3222	28308 Dt.30.06.59
15	Narla	Badibahal	44.94	58786 dt.27.08.80
16	Bh.Patna	Gundi	6720.2	12694 dt.10.03.71
17	Narla	Sikerguda	358	59075 dt. 27.8.1984
18	Narla	Jamguda	107.4	58779 dt. 25.8.1980
	Total		**26364.62**	

Divisional Forest Officer,
Kalahandi North Division

APPENDIX-IV

LIST OF DEMARCATED/UNDEMARCATED PROTECTED FOREST PENDING FOR NOTIFICATION U/S-4 OF O.F.A-1972 OF KALAHANDI NORTH DIVISION

SL. No	Stage of Pendency	Name of Block	Area in Ha.	Pending at which level	Remarks
1	To be notified U/S-4 of OFA-1972	Dumermunda	45.76	With R.D.C, Berhampur	
2	-do-	Biripura	332.80	With Collector, Kld	
3	-do-	Gudang	54.88	-do-	
4	-do-	Gandameher	70.00	With State Govt.	
5	-do-	Barapati	148.67	With R.O., Narla.	Rectification work is in progress.
6	-do-	Dengsur	255.06	-do-	-do-
7	-do-	Lamer	66.00	-do-	-do-
8	-do-	Mundighati	88.20	-do-	-do-
9	-do-	Belgaon	4230.00	-do-	-do-
10	-do-	Kalamdei	3.20	Proposal dropped by FSO, Kld.	
11	-do-	Sindhbhadi	72.40	With R.O., Kegaon	Rectification work is in progress.
12	-do-	Makardani	30.30	-do-	-do-
13	-do-	Amuda	241.97	-do-	-do-
14	-do-	Baijalpur	72.00	-do-	-do-
15	-do-	Chanchermunda	73.00	-do-	-do-
16	-do-	Goelbindha	160.00	-do-	-do-
17	-do-	Jayantpur	199.20	-do-	-do-
18	-do-	Kankari (A)	32.00	-do-	-do-
19	-do-	Kankari (B)	26.50	-do-	-do-
20	-do-	Kirkakani	26.00	-do-	-do-
21	-do-	Masigaon	30.80	-do-	-do-
22	-do-	Patramara	132.72	-do-	-do-
23	-do-	Sikuan	23.19	-do-	-do-
24	-do-	Bamakdei	92.50	-do-	-do-
25	-do-	Pudrimahul	303.00	With R.O., M.Rampur	-do-
26	-do-	Chandanpinda	298.25	-do-	-do-
27	-do-	Karla	432.11	-do-	-do-
28	-do-	Sulia Extn.	138.05	-do-	-do-
29	-do-	Kutiheju	208.00	-do-	-do-
30	-do-	Sihidi	181.50	-do-	-do-
31	-do-	Mugei	26.40	-do-	-do-
32	-do-	Dengidongor	575.77	-do-	-do-
33	-do-	Goutami	388.00	-do-	-do-
34	-do-	Th.Gundi	9187.70	With R.O, Bhawanipatna	-do-
35	-do-	Kadalighati Ext.	68.00	-do-	-do-
36	-do-	Turlakhaman	160.00	With PCCF (O) for approval	
37	-do-	Laitara	83.00	-do-	
38	-do-	Bramhanidongor	50.73	-do-	
Total: -			**18607.66**		

Divisional Forest Officer,
Kalahandi North Division

Appendix-V

List of the proposal pending at various levels for Notification U/S-4/21 of Orissa Forest Act, 1972 of Kalahandi North Forest Division

Sl. No.	Stage of Pendency	Name of Forest Block	Area in hect.	Pending at which level	Since when	Remarks
1	2	3	4	5	6	7
1	To be notified U/S-21 of OFA-1972	Podgudi	793.52	Proposal returned from Board of Revenue (O) & with R.O., M.Rampur	2009	Rectification work is in progress
2	-do-	Ramud	597.07	-do-	2009	-do-
3	-do-	Sulia	5660.00	With R.O., M.Rampur	1993	-do-
4	-do-	Manikera	66.40	-do-	1995	-do-
5	-do-	Mundramaska	750.00	-do-	1990	-do-
6	-do-	Gochhadengen	346.34	-do-	1993	-do-
7	-do-	Kutigudum	628.00	-do-	1993	-do-
8	-do-	Talnuagaon	277.73	-do-	1995	-do-
9	-do-	Puijhari	2251.21	-do-	1995	-do-
10	-do-	Pungabaju	2331.91	-do-	1982	-do-
11	-do-	Badibahal	44.94	With R.O., Narla	2003	
12	-do-	Harlanga	1464.00	-do-	1995	-do-
13	-do-	Narla Extn.	292.50	-do-	1983	-do-
14	-do-	Kamarda	444.60	-do-	1983	-do-
15	-do-	Porgel Extn.	3222.00	-do-	1996	-do-
16	-do-	Gundi	6720.20	With R.O., Bhawanipatna	1996	-do-
17	To be notified U/S-4 of OFA-1972	Dumermunda	45.76	With R.D.C, Berhampur	2002	
18	-do-	Biripura	332.80	With D.F.O.	2009	Rectification work is in progress.
19	-do-	Gudang	54.88	-do-	2009	-do-
20	-do-	Gandameher	70.00	With State Govt.	1989	-do-
21	-do-	Barapati	148.67	With R.O., Narla.	1994	-do-
22	-do-	Dengsur	255.06	-do-	1997	-do-
23	-do-	Lamer	66.00	-do-	1997	-do-
24	-do-	Mundighati	88.20	-do-	1982	-do-
25	-do-	Belgaon	4230.00	-do-	1992	-do-
26	-do-	Makardani	30.30	-do-	1994	-do-
27	-do-	Kalamdei	3.20	Proposal dropped by FSO, Kalahandi	1997	
28	-do-	Sindhbhadi	72.40	With R.O., Kegaon	1994	Rectification work is in progress
29	-do-	Amuda	241.97	-do-	-	-do-
30	-do-	Baijalpur	72.00	-do-	1996	-do-
31	-do-	Chanchermunda	73.00	-do-	1996	-do-
32	-do-	Goelbindha	160.00	-do-	1992	-do-
33	-do-	Jayantpur	199.20	-do-	1992	-do-
34	-do-	Kankari (A)	32.00	-do-	1992	-do-
35	-do-	Kankari (B)	26.50	-do-	1992	-do-

Sl. No.	Stage of Pendency	Name of Forest Block	Area in hect.	Pending at which level	Since when	Remarks
36	-do-	Kirkakani	26.00	-do-	-	-do-
37	-do-	Masigaon	30.80	-do-	1989	-do-
38	-do-	Patramara	132.72	-do-	-	-do-
39	-do-	Sikuan	23.19	-do-	1996	-do-
40	-do-	Bamakdei	92.50	-do-	1982	-do-
41	-do-	Pudrimahul	303.00	With R.O., M.Rampur	1994	-do-
42	-do-	Chandanpinda	298.25	-do-	-	-do-
43	-do-	Karla	432.11	-do-	-	-do-
44	-do-	Sulia Extn.	138.05	-do-	1997	-do-
45	-do-	Kutiheju	208.00	-do-	1992	-do-
46	-do-	Sihidi	181.50	-do-	1992	-do-
47	-do-	Mugei	26.40	-do-	-	-do-
48	-do-	Dengidongor	575.77	-do-	1997	-do-
49	-do-	Goutami	388.00	-do-	1991	-do-
50	-do-	Th.Gundi	9187.70	With R.O, Bhawanipatna	1990	-do-
51	-do-	Kadalighati Ext.	68.00	-do-	1985	-do-
52	-do-	Turlakhaman	160.00	With PCCF (O) for approval	2005	
53	-do-	Laitara	83.00	-do-	2005	
54	-do-	Bramhanidongor	50.73	-do-	2005	

APPENDIX-VI

LIST OF VILLAGE FOREST OF KALAHANDI NORTH DIVISION

Sl. No	Name of the Range	Name of VillageForest	Name of Tahasil	Name of G.P	Area in Ha.	Notification No. & Date.
1	Bhawanipatna	Admunda	Bhawanipatna	Fatkamal	5.0	No.AFFN (SIDA) 96/91-22805 F&E dt.24.12.1991
2	-do-	-do-	-do-	-do-	5.0	-do-
3	-do-	-do-	-do-	-do-	10.0	-do-
4	-do-	Matia	-do-	Utkela	10.0	No.AFFN (SIDA) 6/92-3772 F&E dt.18.02.1992
5	-do-	Bhejipadar	-do-	Karlapada	8.0	-do-
6	-do-	Jajaldeipur	-do-	Dadpur	5.10	-do-
7	-do-	Jhikimiki	-do-	-do-	3.28	-do-
8	-do-	Dumerbahal	-do-	-do-	8.044	-do-
9	-do-	Khairbhadi	-do-	Deypur	3.6	-do-
10	-do-	Gopinathpur	-do-	-do-	2.0	-do-
11	-do-	Khairmal	-do-	-do-	5.0	-do-
12	-do-	Sarlanji	-do-	Medinipur	8.50	-do-
13	-do-	Bramhani	Bhawanipatna	Kandel	6.0	-do-
14	-do-	Jhikimiki	-do-	Dadpur	10.0	-do-
15	Kegaon	Daspur	Dharmagarh	Daspur	20.0	No.AFFN (SIDA) 6/92-676 F&E dt.08.01.1993
16	Kesinga	Jamjore	-do-	Gokuleswar	6.0	No.AFFN (SIDA) 6/92-3772 F&E dt.18.02.1992
17	-do-	Brahmani	-do-	Kandel	10.0	-do-
18	-do-	Jamjore	-do-	Gokuleswar	10.0	-do-
19	-do-	Dendrobahali	-do-	Rupra Road	3.60	-do-
20	-do-	-do-	-do-	-do-	5.0	-do-
21	-do-	Khairmal	-do-	Dalam	3.0	-do-
22	-do-	Palam	-do-	Palam	2.0	-do-
23	-do-	Matia	-do-	Utkela	2.0	-do-
24	-do-	Kurlupada	Bhawanipatna	NAC, Kesinga	1.96	No.AFFN (SIDA) 6/92-676 F&E dt.08.01.1993
25	-do-	Rengali	-do-	Balsi	11.36	-do-
26	-do-	Balsi	-do-	-do-	9.20	-do-
27	-do-	-do-	-do-	-do-	13.64	-do-
28	M.Rampur	Pipalbhadi	-do-	Pipalbhadi	6.22	No.AFFN (SIDA) 96/91-22805 F&E dt.24.12.1991
29	-do-	Saling	M.Rampur	Muskuti	5.20	No.AFFN (SIDA) 6/92-3772 F&E dt.18.02.1992
30	-do-	Kuten	-do-	Muskuti	0.948	-do-
Total: -					**199.652**	**199.652**

Divisional Forest Officer,
Kalahandi North Division

APPENDIX-VII

GOVERNMENT OF ORISSA
FOREST & ENVIRONMENT DEPARTMENT

No.6F-(B)-12/2006-7420/F&E, Bhubaneswar dt.08.05.2006,

From,

Sri Vinod Kumar, IFS
Special Secretary to Government.

To,

The Principal Chief Conservator of Forests,
Orissa, Bhubaneswar.

Sub: - Procedure for assessment of royalty on timber to be procured from coupes to be worked by OFDC Ltd. in 2005-06 and onwards.

Sir,

I am directed to say that revision of procedure for fixation of royalty on timber / firewood regulated as per the guidelines issued in the erstwhile Forest, Fisheries and A.H. Deptt. Letter No.28518/FFAH dt.14.11.1979 was under consideration for some time. However, in view of the ban on green felling in the state since 1991-92, its applicability was restricted to the timber / firewood salvaged from forest floor. With revival of timber working in eleven forest division of the Sate with valid working plans from 2005-06, there was an urgent need to evolve and effective procedure for finalization of royalty so as to ensure fixation / realization of royalty on timber / firewood in time with a view to enrich the sate exchequer on that count. With this in view, the working group constituted vide F&E Deptt. letter No.21269/F&E dt.12.12.2005, went in to all relevant aspects and their recommendation on different components of timber working has been accepted. This is to be treated as revised procedure for assessment of royalty on timber / firewood to be worked in 2005-06 crop year and onwards in super session of the earlier guidelines of 1979 and all other guidelines issued from time to time. The revised procedure and guidelines are as under.

1. Classification of species

(a) Modalities for classification of species into different classes and basis of calculation of unit for different classes of trees to be removed is to be regulated in accordance with Memo No.12224(4)/5F-ST-20/81 dt.07.06.1982 of PCCF (O) uniformly throughout the State.

(i) 1st class species: - Sal, Bija, Sisoo, Gambhar, Bandhan, Champa and Kangda.

(ii) 2nd class species: - Asan, Kurum, Kasi, Mango, Kendu, Dhaura, Tentra, Sidha, Jamu, Mitkinia and Rohini.

(iii) 3rd class species: - All other species (except Teak, Chandan and Khair).

(b) Teak is to be treated as special class and unit value to be calculated as twice that of Sal of equivalent girth for calculation of units, if sold from a coupe standing with other species.

(c) Chandan and Khair is to be classified into any of the classes mentioned above depending on the market value.

2. Calculation of units for different classes of species.

(a) Actual volume of the lot is to be taken into consideration for felled and converted stacked timber or firewood.

(b) Ratio to be adopted for conversion of different classes of tree species of varied girth into unit is as under.

Sl.No.	Girth	Ratio for conversion into units		
		1st Class	2nd Class	3rd Class
1	Under 60 cm.	0.25	-	-
2	60 cm. to under 90 cm.	0.50	0.25	-
3	90 cm. to under 120 cm.	1.00	0.50	0.25
4	120 cm. to under 150 cm.	2.00	1.00	0.50
5	150 cm. to under 180 cm.	4.00	2.00	1.00
6	180 cm. and above	6.00	3.00	1.50

(c) For calculation of units, trees marked as 'unsound' is to be taken as half that of sound trees of the correspondence girth of the same species.

3. Fixation of unit value

An uniform unit value of Rs.880/- per sale unit is worked out for all forests as new base unit and year 2005-06 as a base year for future estimation under provision of Rule-245 of Orissa Forest Department Code, 1979.

Payment of royalty by OFDC Ltd.

The new base unit value is subject to the following stipulation as modification to Rule-240 of Orissa Forest Department Code, 1979 from the Crop Year 2005-06 onwards.

(a) Unit estimate of outturn for trees of the coupe on commencement of coupe working shall be finally compared with actual outturn of timber as per passing list and conversion register at the forest for the felled and converted trees calculated on per cft. basis. In case, the differential is higher on cft. basis, additional royalty shall be deposited by OFDC Ltd. in the financial year in which working of the coupe has been completed. However, if the differential is less on cft. basis, additional royalty so realised from OFDC Ltd. shall be adjusted against the royalty payable by OFDC Ltd. during that financial year. Royalty on trees not felled and trees not converted for firewood / poles shall be on unit basis only.

(b) Levy of duty on unit value shall be imposed by Govt., as would be deemed proper.

(c) The OFDC ltd. shall make payment of royalty amount within the corresponding financial year for the coupes delivered. As timber working in 2005-06 has been delayed, 50% of royalty is required to be paid by March, 06 and the balance by June, 2006.

(d) The previous modality of getting the royalty fixed by different levels of field level functionaries of Forest Department & OFDC Ltd. such as DFO/DM, CF/GM, PCCF(O)/CMD, OFDC Ltd. are dispensed with. Modalities for fixation of unit value / royalty for 2005-06 is already in place in the relevant para above. For the coupes to be worked by OFDC Ltd. in 2006-07 working season and onwards, the unit value shall be finalised by PCCF(O) and CMD, OFDC Ltd. by

31st of August every year prior to delivery of coupes on 30th of September, based on the sale results of the previous year and market conditions. The royalty amount due for realization from OFDC Ltd., so assessed, shall be intimated to Govt. The OFDC Ltd. shall either deposit royalty by 30th of September or shall ensure payment of the same within the same financial year.

(e) In the event of delay in payment of estimated amount of royalty within 31st March of Financial Year in respect of any Forest Division for any reasons whatsoever, all the sale proceeds excluding taxes and statutory collection shall be remitted by the concerned D.M., OFDC Ltd. towards royalty due for that division by way of treasury challan till the estimated amount is paid in full. Till then from 1st April, removal of timber, firewood etc. from depot of OFDC Ltd. shall be regulated by the Divisional Forest Officer concerned.

(f) There shall be no extension of time in respect of coupes allotted to OFDC Ltd. for 2006-07 crop year and onward.

(g) The Passing Officer and alternate Passing Officer for each coupe shall be designated by the Divisional Forest Officer at the time of delivery of coupes and a pre-notified day shall be fixed for undertaking the passing work. In absence of Passing Officer, the alternate Passing Officer shall discharge the duty of the Passing Officer.

(h) All firewood and 30% of the outturn of timber received at the central depots, shall be kept for local retail sale. Balance would be disposed by OFDC Ltd. through auction / tender. Movement of stock within the circle / state shall be decided by CF/GM, OFDC Ltd. and CCF(FU) / Director(O), OFDC Ltd. respectively with a view to fetch more stock to those divisions with more demand from such divisions where the stock is considered to be in surplus. OFDC Ltd. shall strive for disposal of all stock received within the year itself by way of retail sale and or bulk sale.

(i) The CMD, OFDC Ltd. shall make suitable regulation in the sale policy to ensure that retail sale provision are not misused by the unscrupulous elements for wrongful gains. While working out sale rates for supply of timber / sawn sizes, the basis shall be Rs.200/- per cft. in the girth of 3 to 4 feet for the sound Sal logs. However, for sawn sized / higher girth class round timber, appropriate sale rates shall be fixed by OFDC Ltd. on this basis. For retail sale, the maximum quantity shall be 1 cum. timber in 12 months for one family.

(j) OFDC Ltd. shall make available sawn sized timber to local public. However, if this is not available readily, then the same be made available within a specific time period on advance payment. In places, where OFDC Ltd. and do not have sawing facility of their own, rate for supply of sawn timber is to be notified in the depots for information of the public.

The Rule-240 and 245 of the Orissa Forest Department Code, 1979 shall stand amended and all previous instruction issued in this regard shall stand modified accordingly, to the extent the procedure enunciated above.

This revised procedure has been concurred in by Finance Department vide their UOR No.401 ESI dt.22.12.2005.

Yours faithfully,

Sd/-

Special Secretary to Government.

Memo No. 7421/F&E., BBSR Date 08.05.2006
Copy forwarded to ESI Branch, Finance Department for information and necessary action.

Sd/-
Deputy Secretary to Government.

Memo No.7422/F&E., BBSR Date 08.05.2006
Copy forwarded to Chairman-cum-Managing Director, OFDC Ltd. for information and necessary action.

Sd/-
Deputy Secretary to Government.

Memo No.7423/F&E., BBSR Date 08.05.2006
Copy forwarded to Principal Chief Conservator of Forests (WL) & Chief Wildlife Warden, Orissa / Additional Principal Chief Conservator of Forests (KL), Orissa / All Chief Conservator of Forests / All Conservator of Forests and all Divisional Forest Officers for information and necessary action.

Sd/-
Deputy Secretary to Government.

Memo No.7424/F&E., BBSR Date 08.05.2006
Copy forwarded to Audit Section / B&E Section / Forest Protection & Conservation Section for information and necessary action.

Sd/-
Deputy Secretary to Government.

Memo No.7425/F&E., BBSR Date 08.05.2006
2 copies to Corporation Section Guard File.

Sd/-
SECTION OFFICER

APPENDIX-VIII

GOVERNMENT OF ORISSA
FOREST & ENVIRONMENT DEPARTMENT
No.6F(A)-10/2004/F&E, dated 06.01.2005

From,

Sri Vinod Kumar, IFS
Special Secretary to Government.

To,

The Chairman-cum-Managing Director,
OFDC Ltd., Orissa, Bhubaneswar.

Sub: - Bamboo working of 2004-05 crop season – regarding supply to artisans.

Sir,

The Empowered Committee on bamboo in their meeting held on 30.09.2004 had made the following decisions.

The paper mills of Orissa while working as RMP shall produce green bamboo from forests and handover the same to OFDC Ltd. for supply to local artisans and tenants preferably at the doorstep of groups. The royalty for commercial bamboo shall be Rs.1/- per piece only in the price as which OFDC shall supply to artisans will be below Rs.10/- per piece.

The forest operation of bamboo is to be now commenced in January 2005 through RMP or directly by OFDC Ltd. Therefore, I would request you to kindly communicate the supply rate fixed for commercial long bamboo to the artisans by OFDC Ltd. either in general or Forest Division / OFDC Division / District wise for information of this department.

Further, on the subject of increasing development and employment in tribal areas a reference is invited to this department letter No.15628/F&E dated 20.10.2004 on your address. I would request you to furnish required informations on NTFP items and bamboo to this department on 1st and 2nd of every month positively. This is being required regularly by APC-cum-ACS and DC-cum-ACS for appraising the Hon'ble Chief Minister, Orissa.

Yours faithfully,

Sd/-
Special Secretary to Government

Memo No.334/F&E dated 06.01.2005

Copy forwarded to Principal Chief Conservator of Forests, Orissa, Bhubaneswar for information and necessary action.

Sd/-
Special Secretary to Government

OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS, ORISSA, BHUBANESWAR

Memo No.742/1F(Lease)-210/04 dated Bhubaneswar the 13th January 2005

Copy forwarded to all Conservator of Forests, Territorial Circle / all Divisional Forest Officers (T&WL) Divisions for information and necessary action.

Sd/-
Forest Utilisation Officer

APPENDIX - IX

Areas under Individual Forest Rights(IFR)

Village Name	Tehasil	GP Name	Total FRA beneficiaries	FRA Area in Ha	FB Name
Kermunda	Dharmagarh	Dumerguda	2	0.8094	Nageswar RF
Bokrasil	Dharmagarh	Tipiguda	14	7.2036	Nageswar RF
Kirkakani	Dharmagarh	Kirkakani	5	4.569	Nageswar RF
Mukhiguda	Dharmagarh	Dumermunda	5	1.7766	Nageswar RF
Rainguda	Dharmagarh	Tipiguda	4	5.2489	Nageswar RF
Tekpara	Dharmagarh	Tipiguda	8	5.4634	Nageswar RF
Tipiguda	Dharmagarh	Tipiguda	2	1.1412	Nageswar RF
Amurlapadar	Golamunda	Naktikani	11	11.0036	Nageswar RF
Antarla	Golamunda	Naktikani	15	8.6281	Nageswar RF
Baijalpur	Golamunda	Brundabahal	6	3.0352	Adabari RF
Girendol	Golamunda	Naktikani	1	0.4047	Nageswar RF
Golamunda	Golamunda	Golamunda	142	123.9956	Nageswar RF
Golamunda	Golamunda	Golamunda	3	3.5771	Nageswar RF
Golamunda (Nuapada)	Golamunda	Golamunda	3	3.5771	Nageswar RF
Golamunda (Phoiripani)	Golamunda	Golamunda	8	4.9373	Nageswar RF
Golamunda (Samarathabasa)	Golamunda	Golamunda	2	0.4654	Nageswar RF
Gudurghuma	Golamunda	Naktikani	17	14.569	Nageswar RF
Jhuleanbar	Golamunda	Naktikani	69	56.8596	Nageswar RF
Karangamunda	Golamunda	Khalianani	3	3.6423	Nageswar RF
Kasturapadar	Golamunda	Khaliapali	5	3.6423	Chura A RF
Lanji	Golamunda	Sinapali	8	3.9134	Kumkot RF
Mahendrapur	Golamunda	Sinapali	23	11.7361	Kumkot RF
Mukundpur	Golamunda	Dhamanpur	5	1.2343	Adabari RF
Naktikani	Golamunda	Naktikani	36	32.5779	Nageswar RF
Naktikani	Golamunda	Golamunda	1	0.607	Nageswar RF
Patialpada	Golamunda	Naktikani	14	11.5338	Nageswar RF
Sargiguda	Golamunda	Gandamer	6	5.8446	Nageswar RF
Sukunimunda	Golamunda	Khaliakani	10	17.4019	Adabari RF
Tendopani	Golamunda	Dhamanpur	2	1.4164	Adabari RF
Tumra	Golamunda	Manjhari	6	5.4027	Nageswar RF
Udeapur	Golamunda	Khaliapali	1	0.2226	Chura A RF
Udeasurung	Golamunda	Manjhari	6	7.0822	Adabari RF
Bileikuni	Kalahandi	Palam	17	17.2481	Bramhani RF
Bengaon	Kalahandi	Chancheer	22	14.565	Pordhar RF
Ghusurigudi	Kalahandi	Palsijharan	3	1.9709	Bramhani RF
Gundchipadar	Kalahandi	Duarsuni	1	0.2428	Sinang RF
Kalam	Kalahandi	Kalam	4	2.2258	Bramhani RF
Kaugopana	Kalahandi	Kuliamal	11	5.5443	Bramhani RF
Kholandi	Kalahandi	Palsijharan	16	17.0053	Bramhani RF

Kurumachuan	Kalahandi	Kuliamal	10	5.9085	Bramhani RF
Village Name	**Tehasil**	**GP Name**	**Total FRA beneficiaries**	**FRA Area in Ha**	**FB Name**
Mundapalla	Kalahandi	Risigaon	17	11.0279	Kutrukhai RF
Palasapadar	Kalahandi	Sagada	24	65.1585	Kanamanjur RF
Themra	Kalahandi	Kalam	3	4.573	Bramhani RF
Sargigura	Kalahandi	Chheliamal	15	16.6289	Bramhani RF
Ainli	Kalahandi	Uchhala	12	5.4229	Daka RF
Budelpali	Kalahandi	Rengsapali	4	0.7689	Chura B RF
Godalajharan	Kalahandi	Farang	7	2.3391	Chura A RF
Karpa	Kalahandi	Rengsapali	8	1.5985	Chura B RF
Nuamunda	Kalahandi	Rengsapali	4	0.8094	Chura B RF
Padampur	Kalahandi	Rengsapali	8	3.6018	Chura A RF
Pitaguda	Kalahandi	Rengsapali	12	23.84	Chura A RF
Purunapani (Mahulpada)	Kalahandi	Chahaka	4	6	Kumkot RF
Rojanapur	Kalahandi	Dumuria	26	65.1	Kumkot RF
Sankripali	Kalahandi	Rengsapali	44	31.4817	Chura B RF
Dulen	M. Rampur	Dam Karlakhunta	29	53.0797	Sunamukhi RF
Mardding	M. Rampur	Urladani	1	3.7353	Jerka RF
Jurakhaman	M. Rampur	Urladani	54	144.0874	Taparang RF
Nuagaon	M. Rampur	Manikera	25	21.0401	Benaguda RF
Nuapada (Balibaju)	M. Rampur	Urladani	7	40.67	Taparang RF
Pidel	M. Rampur	Urladani	6	8.1748	Taparang RF
Sakush	M. Rampur	Urladani	17	22.3149	Taparang RF
Uper Nuagaon	M. Rampur	Manikera	19	24.6661	Benaguda RF
Uper Nuagaon	M. Rampur	Manikera	1	0.3076	Talanuagaon PRF
Khaliamunda	M. Rampur	Urladani	34	15.0627	Urladani RF
Urladani	M. Rampur	Urladani	22	11.4731	Urladani RF
Nishangura	Kalahandi	Jugsaipatna	8	4.8	Gundi PRF
Kodobahali	Golamunda	Rengsapali	1	0.2023	Chura A RF
		Total	939	1016.1976	

Areas under Community Forest Rights(CFR)

Village Name	Tehasil	GP Name	FRA Type	FRA Area in Ha	FB Name
Mermahul	Golamunda	Badchergaon	CFRA	99.957	Chura A RF
Phatamunda	Golamunda	Badchergaon	CFRA	99.957	Chura A RF
Pitapada	Golamunda	Badchergaon	CFRA	49.978	Chura A RF
Grindol	Golamunda	Manjhari	CFRA	49.978	Adabari RF
Dudkela	Golamunda	Manjhari	CFRA	99.957	Adabari RF
Lanji	Golamunda	Lanji	CFRA	99.957	Kumkote RF
Banjibahal	Golamunda	Daspur	CFRA	99.957	Chura A RF
Golamunda	Golamunda	Golamunda	CFRA	29.987	Adabari RF
Kasturapadar	Golamunda	Khaliapali	CFRA	99.957	Chura A RF
Jamjharan	Golamunda	Dhamanpur	CFRA	99.957	Chura A RF
Kanakpur	Golamunda	Khaliapali	CFRA	99.957	Chura A RF
Jamgudabahal	Golamunda	Dhamanpur	CFRA	99.957	Chura A RF
Khainsguda	Golamunda	Dhamanpur	CFRA	99.957	Chura A RF
Bijkhman	Kesinga	Nunmath	CFRA	99.95	Bazargarh RF
Khajurpada	Kesinga	Tundla	CFRA	49.97	Bazargarh RF
Tundla	Kesinga	Tundla	CFRA	59.97	Bazargarh RF
Dudkaranja	M. Rampur	Barabandha	CFRA	19.991	Urladani RF
Jamujura	M. Rampur	Barabandha	CFRA	49.97	Belgaon DPF
Tarkabahali	M. Rampur	Barabandha	CFRA	24.989	Belgaon DPF
Udayagiri	M. Rampur	Barabandha	CFRA	71.969	Urladani RF
Lamer	M. Rampur	Barabandha	CFRA	65.971	Belgaon DPF
Lundurubaru	M. Rampur	Barabandha	CFRA	39.982	Belgaon DPF
Dholapara	M. Rampur	Barabandha	CFRA	39.982	Belgaon DPF
Gundurupi	M. Rampur	Barabandha	CFRA	69.97	Belgaon DPF
Chitra	M. Rampur	Barabandha	CFRA	50.978	Belgaon DPF
Rangaparu	M. Rampur	Barabandha	CFRA	51.476	Urladani RF
Sadalguchha	M. Rampur	Barabandha	CFRA	19.991	Belgaon DPF
Chochobahali	M. Rampur	Barabandha	CFRA	79.965	Urladani RF
Talanuagaon	M. Rampur	Manikera	CFRA	99.957	Talanuagaon PRF
Taparang	M. Rampur	Manikera	CFRA	49.978	Taparang RF
Pajibahal	M. Rampur	Damkarlakhunta	CFRA	49.978	Ramudu PRF
Balibaju	M. Rampur	Urladani	CFRA	26.988	Taparang RF
Dakabahali	M. Rampur	Mohangiri	CFRA	49.978	Sulia PRF
Nuapur	M. Rampur	Nuapur	CFRA	149.936	Kutugudum PRF
Ulurupi	M. Rampur	Nuapur	CFRA	99.957	Kutigudum PRF
Palasapadar	Kalahandi	Sagada	CFRA	21.4888	Kanamanjur RF
Bandajore	Golamunda	Sinapali	CFRA	99.9573	Kumkot RF
Dhenkapara	Golamunda	Golamunda	CFRA	49.9786	Nageswar RF
Kadalimunda	Golamunda	Golamunda	CFRA	14.9733	Adabari RF
Kendupani	Golamunda	Golamunda	CFRA	49.9786	Nageswar RF
Nuapara	Golamunda	Golamunda	CFRA	39.9829	Nageswar RF
Pohiripani	Golamunda	Golamunda	CFRA	99.9573	Nageswar RF
Samarthbasa	Golamunda	Golamunda	CFRA	49.9786	Nageswar RF
Baksundhi	M. Rampur	Barbandha	CFRA	39.9829	Belgaon DPF
			Total	2917.6873	

APPENDIX-X

Un-Classed Forest under Kalahandi North Division

Sl No	Name Of The Range	Name of the Building /Site	Area covered In acre	Plot No.	Khata No.	Mouza	Name of the Tahasil
1	2	3	4	5	6	7	8
1	M.Rampur	New Range Office Building M.Rampur	1.14	917/2707 917/2704	907	M.Rampur	M.Rampur
2	M.Rampur	New Range Officer Residence					
3	M.Rampur	Forester Quarter M.Rampur					
4	M.Rampur	Old Range Office	0.04	1315	4	M.Rampur`	M.Rampur
5	M.Rampur	Old Range officer Residence M.Rampur	0.19	1097, 1098	4	M.Rampur	M.Rampur
6	M.Rampur	Old Forester Quarter M.Rampur	0.02	1177	907	M.Rampur	M.Rampur
7	M.Rampur	Staff barrack M.Rampur	0.20	2253	4	M.Rampur	M.Rampur
8	M.Rampur	Forester Quarter Special M.Rampur					
9	M.Rampur	F.G Quarter M.Rampur					
10	M.Rampur	F.G Quarter Goudkela	0.22	408,409	2	Goudkela	M.Rampur
11	M.Rampur	F.G Quarter Ramud at Dhekunkupa	0.10	267	1	Dhekunkupa	M.Rampur
12	M.Rampur	F.G Quarter Kachharpali	0.03	211,214	1	Kachharpali	M.Rampur
13	M.Rampur	F.G Quarter Pandkamal at Ambagaon					
14	M.Rampur	F.G Quarter Ainlapali	0.04	440	3	Ainlapali	M.Rampur
15	M.Rampur	Forester Quarter Madanpur	0.28	1122,1123, 1126,1134, 1135, 1136	2	Madanpur	M.Rampur
16	M.Rampur	F.G Quarter Madanpur					
17	M.Rampur	F.G Quarter Alatara					
18	M.Rampur	F.G Quarter Kumerpata	0.04	573	157	Kumerpata	M.Rampur
19	M.Rampur	F.G Quarter Gochhadengen	0.01	189	1	Gochhadengen	M.Rampur
20	M.Rampur	G.G Quarter Jamunapur	0.10	2362, 2363	352, 354	Khaliapali	Karlamunda
21	M.Rampur	F.G Quarter Mohangiri	0.24	720	5	Mohangiri	M.Rampur
22	M.Rampur	Forester Quarter Mohangiri					
23	M.Rampur	F.G Quarter Pandapadar at Mohangiri					
24	M.Rampur	F.G Quarter at Pandapadar	0.03	199	1	Pandapadar	M.Rampur
25	M.Rampur	F.G Quarter Manikera	0.47	186,187,189, 190,191	2	Manikera	M.Rampur
26	M.Rampur	Forester Quarter Jurakhaman		Inside Taprang RF			
27	M.Rampur	F.R.H Jurakhaman		Inside Taprang RF			

Sl No	Name Of The Range	Name of the Building /Site	Area covered In acre	Plot No.	Khata No.	Mouza	Name of the Tahasil
28	M.Rampur	F.G Quarter Taprang at Urladani	0.04	576	107	Urladani	M.Rampur
29	Narla	Range Office Building	0.04	1798	907	M.Rampur	M.Rampur
30	Narla	Protection Camp Sikuli	0.1	5	26	Sikuli	M.Rampur
31	Narla	Forest Qtr. Narla	0.06	458	1	Narla	Narla
32	Narla	Forest Guard Qtr. Narla	0.03	460	1	Narla	Narla
33	Narla	Forest Guard Qtr. Sargiguda	0.02	411	125	Sargiguda	Narla
34	Narla	Chipul Central Nursery	3.28	412	125	Sargiguda	Narla
35	Narla	Forest Qtr. Kamarda	0.06	389	144/241	Kamarda	Lanjigarh
36	Narla	Forest Guard Qtr. Kamarda	0.03	388	144/241	Kamarda	Lanjigarh
37	Narla	Forest Guard Qtr. Bhurty	0.13	503	95/130	Bhurtygarh	Lanjigarh
38	Kesinga	Forest Range Office,Kesinga	0.48	s	3	Kesinga Nojul	Kesinga
39	Kesinga	F G Quartrer,Kesinga	0.398	317	3	Kesinga Nojul	Kesinga
40	Kesinga	Forester Quarter,Kesinga			3	Kesinga Nojul	Kesinga
41	Kesinga	Aff. Range Office,Bagad	0.889	498	133	Bagad	Kesinga
42	Kesinga	Social Forestry Range Office,Bagad	1.09	249	144/54	Bagad	Kesinga
43	Kesinga	Forester Quarter,Rupra Road	0.708	209.00	1	Rupra Road	Narla
44	Kesinga	F G Quartrer,Rupra Road	1	296.303,304,305,306,308,309,345	1	Rupra Road	Narla
45	Kesinga	F G Quartrer,Gadebandh	0.02	704	1	Gadebandh	Narla
46	Kesinga	Forester Quarter,Kashrupada	0.37	583	2	Kashrupada	Kesinga
47	Kesinga	F G Quartrer,Kashrupada	0.04	584	2	Kashrupada	Kesinga
48	Kesinga	F G Quarter,Amath				Bazargarh RF	Kesinga
49	Kegaon	Forester Quarter Borda	0.13	1643	525	Borda	Kalahandi
50		Forest Guard Quarter Borda					
51	Kegaon	Forest Guard Quarter Balipati	0.02	1383	304	Balipati	Kalahandi
52	Kegaon	Parmanent Nursery Golamunda,	2.5	1559	10	Golamunda	Golamunda
53	Kegaon	Nursery Shed					
54	Kegaon	Forest Guard Quarter Golamunda	0.49	854	33	Golamunda	Golamunda

Sl No	Name Of The Range	Name of the Building /Site	Area covered In acre	Plot No.	Khata No.	Mouza	Name of the Tahasil
55	Kegaon	New Forester Quarter Golamunda	0.5	1222/3104	10	Golamunda	Golamunda
56	Kegaon	Forest Guard Quarter Kegaon	0.35	215	278	Kegaon	Golamunda
57	Kegaon	Forest Guard Quarter Khaliapali				Kegaon	Golamunda
58	Kegaon	Forest Range Officer -cum-Residence Kegaon Range				Kegaon	Golamunda
59	Kegaon	New Kegaon Range Office				Kegaon	Golamunda
60	Kegaon	Central Nursery Kegaon - 2.5Ac Malkhana Kegaon - 0.03Ac	2.53	84	278	Kegaon	Golamunda
61	Kegaon	Forest Guard Quarter Turechhada	1.00	662	276	Kegaon	Golamunda
62	Kegaon	Forest Guard Quarter Bagmunda					
63	Kegaon	New Forester Quarter Kegaon					
64	Kegaon	New Range Officer Residence Kegaon					
65	Kegaon	Forest Guard Quarter Nuagaon	0.1	744	202	Nuagaon	Golamunda
66	Kegaon	Forester Quarter Daspur	0.38	328,327	2	Daspur	Golamunda
67	Kegaon	NTFP Godown Daspur					
68	Kegaon	Forest Guard Quarter Dhamanpur	0.15	522 A	5	Dhamanpur	Golamunda
69	Kegaon	Forest Guard Quarter Putiachura	0.15	1407	143	Putiachura	Golamunda
70	Kegaon	Forester Quarter Gargab	1.18	1356	290	Badchergaon	Golamunda
71	Kegaon	Forest Guard Quarter Gargab					
72	Kegaon Kegaon	Forest Guard Quarter Karmath					
73	Kegaon	Forest Guard Quarter Ramchandrapur	0.08	26		Ramchandrapur	Golamunda
74	Kegaon	NTFP Godown Chahaka	0.28	130	114	Chahaka	Golamunda
		Total	**20.685**				

APPENDIX-XI

Programme for maintenance of Boundary of Kalahandi North Division (RF)

2021-22	2022-23
2023-24	2024-25
2025-26	2026-27
2027-28	2028-29
2029-30	2030-31
Forest Block	Forest Block
Bhawanipatna Range	
Alma	Brahmani
Dhangada dhangidi	Dhanupanchan
Kanamanjur	Kutrukhai
Madakhola 'A'	Poddhar
Madakhola 'B'	Sinang
Bhalu	Kadalighati
M. Rampur Range	
Dengen	Jerka
Sadel 'A'	Satami
Sadel 'B'	Sunamukhi
Taparang	Telen
Turchi	Benaguda
Bhatel	
Narla Range	
Porgel	Kamei
Kerbandi	Lumersingha
Narla	Sripali
Urladani	Karladangor
Kesinga Range	
Bazargarh	Nangalguda
Kegaon Range	
Adabari	Bisiberni
Chura 'A'	Chura 'B'
Daka	Ghatual
Gojia	Kumkot
Lini	Nageswar

Programme for maintenance of Forest Blocks Boundary Notified U/S-4 of OFA-1972 of Kalahandi North Division (PRF)

2021-22	2022-23
2023-24	2024-25
2025-26	2026-27
2027-28	2028-29
2029-30	2030-31
Forest Block	Forest Block
Bhawanipatna Range	
Gundi	
M Rampur Range	
Podgudi	Ramud
Sulia	Manikera
Mundramaska	Gochhadengen
Kutigudum	Talnuagaon
Puijhari	Pongabaju
Bidabaru Harlanga	
Narla Range	
Narla Extn.	Kamarda
Porgel Extn.	Badibahal
Sikerguda	Jamguda

Sl No.	Range	Name of Notified Forest Block	JV Perimeter (Km.)	Existing Pillars	New Pillars to be constructed	Total no. of Pillars to be maintained	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
1	Bhawanipatna	Alma RF	24.31	128	79	207	4	5	5	5	8	9	13	9	10	11
2	Bhawanipatna	Bhalu RF	2.82	19	2	21	2	0	0	0	0	0	0	0	0	0
3	Bhawanipatna	Brahamanidonger DPF	3.46	1	33	34	0	2	4	2	3	4	6	4	4	4
4	Bhawanipatna	Brahmani RF	72.38	253	147	400	9	11	10	16	5	16	25	16	18	21
5	Bhawanipatna	Dhangada Dhangadi RF	7.66	36	9	45	4	5	0	0	0	0	0	0	0	0
6	Bhawanipatna	Dhanupanchan RF	16.25	108	4	112	4	0	0	0	0	0	0	0	0	0
7	Bhawanipatna	Gudang DPF	3.03	0	23	23	4	4	5	4	6	0	0	0	0	0
8	Bhawanipatna	Gundi PRF	74.99	11	649	660	8	50	52	75	85	77	70	80	77	75
9	Bhawanipatna	Kadalighati RF	33.57	95	152	247	8	12	18	12	13	14	24	18	21	12
10	Bhawanipatna	Kanamanjur RF	34.11	147	103	250	5	9	10	10	10	11	14	11	13	10
11	Bhawanipatna	Kutrukhai RF	9.28	9	63	72	5	5	5	5	5	7	7	7	8	9
12	Bhawanipatna	Madhakhola (A) RF	15.25	69	30	99	0	0	3	4	3	3	5	3	4	5
13	Bhawanipatna	Madhakhola (B) RF	20.72	52	44	96	0	0	5	5	5	5	7	5	6	6
14	Bhawanipatna	Pordhar RF	15.27	19	118	137	0	9	10	10	12	13	20	13	15	16
15	Bhawanipatna	Sinang RF	31.78	153	94	247	5	8	7	5	9	9	16	10	12	13
16	Bhawanipatna	Thuapadar Gundi DPF	112.52	184	539	723	7	12	54	58	62	69	62	68	70	77
17	Kegaon	Adabari RF	13.62	61	5	66	0	0	0	0	2	3	0	0	0	0
18	Kegaon	Ammuda DPF	9.9	11	64	75	0	4	8	7	6	8	6	9	8	8
19	Kegaon	Baijalpur DPF	5.63	0	101	101	5	5	6	13	9	11	15	11	13	13
20	Kegaon	Banakdei DPF	4.63	24	14	38	4	5	5	0	0	0	0	0	0	0
21	Kegaon	Bisibarni RF	5.97	32	5	37	0	0	0	0	2	3	0	0	0	0
22	Kegaon	Chanchermunda DPF	5.34	3	41	44	0	0	4	6	4	5	6	5	5	6
23	Kegaon	Chura (A) RF	68.54	333	197	530	5	11	10	22	20	22	33	25	24	25
24	Kegaon	Chura (B) RF	26.22	103	82	185	4	4	8	8	8	9	14	9	10	8

Sl No.	Range	Name of Notified Forest Block	JV Perimeter (Km.)	Existing Pillars	New Pillars to be constructed	Total no. of Pillars to be maintained	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
25	Kegaon	Daka RF	11.18	20	58	78	4	4	4	6	6	6	7	6	7	8
26	Kegaon	Gandamer DPF	6.88	0	93	93	5	6	9	11	9	8	12	14	9	10
27	Kegaon	Ghatual RF	12.01	45	28	73	0	0	3	4	3	3	4	3	4	4
28	Kegaon	Goilbindha DPF	1.78	0	150	150	4	7	8	10	16	21	29	17	19	19
29	Kegaon	Gojia RF	3.56	47	16	63	0	4	4	4	4	0	0	0	0	0
30	Kegaon	Jayantpur DPF	9.23	0	67	67	4	4	6	6	7	10	8	7	9	6
31	Kegaon	Kalamdei DPF	0.83	0	18	18	4	5	3	2	4	0	0	0	0	0
32	Kegaon	Kankeri (A) DPF	1.87	3	20	23	3	4	2	6	2	3	0	0	0	0
33	Kegaon	Kankeri (B) DPF	2.75	0	45	45	5	4	7	5	6	7	8	3	0	0
34	Kegaon	Kirkakani DPF	3.35	0	51	51	4	5	10	13	6	6	4	3	0	0
35	Kegaon	Kumkort RF	55.7	278	95	373	4	6	10	13	14	9	11	10	8	10
36	Kegaon	Lini RF	4.81	37	12	49	0	4	5	3	0	0	0	0	0	0
37	Kegaon	Masigaon DPF	2.82	18	11	29	0	3	4	4	0	0	0	0	0	0
38	Kegaon	Nageswar RF	83.6	371	237	608	10	24	13	30	30	34	30	30	19	17
39	Kegaon	Patramara DPF	7.9	10	60	70	4	6	6	8	8	7	5	5	6	5
40	Kegaon	Sikuan DPF	3.54	0	53	53	4	5	11	11	7	7	8	0	0	0
41	Kegaon	Sindabhadi DPF	3.42	16	26	42	3	5	4	4	5	5	0	0	0	0
42	Kesinga	Bazargarh RF	115.75	580	80	660	4	11	10	11	14	10	10	10	0	0
43	Kesinga	Biripura DPF	9.48	18	61	79	4	6	10	10	11	12	8	0	0	0
44	Kesinga	Dumermunda DPF	3.29	5	24	29	4	4	5	6	5	0	0	0	0	0
45	Kesinga	Laitara DPF	4.27	6	23	29	4	5	7	7	0	0	0	0	0	0
46	Kesinga	Nangalguda RF	24.64	119	12	131	0	0	5	7	0	0	0	0	0	0
47	Kesinga	Turlakhaman DPF	8.12	20	14	34	0	0	7	7	0	0	0	0	0	0
48	Madanpur Rampur	Benaguda RF	32.53	159	60	219	5	7	9	11	13	15	0	0	0	0
49	Madanpur Rampur	Bhatel RF	2.85	13	12	25	6	6	0	0	0	0	0	0	0	0

Sl No.	Range	Name of Notified Forest Block	JV Perimeter (Km.)	Existing Pillars	New Pillars to be constructed	Total no. of Pillars to be maintained	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
50	Madanpur Rampur	Bidabaru (Harlanga) PRF	30.53	132	148	280	8	12	18	14	10	16	11	17	19	23
51	Madanpur Rampur	Chandanpinda DPF	14.54	27	80	107	3	4	10	9	9	9	9	9	9	9
52	Madanpur Rampur	Dengen RF	22.61	74	96	170	5	5	8	7	7	9	11	12	15	17
53	Madanpur Rampur	Dengidonger DPF	12.6	4	105	109	4	4	7	10	11	18	15	12	13	11
54	Madanpur Rampur	Gochhadengen PRF	14.82	109	39	148	3	4	5	7	9	11	0	0	0	0
55	Madanpur Rampur	Jerka RF	14.02	32	71	103	4	7	10	11	13	14	6	6	0	0
56	Madanpur Rampur	Karla DPF	15.8	27	126	153	4	7	10	14	15	11	10	18	17	20
57	Madanpur Rampur	Kuthiheju DPF	7.2	11	70	81	5	7	6	8	8	9	8	10	5	4
58	Madanpur Rampur	Kutigudum PRF	15.95	26	100	126	5	6	8	11	12	13	10	11	13	11
59	Madanpur Rampur	Manikera PRF	3.78	36	7	43	5	2	0	0	0	0	0	0	0	0
60	Madanpur Rampur	Mugei DPF		10	3	13	3	0	0	0	0	0	0	0	0	0
61	Madanpur Rampur	Mundramaska PRF	15.03	0	124	124	4	12	17	18	14	16	12	10	11	10
62	Madanpur Rampur	Podgudi PRF	24.64	121	127	248	5	9	13	14	18	15	16	13	11	13
63	Madanpur Rampur	Pongabaju PRF	47.16	25	308	333	15	22	29	33	31	34	30	38	38	38
64	Madanpur Rampur	Pudrimahul DPF	10.99	10	87	97	3	9	17	24	11	11	12	0	0	0
65	Madanpur Rampur	Puijhari PRF	27.74	57	158	215	4	11	15	18	19	16	18	21	18	18
66	Madanpur Rampur	Ramud PRF	14.27	98	43	141	4	6	9	8	10	6	0	0	0	0
67	Madanpur Rampur	Sadel (A) RF	8.47	31	27	58	3	5	10	9	0	0	0	0	0	0
68	Madanpur Rampur	Sadel (B) RF	8.65	31	24	55	5	6	7	6	0	0	0	0	0	0
69	Madanpur Rampur	Satami RF	24.73	156	62	218	4	8	11	11	9	10	9	0	0	0
70	Madanpur Rampur	Sihidi DPF	13.78	27	116	143	4	10	12	23	15	21	14	10	7	0
71	Madanpur Rampur	Sulia Extn. DPF	11.12	23	70	93	5	7	14	19	11	14	0	0	0	0
72	Madanpur Rampur	Sulia PRF	54.13	168	262	430	12	14	19	26	30	34	36	39	26	26
73	Madanpur Rampur	Sunamukhi RF	50.9	159	139	298	5	11	14	11	19	17	24	16	13	9
74	Madanpur Rampur	Talanuagaon PRF	9.23	45	38	83	4	8	11	10	5	0	0	0	0	0

Sl No.	Range	Name of Notified Forest Block	JV Perimeter (Km.)	Existing Pillars	New Pillars to be constructed	Total no. of Pillars to be maintained	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
75	Madanpur Rampur	Taparang RF	62.4	228	231	459	6	15	18	20	23	29	34	26	29	31
76	Madanpur Rampur	Telen RF	30.91	83	142	225	7	11	14	13	21	21	18	10	16	11
77	Madanpur Rampur	Turchi RF	13.17	21	91	112	4	8	10	11	9	10	12	8	9	10
78	Narla	Badibahal PRF	2.45	0	16	16	5	5	6	0	0	0	0	0	0	0
79	Narla	Barpati DPF	8.51	0	67	67	6	7	11	12	15	10	6	0	0	0
80	Narla	Belgaon DPF	106.17	4	730	734	52	65	72	78	73	79	80	75	73	83
81	Narla	Dengersur DPF	11.2	13	100	113	4	7	10	13	10	11	12	10	13	10
82	Narla	Jamguda PRF	6.03	0	59	59	6	12	11	13	17	0	0	0	0	0
83	Narla	Kamarda PRF	4.57	4	119	123	5	8	12	16	19	18	13	15	13	0
84	Narla	Kamei RF	5.37	30	3	33	3	0	0	0	0	0	0	0	0	0
85	Narla	Karla Dangar RF	13.21	48	47	95	5	9	12	13	8	0	0	0	0	0
86	Narla	Kerbandi RF	23.93	45	89	134	4	6	11	14	10	11	13	10	10	0
87	Narla	Lamer DPF	3.42	5	21	26	3	7	5	6	0	0	0	0	0	0
88	Narla	Lumersinga RF	7.59	16	34	50	3	7	6	9	9	0	0	0	0	0
89	Narla	Magardani DPF	3.56	0	33	33	3	7	8	6	4	5	0	0	0	0
90	Narla	Mundighati DPF	5.2	0	28	28	3	6	7	5	7	0	0	0	0	0
91	Narla	Narla Extension PRF	10.62	5	53	58	5	7	8	11	13	9	0	0	0	0
92	Narla	Narla RF	26.79	70	96	166	4	10	10	10	10	10	10	12	10	10
93	Narla	Porgel Extension PRF	46.78	51	274	325	4	15	25	37	38	27	32	35	38	23
94	Narla	Porgel RF	24.45	48	109	157	5	9	11	17	15	13	10	9	11	9
95	Narla	Sikherguda PRF	3.49	6	87	93	6	10	10	10	8	6	10	7	10	10
96	Narla	Siripali RF	3.23	17	3	20	3	0	0	0	0	0	0	0	0	0
97	Narla	Urladani RF	83.47	157	431	588	28	43	44	46	48	43	45	47	44	43
			TOTAL		**9217**	**15123**	**468**	**766**	**992**	**1147**	**1090**	**1067**	**1033**	**917**	**890**	**847**

The above data is compiled from the Joint verification Survey conducted by Revenue and Forest officials for ongoing DGPS survey. The existing pillar needs to be maintained and the new pillars will be constructed during end of DGPS survey which also needs further maintenance. After the notification of DPF and UDPF into Reserve Forests, they can also be taken up for boundary maintenance. In this plan Only notified RF and PRF blocks are taken for maintenance of boundary pillars.

APPENDIX-XII

Biodiversity Assessment of Trees Species of Bhawanipatna Range

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	Total BA	IVI
Sinang	Asan/Sahaj	26.67	888.89	1596.69	92.11
	Dhaura	10.00	66.67	1225.39	18.90
	Genduli	10.00	33.33	4512.97	35.16
	Haldu	3.33	33.33	113.04	5.42
	Karada	3.33	33.33	314.00	6.56
	Kasi	3.33	33.33	153.86	5.65
	Mai	13.33	100.00	860.36	21.61
	Mundi	6.67	33.33	2896.65	23.61
	Salai	50.00	100.00	5311.31	73.07
	Sunari	6.67	33.33	226.08	8.45
	Tangini	6.67	33.33	403.49	9.45
	Total	**140.00**	**1388.89**	**17613.83**	**300.00**
Madakhola "A"	Asan/Sahaj	13.33	66.67	1036.99	19.62
	Bandhan/Tinsa	6.67	33.33	314.00	8.75
	Char	103.33	100.00	4071.80	65.78
	Dhaura	20.00	33.33	1011.87	16.09
	Ganiari/Gelgela	33.33	33.33	2247.46	26.21
	Karada	3.33	33.33	379.94	8.16
	kendu	13.33	33.33	711.21	12.67
	Mundi/Mitkania	30.00	66.67	1824.34	28.35
	Mundica/Bakam	13.33	0.00	1138.25	9.61
	Piasal/Bijasal	13.33	66.67	631.14	17.52
	Rohini	23.33	0.00	1384.74	13.69
	Sal	36.67	66.67	1548.02	28.80
	Salai	40.00	66.67	2809.52	36.24
	Sisoo	6.67	33.33	266.90	8.51
	Total	**356.67**	**633.33**	**19376.16**	**300.00**
Kutrukhai	Asan/Sahaj	94.99	94.99	94.99	84.35
	Mai	191.54	191.54	191.54	135.81
	Mundica	78.50	78.50	78.50	79.84
	Total	**365.03**	**365.03**	**365.03**	**300.00**
Kadlighati	Asan/Sahaj	14	28.57	2015.10	15.43
	Bahada	8	20.00	786.57	8.20
	Bandhan/Tinsa	6	40.00	2572.45	15.11
	Bela	4	40.00	870.57	9.26
	Bhalia	16	60.00	2315.75	21.09
	Char	62	60.00	5904.77	51.14
	Dhaman	2	20.00	176.63	3.87
	Dhaura	16	60.00	2739.65	22.34
	Ghanta	2	20.00	78.50	3.58
	Haldu(Kurum)	10	60.00	1098.22	14.97
	Karada	18	40.00	1559.01	17.21
	Kendu	10	80.00	2118.72	20.47
	Khair	2	20.00	200.96	3.94
	Mahula	4	40.00	2276.50	13.39
	Mundi/Mitkania	10	20.00	1908.34	12.35
	Pahadi Sisoo	10	40.00	872.14	11.80
	Piasal/Bijasal	2	20.00	132.67	3.74
	Saguan	2	20.00	113.04	3.68
	Sal	26	60.00	4583.62	32.00
	Salai	4	20.00	628.00	6.04
	Tangini	8	20.00	1050.33	8.98
	Total	**236**	**800**	**34001.49**	**300**

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	Total BA	IVI
Kanamanjur	Amla	1.67	16.67	94.99	5.96
	Asan	10.00	50.00	1429.49	31.74
	Aswatha	8.33	16.67	2369.92	29.92
	Bandhan	5.00	16.67	554.21	12.97
	Dhaura	5.00	33.33	321.07	14.71
	Ghanta	6.67	50.00	649.98	22.38
	Haldu	10.00	50.00	1888.71	35.10
	Karada	6.67	50.00	638.21	22.30
	Kasi	3.33	16.67	255.13	8.96
	Kendu	10.00	50.00	1216.75	30.18
	Mai	3.33	33.33	883.13	17.01
	Mundi	1.67	16.67	94.99	5.96
	Mundica	8.33	0.00	1752.12	21.94
	Sal	1.67	16.67	113.04	6.10
	Salai	3.33	16.67	704.93	12.25
	Sidha	1.67	16.67	78.50	5.84
	Siris	1.67	16.67	200.96	6.74
	Sisoo	3.33	16.67	392.50	9.96
	Total	**91.67**	**483.33**	**13638.59**	**300.00**
Dhangada-dhangidi RF	Achhu	20	100	226.08	25.84
	Asan	40	100	664.11	48.93
	Bahada	20	100	330.49	28.96
	Barabakuli	10	100	226.87	20.87
	Bela	10	100	113.04	17.47
	Bheru	20	100	255.13	26.71
	Char	10	100	132.67	18.05
	Gohira	10	100	346.19	24.43
	Kendu	30	100	467.86	38.07
	Salai	10	100	314.00	23.47
	Sidha	20	100	271.61	27.20
	Total	**200**	**1100**	**3348.03**	**300.00**
Pordhar	Asan	5.00	25.00	453.73	17.13
	Bandhan	5.00	25.00	628.00	18.748
	Dhaura	7.50	50.00	268.47	24.993
	Ghanta	5.00	50.00	533.80	24.123
	Karada	2.50	25.00	176.63	11.223
	Mai	2.50	25.00	226.87	11.69
	Mundica	5.00	50.00	1774.10	35.64
	Pahadi Sisoo	12.50	50.00	819.54	36.777
	Salai	25.00	25.00	5655.93	92.102
	Sunari	5.00	25.00	232.36	15.074
	Total	**75.00**	**400.00**	**10769.42**	**300.00**

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	Total BA	IVI
Dhanupanchan	Asan/Sahaj	20.00	100.00	1797.65	41.27094
	Karada	15.00	50.00	1752.12	28.5699
	kendu	10.00	50.00	354.82	18.23339
	Mundi/Mitkania	25.00	100.00	12402.22	92.26256
	Saguan	5.00	50.00	1661.06	19.83449
	Salai	15.00	100.00	1495.425	35.76979
	Sisoo	5.00	50.00	113.04	12.99913
	Sunari	25.00	100.00	3070.92	51.05979
	Total	**120.00**	**600.00**	**22647.25**	**300**
Madakhola 'B'	Asan/Sahaja	5.00	50.00	132.67	187.67
	Bahada	5.00	50.00	1519.76	1574.76
	Bela	10.00	100.00	898.83	1008.83
	Dhaura	50.00	100.00	1577.85	1727.85
	Gamhari	5.00	50.00	961.63	1016.63
	Ganiari/Gelgela	35.00	50.00	7270.67	7355.67
	Garh khair	10.00	50.00	3799.40	3859.40
	Ghanta	10.00	50.00	211.17	271.17
	Harida	10.00	50.00	949.85	1009.85
	Karada	35.00	100.00	2682.35	2817.35
	kendu	15.00	100.00	934.15	1049.15
	Mundi/Mitkania	50.00	100.00	7011.62	7161.62
	Salai	45.00	100.00	3855.92	4000.92
	Sidha	5.00	50.00	854.87	909.87
	Sisoo	10.00	50.00	208.03	268.03
	Sunari	5.00	50.00	94.99	149.99
		305.00	1100.00	**32963.72**	34368.72
Alma	Amla	2.50	25.00	113.04	140.54
	Asan/Sahaj	15.00	75.00	573.05	663.05
	Bahada	7.50	50.00	525.17	582.67
	Bheru	2.50	25.00	78.50	106.00
	Char	5.00	25.00	191.54	221.54
	Dhaura	5.00	25.00	226.08	256.08
	Ghanta	7.50	25.00	286.53	319.03
	Haldu(kurum)	7.50	25.00	1314.88	1347.38
	Jamu	10.00	25.00	3957.19	3992.19
	Karada	20.00	75.00	2019.02	2114.02
	Kasi	12.50	25.00	2387.19	2424.69
	kendu	30.00	100.00	2910.78	3040.78
	Khair	5.00	25.00	157.00	187.00
	Mai	2.50	25.00	226.87	254.37
	Mundi/Mitkania	2.50	25.00	379.94	407.44
	Mundica/Bakam	7.50	25.00	1586.49	1618.99
	Piasal/Bijasal	5.00	25.00	289.67	319.67
	Salai	2.50	25.00	706.50	734.00
	Sidha	5.00	50.00	458.44	513.44
	Sisoo	7.50	75.00	427.83	510.33
	Tangini	5.00	50.00	1432.63	1487.63
	Total	**167.50**	**825.00**	**20248.29**	**21240.79**

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	Total BA	IVI
Thuapadar Gundi	Amba	0.48	2.38	2939.04	2.01
	Ambthi	0.71	2.38	4281.39	2.76
	Amla	1.43	9.52	2243.53	3.97
	Arjuna	0.95	7.14	6123.00	4.51
	Asan/Sahaj	7.86	57.14	12981.55	22.90
	Bahada	2.62	21.43	8426.19	9.57
	Bandhan/Tinsa	1.19	9.52	3402.98	4.15
	Bela	1.90	11.90	2296.91	4.90
	Bhalia	1.43	11.90	2015.88	4.29
	Bheru	0.48	4.76	1350.99	1.82
	Char	7.38	45.24	11048.09	19.66
	Dhaman	2.14	14.29	5527.19	6.77
	Dhaura	5.48	35.71	11214.51	16.08
	Gamhari	0.71	4.76	3448.51	2.86
	Ganiari/Gelgela	0.71	4.76	2629.75	2.55
	Garh khair	0.48	4.76	1020.50	1.70
	Genduli	0.71	4.76	930.23	1.92
	Ghanta	0.48	4.76	3552.13	2.64
	Haldu(kurum)	0.48	4.76	669.61	1.56
	Jamu	0.48	4.76	1020.50	1.70
	Kangada	1.90	7.14	11863.71	7.67
	Karada	10.95	57.14	13691.19	26.47
	Karanj	0.24	2.38	4415.63	2.31
	Kasi	2.62	19.05	3785.27	7.43
	kendu	9.52	47.62	11793.06	22.62
	Kusum	0.71	2.38	1595.91	1.76
	Mahula	1.90	7.14	4694.30	4.99
	Mai	0.24	2.38	1017.36	1.04
	Mokha/Mukha	0.24	2.38	176.63	0.72
Thuapadar Gundi	Mundi/Mitkania	3.81	21.43	19832.24	15.10
	Mundica/Bakam	0.24	2.38	113.04	0.70
	Neem/Nimba	0.95	4.76	1148.46	2.25
	Pahadi Sisoo	2.62	26.19	51521.12	26.48
	Piasal/Bijasal	0.95	9.52	2228.62	3.46
	Sal	3.81	11.90	7737.75	8.97
	Salai	1.43	9.52	3715.41	4.52
	Salapa	0.24	2.38	706.50	0.92
	Sidha	2.14	16.67	5816.85	7.28
	Simili	1.19	9.52	7653.75	5.74
	Siris	1.43	4.76	13868.60	7.51
	Sunari	1.43	14.29	2600.71	4.91
	Tangarchampa/Patharchampa	1.43	9.52	3840.22	4.57
	Tangini	5.24	30.95	4832.46	12.63
	Tentuli	0.48	2.38	1816.49	1.59
		93.81	590.48	**267587.66**	300.00
Gundi	Amba	1.72	10.34	113393.25	30.31
	Amla	2.76	20.69	1166.51	4.38
	Asan/Sahaj	8.28	44.83	17376.76	14.70
	Bahada	3.79	31.03	8676.61	8.05
	Bandhan/Tinsa	3.10	24.14	8333.56	6.76
	Barabakulia	1.72	13.79	2214.49	3.20
	Bela	4.48	37.93	5832.55	8.56
	Bhalia	3.10	31.03	2315.75	6.01
	Bheru	0.34	3.45	113.04	0.63
	Char	4.48	31.03	6725.10	8.03
	Dhaman	7.59	37.93	8742.55	11.36
	Dhaura	5.52	27.59	8681.32	8.83
	Dhauranga	0.34	3.45	254.34	0.67

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	Total BA	IVI
Gundi	Dimiri	1.38	13.79	2551.25	3.05
	Gamhari	0.34	3.45	153.86	0.64
	Gandha palas	0.34	3.45	78.50	0.62
	Garh khair	0.34	3.45	200.96	0.65
	Ghanta	1.72	6.90	792.07	2.10
	Haldu(kurum)	2.07	13.79	1600.62	3.28
	Harida	2.41	20.69	1596.69	4.25
	Jamu	3.45	17.24	3695.00	5.09
	Kanchan	0.34	3.45	379.94	0.70
	Karada	9.31	34.48	9245.73	12.27
	Kasi	7.24	58.62	10718.39	13.85
	kendu	7.59	55.17	8343.77	13.13
	Kenkat	0.69	3.45	2276.50	1.40
	Khair	0.69	3.45	804.63	1.03
	Kumbhi	3.45	20.69	7449.65	6.40
	Kusum	3.45	24.14	10474.26	7.52
	Mahula	4.48	27.59	50568.92	18.49
	Mai	0.34	3.45	530.66	0.74
	Mankada kendu	5.17	37.93	10698.77	10.22
	Mundi/Mitkania	7.59	41.38	24686.68	15.67
	Mundica/Bakam	0.69	6.90	4129.89	2.23
	Pahadi Sisoo	3.79	27.59	2690.98	6.20
	Palas	1.03	6.90	343.83	1.53
	Phanphana/Phanpuni	0.34	3.45	153.86	0.64
	Piasal/ Bijasal	5.86	34.48	17792.03	12.06
	Sal	6.90	24.14	16944.23	11.43
	Salai	3.10	13.79	2783.61	4.26
	Sidha	2.41	20.69	3172.97	4.64
	Sunari	2.41	20.69	1740.35	4.29
	Tangarchampa/Patharchampa	0.34	3.45	314.00	0.68
	Tangini	12.07	44.83	23642.63	18.80
	Tentuli	0.34	3.45	153.86	0.64
	Total	148.97	924.14	**404534.83**	300.00
Brahmani	Achhu	0.34	3.45	153.86	1.08
	Ambthi	0.69	3.45	2754.565	2.98
	Amla	0.34	3.45	113.04	1.06
	Asan/Sahaj	11.38	68.97	9826.63	30.10
	Badhial/Sitaphal	0.34	3.45	226.865	1.13
	Bandhan/Tinsa	2.07	13.79	2804.02	6.32
	Bela	0.34	3.45	113.04	1.06
	Chaladhua	0.69	6.90	4176.985	4.48
	Char	2.76	17.24	6506.87	9.87
	Dhaman	0.34	3.45	2826.00	2.68
	Dhaura	4.48	20.69	7862.76	13.02
	Garh khair	0.34	3.45	1256.00	1.74
	Genduli	0.34	3.45	379.94	1.22
	Haldu(kurum)	3.79	10.34	5116.63	8.74
	Karada	9.31	51.72	13710.81	27.13
	Kasi	4.14	20.69	9959.30	13.94
	kendu	17.24	89.66	14009.90	42.27
	Mai	21.72	79.31	40979.35	60.84

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	Total BA	IVI
Brahmani	Mundi/Mitkania	3.45	24.14	5191.99	11.06
	Rohini	0.34	3.45	530.66	1.31
	Saguan	0.34	3.45	907.46	1.53
	Salai	10.00	48.28	21793.96	31.99
	Sidha	1.38	6.90	1165.73	3.36
	Simili	3.10	13.79	6914.28	9.79
	Sisoo	0.69	6.90	191.54	2.10
	Sunari	0.69	3.45	5122.13	4.40
	Tangini	1.38	10.34	2474.32	4.79
	Total	102.07	527.59	**167068.61**	300.00

BIODIVERSITY ASSESSMENT OF SHRUB SPECIES OF KEGAON RANGE

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	Total BA	IVI
Lini	Mundi/Mitkania	10	100	346.19	59.98
	Piasal/ Bijasal	10	100	200.96	46.81
	Bela	10	100	78.5	35.69
	Khair	10	100	132.67	40.61
	Kalachua	10	100	78.5	35.69
	Dhaura	10	100	132.67	40.61
	Char	10	100	132.67	40.61
	Total	70	700	1102.14	300
Banakdei	Genduli	10	100	132.665	162.83
	Mai	10	100	78.5	137.17
	Total	20	200	211.165	300
Masigaon	Bheru	10	100	176.63	64.37
	Piasal/Bijasal	10	100	78.5	47.13
	Karada	10	100	78.5	47.13
	Bela	10	100	78.5	47.13
	Khair	10	100	78.5	47.13
	Dhaura	10	100	78.5	47.13
	Total	60	600	569.13	300
Ammuda	Amla	10	100	572.265	60.09
	Bahada	20	100	415.265	55.95
	Barabakuli	10	100	2550.465	112.24
	Dhaura	10	100	255.125	71.73
	Total	50	400	3793.12	300

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	Total BA	IVI
Patramara	Amla	10	100	132.67	10.68
	Asan/Sahaj	100	100	2103.02	37.6
	Barabakulia	10	100	132.67	10.68
	Char	100	100	1561.37	33.54
	Dhaura	70	100	1266.21	27.28
	Karada	50	100	589.54	19.51
	kendu	40	100	538.51	17.77
	Kusum	10	100	254.34	11.59
	Mahula	260	100	4512.97	77.27
	Rohini	10	100	176.63	11.01
	Sal	30	100	420.76	15.54
	Simuli	50	100	1661.06	27.53
	Total	740	1200	13349.71	300
Daka	Barabakulia	10	100	379.94	119.45
	Salai	10	100	113.04	82.37
	Panigamhar	10	100	226.865	98.18
	Total	30	300	719.845	300
Kumkot	Amla	0.59	5.88	108.65	2.68
	Asan/Sahaj	1.18	11.76	434.6	5.48
	Bahada	0.59	5.88	108.65	2.41
	Barabaakulia	1.76	17.65	977.85	8.61
	Bhalia	0.59	5.88	108.65	2.9
	Bheru	0.59	5.88	108.65	2.25
	char	2.35	23.53	1738.41	9.57
	Dhaura	4.71	41.18	5323.88	17.36
	Gamhari	1.18	11.76	434.6	6.71
	Ganiari/Gelgela	1.76	17.65	977.85	6.69
	Genduli	1.76	17.65	977.85	9.83
	Ghanta	1.18	11.76	434.6	4.74
	Halda	0.59	5.88	108.65	2.9
	Haldu(Kurum)	1.18	11.76	434.6	4.9

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	Total BA	IVI
Kumkot	Kalachua	0.59	5.88	108.65	2.9
	Karada	5.29	52.94	8800.69	21.53
	Kendu	4.71	47.06	6953.63	19.71
	Khair	4.12	41.18	5323.88	14.87
	Kumbhi	1.18	11.76	434.6	4.7
	Mahula	0.59	5.88	108.65	2.05
	Mai	8.24	76.47	18361.94	42.74
	Neem/Nimba	0.59	76.47	18361.94	12.75
	Panigamhar	1.18	11.76	434.6	6.41
	Piasal/Bijasal	4.12	41.18	5323.88	16.51
	Saguan	1.18	5.88	108.65	3.5
	Sal	1.18	11.76	434.6	5.72
	Salai	3.53	35.29	3911.42	20.34
	Sidha	0.59	5.88	108.65	2.25
	Simili	1.76	17.65	977.85	10.94
	Siris	1.76	17.65	977.85	8.71
	Sisoo	1.18	5.88	108.65	3.66
	Sunari	1.76	17.65	977.85	9.42
	Telei	0.59	5.88	108.65	3.53
	Total	64.12	688.24	27871.43	300
Nageswar	Asan/Sahaj	5	0.5	353.25	25.17
	Bheru	2.5	0.25	113.04	11.21
	Char	2.5	0.25	346.185	16.26
	Dhaura	15	1	1006.37	64.84
	Kendu	2.5	0.25	78.5	10.46
	Mai	12.5	1	971.045	60.07
	Neem/Nimba	5	0.25	717.49	28.3
	Piasal/Bijasal	2.5	0.25	176.625	12.59
	Saguan	7.5	0.75	387.79	34.68
	Sidha	2.5	0.25	153.86	12.09
	Simili	5	0.5	314	24.32
	Total	62.5	5.25	4618.155	300

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	Total BA	IVI
Chura A	Amla	1.03	10.34	763.81	4.65
	Anchhu	0.34	3.45	200.96	1.47
	Asan/Sahaj	2.07	20.69	1445.97	9.17
	Aswatha	0.69	6.9	8870.5	15.88
	Bahada	0.34	3.45	176.63	1.43
	Bandhan/Tinsa	0.69	6.9	427.04	2.97
	Barabakulia	1.38	13.79	1497.78	6.93
	Barun	0.34	3.45	226.87	1.51
	Bela	0.69	6.9	208.03	2.64
	Bheru	1.03	10.34	861.15	4.79
	Char	2.76	27.59	1497	11.56
	Dhaman	2.07	20.69	2785.18	11.21
	Dhaura	5.52	55.17	6099.45	27.87
	Gamhari	1.03	10.34	463.15	4.19
	Gandha palas	0.34	3.45	78.5	1.28
	Genduli	0.69	6.9	1765.47	5.02
	Ghanta	0.34	3.45	176.63	1.43
	Ghar khair	0.34	3.45	1589.63	3.59
	Haldu (kurum)	1.03	10.34	587.97	4.38
	Harida	0.34	3.45	94.99	1.3
	Karada	6.55	65.52	4089.85	28.28
	Kasi	1.72	17.24	1325.87	7.82
	Kendu	4.48	41.38	2810.3	18.78
	Khair	0.34	3.45	78.5	1.28
	Kumbhi	0.69	6.9	266.9	2.73
	Kusum	1.03	10.34	4414.84	10.23
	Mahula	1.72	13.79	706.5	6.29
	Mai	3.79	34.48	3822.95	18.01
	Manda/Gandhaguria	2.07	20.69	3344.1	12.07
	Mokha/Mukha	0.34	3.45	314	1.64
	Mundi/Mitkania	0.34	3.45	226.87	1.51

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	Total BA	IVI
Chura A	Pahadi Sisoo	0.69	6.9	157	2.56
	Panigamhar	0.34	3.45	346.19	1.69
	Piasal/Bijasal	2.41	24.14	2632.89	12.14
	Rai	0.69	6.9	403.49	2.94
	Rohini	0.34	3.45	176.63	1.43
	Sal	1.38	13.79	606.81	5.57
	Salai	1.72	17.24	2870.75	10.19
	Sidha	0.69	6.9	663.33	3.33
	Simili	2.76	27.59	2851.12	13.63
	Siris	1.38	13.79	2353.43	8.23
	Sissoo	0.34	3.45	113.04	1.33
	Sunari	0.69	6.9	623.29	3.27
	Telei	0.34	3.45	415.27	1.79
	Total	60	589.66	65430.54	300
Chura B	Amla	0.67	6.67	78.5	2.48
	Asan	2.67	26.67	2013.53	13.9
	Bahada	0.67	6.67	113.04	2.56
	Bandhan	1.33	13.33	271.61	5.23
	Bara	0.67	6.67	1384.74	5.53
	Barabakulia	2	20	1039.34	9.33
	Bheru	0.67	6.67	415.27	3.27
	Char	4	40	1720.72	17.82
	Dhaman	2	20	653.91	8.43
	Dhaura	2.67	26.67	1669.7	13.1
	Gamhari	0.67	6.67	94.99	2.52
	Halda	0.67	6.67	314	3.03
	Haldu	0.67	6.67	226.87	2.83
	Karada	0.67	6.67	314	3.03
	Karda	3.33	33.33	1442.83	14.87
	Kasi	0.67	6.67	254.34	2.89
	kendu	2.67	20	1379.25	11.24
	Khair	0.67	6.67	78.5	2.48
	Kumbhi	2	20	1659.49	10.78
	Kusum	1.33	13.33	540.87	5.86
	Mahula	0.67	6.67	572.27	3.64
	Mai	8.67	86.67	7318.56	46.99
	Mundi	2.67	26.67	2793.03	15.72
	Mundi/Mitkania	0.67	6.67	7850	20.63
	Paldhua	1.33	13.33	2276.5	9.92
	Piasal/	0.67	6.67	254.34	2.89
	Piasal/Bijasal	4	26.67	1548.81	15.06
	Sal	2.67	26.67	1219.89	12.05
	Salai	2	20	673.53	8.47
	Sidha	0.67	6.67	153.86	2.66
	Simili	1.33	13.33	1671.27	8.5
	Siris	1.33	6.67	359.53	4.26
	Sunari	1.33	13.33	289.67	5.28
	Telei	0.67	6.67	176.63	2.71
	Total	59.33	566.67	42823.32	300

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	Total BA	IVI
Sindhibhadi	Asan/Sahaj	10	100	415.27	48.46
	Bhalia	10	100	176.63	39.77
	Khair	10	100	415.27	48.46
	Mai	10	100	803.84	62.62
	Salai	10	100	854.87	64.48
	Sunari	10	100	78.5	36.19
	Total	60	600	2744.36	300

BIODIVERSITY ASSESSMENT OF TREE SPECIES OF M.RAMPUR RANGE

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Pudrimahul	Kurei/kher	833.33	150	92.86
	muri	277.78	50	30.95
	Poksunga	833.33	100	76.19
	Total	**1944.44**	**300**	**200**
Turchi	Khajuri	555.56	100	100
	Poksunga	555.56	100	100
	Total	**1111.11**	**200**	**200**
Tal Nuagaon	Ankula	34.72	25	15.48
	Badichand/Cadichang	34.72	25	15.48
	Bajramuli	34.72	25	15.48
	Bantulasi	104.17	75	46.43
	Dhatiki	138.89	75	53.57
	Iswarjata	34.72	25	15.48
	Kurei/kher	34.72	25	15.48
	Poksunga	69.44	25	22.62
	Total	486.11	300	200

Forest Block	**Name of the species**	**Density (No. of tree/ unit area)**	**Frequency**	**IVI**
Tal Nuagaon	Pahadi Sisso	30	75	39.07
	Piasal/	2.5	25	6.87
	Sal	17.5	50	30.16
	Salai	2.5	25	9
	Sidha	5	25	10.73
	Tangini	7.5	25	12.81
	Total	185	600	300
Telen	Ankula	22.4	12.9	8.56
	Asana sahaja	8.96	6.45	3.92
	Bajramuli	49.28	12.9	12.91
	Bantulasi	31.36	9.68	8.78
	Bhalia	13.44	3.23	3.41
	Char	4.48	3.23	1.96
	Dhatiki	62.72	19.35	17.55
	Dhaura	4.48	3.23	1.96
	Iswarjata	17.92	3.23	4.13
	Kangada	40.32	9.68	10.23
	Kendu	67.2	38.71	25.68
	Kurei/kher	67.2	25.81	20.75
	Kuruda/churdu	4.48	3.23	1.96
	Mahula	4.48	3.23	1.96
	Mundi	4.48	3.23	1.96
	Muraphal/muri muri	31.36	16.13	11.25
	Piasal Bija	8.96	6.45	3.92
	Poksunga	58.24	25.81	19.3
	Rohini	4.48	3.23	1.96
	Sal	103.05	48.39	35.19
	Sunari	8.96	3.23	2.68
	Total	618.28	261.29	200

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Taprang	Amla	8.07	5.81	2.8
	Ankhu koli	1.61	1.16	0.56
	Asana	9.69	4.65	2.71
	Aswagandha	1.61	1.16	0.56
	Bajramuli	1.61	1.16	0.56
	Ban soris	1.61	1.16	0.56
	Bandhana	6.46	3.49	1.92
	Banhaldi	11.3	8.14	3.92
	Bankhajuri/Pinokhajuri	3.23	1.16	0.8
	Bantulasi	6.46	4.65	2.24
	Bara	1.61	1.16	0.56
	Barakoli	1.61	1.16	0.56
	Bhalia	4.84	2.33	1.36
	Bheru	3.23	1.16	0.8
	Bhuinkurwan/telkurwan	1.61	1.16	0.56
	Bhuin-neem	6.46	3.49	1.92
	Char	4.84	3.49	1.68
	Dantari	3.23	1.16	0.8
	Dhatiki	16.15	6.98	4.31
	Dhaura	14.53	8.14	4.4
	Ghanta	1.61	1.16	0.56
	Haldu	4.84	3.49	1.68
	Harida	1.61	1.16	0.56
	Iswarjata	12.92	8.14	4.16
	Jamu	1.61	1.16	0.56
	Kangada	33.91	16.28	9.5
	Kanteikoli	8.07	5.81	2.8
	Kasi	1.61	1.16	0.56
	Kendu	30.68	18.6	9.68
	Khajuri	32.3	19.77	10.24
	Kumbhi	1.61	1.16	0.56
	Kurei/kher	104.97	50	29.29
	Kusuma	1.61	1.16	0.56
	Lajkulilata	3.23	1.16	0.8
	Mai	1.61	1.16	0.56
	muri	61.37	32.56	18.05
	Murmuria	1.61	1.16	0.56
	Padhel	1.61	1.16	0.56
	Palasa	3.23	2.33	1.12
	Poksunga	132.43	58.14	35.57
	sahaja	9.69	2.33	2.06
	Sal	45.22	22.09	12.77
	Siali	38.76	20.93	11.5
	Sunaragada	29.07	17.44	9.12
	Sunari	9.69	5.81	3.04
	Total	684.75	358.14	200

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Sulia	Achhu	2.44	1.75	0.9
	Amla	4.87	3.51	1.8
	Ankula	9.75	3.51	2.49
	Aswagandha	4.87	1.75	1.25
	Badichand/Cadichang	12.18	7.02	3.95
	Bahada	2.44	1.75	0.9
	Banchakunda	4.87	1.75	1.25
	Banhaldi	7.31	3.51	2.15
	Bantulasi	90.16	35.09	23.89
	Bhuin-neem	9.75	7.02	3.61
	Dhatiki	58.48	28.07	17.19
	Indrajal	2.44	1.75	0.9
	Iswarjata	56.04	26.32	16.28
	Kangada	7.31	3.51	2.15
	Kanteikoli	24.37	12.28	7.35
	Kendu	14.62	10.53	5.41
	Khajuri	7.31	5.26	2.71
	Kukurchhatia	2.44	1.75	0.9
	Kurei/kher	114.52	43.86	30.12
	Kusuma	2.44	1.75	0.9
	Mai	2.44	1.75	0.9
	muri	73.1	28.07	19.25
	Patalgaruda	2.44	1.75	0.9
	Poksunga	95.03	36.84	25.13
	Sal	19.49	12.28	6.66
	Siali	21.93	10.53	6.44
	Sunaragada	53.61	19.3	13.71
	Sunari	2.44	1.75	0.9
	Total	709.06	314.04	200

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Sunamukhi	Badichand/Cadichang	8.17	5.88	6.34
	Banhaldi	8.17	5.88	6.34
	Dhatiki	73.53	29.41	42.2
	Kurei/kher	65.36	35.29	43.27
	muri	89.87	41.18	54.87
	Poksunga	49.02	35.29	38.01
	Sunaragada	16.34	5.88	8.97
	Total	310.46	158.82	200
Satami	Banhaldi	19.84	14.29	7.23
	Bantulasi	19.84	14.29	7.23
	Dhatiki	59.52	14.29	13.68
	Dhaura	19.84	14.29	7.23
	Kangada	19.84	14.29	7.23
	Kendu	39.68	28.57	14.45
	Kurei/kher	79.37	42.86	24.9
	muri	59.52	42.86	21.68
	Patalgaruda	19.84	14.29	7.23
	Poksunga	158.73	71.43	45.81
	Sal	19.84	14.29	7.23
	Siali	79.37	57.14	28.9
	Sunaragada	19.84	14.29	7.23
	Total	615.08	357.14	200
Ramud	Dhatiki	69.44	50	18.18
	Kendu	69.44	50	18.18
	Khajuri	34.72	25	18.18
	Kurei/kher	34.72	25	18.18
	muri	34.72	25	18.18
	Poksunga	69.44	50	36.36
	Sal	69.44	50	36.36
	Total	381.94	275	200

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Podgudi	Kurei/kher	138.89	100	200
Puijhari	Ankula	12.63	4.55	2.97
	Aswagandha	6.31	4.55	2.14
	Bahada	12.63	4.55	2.97
	Bajramuli	18.94	9.09	5.11
	Bandhana	6.31	4.55	2.14
	Banhaldi	12.63	4.55	2.97
	Bantulasi	25.25	9.09	5.94
	Char	12.63	4.55	2.97
	Dhatiki	31.57	13.64	8.08
	Dhaura	6.31	4.55	2.14
	Haldu	6.31	4.55	2.14
	Iswarjata	31.57	18.18	9.4
	Kangada	56.82	18.18	12.7
	Kanteikoli	6.31	4.55	2.14
	Kasi	6.31	4.55	2.14
	Kendu	69.44	27.27	16.99
	Khajuri	18.94	13.64	6.43
	Kurei/kher	69.44	31.82	18.3
	Kusuma	6.31	4.55	2.14
	muri	44.19	27.27	13.68
	Murmuria	6.31	4.55	2.14
	Nahalbell	6.31	4.55	2.14
	Piasal	12.63	4.55	2.97
	Poksunga	164.14	63.64	39.91
	sahaja	12.63	4.55	2.97
	Sal	69.44	27.27	16.99
	Sunaragada	12.63	4.55	2.97
	Sunari	18.94	13.64	6.43
	Total	**763.89**	**345.45**	**200**

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Pongabaju	Ankula	23.15	11.11	3.92
	Asana	15.43	5.56	2.24
	Bajramuli	23.15	11.11	3.92
	Banchakunda	15.43	11.11	3.37
	Bantulasi	69.44	27.78	10.63
	Bhalia	54.01	16.67	7.26
	Char	38.58	16.67	6.16
	Dhatiki	69.44	22.22	9.49
	Dhaura	15.43	5.56	2.24
	Iswarjata	7.72	5.56	1.69
	Kangada	108.02	22.22	12.24
	Kanteikoli	38.58	16.67	6.16
	Kendu	123.46	38.89	16.75
	Khajuri	46.3	16.67	6.71
	Kurei/kher	231.48	77.78	32.39
	Kusuma	7.72	5.56	1.69
	Mahula	84.88	16.67	9.45
	Mai	23.15	5.56	2.78
	muri	23.15	11.11	3.92
	Piasal	7.72	5.56	1.69
	Poksunga	216.05	72.22	30.16
	Sal	69.44	22.22	9.49
	Siali	7.72	5.56	1.69
	Sunaragada	61.73	27.78	10.08
	Sunari	23.15	11.11	3.92
	Total	**1404.32**	**488.89**	**200**
Mudramaska	Bantulasi	138.89	50	26.05
	Dhatiki	104.17	50	22.48
	Kanteikoli	69.44	50	18.91
	Kurei/kher	173.61	75	35.5
	muri	69.44	50	18.91
	Poksunga	277.78	75	46.22
	Sal	69.44	25	13.03
	Sunaragada	69.44	50	18.91
	Total	**972.22**	**425**	**200**

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Karla	Kurei/kher	138.89	100	66.67
	Poksunga	277.78	200	133.33
	Total	**416.67**	**300**	**200**
Kutigudum	Bantulasi	69.44	50	24.29
	Kurei/kher	138.89	50	34.29
	muri	69.44	50	24.29
	Poksunga	208.33	100	58.57
	Siali	138.89	50	34.29
	Sunaragada	69.44	50	24.29
	Total	**694.44**	**350**	**200**
Jerka	Bajramuli	12.63	9.09	4.42
	Banhaldi	63.13	18.18	13.75
	Bantulasi	12.63	9.09	4.42
	Bhalia	12.63	9.09	4.42
	Bhuin-neem	12.63	9.09	4.42
	Char	12.63	9.09	4.42
	Gangasiuli	25.25	18.18	8.83
	Iswarjata	63.13	27.27	16.53
	Kangada	25.25	9.09	6.06
	Kanteikoli	12.63	9.09	4.42
	Kendu	25.25	9.09	6.06
	Khajuri	37.88	27.27	13.25
	Kurei/kher	138.89	36.36	29.14
	muri	50.51	18.18	12.11
	Poksunga	202.02	81.82	51.23
	Sal	37.88	9.09	7.7
	Siali	12.63	9.09	4.42
	Sunaragada	12.63	9.09	4.42
	Total	**770.2**	**327.27**	**200**

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Chandanpinda	Asana	138.89	100	34.29
	Kendu	138.89	100	34.29
	Kurei/kher	138.89	100	34.29
	muri	416.67	100	62.86
	Tulsi	138.89	100	34.29
		972.22	500	200
	Asana	138.89	100	34.29
	Kendu	138.89	100	34.29
	Kurei/kher	138.89	100	34.29
	muri	416.67	100	62.86
	Tulsi	138.89	100	34.29
	Total	**972.22**	**500**	**200**
Bidabaru	Asana	55.56	13.33	14.54
	Kendu	27.78	20	12.98
	Kurei/kher	9.26	6.67	4.33
	muri	37.04	6.67	8.74
	Tulsi	83.33	26.67	24.66
	Asana	37.04	13.33	11.6
	Kendu	18.52	13.33	8.66
	Kurei/kher	157.41	53.33	47.86
	muri	18.52	6.67	5.8
	Tulsi	138.89	53.33	44.92
	Asana	27.78	13.33	10.13
	Asana	18.52	6.67	5.8
	Total	**629.63**	**233.33**	**200**
Dengen	Bantulasi	69.44	50	30.95
	Bhuin-neem	208.33	100	76.19
	Dhatiki	69.44	50	30.95
	Khajuri	69.44	50	30.95
	Poksunga	69.44	50	30.95
	Total	**486.11**	**300**	**200**

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Benaguda	Amla	8.68	1.56	0.93
	Ankula	17.36	1.56	1.25
	Aswagandha	8.68	1.56	0.93
	Badichand/Cadichang	60.76	7.81	5.29
	Bahada	8.68	1.56	0.93
	Bajramuli	8.68	1.56	0.93
	Banhaldi	17.36	3.13	1.86
	Bantulasi	199.65	21.88	15.88
	Bela	17.36	3.13	1.86
	Bheru	43.4	3.13	2.82
	Bhuin-neem	26.04	3.13	2.18
	Bisalyakarani	8.68	1.56	0.93
	Char	34.72	1.56	1.89
	Dhatiki	147.57	10.94	9.7
	Dhaura	17.36	3.13	1.86
	Gangasiuli	52.08	3.13	3.14
	Indrajal	34.72	3.13	2.5
	Iswarjata	95.49	10.94	7.78
	Kangada	138.89	14.06	10.6
	Kanteikoli	95.49	9.38	7.17
	Kendu	156.25	12.5	10.63
	Khirkoli	8.68	1.56	0.93
	Kurei/kher	286.46	26.56	20.91
	Kusuma	26.04	4.69	2.79
	Lajwanti/Lajkulilata	8.68	1.56	0.93
	Mai	8.68	1.56	0.93
	muri	720.49	46.88	44.81
	Palasa	8.68	1.56	0.93
	Poksunga	260.42	28.13	20.56
	Sal	78.13	9.38	6.53
	Siali	69.44	7.81	5.6
	Sunaragada	43.4	6.25	4.04
	Total	**2717.01**	**256.25**	**200**

Biodiversity Assessment of Shrubs Species of Narla Range

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Urladani	Amla	6.69	2.41	0.89
	Asana	80.32	16.87	7.7
	Bandhana	3.35	1.2	0.44
	Banhaldi	16.73	2.41	1.33
	Bankhajuri/Pinokhajuri	6.69	1.2	0.59
	Bantulasi	3.35	1.2	0.44
	Bela	6.69	2.41	0.89
	Bhalia	13.39	3.61	1.48
	Bheru	16.73	3.61	1.63
	Char	120.48	27.71	12.15
	Dhaman	3.35	1.2	0.44
	Dhatiki	3.35	1.2	0.44
	Dhaura	170.68	34.94	16.15
	Gangasiuli	73.63	8.43	5.33
	Haldu	10.04	2.41	1.04
	Jamu	3.35	1.2	0.44
	Kangada	344.71	55.42	28.89
	Kasi	26.77	8.43	3.26
	Kendu	160.64	38.55	16.6
	Kochila	10.04	2.41	1.04
	Korada	324.63	45.78	25.63
	Kurei/kher	50.2	9.64	4.59
	Kusuma	13.39	4.82	1.78
	Mahula	23.43	6.02	2.52
	Mai	53.55	12.05	5.33
	Mirgichra/Barenga	3.35	1.2	0.44
	Mundi	60.24	16.87	6.82
	Piasal	6.69	2.41	0.89
	Poksunga	16.73	4.82	1.93
	sahaja	63.59	12.05	5.78
	Sal	491.97	56.63	35.69
	Sataparadia	20.08	2.41	1.48
	Satavar	3.35	1.2	0.44
	Siali	30.12	6.02	2.82
	Sugandhi lai	6.69	2.41	0.89
	Sunaragada	3.35	1.2	0.44
	Sunari	10.04	3.61	1.33
	Total	**2262.38**	**406.02**	**200**

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Porgel Extn.	Ankula	69.44	25	15.41
	Banchakunda	208.33	50	36.69
	Bhuin-neem	34.72	12.5	7.7
	Dhatiki	277.78	37.5	37.82
	Kangada	69.44	12.5	10.64
	Khajuri	34.72	12.5	7.7
	Korada	69.44	12.5	10.64
	Kumbhi	34.72	12.5	7.7
	Kurei/kher	138.89	25	21.29
	Mundi	69.44	12.5	10.64
	Pahadi sisoo	138.89	37.5	26.05
	Poksunga	34.72	12.5	7.7
	Total	1180.56	262.5	200
Porgel	Banchakunda	79.37	25	16.06
	Bheru	39.68	12.5	8.03
	Char	79.37	12.5	11.06
	Dhatiki	357.14	50	47.27
	Dhaura	39.68	12.5	8.03
	Kanteikoli	119.05	25	19.09
	Khajuri	79.37	12.5	11.06
	Kurei/kher	39.68	12.5	8.03
	Mai	277.78	25	31.21
	Poksunga	79.37	25	16.06
	Sal	39.68	12.5	8.03
	Satavar	39.68	12.5	8.03
	Sunari	39.68	12.5	8.03
	Total	1309.52	250	200
Dengsur	Kangada	1,666.67	100	146.67
	Kendu	416.67	50	53.33
	Total	2,083.33	150	200

BIODIVERSITY ASSESMENT OF SHRUB SPECIES OF KESINGA RANGE

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Nangalguda	Dhatiki	138.89	20	40
	Kanteikoli	138.89	20	40
	Kharal	138.89	20	40
	Kurei/kher	138.89	20	40
	Kuruda/churdu/Ghurudu	138.89	20	40
	Total	694.44	100	200
Bazargarh	**Bankhajuri/Pinokhajuri**	9.92	7.14	8.61
	Bantulasi	19.84	14.29	17.22
	Dhatiki	79.37	28.57	49.82
	Kanteikoli	39.68	28.57	34.43
	Khajuri	29.76	21.43	25.82
	Kharkhari	9.92	7.14	8.61
	Kurei/kher	39.68	21.43	29.67
	Kuruda/churdu/Ghurudu	29.76	21.43	25.82
	Total	257.94	150	200

BIODIVERSITY ASSESMENT OF SHRUB SPECIES OF KEGAON RANGE

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Chura A	Amla	18.52	13.33	4.38
	Asana	9.26	3.33	1.53
	Badichand	4.63	3.33	1.1
	Bandhana	4.63	3.33	1.1
	Bantulasi	4.63	3.33	1.1
	Bela	41.67	23.33	8.53
	Bhalia	4.63	3.33	1.1
	Bheru	9.26	6.67	2.19
	Char	55.56	36.67	12.48
	Dhaman	23.15	13.33	4.81
	Dhatiki	23.15	16.67	5.48
	Dhaura	180.56	56.67	28.07
	Gangasiuli	4.63	3.33	1.1
	Ghanta	60.19	20	9.58
	Kangada	4.63	3.33	1.1
	Kanteikoli	9.26	6.67	2.19
	Kasi	27.78	16.67	5.91
	Kendu	129.63	56.67	23.35
	Korada	152.78	66.67	27.5
	Kurei/kher	55.56	23.33	9.82
	Kuruda	4.63	3.33	1.1
	Kusuma	13.89	10	3.29
	Mahula	4.63	3.33	1.1
	Mai	27.78	13.33	5.24
	Piasal	46.3	16.67	7.63
	Rohini	13.89	10	3.29
	Sal	37.04	13.33	6.1
	Salai	13.89	6.67	2.62
	Sataparadia	9.26	3.33	1.53
	Siali	46.3	20	8.29
	Sirisa	9.26	3.33	1.53
	sisoo	4.63	3.33	1.1
	Sunari	9.26	6.67	2.19
	Tinsa	13.89	6.67	2.62
	Total	1078.7	500	200
Dengsur	Kangada	1,666.67	100	146.67
	Kendu	416.67	50	53.33
	Total	2,083.33	150	200

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Chuara B	Amla	9.26	6.67	3.64
	Bahada	9.26	6.67	3.64
	Bandhana	9.26	6.67	3.64
	Char	27.78	20	10.93
	Dhaura	175.93	60	46.48
	Ghanta	9.26	6.67	3.64
	Haldu	9.26	6.67	3.64
	Kendu	111.11	46.67	32.35
	Korada	166.67	66.67	47.38
	Kumbhi	27.78	6.67	6.38
	Kurei/kher	64.81	33.33	20.95
	Mahula	9.26	6.67	3.64
	Piasal	18.52	6.67	5.01
	Sal	18.52	6.67	5.01
	Siali	9.26	6.67	3.64
	Total	675.93	293.33	200
Kumkot	Bandhana	8.17	5.88	1.66
	Bheru	32.68	17.65	5.59
	Char	98.04	41.18	14.72
	Dhatiki	8.17	5.88	1.66
	Dhaura	236.93	76.47	31.53
	Dhauranga	8.17	5.88	1.66
	Ghanta	40.85	17.65	6.22
	Haldu	8.17	0	0.63
	Kendu	228.76	76.47	30.9
	Khaira	73.53	35.29	11.81
	Korada	220.59	82.35	31.31
	Kumbhi	8.17	5.88	1.66
	Kurei/kher	49.02	23.53	7.87
	Mahula	8.17	5.88	1.66
	Mai	32.68	17.65	5.59
	Neem	8.17	5.88	1.66
	Piasal	138.89	64.71	21.97
	Rohini	16.34	5.88	2.28
	Sal	32.68	23.53	6.62
	Salai	24.51	11.76	3.94
	Sunari	24.51	17.65	4.97
	Sunari	1307.19	570.59	200

Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
Nageswar	Asana	173.61	75	32.26
	Dhaura	486.11	75	56.59
	Kasi	34.72	25	8.95
	Korada	208.33	100	41.22
	Neem	34.72	25	8.95
	Piasal	34.72	25	8.95
	Saguan	312.5	75	43.07
	Total	1284.72	400	200
Banakdei	Kendu	277.78	100	73.33
	Mai	277.78	100	73.33
	Piasal	138.89	100	53.33
	Total	694.44	300	200
Lini	Asana	138.89	100	32.5
	Kendu	555.56	200	90
	Korada	416.67	200	77.5
	Total	1111.11	500	200
Masigaon	Bela	138.89	100	22.62
	Bheru	138.89	100	22.62
	Dhaura	416.67	100	39.29
	Kendu	138.89	100	22.62
	Khaira	277.78	100	30.95
	Korada	138.89	100	22.62
	Piasal	416.67	100	39.29
	Total	1666.67	700	200
Daka	Kurei/kher	277.78	100	61.9
	Salai	277.78	100	61.9
	Sataparadia	416.67	100	76.19
	Total	972.22	300	200
Patramara	Dhaura	138.89	100	70
	Kendu	555.56	100	130
	Total	694.44	200	200

APPENDIX-XIII

LIST OF VSS							
Sl. No.	**Name of Range**	**Name of Section**	**Name of the VSS.**	**Name of G.P.**	**Name of the forest block / Dist. (All Forest blocks are within Kalahandi Dist.)**	**Area assigned to VSS. (in Ha.)**	**Remarks (Regn. No. & date.)**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	Bhawanipatna	Bhawanipatna	Karatikili	Kutrukhamar	Brahmani RF	39.00	163/05.04.99
2	Bhawanipatna	Bhawanipatna	Baragaon	Kalam	Brahmani RF	150.00	164/05.04.99
3	Bhawanipatna	Bhawanipatna	Bhataguda	Kutrukhamar	Brahmani RF	30.00	165/05.04.99
4	Bhawanipatna	Bhawanipatna	Chandopala	Kalam	Brahmani RF	32.00	166/05.04.99
5	Bhawanipatna	Bhawanipatna	Tiljodi	Kutrukhamar	Brahmani RF	120.00	167/05.04.99
6	Bhawanipatna	Bhawanipatna	Fukjodi	Kutrukhamar	Brahmani RF	50.00	168/05.04.99
					Addl. area.	**50.00**	**-do-**
7	Bhawanipatna	Bhawanipatna	Nisanpur	Nisanpur	Madakhola (B) RF	70.00	169/05.04.99
8	Bhawanipatna	Bhawanipatna	Kandhabarjhola	Kutrukhamar	Brahmani RF	70.00	170/05.04.99
					Addl. area.	**30.00**	**-do-**
9	Bhawanipatna	Bhawanipatna	Dakabahali	Gudialipadar	Dhangada Dhangidi RF	80.00	171/05.04.99
					Addl. area.	**70.00**	
10	Bhawanipatna	Bhawanipatna	Gandabandhopala	Risigaon.	Sinang RF	50.00	172/05.04.99
					Addl. area.	**150.00**	**-do-**
11	Bhawanipatna	Bhawanipatna	Gandabarojhola	Kutrukhamar	Brahmani RF	90.00	173/05.04.99
12	Bhawanipatna	Bhawanipatna	Kalam	Kalam.	Brahmani RF	175.00	360/12.08.99
13	Bhawanipatna	Bhawanipatna	Dambarupadar	Thuapdar	Dh.Dhangidi RF	57.00	361/12.08.99
14	Bhawanipatna	Bhawanipatna	Odastala	Batua	Th.Padar Gundi PRF	120.00	362/12.08.99
15	Bhawanipatna	Bhawanipatna	Pattola	Risigaon	Sinang RF	82.00	363/12.08.99
16	Bhawanipatna	Bhawanipatna	Gochhapada	Pastikudi	Kutendonger VF	8.00	485/13.12.99
17	Bhawanipatna	Bhawanipatna	Tentulikhunti	Thuapadar	Kutendonger VF	8.00	486/13.12.99
18	Bhawanipatna	Bhawanipatna	Perul	Gundri	Th.Padar Gundi PRF	100.00	487/13.12.99
19	Bhawanipatna	Bhawanipatna	Gundri	Gundri	Th.Padar Gundi PRF	100.00	559/25.02.2K
20	Bhawanipatna	Bhawanipatna	Khainga	Medinipur	Gundi PRF	100.00	560/25.03.2K
21	Bhawanipatna	Bhawanipatna	Kusumsila	Medinipur	Gundi PRF	30.00	572/23.10.2K
22	Bhawanipatna	Bhawanipatna	Badkarli	Gundri	Gundi PRF	75.00	573/23.10.2K
23	Bhawanipatna	Bhawanipatna	Jamkona	Gundri	Gundi PRF	30.00	575/23.10.2K
24	Bhawanipatna	Bhawanipatna	Herateka	Risigaon	Kanamanjur RF	50.00	585/17.02.01
25	Bhawanipatna	Bhawanipatna	Singhjharan VSS.	Risigaon	Sinang RF	100.00	586/17.02.01

Sl. No.	Name of Range	Name of Section	Name of the VSS.	Name of G.P.	Name of the forest block / Dist. (All Forest blocks are within Kalahandi Dist.)	Area assigned to VSS. (in Ha.)	Remarks (Regn. No. & date.)
26	Bhawanipatna	Bhawanipatna	Kapsara	Kutrukhamar	Kanamanjur RF	50.00	587/17.02.01
27	Bhawanipatna	Bhawanipatna	Leheda	Gundri	Leheda VF	40.00	598/04.03.02
28	Bhawanipatna	Bhawanipatna	Jamunabahal	Dadpur	Jamunabahal VF	45.00	599/04.03.02
29	Bhawanipatna	Bhawanipatna	Ballibhatapada	Risigaon	Sinang RF	30.00	600/04.03.02
30	Bhawanipatna	Bhawanipatna	Dongargarh	Gudialipadar	Bandhyadonger VF	20.00	601/04.03.02
31	Bhawanipatna	Bhawanipatna	Kandhabandhopala	Risigaon	Sinang RF	150.00	605/19.07.02
					Addl. area	**50.00**	
32	Bhawanipatna	Bhawanipatna	Risigaon	Risigaon	Sinang RF	50.00	614/07.11.02
33	Bhawanipatna	Bhawanipatna	Beherakuni	Kutrukhamar	Brahmani RF	80.00	658/31.03.03
34	Bhawanipatna	Bhawanipatna	Mahulpada	Ulikup	Madhakhola RF	80.00	659/31.03.03
35	Bhawanipatna	Bhawanipatna	Talbelgaon	Duarsuni	Gundi PRF	75.00	660/31.03.03
36	Bhawanipatna	Bhawanipatna	Kutruguda	Duarsuni	Gundi PRF	80.00	661/31.03.03
37	Bhawanipatna	Bhawanipatna	Ulikupa	Ulikup	Madhakhola RF	70.00	662/31.03.03
38	Bhawanipatna	Bhawanipatna	Gunang	Duarsuni	Gundi PRF	70.00	663/31.03.03
39	Bhawanipatna	Bhawanipatna	Kitpadar	Sagada	Pod Dara RF	60.00	405/31.03.05
40	Bhawanipatna	Bhawanipatna	Bengaon	Chather	Pod Dara RF	50.00	406/31.03.05
41	Bhawanipatna	Bhawanipatna	Masilguda	Duarsuni	Pod Dara RF	50.00	407/31.03.05
42	Bhawanipatna	Bhawanipatna	Dakibandel	Sagada	Kanamanjura RF	50.00	408/31.03.05
43	Bhawanipatna	Bhawanipatna	Raksi	Belgaon	Gundi PRF	70.00	419/31.03.05
					Addl. area	**30.00**	
44	Bhawanipatna	Bhawanipatna	Budipadar	Belgaon	Gundi PRF	50.00	420/31.03.05
45	Bhawanipatna	Bhawanipatna	Bundelguda	Duarsuni	Kutrukhai RF	100.00	433/31.03.05
46	Bhawanipatna	Bhawanipatna	Tikrapada	Risigaon	Kutrukhai RF	80.00	346/12.08.99
47	Bhawanipatna	Bhawanipatna	Tentulipadar	Risigaon	Kanamanjur RF	40.00	347/12.08.99
48	Bhawanipatna	Bhawanipatna	Kerokuda	Risigaon	Sinang RF	40.00	348/12.08.99
49	Bhawanipatna	Bhawanipatna	Gachhakhola	Risigaon	Kanamanjur RF	32.00	349/12.08.99
50	Bhawanipatna	Bhawanipatna	Sankriguda	Duarsuni	Poddarh RF	40.00	350/12.08.99
51	Bhawanipatna	Bhawanipatna	Ambalsa	Sagada	Alma RF	40.00	351/12.08.99
52	Bhawanipatna	Bhawanipatna	Kasipadar	Sagada	Alma RF	40.00	352/12.08.99
53	Bhawanipatna	Bhawanipatna	Pairmal	Sagada	Kanamanjur RF	48.00	354/12.08.99
54	Bhawanipatna	Bhawanipatna	Dongriguda	Risigaon	Kanamanjur RF	200.00	356/12.08.99
55	Bhawanipatna	Bhawanipatna	Ambapada	Risigaon	Sinang RF	80.00	357/12.08.99

Sl. No.	Name of Range	Name of Section	Name of the VSS.	Name of G.P.	Name of the forest block / Dist. (All Forest blocks are within Kalahandi Dist.)	Area assigned to VSS. (in Ha.)	Remarks (Regn. No. & date.)
56	Bhawanipatna	Bhawanipatna	Dalguma	Sagada	Alma RF	78.00	664/31.03.03
57	Bhawanipatna	Bhawanipatna	Rangiguda	Kutrukhamar	Kanamanjur RF	70.00	665/31.03.03
58	Bhawanipatna	Bhawanipatna	Badli	Kutrukhamar	Bhalu RF	54.00	668/31.03.03
59	Bhawanipatna	Bhawanipatna	Narengkhola	Risigaon	Sinang RF	200.00	459/30.12.06
					Addl. area	**20.00**	
60	Bhawanipatna	Bhawanipatna	Khangangruguda	Sagada	Kanamanjur RF	100.00	471/31.03.07
61	Bhawanipatna	Bhawanipatna	Olbahali	Sagada	Alma RF	50.00	529/26.03.19
62	Bhawanipatna	Bhawanipatna	Kasakendu	Risigaon	Sinang RF	200.00	517/10.07.08
63	Bhawanipatna	Bhawanipatna	Uparpada(Rangiguda VSS)	Bhawanipatna	Kanamanjur RF	50.00	579/31.12.2020
64	Bhawanipatna	Bhawanipatna	Badphunda	Bhawanipatna	Kanamanjur RF	50.00	580/31.12.2020
65	Bhawanipatna	Bhawanipatna	Sirliguda	Duarsuni	Kutrukhai	50.00	585/03.02.2021
66	Bhawanipatna	Bhawanipatna	Surli	Deydhar	Kanamanjur RF	50.00	587/03.02.2021
67	Bhawanipatna	Bhawanipatna	Balijore	Kamthana	Dhangda Dhangdi Rf	50.00	588/03.02.2021
68	Bhawanipatna	Bhawanipatna	Rakeshtunda	Sagada	Alma Rf	50.00	589/03.02.2021
69	Bhawanipatna	Bhawanipatna	Dumal	Kamthana	Dhangda Dhangdi Rf	50.00	592/03.02.2021
70	Bhawanipatna	Santpur	Ghantmal	Ghantamal	Madakhola RF	100.00	41/27.01.99
71	Bhawanipatna	Santpur	Panimunda	Nisanpur	Madakhola RF	50.00	44/27.01.99
72	Bhawanipatna	Santpur	Karanga (Sinangbahali)	Nisanpur	Madakhola RF	100.00	45/27.01.99
73	Bhawanipatna	Santpur	Lohajore	Ghantamal	Madakhola RF	40.00	46/27.01.99
74	Bhawanipatna	Santpur	Adring	Ghantamal	Nangalguda RF	100.00	50/27.01.99
75	Bhawanipatna	Santpur	Dorapadar	Sargiguda	Nangalguda RF	80.00	51/27.01.99
					Addl. area.	**70.00**	
76	Bhawanipatna	Santpur	Badelpadar	Sargiguda	Karla RF	70.00	52/27.01.99
					Addl. area.	**50.00**	
77	Bhawanipatna	Santpur	Tileimal	Ghantamal	Nangalguda RF	100.00	75/23.02.99
78	Bhawanipatna	Santpur	Indramal	Ghantamal	Karla RF	80.00	76/03.02.99
79	Bhawanipatna	Santpur	Sujipada	Sargiguda	Karla RF	20.00	500/20.01.2K
80	Bhawanipatna	Santpur	Beherapati	Sargiguda	Karla RF	35.00	501/20.01.2K
81	Bhawanipatna	Santpur	Khespala	Ghantamal	Karla RF	100.00	502/20.01.2K
82	Bhawanipatna	Santpur	Burat	Ghantamal	Madakhola RF	100.00	42/27.01.99
83	Bhawanipatna	Santpur	Anlabula	Ghantamal	Madakhola RF	100.00	43/27.01.99
84	Bhawanipatna	Santpur	Sandharpur	Santpur	Kadalighati RF	80.00	47/27.01.99
85	Bhawanipatna	Santpur	Basantpur (Badadharpur)	Santpur	Kadalighati RF	75.00	48/27.01.99
86	Bhawanipatna	Santpur	Kucheijore (Dengen)	Santpur	Kadalighati RF	80.00	49/27.01.99
87	Bhawanipatna	Santpur	Khainga	Santpur	Kadalighati RF	80.00	77/03.02.99

Sl. No.	Name of Range	Name of Section	Name of the VSS.	Name of G.P.	Name of the forest block / Dist. (All Forest blocks are within Kalahandi Dist.)	Area assigned to VSS. (in Ha.)	Remarks (Regn. No. & date.)
88	Bhawanipatna	Santpur	Naktipanimunda	Nisanpur	Madakhola RF	40.00	78/03.02.99
89	Bhawanipatna	Santpur	Sankarmal	Santpur	Madakhola RF	80.00	79/03.02.99
90	Bhawanipatna	Santpur	Lohajore	Ghantamal	Madakhola (A) RF	100.00	588/26.02.01
91	Bhawanipatna	Santpur	Pajibahali	Ghantamal	Pajibahali & Gudung VF	100.00	611/08.09.02
92	Bhawanipatna	Santpur	Khasbahali	Nisanpur	Khasbahali VF	50.00	612/08.09.02
93	Bhawanipatna	Santpur	Nagjhari	Dharpur	Kadalighati RF	50.00	620/28.03.03
94	Bhawanipatna	Santpur	Sukunabhata	Santpur	Madakhola RF	50.00	621/28.03.03
95	Bhawanipatna	Santpur	Tetelpadar	Dharpur	Kadalighati RF	50.00	622/28.03.03
96	Bhawanipatna	Santpur	Sapdhuni	Dharpur	Kadalighati RF	50.00	623/28.03.03
97	Bhawanipatna	Santpur	Kukurjhola	Dharpur	Kadalighati RF	50.00	624/28.03.03
98	Bhawanipatna	Santpur	Dhurkuti	Dharpur	Kadalighati RF	50.00	625/28.03.03
99	Bhawanipatna	Santpur	Gunupur	Gadebandh	Madhakhola 'B' RF	100.00	396/31.03.05
100	Bhawanipatna	Santpur	Badgundri	Saria	Madhakhola 'B' RF	80.00	397/31.03.05
101	Bhawanipatna	Santpur	Dendoguda	Saria	Madhakhola 'B' RF	50.00	398/31.03.05
102	Bhawanipatna	Santpur	Tal Brahmani	Saria	Madhakhola 'B' RF	70.00	399/31.03.05
103	Bhawanipatna	Santpur	Saria	Saria	Madhakhola 'B' RF	30.00	400/31.03.05
104	Bhawanipatna	Santpur	Sinangbahali	Nisanpurq	Madhakhola 'A' RF	50.00	416/31.03.05
105	Bhawanipatna	Santpur	Ratul	Baddharpur	Ratul VF	5.00	444/31.03.05
106	Bhawanipatna	Santpur	Chatikuda	Depur	Chatikuda VF	10.00	445/31.03.05
107	Bhawanipatna	Santpur	Dhoben	Ulikupa	Madakhola B RF	35.00	458/03.11.06
					Madakhola VF	**15.00**	
108	Bhawanipatna	Santpur	Dhamankhunta	Nisanpur	Gudang	20.00	460/31.03.07
109	Bhawanipatna	Santpur	Karkata	Gundri	Kadalighati RF	40.00	461/31.03.07
110	Bhawanipatna	Santpur	Darlipada	Nisanpur	Madakhola 'A' RF	50.00	462/31.03.07
111	Bhawanipatna	Santpur	Khamanpada	Gadebandh	Madakhola 'B' RF	50.00	469/31.03.07
112	Bhawanipatna	Santpur	Kuteijore (Kutiheju)	Gundri	Gundi PRF	50.00	470/31.03.07
113	Bhawanipatna	Santpur	Gumapadar	Santpur	Th. Padar Gundi PRF	50.00	520/05.01.2017
114	Bhawanipatna	Santpur	Kadam	Gundri	Th. Padar Gundi PRF	50.00	533/31.10.2019
115	Bhawanipatna	Santpur	Batua	Gundri	Th. Gundi P.R.F.	50.00	552/23.03.2020
116	Bhawanipatna	Santpur	Hatimunda	Gundri	Th. Gundi P.R.F.	50.00	554/23.03.2020
117	Bhawanipatna	Santpur	Lakhpadar	Gundi	Th.Gundi PRF	50.00	583/02.02.2021
118	Bhawanipatna	Karlapada	Bhikajharan	Karlaguda	Brahmani RF	150.00	174/05.04.99
119	Bhawanipatna	Karlapada	Kaugopna	Kuliamal	Brahmani RF	50.00	175/05.04.99
120	Bhawanipatna	Karlapada	Podmundi	Chheliamal	Brahmani RF	100.00	176/05.04.99
121	Bhawanipatna	Karlapada	Karlapada	Karlapada	Dhanupanchan RF	150.00	177/05.04.99`
122	Bhawanipatna	Karlapada	Kendugupka	Karlapada	Kendugupka VF	20.00	178/05.04.99
123	Bhawanipatna	Karlapada	Turpi	Chheliamal	Turpi VF (Brahmani RF)	50.00	451/04.09.99
124	Bhawanipatna	Karlapada	Kendumundi	Kikia	Dhanupanchan RF	100.00	452/04.09.99

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125	Bhawanipatna	Karlapada	Kundabandh	Kikia	Dhanupanchan RF	50.00	453/04.09.99
126	Bhawanipatna	Karlapada	Sargiguda	Cheliamal	Brahmani RF	50.00	454/04.09.99
127	Bhawanipatna	Karlapada	Dungiponga	Karlaguda	Brahmani RF	150.00	455/04.09.99
128	Bhawanipatna	Karlapada	Bhejapadar	Kikia	Dhanupanchan RF	75.00	555/25.03.2K
129	Bhawanipatna	Karlapada	Amatha	Chancher	Dhanupanchan RF	100.00	556/25.03.2K
130	Bhawanipatna	Karlapada	Rajanaguda	Kuliamal	Brahmani RF	50.00	557/25.03.2K
					Brahmani RF	**100.00**	**606/19.07.02**
131	Bhawanipatna	Karlapada	Lebed (Bileikuni)	Kalam	Brahmani RF	50.00	561/03.04.2K
132	Bhawanipatna	Karlapada	Themra	Kalam	Brahmani RF	200.00	583/17.02.01
133	Bhawanipatna	Karlapada	Tentulipada	Kalam	Brahmani RF	100.00	584/17.02.01
134	Bhawanipatna	Karlapada	Jharkusumkhunti	Adhamunda	Jharkusumkhunti VF	40.00	589/16.04.01
135	Bhawanipatna	Karlapada	Dungriguda	Karlapada	Dhanupanchan RF	50.00	654/31.03.03
136	Bhawanipatna	Karlapada	Palsijharan	Palsijharan	Brahmani RF	100.00	655/31.03.03
137	Bhawanipatna	Karlapada	Paria	Chheliamal	Brahmani RF	100.00	656/31.03.03
138	Bhawanipatna	Karlapada	Makidi	Chahagaon	Dhanupanchan RF	100.00	657/31.03.03
139	Bhawanipatna	Karlapada	Bileikuni (Badapada)	Kalam	Brahmani RF	100.00	683/31.03.03
140	Bhawanipatna	Karlapada	Ghugurupalla	Chahagaon	Dhanupanchan RF	100	448/2005-06
141	Bhawanipatna	Karlapada	Haldigarh	Karlapada	Dhanupanchan RF	50.00	449/2005-06
					Dhanupanchan VF	**50.00**	
142	Bhawanipatna	Karlapada	Kholandi	Palsijharan	Brahmani RF	50.00	521/05.01.2017
143	Bhawanipatna	Karlapada	Adhamunda	Adhamunda	Rev.land	20.00	524/05.01.2017
144	Bhawanipatna	Karlapada	Gantiapada	Palsijharan	Brahmani RF	50.00	532/31.10.2019
145	Bhawanipatna	Karlapada	Budhipadar	Chahagaon	Dhanupanchanan RF	50.00	586/03.02.2021
146	Bhawanipatna	Karlapada	Ghusurigudi	Palsijharan	Brahamani RF	50.00	590/03.02.2021
147	Bhawanipatna	Karlapada	Pudapadar	Kuliamal	Brahamani RF	50.00	591/03.02.2021
148	Bhawanipatna	Karlapada	Gountiapada 'B'	Kuliamal	Brahamani RF	50.00	593/03.02.2021
149	Bhawanipatna	Bhatangpadar	Laxmipur	Medinipur	Gundi PRF	85.00	358/12.08.99
150	Bhawanipatna	Bhatangpadar	Kenduguda	Duarsuni	Gundi PRF	81.00	359/12.08.99
151	Bhawanipatna	Bhatangpadar	Gubhapada	Medinipur	Gundi PRF	50.00	558/25.03.2K
152	Bhawanipatna	Bhatangpadar	Bhawanipur	Medinipur	Gundi PRF	50.00	574/23.10.2K
153	Bhawanipatna	Bhatangpadar	Bhirkapada	Medinipur	Gundi PRF	80.00	653/31.03.03
154	Bhawanipatna	Bhatangpadar	Borguda	Gudialipada	Kulerdongor VF	25.00	439/31.03.05
155	Bhawanipatna	Bhatangpadar	Badjamkona	Gundri	Gundi PRF	40.00	463/31.03.07
156	Bhawanipatna	Bhatangpadar	Sankarli	Gundri	Th.Padar Gundi PRF	50.00	528/26.03.2019
157	Bhawanipatna	Bhatangpadar	Badkarli	Gundi	Gundi PRF	40.00	464/31.03.07
158	Bhawanipatna	Bhatangpadar	Sarlanji	Medinipur	Gundi PRF	40.00	465/31.03.07
159	Bhawanipatna	Bhawanipatn a	Kutenpadar	Sagada	Alma RF	40.00	466/31.03.07
160	Bhawanipatna	Bhatangpadar	Maa Durga, Godbhata	Medinipur	Th.Padar Gundi DPF	50.00	467/31.03.07

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161	Bhawanipatna	Bhatangpadar	Tangankona	Bhatangpadar	Th.Padar Gundi DPF	100.00	468/31.03.07
162	Bhawanipatna	Bhatangpadar	Sargimal	Deypur	Rev. land	40.00	518/05.01.17
163	Bhawanipatna	Bhatangpadar	Gachhkhola	Udeypur	Rev. land	50.00	519/05.01.17
164	Bhawanipatna	Bhatangpadar	Malenda	Bhatangpadar	Gundi PRF	50.00	522/05.01.17
165	Bhawanipatna	Bhatangpadar	Sindhbahali	Bhatangpadar	Gundi PRF	50.00	523/05.01.17
166	Bhawanipatna	Bhatangpadar	Naktibijepur	Bhatangpadar	Th.Padar Gundi PRF	50.00	531/31.10.2019
167	Bhawanipatna	Bhatangpadar	Kanikupa	Bhatangpadar	Th. Gundi P.R.F.	10.00	553/23.03.2020
168	Bhawanipatna	Bhatangpadar	Gudialipadar	Bhawanipatna	Village Forest	30.00	577/31.12.2020
169	Bhawanipatna	Bhatangpadar	Damodarpur	Bhawanipatna	Gundi PRF	50.00	578/31.12.2020
170	Bhawanipatna	Bhatangpadar	Jurkabhata	Bhatangpadar	Th.Gundi PRF	50.00	581/02.02.2021
171	Bhawanipatna	Bhatangpadar	Bhalia	Chancher	Gundi PRF	50.00	582/02.02.2021
172	Bhawanipatna	Bhatangpadar	Sinangbhata	Deypur		50.00	584/02.02.2021
Total: -			**172**			**12079.00**	
1	Kesinga	Kesinga	Gudtola	Boria	Biripuda VF	60.00	14/25.11.98
2	Kesinga	Kesinga	Podkhaman	Parelsinga	Bazargarh RF	80.00	15/25.11.98
3	Kesinga	Kesinga	Dumermunda	Laitara	Dumermunda VF	200.00	16/25.11.98
4	Kesinga	Kesinga	Dongarmurli	Kikia	Kikia VF.	115.00	17/25.11.98
5	Kesinga	Kesinga	Mahagaon	Gokuleswar	Madakhola(B) RF	60.00	80/03.02.99
6	Kesinga	Kesinga	Degaon	Gokuleswar	Madakhola(B) RF	50.00	81/03.02.99
7	Kesinga	Kesinga	Boringpadar (Palkapada)	Kesinga NAC	Sangram VF	144.00	82/03.02.99
8	Kesinga	Kesinga	Masanimunda	Laitara	Musaghat VF	150.00	83/03.02.99
9	Kesinga	Kesinga	Chicharla	Boria	Dakadonger VF	50.00	84/03.02.99
10	Kesinga	Kesinga	Chancher	Chancher	Chancher VF	100.00	85/03.02.99
11	Kesinga	Kesinga	Tahnasir	Kantesir	Bazargarh RF	70.00	86/03.02.99
12	Kesinga	Kesinga	Bagad	Kesinga NAC	Bazargarh RF	100.00	87/03.02.99
13	Kesinga	Kesinga	Bahadurpita	Parelsinga	Bazargarh RF	60.00	88/03.02.99
14	Kesinga	Kesinga	Saurapadar	Parelsinga	Bazargarh RF	60.00	89/03.02.99
15	Kesinga	Kesinga	Jamjore	Gokuleswar	Jamjore VF	10.00	498/20.01.2K
16	Kesinga	Kesinga	Kurlupada	Kantesir	Bazargarh RF	60.00	499/20.01.2K
17	Kesinga	Kesinga	Kikia (Ranapada)	Kikia	Biripada VF	40.00	578/16.01.01
18	Kesinga	Kesinga	Laitara	Laitara	Laitara VF	24.00	681/31.03.03
19	Kesinga	Kesinga	Balsi	Balsi	Balsi VF	21.18	682/31.03.03
20	Kesinga	Kesinga	Gurjimunda	Kundabandh	Biripura D.P.F.	50.00	545/23.03.2020
21	Kesinga	Kesinga	Patharla	Patharla	Biripura D.P.F.	50.00	546/23.03.2020
22	Kesinga	Kesinga	Bagpada	Sirol	Bazargarh RF	10.00	574/04.08.2020
23	Kesinga	Kesinga	Bahadurpadar	Patharla	Biripura DPF	50.00	576/31.12.2020
24	Kesinga	Rupra Road	Ranipata	Ghantamal	Nangalguda RF	60.00	18/25.11.98
25	Kesinga	Rupra Road	Gadebandh	Ghantamal	Nangalguda RF	60.00	19/25.11.98

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26	Kesinga	Rupra Road	Patakabahali	Saria	Nangalguda RF	60.00	20/25.11.98
27	Kesinga	Rupra Road	Chatamahul	Rupra Road	Nangalguda RF	60.00	21/25.11.98
28	Kesinga	Rupra Road	Boringpadar (R.R)	Rupra Road	Nangalguda RF	75.00	22/25.11.98
29	Kesinga	Rupra Road	Bilat	Rupra Road	Nangalguda RF	100.00	53/03.02.99
30	Kesinga	Rupra Road	Balbaspur	Rupra Road	Nangalguda RF	100.00	54/03.02.99
31	Kesinga	Rupra Road	Karunpadar	Muskuti	Bazargarh RF	80.00	55/03.02.99
32	Kesinga	Rupra Road	Kendupada	Muskuti	Bazargarh RF	80.00	56/03.02.99
33	Kesinga	Rupra Road	Taparang	Gigina	Bazargarh RF	100.00	57/03.02.99
					Addl. area.	**100.00**	**-do-**
34	Kesinga	Rupra Road	Jodabandh	Gigina	Bazargarh RF	75.00	58/03.02.99
					Addl. area.	**50.00**	**-do-**
35	Kesinga	Rupra Road	Dompadar	Gigina	Bazargarh RF	65.00	59/03.02.99
36	Kesinga	Rupra Road	Khetupada	Palam	Bazargarh RF	100.00	60/03.02.99
					Addl.area.	**50.00**	**-do-**
37	Kesinga	Rupra Road	Anlapada (Tukla)	Palam	Bazargarh RF	100.00	61/03.02.99
38	Kesinga	Rupra Road	Kundeijharan	Palam	Bazargarh RF	100.00	62/03.02.99
39	Kesinga	Rupra Road	Raksi	Saria	Nangalguda RF	100.00	63/03.02.99
40	Kesinga	Rupra Road	Sinang	Gigina	Bajargarh RF	40.00	426/31.03.05
41	Kesinga	Rupra Road	Gohirapada	Takarla	Bazargarh R.F.	30.00	544/23.03.2020
42	Kesinga	Rupra Road	Dahal	Mandel	Nangalguda R.F.	50.00	547/23.03.2020
43	Kesinga	Rupra Road	Bargaon	Rupra Road	Nangalguda R.F.	38.00	548/23.03.2020
44	Kesinga	Kasurpada	Khajurpada	Tundla	Bazargarh RF	50.00	626/28.03.05
45	Kesinga	Kasurpada	Khajurpada	Tundla	Bazargarh RF	50.00	64/03.02.99
46	Kesinga	Kasurpada	Rengali	Kasurpada	Bazargarh RF	100.00	65/03.02.99
47	Kesinga	Kasurpada	Babujore	Tundla	Bazargarh RF	40.00	66/03.02.99
48	Kesinga	Kasurpada	Ghantasala	Kasurpada	Bazargarh RF	50.00	67/03.02.99
49	Kesinga	Kasurpada	Nimagaon	Nunmath	Bazargarh RF	150.00	68/03.02.99
50	Kesinga	Kasurpada	Turlakhaman	Nunmath	Bazargarh RF	100.00	69/03.02.99
51	Kesinga	Kasurpada	Khasbahal	Nunmath	Bazargarh RF	100.00	70/03.02.99
52	Kesinga	Kasurpada	Katapada	Tundla	Bazargarh RF	150.00	71/03.02.99
53	Kesinga	Kasurpada	Tundla	Tundla	Bazargarh RF	60.00	72/03.02.99
54	Kesinga	Kasurpada	Kantesir	Kantesir	Bazargarh RF	150.00	73/03.02.99
55	Kesinga	Kasurpada	Salebhata	Palam	Bazargarh RF	50.00	74/03.02.99
					Addl.area of Salebhata VF	**30.00**	**-do-**
56	Kesinga	Kasurpada	Palam	Palam	Bazargarh RF	100.00	337/06.08.99
					Addl. Area of Palam VF	**40.00**	**-do-**
57	Kesinga	Kasurpada	Thapen	Palam	Bazargarh RF	50.00	338/06.08.99
58	Kesinga	Kasurpada	Amath	Nunmath	Bazargarh RF	50.00	339/06.08.99

Sl. No.	Name of Range	Name of Section	Name of the VSS.	Name of G.P.	Name of the forest block / Dist. (All Forest blocks are within Kalahandi Dist.)	Area assigned to VSS. (in Ha.)	Remarks (Regn. No. & date.)
59	Kesinga	Kasurpada	Nunmath	Nunmath	Bazargarh RF	50.00	340/06.08.99
					Nunmath VF	**50.00**	**-do-**
60	Kesinga	Kasurpada	Kinerkela	Nunmath	Bazargarh RF	50.00	341/06.08.99
					Addl. Area :	**150.00**	**-do-**
61	Kesinga	Kasurpada	Ghatpada	Kasurpada	Bazargarh RF	100.00	342/06.08.99
					Addl.area:	**80.00**	**-do-**
62	Kesinga	Kasurpada	Singhjharan	Kasurpada	Bazargarh RF	200.00	343/06.08.99
63	Kesinga	Kasurpada	Mahagaon	Palam	Bazargarh RF	100.00	344/06.08.99
64	Kesinga	Kasurpada	Pitapada	Palam	Bazargarh RF	40.00	345/06.08.99
65	Kesinga	Kasurpada	Rindababahali	Palam	Bazargarh RF	50.00	503/16.02.2K
66	Kesinga	Kasurpada	Sudingapadar	Palam	Bazargarh RF	50.00	504/16.02.2K
67	Kesinga	Kasurpada	Raidhunipadar	Palam	Bazargarh RF	50.00	505/16.02.2K
68	Kesinga	Kasurpada	Bijakhaman	Nunmath	Bazargarh RF	100.00	548/25.03.2K
69	Kesinga	Kasurpada	Rastamal	Palam	Bazargarh RF	100.00	549/25.03.2K
70	Kesinga	Kasurpada	Hatikhoj	Hatikhoj	Hatikhoj VF	50.00	627/28.03.03
71	Kesinga	Kasurpada	Sisakhal	Hatikhoj	Sisakhal VF	50.00	628/28.03.03
72	Kesinga	Kasurpada	Samajodi	Palam	Bazargarh RF	20.00	629/28.03.03
					Samajodi VF	**20.00**	**-do-**
73	Kesinga	Kasurpada	Tulangapadar	Nunmath	Bazargarh RF	200.00	534/31.10.2019
74	Kesinga	Kasurpada	Padmapur	Kashrupada	Bazargarh RF	50.00	535/31.10.2019
75	Kesinga	Kasurpada	Indramal	Kashrupada	Bazargarh RF	50.00	536/31.10.2019
76	Kesinga	Kashrupada	Kumarpur	Kantesir	Bazargarh RF	59.05	572/04.08.2020
77	Kesinga	Kashrupada	Maskadandi	Muding	Village Forest	13.00	573/04.08.2020
78	Kesinga	Kashrupada	Kusurla	Joradobra	Village Forest	9.40	575/04.08.2020
Total: -			**78**			**6298.63**	
1	M.Rampur	Jurakhaman	Urladani	Urladani	Bidabaru PRF	100.00	189/17.05.99
2	M.Rampur	Jurakhaman	Bidabaru	Urladani	Bidabaru PRF	75.00	190/17.05.99
3	M.Rampur	Jurakhaman	Marding	Urladani	Bidabaru PRF	70.00	191/17.05.99
4	M.Rampur	Jurakhaman	Jerka	Urladani	Bidabaru PRF	70.00	192/17.05.99
5	M.Rampur	Jurakhaman	Harlanga	Urladani	Podrimahul PRF	70.00	193/17.05.99
6	M.Rampur	Jurakhaman	Podrimahul	Urladani	Podrimahul PRF	50.00	194/17.05.99
7	M.Rampur	Jurakhaman	Lahadi	Mohangiri	Lahadi VF	40.00	404/31.03.05
8	M.Rampur	Jurakhaman	kalesur	Urladani	kalesur VF	35.00	409/31.03.05
9	M.Rampur	Jurakhaman	Drama	Urladani	Drama VF	80.00	410/31.03.05
10	M.Rampur	Jurakhaman	Matakupa	Urladani	Matakupa VF	80.00	411/31.03.05
11	M.Rampur	Jurakhaman	Pongabaju	Urladani	Pongabaju VF	78.00	412/31.03.05
12	M.Rampur	Jurakhaman	Dahakelpada	Urladani	Dahakelpada VF	75.00	413/31.03.05
13	M.Rampur	Jurakhaman	Puijhari	Urladani	Puijhari VF	78.00	414/31.03.05

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14	M.Rampur	Jurakhaman	Dengenpadel	Urladani	Dengenpadel VF	54.00	415/31.03.05
15	M.Rampur	Jurakhaman	Jamuli	Mohangiri	Jamuli VF	50.00	417/31.03.05
16	M.Rampur	Jurakhaman	Gaskapada	Mohangiri	Gaskapada VF	60.00	418/31.03.05
17	M.Rampur	Jurakhaman	Balibaju	Urladani	Taparang RF	20.00	446/31.03.05
18	M.Rampur	Jurakhaman	Sankush	Urladani	Taparang RF	30.00	447/2005-06
19	M.Rampur	Jurakhaman	Kachhupada	Urladani	Mundramaska PRF	50.00	475/31.03.07
20	M.Rampur	Jurakhaman	Lubengarh	Urladani	Pongabaju VF	50.00	476/31.03.07
21	M.Rampur	Madanpur	Bhatapala	Barapadar	Podgudi PRF	100.00	195/17.05.99
22	M.Rampur	Madanpur	Anlatara	Anlatara.	Sunamukhi RF	100.00	196/17.05.99
23	M.Rampur	Madanpur	Dongabahal	Madanpur	Sunamukhi RF	50.00	197/17.05.99
24	M.Rampur	Madanpur	Antarla	Madanpur	Podgudi PRF	100.00	198/17.05.99
25	M.Rampur	Madanpur	Jamunapur	Barapadar	Podgudi PRF	50.00	199/17.05.99
26	M.Rampur	Madanpur	Baliguda	Madanpur	Benaguda RF	100.00	200/17.05.99
27	M.Rampur	Madanpur	Pendra & Borighat.	Madanpur	Benaguda RF	100.00	201/17.05.99
28	M.Rampur	Madanpur	Gopalpur	Madanpur	Podgudi PRF	50.00	457/04.09.99
29	M.Rampur	Madanpur	Kundeipali	Gochhadengen	Gochhadengen PRF	50.00	488/02.01.2K
30	M.Rampur	Madanpur	Kandhasarbahali	Gochhadengen	Gochhadengen PRF	50.00	489/02.01.2K
31	M.Rampur	Madanpur	Narasingpur	Anlatara	Goindimunda PRF	50.00	490/02.01.2K
32	M.Rampur	Madanpur	Kumerpeta	Gochhadengen	Sunamukhi RF	100.00	491/02.01.2K
33	M.Rampur	Madanpur	Sarabahali	Barapadar	Podgudi PRF	30.00	492/02.01.2K
34	M.Rampur	Madanpur	Madanpur	Madanpur	Sunamukhi RF	60.00	493/02.01.2K
35	M.Rampur	Madanpur	Sitarampali	Madanpur	Podgudi PRF	10.00	494/02.01.2K
36	M.Rampur	Madanpur	Talkona	Gochhadengen	Gochhadengen PRF	50.00	495/02.01.2K
37	M.Rampur	Madanpur	Paramanandpur	Rajpur	Goindimunda PRF	50.00	496/02.01.2K
38	M.Rampur	Madanpur	Sikelkupa	M.Rampur	Sikelkupa VF	50.00	497/02.01.2K
39	M.Rampur	Madanpur	Goindimunda	Rajpur	Goindimunda VF	30.00	543/26.02.2K
40	M.Rampur	Madanpur	Nilakantheswar, Bankel	Saidlanga	Bankel VF	65.00	576/19.12.2K
41	M.Rampur	Madanpur	Batikupa	Saidlanga	Podgudi PRF	110.00	577/19.12.2K
42	M.Rampur	Madanpur	Kabichandrapur	Madanpur	Kabichandrapur VF	55.00	597/5.12.01
43	M.Rampur	Madanpur	Jharundongri	Domkarlakhunta	Podgudi PRF	50.00	674/31.03.03
					Podgudi PRF	**50.00**	**602/07.03.02**
44	M.Rampur	Madanpur	Ramji	Gajbahal	Kansil VF	50.00	441/31.03.05
45	M.Rampur	Madanpur	Dongermunda	Gajbahal	Dongermunda VF	25.00	442/31.03.05
46	M.Rampur	Madanpur	Sirgun	Damkarlakhunta	Sunamukhi RF	50.00	472/31.03.07
47	M.Rampur	Madanpur	Penjikupa	Damkarlakhunta	Sunamukhi RF	50.00	477/31.03.07
48	M.Rampur	Madanpur	Banjipadar	Gochhadengen	Podgudi PRF	50.00	526/26.02.19
49	M. Rampur	Madanpur	Benaguda	Gochhadengen	Benaguda R.F.	50.00	561/20.05.2020
50	M. Rampur	Madanpur	Belur	Gochhadengen	Benaguda R.F.	50.00	562/20.05.2020

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51	M. Rampur	Madanpur	Dulen	Damkarlakhunta	Sunamukhi R.F.	50.00	566/20.05.2020
52	M. Rampur	Madanpur	Ulimunda	Damkarlakhunta	Sunamukhi R.F.	50.00	570/20.05.2020
53	M.Rampur	Mohangiri	Pundapadar	Mohangiri	Khalia PRF	50.00	202/17.05.99
54	M.Rampur	Mohangiri	Sarabeda	Mohangiri	Sulia PRF	50.00	203/17.05.99
55	M.Rampur	Mohangiri	Sitrabahali	Mohangiri	Mohangiri VF	100.00	204/17.05.99
56	M.Rampur	Mohangiri	Jamuli	Mohangiri	Sulia PRF	100.00	205/17.05.99
57	M.Rampur	Mohangiri	Pajikeru	Manikera	Pajikeri VF	60.00	206/17.05.99
58	M.Rampur	Mohangiri	Taparang	Manikera	Taparang VF	50.00	207/17.05.99
59	M.Rampur	Mohangiri	Araskupa	Manikera	Araskupa VF	50.00	208/17.05.99
60	M.Rampur	Mohangiri	Talanuagaon	Mohangiri	Talanuagaon VF	100.00	209/17.05.99
61	M.Rampur	Mohangiri	Bijamal	Mohangiri	Bijamal VF	74.00	210/17.05.99
62	M.Rampur	Mohangiri	Tejipada	Mohangiri	Sulia PRF	50.00	211/17.05.99
63	M.Rampur	Mohangiri	Later	Mohangiri	Sulia PRF	52.34	212/17.05.99
64	M.Rampur	Mohangiri	Uparnuagaon	Manikera	Taloanuagaon VF	100.00	213/17.05.99
65	M.Rampur	Mohangiri	Manikera	Manikera	Manikera VF	70.00	214/17.05.99
66	M.Rampur	Mohangiri	Pipalpada	Manikera	Araskupa VF	50.00	215/17.05.99
67	M.Rampur	Mohangiri	Gandapadar	Manikera	Satami RF	120.00	675/31.03.03
68	M.Rampur	Mohangiri	Mardijore	Manikera	Satami RF	100.00	676/31.03.03
69	M.Rampur	Mohangiri	Sirkijeju	Mohangiri	Sulia PRF	100.00	677/31.03.03
70	M.Rampur	Mohangiri	Kutijore	Mohangiri	Dengen RF	150.00	678/31.03.03
71	M.Rampur	Mohangiri	Sindhiguda	Manikera	Benaguda RF	100.00	679/31.03.03
72	M.Rampur	Mohangiri	Mudis	Mohangiri	Mudis VF	50.00	402/31.03.05
73	M.Rampur	Mohangiri	Bagbilla	Mohangiri	Bagbilla VF	55.00	403/31.03.05
74	M.Rampur	Mohangiri	Tentuliguda	Manikera	Satami RF	50.00	473/31.03.07
75	M.Rampur	Mohangiri	Dolabahali	Mohangiri	Sulia PRF	50.00	474/31.03.07
76	M.Rampur	Mohangiri	Muchelpadar	Mohangiri	Dengen RF	25.00	515/31.03.08
					Addl. Area	**25.00**	
77	M.Rampur	Mohangiri	Kotobahali	Mohangiri	Dengen RF	30.00	516/31.03.08
78	M.Rampur	Mohangiri	Sulesuru	Manikera	Benaguda RF	50.00	530/31.10.2019
79	M. Rampur	Mohangiri	Banjamunda	Manikera	Taprang R.F.	50.00	549/23.03.2020
80	M. Rampur	Mohangiri	Duttamunda	Manikera	Taprang R.F.	50.00	551/23.03.2020
81	M. Rampur	Mohangiri	Badpidel	Manikera	Satami R.F.	50.00	559/20.05.2020
82	M. Rampur	Mohangiri	Kamren	Singpur	Sulia P.R.F.	50.00	560/20.05.2020
83	M. Rampur	Mohangiri	Surelpadar	Singpur	Sulia P.R.F.	50.00	564/20.05.2020
84	M. Rampur	Mohangiri	Kamgaon	Singpur	Benaguda R.F.	50.00	565/20.05.2020
85	M.Rampur	M.Rampur	Karlakhunta	M.Rampur	Chandanpinta PRF	50.00	231/17.05.99
86	M.Rampur	M.Rampur	Barabhata	Nunpur	Kutigudum PRF	100.00	232/17.05.99
87	M.Rampur	M.Rampur	Goudakela	M.Rampur	Taparang VF	200.00	233/17.05.99

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88	M.Rampur	M.Rampur	Pandkamal	M.Rampur	Sadel RF	100.00	234/17.05.99
89	M.Rampur	M.Rampur	Duta	Mudinga	Turchi RF	22.00	235/17.05.99
90	M.Rampur	M.Rampur	Maskadandi	Mudinga	Turchi RF	30.00	236/17.05.99
91	M.Rampur	M.Rampur	Mankadkhola	Nunpur	Kutigudum PRF	150.00	237/17.05.99
92	M.Rampur	M.Rampur	Kutigudum	Nunpur	Kutigudum PRF	100.00	238/17.05.99
93	M.Rampur	M.Rampur	Dhauramal	Saidlanga	Sadel RF	50.00	239/17.05.99
94	M.Rampur	M.Rampur	Jambahali	Nunpur	Ramud PRF	100.00	240/17.05.99
95	M.Rampur	M.Rampur	Karnimal	Saidlanga	Turchi RF	30.00	241/17.05.99
96	M.Rampur	M.Rampur	Nunpur	Nunpur	Kutigudum PRF	150.00	242/17.05.99
97	M.Rampur	M.Rampur	Ramud	Nunpur	Ramud PRF	100.00	243/17.05.99
98	M.Rampur	M.Rampur	Salepali	Mudinga	Turchi RF	25.00	244/17.05.99
99	M.Rampur	M.Rampur	Terchhapala	Mudinga	Turchi RF	70.00	245/17.05.99
100	M.Rampur	M.Rampur	Maninganala	Nunpur	Ramud PRF.	100.00	246/17.05.99
101	M.Rampur	M.Rampur	Padelkona	Nunpur	Kutigudum PRF	128.00	247/17.05.99
102	M.Rampur	M.Rampur	Kusurla	Mudinga	Turchi RF.	30.00	248/17.05.99
103	M.Rampur	M.Rampur	Jhaligobha	Saidlanga	Sadel RF.	57.00	249/17.05.99
104	M.Rampur	M.Rampur	Ainlapali	Saidlanga	Sadel RF.	150.00	250/17.05.99
105	M.Rampur	M.Rampur	Turchi	Saidlanga	Turchi RF.	65.00	456/04.09.99
106	M.Rampur	M.Rampur	Paiksadel	M.Rampur	Sadel(B) RF	100.00	509/24.02.2K
107	M.Rampur	M.Rampur	Ulurupi	Nunpur	Kutigudum PRF	100.00	510/24.02.2K
108	M.Rampur	M.Rampur	Kacherpali	Mudinga	Turchi RF.	30.00	579/07.02.01
109	M.Rampur	M.Rampur	Rangapadar	Urladani	Rangapadar VF	100.00	671/31.03.03
110	M.Rampur	M.Rampur	Chandanpinda	M.Rampur	Chandanpinda VF	50.00	672/31.03.03
111	M.Rampur	M.Rampur	Musunga	Urladani	Musunga VF	50.00	673/31.03.03
112	M.Rampur	M.Rampur	Amgaon	Pandakamal	Sadel A RF	50.00	440/31.03.05
113	M.Rampur	M.Rampur	Jakabahali	M.Rampur	Jakabahali VF	50.00	443/31.03.05
114	M.Rampur	M.Rampur	Jurakhaman	Urladani	Taparang RF	20.00	457/20.09.06
115	M.Rampur	M.Rampur	Aranjharan	Nunpur	Karla RF	50.00	478/31.03.07
116	M.Rampur	M.Rampur	Sidingpadar	Nunpur	Ramud PRF.	50.00	479/31.03.07
117	M.Rampur	M.Rampur	Damkarlakhunta	Damkarlakhunta	Taparang RF	50.00	480/31.03.07
118	M.Rampur	M.Rampur	Pajibahali	Damkarlakhunta	Ramud PRF.	50.00	481/31.03.07
119	M.Rampur	M.Rampur	Ganjipadar	Nunpur	Taparang RF	50.00	525/26.02.19
120	M.Rampur	M.Rampur	Bagbeda	Nunpur	Taparang RF	50.00	527/26.02.19
121	M. Rampur	M. Rampur	Kandegaon	D. Karlakhunta	Taprang R.F.	50.00	550/23.03.2020
122	M. Rampur	M. Rampur	Phapsi	Nunpur	Karla P.R.F.	30.00	563/20.05.2020
123	M. Rampur	M. Rampur	Motoganda	M. Rampur	Sihidi G.J.	30.00	567/20.05.2020
124	M. Rampur	M. Rampur	Kurupadar	Urladani	Taprang R.F.	50.00	568/20.05.2020
125	M. Rampur	M. Rampur	Mandabahali	Nunpur	Karla P.R.F.	50.00	569/20.05.2020
Total: -			**125**			**8178.34**	

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1	Narla	Kerbandi	Bamak	Kurmel	Narla RF	150.00	23/25.11.98
2	Narla	Kerbandi	Boringpadar	Balasinga	Kerbandi RF	100.00	13/25.11.98
3	Narla	Kerbandi	Bankel	Sargiguda	Narla RF	150.00	24/25.11.98
					Addl.area of Bankel VF	**25.00**	**24/25.11.98**
4	Narla	Kerbandi	Samerkata	Kurmel	Narla RF	150.00	25/25.11.98
5	Narla	Kerbandi	Karmela (Budelguma)	Kurmel	Narla RF	50.00	26/25.11.98
6	Narla	Kerbandi	Khairmal	Bagpur	Kamai RF	80.00	27/25.11.98
7	Narla	Kerbandi	Kilabeda	Kurmel	Narla RF	50.00	28/25.11.98
8	Narla	Kerbandi	Bhatangi	Sargiguda.	Narla RF	100.00	29/25.11.98
9	Narla	Kerbandi	Panga	Kurmel	Kerbandi RF	161.00	30/21.01.99
10	Narla	Kerbandi	Dudalu	Kurmel	Kerbandi RF	190.00	31/21.01.99
11	Narla	Kerbandi	Terlo	Balsinga	Kerbandi RF	186.00	32/21.01.99
12	Narla	Kerbandi	Patangpadar	Kurmel	Kerbandi RF	101.00	33/21.01.99
13	Narla	Kerbandi	Kerbandi	Balsinga	Kerbandi RF	189.00	34/21.01.99
14	Narla	Kerbandi	Kusamal	Kurmel	Kerbandi RF	181.00	35/21.01.99
15	Narla	Kerbandi	Kamei	Bhanpur	Kamei RF.	26.00	36/21.01.99
					Kamei VF	**16.72**	**36/21.01.99**
16	Narla	Kerbandi	Jampada	Bagpur	Kamei RF	50.00	37/21.01.99
17	Narla	Kerbandi	Ulisirka	Sargiguda	Narla RF	187.00	38/21.01.99
18	Narla	Kerbandi	Regidimal	Kurmel	Narla RF	108.00	39/21.01.99
19	Narla	Kerbandi	Dudungakupa	Kurmel	Lamatidonger VF	29.50	40/21.01.99
20	Narla	Kerbandi	Chapatkhanda	Narla	Chapatkhanda VF	34.09	613/08.09.02
21	Narla	Kamarda	Maskaguda	Kamarda	Barapati VF	40.00	113/01.03.99
22	Narla	Kamarda	Kujuguda	Kamarda	Porgel RF	50.00	114/01.03.99
23	Narla	Kamarda	Bhurti	Kamarda	Muktighati PRF	50.00	115/01.03.99
24	Narla	Kamarda	Kamarda	Kamarda	Sanbahali VF	35.00	116/01.03.99
25	Narla	Kamarda	Pipalpada	Kamarda	Badunkhunti VF	25.00	117/01.03.99
26	Narla	Kamarda	Uligunjer	Kamarda	Mudinga PRF	50.00	118/01.03.99
27	Narla	Kamarda	Mundagaon	Kamarda	Porgel RF	50.00	119/01.03.99
28	Narla	Kamarda	Gandharbaru	Kamarda	Darukupli VF	30.00	120/01.03.99
29	Narla	Kamarda	Dhamankata	Kamarda	Urlangakupli VF	23.03	121/01.03.99
30	Narla	Kamarda	Bajibahal	Kamarda	Bajibahal PRF	47.50	122/01.03.99
31	Narla	Kamarda	Majangdhuli	Kamarda	Kutrumundi PRF	70.17	123/01.03.99
32	Narla	Kamarda	Turibakati	Kamarda	Pajendongri VF	4.88	124/01.03.99
33	Narla	Kamarda	Lamer VSS	Bhurtigarh	Porgel PRF	40.00	452/31.03.06
34	Narla	Kamarda	Gambharighati VSS	Bhurtigarh	Badibahal PRF	40.00	453/31.03.06
35	Narla	Kamarda	Kurlubhata VSS	Kamarda	Kerbandi RF	40.00	454/31.03.06
36	Narla	Kamarda	Mahinal VSS	Bhurtigarh	Porgel PRF	40.00	455/31.03.06

Sl. No.	Name of Range	Name of Section	Name of the VSS.	Name of G.P.	Name of the forest block / Dist. (All Forest blocks are within Kalahandi Dist.)	Area assigned to VSS. (in Ha.)	Remarks (Regn. No. & date.)
37	Narla	Kamarda	Karkali	Lanjigarh Rd.	Porgel RF	200.00	636/31.03.03
38	Narla	Kamarda	Redhapadar	Lanjigarh Rd.	Porgel RF	200.00	642/31.03.03
39	Narla	Kamarda	Jamguda	Lanjigarh Rd.	Porgel RF and Jamguda PRF	209.75	643/31.03.03
40	Narla	Kamarda	Kuthelpadar	Bhurti	Porgel Extn. PRF	40.00	482/31.03.07
41	Narla	Kamarda	Mudingghati	Bhurti	Mundighati DPF	40.00	483/31.03.07
42	Narla	Kamarda	Sikerguda	Bhurti	Pogel Extn. PRF	83.00	484/31.03.07
43	Narla	Kamarda	Sirigaon	Bhurti	Pogel Extn. PRF	43.00	485/31.03.07
44	Narla	Kamarda	Saibhata	Bhurti	Porgel Extn. PRF	40.00	490/31.03.07
45	Narla	Kamarda	Khaichuan	Bhurti	Porgel Extn. PRF	27.00	491/31.03.07
46	Narla	Kamarda	Jankipadar	Bhurti	Jankipadar VF	27.00	492/31.03.07
47	Narla	Kamarda	Kapelpadar	Bhurti	Porgel Extn. PRF	40.00	493/31.03.07
48	Narla	Kamarda	Adakhur	Bhurti	Porgel Extn. PRF	30.00	494/31.03.07
49	Narla	Kamarda	Mundabahal	Bhurtigarh	Porgel RF	50.00	571/04.08.2020
50	Narla	Belgaon	Lumersinga	Sergarh	Lumersinga PRF	100.00	216/17.05.99
51	Narla	Belgaon	Pujiladu	Barbandh	Pujilaldu VF	68.00	217/17.05.99
52	Narla	Belgaon	Sripali	Sergarh	Sripali VF	46.00	218/17.05.99
53	Narla	Belgaon	Bhatel	Sergarh	Bhatel VF	71.90	219/17.05.99
54	Narla	Belgaon	Lamer	Barbandh	Belgaon PRF	66.00	220/17.05.99
55	Narla	Belgaon	Belgaon	Barbandh	Belgaon PRF	100.00	221/17.05.99
56	Narla	Belgaon	Manasara	Barbandh	Belgaon PRF	50.00	222/17.05.99
57	Narla	Belgaon	Gunangbeda	Barbandh	Gunangdongri VF	50.00	223/17.05.99
58	Narla	Belgaon	Barbandh	Barbandh	Belgaon PRF	100.00	224/17.05.99
59	Narla	Belgaon	Burat	M.Rampur	Urladani West RF	50.00	225/17.05.99
60	Narla	Belgaon	Balabeda	Barbandh	Balabeda VF	50.00	226/17.05.99
61	Narla	Belgaon	Sikuli	Barbandh	Urladani Central RF	60.00	227/17.05.99
62	Narla	Belgaon	Nuapada	Sergarh	Urladani West RF	50.00	228/17.05.99
63	Narla	Belgaon	Bimalapadar	Barbandh	Urladani West RF	100.00	229/17.05.99
64	Narla	Belgaon	Chochobahali	Barbandh	Urladani West RF	50.00	230/17.05.99
65	Narla	Belgaon	Kinipadara	Barbandha	Belgaon PRF	50.00	595/08.08.01
66	Narla	Belgaon	Pipadi	Barbandha	Dadimeda VF	20.00	680/31.03.03
67	Narla	Belgaon	Tarkabahali	Barbandha	Belgaon PRF	25.00	401/31.03.05
68	Narla	Belgaon	Sadelgochha	Barbandha	Urladani RF	20.00	487/31.03.07
69	Narla	Belgaon	Ghunghuti	Barbandha	Belgaon DPF	40.00	488/31.03.07
70	Narla	Belgaon	Baksandi	Barbandha	Belgaon DPF	40.00	495/31.03.07
71	Narla	Harlanga	Chitra	Barbandha	Belgaon PRF	51.00	421/31.03.05
72	Narla	Harlanga	Nagjhari	Urladani	Urladani RF	24.00	422/31.03.05
73	Narla	Harlanga	Matapadar	Barbandha	Dengsur PRF	92.00	423/31.03.05
74	Narla	Harlanga	Dumeri	Barbandha	Dengsur PRF	56.00	424/31.03.05

Sl. No.	Name of Range	Name of Section	Name of the VSS.	Name of G.P.	Name of the forest block / Dist. (All Forest blocks are within Kalahandi Dist.)	Area assigned to VSS. (in Ha.)	Remarks (Regn. No. & date.)
75	Narla	Harlanga	Rangaparu	Barbandha	Urladani RF	51.05	425/31.03.05
76	Narla	Harlanga	Udayagiri	Barbandha	Urladani RF	72.00	435/31.03.05
77	Narla	Harlanga	Gundurupi	Barbandha	Belgaon PRF	70.00	436/31.03.05
78	Narla	Harlanga	Siva Durga Dhobamunda	Urladani	Urladani RF	25.00	437/31.03.05
79	Narla	Harlanga	Gadadi	Urladani	Rangapadar VF	50.00	438/31.03.05
80	Narla	Harlanga	Ludurubaru VSS	Barbandha	Belgaon PRF	40.00	456/31.03.06
81	Narla	Harlanga	Dudukaranja	Barbandha	Belgaon DPF	20.00	486/31.03.07
82	Narla	Harlanga	Dholpada	Barbandha	Belgaon DPF	40.00	489/31.03.07
83	Narla	Harlanga	Khaliamunda	Urladani	Urladani RF	25.00	496/31.03.07
Total: -			**83**			**5802.59**	
1	Kegaon	Golamunda	Kadalimunda	Golamunda	Adabari RF	15.00	364/01.09.99
2	Kegaon	Golamunda	Grindol	Manjhari.	Adabari RF	50.00	365/01.09.99
3	Kegaon	Golamunda	Maa Thakurani, Gududughuma	Khaliakani.	Nageswar RF	100.00	366/01.09.99
4	Kegaon	Golamunda	Dheknapada	Golamunda	Nageswar RF	50.00	367/01.09.99
5	Kegaon	Golamunda	Maa Paharbuda, Patialapada	Khaliakani	Nageswar RF	50.00	368/01.09.99
6	Kegaon	Golamunda	Jaya Jagannath Y.S. Karangamunda	Khaliakani	Nageswar RF	50.00	369/01.09.99
7	Kegaon	Golamunda	Pahadbuda, Nuapada.	Golamunda	Nageswar RF	40.00	370/01.09.99
8	Kegaon	Golamunda	Nageswar, Samarthbasa	Golamunda	Nageswar RF	50.00	371/01.09.99
9	Kegaon	Golamunda	Radhakrishna,Kendupani	Golamunda	Nageswar RF	50.00	372/01.09.99
10	Kegaon	Golamunda	Baelpur (Jhikidongri).	Brundabahal	Adabari RF	50.00	385/01.09.99
11	Kegaon	Golamunda	Tejipada	Khaliakani	Nageswar RF	50.00	386/01.09.99
12	Kegaon	Golamunda	Maa Bhandargharani, Jhulenbar	Khaliakani	Nageswar RF	50.00	387/01.09.99
13	Kegaon	Golamunda	Dudkel	Manjhari	Adabari RF	100.00	388/01.09.99
14	Kegaon	Golamunda	Bhandargharani, Tendopeni	Dhamanpur	Adabari RF	50.00	389/01.09.99
15	Kegaon	Golamunda	Makundpur	Dhamanpur	Adabari RF	50.00	390/01.09.99
16	Kegaon	Golamunda	Dhabaleswar, Sukunimunda.	Golamunda	Adabari RF	50.00	391/01.09.99
17	Kegaon	Golamunda	Kuresini	Khaliakani.	Adabari RF	50.00	392/01.09.99
18	Kegaon	Golamunda	Adabaren,Tingipadar	Chapria	Adabari RF	50.00	393/01.09.99
19	Kegaon	Golamunda	Amarlapadar	Khaliakani	Nageswar RF	100.00	395/01.09.99
20	Kegaon	Golamunda	Swami Vivekananda Sangha,Sargiguda	Brundabahal	Nageswar RF	100.00	396/01.09.99
21	Kegaon	Golamunda	Kaleswari,Kirkakani (Belpada)	Dumerguda	Nageswar RF	100.00	397/01.09.99
22	Kegaon	Golamunda	Lankeswari,Kirkakani.	Dumerguda	Nageswar RF	50.00	398/01.09.99
23	Kegaon	Golamunda	Manamahi Sangha, Phoeripani.	Golamunda	Nageswar RF	100.00	399/01.09.99
24	Kegaon	Golamunda	Golamunda	Golamunda	Adabari RF	30.00	468/06.12.99
25	Kegaon	Golamunda	Bianrpada(Dudkel)	Manjhari	Bisiborni RF	50.00	469/06.12.99
26	Kegaon	Golamunda	Chanchramunda.	Brundabahal	Goelbindha PRF	40.00	571/07.07.2K

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27	Kegaon	Golamunda	Dongripada, (Bisiborni)	Manjhari	Dudkel VF	25.00	603/24.06.02
28	Kegaon	Golamunda	Naktikani	Khaliakani	Nageswar RF	50.00	630/28.03.03
29	Kegaon	Golamunda	Badbhuin	Golamunda	Nageswar RF	50.00	631/28.03.03
30	Kegaon	Golamunda	Mirmiri	Khaliapali	Mirmiri VF	20.00	432/31.03.05
31	Kegaon	Golamunda	Bakrasil	Tipiguda	Nagesh RF	60.00	434/31.03.05
32	Kegaon	Golamunda	Kaleswar Vss, Manjhari	Manjhari	Titari VF	50.00	450/31.03.06
33	Kegaon	Golamunda	Tumura	Manjhari	Nageswar RF	50.00	668/31.3.03
34	Kegaon	Golamunda	Goindimunda	Brundabahal	Goilbindha PRF	40.00	509/31.03.07
35	Kegaon	Golamunda	Antarla	Naktikani	Nageswar RF	50.00	510/31.03.07
36	Kegaon	Golamunda	Dangriguda	Manjhari	Manjhari VF	50.00	511/31.03.07
37	Kegaon	Golamunda	Tekapada (Nagesh)	Tipiguda	Nageswar RF	50.00	512/31.03.07
38	Kegaon	Golamunda	Rainguda	Tipiguda	Nageswar RF	50.00	513/31.03.07
39	Kegaon	Golamunda	Kankeri (Budha Raja)	Kankeri	Kankeri PRF	50.00	514/31.03.07
40	Kegaon	Golamunda	Hardapada	Gandamer	Nageswar R.F.	50.00	539/23.03.2020
41	Kegaon	Golamunda	Kenduguda	Brundabahal	Golbinda P.R.F.	50.00	540/23.03.2020
42	Kegaon	Kegaon	Betrapali	Mahaling	Ghatual RF	100.00	373/01.09.99
43	Kegaon	Kegaon	Maa Paradesen, Bagmunda	Mahaling	Gojia RF	100.00	374/01.09.99
44	Kegaon	Kegaon	Maa Bhandargharani, Kadobhata	Mahaling	Ghatual RF	100.00	375/01.09.99
45	Kegaon	Kegaon	Maa Meheli, Babermunda	Mahaling	Gojia RF	80.00	376/01.09.99
46	Kegaon	Kegaon	Mahindrapur	Kegaon	Kumkot RF	200.00	377/01.09.99
47	Kegaon	Kegaon	Lanji	Kegaon	Kumkot RF	100.00	378/01.09.99
48	Kegaon	Kegaon	Bandajore	Kegaon	Kumkot RF	100.00	379/01.09.99
49	Kegaon	Kegaon	Baramut, Balipadarpada.	Kegaon	Kumkot RF	150.00	380/01.09.99
50	Kegaon	Kegaon	Banjipadar	Chapria	Bisiborni RF	60.00	458/06.12.99
51	Kegaon	Kegaon	Nuagaon	Kegaon	Kumkot RF	200.00	459/06.12.99
52	Kegaon	Kegaon	Karanjkot	Kegaon	Chura RF	200.00	460/06.12.99
53	Kegaon	Kegaon	Tureichhada	Chapria	Bisiborni RF	88.00	461/06.12.99
54	Kegaon	Kegaon	Padampur (Nuapada)	Kegaon	Chura RF	100.00	462/06.12.99
					Kumkot RF	**100.00**	**-do-**
55	Kegaon	Kegaon	Udepur	Chapria	Chura RF	200.00	463/06.12.99
56	Kegaon	Kegaon	Sargiphulijuba	Kegaon	Chura RF	200.00	464/06.12.99
57	Kegaon	Kegaon	Padampur (Barmud)	Kegaon	Chura RF	100.00	465/06.12.99
58	Kegaon	Kegaon	Khaliapali	Chapria	Chura RF	60.00	569/07.07.2K
59	Kegaon	Kegaon	Sanchergaon.	Kegaon	Chura RF	60.00	570/07.07.2K
60	Kegaon	Kegaon	Balabhadrapitha VSS	Nuagaon	Chura RF	50.00	451/31.03.06
61	Kegaon	Kegaon	Jayantpur	Mahaling	Jayantpur PRF	50.00	508/31.03.07
62	Kegaon	Kegaon	Darlipada (Balas Gharen Mauli)	Later	Gojia R.F.	50.00	555/30.03.2020

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63	Kegaon	Kegaon	Raenpada	Nuagaon	Chura 'A' R.F.	50.00	556/30.03.2020
64	Kegaon	Kegaon	Karlapada	Kegaon	Chura 'A' R.F.	70.00	557/30.03.2020
65	Kegaon	Borda	Kholpala	Borda	Banakdei PRF	46.60	381/01.09.99
66	Kegaon	Borda	Sikuan	Dumuria	Kumkot RF	100.00	382/01.09.99
					Sikuan PRF	**25.54**	**-do-**
67	Kegaon	Borda	Salegaon	Dumuria	Kumkot RF	100.00	383/01.09.99
68	Kegaon	Borda	Rajanapur	Dumuria	Kumkot RF	100.00	384/01.09.99
69	Kegaon	Borda	Masigaon	Dumuria	Kumkot RF	50.00	466/06.12.99
					Sikuan PRF	**30.92**	**-do-**
70	Kegaon	Borda	Bhatipada	Kuhura	Lini RF	63.19	467/06.12.99
					Piladongri VF	**23.47**	**-do-**
71	Kegaon	Borda	Balipati	Artal	Kumkot RF	50.00	546/09.03.2K
72	Kegaon	Borda	Dumuria	Dumuria	Kumkot RF	50.00	547/09.03.2K
73	Kegaon	Borda	Bordi	Kuhura	Lini RF	63.19	562/10.04.2K
74	Kegaon	Borda	Kantamal	Kuhura	Banakdei VF	45.50	604/24.06.02
75	Kegaon	Borda	Kanduljhar	Artan	Kumkot RF	50.00	497/31.03.07
76	Kegaon	Borda	Gandabasa	Dumuria	Kumkot RF	50.00	498/31.03.07
77	Kegaon	Borda	Borfa	Dumuria	Kumkot R.F.	50.00	543/23.03.2020
78	Kegaon	Borda	Tetelpada	Artal	Kumkot R.F.	50.00	558/30.03.2020
79	Kegaon	Gargab	Uchhala, Malpada.	Uchhala	Daka RF	50.00	400/01.09.99
80	Kegaon	Gargab	Aeli	Uchhala	Daka RF	100.00	401/01.09.99
81	Kegaon	Gargab	Jorepada	Uchhala	Daka R	50.00	402/01.09.99
82	Kegaon	Gargab	Latabanji	Badchergaon	Chura (B) RF	100.00	403/01.09.99
83	Kegaon	Gargab	Dombasa	Badchergaon	Chura (A) RF	100.00	404/01.09.99
84	Kegaon	Gargab	Karmath	Rengsapali	Chura (B) RF	100.00	405/01.09.99
85	Kegaon	Gargab	Phatamunda	Badchergaon	Chura (A) RF	100.00	406/01.09.99
86	Kegaon	Gargab	Mermahul	Badchergaon	Chura (B) RF	100.00	407/01.9.99
87	Kegaon	Gargab	Karla	Badchergaon	Chura (B) RF	100.00	408/01.09.99
88	Kegaon	Gargab	Sialijodi	Uchhala	Kumkot RF	100.00	409/01.09.99
89	Kegaon	Gargab	Purunapani	Uchhala	Kumkot RF	100.00	410/01.09.99
90	Kegaon	Gargab	Chahaka	Uchhala	Kumkot RF	100.00	411/01.09.99
91	Kegaon	Gargab	Jhikipadar	Uchhala	Kumkot RF	100.00	412/01.09.99
92	Kegaon	Gargab	Ramchandrapur	Badchergaon	Chura (A) RF	100.00	413/01.09.99
93	Kegaon	Gargab	Bagdori	Badchergaon	Chura (A) RF	100.00	414/01.09.99
94	Kegaon	Gargab	Singhbhadi	Badchergaon	Singhbhadi PRF	75.00	415/01.09.99
95	Kegaon	Gargab	Sankripali	Rengsapli	Chura (B) RF	100.00	416/01.09.99
96	Kegaon	Gargab	Pitapada	Badchergaon	Chura BRF	50.00	428/31.03.05
97	Kegaon	Gargab	Batirmunda	Badchergaon	Daka RF	25.00	431/31.03.05

Sl. No.	Name of Range	Name of Section	Name of the VSS.	Name of G.P.	Name of the forest block / Dist. (All Forest blocks are within Kalahandi Dist.)	Area assigned to VSS. (in Ha.)	Remarks (Regn. No. & date.)
98	Kegaon	Gargab	Amunda	Nuagaon	Amunda PRF	50.00	504/31.03.07
99	Kegaon	Gargab	Limpada	Nuagaon	Chura RF	50.00	505/31.03.07
100	Kegaon	Gargab	Silbhadi	Nuagaon	Chura RF	50.00	506/31.03.07
101	Kegaon	Gargab	Gundri	Badchergaon	Chura RF 'B'	50.00	507/31.03.07
102	Kegaon	Gargab	Dhanramal	Chahaka	Daka R.F.	50.00	537/23.03.2020
103	Kegaon	Gargab	Pitaguda	Rengsapali	Chura 'A' R.F.	50.00	538/23.03.2020
104	Kegaon	Dashpur	Kamalabari	Dhamanpur	Chura RF	100.00	470/06.12.99
105	Kegaon	Dashpur	Rengsapali	Rengsapali	Gaikuta & Patramara VF	150.00	471/06.12.99
106	Kegaon	Dashpur	Putiachura	Rengsapali	Chura RF	100.00	472/06.12.99
107	Kegaon	Dashpur	Karpa	Rengsapali	Chura RF	100.00	473/06.12.99
108	Kegaon	Dashpur	Dhamanpur	Dhamanpur	Chura RF	100.00	474/06.12.99
109	Kegaon	Dashpur	Gadlajharan	Farang	Chura RF	150.00	475/06.12.99
110	Kegaon	Dashpur	Nuamunda	Rengsapali	Chura RF	100.00	476/06.12.99
111	Kegaon	Dashpur	Jamjharan	Dhamanpur	Chura RF	100.00	477/06.12.99
112	Kegaon	Dashpur	Bhandarkachhar	Chapria	Chura RF	100.00	478/06.12.99
113	Kegaon	Dashpur	Kasturapadar	Chapria	Chura RF	100.00	479/06.12.99
114	Kegaon	Dashpur	Karli	Rengsapali	Chura RF	100.00	480/06.12.99
115	Kegaon	Dashpur	Khairpadar	Farang	Chura RF	100.00	481/06.12.99
116	Kegaon	Dashpur	Khasiguda	Dhamanpur	Chura RF	100.00	482/06.12.99
117	Kegaon	Dashpur	Kanakpur	Chapria	Chura RF	100.00	483/06.12.99
118	Kegaon	Dashpur	Kutruchuan	Rengsapali	Chura RF	150.00	484/06.12.99
119	Kegaon	Dashpur	Padampur	Rengsapali	Chura RF	150.00	563/10.04.2K
120	Kegaon	Dashpur	Dashpur	Dashpur	Dashpur VF	50.00	591/05.05.01
121	Kegaon	Dashpur	Banjibahal	Dashpur	Chura RF	150.00	615/07.11.02
122	Kegaon	Dashpur	Jamgudabahali	Dhamanpur	Jamunabahal VF	65.00	616/28.03.03
123	Kegaon	Dashpur	Baroguma	Dhamanpur	Goelbindha PRF	30.00	634/31.03.03
124	Kegaon	Dashpur	Chatrapur	Dashpur	Chatrapur VF	10.00	429/31.03.05
125	Kegaon	Dashpur	Nuapada (Bhutpada)	Dhamanpur	Goelbinda PRF	30.00	430/31.03.05
126	Kegaon	Dashpur	Nuamunda	Rengsapali	Chura RF	50.00	427/31.03.05
127	Kegaon	Dashpur	Patkholen	Khaliapali	Chura RF	50.00	499/31.03.07
128	Kegaon	Dashpur	Karlaguda	Pharang	Chura RF	50.00	500/31.03.07
129	Kegaon	Dashpur	Banjibahal	Dashpur	Chura RF	50.00	501/31.03.07
130	Kegaon	Dashpur	Dejhar	Dashpur	Chura RF	50.00	502/31.03.07
131	Kegaon	Dashpur	Badjore	Khaliapali	Chura RF	50.00	503/31.03.07
132	Kegaon	Dashpur	Bagbahal (Maa Pahara Paharen)	Farang	Chura 'A' R.F.	50.00	541/23.03.2020
133	Kegaon	Dashpur	Panashpur (Siba Shakti)	Rengsapali	Chura 'A' R.F.	50.00	542/23.03.2020
134	Kegaon	Dumuria	Pendramal	Dumuria	Kumkot RF	50.00	632/31.03.03
135	Kegaon	Dumuria	Urlanga	Dumuria	Kumkot RF	50.00	633/31.03.03
Total			**135**			**10321.41**	
G. Total: -			**593**			**42679.97**	

APPENDIX-XIV

ଅଧିବେଶନ

ସ୍ଥାନ -ଆଞ୍ଚଳିକ ମୂଖ୍ୟ ବନସଂରକ୍ଷକ, ଭବାନୀପାଟଣାଙ୍କ କାର୍ଯ୍ୟାଳୟ, ତାରିଖ -୦୪.୦୭.୨୦୧୫

ଅଦ୍ୟ ତା.୦୪.୦୭.୨୦୧୫ ରିଖ ଦିନ ୧୦ ଘଣ୍ଟା ସମୟରେ ସ୍ଥାନୀୟ ଆଞ୍ଚଳିକ ମୁଖ୍ୟ ବନ ସଂରକ୍ଷକଙ୍କ କାର୍ଯ୍ୟାଳୟରେ ବନ ବିଭାଗ ତରଫରୁ ଏକ କର୍ମଶାଳାର ଆୟୋଜନ କରାଯାଇଥିଲା । ଏହି କର୍ମଶାଳାରେ ଆଞ୍ଚଳିକ ମୁଖ୍ୟ ବନସଂରକ୍ଷକ ଭବାନୀପାଟଣା ଶ୍ରୀଯୁକ୍ତ ସୁରେଶ ପନ୍ଥୁ, ଖଣ୍ଡୀୟ ବନାଧିକାରୀ, କଳାହାଣ୍ଡି ଉତ୍ତର ବନଖଣ୍ଡ ଶ୍ରୀଯୁକ୍ତ ଲଲିତେନ୍ଦୁ ଜେନା, ଉପ-ବନ ସଂରକ୍ଷକ କଳାହାଣ୍ଡି (ଉ) ବନଖଣ୍ଡ ଶ୍ରୀଯୁକ୍ତ ସୁଶାନ୍ତ କୁମାର ସାମନ୍ତରାୟ, ବିଭିନ୍ନ ବନାଞ୍ଚଳରୁ ଆସିଥିବା ବନପାଳ ଓ ବନରକ୍ଷୀ ବୃନ୍ଦ ଏବଂ କଳାହାଣ୍ଡି ଉତ୍ତର ବନଖଣ୍ଡର ସମସ୍ତ ବନାଞ୍ଚଳରୁ ଆସିଥିବା ବିଭିନ୍ନ ବନ ସଂରକ୍ଷଣ ସମିତିର କର୍ମକର୍ତ୍ତା ବୃନ୍ଦ ଉପସ୍ଥିତ ରହିଥିଲେ । ଉକ୍ତ କର୍ମଶାଳାରେ ଭବାନୀପାଟଣା ଆଞ୍ଚଳିକ ମୂଖ୍ୟ ବନ ସଂରକ୍ଷକ ଶ୍ରୀଯୁକ୍ତ ସୁରେଶ ପନ୍ଥୁ ମହାଶୟ ପୌରହିତ୍ୟ କରିଥିଲେ ଏବଂ ଖଣ୍ଡୀୟ ବନାଧିକାରୀ କଳାହାଣ୍ଡି (ଉ) ବନଖଣ୍ଡ ଶ୍ରୀଯୁକ୍ତ ଲଲିତେନ୍ଦୁ ଜେନା ଅଧ୍ୟକ୍ଷତା କରିଥିଲେ । ବିଭିନ୍ନ ବନ ସଂରକ୍ଷଣ ସମିତିରୁ ଆସିଥିବା କର୍ମକର୍ତ୍ତା ମାନଙ୍କୁ ଜଙ୍ଗଲର ରକ୍ଷଣାବେକ୍ଷଣ, ଜଙ୍ଗଲକୁ ନିଆଁ ଦାଉରୁ ରକ୍ଷା କରିବା, ବନ୍ୟ ଜୀବଜନ୍ତୁଙ୍କୁ କିଭଳି ଭାବରେ ସୁରକ୍ଷା ଦେବା ଏବଂ ନିଜ ନିଜ ଅଞ୍ଚଳରେ ଜଙ୍ଗଲରୁ କାଠ ଚୋରି ବନ୍ଦକରିବା ବିଷୟରେ ପୁଙ୍ଖାନୁପୁଙ୍ଖ ଭାବରେ ଆଞ୍ଚଳିକ ମୁଖ୍ୟ ବନ ସଂରକ୍ଷକ ଭବାନୀପାଟଣା ଆଲୋଚନା କରିଥିଲେ ।

ଉକ୍ତ କର୍ମଶାଳାରେ କଳାହାଣ୍ଡି (ଉ) ବନଖଣ୍ଡ ଅଧିକାରୀ ଶ୍ରୀଯୁକ୍ତ ଲଲିତେନ୍ଦୁ ଜେନା ମହାଶୟ ଜଙ୍ଗଲ ଗୁଡିକୁ କିଭଳି ଭାବରେ ବନ ବିଭାଗ ଓ ବନ ସଂରକ୍ଷଣ ସମିତି ମାନଙ୍କୁ ନେଇ ମିଳିତ ସହଯୋଗରେ ମିଶ୍ରିତ ବନ ପରିଚାଳନା କରାଯାଇପାରିବ ଏବଂ ବନବିଭାଗ ତରଫରୁ ଜଙ୍ଗଲକୁ ନିଆଁ ଦାଉରୁ ରକ୍ଷା କରିଥିବା ବିଭିନ୍ନ ବନ ସଂରକ୍ଷଣ ସମିତିକୁ ନିଆଁ ଲିଭାଇଥିବା ପାଇଁ ସରକାରୀ ଅନୁଦାନ ଦିଆଯାଇଥିବା ଏବଂ ଜଙ୍ଗଲରେ ନିଆଁ ଲିଭାଇବା ପାଇଁ ବନଖଣ୍ଡର ବିଭିନ୍ନ ଜାଗାରେ ନିଆଁ ଲିଭାଳି ଦଳ ଗଠନ କରଯାଇଥିବା ବିଷୟରେ କହିଥିଲେ । ଉକ୍ତ କର୍ମଶାଳାରେ ବନବିଭାଗୀୟ କର୍ମକର୍ତ୍ତା ଓ ଉପସ୍ଥିତ ଥିବା ବିଭିନ୍ନ ବନ ସଂରକ୍ଷଣ ସମିତିର ସଭ୍ୟମାନଙ୍କ ଦ୍ୱାରା ନିମ୍ନଲିଖିତ ପ୍ରସ୍ତାବ ଗୁଡିକ ଆଗତ ଓ ଗୃହୀତ ହୋଇଥିଲା ।

ପ୍ରସ୍ତାବ ନଂ.୧

ସମସ୍ତ ବନସଂରକ୍ଷଣ ସମିତିର କର୍ମକର୍ତ୍ତା ମାନେ ନିଜ ନିଜର ଜଙ୍ଗଲକୁ କିଭଳି ଭାବରେ ରକ୍ଷଣା ବେକ୍ଷଣ କରୁଛନ୍ତି ଏହି ବିଷୟରେ ନିଜ ନିଜର ପ୍ରତିକ୍ରିୟା ଉପସ୍ଥାପନ କରିଥିଲେ । ତନ୍ମଧ୍ୟରୁ ଅନେକ ବନ ସଂରକ୍ଷଣ ସମିତି ଠେଙ୍ଗା ପହରା, ଜଗୁଆଳି ନିଯୁକ୍ତି ଏବଂ ସାମାଜିକ କଟକଣା କରି ନିଜ ଅଞ୍ଚଳର ଜଙ୍ଗଲଗୁଡିକୁ ଏହିଭଳି ଭାବରେ ଜଙ୍ଗଲ ରକ୍ଷଣା ବେକ୍ଷଣ କରୁଥିବା ପ୍ରକାଶ କରିଥିଲେ ।

ପ୍ରସ୍ତାବ ନଂ-୨

ସମସ୍ତ ବନସଂରକ୍ଷଣ ସମିତି ଗୁଡିକରେ ନିୟମାନୁସାରେ ସଭା ସମିତି କରି ସର୍ବସାଧାରଣ ସଭା ଏବଂ କର୍ମକର୍ତ୍ତା ମାନଙ୍କୁ ନେଇ ବିଭିନ୍ନ ସଭା ସମିତି କରି ବିଭାଗୀୟ କର୍ମଚାରୀ ମାନେ କିପରି ଭାବେ ଜଙ୍ଗଲ ଗୁଡିକର ତଥା ବନ ସଂରକ୍ଷଣ ସମିତି ଗୁଡିକର ଉନ୍ନତି କରାଯାଇ ପାରିବ ସେହି ବିଷୟରେ ଆଲୋଚନା କରିଥିଲେ ।

ପ୍ରସ୍ତାବ ନଂ.୩

ଉକ୍ତ ସଭାରେ ଉପସ୍ଥିତ ଥିବା ବିଭିନ୍ନ ବନ ସଂରକ୍ଷଣ ସମିତିର କର୍ମକର୍ତ୍ତା ମାନେ ଜଙ୍ଗଲ ବିଭାଗର କାର୍ଯ୍ୟଶୈଳିକୁ ପ୍ରଶଂସା କରିଥିଲେ ଏବଂ ନିଜ ନିଜର ଜଙ୍ଗଲ ସୁରକ୍ଷା କରିବା ପାଇଁ ସରକାରଙ୍କ ଠାରୁ ଆର୍ଥିକ ଅନୁଦାନ ମିଳିବା ପାଇଁ ଅନୁରୋଧ କରିଥିଲେ ।

ପ୍ରସ୍ତାବ ନଂ.୪

ମଦନପୁର ରାମପୁର ବନାଞ୍ଚଳର ମସକାଦାଣ୍ଡି ଗ୍ରାମର ବନ ସଂରକ୍ଷଣ ସମିତିର ସଭାପତି ଶ୍ରୀଯୁକ୍ତ ସିଙ୍ଗମଳ ଭୋଇ ନିଜ ଗ୍ରାମରେ ଗ୍ରାମବାସୀ ମାନଙ୍କ ଦ୍ୱାରା ଜଗାରଖା କରି ଏକ ନୂତନ ଜଙ୍ଗଲ ସୃଷ୍ଟି କରିଥିବା ବିଷୟରେ କରିଥିଲେ ଏବଂ ଏଥିପାଇଁ ବନଖଣ୍ଡ ଅଧିକାରୀଙ୍କ ଦ୍ୱାରା ଗ୍ରାମରେ ଜାଳକାଠ ସଞ୍ଚୟ କରି ପାରୁଥିବା ଚୁଲା ଦିଆଯାଇଥିବା ବିଷୟରେ ଏହି କର୍ମଶାଳାରେ କହିଥିଲେ ।

ପ୍ରସ୍ତାବ ନଂ.୫

କେସିଙ୍ଗା ବନାଞ୍ଚଳରୁ ଆସିଥିବା ଛତାମହୁଲ ବନ ସଂରକ୍ଷଣ ସମିତିରେ ସଭ୍ୟ ଶ୍ରୀଯୁକ୍ତ ଝସକେତନ ମାଝୀ ନିଜ ଗ୍ରାମରେ ଥିବା ଜଙ୍ଗଲକୁ ଠେଙ୍ଗା ପହରା କରି ଜଗାରଖା କରୁଥିବା ବିଷୟରେ ପ୍ରକାଶ କରିଥିଲେ ଏବଂ ଏଥିପାଇଁ ବନ ବିଭାଗ ତରଫରୁ ଉକ୍ତ ଗ୍ରାମକୁ ଆଠ ଗୋଟି ଗୋବର ଗ୍ୟାସ ପ୍ଲାଣ୍ଟ ଦିଆଯାଇଥିବା ବିଷୟରେ କହିଥିଲେ ।

ପ୍ରସ୍ତାବ ନଂ.୬

ବନ ଉନ୍ନୟନ ସଂସ୍ଥା ଦ୍ୱାରା ବୃକ୍ଷ ରୋପଣ କରାଯାଇଥିବା ଗ୍ରାମଗୁଡିକର କର୍ମକର୍ତ୍ତା ମାନେ ନିଜ ନିଜର ସଫଳତା ବିଷୟରେ ଉକ୍ତ କର୍ମଶାଳାରେ ଆଲୋଚନା କରିଥିଲେ । ବନ ଉନ୍ନୟନ ସଂସ୍ଥା ତାଙ୍କ ଗ୍ରାମରେ ବୃକ୍ଷରୋପଣ କରିବାରୁ ତାଙ୍କ ଗ୍ରାମର ଜଙ୍ଗଲ ଗୁଡିକ କିଭଳି ଭାବରେ ରକ୍ଷଣାବେକ୍ଷଣ ହେଉଅଛି ଏବଂ ସରକାରଙ୍କ ତରଫରୁ ଇ.ପି.ଏ. ମାଧ୍ୟମରେ ଗ୍ରାମବାସୀ ମାନଙ୍କୁ ତାଙ୍କର ଅତି ଜରୁରୀ ବ୍ୟବହାର କରିବା ପାଇଁ ବିଭିନ୍ନ ଜିନିଷ ମିଳିଅଛି । ନିକଟ ଅତିତରେ ଏହି ବନଖଣ୍ଡରେ ବନ ଉନ୍ନୟନ ସଂସ୍ଥା ଦ୍ୱାରା ବୃକ୍ଷ ରୋପଣ କରାଯାଇଥିବା ସବୁ ଗ୍ରାମର ସଭ୍ୟମାନଙ୍କୁ ନେଇ ବିଭିନ୍ନ ବନଖଣ୍ଡକୁ Exposure visit ରେ ଯାଇ ସେଠାରେ ବନଉନ୍ନୟନ ସଂସ୍ଥା କରିଥିବା କାମଗୁଡିକୁ ଦେଖି ଫେରିଛନ୍ତି ।

ପ୍ରସ୍ତାବ ନଂ.୭

ଉକ୍ତ କର୍ମଶାଳାରେ ଉପସ୍ଥିତ ଥିବା କିଛି ବନ ସଂରକ୍ଷଣ ସମିତିରେ କର୍ମକର୍ତ୍ତାମାନେ ନିଜ ନିଜର ସମିତିକୁ ପ୍ରକୃତି ମିତ୍ର ଏବଂ ଉପଖଣ୍ଡ ସ୍ତରିୟ ବିଜୁ ପଟ୍ଟନାୟକ ପୁରସ୍କାର ମିଳିଥିବା ପ୍ରକାଶ କରିଥିଲେ ଏବଂ ନିଜ ନିଜର ବନସଂରକ୍ଷଣ ସମିତିକୁ ବନ ଉନ୍ନୟନ ସଂସ୍ଥା ଜରିଆରେ କିଛି କିଛି ବୃକ୍ଷ ରୋପଣ କାର୍ଯ୍ୟ ମିଳିବାପାଇଁ ଅନୁରୋଧ କରିଥିଲେ ।

ପ୍ରସ୍ତାବ ନଂ.୮

ଭବାନୀପାଟଣା ବନାଞ୍ଚଳର ତେନ୍ତୁଳିପଡା, କନ୍ଧବାନ୍ଦୋପଲା, କୁଚେଇଜୋର, କେସିଙ୍ଗା ବନାଞ୍ଚଳର ଛତାମହୁଲ ଓ ବିଲାଟ, କେଗାଁ ବନାଞ୍ଚଳର ଜାମଝରନ ଓ ଗଣ୍ଡବସା, ମ.ରାମପୁର ବନାଞ୍ଚଳର ମାଣିକେରା ଓ ପରମାନନ୍ଦପୁର, ନର୍ଲା ବନାଞ୍ଚଳର ରେଢାପଦର ଓ ଉଲିସିର୍କା ଗ୍ରାମର ବନସଂରକ୍ଷଣ ସମିତିର ସଭ୍ୟମାନେ ନିଜ ନିଜ ଜଙ୍ଗଲକୁ ରାତିରେ ଜଗାରଖା କରୁଥିବା ହେତୁ ଟର୍ଚଲାଇଟ ଏବଂ ଉକ୍ତ ଜଙ୍ଗଲ ଭିତରେ ଗୋଟିଏ ଗୋଟିଏ ପୋଖରି ଖୋଳିବାପାଇଁ ଏବଂ କିଛି ସଭ୍ୟ ସେମାନଙ୍କ ସମିତିରେ ନୂତନ ସଭାଗୃହ ତିଆରି ପାଇଁ ପ୍ରସ୍ତାବ ଦେଲେ ।

ବିଭିନ୍ନ ବନାଞ୍ଚଳରୁ ଆସି ଏହି କର୍ମଶାଳାକୁ ସାଫଲ୍ୟମଣ୍ଡିତ କରିଥିବା ବନସଂରକ୍ଷଣ ସମିତିର ସଭ୍ୟମାନଙ୍କ ଅନୁରୋଧ କ୍ରମେ ଭବିଷ୍ୟତ କାର୍ଯ୍ୟକ୍ରମ କରିବାପାଇଁ ବନଖଣ୍ଡ ଅଧିକାରୀ ଉକ୍ତ ସଭାରେ ପ୍ରତିଶୃତି ଦେଇଥିଲେ । ଏବଂ ଶେଷରେ ଭବାନୀପାଟଣା ବନାଞ୍ଚଳ ଅଧିକାରୀ ଶ୍ରୀଯୁକ୍ତ ଅଶୋକ କୁମାର ତ୍ରିପାଠୀ ମହାଶୟ ଉକ୍ତ କର୍ମଶାଳାରେ ପୌରହିତ୍ୟ କରିଥିବା ଆଞ୍ଚଳିକ ମୁଖ୍ୟ ବନସଂରକ୍ଷକ, ବନଖଣ୍ଡ ଅଧିକାରୀ, ଉପମୁଖ୍ୟ ବନସଂରକ୍ଷକ ଏବଂ ବିଭିନ୍ନ ବନସଂରକ୍ଷଣ ସମିତିରୁ ଆସିଥିବା ସଭ୍ୟ ଓ ସଭ୍ୟା ତଥା ବିଭାଗୀୟ ଅଧିକାରୀମାନଙ୍କୁ ଧନ୍ୟବାଦ ଜଣାଇବା ପରେ ସଭାକାର୍ଯ୍ୟ ସାଙ୍ଗ କରାଯାଇଥିଲା ।

JMFC MEETING

KALAHANDI NORTH DIVISION, BHAWANIPATNA

Date. 4th July 2015

Sl. No.	Name of the VSS Member	Name of the Range	Name of the VSS
1	[illegible]	Bh. Patna	Dongrigada
2	[illegible]	M. Rampur	Gurukola
3	Ratan Kanjee	M. Rampur	Manikera
4	[illegible]	K. gaon	Jamthaon
5	[illegible]	M. Rampur	Ramudu
6	[illegible]	Bh. Patna	Kucha jor
7	Bijaya Majhi	K. gaon	Gundabanja
8	[illegible]	Kasera	Bersuda
9	[illegible] majhi	Kagoni	Jamjharan
10	[illegible]	M. Rampur	Chudenpani
11	[illegible]	M. Rampur	Kotabahak
12	[illegible]	Kasera	Lenji
13	[illegible]	Bh. Patna	Sorlaguda
14	[illegible]	K. gaon	Ke Gudamund
15	Harischandra Jhamu	M. Rampur	Tad Kina
16	[illegible]	Bh. Patna	Komadla
17	[illegible]	K. gaon	Bendaguda
18	[illegible]	M. Rampur	Kumarpalu
19	[illegible]	M. Rampur	Ramudu
20	[illegible]	M. Rampur	Tendulguda
21	[illegible]	M. Rampur	Pennamendapur
22	[illegible]	M. Rampur	Manikera
23	[illegible]	M. Rampur	Jampalpur
24	[illegible]	Bh. Patna	Dakatahal
25	[illegible]	Bh. Patna	Gannem bahal
26	[illegible]	Bh. Patna	Bendaguda
27	Durga Prasad Nisu	Bh. Patna	Tentulipada
28	[illegible]	Bh. Patna	Bhikasheta
29	[illegible]	Bh. Patna	[illegible]
30	Ajaya Patra	378 Nagla	[illegible]

Sl. No.	Name of the VSS Member	Name of the Range	Name of the VSS
31	[illegible]	Nagla	Sripalli
32	BIMAL Sahu	Nagla	Radhapadar
33	[illegible]	Nagla	Ullgimpa
34	[illegible]	Nagla	Bijimalpadi
35	[illegible]	Nagla	Ulisilaki
36	[illegible]	Nagla	Kisinpada
37	[illegible]	Nagla	Lamak
38	[illegible]	Nagla	Bamkal
39	[illegible]	Bh. Patna	Kapsaar
40	[illegible]	Nagla	Chudupadi
41	[illegible]	Bh. Patna	Dongripadar
42	Sameer Kumar Behera	Kesinga	Pine
43	[illegible]	Bh. Patna	Tupi
44	Bhisma Bemal	Bh. Patna	Sergiguda
45	Prathivaraj Bhoi	Kasinga	Rangeli
46	[illegible]	Kasinga	Bilal
47	[illegible]	Bh. Patna	Kadonia
48	[illegible]	Kasinga	Bijakhamar
49	Bishnu Nayak	Bh. Patna	G. Badapalli
50	[illegible]	Kasinga	Chatamunda
51	[illegible]	Kasinga	Bilal
52	Lambodar Majhi	Kasinga	Dangaimal
53	[illegible]	Kasinga	Dumsamunda
54	[illegible]	Kasinga	Kendasil
55	[illegible]	Kasinga	Tahasil
56	Purna chandra Naik	Kasinga	Chamtawala
57	[illegible]	Bh. Patna	Sakad
58	[illegible]	Bh. Patna	Bahal
59	[illegible]	Kesinga	[illegible]
60	Ashutosh Behera	Bh. Patna	K. Badapalli

APPENDIX – XV

IDENTIFIED WORSHIP PLACES/ SPOTS (SACRED GROOVES) OF KALAHANDI NORTH FOREST DIVISION

Sl. No	Name of the Sub Division	Name of the CD Block	Name of the Gram Panchayat	Name of the Range	Name of the Section	Name of the Beat	Name of the Revenue Village & Community	Extent area in Ha.	GPS Co-Ordinates							Name of the worshipping God/ Goddess/ Others.
									Lattitude				Longitude			
									D	M	S		D	M	S	
1	Bhawanipatna	Biswanathpur	Gindri	Bhawanipatna	Bhatangpadar	Sarlanji	Padponga	0.04	19	54	48.4		83	16	47.8	Dukribudi
2	Bhawanipatna	Bhawanipatna	Mendniipur	Bhawanipatna	Bhatangpadar	Sarlanji	Sarlanji	0.08	19	55	34.2		83	13	35.4	Maa Mailibudi
3	Bhawanipatna	Bhawanipatna	Kalam	Bhawanipatna	Karlapada	Turpi	Kalam	0.03	19	58	12.0		83	01	08.0	Maa Mailibudi
4	Bhawanipatna	Bhawanipatna	Gond Barajhala	Bhawanipatna	Karlapada	Tiljodi	Bhataguda	0.04	19	56	24.5		83	02	10.4	Bastaren Maili
5	Bhawanipatna	Bhawanipatna	Gond Barajhala	Bhawanipatna	Karlapada	Tiljodi	Gond Barajhala	0.03	19	54	59.8		83	03	48.5	Maa Maili
6	Bhawanipatna	Bhawanipatna	Thuapadar	Bhawanipatna	Bh.Patna	Dambarupadar	Dambarupadar	0.40	19	58	02.4		83	10	40.1	Maili Maa
7	Bhawanipatna	Bhawanipatna	Thuapadar	Bhawanipatna	Bh.Patna	Dambarupadar	Tentulikhunti	0.08	19	54	08.1		83	11	11.8	Dukribudi
8	Bhawanipatna	Bhawanipatna	Duarsani	Bhawanipatna	Bh.Patna	Sirliguda	Atangguda	0.60	19	52	08.2		83	09	12.9	Baba Baidyanath
9	Bhawanipatna	Bhawanipatna	Sagada	Bhawanipatna	Bh.Patna	Tikrapada	Sagada	0.16	19	53	50.4		83	02	38.9	Maa Manikeswari
10	Bhawanipatna	Bhawanipatna	Kuliamal	Bhawanipatna	Bh.Patna	Kutrukhamar	Rajnaguda	0.04	19	53	19.1		83	03	21.3	Dharanigudi
11	Bhawanipatna	Bhawanipatna	Kutrkhamar	Bhawanipatna	Bh.Patna	Kutrukhamar	Badli	0.04	19	54	49.0		83	05	00.8	Dharini
12	Bhawanipatna	M.Rampur	Mohangiri	M.Rampur	Mohangiri	Mohangiri	Kutrupala	0.04	20	21	40.0		83	38	59.8	Kunda Devi Temple
13	Bhawanipatna	M.Rampur	Mohangiri	M.Rampur	Mohangiri	Mohangiri	Singhpur	0.08	20	20	16.4		83	39	13.1	Gramya Devi
14	Bhawanipatna	M.Rampur	Manikera	M.Rampur	Mohangiri	Araskupa	Pipalpada	0.08	20	16	15.5		83	35	36.9	Siba Temple
15	Bhawanipatna	M.Rampur	Gochhadengen	M.Rampur	Madanpur	Gochhadengen	Gochhadengen	0.02	20	21	25.2		83	33	52.1	Bastren Gudi
16	Bhawanipatna	M.Rampur	Gochhadengen	M.Rampur	Madanpur	Gochhadengen	Talkana	0.04	20	22	13.1		83	33	30.7	Maligudi
17	Bhawanipatna	M.Rampur	Ainlatara	M.Rampur	Madanpur	Gochhadengen	Kachhadengen	0.04	20	20	14.4		83	33	44.4	Maligudi
18	Bhawanipatna	M.Rampur	Gochhadengen	M.Rampur	Madanpur	Gochhadengen	Teltelkupa	0.04	20	20	32.8		83	34	19.1	Sikelpat
19	Bhawanipatna	M.Rampur	Gochhadengen	M.Rampur	Madanpur	Gochhadengen	Benaguda	0.08	20	20	47.0		83	36	01.5	Maligudi
20	Bhawanipatna	M.Rampur	Gochhadengen	M.Rampur	Madanpur	Gochhadengen	Baliguda	0.04	20	20	37.0		83	35	28.2	Bastren Gudi
21	Bhawanipatna	M.Rampur	D.Karlakhunta	M.Rampur	M.Rampur	Ramud	D.Karlakhunta	0.08	20	35	36.8		83	22	58.4	Masarlabuda
22	Bhawanipatna	Narla	Narla	Narla	Narla	Narla	Narla	0.40	20	03	26.4		83	23	03.2	Thakudunigudi
23	Bhawanipatna	Narla	Mandel	Narla	Narla	Narla	Asurgarh	0.20	20	04	51.2		83	21	01.7	Kalapahad Temple

Sl. No	Name of the Sub Division	Name of the CD Block	Name of the Gram Panchayat	Name of the Range	Name of the Section	Name of the Beat	Name of the Revenue Village & Community	Extent area in Ha.	GPS Co-Ordinates							Name of the worshipping God/ Goddess/ Others
									Lattitude				Longitude			
									D	M	S		D	M	S	
24	Bhawanipatna	Narla	Balsinga	Narla	Narla	Kerbandi	Boringpadar	2.00	20	06	37.6		83	26	17.6	Siba Temple
25	Bhawanipatna	M.Rampur	Urladani	Narla	Harlanga	Harlanga B	Urladani	0.20	20	08	06.5		83	37	45.7	Sahid Rendu Majhi Smruti Pitha
26	Bhawanipatna	M.Rampur	Urladani	Narla	Harlanga	Harlanga A	Urladani	0.16	20	07	21.3		83	38	35.4	Tanini Mandir
27	Bhawanipatna	M.Rampur	Urladani	Narla	Harlanga	Harlanga A	Harlanga	0.20	20	07	22.5		83	38	34.7	Trinath Mandir
28	Bhawanipatna	Biswanathpur	Kamarda	Narla	Kamarda	Kamarda	Kamarda	0.20	20	01	08.7		83	26	23.7	Dharini
29	Bhawanipatna	Biswanathpur	Kamarda	Narla	Kamarda	Kamarda	Mundagaon	0.16	20	00	45.5		83	27	25.8	Dharini
30	Bhawanipatna	Biswanathpur	Kamarda	Narla	Kamarda	Kamarda	Gandarbaru	0.24	20	02	04.4		83	26	36.6	Dharini
31	Bhawanipatna	Kesinga	Kashrupada	Kesinga	Kashrupada	Kashrupada	Rengali	0.10	20	14	38.7		83	16	00.9	Mailia
32	Bhawanipatna	Kesinga	Kashrupada	Kesinga	Kashrupada	Kashrupada	Kashrupada	0.06	20	14	36.4		83	15	05.5	Samalai
33	Bhawanipatna	Kesinga	Kashrupada	Kesinga	Kashrupada	Kashrupada	Ghantsola	0.06	20	13	53.8		83	15	18.3	Jharguda Dahaka
34	Bhawanipatna	Kesinga	Kantesir	Kesinga	Kashrupada	Kashrupada	Kantesir	0.05	20	12	51.8		83	15	10.3	Bhdharaja Bamkhai
35	Bhawanipatna	Narla	Gigina	Kesinga	Rupra Road	Gigina	Taparang	0.00	20	12	03.4		83	20	10.8	Bazargarh Buda
36	Bhawanipatna	Narla	Gigina	Kesinga	Rupra Road	Gigina	Taparang	0.01	20	12	00.8		83	20	13.6	Gramya Devi
37	Bhawanipatna	Narla	Muakuti	Kesinga	Rupra Road	Gigina	Muskuti	0.08	20	10	34.0		83	20	45.5	Siva Mandir
38	Bhawanipatna	Narla	Muakuti	Kesinga	Rupra Road	Gigina	Kendupada	0.01	20	10	22.3		83	20	04.5	Kalapahad
39	Bhawanipatna	Narla	Rupra	Kesinga	Rupra Road	Gigina	Koten	0.01	20	10	22.0		83	19	35.2	Babura
40	Bhawanipatna	Narla	Rupra	Kesinga	Rupra Road	Gigina	Karunapadar	0.01	20	10	49.4		83	18	55.5	Linga
41	Bhawanipatna	Narla	Gigina	Kesinga	Rupra Road	Gigina	Gigina	0.02	20	10	20.7		83	22	11.2	Suruimani
42	Bhawanipatna	Narla	Gigina	Kesinga	Rupra Road	Gigina	Jodabandh	0.02	20	11	06.5		83	21	02.0	Bichitri
43	Bhawanipatna	Narla	Gigina	Kesinga	Rupra Road	Gigina	Taparang	0.01	20	12	39.5		83	19	51.9	Bazargarh Budunga
44	Bhawanipatna	Narla	Gigina	Kesinga	Rupra Road	Gigina	Taparang	0.01	20	12	04.4		83	20	13.7	Dharini
45	Bhawanipatna	Narla	Gigina	Kesinga	Rupra Road	Gigina	Taparang	0.01	20	12	01.6		83	20	07.9	Benden
46	Bhawanipatna	Narla	Tajkarla	Kesinga	Rupra Road	Dampadar	Dongapeta	0.02	20	11	49.7		83	24	00.3	Dokri
47	Bhawanipatna	Narla	Mundapala	Kesinga	Rupra Road	Dampadar	Mundapala	0.00	20	12	40.9		83	23	23.4	Gouda
48	Bhawanipatna	Narla	Tajkarla	Kesinga	Rupra Road	Dampadar	Takarla	0.03	20	12	12.2		83	22	34.9	Basteren
49	Bhawanipatna	Narla	Tajkarla	Kesinga	Rupra Road	Dampadar	Takarla	0.08	20	12	16.3		83	22	04.5	Patdeo

Sl. No	Name of the Sub Division	Name of the CD Block	Name of the Gram Panchayat	Name of the Range	Name of the Section	Name of the Beat	Name of the Revenue Village & Community	Extent area in Ha.	GPS Co-Ordinates							Name of the worshipping God/ Goddess/ Others
									Lattitude				Longitude			
									D	M	S		D	M	S	
50	Bhawanipatna	Narla	Tajkarla	Kesinga	Rupra Road	Dampadar	Khetupada	0.00	20	11	54.1		83	22	12.6	Dharini
51	Bhawanipatna	Narla	Gigina	Kesinga	Rupra Road	Dampadar	Dampadar	0.00	20	10	35.7		83	22	15.9	Tanini
52	Bhawanipatna	Narla	Rupra	Kesinga	Rupra Road	Rupra Road	Rupra	0.01	20	08	40.4		83	21	02.0	Gabada
53	Bhawanipatna	Narla	Rupra Road	Kesinga	Rupra Road	Rupra Road	Chhatamahul	0.01	20	04	20.8		83	19	12.8	Mauli
54	Bhawanipatna	Narla	Rupra Road	Kesinga	Rupra Road	Rupra Road	Baragaon	0.00	20	04	43.1		83	20	10.0	Samalai
55	Bhawanipatna	Narla	Rupra Road	Kesinga	Rupra Road	Rupra Road	Balbaspur	0.12	20	05	19.8		83	19	19.5	Agni Bhairaba
56	Bhawanipatna	Kesinga	Paralsinga	Kesinga	Rupra Road	Rupra Road	Saurapadar	0.12	20	06	53.9		83	19	41.5	Basteren
57	Bhawanipatna	Narla	Rupra	Kesinga	Rupra Road	Rupra Road	Karme	0.16	20	07	26.3		83	20	08.9	Kusuleswara
58	Dharmagarh	Golamunda	Dhamanpur	Kegaon	Daspur	Daspur	Kamalabari	4.82	19	59	02.2		82	53	18.2	Nrusinghanath
59	Dharmagarh	Golamunda	Dhamanpur	Kegaon	Daspur	Daspur	Deojhar	0.50	19	59	40.0		82	53	06.1	Budharaja
60	Dharmagarh	Golamunda	Daspur	Kegaon	Daspur	Daspur	Daspur	1.50	19	58	04.6		82	52	07.7	Shiva Temple
61	Dharmagarh	Golamunda	Brundabahal	Kegaon	Golamunda	Antarla	Brundabahal	5.00	19	59	11.4		82	49	55.8	Shiva Temple
62	Dharmagarh	Golamunda	Fraang	Kegaon	Daspur	Daspur	Gadlajharan	1.50	19	58	22.4		82	54	24.7	Shiva Temple
63	Dharmagarh	Golamunda	Manjhari	Kegaon	Golamunda	Golamunda	Udysurung	1.50	20	05	52.7		82	49	57.2	Bhandar Gharen
64	Dharmagarh	Golamunda	Manjhari	Kegaon	Golamunda	Golamunda	Udysurung	1.00	20	05	55.3		82	49	53.6	Mauli Pitha
65	Dharmagarh	Golamunda	Chapria	Kegaon	Kegaon	Turechada	Chapria	1.50	20	05	48.2		82	52	44.6	Phulbaren Mauli Pitha
66	Dharmagarh	Golamunda	Chapria	Kegaon	Kegaon	Turechada	Chapria	1.98	20	05	44.7		82	51	47.6	Bastaren Maa Mauli
67	Dharmagarh	Dharmagarh	Tipiguda	Kegaon	Kegaon	Turechada	Tipiguda	1.00	20	03	36.0		82	51	37.8	Thakurani Temple
68	Dharmagarh	Golamunda	Kegaon	Kegaon	Kegaon	Kegaon	Sanhchergaon	1.50	20	05	49.9		82	52	58.8	Bhandar Gharen
69	Dharmagarh	Golamunda	Nuagaon	Kegaon	Kegaon	Nuagaon	Karanjkote	0.99	20	02	04.3		82	55	05.4	Budharaja Pitha
70	Dharmagarh	Golamunda	Nuagaon	Kegaon	Kegaon	Nuagaon	Balabhadrapita	1.98	20	05	05.3		82	59	04.2	Shiva Temple

APPENDIX- XVI

YIELD TABLE

Name of the Felling Series: - Urladani East

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Proposed Yield(Trees/ha.)		Proposed Yield (No. of Trees)	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	I	Urladani RF	1	288.15	539.47	2628	8681	1749	8121	8.75	12.09	0.8	3.6	29	131
2			2	251.32		3642	7768	2608	9195	9.38	15.05	1.4	4.7	43	146
3	II		3	416.75	416.75	11087	16006	8053	18862	9.51	14.99	2.5	5.8	132	300
4	III		4	423.75	610.67	4134	12819	2480	14183	7.92	14.14	0.8	4.3	41	227
5			5	186.92		1839	4205	1242	5042	8.87	15.23	0.9	3.4	20	80
6	IV		6	355.86	721.10	4879	13867	3012	16044	8.14	14.74	1.1	5.7	50	255
7			7	365.24		12022	14850	6338	17693	7.00	15.14	2.3	6.2	105	281
8	V		8	287.12	589.49	2347	9929	1367	10429	7.70	13.47	0.6	4.7	23	167
9			9	302.37		3743	12395	1950	13775	6.92	14.20	0.9	5.8	32	220
10	VI		15	222.63	561.91	1938	8262	1020	8661	6.98	13.45	0.6	5.0	17	139
11			31	339.28		4229	14024	2357	14859	7.38	13.58	0.9	5.6	39	238
12	VII		13	348.46	662.17	2599	18483	2455	17120	12.20	11.97	0.9	6.4	40	277
13			14	313.71		3974	12861	2212	14426	7.37	14.32	0.9	5.9	37	230
14	VIII		12	301.20	569.65	4399	13023	2456	14041	7.39	13.80	1.1	6.0	41	225
15			16	268.45		1373	10399	767	11139	7.40	13.72	0.4	5.3	13	178
16	IX		10	429.35	904.02	4362	21282	3377	19210	10.11	11.69	1.0	5.8	55	311
17			11	474.67		6856	14524	4378	18345	8.41	15.98	1.2	4.9	72	290
18	X	Dengsur	1	255.06	255.06	2467	8124	1586	7810	8.47	12.40	0.8	3.9	26	126

Name of the Felling Series: - UrladaniWest

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Proposed Yield(Trees/ha.)		No. of trees proposed for felling	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
19	I	Urladani RF	29	104.47	495.71	959	3735	593	4193	8.16	14.33	0.7	5.1	10	67
20			30	252.21		2656	8973	1659	9754	8.23	13.91	0.9	4.9	27	156
21			32	139.03		804	4330	628	3978	10.19	11.88	0.6	3.7	10	64
22	II		33	241.72	539.28	1337	7140	1038	6573	10.13	11.90	0.6	3.5	17	106
23			34	297.56		1709	10064	1227	9066	9.41	11.66	0.5	3.9	20	147
24	III		27	227.27	478.07	2094	9247	1116	10713	7.07	14.75	0.7	6.0	19	171
25			28	250.80		2122	9362	1202	10196	7.50	13.93	0.6	5.2	20	163
26	IV		25	373.37	745.83	2653	14565	1486	14243	7.42	12.60	0.5	4.9	25	229
27			26	372.46		3650	14830	2065	15709	7.49	13.58	0.7	5.4	34	252
28	V		22	204.04	707.23	693	2967	379	2743	7.25	11.95	0.2	1.7	6	44
29			23	271.92		1200	7031	746	6076	8.20	11.22	0.4	2.9	12	99
30			24	231.27		472	4635	262	3479	7.35	9.81	0.2	2.0	4	57
31	VI		19	284.69	596.98	2344	11222	2584	15352	14.09	17.19	1.2	6.8	41	241
32			21	312.29		2567	12096	1356	12614	7.01	13.38	0.6	5.2	22	202
33	VII		17	694.32	694.32	6582	18120	3918	18534	7.86	13.14	0.7	3.4	65	298
34	VIII		18	197.40	445.26	1381	6302	757	6478	7.26	13.20	0.5	4.2	13	104
35			20	247.86		3291	11187	1921	12392	7.72	14.15	1.0	6.4	32	198
36	IX	Porgel	1	528.48	956.81	4171	13409	2586	14669	8.18	13.99	0.6	3.5	43	234
37			2	428.33		3991	10632	2602	11761	8.58	14.14	0.8	3.5	43	188
38	X		3	448.30	755.19	1685	9197	706	12424	5.60	17.00	0.2	3.5	12	195
39			4	306.89		1697	7414	1233	6591	9.52	11.52	0.5	2.8	20	107

Name of the Felling Series: - Taparang

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Proposed Yield(Trees/ha.)		No. of trees proposed for felling	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
40	I	Taprang RF	11	411.39	691.96	3310	12064	2635	14082	10.38	14.86	0.8	4.4	43	224
41			13	280.57		3645	10549	3397	12851	12.04	15.46	1.6	5.8	55	204
42	II	Taprang RF	10	399.40	881.50	840	3055	868	3467	13.27	14.47	0.3	1.1	14	55
43			12	482.10		5293	13510	5522	15783	13.38	14.87	1.5	4.2	89	251
44	III		8	479.64	603.09	3831	14191	3446	15922	11.65	14.32	0.9	4.2	56	254
45			9	123.45		2287	6782	2108	7453	11.92	14.05	2.2	7.7	34	119
46	IV		6	276.49	441.20	2319	7445	1931	8193	10.83	14.07	0.9	3.8	31	131
47			7	164.71		2087	6542	2174	6881	13.37	13.49	1.7	5.4	35	110
48	V		16	301.24	642.65	1986	10394	2076	11685	13.41	14.35	0.9	5.0	33	186
49			17	341.41		3252	10328	3013	13514	11.98	16.51	1.1	5.0	49	213
50	VI		14	279.42	658.14	3339	9824	3236	12329	12.49	15.89	1.5	5.6	52	195
51			15	378.72		4456	13339	4136	17926	12.00	16.92	1.4	6.0	67	282
52	VII		18	410.19	845.83	6783	16822	5348	17293	10.28	13.20	1.7	5.4	87	278
53			19	435.64		8938	9440	5937	13526	8.73	17.93	1.8	3.9	98	212
54	VIII		20	437.69	437.69	4875	14205	4797	17631	12.67	15.72	1.4	5.1	77	279
55	IX		1	451.37	801.31	4070	13885	4148	15049	13.10	13.87	1.2	4.3	67	241
56			2	349.94		2196	9159	1808	10090	10.71	14.08	0.7	3.7	29	161
57	X		3	214.38	884.44	2814	8921	2508	9747	11.55	13.97	1.5	5.8	41	156
58			4	313.87		4148	11013	3648	11813	11.40	13.74	1.5	4.8	59	189
59			5	356.19		3743	11496	3281	12502	11.37	13.91	1.2	4.5	53	200

Name of the Felling Series: - Telen

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Proposed Yield(Trees/ha.)		Proposed Yield (No. of Trees)	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
60	I	Telen RF	1	628.41	628.41	5578	20458	5272	19446	12.20	12.27	1.1	4.0	85	314
61	II		2	426.90	841.40	3370	11999	3533	13531	13.45	14.39	1.1	4.0	57	216
62			3	414.50		3078	12925	2889	14277	12.12	14.12	0.9	4.4	47	228
63	III	Bidabaru PRF	2	495.70	495.70	4656	16617	4289	17917	11.91	13.80	1.1	4.6	69	287
64	IV	Jerka RF	2	377.13	377.13	4133	11707	3642	12072	11.42	13.24	1.3	4.1	59	194
65	V		1	406.47	637.66	2668	10901	2310	12042	11.24	14.12	0.7	3.8	37	192
66			3	231.19		1093	4990	1153	5643	13.52	14.43	0.6	3.1	18	90
67	VI	Bidabaru PRF	3	436.97	436.97	5113	17088	5020	19237	12.65	14.37	1.5	5.6	81	307
68	VII		1	531.95	531.95	3343	13859	3442	15310	13.22	14.12	0.8	3.7	55	245
69	VIII	Telen RF	6	408.34	408.34	2819	11607	2883	13018	13.14	14.32	0.9	4.1	46	208
70	IX		5	372.38	372.38	4142	14267	3786	13651	11.83	12.34	1.3	4.7	61	220
71	X		4	409.47	409.47	3501	11627	3645	13247	13.36	14.53	1.1	4.1	58	211

Name of the Felling Series: - Benaguda

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Proposed Yield(Trees/ ha.)		Proposed Yield (No. of Trees)	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
72	I	Benaguda	2	613.00	868.45	2000	8833	1796	10122	11.63	14.61	0.4	2.1	29	161
73			3	255.45		2359	8886	1964	10185	10.83	14.61	1.0	5.1	32	162
74	II		4	538.28	538.28	6525	20878	6452	23230	12.73	14.21	1.5	5.5	104	371
75	III		5	504.95	668.52	6724	18591	6224	28790	11.97	19.24	1.6	7.1	101	447
76			6	163.57		2041	6281	1623	7054	10.37	14.34	1.3	5.5	26	113
77	IV		7	460.54	460.54	4994	20529	6586	17547	16.63	11.10	1.8	4.9	104	285
78	V		13	383.49	383.49	4417	14060	3577	16026	10.55	14.53	1.2	5.3	58	255
79	VI		1	180.34	456.99	1030	6421	933	7377	11.72	14.64	0.7	5.2	15	118
80			14	276.65		3438	10640	2827	12068	10.70	14.47	1.3	5.6	46	192
81	VII		11	335.95	569.69	2699	11386	2311	13176	11.12	14.74	0.9	5.0	38	210
82			12	233.74		2625	8771	2172	9692	10.76	14.12	1.2	5.3	35	155
83	VIII	Benaguda	10	402.23	402.23	2994	12662	2675	14111	11.57	14.23	0.9	4.5	43	225
84			9	229.85	229.85	3118	8897	2592	9352	10.81	13.48	1.5	5.2	42	150
85			8	350.25	350.25	2130	11168	1980	12900	12.01	14.71	0.7	4.7	32	205

Name of the Felling Series: - Sunamukhi

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Proposed Yield(Trees/ha.)		Proposed Yield (No. of Trees)	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
86	I	Sunamukhi	1	181.45	510.25	1645	5727	1246	6277	9.90	14.01	0.9	4.4	20	100
87			2	328.80		1561	7833	1401	8963	11.62	14.59	0.6	3.5	23	143
88	II		3	412.83	412.83	1998	9704	1695	10760	11.02	14.17	0.5	3.3	28	172
89	III		4	431.15	631.39	2002	8896	1791	10797	11.59	15.40	0.5	3.2	29	171
90			5	200.24		874	4832	764	5464	11.34	14.43	0.5	3.5	12	87
91	IV		6	324.50	785.23	635	7316	565	8518	11.53	14.82	0.2	3.3	9	136
92			7	460.73		1806	10574	1731	12303	12.36	14.81	0.5	3.4	28	196
93	V	Ramud PRF	1	158.38	547.09	738	4648	643	5475	11.30	14.98	0.5	4.4	10	87
94			2	139.26		556	4286	632	4859	14.50	14.46	0.6	4.5	10	77
95			3	149.99		315	3750	357	4304	14.46	14.63	0.3	3.7	6	69
96			4	99.46		698	2821	740	3339	13.59	15.05	1.0	4.3	12	53
97	VI	Manikera PRF	1	66.40	66.40	413	974	346	995	10.89	13.12	0.7	1.9	6	16
98	VII	Satami RF	1	313.22	640.77	3284	11094	3039	12035	11.96	13.88	1.3	4.9	49	192
99			2	327.55		3865	11806	3434	12368	11.51	13.44	1.4	4.8	56	198
100	VIII		3	304.34	768.13	2355	8763	2359	9979	12.89	14.52	1.0	4.2	38	159
101			4	463.79		4725	23558	3160	18577	8.79	10.29	0.9	5.2	52	303
102	IX		5	485.33	485.33	8263	16251	9888	16833	15.20	13.30	2.6	4.5	157	270
103	X	Talnuagaon PRF	1	177.47	177.47	3320	11188	3762	11707	14.45	13.42	2.7	8.5	60	188

Name of the Felling Series: - Sulia

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Proposed Yield(Trees/ha.)		Proposed Yield (No. of Trees)	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
104	I	Sulia PRF	9	534.20	534.20	3099	13034	3352	14333	13.84	14.06	0.8	3.4	54	229
105	II		7	723.49	723.49	5658	20011	5715	22054	12.99	14.09	1.0	3.9	92	352
106	III		6	845.37	845.37	6953	23099	4761	17773	8.99	10.05	0.7	2.7	78	290
107	IV		3	818.95	818.95	1987	26659	1837	27580	11.95	13.28	0.3	4.3	30	443
108	V		4	620.61	620.61	4387	20877	4503	19737	13.18	12.21	0.9	4.1	72	319
109	VI		1	160.46	160.46	1006	4641	939	5396	12.06	14.80	0.8	4.3	15	86
110	VII		2	503.89	503.89	2686	8665	2659	15723	12.74	22.18	0.7	3.8	43	240
111	VIII		5	723.96	723.96	4329	20364	4378	23072	13.00	14.45	0.8	4.1	70	368
112	IX		8	686.41	686.41	5550	17573	5925	18695	13.68	13.63	1.1	3.5	95	299
113	X	Mudramaska PRF	1	750.00	750.00	4871	20758	5137	22966	13.52	14.14	0.9	3.9	82	367

Name of the Felling Series: -Pongabaju

Sl.No	Coupe No.	Name of the Forest Block	Compartment		Coupe area in ha	Exploitable(Trees/ ha.)		Approach class (Trees/ha.)		Available Harvest(Yield in %)		Proposed Yield(Trees/ha.)		Proposed Yield (No. of Trees)	
			No.	Area in ha.		Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal	Sal	Non-Sal
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
114	I	Pongabaju	5	413.80	413.80	4879	15051	3610	15380	9.68	13.13	1.1	4.8	59	247
115	II		1	580.51	580.51	5374	14663	5806	15856	13.83	13.84	1.3	3.5	93	254
116	III		2	340.22	340.22	5966	10824	6178	13687	13.29	16.00	2.3	5.1	99	216
117	IV		4	521.22	521.22	4500	12940	5085	14842	14.42	14.62	1.2	3.6	81	236
118	V		3	476.16	476.16	2863	11370	4622	11520	19.98	13.02	1.2	3.1	72	185
119	VI	Puijhari	1	575.43	575.43	4696	16430	4968	18312	13.56	14.23	1.1	4.1	80	292
120	VII		2	409.33	409.33	3803	11078	4158	12619	13.98	14.53	1.3	3.9	66	201
121	VIII		3	758.49	758.49	8668	25002	8539	26492	12.69	13.58	1.4	4.5	137	424
122	IX		4	507.96	507.96	5463	15373	5541	16024	13.04	13.37	1.4	4.0	89	257
123	X	Pudrimahul	1	303.00	303.00	3163	8596	3052	9046	12.44	13.49	1.3	3.8	49	145

APPENDIX-XVII

CARBON STOCK CALCULATION FOREST BLOCK WISE OF KALAHANDI NORTH DIVISION

Sl No.	FB Name	Range	> 70 %	40-70%	10-40%	<10%/ NF	TOTAL	AGB in MT	BGB in MT	DEAD WOOD in MT	LITTER in MT	SOC in MT	TOTAL In MT
			VDF	MDF	OF								
1	ALMA Total	Bhawanipatna	0.00	105.79	1,070.39	180.01	1,356.19	5,117.46	6,833.08	117.49	515.15	49138.9781	61,722.17
2	BHALU Total	Bhawanipatna	0.00	0.00	21.31	28.37	49.68	355.19	112.09	1.92	8.95	881.8078	1,359.96
3	BRAHMANI Total	Bhawanipatna	0.00	601.54	2,957.78	2,279.11	5,838.43	44,818.15	22,397.43	386.51	1,615.22	149949.4838	2,19,166.79
4	DHANGADA Total	Bhawanipatna	0.00	0.00	168.54	67.55	236.09	845.73	886.52	15.17	70.79	6974.1852	8,792.39
5	DHANUPANCHAN Total	Bhawanipatna	103.88	101.09	422.27	61.41	688.65	6,773.42	4,742.79	101.85	893.43	27372.2203	39,883.72
6	GUNDI Total	Bhawanipatna	259.42	1,088.81	4,336.19	1,209.79	6,894.21	52,782.01	38,615.07	716.98	4,128.01	242465.1165	3,38,707.18
7	KADALIGHATI Total	Bhawanipatna	0.00	55.34	941.96	700.16	1,697.46	10,264.06	5,583.93	95.84	429.93	41513.4302	57,887.19
8	KANAMANJUR Total	Bhawanipatna	0.00	276.20	1,183.34	453.47	1,913.01	13,154.18	9,364.76	161.74	668.25	61619.3312	84,968.26
9	KUTRUKHAI Total	Bhawanipatna	0.00	0.00	138.68	157.11	295.79	1,967.02	729.46	12.48	58.25	5738.5784	8,505.78
10	MADAKHOLA 'A' Total	Bhawanipatna	0.00	96.67	574.75	36.23	707.65	3,070.46	4,122.32	71.06	301.33	28211.6077	35,776.78
11	MADAKHOLA 'B' RF Total	Bhawanipatna	0.00	98.68	195.02	292.27	585.97	6,330.49	2,147.80	37.29	143.09	12590.4584	21,249.12
12	PORDHAR Total	Bhawanipatna	0.00	53.95	747.96	183.46	985.37	3,757.35	4,547.68	78.11	347.59	33422.0343	42,152.76
13	SINANGA Total	Bhawanipatna	0.00	133.06	728.55	313.52	1,175.13	7,527.20	5,345.07	92.18	388.49	36242.8776	49,595.82
14	THUAPADAR	Bhawanipatna	151.75	2,028.81	5,136.71	1,993.12	9,310.39	84,647.80	52,091.28	931.80	4,369.79	313192.0884	4,55,232.76

	BHAWANIPATNA Total		**515.05**	**4,639.93**	**18,623.44**	**7,955.59**	**31,734.01**	**2,41,410.36**	**1,57,519.11**	**2,820.42**	**13,938.27**	**1009311.326**	**14,24,999.48**
Sl No.	**FB Name**	**Range**	**> 70 %**	**40-70%**	**10-40%**	**<10%/ NF**	**TOTAL**	**AGB**	**BGB**	**DEAD WOOD**	**LITTER**	**SOC**	TOTAL
			VDF	**MDF**	**OF**								
15	ADABARI Total	Kegaon	0.00	67.08	349.43	477.32	893.83	7,791.90	2,600.70	44.86	188.35	17532.3482	28,158.17
16	AMMUDA Total	Kegaon	0.00	0.00	12.13	227.73	239.86	2,851.18	63.80	1.09	5.09	501.9394	3,423.11
17	BANAKDEI Total	Kegaon	0.00	0.00	2.06	175.84	177.90	2,201.52	10.84	0.19	0.87	85.2428	2,298.65
18	BISIBERNI Total	Kegaon	0.00	16.14	66.08	113.81	196.03	1,861.81	531.09	9.18	37.76	3473.7638	5,913.60
19	CHURA A Total	Kegaon	0.00	342.35	2,028.06	5,380.29	7,750.70	76,628.65	14,560.12	251.00	1,064.04	99604.1763	1,92,107.97
20	CHURA B Total	Kegaon	0.00	454.28	999.98	871.31	2,325.57	23,206.16	10,425.06	180.85	701.65	62189.7392	96,703.46
21	DAKA Total	Kegaon	0.00	26.58	107.24	182.22	316.04	3,000.92	866.30	14.97	61.52	5655.221	9,598.92
22	GHATUAL Total	Kegaon	0	0.00	35.52	205.66	241.18	2,574.86	186.84	3.20	14.92	1469.8176	4,249.63
23	GOELBINDHA	Kegaon	0.00	0.00	0.03	101.60	101.63	1,272.03	0.16	0.00	0.01	1.2414	1,273.45
24	GOJIA Total	Kegaon	0	74.97	159.90	141.07	375.94	3,795.63	1,693.48	29.39	113.64	10051.0377	15,683.18
25	JAYANTAPUR	Kegaon	0.00	0.00	63.52	167.89	231.41	2,101.98	334.12	5.72	26.68	2628.4576	5,096.95
26	KANKERI A Total	Kegaon	0.00	0.00	2.49	24.02	26.51	300.73	13.10	0.22	1.05	103.0362	418.13
27	KANKERI B Total	Kegaon	0.00	0.00	3.20	22.68	25.88	283.95	16.83	0.29	1.34	132.416	434.83
28	KUMKOT Total	Kegaon	0.00	3.27	352.40	4,591.29	4,946.96	57,571.47	1,890.80	32.37	150.04	14732.1107	74,376.79
29	LINI Total	Kegaon	0.00	0.00	28.99	105.93	134.92	1,326.24	152.49	2.61	12.18	1199.6062	2,693.12
30	MASIGAON Total	Kegaon	0	0.00	31.26	15.97	47.23	199.94	164.43	2.81	13.13	1293.5388	1,673.85
31	NAGESWAR Total	Kegaon	0.00	398.27	1,808.03	859.35	3,065.65	21,540.23	14,038.57	242.38	1,006.30	93061.0301	1,29,888.51
32	PATRAMARA Total	Kegaon	0.00	0.00	30.45	110.74	141.19	1,386.46	160.17	2.74	12.79	1260.021	2,822.18
33	SIKUAN Total	Kegaon	0.00	0.00	3.26	12.23	15.49	153.12	17.15	0.29	1.37	134.8988	306.83
34	SINDABHADI Total	Kegaon	0.00	0.00	59.21	5.04	64.25	63.10	311.44	5.33	24.87	2450.1098	2,854.85

	KEGAON Total		**0.00**	**1,382.94**	**6,143.24**	**13,792.00**	**21,318.18**	**2,10,112.03**	**48,037.47**	**829.48**	**3,437.58**	**317559.7526**	**5,79,976.31**
Sl No.	**FB Name**	**Range**	**> 70 %**	**40-70%**	**10-40%**	**<10%/ NF**	**TOTAL**	**AGB**	**BGB**	**DEAD WOOD**	**LITTER**	**SOC**	TOTAL
			VDF	**MDF**	**OF**								
35	BAZARGARH Total	Kesinga	0.00	926.06	5,750.66	1,138.91	7,815.63	39,327.60	40,777.77	702.77	2,989.43	280385.1194	3,64,182.70
36	NANGALGUDA Total	Kesinga	7.86	267.94	1,052.39	109.19	1,437.38	8,867.47	8,685.88	151.60	657.57	56220.8102	74,583.33
	KESINGA Total		**7.86**	**1,194.00**	**6,803.05**	**1,248.11**	**9,253.02**	**48,195.19**	**49,463.65**	**854.38**	**3,647.00**	**336605.9296**	**4,38,766.15**
37	BENAGUDA Total	M Rampur	928.99	2,305.72	527.10	1,243.31	5,005.12	1,26,395.53	27,819.03	2,282.13	11248.2175	214030.019	381774.9252
38	BHATEL Total	M Rampur	0.00	0.00	8.14	40.89	49.03	170.78	37.61	2.04	14.3264	447.8628	672.6082
39	BIDABARU(HARLANGA) Total	M Rampur	0.00	460.31	694.31	674.60	1,829.22	29,163.05	6,420.68	435.95	2768.6272	64305.1163	103093.4276
40	CHANDANPINDA Total	M Rampur	19.10	95.54	78.55	9.43	202.62	5,545.65	1,220.77	91.29	512.1694	10855.7164	18225.5887
41	DENGEN Total	M Rampur	11.32	27.09	218.29	272.22	528.92	5,953.24	1,310.79	80.20	506.5692	14207.9041	22058.7052
42	GOCHHADENGAN Total	M Rampur	25.62	33.99	117.28	193.54	370.43	4,702.79	1,035.28	71.75	391.5866	9877.0389	16078.4479
43	JERKA Total	M Rampur	81.87	281.23	241.72	408.92	1,013.74	17,710.08	3,898.43	294.41	1597.1399	34030.8331	57530.8993
44	KARLA Total	M Rampur		37.72	81.57	134.00	253.29	2,907.44	640.14	41.89	270.3024	6627.0826	10486.8567
45	KUTIGUDUM Total	M Rampur	4.45	98.22	170.71	260.68	534.06	6,898.30	1,518.76	102.67	642.7953	15222.4894	24385.0129
46	MANIKERA Total	M Rampur	3.71	17.79	6.48	4.47	32.45	868.69	191.21	15.10	81.4559	1582.1387	2738.5965
47	MUDRAMASKA Total	M Rampur	0.00	113.00	394.21	300.46	807.67	11,853.76	2,609.99	162.96	1073.4896	28097.6642	43797.8623

48	PODGUDI Total	M Rampur		4.04	63.92	201.15	269.11	1,469.15	323.51	18.28	126.0736	3745.9868	5683.0028
Sl No.	**FB Name**	**Range**	**> 70 %**	**40-70%**	**10-40%**	**<10%/ NF**	**TOTAL**	**AGB**	**BGB**	**DEAD WOOD**	**LITTER**	**SOC**	TOTAL
			VDF	**MDF**	**OF**								
49	PONGABAJU	M Rampur	252.45	258.01	1,832.31	440.28	2,783.05	58,097.21	12,790.68	832.35	4791.0657	130193.5723	206704.8816
50	PUIJHARI Total	M Rampur	415.22	370.07	1,129.12	384.67	2,299.08	54,295.61	11,951.82	866.92	4380.8458	107368.0045	178863.1975
51	PUTRIMAHUL Total	M Rampur	16.54	93.86	141.33	51.20	302.93	6,693.15	1,473.49	103.72	609.9262	14065.044	22945.3233
52	RAMUD Total	M Rampur	16.29	60.64	157.76	336.48	571.17	5,973.08	1,315.02	88.67	526.5313	13070.5114	20973.8066
53	SADEL-A Total	M Rampur	4.28	10.35	81.46	165.54	261.63	2,231.76	491.39	30.12	190.0012	5318.9153	8262.1765
54	SADEL-B Total	M Rampur	0.00	19.41	83.39	220.53	323.33	2,365.01	520.74	31.91	211.984	5688.8589	8818.511
55	SATAMI Total	M Rampur	566.61	659.86	241.47	427.58	1,895.52	51,742.63	11,387.51	946.44	4211.6265	83807.6962	152095.8993
56	SULIA Total	M Rampur	465.08	1,101.57	2,236.61	1,954.22	5,757.48	1,02,992.75	22,672.90	1,605.62	8925.9804	212698.2905	348895.5356
57	SUNAMUKHI Total	M Rampur	15.78	910.05	617.39	800.65	2,343.87	42,527.73	9,362.29	687.28	4188.085	86499.6009	143264.9834
58	TALA NUAGAON Total	M Rampur	69.97	0.05	223.46	106.92	400.40	7,869.91	1,732.43	118.87	587.2745	16385.2521	26693.7401
59	TAPRANG Total	M Rampur	2,826.41	1,481.02	1,392.51	1,398.50	7,098.44	2,04,638.34	45,035.02	3,736.08	15256.2005	325723.4166	594389.0493
60	TELEN Total	M Rampur	212.83	424.11	1,293.03	786.71	2,716.68	50,249.42	11,062.39	756.55	4290.2815	107627.3173	173985.9534
61	TURCHI Total	M Rampur	12.38	53.45	72.75	92.86	231.44	3,783.87	832.99	59.80	341.9246	7757.0941	12775.6662

	MADANPUR RAMPUR Total		**5,990.65**	**9,020.82**	**12,294.56**	**11,215.73**	**38,521.76**	**8,16,265.11**	**1,79,672.69**	**13,607.09**	**68542.4813**	**1537991.166**	**2616078.544**
Sl No.	**FB Name**	**Range**	**> 70 %**	**40-70%**	**10-40%**	**<10%/ NF**	**TOTAL**	**AGB**	**BGB**	**DEAD WOOD**	**LITTER**	**SOC**	TOTAL
			VDF	**MDF**	**OF**								
63	BADIBAHAL Total	Narla	0.00	0.00	29.24	45.47	74.71	613.46	135.09	7.31	51.4624	1608.7848	2416.1012
64	DENGSUR Total	Narla	2.65	61.75	99.52	121.35	285.27	4,166.46	917.30	62.46	389.9757	9132.2459	14668.4461
65	JAMGUDA Total	Narla	0.00	0.00	93.99	5.32	99.31	1,971.91	434.23	23.50	165.4224	5171.3298	7766.3937
66	KAMARDA Total	Narla	0.00	0.76	97.99	199.97	298.72	2,079.93	458.02	24.93	175.016	5434.5094	8172.4045
67	KAMEI Total	Narla	0.00	0.00	35.72	106.58	142.30	749.41	165.03	8.93	62.8672	1965.3144	2951.5436
68	KARLADANGAR	Narla	0.00	0.00	309.07	19.95	329.02	6,484.29	1,427.90	77.27	543.9632	17005.0314	25538.4541
69	KERBANDI Total	Narla	0	0.00	386.75	715.30	1,102.05	8,114.02	1,786.79	96.69	680.68	21278.985	31957.1525
70	LUMERSINGA Total	Narla	0	0.00	0.58	146.30	146.88	12.17	2.68	0.15	1.0208	31.9116	47.9254
71	MUNDIGHATI Total	Narla	0	0	87.31	2.12	89.43	1,831.76	403.37	21.83	153.6656	4803.7962	7214.4253
72	NARLA Total	Narla	0.00	0.00	645.61	699.76	1,345.37	13,544.90	2,982.72	161.40	1136.2736	35521.4622	53346.7543
73	NARLA EXTN Total	Narla	0.00	0.00	340.33	51.78	392.11	7,140.12	1,572.32	85.08	598.9808	18724.9566	28121.4679
74	PORGEL Total	Narla	0.00	59.11	1,161.97	484.21	1,705.29	26,252.51	5,780.89	324.19	2243.6768	67283.7175	101884.9774
75	PORGEL EXT Total	Narla	0.00	27.47	810.77	2,223.94	3,062.18	17,881.03	3,937.50	218.35	1519.2544	46166.3891	69722.5202
76	SIKERGUDA Total	Narla	0.00	0.00	121.72	221.89	343.61	2,553.69	562.35	30.43	214.2272	6697.0344	10057.7236
77	SIRPALI Total	Narla	0.00	9.48	36.93	2.17	48.58	1,075.40	236.79	14.64	96.8496	2569.4994	3993.1743
78	URLADANI Total		1,229.39	4,541.07	2,336.07	2,594.07	10,700.60	2,48,883.85	54,783.21	4,278.88	22,774.89	4,57,875.61	7,88,596.45
	NARLA Total		**1,216.91**	**4,651.87**	**6,556.38**	**7,635.73**	**20,060.89**	**3,40,372.21**	**74,929.63**	**5,385.88**	**30540.3527**	**695631.4575**	**1146859.528**
	Divisional Total		**7,730.47**	**20,889.56**	**50,420.68**	**41,847.15**	**1,20,887.86**	**16,46,115.25**	**2,26,96,177.04**	**31,32,97,180.90**	**4,32,50,24,622.71**	**59,70,65,44,389.38**	**1,15,08,80,64,156.05**

APPENDIX- XVIII

Sl No	RANGE	Name of the Forest Block	RF/PRF/VF/PDPF/PVF/CA	Area in ha	Area diverted (in ha)		Area under this plan in ha	Area allotted to different working circles in Ha								
					Under FRA	Under FC		Selection WC	Rehabilitation WC	Plantation WC	Bamboo overlapping WC	Protection overlapping WC	NTFP overlapping WC	Wildlife overlapping WC	JFM overlapping WC	SWC overlapping WC
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Bhawanipatna	Alma RF	RF	1360			1360		1330	30	1360		1360	1360	298	250
2	Bhawanipatna	Brahmani RF	RF	5919	72.10		5846.90		5546.90	300	5846.90		5846.90	5846.90	2386	200
3	Bhawanipatna	Dhangada dhangadi RF	RF	229			229		179	50	0		229		229	0
4	Bhawanipatna	Dhanupanchan RF	RF	726			726		706	20	0		726		726	0
5	Bhawanipatna	Kanamanjur RF	RF	1902	87.64		1814.36		1559.36	255	1814.36		1814.36	1814.36	790	200
6	Bhawanipatna	Kutrukhai RF	RF	326	11.03		314.97		304.97	10	314.97		314.97		230	100
7	Bhawanipatna	Madhakhola (B) RF	RF	597			597		532	65			597		597	0
8	Bhawanipatna	Pordhar RF	RF	848	14.57		833.44		813.44	20	833.44		833.44	833.44	200	0
9	Bhawanipatna	Sinang RF	RF	1221	0.24		1220.7572		1035.76	185			1220.76	1220.76	982	100
10	Bhawanipatna	Bhalu RF	RF	54			54		19	35			54		54	**0**
11	Bhawanipatna	Kadalighati RF	RF	1725		7.468	1717.53		1342.53	375	1717.53		1717.53	1717.53	605	350
12	Bhawanipatna	Madhakhola (A) RF	RF	746		1.215	744.79		696.79	48			744.79	744.79	744.79	0
13	Bhawanipatna	Gundi PRF	PRF	6720.2	5.1711		6715.03		6455.03	260	0		6715.03	6715.03	1296	700

Sl No	RANGE	Name of the Forest Block	RF/PRF/VF/PDPF/ PVF/CA	Area in ha	Area diverted (in ha)		Area under this plan in ha	Area allotted to different working circles in Ha								
					Under FRA	Under FC		Selection WC	Rehabilitation WC	Plantation WC	Bamboo overlapping WC	Protection overlapping WC	NTFP overlapping WC	Wildlife overlapping WC	JFM overlapping WC	SWC overlapping WC
14	Bhawani patna	Thuapadar Gundi DPF	DPF	9187.7			9187.7		9142.7	45	9187.7		9187.7	9187.7	880	
15	Bhawani patna	Kadalighati Extn DPF	DPF	68			68		68		0		68			
16	Bhawani patna	Adastala	Proposed DPF	50			50			50			50			
17	Bhawani patna	Baringdar	Proposed DPF	200			200			200			200			
18	Bhawani patna	Batua	Proposed DPF	300			300			300			300			
19	Bhawani patna	Jhikimi B	Proposed DPF	100			100			100			100			
20	Bhawani patna	Admunda VF	VF	5			5			5			5		5	
21	Bhawani patna	-do-	VF	5			5			5			5		5	
22	Bhawani patna	-do-	VF	10			10			10			10		10	
23	Bhawani patna	Matia VF	VF	10			10			10			10		10	
24	Bhawani patna	Bhejipadar VF	VF	8			8			8			8		8	
25	Bhawani patna	Jajaldeipur VF	VF	5.1			5.1			5.1			5.1		5.1	
26	Bhawani patna	Jhikimiki VF	VF	3.28			3.28			3.28			3.28		3.28	
27	Bhawani patna	Dumerbahal VF	VF	8.044			8.044			8.044			8.044		8.044	
28	Bhawani patna	Khairbhadi VF	VF	3.6			3.6			3.6			3.6		3.6	
29	Bhawani patna	Gopinathpur VF	VF	2			2			2			2		2	

Sl No	RANGE	Name of the Forest Block	RF/PRF/VF/PDPF/PVF/CA	Area in ha	Area diverted (in ha)		Area under this plan in ha	Area allotted to different working circles in Ha								
					Under FRA	Under FC		Selection WC	Rehabilitation WC	Plantation WC	Bamboo overlapping WC	Protection overlapping WC	NTFP overlapping WC	Wildlife overlapping WC	JFM overlapping WC	SWC overlapping WC
30	Bhawani patna	Khairmal VF	VF	5			5			5			5		5	
31	Bhawani patna	Sarlanji VF	VF	8.5			8.5			8.5			8.5		8.5	
32	Bhawani patna	Bramhani VF	VF	6			6			6			6		6	
33	Bhawani patna	Jhikimiki VF	VF	10			10			10			10		10	
34	Bhawani patna	Upper Gochhakola	CA	436			436			436			436			
35	Bhawani patna	Dungripadar	Proposed VF	22			22			22			22		22	
36	Bhawani patna	Suben	Proposed VF	22.00			22.00			22.00			22.00		22.00	
37	Bhawani patna	Durla	Proposed VF	11.00			11.00			11.00			11.00		11.00	
38	Bhawani patna	Sagram	Proposed VF	22.00			22.00			22.00			22.00		22.00	
39	Bhawani patna	Kuhura	Proposed VF	33.00			33.00			33.00			33.00		33.00	
40	Bhawani patna	Goilibindha	Proposed VF	11.00			11.00			11.00			11.00		11.00	
41	Bhawani patna	Saked	Proposed VF	22.00			22.00			22.00			22.00		22.00	
42	Bhawani patna	Kendugupka	Proposed VF	11.00			11.00			11.00			11.00		11.00	
43	Bhawani patna	Jhikimi A	Proposed VF	17.00			17.00			17.00			17.00		17.00	
44	Bhawani patna	Salepali	Proposed VF	22.00			22.00			22.00			22.00		22.00	
45	Bhawani patna	Dambarupadar	Proposed VF	11.00			11.00			11.00			11.00		11.00	
46	Bhawani patna	Bhejapadar	Proposed VF	22.00			22.00			22.00			22.00		22.00	

Sl No	RANGE	Name of the Forest Block	RF/PRF/VF/PDPF/PVF/CA	Area in ha	Area diverted (in ha)		Area under this plan in ha	Area allotted to different working circles in Ha								
					Under FRA	Under FC		Selection WC	Rehabilitation WC	Plantation WC	Bamboo overlapping WC	Protection overlapping WC	NTFP overlapping WC	Wildlife overlapping WC	JFM overlapping WC	SWC overlapping WC
47	Bhawani patna	Kandakhal	Proposed VF	11.00			11.00			11.00			11.00		11.00	
TOTAL				**33041.42**	**190.75**	**8.68**	**32841.99**	**0.00**	**29731.47**	**3110.52**	**21074.90**	**0.00**	**32841.99**	**29440.49**	**10344.31 + *2050.22 = 12394.53**	**1900.00**
48	Kegaon	Adabari RF	RF	921.00	225.07		695.94		675.94	20.00			695.94	695.94	495.00	150.00
49	Kegaon	Bisibarni RF	RF	198.00			198.00		178.00	20.00			198.00		198.00	50.00
50	Kegaon	Chura (A) RF	RF	7782.00	883.48		6898.52		5583.52	1315.00	6898.52		6898.52	6898.52	3840.00	300.00
51	Kegaon	Chura (B) RF	RF	2384.00	34.66		2349.34		1837.54	511.80	2076.71		2349.34	2349.34	600.00	250.00
52	Kegaon	Daka RF	RF	335.00	5.42		329.58		252.38	77.20			329.58		275.00	70.00
53	Kegaon	Ghatual RF	RF	276.00			276.00		211.00	65.00			276.00		200.00	50.00
54	Kegaon	Gojia RF	RF	347.00			347.00		347.00	0.00			347.00		230.00	60.00
55	Kegaon	Kumkot RF	RF	5124	286.6852		4837.3148		4594.3148	243			4837.3148	4837.3148	2000	400
56	Kegaon	Lini RF	RF	134			134		114	20			134	134	126.38	40
57	Kegaon	Nageswar RF	RF	3020	603.7179		2416.2821		2359.7821	56.5		2416.2821	2416.2821	2416.2821	1350	210
58	Kegaon	Jayantpur DPF	DPF	199.2			199.2		159.2	40			199.2	199.2	50	
59	Kegaon	Masigaon DPF	DPF	30.8			30.8		30.8				30.8			
60	Kegaon	Sikuan DPF	DPF	23.19			23.19		23.19				23.19			
61	Kegaon	Kankeri (A) DPF	DPF	32			32		2	30			32		30	

Sl No	RANGE	Name of the Forest Block	RF/PRF/VF/PDPF/PVF/CA	Area in ha	Area diverted (in ha)		Area under this plan in ha	Area allotted to different working circles in Ha								
					Under FRA	Under FC		Selection WC	Rehabilitation WC	Plantation WC	Bamboo overlapping WC	Protection overlapping WC	NTFP overlapping WC	Wildlife overlapping WC	JFM overlapping WC	SWC overlapping WC
62	Kegaon	Kankeri (B) DPF	DPF	26.5			26.5		26.5				26.5		20	
63	Kegaon	Sindabhadi DPF	DPF	72.4			72.4		72.4				72.4		72	
64	Kegaon	Ammuda DPF	DPF	241.94			241.94		241.94				241.94	241.94	50	
65	Kegaon	Patramara DPF	DPF	132.72			132.72		82.72	50			132.72	132.72		
66	Kegaon	Goilbindha DPF	DPF	160			160		80	80			160		160	
67	Kegaon	Banakdei DPF	DPF	92.5			92.5		62.5	30			92.5	92.5	92.1	
68	Kegaon	Gandamer DPF	DPF	70			70		70				70			
69	Kegaon	Makardani DPF	DPF	30.3			30.3		30.3				30.3			
70	Kegaon	Baijalpur DPF	DPF	72			72		52	20			72			
71	Kegaon	Chanchermunda DPF	DPF	73			73		73				73			
72	Kegaon	Kirkakani DPF	DPF	26			26		26				26			
73	Kegaon	Kalamdei	DPF	3.2			3.2		3.2				3.2			
74	Kegaon	Daspur	VF	20			20			20			20		20	
TOTAL				**21826.75**	**2039.032**	**0**	**19787.718**	**0**	**17189.2184**	**2598.5**	**8975.2279**	**2416.2821**	**19787.7184**	**17997.7513**	**9808.48 + *512.93 = 10321.41**	**1580**

Sl No	RANGE	Name of the Forest Block	RF/PRF/VF/PDPF /PVF/CA	Area in ha	Area diverted (in ha)		Area under this plan in ha	Area allotted to different working circles in Ha								
					Under FRA	Under FC		Selection WC	Rehabilitation WC	Plantation WC	Bamboo overlapping WC	Protection overlapping WC	NTFP overlapping WC	Wildlife overlapping WC	JFM overlapping WC	SWC overlapping WC
75	Kesinga	Bazargarh RF	RF	7987	210.89	54.89	7721.22		7181.22	540			7721.22	7721.22	3729.05	500
76	Kesinga	Nangalguda RF	RF	1488			1488		1413	75			1488	1488	703	100
77	Kesinga	Dumermunda DPF	DPF	45.76			45.76		45.76				45.76	45.76	45.76	
78	Kesinga	Biripura DPF	DPF	332.8			332.8		332.8				332.8	332.8	250	
79	Kesinga	Gudang DPF	DPF	54.88			54.88		54.88				54.88	54.88		
80	Kesinga	Turlakhaman DPF	DPF	160			160		150	10			160	160		
81	Kesinga	Laitara DPF	DPF	83			83		83				83	83	24	
82	Kesinga	Brahamanidonger DPF	DPF	50.7			50.7		50.7				50.7	50.7		
83	Kesinga	Jamjore VF	VF	6			6			6			6		6	
84	Kesinga	Brahmani VF	VF	10			10			10			10		10	
85	Kesinga	Jamjore VF	VF	10			10			10			10		10	
86	Kesinga	Dendrobahali VF	VF	3.6			3.6			3.6			3.6		3.6	
87	Kesinga	-do-	VF	5			5			5			5		5	
88	Kesinga	Khairmal VF	VF	3			3			3			3		3	
89	Kesinga	Palam VF	VF	2			2			2			2		2	
90	Kesinga	Matia VF	VF	2			2			2			2		2	
91	Kesinga	Kurlupada VF	VF	1.96			1.96			1.96			1.96		1.96	

Sl No	RANGE	Name of the Forest Block	RF/PRF/VF/PDPF /PVF/CA	Area in ha	Area diverted (in ha)		Area under this plan in ha	Area allotted to different working circles in Ha								
					Under FRA	Under FC		Selection WC	Rehabilitation WC	Plantation WC	Bamboo overlapping WC	Protection overlapping WC	NTFP overlapping WC	Wildlife overlapping WC	JFM overlapping WC	SWC overlapping WC
92	Kesinga	Rengali VF	VF	11.36			11.36			11.36			11.36		11.36	
93	Kesinga	Balsi VF	VF	9.2			9.2			9.2			9.2		9.2	
94	Kesinga	-do-	VF	13.64			13.64			13.64			13.64		13.64	
95	Kesinga	Kumarpur	Proposed VF	22			22			22			22		22	
96	Kesinga	Surujore	Proposed VF	11			11			11			11		11	
97	Kesinga	Kantesir	Proposed VF	22			22			22			22		22	
98	Kesinga	Ghantsola	Proposed VF	11			11			11			11		11	
TOTAL				**10345.9**	**210.89**	**54.89**	**10080.12**	**0**	**9311.36**	**768.76**	**0**	**0**	**10080.12**	**9936.36**	**4895.57 + *1537.62 = 6433.19**	**600**
99	M.Rampur	Dengen RF	RF	476			476	0	456	20	0	0	476	476	205	100
100	M.Rampur	Jerka RF	RF	1019	4.2053		1014.7947	1014.7947			0	1014.7947	1014.7947	1014.7947		100
101	M.Rampur	Sadel (A) RF	RF	273			273	0	263	10	0	0	273	273	200	50
102	M.Rampur	Sadel (B) RF	RF	307			307	0	307		0	0	307	307	307	50
103	M.Rampur	Satami RF	RF	1898	3.775		1894.225	1894.225	0		1894.225	1894.23	1894.225	1894.225	320	300
104	M.Rampur	Sunamukhi RF	RF	2393	53.3047		2339.6953	2339.6953			0	2339.9	2339.6953	2339.9	510	200
105	M.Rampur	Taparang RF	RF	7181	293.1931		6887.8069	6887.8069			5227.97	6887.8069	6887.8069	6887.8069	670	250
106	M.Rampur	Telen RF	RF	2660			2660	2660			2660	2660	2660	2660		150

Sl No	RANGE	Name of the Forest Block	RF/PRF/VF/PDPF/PVF/CA	Area in ha	Area diverted (in ha)		Area under this plan in ha	Area allotted to different working circles in Ha								
					Under FRA	Under FC		Selection WC	Rehabilitation WC	Plantation WC	Bamboo overlapping WC	Protection overlapping WC	NTFP overlapping WC	Wildlife overlapping WC	JFM overlapping WC	SWC overlapping WC
107	M.Rampur	Turchi RF	RF	257			257	0	257		0	0	257	257	257	50
108	M.Rampur	Benaguda RF	RF	4974	45.7062		4928.2938	4928.2938			4928.2938	4928.2938	4928.2938	4928.2938	500	200
109	M.Rampur	Bhatel RF	RF	37			37	0	32	5	0	0	37	37		10
110	M.Rampur	Podgudi PRF	PRF	793.52			793.52	0	683.52	110	0		793.52	793.52	600	150
111	M.Rampur	Ramud PRF	PRF	597.07	49.978		547.092	547.092			547.092	547.092	547.092	547.092	400	120
112	M.Rampur	Sulia PRF	PRF	5668	50.663		5617.337	5617.337			5617.337	5617.337	5617.337	5617.337	502.34	300
113	M.Rampur	Manikera PRF	PRF	66.4			66.4	66.4			0	66.4	66.4	66.4	66.4	0
114	M.Rampur	Mundramaska PRF	PRF	750			750	750			0	750	750	750	50	100
115	M.Rampur	Gochhadengen PRF	PRF	346.34			346.34	0	321.34	25	0		346.34	346.34	150	0
116	M.Rampur	Kutigudum PRF	PRF	628	249.893		378.107	0	358.107	20	0		378.107	378.107	378.107	0
117	M.Rampur	Talanuagaon PRF	PRF	277.73	100.2646		177.4654	177.4654			177.4654	177.4654	177.4654	177.4654	177.4654	0
118	M.Rampur	Puijhari PRF	PRF	2251.21	0		2251.21	2251.21			2251.21	2251.21	2251.21	2251.21	78	150
119	M.Rampur	Pongabaju PRF	PRF	2331.91			2331.91	2331.91			0	2331.91	2331.91	2331.91	128	150
120	M.Rampur	Bidabaru (Harlanga) PRF	PRF	1464.8	0.185		1464.615	1464.615			0	1464.615	1464.615	1464.615	315	0
121	M.Rampur	Pudrimahul DPF	DPF	303	0		303	303			0	303	303	303	120	

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					Under FRA	Under FC		Selection WC	Rehabilitation WC	Plantation WC	Bamboo overlapping WC	Protection overlapping WC	NTFP overlapping WC	Wildlife overlapping WC	JFM overlapping WC	SWC overlapping WC
122	M.Rampur	Chandanpinda DPF	DPF	298.25			298.25	0	173.25	125	0		298.25	298.25	100	
123	M.Rampur	Karla DPF	DPF	432.11			432.11	0	432.11		0		432.11	432.11	130	
124	M.Rampur	Sulia Extn. DPF	DPF	138.05			138.05	0	138.05		0		138.05	138.05		
125	M.Rampur	Kuthiheju DPF	DPF	208			208	0	208		0		208	208		
126	M.Rampur	Sihidi DPF	DPF	181.5			181.5	0	181.5		0		181.5	181.5		
127	M.Rampur	Mugei DPF	DPF	26.4			26.4	0	26.4		0		26.4	26.4		
128	M.Rampur	Dengidonger DPF	DPF	575.77			575.77	0	575.77		0		575.77	575.77		
129	M.Rampur	Goutami DPF	DPF	388			388	0	388		0		388	388		
130	M.Rampur	Pipalbhadi VF	VF	6.22			6.22			6.22			6.22		6.22	
131	M.Rampur	Saling VF	VF	5.2			5.2			5.2			5.2		5.2	
132	M.Rampur	Kuten VF	VF	0.948			0.948			0.948			0.948		0.948	
TOTAL				**39213.428**	**851.1679**	**0**	**38362.2601**	**33233.8451**	**4801.047**	**327.368**	**23303.5932**	**33234.0498**	**38362.260**	**38350.0968**	**6176.68 + *2014.03 = 8190.71**	**2430**
133	Narla	Porgel RF	RF	1712			1712	1712			1712	1712	1712	1712	839.75	50
134	Narla	Kamei RF	RF	156			156		136	20	0		156	156	156	0
135	Narla	Kerbandi RF	RF	1231			1231		1176	55	0		1231	1231	1148	400

Sl No	RANGE	Name of the Forest Block	RF/PRF/VF/PDPF/ PVF/CA	Area in ha	Area diverted (in ha)		Area under this plan in ha	Area allotted to different working circles in Ha								
					Under FRA	Under FC		Selection WC	Rehabilitation WC	Plantation WC	Bamboo overlapping WC	Protection overlapping WC	NTFP overlapping WC	Wildlife overlapping WC	JFM overlapping WC	SWC overlapping WC
136	Narla	Lumersinga RF	RF	175			175		175		0		175	175	100	0
137	Narla	Narla RF	RF	1293			1293		1174	119	0		1293	1293	945	150
138	Narla	Sripali RF	RF	46			46		16	30	0		46	46	46	5
139	Narla	Urladani RF	RF	10528	250.0968		10277.9032	10277.9032			7010.75	10277.9	10277.9032	10277.9032	527.05	700
140	Narla	Karladangar RF	RF	349			349		339	10	0		349	349		
141	Narla	Narla Extension PRF	PRF	292.5			292.5	0	292.5		0		292.5	292.5		50
142	Narla	Kamarda PRF	PRF	444.6			444.6	0	444.6	0	0		444.6	444.6		0
143	Narla	Porgel Extension PRF	PRF	3222			3222	0	3182	40	3222		3222	3222	303	100
144	Narla	Badibahal PRF	PRF	44.94			44.94	0	44.94		44.94		44.94	44.94	40	10
145	Narla	Sikerguda PRF	PRF	358			358	0	343	15	358		358	358		
146	Narla	Jamguda PRF	PRF	107.4			107.4	0	107.4	0	107.4		107.4	107.4		
147	Narla	Barpati DPF	DPF	148.67			148.67	0	148.67				148.67	148.67	40	
148	Narla	Dengsur DPF	DPF	255.06			255.06	255.06			255.06	255.06	255.06	255.06	148	

Sl No	RANGE	Name of the Forest Block	RF/PRF/VF/PDPF/PVF/CA	Area in ha	Area diverted (in ha)		Area under this plan in ha	Area allotted to different working circles in Ha								
					Under FRA	Under FC		Selection WC	Rehabilitation WC	Plantation WC	Bamboo overlapping WC	Protection overlapping WC	NTFP overlapping WC	Wildlife overlapping WC	JFM overlapping WC	SWC overlapping WC
149	Narla	Mundighati DPF	DPF	88.2			88.2	0	88.2		88.2		88.2	88.2	40	
150	Narla	Lamer DPF	DPF	66			66	0	66	0			66	66		
151	Narla	Belgaon DPF	DPF	4230	403.006		3826.994	0	3826.994	0			3826.994	3826.994	692	
152	Narla	Nuapada	Proposed VF	11			11			11			11		11	
153	Narla	Chapatkhanda	Proposed VF	28			28			28			28		28	
TOTAL				**24786.37**	**653.1028**	**0**	**24133.2672**	**12244.9632**	**11560.304**	**328**	**12798.35**	**12244.9632**	**24133.2672**	**24094.2672**	**5063.80 + *749.79 = 5813.59**	**1465**
G.Total				**129213.87**	**3944.94**	**63.57**	**125205.36**	**45478.81**	**72593.40**	**7133.15**	**66152.07**	**47895.30**	**125205.36**	**119818.97**	**36288.84 + *6864.58 = 43153.42**	**7975**

NB:- No Compensatory Afforestation area has been declared as PF so far in this Division. Step should be taken for this.

APPENDIX-XIX

Stock Table

Volume of Trees (Cu. m)

BHAWANIPATNA

1. ALMA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	25,742	25,469	24,652	17,797	35,249	1,28,908
ALMA TOTAL	25,742	25,469	24,652	17,797	35,249	1,28,908

2. BHALU

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	489	506	593	447	848	2,883
BHALU TOTAL	489	506	593	447	848	2,883

3. BRAHMANI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	73,685	70,943	70,438	49,960	1,08,796	3,73,821
BRAHMANI TOTAL	73,685	70,943	70,438	49,960	1,08,796	3,73,821

4. DHANGADA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	3,482	3,490	3,716	2,721	5,631	19,039
DHANGADA TOTAL	3,482	3,490	3,716	2,721	5,631	19,039

5. DHANUPANCHAN

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	12,656	13,048	14,996	11,158	23,310	75,169
DHANUPANCHAN TOTAL	12,656	13,048	14,996	11,158	23,310	75,169

6. GUNDI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total

Volume of Trees (Cu. m)

	All Trees	1,45,461	1,49,418	1,45,380	1,08,160	1,82,697	7,31,116
	GUNDI TOTAL	1,45,461	1,49,418	1,45,380	1,08,160	1,82,697	7,31,116

7. KADALIGHATI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	32,354	32,926	32,983	25,510	38,350	1,62,124
KADALIGHATI TOTAL	32,354	32,926	32,983	25,510	38,350	1,62,124

8. KANAMANJUR

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	28,535	27,049	24,937	17,166	40,202	1,37,889
KANAMANJUR TOTAL	28,535	27,049	24,937	17,166	40,202	1,37,889

9. KUTRUKHAI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	2,341	2,316	2,495	1,757	4,281	13,190
KUTRUKHAI TOTAL	2,341	2,316	2,495	1,757	4,281	13,190

10. MADAKHOLA 'A'

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	13,402	12,377	11,487	7,943	19,285	64,495
MADAKHOLA 'A' TOTAL	13,402	12,377	11,487	7,943	19,285	64,495

11. MADAKHOLA 'B' RF

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	6,223	5,162	4,440	2,894	8,292	27,010
MADAKHOLA 'B' RF TOTAL	6,223	5,162	4,440	2,894	8,292	27,010

12. PORDHAR

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	14,959	14,111	12,916	8,864	21,809	72,658

Volume of Trees (Cu. m)

	PORDHAR TOTAL	14,959	14,111	12,916	8,864	21,809	72,658

13. SINANGA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	16,066	15,089	14,886	10,231	25,167	81,439
SINANGA TOTAL	16,066	15,089	14,886	10,231	25,167	81,439

14. THUAPADAR GUNDI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	1,77,604	1,78,495	1,64,522	1,19,058	2,09,693	8,49,373
THUAPADAR GUNDI TOTAL	1,77,604	1,78,495	1,64,522	1,19,058	2,09,693	8,49,373
BHAWANIPATNA TOTAL	5,52,998	5,50,399	5,28,442	3,83,667	7,23,610	27,39,116

KEGAON

15. ADABARI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	6,177	4,938	2,540	2,140	2,482	18,277
ADABARI TOTAL	6,177	4,938	2,540	2,140	2,482	18,277

16. AMMUDA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	88	99	36	38		
AMMUDA TOTAL	88	99	36	38		

17. BANAKDEI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	15	17	6	6		
BANAKDEI TOTAL	15	17	6	6		

Volume of Trees (Cu. m)

18. BISIBERNI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	1,344	1,033	552	455	589	3,973
BISIBERNI TOTAL	1,344	1,033	552	455	589	3,973

19. CHURA A

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	66,098	74,173	76,496	61,254	81,225	3,59,247
CHURA A TOTAL	66,098	74,173	76,496	61,254	81,225	3,59,247

20. CHURA B

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	34,131	41,641	40,260	29,969	43,580	1,89,580
CHURA B TOTAL	34,131	41,641	40,260	29,969	43,580	1,89,580

21. DAKA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	2,319	1,806	1,061	869	1,154	7,209
DAKA TOTAL	2,319	1,806	1,061	869	1,154	7,209

22. GHATUAL

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	253	287	105	110		
GHATUAL TOTAL	253	287	105	110		

23. GOJIA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	5,265	3,670	2,226	1,731	2,861	15,753

GOJIA TOTAL	5,265	3,670	2,226	1,731	2,861	15,753

Volume of Trees (Cu. m)

24. JAYANTAPUR

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	459	521	190	199		
JAYANTAPUR TOTAL	459	521	190	199		

25. KANKERI A

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	17	20	7	8		
KANKERI A TOTAL	17	20	7	8		

26. KANKERI B

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	21	24	9	9		
KANKERI B TOTAL	21	24	9	9		

27. KUMKOT

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	9,916	11,169	11,840	9,467	11,932	54,324
KUMKOT TOTAL	9,916	11,169	11,840	9,467	11,932	54,324

28. LINI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	209	238	87	91		
LINI TOTAL	209	238	87	91		

29. MASIGAON

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	226	256	94	98		
MASIGAON TOTAL	226	256	94	98		

Volume of Trees (Cu. m)

30. NAGESWAR

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	38,584	31,806	20,795	17,128	22,107	1,30,420
NAGESWAR TOTAL	38,584	31,806	20,795	17,128	22,107	1,30,420

31. PATRAMARA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	220	250	91	95		
PATRAMARA TOTAL	220	250	91	95		

32. SIKUAN

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	24	27	10	10		
SIKUAN TOTAL	24	27	10	10		

33. SINDABHADI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	428	486	177	186		
SINDABHADI TOTAL	428	486	177	186		
KEGAON TOTAL	1,65,793	1,72,460	1,56,581	1,23,863	1,65,929	7,84,627

KESINGA

34. BAZARGARH

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	2,94,743	1,67,980	70,921	34,086	47,947	6,15,677
BAZARGARH TOTAL	2,94,743	1,67,980	70,921	34,086	47,947	6,15,677

35. NANGALGUDA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	58,951	36,337	18,872	10,264	15,129	1,39,553

Volume of Trees (Cu. m)

NANGALGUDA TOTAL	58,951	36,337	18,872	10,264	15,129	1,39,553
KESINGA TOTAL	3,53,694	2,04,317	89,793	44,350	63,076	7,55,230

MADANPUR RAMPUR

36. BENAGUDA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Ter tom	5,074	6,569	7,538	11,094	14,432	44,707
Ano lat	2,151	4,615	6,928	6,984	7,500	28,179
Dio mel	7,709	13,278	27,057	24,720	26,413	99,178
Lan cor	3,965	5,554	7,960	4,323	4,549	26,352
Misc	91,447	1,29,540	1,44,319	95,978	1,41,297	6,02,580
Sho rob	52,997	83,239	1,04,343	85,929	1,14,281	4,40,791
BENAGUDA TOTAL	1,63,343	2,42,795	2,98,146	2,29,029	3,08,473	12,41,786

37. BHATEL

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	390	268	182	96	294	1,231
BHATEL TOTAL	390	268	182	96	294	1,231

38. BIDABARU(HARLANGA)

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Dio mel	2,893	4,242	7,146	5,406	8,870	28,556
Lan cor	1,623	2,278	2,637	1,176	1,595	9,309
Misc	29,338	34,049	30,019	20,406	34,051	1,47,862
Sho rob	24,796	28,921	29,899	24,163	32,052	1,39,831
Ter tom	2,203	2,445	2,179	2,819	4,187	13,834
Ano lat	850	1,110	1,956	1,425	1,685	7,027
BIDABARU(HARLANGA) TOTAL	61,703	73,044	73,837	55,395	82,440	3,46,419

Volume of Trees (Cu. m)

39. CHANDANPINDA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	9,486	11,835	12,596	9,470	14,313	57,701
CHANDANPINDA TOTAL	9,486	11,835	12,596	9,470	14,313	57,701

40. DENGEN

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	13,597	14,730	14,619	10,810	15,673	69,429
DENGEN TOTAL	13,597	14,730	14,619	10,810	15,673	69,429

41. GOCHHADENGAN

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	8,800	9,931	10,232	7,434	10,976	47,374
GOCHHADENGAN TOTAL	8,800	9,931	10,232	7,434	10,976	47,374

42. JERKA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Ter tom	1,027	1,304	1,140	1,449	2,233	7,153
Sho rob	11,961	14,763	16,639	14,434	19,232	77,029
Misc	15,012	17,739	16,728	12,244	19,897	81,619
Lan cor	821	1,257	1,430	572	854	4,934
Ano lat	402	667	1,095	772	934	3,870
Dio mel	1,349	2,034	3,373	2,775	4,390	13,921
JERKA TOTAL	30,572	37,764	40,404	32,246	47,540	1,88,526

43. KARLA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	12,227	16,038	17,260	12,559	18,076	76,160
KARLA TOTAL	12,227	16,038	17,260	12,559	18,076	76,160

Volume of Trees (Cu. m)

44. KUTIGUDUM

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	13,638	12,645	11,397	7,696	13,892	59,268
KUTIGUDUM TOTAL	13,638	12,645	11,397	7,696	13,892	59,268

45. MANIKERA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Dio mel	55	95	141	127	207	625
Sho rob	498	666	809	767	980	3,721
Ter tom	48	63	54	65	103	333
Ano lat	17	35	55	33	40	180
Lan cor	36	59	63	25	42	225
Misc	689	839	754	568	923	3,772
MANIKERA TOTAL	1,343	1,756	1,877	1,585	2,296	8,857

46. MUDRAMASKA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Ano lat	393	370	731	479	637	2,608
Dio mel	1,376	1,625	2,890	1,957	3,702	11,551
Lan cor	778	1,056	1,171	481	705	4,191
Misc	12,314	13,119	11,271	7,914	13,419	58,038
Sho rob	11,944	12,492	12,020	9,244	11,649	57,349
Ter tom	957	1,072	891	1,113	1,632	5,665
MUDRAMASKA TOTAL	27,763	29,735	28,973	21,188	31,744	1,39,403

47. PODGUDI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	13,151	8,998	6,448	3,814	10,059	42,470
PODGUDI TOTAL	13,151	8,998	6,448	3,814	10,059	42,470

Volume of Trees (Cu. m)

48. PONGABAJU

MAJOR-SPECIES	GIRTH CLASS (cm) 30-60	60-90	90-120	120-135	150-300	Total
Ter tom	5,041	7,372	3,508	6,388	6,692	29,000
Sho rob	50,414	59,737	59,396	46,891	53,834	2,70,271
Misc	63,160	67,850	50,386	38,152	55,603	2,75,152
Lan cor	3,304	4,614	5,582	1,694	2,418	17,612
Ano lat	1,853	1,526	3,532	2,101	2,563	11,575
Dio mel	8,420	9,868	12,602	7,799	12,041	50,730
PONGABAJU TOTAL	1,32,191	1,50,967	1,35,005	1,03,026	1,33,151	6,54,340

49. PUIJHARI

MAJOR-SPECIES	GIRTH CLASS (cm) 30-60	60-90	90-120	120-135	150-300	Total
Ter tom	3,037	3,604	3,296	4,617	6,189	20,744
Ano lat	1,362	1,682	3,020	2,577	3,300	11,941
Dio mel	4,615	7,095	11,796	9,429	11,936	44,870
Lan cor	2,334	3,302	4,087	2,054	2,542	14,319
Sho rob	39,011	47,828	54,518	43,052	53,303	2,37,712
Misc	46,913	56,377	56,152	40,080	64,111	2,63,632
PUIJHARI TOTAL	97,272	1,19,887	1,32,869	1,01,809	1,41,382	5,93,219

50. PUTRIMAHUL

MAJOR-SPECIES	GIRTH CLASS (cm) 30-60	60-90	90-120	120-135	150-300	Total
Ano lat	179	241	427	282	366	1,495
Dio mel	615	920	1,447	1,157	1,853	5,992
Lan cor	343	505	562	253	362	2,025
Misc	6,391	7,390	6,520	4,749	7,837	32,886
Sho rob	5,383	6,409	7,145	6,010	7,427	32,373
Ter tom	463	545	470	593	849	2,921
PUTRIMAHUL TOTAL	13,374	16,009	16,570	13,044	18,694	77,692

Volume of Trees (Cu. m)

51. RAMUD

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Ano lat	169	202	384	326	345	1,427
Ter tom	394	431	408	564	825	2,621
Sho rob	4,848	5,671	5,584	4,207	5,766	26,076
Misc	5,651	6,788	6,368	4,127	6,680	29,614
Dio mel	586	868	1,570	1,124	1,673	5,821
Lan cor	305	404	502	227	291	1,729
RAMUD TOTAL	11,953	14,363	14,815	10,576	15,580	67,288

52. SADEL-A

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	4,445	2,992	2,047	1,112	3,311	13,908
SADEL-A TOTAL	4,445	2,992	2,047	1,112	3,311	13,908

53. SADEL-B

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	5,055	3,349	2,302	1,282	3,732	15,720
SADEL-B TOTAL	5,055	3,349	2,302	1,282	3,732	15,720

54. SATAMI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Misc	35,415	46,603	50,051	43,338	71,716	2,47,123
Sho rob	23,440	36,578	51,625	39,194	57,102	2,07,939
Ter tom	1,860	2,845	3,417	4,215	6,508	18,845
Dio mel	3,631	5,541	10,006	9,759	8,120	37,057
Ano lat	772	1,379	2,803	2,088	2,524	9,565
Lan cor	1,461	2,396	4,489	1,267	1,450	11,064
SATAMI TOTAL	66,578	95,342	1,22,392	99,861	1,47,420	5,31,593

Volume of Trees (Cu. m)

55. SULIA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Dio mel	9,743	12,276	24,653	16,960	24,430	88,062
Lan cor	4,720	7,050	8,164	3,526	3,836	27,297
Misc	83,488	96,496	93,044	67,190	1,37,432	4,77,650
Sho rob	75,704	81,398	80,008	70,046	80,526	3,87,682
Ter tom	5,724	7,236	6,320	9,031	10,358	38,669
Ano lat	2,485	4,597	5,980	4,327	6,511	23,900
SULIA TOTAL	1,81,864	2,09,054	2,18,169	1,71,080	2,63,093	10,43,260

56. SUNAMUKHI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Lan cor	2,881	3,516	3,968	1,930	3,469	15,765
Ter tom	4,700	3,493	2,901	3,334	10,056	24,483
Misc	40,272	40,681	32,498	18,974	33,273	1,65,698
Dio mel	4,122	3,969	8,405	6,893	9,004	32,393
Ano lat	1,557	1,514	2,426	2,097	2,768	10,362
Sho rob	33,806	28,503	21,609	17,645	28,079	1,29,643
SUNAMUKHI TOTAL	87,338	81,675	71,807	50,873	86,650	3,78,344

57. TALA NUAGAON

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Ano lat	215	186	339	286	479	1,506
Dio mel	676	980	1,514	1,219	1,673	6,063
Lan cor	324	504	600	346	380	2,153
Misc	6,875	7,702	7,726	5,877	9,623	37,804
Sho rob	6,604	7,554	8,805	6,621	7,408	36,991
Ter tom	486	574	442	621	645	2,768
TALA NUAGAON TOTAL	15,181	17,501	19,426	14,970	20,208	87,285

Volume of Trees (Cu. m)

58. TAPRANG

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Ano lat	4,037	7,398	10,292	11,126	9,947	42,800
Ter tom	7,269	9,213	9,177	13,303	23,356	62,317
Sho rob	92,423	1,34,819	1,56,164	1,41,712	1,72,559	6,97,677
Dio mel	11,236	19,896	38,843	32,931	28,029	1,30,934
Lan cor	6,441	9,542	12,418	6,969	12,069	47,439
Misc	1,31,699	1,80,348	2,14,205	1,44,244	1,97,502	8,67,997
TAPRANG TOTAL	2,53,105	3,61,215	4,41,098	3,50,285	4,43,462	18,49,164

59. TELEN

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Ano lat	1,245	1,480	3,277	2,142	4,130	12,273
Dio mel	3,939	7,550	11,621	13,366	18,605	55,081
Lan cor	2,447	3,044	3,644	1,638	2,161	12,933
Misc	46,250	57,518	55,413	36,984	71,579	2,67,745
Sho rob	35,985	44,733	52,234	39,828	59,468	2,32,248
Ter tom	3,698	3,843	3,602	4,480	12,808	28,431
TELEN TOTAL	93,564	1,18,167	1,29,790	98,439	1,68,751	6,08,711

60. TURCHI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	6,370	4,120	2,928	1,752	4,718	19,889
TURCHI TOTAL	6,370	4,120	2,928	1,752	4,718	19,889
MADANPUR RAMPUR TOTAL	13,24,301	16,54,180	18,25,193	14,09,432	20,05,930	82,19,037

Volume of Trees (Cu. m)

NARLA

61. BADIBAHAL

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	1,150	703	746	937	820	4,355
BADIBAHAL TOTAL	1,150	703	746	937	820	4,355

62. DENGSUR

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Dio mel	380	361	758	876	544	2,918
Lan cor	240	441	699	1,045	1,128	3,553
Misc	4,500	4,753	5,289	3,255	4,368	22,166
Sho rob	1,637	1,519	3,711	4,153	6,509	17,529
Ter tom	242	286	684	766	1,750	3,728
Ano lat	123	302	499	544	654	2,122
DENGSUR TOTAL	7,123	7,661	11,641	10,638	14,954	52,016

63. JAMGUDA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	3,237	3,347	5,276	4,761	6,060	22,681
JAMGUDA TOTAL	3,237	3,347	5,276	4,761	6,060	22,681

64. KAMARDA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	3,429	3,153	4,234	3,854	4,810	19,479
KAMARDA TOTAL	3,429	3,153	4,234	3,854	4,810	19,479

65. KAMEI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	1,372	951	1,156	1,301	1,293	6,074

Volume of Trees (Cu. m)

KAMEI TOTAL	1,372	951	1,156	1,301	1,293	6,074

66. KARLADANGAR

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	11,765	8,189	9,436	10,472	10,511	50,373
KARLADANGAR TOTAL	11,765	8,189	9,436	10,472	10,511	50,373

67. KERBANDI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	13,422	12,345	16,014	14,349	18,155	74,284
KERBANDI TOTAL	13,422	12,345	16,014	14,349	18,155	74,284

68. MUNDIGHATI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	2,875	3,496	6,079	5,274	7,032	24,756
MUNDIGHATI TOTAL	2,875	3,496	6,079	5,274	7,032	24,756

69. NARLA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	22,601	20,690	27,563	25,090	31,295	1,27,240
NARLA TOTAL	22,601	20,690	27,563	25,090	31,295	1,27,240

70. NARLA EXTN

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	11,485	11,704	16,344	14,037	18,654	72,225
NARLA EXTN TOTAL	11,485	11,704	16,344	14,037	18,654	72,225

71. PORGEL

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Sho rob	4,282	5,391	16,527	19,695	30,893	76,787
Ter tom	910	1,305	3,075	2,480	7,037	14,807

Volume of Trees (Cu. m)

Misc	30,186	35,391	35,954	19,165	24,796	1,45,492
Lan cor	2,251	4,411	7,099	10,596	13,395	37,751
Dio mel	2,459	1,509	3,504	5,549	2,406	15,427
Ano lat	645	1,759	3,173	2,359	3,981	11,917
PORGEL TOTAL	40,732	49,766	69,331	59,843	82,508	3,02,181

72. PORGEL EXT

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	28,587	30,767	46,871	40,672	54,459	2,01,356
PORGEL EXT TOTAL	28,587	30,767	46,871	40,672	54,459	2,01,356

73. SIKERGUDA

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	4,425	3,678	4,866	4,773	5,507	23,249
SIKERGUDA TOTAL	4,425	3,678	4,866	4,773	5,507	23,249

74. SIRPALI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
All Trees	2,226	1,376	1,410	1,498	1,731	8,241
SIRPALI TOTAL	2,226	1,376	1,410	1,498	1,731	8,241

75. URLADANI

	GIRTH CLASS (cm)					
MAJOR-SPECIES	30-60	60-90	90-120	120-135	150-300	Total
Ter tom	16,166	17,757	43,895	39,180	1,00,414	2,17,412
Ano lat	7,327	14,731	26,406	30,544	41,283	1,20,292
Dio mel	19,352	20,964	45,732	40,318	31,318	1,57,685
Lan cor	7,964	16,726	32,127	43,899	57,407	1,58,124
Misc	2,28,481	2,55,830	3,15,266	1,87,816	2,64,475	12,51,868
Sho rob	1,22,889	1,01,945	1,65,779	1,86,730	2,96,631	8,73,974
URLADANI TOTAL	4,02,178	4,27,954	6,29,205	5,28,487	7,91,529	27,79,354

Volume of Trees (Cu. m)							
	NARLA TOTAL	5,56,609	5,85,780	8,50,171	7,25,986	10,49,318	37,67,864
DIVISION TOTAL		29,53,396	31,67,136	34,50,181	26,87,298	40,07,862	1,62,65,873

Appendix XX

Block Wise Stand Table

RANGE BHAWANIPATNA

1. ALMA

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	84,141	37,532	19,218	8,753	10,725	1,60,369
Total	84,141	37,532	19,218	8,753	10,725	1,60,369

2. BHALU

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	1,550	700	439	206	252	3,146
Total	1,550	700	439	206	252	3,146

3. BRAHMANI

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	2,44,872	1,05,397	56,254	24,345	33,256	4,64,125
Total	2,44,872	1,05,397	56,254	24,345	33,256	4,64,125

4. DHANGADA

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	11,426	5,102	2,913	1,319	1,712	22,471
Total	11,426	5,102	2,913	1,319	1,712	22,471

5. DHANUPANCHAN

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	42,433	18,868	11,846	5,270	7,068	85,485
Total	42,433	18,868	11,846	5,270	7,068	85,485

6. GUNDI

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	4,59,309	2,11,985	1,06,368	51,130	54,110	8,82,902
Total	4,59,309	2,11,985	1,06,368	51,130	54,110	8,82,902

7. KADALIGHATI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	97,940	44,184	22,205	11,674	10,908	1,86,911
Total	97,940	44,184	22,205	11,674	10,908	1,86,911

8. KANAMANJUR

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	96,433	41,453	20,760	8,686	12,486	1,79,819
Total	96,433	41,453	20,760	8,686	12,486	1,79,819

9. KUTRUKHAI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	8,062	3,581	2,128	888	1,337	15,996
Total	8,062	3,581	2,128	888	1,337	15,996

10. MADAKHOLA 'A'

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	45,523	18,878	9,560	4,034	5,972	83,967
Total	45,523	18,878	9,560	4,034	5,972	83,967

11. MADAKHOLA 'B' RF

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	21,590	7,912	3,788	1,471	2,564	37,326
Total	21,590	7,912	3,788	1,471	2,564	37,326

12. PORDHAR

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	51,323	22,009	11,070	4,663	6,844	95,909
Total	51,323	22,009	11,070	4,663	6,844	95,909

13. SINANGA

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	55,091	23,203	12,580	5,153	7,830	1,03,857
Total	55,091	23,203	12,580	5,153	7,830	1,03,857

14. THUAPADAR GUNDI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	5,67,936	2,58,934	1,23,373	57,080	62,852	10,70,176
Total	5,67,936	2,58,934	1,23,373	57,080	62,852	10,70,176
BHAWANIPATNA Tot	17,87,626	7,99,739	4,02,503	1,84,673	2,17,917	33,92,458

RANGE KEGAON

15. ADABARI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	25,032	8,303	2,132	1,073	818	37,358
Total	25,032	8,303	2,132	1,073	818	37,358

16. AMMUDA

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	404	175	34	20		
Total	404	175	34	20		

17. BANAKDEI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	69	30	6	3		
Total	69	30	6	3		

18. BISIBERNI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	5,376	1,726	459	226	194	7,982
Total	5,376	1,726	459	226	194	7,982

19. CHURA A

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	2,08,056	97,729	51,386	26,809	22,383	4,06,363
Total	2,08,056	97,729	51,386	26,809	22,383	4,06,363

20. CHURA B

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	1,16,824	58,635	29,736	14,300	12,712	2,32,206
Total	1,16,824	58,635	29,736	14,300	12,712	2,32,206

21. DAKA

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	9,117	2,952	847	422	370	13,709
Total	9,117	2,952	847	422	370	13,709

22. GHATUAL

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	1,168	506	97	58		
Total	1,168	506	97	58		

23. GOJIA

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	20,308	5,981	1,786	840	937	29,853
Total	20,308	5,981	1,786	840	937	29,853

24. JAYANTAPUR

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	2,117	917	176	106		
Total	2,117	917	176	106		

25. KANKERI A

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	80	35	7	4		
Total	80	35	7	4		

26. KANKERI B

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	99	43	8	5		
Total	99	43	8	5		

27. KUMKOT

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	30,320	14,340	7,721	4,082	3,235	59,698
Total	30,320	14,340	7,721	4,082	3,235	59,698

28. LINI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	966	419	81	48		
Total	966	419	81	48		

29. MASIGAON

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	1,042	451	87	52		
Total	1,042	451	87	52		

30. NAGESWAR

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	1,48,580	50,475	15,889	8,095	6,815	2,29,855
Total	1,48,580	50,475	15,889	8,095	6,815	2,29,855

31. PATRAMARA

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	1,015	440	85	51		
Total	1,015	440	85	51		

32. SIKUAN

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	109	47	9	5		
Total	109	47	9	5		

33. SINDABHADI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	1,974	855	164	99		
Total	1,974	855	164	99		
KEGAON Total	5,72,656	2,44,061	1,10,711	56,300	47,463	10,31,192

RANGE KESINGA

34. BAZARGARH

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	12,46,699	3,02,081	52,464	15,176	13,368	16,29,788
Total	12,46,699	3,02,081	52,464	15,176	13,368	16,29,788

35. NANGALGUDA

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	2,45,153	63,117	13,950	4,730	4,318	3,31,267
Total	2,45,153	63,117	13,950	4,730	4,318	3,31,267
KESINGA Total	14,91,852	3,65,198	66,414	19,906	17,686	19,61,055

RANGE MADANPUR RAMPUR

36. BENAGUDA

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
Ano lat	21,594	11,334	7,660	4,634	3,318	48,539
Dio mel	18,979	14,188	15,242	9,689	6,546	64,645
Lan cor	12,686	8,092	6,550	2,293	1,521	31,143
Misc	3,20,831	1,97,139	1,23,657	51,173	48,824	7,41,623
Sho rob	74,210	58,146	43,712	25,077	22,015	2,23,160
Ter tom	21,362	10,673	6,826	6,322	5,075	50,259
Total	4,69,661	2,99,572	2,03,648	99,188	87,299	11,59,369

37. BHATEL

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	983	312	156	59	78	1,589
Total	983	312	156	59	78	1,589

38. BIDABARU(HARLANGA)

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
Ano lat	8,361	2,749	2,152	944	720	14,926
Dio mel	7,150	4,491	4,228	2,063	2,155	20,087
Lan cor	5,248	3,269	2,138	614	544	11,813
Misc	1,04,647	52,256	26,434	11,899	11,586	2,06,822
Sho rob	33,732	20,566	12,751	6,970	6,141	80,160
Ter tom	8,917	3,928	1,970	1,745	1,463	18,023
Total	1,68,056	87,258	49,674	24,234	22,609	3,51,831

39. CHANDANPINDA

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	26,732	14,365	8,569	4,162	3,968	57,796
Total	26,732	14,365	8,569	4,162	3,968	57,796

40. DENGEN

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	35,865	17,143	9,731	4,739	4,254	71,733
Total	35,865	17,143	9,731	4,739	4,254	71,733

41. GOCHHADENGAN

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	23,907	11,837	7,018	3,284	3,016	49,062
Total	23,907	11,837	7,018	3,284	3,016	49,062

42. JERKA

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
Ano lat	3,968	1,665	1,217	502	412	7,764
Dio mel	3,386	2,187	1,977	1,060	1,076	9,686
Lan cor	2,592	1,793	1,164	301	291	6,141
Misc	52,916	27,279	14,776	6,985	6,745	1,08,701
Sho rob	16,306	10,447	7,105	4,165	3,728	41,752
Ter tom	4,193	2,064	1,008	861	818	8,943
Total	83,361	45,433	27,247	13,875	13,070	1,82,986

43. KARLA

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	33,368	19,164	11,723	5,510	4,969	74,734
Total	33,368	19,164	11,723	5,510	4,969	74,734

44. KUTIGUDUM

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	39,158	15,663	8,246	3,620	3,895	70,582
Total	39,158	15,663	8,246	3,620	3,895	70,582

45. MANIKERA

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
Ano lat	163	88	61	21	18	351
Dio mel	140	103	82	49	51	425
Lan cor	107	83	52	13	14	270
Misc	2,383	1,286	662	324	314	4,970
Sho rob	692	465	346	221	192	1,916
Ter tom	192	97	48	37	39	413
Total	3,678	2,123	1,251	666	628	8,346

46. MUDRAMASKA

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
Ano lat	3,913	941	812	322	273	6,262
Dio mel	3,450	1,716	1,727	741	898	8,533
Lan cor	2,588	1,508	941	253	243	5,532
Misc	45,106	20,329	10,105	4,658	4,506	84,705
Sho rob	16,043	9,006	5,137	2,664	2,208	35,057
Ter tom	3,957	1,738	799	714	572	7,780
Total	75,057	35,240	19,520	9,352	8,699	1,47,868

47. PODGUDI

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	36,943	11,238	5,264	2,090	2,817	58,352
Total	36,943	11,238	5,264	2,090	2,817	58,352

48. PONGABAJU

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
Ano lat	17,360	3,988	4,141	1,400	1,131	28,020
Dio mel	19,067	10,345	7,517	2,961	2,909	42,798
Lan cor	10,726	6,983	4,373	896	848	23,826
Misc	2,13,792	1,01,864	44,803	21,683	18,712	4,00,854
Sho rob	67,072	42,595	25,301	13,253	10,329	1,58,550
Ter tom	18,056	11,711	3,102	3,721	2,392	38,982
Total	3,46,073	1,77,485	89,237	43,915	36,321	6,93,031

49. PUIJHARI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
Ano lat	13,413	4,147	3,298	1,693	1,474	24,025
Dio mel	11,107	7,470	6,923	3,595	2,898	31,993
Lan cor	7,431	4,678	3,277	1,085	885	17,356
Misc	1,65,995	86,224	49,206	22,363	21,436	3,45,224
Sho rob	52,511	33,925	23,206	12,421	10,209	1,32,273
Ter tom	12,700	5,914	2,910	2,856	2,149	26,529
Total	2,63,157	1,42,359	88,820	44,013	39,051	5,77,400

50. PUTRIMAHUL

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
Ano lat	1,761	603	471	185	159	3,178
Dio mel	1,518	981	856	440	452	4,246
Lan cor	1,084	717	456	133	125	2,515
Misc	22,613	11,347	5,761	2,735	2,647	45,103
Sho rob	7,324	4,538	3,052	1,733	1,430	18,076
Ter tom	1,877	864	415	364	305	3,825
Total	36,175	19,050	11,010	5,590	5,118	76,943

51. RAMUD

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
Ano lat	1,648	487	419	218	149	2,920
Dio mel	1,419	903	926	430	403	4,081
Lan cor	1,007	583	402	119	101	2,211
Misc	20,175	10,366	5,584	2,364	2,259	40,748
Sho rob	6,533	4,051	2,372	1,212	1,094	15,262
Ter tom	1,594	715	374	354	278	3,315
Total	32,375	17,105	10,077	4,697	4,284	68,537

52. SADEL-A

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	11,820	3,610	1,736	659	903	18,728
Total	11,820	3,610	1,736	659	903	18,728

53. SADEL-B

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	13,947	4,144	1,937	742	1,037	21,808
Total	13,947	4,144	1,937	742	1,037	21,808

54. SATAMI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
Ano lat	7,947	3,409	2,876	1,352	1,141	16,725
Dio mel	8,241	6,146	5,915	3,617	2,062	25,981
Lan cor	4,797	3,301	3,619	675	489	12,881
Misc	1,22,348	71,799	44,713	24,318	23,253	2,86,431
Sho rob	31,940	25,832	21,880	11,223	11,269	1,02,144
Ter tom	8,041	4,470	3,074	2,330	2,196	20,112
Total	1,83,315	1,14,957	82,077	43,514	40,411	4,64,273

55. SULIA

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
Ano lat	25,281	11,622	6,741	2,894	2,960	49,497
Dio mel	24,015	13,076	14,153	6,541	6,069	63,854
Lan cor	15,516	9,823	6,689	1,884	1,317	35,229
Misc	3,04,303	1,51,213	83,225	40,269	45,545	6,24,555
Sho rob	1,03,963	58,586	34,067	20,256	15,398	2,32,271
Ter tom	24,779	11,854	5,621	5,999	3,612	51,865
Total	4,97,856	2,56,174	1,50,496	77,843	74,901	10,57,270

56. SUNAMUKHI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
Ano lat	15,792	4,013	2,665	1,344	1,194	25,009
Dio mel	10,865	4,184	4,966	2,673	2,171	24,858
Lan cor	9,726	5,109	3,179	991	1,019	20,024
Misc	1,54,045	63,911	30,274	11,499	11,672	2,71,402
Sho rob	47,022	20,873	9,194	5,108	5,412	87,610
Ter tom	19,213	5,850	2,786	2,015	3,328	33,193
Total	2,56,663	1,03,941	53,065	23,631	24,796	4,62,096

57. TALA NUAGAON

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
Ano lat	2,138	474	373	189	216	3,390
Dio mel	1,629	1,042	892	463	411	4,436
Lan cor	1,019	697	479	182	133	2,511
Misc	24,454	11,765	6,769	3,320	3,180	49,487
Sho rob	8,770	5,387	3,762	1,913	1,407	21,239
Ter tom	2,050	936	385	401	222	3,994
Total	40,059	20,302	12,660	6,467	5,568	85,056

58. TAPRANG

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
Ano lat	40,763	17,465	11,107	7,435	4,513	81,282
Dio mel	26,622	21,145	21,851	12,861	6,815	89,295
Lan cor	19,666	13,021	10,201	3,504	4,204	50,596
Misc	4,59,891	2,73,710	1,77,130	75,223	65,202	10,51,157
Sho rob	1,25,467	95,572	66,017	40,809	33,402	3,61,266
Ter tom	33,258	16,618	8,555	7,736	8,513	74,680
Total	7,05,668	4,37,531	2,94,861	1,47,568	1,22,649	17,08,276

59. TELEN

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
Ano lat	11,915	3,637	3,436	1,414	1,625	22,028
Dio mel	9,629	8,117	6,918	4,912	4,220	33,795
Lan cor	7,828	4,336	2,931	860	748	16,703
Misc	1,60,829	88,249	49,514	21,087	22,255	3,41,933
Sho rob	48,706	31,935	22,008	11,393	11,095	1,25,136
Ter tom	14,066	6,232	3,053	2,909	3,902	30,162
Total	2,52,973	1,42,505	87,860	42,576	43,844	5,69,758

60. TURCHI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	19,291	5,455	2,396	948	1,378	29,468
Total	19,291	5,455	2,396	948	1,378	29,468
MADANPUR RAMPU	36,56,141	20,03,965	12,38,279	6,12,942	5,55,565	80,66,892

RANGE NARLA

61. BADIBAHAL

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	4,749	1,120	560	358	202	6,989
Total	4,749	1,120	560	358	202	6,989

62. DENGSUR

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
Ano lat	1,307	764	560	371	294	3,297
Dio mel	1,054	400	449	354	129	2,385
Lan cor	845	626	565	551	378	2,965
Misc	17,925	7,706	4,547	1,908	1,558	33,643
Sho rob	2,581	1,095	1,586	1,213	1,254	7,730
Ter tom	1,323	541	609	407	588	3,468
Total	25,035	11,132	8,316	4,804	4,202	53,488

63. JAMGUDA

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	12,576	5,008	3,656	1,999	1,612	24,850
Total	12,576	5,008	3,656	1,999	1,612	24,850

64. KAMARDA

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	13,772	5,020	3,180	1,716	1,291	24,979
Total	13,772	5,020	3,180	1,716	1,291	24,979

65. KAMEI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	5,600	1,486	840	511	328	8,765
Total	5,600	1,486	840	511	328	8,765

66. KARLADANGAR

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	48,268	13,094	7,135	4,255	2,690	75,442
Total	48,268	13,094	7,135	4,255	2,690	75,442

67. KERBANDI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	54,195	19,969	12,329	6,571	4,904	97,969
Total	54,195	19,969	12,329	6,571	4,904	97,969

68. MUNDIGHATI

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	10,775	5,057	4,081	2,201	1,878	23,992
Total	10,775	5,057	4,081	2,201	1,878	23,992

69. NARLA

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	90,901	33,036	20,792	11,212	8,402	1,64,342
Total	90,901	33,036	20,792	11,212	8,402	1,64,342

70. NARLA EXTN

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	45,719	18,639	12,282	6,446	5,065	88,151
Total	45,719	18,639	12,282	6,446	5,065	88,151

71. PORGEL

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
Ano lat	6,294	4,378	3,628	1,672	1,811	17,782
Dio mel	6,683	1,680	2,086	2,245	517	13,212
Lan cor	7,862	6,399	5,712	5,543	4,799	30,315
Misc	1,21,126	57,415	30,195	11,424	9,132	2,29,293
Sho rob	6,618	3,944	7,128	5,710	5,835	29,234
Ter tom	6,316	2,679	2,784	1,238	2,287	15,303
Total	1,54,898	76,495	51,533	27,830	24,382	3,35,139

72. PORGEL EXT

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	1,10,614	47,119	33,564	17,929	14,674	2,23,899
Total	1,10,614	47,119	33,564	17,929	14,674	2,23,899

73. SIKERGUDA

Girth Class (cm) (Number of Trees)

MAJOR SPECIES	30-60	60-90	90-120	120-150	150-300	Total
All Trees	17,845	5,775	3,577	2,014	1,449	30,659
Total	17,845	5,775	3,577	2,014	1,449	30,659

74. SIRPALI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
All Trees	8,259	2,027	1,061	616	493	12,454
Total	8,259	2,027	1,061	616	493	12,454

75. URLADANI

MAJOR SPECIES	Girth Class (cm) 30-60	60-90	90-120	120-150	150-300	(Number of Trees) Total
Ano lat	74,536	37,822	29,427	20,887	17,997	1,80,669
Dio mel	54,225	22,761	27,523	15,977	7,886	1,28,372
Lan cor	27,992	23,927	25,689	23,402	18,153	1,19,163
Misc	8,97,534	4,09,951	2,66,401	1,07,352	94,138	17,75,377
Sho rob	1,92,733	73,587	70,760	54,870	57,694	4,49,644
Ter tom	82,615	30,930	37,850	21,908	34,044	2,07,347
Total	13,29,637	5,98,978	4,57,650	2,44,396	2,29,912	28,60,572
NARLA Total	19,32,842	8,43,954	6,20,556	3,32,856	3,01,482	40,31,691
Grand Total	94,41,118	42,56,918	24,38,462	12,06,677	11,40,114	1,84,83,289

APPENDIX-XXI

Details of area statement of Kalahandi North Division

Name of the Range	Sl.No. of Blocks	Name of Block RFs & PRFs	Total No. of Comptts. in the Block	Notification No. & Date	Total area of the Block in Ha.	Are as per outgoing plan	Area as per proposed plan
1	2	3	4	5	6	7	8
M.Rampur	1	Taparang RF	20	**NO.9365-12-42 (m/2)58 DT.14.03.59 of Development Deptt**,Govt. of Orissa	7181	6839	6887.8069
	2	Benaguda RF	14	-do-	4974	5082	4928.2938
	3	Sunamukhi RF	7	-do-	2393	2399	2339.6953
	4	Dengen RF	-	-do-	476	496	476
	5	Jerka RF	3	-do-	1019	1006	1014.7947
	6	Telen RF	6	-do-	2660	2630	2660
	7	Satami RF	5	-do-	1898	1873	1894.225
	8	Sadel 'A' RF	-	-do-	273	282	273
	9	Sadel 'B' RF	-	-do-	307	320	307
	10	Turchi RF	-	-do-	257	246	257
	11	Bhatel RF	-	-do-	37	37	37
	12	Kutigudum PRF	-	59937 Dt.02.09.80	628	725.12	378.107
	13	Chandanpinda PRF	-	-	298.25	298.25	298.25
	14	Gochhadengen PRF	-	28589 Dt.05.06.68	346.34	366.76	346.34
	15	Mundramaska PRF	-	66746 Dt.24.12.68	750	757.40	750
	16	Ramud PRF	-	66154 Dt.24.10.68	597.07	612.48	547.092
	17	Bidabaru PRF (Harlanga)	-	60252 Dt.03.09.80	1464.8	1497.28	1464.615
	18	Sulia PRF	-	28312 Dt.30.06.59	5668	5457.66	5617.337
	19	Pudrimahul PRF	-		303	303	303
	20	Pongabaju PRF	-	22062 Dt.24.04.70	2331.91	2151.10	2331.91
	21	Talnuagaon PRF	-	59933 Dt.02.09.80	277.73	285.55	177.4654
	22	Podgudi PRF	-	6963 Dt.14.02.70	793.52	830.32	793.52
	23	Manikera PRF	-	60267 Dt.03.09.80	66.4	65.71	66.4
	24	Puijhari PRF	-	35510 Dt.03.07.85	2251.21	2163.18	2251.21
	25	Karla PRF	-		432.11	432.11	432.11
	26	Sulia Extesion DPF			138.05		138.05
	27	Kutiheju DPF			208		208
	28	Sihidi DPF			181.5		181.5
	29	Mugei DPF			26.4		26.4
	30	Dengidonger DPF			575.77		575.77
	31	Goutami DPF			388		388
	32	Pipalbhadi VF	-	No.AFFN (SIDA) 96/91-22805 F&E dt.24.12.1991	6.22		6.22
	33	Saling VF	-	No.AFFN (SIDA) 6/92-3772 F&E dt.18.02.1992	5.2		5.2
	34	Kuten VF	-	-do-	0.948		0.948

Name of the Range	Sl.No. of Blocks	Name of Block RFs & PRFs	Total No. of Comptts. in the Block	Notification No. & Date	Total area of the Block in Ha.	Are as per outgoing plan	Area as per proposed plan
Narla	35	Urladani RF	34	NO.9365-12-42 (m/2)58 DT.14.03.59 of Development Deptt,Govt. of Orissa	10528	10732	10277.9032
	36	Lumersingha RF	-	-do-	175	119	175
	37	Karladongor RF	-	-do-	349	375	349
	38	Sripali RF	-	-do-	46	46	46
	39	Porgel RF	4	-do-	1712	1762	1712
	40	Kamei RF	-	-do-	156	176	156
	41	Kerbandi RF	-	-do-	1231	1108	1231
	42	Narla RF	-	-do-	1293	1293	1293
	43	Mundighati PRF	-		88.20	88.20	88.2
	44	Narla Extension PRF	-	-	292.5	496.20	292.5
	45	Kamarda PRF	-	59083 Dt.27.08.80	444.6	455.68	444.6
	46	Porgel Extension PRF	-	28308 Dt.30.06.59	3222	3045.67	3222
	47	Badibahal PRF	-	58786 dt.27.08.80	44.94	47.59	44.94
	48	Sikerguga	-	-	358		358
	49	Jamguda			107.4		107.4
	50	Barpati DPF			148.67		148.67
	51	Dengsur DPF			255.06		255.06
	52	Lamer DPF			66		66
	53	Belgaon DPF			4230		3826.994
	54	Nuapada VF			11		11
	55	Chapatkhanda VF			28		28
Kesinga	56	Bazargarh RF	-	NO.9365-12-42 (m/2)58 DT.14.03.59 of Development Deptt,Govt. of Orissa	7987	7911	7721.22
	57	Nangalguda RF	-	-do-	1488	1474	1488
	58	Dumermunda DPF			45.76		45.76
	59	Biripura DPF			332.8		332.8
	60	Gudang DPF			54.88		54.88
	61	Turlakhaman DPF	-		160		160
	62	Laitara DPF			83		83
	63	Brahmanidongar DPF			50.7		50.7
	64	Jamjore VF			6		6
	65	Brahmani VF	-		10		10
	66	Jamjore VF	-		10		10
	67	Dendrobahali VF	-		3.6		3.6
	68	Dendrobahali VF	-		5		5
	69	Khairmal VF	-		3		3
	70	Palam VF	-		2		2
	71	Matia VF	-		2		2
	72	Kurlupada VF	-		1.96		1.96
	73	Rengali VF	-		11.36		11.36
	74	Balsi VF	-		9.2		9.2
	75	Balsi VF	-		13.64		13.64

Name of the Range	Sl.No. of Blocks	Name of Block RFs & PRFs	Total No. of Comptts. in the Block	Notification No. & Date	Total area of the Block in Ha.	Are as per outgoing plan	Area as per proposed plan
	76	Kumarpur			22		22
	77	Surujore			11		11
	78	Kantesir			22		22
	79	Ghantsola			11		11
Bhawanipatna	80	Alma RF	-	NO.9365-12-42 (m/2)58 DT.14.03.59 of Development Deptt,Govt. of Orissa	1360	1404	1360
	81	Brahmani RF	20	-do-	5919	5768	5846.8964
	82	DhangdaDhangdi RF	-	-do-	229	250	229
	83	Kanamanjur RF	-	-do-	1902	1932	1814.3595
	84	Dhanupanchan RF	-	-do-	726	740	726
	85	Kutrukhai RF	-	-do-	326	315	314.9721
	86	Madakhola 'A' RF	-	-do-	746	659	744.785
	87	Madakhola 'B' RF	-	-do-	597	645	597
	88	Podhar RF	-	-do-	848	704	833.435
	89	Sinang RF	-	-do-	1221	1178	1220.7572
	90	Bhalu RF	-	-do-	54	60	54
	91	Kadalighati RF	5	-do-	1725	1655	1717.532
	92	Gundi PRF	-	12694 dt.10.03.71	6720.2	-	6715.0289
	93	ThuapadarGundi PRF	-		9187.7	9187.7	9187.7
	94	KadalighatiExtn DPF			68		68
	95	Adastala			50		50
	96	Baringdar			200		200
	97	Batua			300		300
	98	Jhikimiki B			100		100
	99	Adamunda VF	-		5		5
	100	Adamunda VF	-		5		5
	101	Adamunda VF	-		10		10
	102	Matia VF			10		10
	103	Bhejipadar VF	-		8		8
	104	Jajaldeipur VF	-		5.1		5.1
	105	Jhikimiki VF	-		3.28		3.28
	106	Dumerbahal VF	-		8.044		8.044
	107	Khairbhadi VF	-		3.6		3.6
	108	Gopunathpur VF	-		2		2
	109	Khairmal VF	-		5		5
	110	Sarlanji VF	-		8.5		8.5
	111	Brahmani VF			6		6
	112	Jhikimiki VF	-		10		10
	113	Uppargachkhola			436		436
	114	Dungripadar			22		22
	115	Suben			22		22
	116	Durla			11		11
	117	Sagram			22		22
	118	Kuhura			33		33
	119	Goilbindha			11		11
	120	Saked			22		22

Name of the Range	Sl.No. of Blocks	Name of Block RFs & PRFs	Total No. of Comptts. in the Block	Notification No. & Date	Total area of the Block in Ha.	Are as per outgoing plan	Area as per proposed plan
	121	Kendugupka			11		11
	122	Jhikimiki A			17		17
	123	Salepali			22		22
	124	Damrupadar			11		11
	125	Bhejapadar			22		22
	126	Kandakhal			11		11
Kegaon	127	Adabari RF	-	NO.9365-12-42 (m/2)58 DT.14.03.59 of Development Deptt,Govt. of Orissa	921	921	695.935
	128	Bisbarni RF	-	-do-	198	212	198
	129	Chura 'A' RF	23	-do-	7782	7732	6898.5179
	130	Chura 'B' RF	8	-do-	2384	2333	2349.3415
	131	Daka RF	-	-do-	335	343	329.5771
	132	Ghatual RF	-	-do-	276	275	276
	133	Gojia RF	-	-do-	347	339	347
	134	Kumkot RF	17	-do-	5124	5000	4837.3148
	135	Lini RF	-	-do-	134	139	134
	136	Nageswar RF	-	-do-	3020	3154	2416.2821
	137	Jayantpur PRF	-		199.20	199.20	199.2
	138	Masigaon	-		30.80	30.80	30.8
	139	Sikuan PRF	-		23.19	23.19	23.19
	140	Kankeri 'A' PRF	-		32	32	32
	141	Kankeri 'B' PRF	-		26.50	26.50	26.5
	142	Sindhbhadi PRF	-		72.40	72.40	72.4
	143	Amuda PRF	-		241.97	241.97	241.94
	144	Patramara PRF	-		132.72	132.72	132.72
	145	Goelbindha PRF	-		160	160	160
	146	Banakdei PRF	-		92.50	92.50	92.50
	147	Gandamer			70		70
	148	Makardani DPF			30.3		30.3
	149	Baijalpur			72		72
	150	Chanchermunda			73		73
	151	Kirkani DPF			26		26
	152	Kalamdei			3.2		3.2
	153	Daspur VF	-		20		20
		Division Total: -	**153**		**129213.87**	**112242.24**	**125205.36**

Sl. No.	Legal status of the forest blocks	Name of the Range										Total area in Ha.	
		Bhawanipatna		Kesinga		Kegaon		Narla		M.Rampur			
		No. of block	Area in Ha.	No .of block	Area in Ha.	No. of block	Area in Ha.	No. of block	Area in Ha.	No. of block	Area in Ha.	No. of block	Area in Ha
1.	Reserve Forest	12	15458.74	02	9209.22	10	18481.98	08	15239.90	11	21074.82	**43**	**79464.65**
2.	PRF notified u/s-4	01	6715.0289	00	00	00	00	06	4469.44	11	14724	**18**	**25908.46**
3.	PRF not notified u/s-4	02	9255.70	06	727.14	16	1285.75	05	4384.924	09	2551.08	**38**	**18204.594**
4.	Village forest notified	14	89.524	12	77.76	01	20.00	00	00	03	12.368	**30**	**199.652**
5.	PFs not notified (C.Affn.&Plt ns)	18	1323.00	04	66.00	00	00	02	39.00	00	00	**24**	**1428.00**
Total: -		**47**	**32841.99**	**24**	**10080.12**	**27**	**19787.718**	**21**	**24133.26**	**34**	**38362.26**	**153**	**125205.36**

Divisional Forest Officer,
Kalahandi North Division

APPENDIX-XXII

FELLING SERIES WISE & COUPE WISE PRODUCTION IN SWC

Sl No	Name of the Coupe	Area in Hectors	Total	Pre felling Unit	Actual outturn of the coupe		Amount of Royalty
					Timber (In Cum)	Firewood 12'x3'x3'	
1	2	3	4	5	6	7	9
Kalahandi North Division for the year 2008-09							
1	Taparang SWC-II	No Timber coupe work is operation in this Division as there was no valid Working Plan					
2	Urladani East SWC-II						
3	Urladani West SWC-II						
4	Benaguda SWC-II						
5	Telen SWC –II						
6	Sulia SWC-II						
7	Puijhari SWC-II						
8	Porgel SWC-II						
	Total						
Kalahandi North Division for the year 2009-10							
1	Taparang SWC-III	No Timber coupe work is operation in this Division as there was no valid Working Plan					
2	Urladani East SWC-III						
3	Urladani West SWC-III						
4	Benaguda SWC-III						
5	Telen SWC –III						
6	Sulia SWC-III						
7	Puijhari SWC-III						
8	Porgel SWC-III						
9	Sunamukhi SWC-III						
	Total						
Kalahandi North Division for the year 2010-11							
1	Taparang SWC-IV	No Timber coupe work is operation in this Division as there was no valid Working Plan					
2	Urladani East SWC-IV						
3	Urladani West SWC-IV						
4	Benaguda SWC-IV						
5	Telen SWC -IV						
6	Sulia SWC-IV						
7	Puijhari SWC-IV						
8	Porgel SWC-IV						
	Total						

Sl No	Name of the Coupe	Area in Hectors	Total	Pre felling Unit	Actual outturn of the coupe		Amount of Royalty
					Timber (In Cum)	Firewood 12'x3'x3'	
Kalahandi North Division for the year 2011-12							
1	Taparang SWC-V	640.49	640.49	1088.375	54.9342	84	13,06,050
2	Urladani East SWC-V	590.68	590.68	800.00	329.1143	159	9,60,000
3	Urladani West SWC-V	704.82	704.82	14.00	11.4880	10	16,800
4	Benaguda SWC-V	416.30	416.30	194.00	61.9364	24	2,32,800
5	Telen SWC -V	642.79	642.79	548.875	195.8214	35	6,58,650
6	Sulia SWC-V	619.27	619.27	40.25	13.4955	12	48,300
7	Pongabaju SWC-V	408.64	408.64	367.00	161.1450	50	4,41,000
8	Sunamukhi SWC-V	609.05	609.05	6.25	329.27	-	7500
	Total	**4632.04**	**4632.04**	**3058.75**	**1157.205**	**374**	**3671100**

Kalahandi North Division for the year 2012-13							
1	Taparang SWC-VI	654.03	654.03	470	158.1035	50	6,09,120
2	Urladani East SWC-VI	577.15	577.15	151.62	43.4272	11	1,96,500
3	Urladani West SWC-VI	598.16	598.16	249.245	81.6582	122	3,23,022
4	Benaguda SWC-VI	496.09	496.09	155.05	69.2663	20	2,00.945
5	Bidabaru SWC -VI	670.00	670.00	456.98	98.6668	155	5,92,246.00
6	Sulia SWC-VI	144.78	144.78	-	-	-	
7	Pongabaju SWC-VI	594.50	594.50	-	-	-	
8	Sunamukhi SWC-VI	64.77	64.77	203.75	58.0629	5	2,64,060
	Total	**3799.48**	**3799.48**	**1686.645**	**509.1849**	**363**	**1984948**
Kalahandi North Division for the year 2013-14							
1	Taparang SWC-VII	856.92	856.92	540.350	101.1053	115	7,49,465.00
2	Urladani East SWC-VII	663.54	663.54	420.620	129.1766	70	5,83,400.00
3	Urladani West SWC-VII	728.23	728.23	858.82	213.0385	70	11,90,393.00
4	Benaguda SWC-VII	618.42	618.42	180.490	36.8245	23	2,50,340.00
5	Bidabaru SWC -VII	557.49	557.49	668.375	207.1519	100	9,27,036.00
6	Sulia SWC-VII	548.03	548.03	26.500	7.4834	5	36,756.00
7	Pongabaju SWC-VII	423.76	423.76	-	-	-	-
8	Sunamukhi SWC-VII	640.88	640.88	184.750	53.6584	10	2,56,248.00
	Total	**5037.87**	**5037.87**	**2879.335**	**748.4386**	**393**	**39,93,638.00**

Sl No	Name of the Coupe	Area in Hectors	Total	Pre felling Unit	Actual outturn of the coupe		Amount of Royalty
					Timber (In Cum)	Firewood 12'x3'x3'	
Kalahandi North Division for the year 2014-15							
1	Taparang SWC-VIII	517.32	517.32	379.87	93.5396	80	5,53,091
2	Urladani East SWC-VIII	642.92	642.92	458.25	155.629	60	6,67,212
3	Urladani West SWC-VII	450.97	450.97	17.87	5.1898	5	26019
4	Benaguda SWC-VIII	422.12	422.12	2.25	-	10	32,761
5	Bidabaru SWC -VIII	417.62	417.62	446.75	155.7217	110	6,50,468
6	Sulia SWC-VIII	767.39	767.39	76.00	20.091	20	1,10,650
7	Pongabaju SWC-VIII	788.94	788.94	-	-	-	-
8	Sunamukhi SWC-VIII	752.11	752.11	321.62	63.2552	40	4,68,279
	Total	**4759.39**	**4759.39**	**1702.61**	**493.4263**	**325**	**24,79,001.00**
Kalahandi North Division for the year 2015-16							
1	Taparang SWC-IX	789.66	789.66	202.25	52.3540	35	3,06,207
2	Urladani East SWC-IX	885.32	885.32	161.84	61.7656	50	2,45,026
3	Urladani West SWC-IX	952.13	952.13	47.37	6.4474	10	71,718
4	Benaguda SWC-IX	251.17	251.17				
5	Telen SWC -IX	378.35	378.35	454.50	116.5718	80	6,88,113
6	Sulia SWC-IX	691.36	691.36	18.12	4.5158	10	27,434
7	Pongabaju SWC-IX	520.08	520.08	373.34	104.8605	50	5,65,237
8	Sunamukhi SWC-IX	476.77	476.77	112.00	28.5622	10	1,69,568.00
	Total	**4944.84**	**4944.84**	**1369.42**	**375.0773**	**245**	**2073303**

Kalahandi North Division for the year 2016-17							
1	Taparang SWC-X	925.17	925.17	905.87	262.1745	80	14,53,921.00
2	Urladani East SWC-X	262.28	262.28	202.75	48.9507	30	3,25,414.00
3	Urladani West SWC-X	770.50	770.50	27.50	5.6011	0	44,138.00
4	Benaguda SWC-X	376.84	376.84	104.00	96.8268	40	4,52,610.00
5	Telen SWC -X	414.81	414.81	410.74	112.5565	37	6,59,238.00
6	Sulia SWC-X	847.84	847.84	179.25	36.7157	10	2,87,696.00
7	Pongabaju SWC-X	302.42	302.42	375.25	126.465	25	6,02,276.00
8	Sunamukhi SWC-X	393.95	393.95	46.00	13.8528	0	39,322.00
	Total	**4293.81**	**4293.81**	**2429.36**	**703.1431**	**222**	**38,64,615**

Sl No	Name of the Coupe	Area in Hectors	Total	Pre felling Unit	Actual outturn of the coupe		Amount of Royalty
					Timber (In Cum)	Firewood 12'x3'x3'	
Kalahandi North Division for the year 2017-18							
1	Taparang SWC-I	685.08	685.08	444.62	139.1066	60	7,63,413.00
2	Urladani East SWC-I	557.23	557.23	109.75	24.178	15	1,88,441.00
3	Urladani West SWC-I	502.28	502.28	1.000	0.4595	0	1,717.00
4	Benaguda SWC-I	555.18	555.18	237.93	72.5064	39	4,08,526.00
5	Telen SWC -I	628.41	628.41	150.875	59.0659	20	2,59,052.00
6	Sulia SWC-I	549.83	549.83	19.25	6.5757	5	33,052.00
7	Pongabaju SWC-I	612.34	612.34	44.625	11.4653	20	76,621.00
8	Sunamukhi SWC-I	549.31	549.31	74.25	7.4291	10	1,27,487
	Total	**4639.66**	**4639.66**	**1082.30**	**320.7865**	**169**	**18,58,309.00**
Kalahandi North Division for the year 2018-19							
1	Taparang SWC-II	872.70	872.70	896.25	334.7618	115	16,15,939.00
2	Urladani East SWC-II	502.81	502.81	520.50	170.6439	87	9,38,462.00
3	Urladani West SWC- II	628.17	628.17	73.00	22.8232	10	1,31,619.00
4	Benaguda SWc- II	579.73	579.73	131.00	46.7763	15	2,36,193.00
5	Telen SWC - II	858.69	858.69	99.75	34.0332	20	1,79,849.00
6	Sulia SWC- II	728.75	728.75	33.00	11.4020	5	59,499
7	Pongabaju SWC-II	593.23	593.23	61.25	16.3646	10	1,10,434.00
8	Sunamukhi SWC-II	405.71	405.71	55.00	18.7766	5	99,165.00
	Total	**5169.79**	**5169.79**	**1869.75**	**655.5816**	**267**	**33,71,160.00**
Kalahandi North Division for the year 2019-20							
1	Taparang SWC-III	739.76	739.76	866.25	303.2787	60	16,70,996.00
2	Urladani East SWC-III	624.04	624.04	393.35	140.0323	15	71,58,579.00
3	Urladani West SWC- III	479.07	479.07	17.00	5.3540	5	32,793.00
4	Benaguda SWC- III	751.84	751.84	597.625	225.8521	30	11,52,819.00
5	Telen SWC - III	615.00	615.00	597.625	194.7905	35	11,52,819.00
6	Sulia SWC- III	829.12	829.12	52.50	27.6592	5	10,12,731.00
7	Sunamukhi SWC- III	604.49	604.49	17.50	5.1217	5	3,37,581.00
8	Pongabaju SWC-III	691.96	691.96	69.00	20.8663	5	1,13,31,011.00
	Total	**5335.28**	**5335.28**	**2610.85**	**922.9548**	**160**	**50,36,11,381.00**
Kalahandi North Division for the year 2020-21							
1	Taparang SWC-IV	525.89	525.89	521.25	171.1802	40	10,45,628.00
2	Urladani East SWC-IV	723.57	723.57	440.75	189.2821	35	8,84,145.00
3	Urladani West SWC- IV	746.54	746.54		-	-	-
4	Benaguda SWC- IV	560.74	560.74	225.00	71.6751	10	4,51,350.00
5	Telen SWC – IV	394.58	394.58	284.5	100.7271	20	5,70,707.00
6	Sulia SWC- IV	743.61	743.61	4.25	1.5371	1	8,526.00
7	Sunamukhi SWC- IV	832.42	832.42	45.5	25.9576	2	91,273.00
8	Pongabaju SWC-IV	493.05	493.05	115.5	26.6371	28	2,31,693.00
	Total	**5020.4**	**5020.4**	**1636.75**	**586.9982**	**125**	**32,83,322.00**

APPENDIX-XXIII

ନଂ.୧୬୭୦୦-୧୦-ଏଫ୍(ପ୍ରବ୍)୨୦/୯୩-ଏଫ୍.ଏଣ୍ଡ.ଇ., ତା ୦୩.୦୭.୧୯୯୩ ତିଖ

ଓଡ଼ିଶା ସରକାର

ଜଙ୍ଗଲ ଓ ପରିବେଶ ବିଭାଗ

ସଂକଳ୍ପ

(ଓଡ଼ିଶା ସରକାରଙ୍କ ଦ୍ୱାରା ପ୍ରକାଶିତ ଶୁଦ୍ଧିପତ୍ର ନଂ.୧୪୨୯୨-ଏଫ୍.ଏଣ୍ଡ.ଇ., ତା ୦୪.୦୮.୧୯୯୪ ତିଖକୁ ଅନ୍ତର୍ଭୁକ୍ତ କରାଯାଇଅଛି)

ବିଷୟ – ଗ୍ରାମବାସୀଙ୍କ ଦ୍ୱାରା ସଂରକ୍ଷିତ ଓ ଛାଡ଼ ଜଙ୍ଗଲର ସୁରକ୍ଷା ଓ ବନଜାତ ଦ୍ରବ୍ୟର ଉପଭୋଗ ।

(୧) ବିଗତ ବର୍ଷମାନଙ୍କରେ ଆମ ରାଜ୍ୟର ବହୁ ଅଞ୍ଚଳରେ ଜଙ୍ଗଲ କ୍ଷୟପ୍ରାପ୍ତ ହୋଇଛି ଓ ବିଭିନ୍ନ ଜଙ୍ଗଲଜାତ ସାମଗ୍ରୀର ଉତ୍ପାଦନ ହ୍ରାସ ପାଇଛି । ନିକଟ ଅତୀତରେ କରାଯାଇଥିବା ଏକ ଅଟକଳରୁ ଜଣାଯାଇଛି ଯେ, ଆମ ରାଜ୍ୟରେ ଏହିପରି କ୍ଷୟପ୍ରାପ୍ତ ଜଙ୍ଗଲର କ୍ଷେତ୍ରଫଳ ପ୍ରା ୧୨ ଲକ୍ଷ ହେକ୍ଟର । ବର୍ଦ୍ଧିଷ୍ଣୁ ଜନସଂଖ୍ୟା ଓ ଗୋ-ମହିଷାଦି ପଶୁଙ୍କର ଆବଶ୍ୟକତା ମେଣ୍ଟାଇବା ପାଇଁ ଜଙ୍ଗଲ ଉପରେ ଅତ୍ୟଧିକ ଚାପ ଆଜିର ବଣ ଜଙ୍ଗଲର ଏହି ଅବସ୍ଥା ପାଇଁ ଦାୟୀ । ଆଖପାଖର ବଣ ଜଙ୍ଗଲ ମୁଖ୍ୟତଃ ସ୍ଥାନୀୟ ଲୋକଙ୍କର ଚାହିଦା ମେଣ୍ଟାଇବା ପାଇଁ ଉଦ୍ଦିଷ୍ଟ । ଯଦିଚ ସମାଜର ସବୁ ସ୍ତରରେ ଜଙ୍ଗଲ ଅବକ୍ଷୟ ସମସ୍ୟା ଉପରେ ଯଥେଷ୍ଟ ଧ୍ୟାନ ଦିଆଯିବା ଉଚିତ, ତେବେ କୌଣସି ଉଜୁଡ଼ା ଜଙ୍ଗଲର ପୁନରୁଦ୍ଧାର କରିବାକୁ ହେଲେ ସ୍ଥାନୀୟ ଉଦ୍ୟମ ଓ ତତ୍ପରତା ଅପରିହାର୍ଯ୍ୟ । ଉଜୁଡ଼ା ଜଙ୍ଗଲକୁ ସଜାଡ଼ିବା ପାଇଁ ଓ ଜଙ୍ଗଲର ଅବକ୍ଷୟ ରୋକିବା ପାଇଁ ପାଶ୍ୱର୍ବର୍ତ୍ତୀ ଗ୍ରାମବାସୀଙ୍କର ସକ୍ରିୟ ସହଯୋଗ ଏକାନ୍ତ ଆବଶ୍ୟକ । ଜଙ୍ଗଲର ସୁରକ୍ଷା ଓ ଅଭିବୃଦ୍ଧି ଏହାର ପରିଚାଳନା ପଦ୍ଧତି ଉପରେ ଅଧିକାଂଶରେ ନିର୍ଭରଶୀଳ । ଜଙ୍ଗଲ ପରିଚାଳନାର ଆଭିମୁଖ୍ୟ ବଦଳାଇବାକୁ ପଡ଼ିବ, ଯେପରିକି ସରକାରୀ ବିଭାଗ ଓ ସମ୍ପୃକ୍ତ ଗ୍ରାମଗୋଷ୍ଠୀଗୁଡ଼ିକ ପାରସ୍ପରିକ ସହଯୋଗ ଭିତ୍ତିରେ ଏହି କାର୍ଯ୍ୟରେ ଭାଗ ନେଇପାରିବେ ।

(୨) ଗ୍ରାମବାସୀଙ୍କ ଉଦ୍ୟମରେ ଜଙ୍ଗଲ ସୁରକ୍ଷାର ପରମ୍ପରା ଓଡ଼ିଶାରେ ପ୍ରାୟ ୧୯୫୦ ମସିହାରୁ ରହିଛି । ୧୯୮୮ ମସିହା ଅଗଷ୍ଟ ମାସରେ ରାଜ୍ୟ ସରକାରଙ୍କ ଦ୍ୱାରା ପ୍ରକାଶିତ ଅଧିସୂଚନାରେ ପ୍ରଥମ କରି ସଂରକ୍ଷିତ ଜଙ୍ଗଲର ସୁରକ୍ଷାରେ ପାର୍ଶ୍ୱବର୍ତ୍ତୀ ଗ୍ରାମମାନଙ୍କୁ ସାମିଲ କରିବା ଯୋଜନା କରାଯାଇଥିଲା । ୧୯୯୦ ଡିସେମ୍ବର ମାସରେ ରକ୍ଷିତ (ଛାଡ଼) ଜଙ୍ଗଲଗୁଡ଼ିକୁ ଏହି ଯୋଜନାରେ ଅନ୍ତର୍ଭୁକ୍ତ କରାଗଲା ଏବଂ ସମ୍ପୃକ୍ତ ଗ୍ରାମବାସୀଙ୍କର ସଭା ଡ଼ାକି ବନ ସୁରକ୍ଷା କମିଟି କରିବା ପାଇଁ କୁହାଗଲା । ନିର୍ଦ୍ଦିଷ୍ଟ ଜଙ୍ଗଲ ଅଞ୍ଚଳର ସୁରକ୍ଷାରେ ବନ ବିଭାଗକୁ ସହଯୋଗ କରୁଥିବା ହେତୁ ସମ୍ପୃକ୍ତ ଗ୍ରାମବାସୀ ନିଜ ବ୍ୟବହାର ନିମନ୍ତେ ଉକ୍ତ ଜଙ୍ଗଲରୁ ମିଳି ପାରୁଥିବା ଛୋଟ କାଠ ଓ ଜାଳ କାଠ ବିନା ମାହାସୁଲରେ ସଂଗ୍ରହ କରିପାରିବେ ବୋଲି ଉଲ୍ଲେଖ କରାଗଲା, ହେଲେ କେତେକ କାରଣବଶତଃ ଜଙ୍ଗଲ ସୁରକ୍ଷା ନିମନ୍ତେ ଜନ ସହଯୋଗ ହାସଲ କରିବାରେ ଏହି ଅଧିସୂଚନା ଆଶାନୁରୂପ ପ୍ରଭାବ ପକାଇ ପାରିନାହିଁ । ବିଶେଷ ଅନୁଧ୍ୟାନ ପରେ ସରକାର ନିମ୍ନମତେ ରାଜ୍ୟରେ ଯୁଗ୍ମବନ ପରିଚାଳନା ବ୍ୟବସ୍ଥା କାର୍ଯ୍ୟକାରୀ କରିବାକୁ ନିଷ୍ପତ୍ତି କରିଛନ୍ତି, ଯେଉଁଥିରେ କି ଜଙ୍ଗଲର ଉଜୁଡ଼ା ଅବସ୍ଥାକୁ ସଜାଡ଼ିବା ଓ ସୁରକ୍ଷା କରିବା କାମରେ ସରକାରଙ୍କ ବନ ବିଭାଗ ଓ ଜଙ୍ଗଲ ନିକଟରେ ଥିବା ଗ୍ରାମ ବା ଗ୍ରାମଗୁଡ଼ିକର ମିଳିତ ଚେଷ୍ଟାରେ ବନ ପରିଚାଳନା କାର୍ଯ୍ୟକାରୀ ହେବ ଓ ସମ୍ପୃକ୍ତ ଗ୍ରାମବାସୀମାନେ ଅଂଶୀଦାର ହୋଇ ଜଙ୍ଗଲର ପୁନରୁଦ୍ଧାର ନିମନ୍ତେ କାର୍ଯ୍ୟ କରିବେ ।

ସ୍ଥାନ ନିରୂପଣ

(୩) ଯେଉଁ ଉଜୁଡ଼ା ବା କ୍ଷୟପ୍ରାପ୍ତ ଜଙ୍ଗଲ (ସଂରକ୍ଷିତ-ରକ୍ଷିତ) ପୁନରୁଜ୍ଜୀବିତ ହୋଇପାରିବ ଅଥବା ଯାହାକୁ ପୁନରୁଦ୍ଧାର କରିବାର ସୁଯୋଗ ଥିବ ଏବଂ ଯେଉଁଠି ପାଖରେ ଥିବା ଗାଁ ଲୋକେ ଜଙ୍ଗଲ ରକ୍ଷାରେ ସହଯୋଗ କରିବାକୁ ସ୍ୱଇଚ୍ଛା ରାଜି, କେବଳ ସେହିଭଳି ଅଞ୍ଚଳରେ ଏହି ଯୋଜନା କାର୍ଯ୍ୟକାରି କରାଯିବ । ଯେଉଁ ଗ୍ରାମଗୁଡ଼ିକ ସମ୍ପୃକ୍ତ ହେବେ, ସେଗୁଡ଼ିକ ଉଦ୍ଦିଷ୍ଟ ବଣ ଜଙ୍ଗଲର ନିକଟବର୍ତ୍ତୀ ହୋଇଥିବେ । ଅଭୟାରଣ୍ୟ/ଜାତୀୟ ଉଦ୍ୟାନ ଏବଂ ଯେଉଁ ଜଙ୍ଗଲ ଅଞ୍ଚଳ ବ୍ୟବସାୟିକ ବୃକ୍ଷରୋପଣ ତଥା ଶିଳ୍ପଭିତ୍ତିକ

ବନୀକରଣ ଉଦ୍ଦେଶ୍ୟରେ ଚିହ୍ନଟ ହୋଇଥିବ କିମ୍ବା କୌଣସି ବୃକ୍ଷରୋଣ ଯୋଜନା କାର୍ଯ୍ୟକାରୀ ହେଉଥିବା ଜଙ୍ଗଲ ଜାଗା ଏଥିରୁ ବାଦ୍ ଦିଆଯିବ। ଗୋଟିଏ ଗୋଟିଏ ଗ୍ରାମ କମିଟିକୁ ପ୍ରାୟ ୨୦୦ ହେକ୍ଟର ଜଙ୍ଗଲ ସୁରକ୍ଷା ଓ ଅଭିବୃଦ୍ଧି କରାଇବା ପାଇଁ ଅନୁମତି ଦିଆଯିବ।

ବନ ସଂରକ୍ଷଣ ସମିତି

(୪) ବନଖଣ୍ଡ ଅଧିକାରୀ, ବନାଞ୍ଚଳ ଅଧିକାରୀ କିମ୍ବା ବନପାଳକଙ୍କ ପରାମର୍ଶ କ୍ରମେ ଗ୍ରାମ ପଞ୍ଚାୟତ ନିରୂପିତ ଗ୍ରାମର ସବୁ ସାବାଳକ/ପ୍ରାପ୍ତ ବୟସ୍କ ଲୋକଙ୍କୁ ଏକ ସଭାକୁ ଡ଼କାଇବେ ଯେଉଁଥିରେ କି ଉକ୍ତ ଅଧିକାରୀ ଯୁଗ୍ମ ବନ ପରିଚାଳନା ଯୋଜନାଟି ସମସ୍ତଙ୍କୁ ବୁଝାଇବେ। ଗ୍ରାମବାସୀଙ୍କର ପ୍ରତିକ୍ରିୟା, ଆଗ୍ରହ ଲକ୍ଷ୍ୟ କରି ଓ ଏଥିସହ ଜଡ଼ିତ ଅନ୍ୟାନ୍ୟ ବିଷୟ ବିଚାରକୁ ନେଇ ସେ ଗ୍ରାମପଞ୍ଚାୟତ ଦ୍ୱାରା ଉକ୍ତ ଗ୍ରାମର 'ବନ ସଂରକ୍ଷଣ ସମିତି' ଗଠନ କରିବାକୁ ସୁପାରିସ କରିବେ। ପୁନରୁଦ୍ଧାର ପାଇଁ ଠିକ୍ କରାଯାଇଥିବା ଜଙ୍ଗଲକୁ ଲାଗିକରି ଯଦି ଗୋଟିଏରୁ ଅଧିକ ଗାଆଁ ବା ପଡ଼ା ଥାଏ ତେବେ ସେହିସବୁ ଗ୍ରାମ ବା ପଡ଼ାକୁ ନେଇ ଗୋଟିଏ ସମିତି ଗଢ଼ାଯିବା ଉଚିତ।

(୫) ଗ୍ରାମ ବା ଗ୍ରାମପୁଞ୍ଜର ପ୍ରତି ଘରୁ ଦୁଇ ଜଣ ସାବାଳକ ବ୍ୟକ୍ତି (ଦୁଇ ଜଣ ଭିତରୁ ଜଣେ ମହିଳା) ବନ ସଂରକ୍ଷଣ ସମିତିର ସଭ୍ୟ ରହିବେ। ଉକ୍ତ ଜଙ୍ଗଲରେ ଅଧିକାର ସୂତ୍ରରେ ବିଭିନ୍ନ ସୁବିଧା ଉପଭୋଗ କରି ଆସୁଥିବା ସବୁ ବ୍ୟକ୍ତି ଏ ସମିତିର ସଭ୍ୟ ହେବା ଆବଶ୍ୟକ।

(୬) ସେଇ ଅଞ୍ଚଳର ବନପାଳ (ଫରେଷ୍ଟର୍) ସମିତିର ସମ୍ପାଦକ ରହିବେ। ସେ ତିନି ମାସରେ ଥରେ ସମିତିର ସଭା ଡ଼ାକିବେ ଏବଂ ସଭାର ବିବରଣୀ ଲିପିବଦ୍ଧ କରିବେ।

କାର୍ଯ୍ୟକାରୀ କମିଟି ଗଠନ

(୭) (କ) ପ୍ରତ୍ୟେକ ବନ ସଂରକ୍ଷଣ ସମିତି ଥରକେ ଦୁଇ ବର୍ଷ ପାଇଁ ନିଜର ଏକ କାର୍ଯ୍ୟକାରୀ କମିଟି ଗଠନ କରିବେ।

(ଖ) କମିଟିରେ ୧୦ ରୁ ୧୫ ଜଣ ସଦସ୍ୟ ରହିବେ ଓ ଏହା ନିମ୍ନମତେ ଗଠିତ ହେବ :-

- ନାଏବ ସରପଞ୍ଚ ସଭାପତି
- ଗ୍ରାମ ବା ଗ୍ରାମଗୁଡ଼ିକୁ ପ୍ରତିନିଧିତ୍ୱ କରୁଥିବା ୱାର୍ଡ଼ ମେମ୍ବର/ୱାର୍ଡ଼ ମେମ୍ବରମାନେ ସଭ୍ୟ
- ସମିତି ଦ୍ୱାରା ମନୋନୀତ ବା ନିର୍ବାଚିତ ହୋଇଥିବା ୬ ରୁ ୮ ଜଣ ମହିଳା ପ୍ରତିନିଧି ସଭ୍ୟ (ଏମାନଙ୍କ ମଧ୍ୟରୁ ଅନ୍ତତଃ ୩ ଜଣ)
- ସମ୍ପୃକ୍ତ ବନପାଳ ସଭ୍ୟ
- ସମ୍ପୃକ୍ତ ବନରକ୍ଷୀ ସଭ୍ୟ
- ବନଖଣ୍ଡ ଅଧିକାରୀଙ୍କ ଦ୍ୱାରା ମନୋନୀତ ଉକ୍ତ ଅଞ୍ଚଳରେ କାର୍ଯ୍ୟ କରୁଥିବା ବେସରକାରୀ/ସ୍ୱେଚ୍ଛାସେବୀ ସଂସ୍ଥାର ପ୍ରତିନିଧି ସଭ୍ୟ

କମିଟିର ସଭ୍ୟମାନଙ୍କର ମନୋନୟନ ବା ନିର୍ବାଚନ ସ୍ଥାନୀୟ ବନ୍ୟାଞ୍ଚଳ ଅଧିକାରୀଙ୍କ ତତ୍ତ୍ୱାବଧାନରେ ସମ୍ପାଦିତ ହେବ।

(ଗ) କାର୍ଯ୍ୟକାରୀ କମିଟି ନିଜର ଦୁଇ ବର୍ଷ କାର୍ଯ୍ୟ ଅବଧି ନିମନ୍ତେ ଜଣେ କୋଷାଧ୍ୟକ୍ଷ ମନୋନୀତ କରିବେ। କାର୍ଯ୍ୟକାରୀ କମିଟି ଯଦି ଭୋଟ ଜରିଆରେ କୌଣସି ନିଷ୍ପତ୍ତି ନେଉଥାନ୍ତି, ତେବେ ସେ କ୍ଷେତ୍ରରେ ସଭ୍ୟ ବନପାଳ ଓ ବନରକ୍ଷୀଙ୍କର ଭୋଟ ଅଧିକାର ରହିବ ନାହିଁ।

(ଘ) କମିଟିର ସମୁଦାୟ ସଦସ୍ୟଙ୍କ ମଧ୍ୟରୁ ଅଧା ସଭ୍ୟ ଉପସ୍ଥିତ ରହିଲେ ସଭା କାର୍ଯ୍ୟ ହୋଇପାରିବ।

(ଙ) ଯଦି କୌଣସି ଜାଗାରେ ସମ୍ପୃକ୍ତ ଗ୍ରାମବାସୀ ଜଙ୍ଗଲ ସୁରକ୍ଷା ଓ ଜଙ୍ଗଲ ଉଦ୍ଧାର ପାଇଁ ଆଗଭର ନ ହୁଅନ୍ତି, ତେବେ ସମ୍ପୃକ୍ତ ଗ୍ରାମ ପଞ୍ଚାୟତ ଏ ଦିଗରେ ପ୍ରସ୍ତାବ ଗ୍ରହଣ କରିପାରିବେ କି ଗ୍ରାମ ପଞ୍ଚାୟତ ଅନ୍ତର୍ଭୁକ୍ତ ଗ୍ରାମ ବା ଗ୍ରାମଗୁଡ଼ିକର ଅଧିକାରୀମାନେ ବ୍ୟବହାର କରୁଥିବା ଯେଉଁ ଜଙ୍ଗଲ ଭୂମି ଉଜୁଡ଼ା ଯାଇଛି ତାହାକୁ ପୁନରୁଜ୍ଜୀବିତ କରାଇବେ। ବନଖଣ୍ଡ ଅଧିକାରୀ/ ବନରାଜି ଅଧିକାରୀ/ବନପାଳ (ଯୁଗ୍ମ ବନ ପରିଚାଳନା ଯୋଜନା ସମ୍ବନ୍ଧରେ) ଗ୍ରାମ ପଞ୍ଚାୟତର ଗୋଟିଏ ସଭା ଡ଼କାଇ ସଭ୍ୟମାନଙ୍କୁ ବୁଝାଇବେ ଓ ସବୁ ଦିଗରୁ ବିଚାର କରି ବନ ସଂରକ୍ଷକଙ୍କୁ ସମ୍ପୃକ୍ତ ଗ୍ରାମ ପଞ୍ଚାୟତକୁ ଏକ ସଂସ୍ଥା ହିସାବରେ ବନ ପରିଚାଳନାରେ ଭାଗ ନେବାକୁ ଅନୁମତି ଦେବା ପାଇଁ ସୁପାରିସ କରିବେ। ବନ ସଂରକ୍ଷକଙ୍କ ଅନୁମୋଦନ ମିଳିଲେ, ଗ୍ରାମ ପଞ୍ଚାୟତ ପୂର୍ବୋକ୍ତ ଧାରା ଅନୁଯାୟୀ ଏକ ଯୁଗ୍ମ ବନ ପରିଚାଳନା କାର୍ଯ୍ୟକାରୀ କମିଟି ଗଠନ କରିବେ।

ସମିତିର କର୍ତ୍ତବ୍ୟ ଓ ଦାୟିତ୍ୱ

(୮) (କ) ବଣ ଭିତରେ ଗୋ-ମହିଷାଦି ପଶୁଚାରଣ, ନିଆଁ, ଗଛକଟା, ବନଜାତ ପଦାର୍ଥର ଚୋରି ଓ ଜଙ୍ଗଲ ଜମିର ଜବରଦଖଲ ଆଦି ବନ୍ଦ କରାଇବା ସମିତିର ସଭ୍ୟମାନଙ୍କର ବ୍ୟକ୍ତିଗତ ଓ ମିଳିତ ଦାୟିତ୍ୱ। ଜଙ୍ଗଲ ସୁରକ୍ଷା ପାଇଁ ସମିତି ଅର୍ଥ, ଦ୍ରବ୍ୟ ବା ଶ୍ରମଦାନ କରି ନିଜର ଜଗୁଆଳି ବ୍ୟବସ୍ଥା କରିବେ ଓ ଜଙ୍ଗଲରେ ଲୋକଙ୍କର ତଥା ଗୃହପାଳିତ ପଶୁଙ୍କର ଅବାଧ ପ୍ରବେଶ ଉପରେ କଟକଣା ଜାରିକରି ତାହାକୁ ନିୟନ୍ତ୍ରଣ କରିବେ।

(ଖ) ଜଙ୍ଗଲ ହାନିର ପ୍ରତିରୋଧ କରିବା ଓ ସେ ବଷୟକ ସୂଚନା ବା ଗୁପ୍ତ ଖବର ଯଦି ଜିଛିଥାଏ, ବନ ବିଭାଗୀୟ ଅଧିକାରୀଙ୍କୁ ଜଣାଇଦେବା ସମିତିର ପ୍ରତ୍ୟେକ ସଭ୍ୟଙ୍କର କର୍ତ୍ତବ୍ୟ।

(ଗ) ଜଙ୍ଗଲ ଅପରାଧୀମାନଙ୍କୁ ଧରିବା ଓ ଜବର କରିବାରେ ଜଙ୍ଗଲ କର୍ମଚାରୀଙ୍କୁ ସଭ୍ୟମାନେ ସକ୍ରୀୟ ସାହାଯ୍ୟ କରିବେ ଓ ସେମାନଙ୍କ ବିରୁଦ୍ଧରେ ଆଇନ୍ ଅଦାଲତରେ ସାକ୍ଷ୍ୟ ପ୍ରଦାନ କରିବେ।

(ଘ) ଯୁଗ୍ମ ଜଙ୍ଗଲ ପରିଚାଳନା ଦଲିଲ୍ ଅନୁଯାୟୀ ଜଙ୍ଗଲର ଉନ୍ନତି ନିମନ୍ତେ ଯେଉଁସବୁ କାର୍ଯ୍ୟ ଆବଶ୍ୟକ, ସେ ସବୁ କାର୍ଯ୍ୟ ସମ୍ପାଦନରେ ସଭ୍ୟମାନେ ଜଙ୍ଗଲ କର୍ମକର୍ତ୍ତାଙ୍କୁ ସାହାଯ୍ୟ ସହଯୋଗ କରିବେ।

(ଙ) କାର୍ଯ୍ୟକାରୀ କମିଟିର କାର୍ଯ୍ୟ ସମୀକ୍ଷା କରିବା ଓ ଆଗୁଆ କାମର ଯୋଜନା ଓ ଖସଡ଼ା ତିଆରି କରିବା ପାଇଁ ପ୍ରତି ତିନି ମାସରେ ଥରେ କିମ୍ବା ଆବଶ୍ୟକ ସ୍ଥଳେ ଅଧିକ ଥର ସମିତିର ସଭା ବସିବ। ଏପରି ସଭାରେ ସମିତିର ସଭ୍ୟମାନେ ଜଣଙ୍କୁ ସଭାପତି ମନୋନୀତ କରିବେ (ଯଦି ନାଏବ ସରପଞ୍ଚ ଅନୁପସ୍ଥିତ ଥାନ୍ତି) ଓ ପରବର୍ତ୍ତୀ ସଭା ପର୍ଯ୍ୟନ୍ତ ସେ ଉକ୍ତ ପଦରେ ରହିବେ। ସଭ୍ୟ ସଂଖ୍ୟାର ଶତକଡ଼ା ୪୦ (ଶତକଡ଼ା ଚାଳିଶ) ସଭ୍ୟ ଉପସ୍ଥିତ ରହିଲେ ସଭା କାର୍ଯ୍ୟ ପାଇଁ କୋରମ ଅଛି ବୋଲି ଧରାଯିବ।

(ଚ) ଯଦି କାର୍ଯ୍ୟକାରୀ କମିଟିର କୌଣସି ବେସରକାରୀ ସଭ୍ୟ ବା ସଭ୍ୟା ସଠିକ୍ ଓ ସନ୍ତୋଷଜନକ ଭାବରେ କର୍ତ୍ତବ୍ୟ ସମ୍ପାଦନ ନ କରନ୍ତି ତା'ହେଲେ ସମିତିର ସଭାରେ ବହୁମତ ଦ୍ୱାରା ଉକ୍ତ ସଭ୍ୟ/ସଭ୍ୟାଙ୍କୁ ବହିଷ୍କାର କରାଯାଇପାରିବ।

କାର୍ଯ୍ୟକାରୀ କମିଟିର କର୍ତ୍ତବ୍ୟ ଓ ଦାୟିତ୍ୱ

୯. (କ) କାର୍ଯ୍ୟକାରୀ କମିଟିର ବୈଠକ ଅତି କମ୍‌ରେ ମାସକୁ ଥରେ ବସିବ ଏବଂ ସେଥିରେ ଜଙ୍ଗଲର ଅବସ୍ଥା, କ୍ଷୟକ୍ଷତି, ଜଙ୍ଗଲ ନିୟମର ଉଲଂଘନ ଏବଂ ଜଙ୍ଗଲ ସୁରକ୍ଷାରେ ଯେଉଁସବୁ ବାଧାବିଘ୍ନ ଉପୁଜିଛି ତା'ଉପରେ ଆଲୋଚନା କରାଯିବ। ଏହି ବୈଠକରେ ଜଙ୍ଗଲର ଅଭିବୃଦ୍ଧି ଓ ପରିଚାଳନା ଯୋଜନାର କାର୍ଯ୍ୟକାରିତା ଉପରେ ସବୁ ଦିଗରୁ ବିଚାର କରାଯିବ।

(ଖ) ସ୍ଥାନୀୟ ବନପାଳ ଯେ କି କମିଟିର ସଭ୍ୟ-ସମ୍ପାଦକ, ସେ ପ୍ରତ୍ୟେକ ସଭା କାର୍ଯ୍ୟର ଖସଡ଼ା ସଭା ପୂର୍ବରୁ ପ୍ରସ୍ତୁତ କରିବେ ଓ ପ୍ରତି ସଭାର ବିବରଣୀ ଲେଖି ରଖିବେ। କାର୍ଯ୍ୟକାରୀ କମିଟିର ସଭା ସମ୍ପୃକ୍ତ ବନପାଳ ଜିୟା ନାଏବ ସରପଞ୍ଚ ଡାକିପାରିବେ। ନାଏବ ସରପଞ୍ଚଙ୍କ ଅନୁପସ୍ଥିତିରେ କମିଟିର ସଭ୍ୟମାନେ ନିଜ ଭିତରୁ ଜଣକୁ ସଭାପତି ରୂପେ ମନୋନୀତ କରିବେ। ନାଏବ ସରପଞ୍ଚ ତାଙ୍କର ପ୍ରତିନିଧି କମିଟିର ବୈଠକକୁ ପଠାଇ ପାରିବେ।

(ଗ) ସମ୍ପୃକ୍ତ ବିଭାଗୀୟ କର୍ମଚାରୀଙ୍କୁ ବନ ପରିଚାଳନା ଯୋଜନାର ସମସ୍ତ କାର୍ଯ୍ୟ ସମ୍ପାଦନ କରିବାରେ ସାହାଯ୍ୟ ସହଯୋଗ କରିବା, ଶ୍ରମିକ ବ୍ୟବସ୍ଥା କରିବା ଓ ବନ ଅପରାଧିକୁ ଧରିବା ଓ ସେମାନଙ୍କ ବିରୁଦ୍ଧରେ ଆଇନଗତ କାର୍ଯ୍ୟାନୁଷ୍ଠାନ କରିବାରେ ସକ୍ରୀୟ ଭାବରେ ନିଜକୁ ସଂଶ୍ଳିଷ୍ଟ କରିବା କମିଟିର ଦାୟିତ୍ୱ।

(ଘ) ଜଙ୍ଗଲ ଜଗାରଖା ନେଇ ଗାଁ ଭିତରେ କିମ୍ବା ଗାଁ ଗାଁ ମଧ୍ୟରେ ବିବାଦ ହେଲେ ପ୍ରଥମେ କମିଟି ହିଁ ତାହାର ସମାଧାନ ପାଇଁ ଚେଷ୍ଟା କରିବ। ବନ ଅପରାଧିରେ ସମ୍ପୃକ୍ତ ବ୍ୟକ୍ତିବିଶେଷଙ୍କ ସମ୍ବନ୍ଧରେ ଯାହାସବୁ ତଥ୍ୟ ରହିଥିବ ତାହା ଉପରେ ବୈଠକରେ ଆଲୋଚନା ହେବ ଓ ଉପଯୁକ୍ତ କାର୍ଯ୍ୟାନୁଷ୍ଠାନ ଆରମ୍ଭ କରାଯିବ। ଯଦି କୌଣସି କ୍ଷେତ୍ରରେ କମିଟି ବିବାଦର ଆପୋଷ ସମାଧାନ କରି ନ ପାରେ କିମ୍ବା କୌଣସି ବନ ଅପରାଧ ରୋକିବା ଓ ଅପରାଧୀକୁ ନିୟନ୍ତ୍ରଣ କରିବାର ସମର୍ଥ ନ ହୁଏ, ସେ କ୍ଷେତ୍ରରେ କମିଟି ସମ୍ପୃକ୍ତ ବନକ୍ଷେତ୍ର ଅଧିକାରୀଙ୍କୁ ସବୁ ବିଷୟ ଜଣାଇ ପ୍ରତିକାର ବିଧାନ ପାଇଁ କି ପଦକ୍ଷେପ ନେବାକୁ ହେବ ତାହା ସୁପାରିସ କରିବ।

(ଙ) କମିଟି ବନ ପରିଚାଳନା ଯୋଜନା ମୁତାବକ ବିଭିନ୍ନ ଅବଧିରେ ବନର ଉନ୍ନତି କାମରେ ଗଛ କାଟିବା ତଥା ବନଜାତ ଦ୍ରବ୍ୟର ଗ୍ରାମବାସୀମାନଙ୍କ ମଧ୍ୟରେ ବଣ୍ଟନରେ ଜଙ୍ଗଲ ବିଭାଗ କର୍ମକର୍ତ୍ତାଙ୍କୁ ସାହାଯ୍ୟ କରିବେ।

(ଚ) ବନଖଣ୍ଡ ଅଧିକାରୀ/ସହକାରୀ ବନ ସଂରକ୍ଷକ/ବନକ୍ଷେତ୍ର ଅଧିକାରୀ ପ୍ରତି କମିଟିର କାର୍ଯ୍ୟ ବିଷୟରେ ଭଲାରୂପେ ଅବଗତ ରହିବେ ଓ ଏହି ଅଧିକାରୀ ସମୟ ସମୟରେ କମିଟି ପରିଚାଳନା ବିଷୟରେ ଯାହା ସବୁ ପରାମର୍ଶ ଦେବେ ତାହା କମିଟିର ସଭ୍ୟମାନଙ୍କ ପାଇଁ ଗ୍ରହଣୀୟ ହେବ।

ବନ ବିଭାଗର ଭୂମିକା

୧୦. (କ) କାର୍ଯ୍ୟକାରୀ କମିଟି ଏବଂ ବନ ସଂରକ୍ଷଣ ସମିତିର ବୈଠକରେ ଯୋଗଦେଇ ବନାଞ୍ଚଳ ଅଧିକାରୀ ତାଙ୍କର ଆଲୋଚନାରେ ଅଂଶ ଗ୍ରହଣ କରିବେ ଓ ପରାମର୍ଶ ଦେବେ କିନ୍ତୁ ତାଙ୍କର ଭୋଟ ଦେବା ଅଧିକାର ରହିବ ନାହିଁ। ସମ୍ପୃକ୍ତ ବନପାଳ ସବୁ ବୈଠକର ବିବରଣୀ ଲିପିବଦ୍ଧ କରିବେ ଓ ଏ ସମ୍ପର୍କୀୟ ସମସ୍ତ କାଗଜପତ୍ର ନିଜ ଦାୟିତ୍ୱରେ ରଖିବେ।

(ଖ) ବନ ସଂରକ୍ଷଣ ସମିତି ଏବଂ କାର୍ଯ୍ୟକାରୀ କମିଟି ଗଠନ ସହିତ ଏହି ପରିକଳ୍ପନା କାର୍ଯ୍ୟକାରୀ କରିବାର ସମ୍ପୂର୍ଣ୍ଣ ଦାୟିତ୍ୱ ବନଖଣ୍ଡ ଅଧିକାରୀଙ୍କର।

(ଗ) ସ୍ଥାନୀୟ ଅଧିବାସୀଙ୍କ ଆବଶ୍ୟକତା ଓ ଇଚ୍ଛା ପୂରଣ ହୋଇପାରିବା ଭଳି 'ଯୁଗ୍ମ ଜଙ୍ଗଲ ପରିଚାଳନା ଯୋଜନା' ପ୍ରସ୍ତୁତ କରିବାର ଦାୟିତ୍ୱ ବନଖଣ୍ଡ ଅଧିକାରୀଙ୍କ ଉପରେ ନ୍ୟସ୍ତ ରହିବ। କାର୍ଯ୍ୟକାରୀ କମିଟିକୁ ପ୍ରତ୍ୟେକ ସ୍ତରରେ ସାଥିରେ ନେଇ ଯୋଜନାଟିକୁ ଠିକ୍ ଭାବେ କାର୍ଯ୍ୟକାରୀ କରିବା ତାଙ୍କ ଦାୟିତ୍ୱ।

(ଘ) ସମିତି ବା କାର୍ଯ୍ୟନିର୍ବାହୀ କମିଟି ସଭ୍ୟଙ୍କ ଦ୍ୱାରା କୌଣସି ବନ ଅପରାଧ ଘଟଣା ଦୃଷ୍ଟିକୁ ଆସିଲେ ଜଙ୍ଗଲ କର୍ମକର୍ତ୍ତା ତୁରନ୍ତ ବିହିତ ପଦକ୍ଷେପ ନେବେ।

(ଙ) ଜଙ୍ଗଲର ସୁରକ୍ଷା ତଥା ଉନ୍ନୟନ ବିଷୟକୁ ନେଇ କୌଣସି ଗ୍ରାମ୍ୟ ବିବାଦ ଉପୁଜିଲେ ବନଖଣ୍ଡ ଅଧିକାରୀ/ସହକାରୀ ବନ ସଂରକ୍ଷକ ସେଥିରେ ହସ୍ତକ୍ଷେପ କରି ବିବାଦର ସମାଧାନ ପାଇଁ ପଦକ୍ଷେପ ନେବେ।

(ଚ) ଯଦି କାର୍ଯ୍ୟକାରୀ କମିଟିର କାର୍ଯ୍ୟ ଜଙ୍ଗଲର ସୁରକ୍ଷା, ବୃଦ୍ଧି ତଥା ସଠିକ୍ ପରିଚାଳନାର ପରିପନ୍ଥି ହୁଏ, ସେ କ୍ଷେତ୍ରରେ ବନଖଣ୍ଡ ଅଧିକାରୀ ତାଙ୍କର ବିଚାର ଲିପିବଦ୍ଧ କରି କାର୍ଯ୍ୟକାରୀ କମିଟିକୁ ଭାଙ୍ଗି ଦେଇପାରିବେ। କମିଟିକୁ ଭାଙ୍ଗି ଦିଆଗଲା ପରେ, ନୂତନ କାର୍ଯ୍ୟକାରୀ କମିଟି ଗଠନ ପାଇଁ ବନ ସଂରକ୍ଷଣ ସମିତିର ସଭା ଡ଼କାଯିବ। ଯଦି କୌଣସି କାର୍ଯ୍ୟକାରୀ କମିଟି ସଭ୍ୟଙ୍କ ବିରୁଦ୍ଧରେ ଅଭିଯୋଗ ସତ୍ୟ ବୋଲି ବନଖଣ୍ଡ ଅଧିକାରୀ ଉପଲବ୍ଧି କରନ୍ତି, ତେବେ ସେ ସମ୍ପୃକ୍ତ ସଭ୍ୟଙ୍କୁ କମିଟିର ସଭ୍ୟପଦରୁ ବହିଷ୍କାର କରିପାରିବେ। ବନଖଣ୍ଡ ଅଧିକାରୀଙ୍କର ଏପରି କୌଣସି ଆଦେଶ ବିରୁଦ୍ଧରେ ସମ୍ପୃକ୍ତ ବନସଂରକ୍ଷକଙ୍କୁ ଅପିଲ୍ କରାଯାଇପାରିବ ଓ ତାହାଙ୍କର ନିଷ୍ପତ୍ତି ଚୂଡ଼ାନ୍ତ ରୂପେ ଗ୍ରହଣୀୟ ହେବ।

ଗ୍ରାମ ପଞ୍ଚାୟତର ଭୂମିକା

୧୧. ଯେଉଁ ଗ୍ରାମ ପଞ୍ଚାୟତର ଏହି ଯୋଜନା କାର୍ଯ୍ୟକାରୀ ହେବ, ସେଠାରେ ଯୁଗ୍ମ ବନ ପରିଚାଳନା ପାଇଁ ଗ୍ରାମ ପଞ୍ଚାୟତର ଏକ ସବ୍‌କମିଟି ଗଠନ ହେବା ଉଚିତ୍। ସବ୍‌କମିଟି ପ୍ରତି ତିନି ମାସରେ ଥରେ ସାଧାରଣ ଭାବେ ବନ ସଂରକ୍ଷଣ ସମିତିର କାର୍ଯ୍ୟ ଓ ବୁଝାମଣା ପତ୍ରରେ ଉଭୟପକ୍ଷ ଗ୍ରହଣ କରିଥିବା ଦାୟିତ୍ୱ ଠିକ୍‌ଠିକ୍ ଭାବେ ସମ୍ପାଦିତ ହୋଇଛି କି ନାହିଁ ତାର ସମୀକ୍ଷା କରିବେ। ଗ୍ରାମ ପଞ୍ଚାୟତ ସମ୍ପୃକ୍ତ ବନଖଣ୍ଡ ଅଧିକାରୀଙ୍କୁ ଏହି ବ୍ୟବସ୍ଥା କିପରି କାର୍ଯ୍ୟ କରୁଛି ସେ ବିଷୟରେ ଅବଗତ କରାଇବେ।

ଯୁଗ୍ମ ବନ ପରିଚାଳନା ଯୋଜନା

୧୨. (କ) ସମ୍ପୃକ୍ତ ସହକାରୀ ବନ ସଂରକ୍ଷକ/ବନାଞ୍ଚଳ ଅଧିକାରୀ ଟିକିନିଖି ଭାବରେ ସବୁକଥା ବିଚାରକୁ ନେଇ ଯୁଗ୍ମ ବନ ପରିଚାଳନା ଯୋଜନା ପ୍ରସ୍ତୁତ କରିବେ। ଏହାର ଉଦ୍ଦେଶ୍ୟ ରହିବ ସ୍ଥାନୀୟ ଲୋକଙ୍କର ଦରକାରୀ ପାରମ୍ପରିକ ଜଙ୍ଗଲଜାତ ଦ୍ରବ୍ୟ ବିଶେଷ କରି ଜାଳେଣି, ଗୋ-ଖାଦ୍ୟ, ବାଉଁଶ ଓ କାଠର ଚାହିଦା ପୂରଣ କରିବା ଓ ଏହିସବୁ ବନଜାତ ଦ୍ରବ୍ୟର ଉତ୍ପାଦନ ବୃଦ୍ଧି ପାଇଁ ଉପାୟ ବାହାର କରିବା, ଜଙ୍ଗଲ ସ୍ୱାଭାବିକ ଭାବେ ବଢୁଥିବା ସମସ୍ତ ଜୀବଜନ୍ତୁ, ବୃକ୍ଷଲତା ଗୁଳ୍ମାଦିର ସଂରକ୍ଷଣ ସହିତ ଅଣକାଷ୍ଠ ଜାତୀୟ ବନଜାତ ସାମଗ୍ରୀ ଉପରେ ପ୍ରାଧାନ୍ୟ ଦିଆଯିବ। ଆବଶ୍ୟକ ହେଲେ ବନଖଣ୍ଡ ଅଧିକାରୀ ବନ ସଂରକ୍ଷଣ ସମିତିର ଗୋଟିଏ ସଭା ଡ଼କାଇ ସମ୍ଭାବିତ ପରିଚାଳନା ଯୋଜନାର ବିଷୟବସ୍ତୁ ସଭ୍ୟମାନଙ୍କୁ ପ୍ରାଞ୍ଜଳ ଭାବରେ ବୁଝାଇଦେବେ ଓ ଏହା ଉପରେ ସେମାନଙ୍କର ମନ୍ତବ୍ୟ ଓ ଯଦି କିଛି ପ୍ରସ୍ତାବ ଥାଏ ତାହା ପଚାରି ବୁଝିବେ। ପ୍ରତ୍ୟେକ ଅଣଯୋଜନା ଉପରେ କାର୍ଯ୍ୟକାରୀ କମିଟିର ମତାମତ ଓ ପରାମର୍ଶ ବିଚାରକୁ ନେଇ ବନଖଣ୍ଡ ଅଧିକାରୀ ତାହାକୁ ଆବଶ୍ୟକ ସ୍ଥଳେ ସଂଶୋଧନ ଓ ପରିବର୍ତ୍ତନ କରିବେ ଓ ତା'ପରେ ଏହାକୁ ଗୋଟିଏ ବୈଷୟିକ କମିଟିର ଅନୁମୋଦନ ପାଇଁ ପଠାଇବେ। ସମ୍ପୃକ୍ତ ବନସଂରକ୍ଷକ ଏହି କମିଟିର ମୁଖ୍ୟ ରହିବେ ଓ ଏଥିରେ ବନଖଣ୍ଡ ଅଧିକାରୀ, ୱାର୍କିଂ ପ୍ଲାନ ଅଫିସର ଓ ସାମାଜିକ ବନ ପ୍ରକଳ୍ପର ଉପ-ନିର୍ଦ୍ଦେଶକ ସଭ୍ୟ ରହିବେ। ଯୁଗ୍ମ ବନ ପରିଚାଳନା ଯୋଜନା ୧୦ ବର୍ଷ ଅବଧି ପାଇଁ ପ୍ରସ୍ତୁତ ହେବ।

(ଖ) ମୃତ୍ତିକା ଓ ଜଳ ସଂରକ୍ଷଣ ବ୍ୟବସ୍ଥା ସର୍ବଦା ଯୁଗ୍ମ ବନ ପରିଚାଳନା ଯୋଜନାରେ ଅନ୍ତର୍ଭୁକ୍ତ ହେବ।

(ଗ) ଜଙ୍ଗଲ ସୁରକ୍ଷା କାର୍ଯ୍ୟରେ ଗ୍ରାମ ଲୋକଙ୍କ ସହଯୋଗ କିପରି ଭାବରେ ମିଳିବ ଓ ସମିତି ସଭ୍ୟମାନେ କେତେକ ପରିମାଣ ଶ୍ରମଦାନ କରିବେ ତାହାର ବିବରଣୀ ଯୁଗ୍ମ ବନ ପରିଚାଳନାରେ ରହିବ। ଯୋଜନାଟି ସୁଚାରୁ ରୂପେ କାର୍ଯ୍ୟକାରୀ ହେବା ପାଇଁ କାର୍ଯ୍ୟକାରୀ କମିଟି ସମିତିର ବିଭିନ୍ନ ସଭ୍ୟଙ୍କୁ ନିର୍ଦ୍ଦିଷ୍ଟ କାର୍ଯ୍ୟ ଓ ଦାୟିତ୍ୱ ଅର୍ପଣ କରିବେ। ପରିଚାଳନା ଯୋଜନା ଅନୁସାରେ ହେବାକୁ ଥିବା ଶ୍ରମଭିତ୍ତିକ କାର୍ଯ୍ୟ ପାଇଁ ସମିତିର ସଭ୍ୟମାନଙ୍କୁ ଅଗ୍ରାଧିକାର ଦିଆଯିବ।

(ଘ) କାର୍ଯ୍ୟକାରୀ କମିଟିର ସକ୍ରୀୟ ସାହାଯ୍ୟ ନେଇ ଅଣୁଯୋଜନାଟିକୁ କାର୍ଯ୍ୟ କରାଇବାର ଦାୟିତ୍ୱ ବନାଞ୍ଚଳ ଅଧିକାରୀଙ୍କ ଉପରେ ନ୍ୟସ୍ତ ରହିବ।

(ଙ) ଏହି ପରିଚାଳନା ଯୋଜନାରେ ନିମ୍ନଲିଖିତ ବିଷୟ ଉପରେ ବିଷଦ ବିବରଣୀ ସ୍ଥାନ ପାଇବ –

- ପ୍ରାକୃତିକ ଭାବରେ ପୁନରୁଜ୍ଜୀବିତ ହେବାକୁ ଥିବା ଜଙ୍ଗଲ ଅଞ୍ଚଳ ଏବଂ ସେଥିରେ କେଉଁ ଜାତୀୟ ବୃକ୍ଷଲତାଦି ରହିବ।
- ଫାଙ୍କା ପଡ଼ିଥିବା ଜାଗାକୁ ଜଙ୍ଗଲ ଦ୍ୱାରା ପୂର୍ଣ୍ଣ କରିବାର କାର୍ଯ୍ୟକ୍ରମ
- କି କି ଗଛର ଚାରା ଲଗାଯିବ ଓ ପ୍ରତ୍ୟେକ ଜାତି ଗଛ ଲଗାଯିବାର ପ୍ରଣାଳୀ ସମାଜରେ ଦରକାରୀ ଗଛ ଯଥା - ନିମ, ମହୁଲ, ହରିଡ଼ା, ବାହାଡ଼, ଅଁଳା, ଫଳଗଛ ଯଥା - ଆମ୍ବ, ପଣସ, କେନ୍ଦୁ, ତେନ୍ତୁଳି ଓ ବାଉଁଶ ପ୍ରଭୃତି ଚାରା ସମିତି ସହ ପରାମର୍ଶ କରି ଯଥେଷ୍ଟ ସଂଖ୍ୟାରେ ରୋପଣ କରିବାକୁ ହେବ
- ମାଟି ଓ ଜଳ ସଂରକ୍ଷଣ ପାଇଁ କି କି ନିର୍ଦ୍ଦିଷ୍ଟ ପଦକ୍ଷେପ ନିଆଯିବ ତାହାର ବିବରଣୀ।
- ଜଙ୍ଗଲର ସୀମା ନିର୍ଦ୍ଧାରଣ, ଜଗାରଖା ବ୍ୟବସ୍ଥା ଓ ରୋପିତ ବନର ଉପଯୁକ୍ତ ରକ୍ଷଣାବେଣା।

ଅର୍ଥ ବ୍ୟବସ୍ଥା

୧୩. ଯୁଗ୍ମ ବନ ପରିଚାଳନା ଯୋଜନା କାର୍ଯ୍ୟକାରୀ କରିବା ପାଇଁ ବ୍ୟୟଭାର ସରକାର ବନ ବିଭାଗ ଜରିଆରେ ବହନ କରିବେ। ଆବଶ୍ୟକ ଅର୍ଥ ଅନୁଦାନ ଆକାରରେ ଭାରତ ସରକାରଙ୍କ ପରିବେଶ ଓ ଜଙ୍ଗଲ ମନ୍ତ୍ରଣାଳୟର ଜାତୀୟ ବନୀକରଣ ଓ ପରିବେଶ ଉନ୍ନୟନ ବୋର୍ଡ଼ ଠାରୁ ଏବଂ ସାହାଯ୍ୟ ଆକାରରେ ସମାଜ କଲ୍ୟାଣ ଅନୁଷ୍ଠାନ ତଥା ଶିଳ୍ପ ଓ ବ୍ୟବସାୟ ପ୍ରତିଷ୍ଠାନ ମାନଙ୍କରୁ ଏବଂ ବିଦେଶୀ ଦାତା ସଂସ୍ଥାରୁ ନିଆଯାଇପାରେ।

ଫଳ ଭୋଗ ସୁବିଧା

୧୪. (କ) ଯୋଜନା ମୁତାବକ କର୍ତ୍ତବ୍ୟ ଓ ଦାୟିତ୍ୱ ସମ୍ପାଦନ କଲେ ବନ ସଂରକ୍ଷଣ ସମିତିର ସଦସ୍ୟମାନେ ଜଙ୍ଗଲରୁ ଉପଲବ୍ଧ ସାମଗ୍ରୀ ସଂଗ୍ରହ ଓ ଉପଭୋଗ କରିପାରିବେ, ଜଙ୍ଗଲର ଅଭିବୃଦ୍ଧି ଓ ସୁରକ୍ଷା ପାଇଁ କାଳକ୍ରମେ ସମିତି ବା କମିଟି ଉପରେ ଅଧିକ କର୍ତ୍ତବ୍ୟ ଓ ଦାୟିତ୍ୱ ନ୍ୟସ୍ତ ହୋଇପାରେ। କାର୍ଯ୍ୟକାରୀ କମିଟି ଜଙ୍ଗଲରୁ ଉପଲବ୍ଧ ଦ୍ରବ୍ୟଗୁଡ଼ିକୁ ସମିତି ସଭ୍ୟମାନଙ୍କ ମଧ୍ୟରେ ସୁଷମ ବଣ୍ଟନର ଦାୟିତ୍ୱ ନେବେ। ଏ କ୍ଷେତ୍ରରେ ପ୍ରତ୍ୟେକ ପରିବାରରୁ ଜଣେ ସଦସ୍ୟ ରୂପେ ବିବେଚନା କରାଯିବ। କୌଣସି ପରିବାର ତାଙ୍କ ଉପରେ ନ୍ୟସ୍ତ କର୍ତ୍ତବ୍ୟ ଓ ଦାୟିତ୍ୱ ସମ୍ପାଦନ କରି ନ ଥିଲେ କାର୍ଯ୍ୟକାରୀ କମିଟି ସେ ପରିବାରର ଭାଗ କମାଇପାରିବେ କିମ୍ବା ପୁରା ବାତିଲ କରିଦେଇପାରିବେ।

(ଖ) ଘାସପତ୍ର, କୁପରଘାସ, ଫୁଲ ଝାଡୁ ପାଇଁ ଘାସ, ବାଡ଼ପାଇଁ କଣ୍ଟାଝଟା, ମେଡ଼ା, ରୁଆ ଓ ତଳେ ପଡ଼ିଥିବା ଜାଳେଣି ଯୋଗ୍ୟ ଡ଼ାଳପତ୍ର ସଭ୍ୟମାନେ ବିନା ମାହାସୁଲରେ ଜଙ୍ଗଲରୁ ସଂଗ୍ରହ କରିପାରିବେ। ନିଲାମ କରାଯାଇଥିବା ଲଘୁ ବନଜାତ ଦ୍ରବ୍ୟ, କେନ୍ଦୁପତ୍ର ଇତ୍ୟାଦି ସଭ୍ୟମାନେ ସଂଗ୍ରହ କରିପାରିବେ କିନ୍ତୁ ସେ ସବୁକୁ ନିର୍ଦ୍ଧାରିତ ପାରିଶ୍ରମିକ ନେଇ ବିଭାଗୀୟ ପ୍ରତିନିଧି କିମ୍ବା ନିଲାମ ଧରିଥିବା ଠିକାଦାରଙ୍କ ପାଖରେ ପହଂଚାଇ ଦେବାକୁ ହେବ।

(ଗ) ଛୋଟ କାଠ, ବଲ୍ଲା ଓ ଜାଳେଣି କାଠ ଯାହାକି ବନପରିଚାଳନା ପଦ୍ଧତିରେ ଅନ୍ତବର୍ତ୍ତୀ ଆମଦାନୀ ରୂପେ ଉପଲବ୍ଧ ହେବ, ସେ ସବୁକୁ ସମିତି ସଭ୍ୟମାନଙ୍କ ମଧ୍ୟରେ କାର୍ଯ୍ୟକାରୀ କମିଟି ଯଥାବିଧି ବାଣ୍ଟିଦେବେ।

(ଘ) ଗଣ୍ଡିକାଠ ଓ ବଲ୍ଲା ଯାହାସବୁ କୌଣସି ଜଙ୍ଗଲ ଅମଳରୁ ମିଳିବ, ତାହାକୁ ବନ ବିଭାଗ ଓ ବନ ସଂରକ୍ଷଣ ସମିତି ଅଧା ଅଧା ଅଂଶ କରି ବାଣ୍ଟିନେବେ। ସମିତି ତରଫରୁ କାର୍ଯ୍ୟକାରୀ କମିଟି ଏହି ଅଧାଅଧି ଅଂଶକୁ ସଭ୍ୟମାନଙ୍କ ମଧ୍ୟରେ ସମାନ ଭାବରେ ବାଣ୍ଟି ଦେଇପାରନ୍ତି କିମ୍ବା ଜଙ୍ଗଲ ବିଭାଗକୁ ସେ ସବୁକୁ ବିକ୍ରୟ କରି ବିକ୍ରୟ ଲବ୍ଧ ଅର୍ଥକୁ ନଗଦ ଟଙ୍କା ଆକାରରେ ସଭ୍ୟମାନଙ୍କ ମଧ୍ୟରେ ବାଣ୍ଟି ଦେଇପାରନ୍ତି।

ବୁଝାମଣା ପତ୍ର

୧୫. ବନ ସଂରକ୍ଷଣ ସମିତି କାର୍ଯ୍ୟକାରୀ କମିଟି ଜରିଆରେ ଏକ ବୁଝାମଣା ପତ୍ର ସମ୍ପୃକ୍ତ ବନଖଣ୍ଡ ଅଧିକାରୀଙ୍କ ସହ ସମ୍ପାଦନ କରିବେ, ଯାହା ଅନୁସାରେ ଜଙ୍ଗଲର ସୁରକ୍ଷା, ଅଭିବୃଦ୍ଧି ଓ ସୁପରିଚାଳନା କାର୍ଯ୍ୟରେ ଏବଂ ଯୁଗ୍ମ ପରିଚାଳନା ଅଣଯୋଜନା ଅନୁଯାୟୀ ସମସ୍ତ ଜଙ୍ଗଲ ଉନ୍ନୟନ ସମ୍ପାଦନ କରିବାରେ ସକ୍ରୀୟ ସହଯୋଗ ଯୋଗାଇ ଦେବାକୁ ସମିତି ଚୁକ୍ତିବଦ୍ଧ ରହିବ। ଚୁକ୍ତିପତ୍ର ସମ୍ପାଦନ ପରେ ସମିତିର ସଭ୍ୟମାନଙ୍କୁ ଜଙ୍ଗଲରୁ ତଳେ ପଡ଼ିଥିବା ଶୁଖିଲା ଡାଳପତ୍ର, ଘାସ ତଥା ଗଛ ନ କାଟି ମିଳୁଥିବା ଅନ୍ୟାନ୍ୟ ଜଙ୍ଗଲ ଜାତ ଦ୍ରବ୍ୟ ବିନା ମହାସୁଲରେ ନେବାକୁ ଅନୁମତି ଦିଆଯିବ। କ୍ରମାଗତ ପାଞ୍ଚ ବର୍ଷ ପାଇଁ ଏହି ଯୋଜନା ଜୌଣସି ଅଞ୍ଚଳରେ ସଫଳ ଭାବେ କାର୍ଯ୍ୟନ୍ୱିତ ହେଲେ, ସେଠିକାର ଗ୍ରାମବାସୀମାନେ ଅଧିକ ସୁବିଧା ସ୍ୱରୂପ ଜଙ୍ଗଲର ଶେଷ ଅମଳରୁ ଅଧାଅଧି ଅଂଶ ପାଇବାକୁ ହକ୍‌ଦାର ହେବେ। ବୁଝାମଣା ପତ୍ର ନିମ୍ନଲିଖିତ ଫାରମରେ ହେବ।

ଆମ୍ଭେ ..... ଗ୍ରାମର ବନସଂରକ୍ଷଣ ସମିତିର କାର୍ଯ୍ୟକାରୀ କମିଟି ସଭ୍ୟବୃନ୍ଦ ଏତଦ୍‌ଦ୍ୱାରା ବ୍ୟକ୍ତିଗତ ତଥା ସାମୂହିକ ଭାବେ ଅଙ୍ଗୀକାର କରୁଅଛୁ ଯେ ଓଡ଼ିଶା ସରକାରଙ୍କର ଜଙ୍ଗଲ ଓ ପରିବେଶ ବିଭାଗର ଅଧିସୂଚନା ସଂଖ୍ୟା ୧୬୭୦୦-ଏଫ୍.ଏଣ୍ଡ.ଇ., ତା. ୦୩.୦୭.୧୯୯୩ ରିଖ ମୁତାବକ ତଳ ଲିଖିତ ତପସିଲରେ ବର୍ଣ୍ଣିତ ଉଜୁଡ଼ା ଜଙ୍ଗଲର ସୁରକ୍ଷା ଓ ପୁନରୁଦ୍ଧାର ପାଇଁ ଆମ୍ଭର କର୍ତ୍ତବ୍ୟ ସମ୍ପାଦନ ଓ ଦାୟିତ୍ୱ ବହନ କରିବୁ।

ତପସିଲ

୧. ବନ ସଂରକ୍ଷଣ ସମିତିର ନାମ : _____

୨. ଜିଲ୍ଲା / ବନଖଣ୍ଡ : _____

୩. ସବ୍‌ଡ଼ିଭିଜନ / ଜଙ୍ଗଲ ରେଞ୍ଜ : _____

୪. ଥାନା : _____

୫. ଗ୍ରାମ : _____

୬. ଜଙ୍ଗଲ ବ୍ଲକର ନାମ : _____

୭. ଜଙ୍ଗଲର ଆଇନଗତ ସ୍ଥିତି : _____

୮. ଜଙ୍ଗଲର ଆୟତନ (ହେକ୍ଟରରେ) : _____

୯. ସୀମା ସରହଦ : _____

ଉତ୍ତର _____ ପୂବ _____

ଦକ୍ଷିଣ _____ ପଶ୍ଚିମ _____

ଆମ୍ଭେ ବୁଝୁ ଯେ ଉପରୋକ୍ତ ଅଧିସୂଚନାରେ ଦର୍ଶାଯାଇଥିବା କାର୍ଯ୍ୟନିର୍ବାହୀ କମିଟିର ଓ ବନସୁରକ୍ଷା ସମିତିର ସଭ୍ୟମାନେ ତାଙ୍କ କର୍ତ୍ତବ୍ୟ ଓ ଦାୟିତ୍ୱ ସନ୍ତୋଷଜନକ ଭାବରେ ପାଳନ କଲେ ହିଁ ବର୍ଣ୍ଣିତ ଜଙ୍ଗଲଜାତ ଦ୍ରବ୍ୟ ପାଇବା ପାଇଁ ସେମାନଙ୍କୁ ଅନୁମତି ଦିଆଯିବ। ଆମ୍ଭେ ଉପରୋକ୍ତ ଅଧିସୂଚନାକୁ ପଢ଼ି/ବୁଝି ଠିକ୍ ଭାବରେ ହୃଦୟଙ୍ଗମ କରିଥିବାର ପ୍ରମାଣ ସ୍ୱରୂପ ସଂଲଗ୍ନ କରାଯାଇଥିବା ଉକ୍ତ ଅଧିସୂଚନାର ଏକକିତା ନକଲରେ ଆମ୍ଭେ ସ୍ୱାକ୍ଷର କରିଅଛୁ। ଏତଦ୍ୱାରା ଆମ୍ଭେ ସ୍ୱୀକୃତ ପ୍ରଦାନ କରୁଅଛୁ ଯେ, ଏହି ବୁଝାମଣା ଚୁକ୍ତିପତ୍ର ତାରିଖ ଠାରୁ କାର୍ଯ୍ୟକାରୀ ହେଉ।

କାର୍ଯ୍ୟକାରୀ କମିଟିର ସଭ୍ୟମାନଙ୍କ ସ୍ୱାକ୍ଷର

(ନାମ ଓ ଠିକଣା ସ୍ୱାକ୍ଷର ତାରିଖ ସହ)

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ସାକ୍ଷୀମାନଙ୍କ ସ୍ୱାକ୍ଷର

(ନାମ ଓ ଠିକଣା ସ୍ୱାକ୍ଷର ତାରିଖ ସହ)

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ସ୍ଥାନୀୟ ବନ ବିଭାଗ ଅଧିକାରୀମାନଙ୍କ ସ୍ୱାକ୍ଷର

୧. ପଦବୀ ବନଖଣ୍ଡ ଅଧିକାରୀ ନାମ : ସ୍ୱାକ୍ଷର ତାରିଖ ସହ

୨. ସହକାରୀ ବନ ସଂରକ୍ଷକ :

୩. ବନାଞ୍ଚଳ ଅଧିକାରୀ :

୪. ବନପାଳ :

୫. ବନରକ୍ଷୀ :

ସଞ୍ଚାଳନ

୧୬. ଯୋଜନାର ସୂଚାରୁ କାର୍ଯ୍ୟକାରିତାକୁ ଦିଗ୍‌ଦର୍ଶନ ଦେବା ପାଇଁ ରାଜ୍ୟସ୍ତରରେ ଏକ ଷ୍ଟିଅରିଂ କମିଟି ରହିବ ଓ ପ୍ରତି ତିନି ମାସରେ ଥରେ ଏହାର ବୈଠକ ବସି ଏହି ଯୋଜନାର ଲକ୍ଷ୍ୟ ହାସଲ ଦିଗରେ ଉପୁଜି ଥିବା ବିଭିନ୍ନ ସମସ୍ୟା ଉପରେ ବିସ୍ତୃତ ଆଲୋଚନା କରାହେବ। ଏହି କମିଟି ଯୋଜନାର ସମୀକ୍ଷା କରି ଏହାର ସୁଫଳ ଓ ଦୋଷ ଦୁର୍ବଳତା ଅନୁଧ୍ୟାନ କରିବେ ଓ ବାସ୍ତବ ସଫଳତା ଆଣିବା ପାଇଁ ଆବଶ୍ୟକସ୍ଥଳେ ନିୟମାବଳୀର ପରିବର୍ତ୍ତନ କରିବେ। ଷ୍ଟିଅରିଂ କମିଟି ଜଙ୍ଗଲ ମନ୍ତ୍ରୀଙ୍କ ସଭାପତିତ୍ୱରେ ନିମ୍ନଲିଖିତ ୧୦ ଜଣ ସଭ୍ୟଙ୍କୁ ନେଇ ଗଠିତ ହେବ -

୧. ରାଜ୍ୟ ସରକାରଙ୍କ ବନ ଓ ପରିବେଶ ବିଭାଗ ଶାସନ ସଚିବ - ସଭ୍ୟ

୨. ପ୍ରଧାନ ମୁଖ୍ୟ ବନ ସଂରକ୍ଷକ - ସଭ୍ୟ

୩. ସାମାଜିକ ବନପ୍ରକଳ୍ପ ନିର୍ଦ୍ଦେଶକ - ସଭ୍ୟ

୪. ଜଙ୍ଗଲ ବିଭାଗ ଦ୍ୱାରା ମନୋନୀତ ଦୁଇ ଜଣ ଅଧିକାରୀ - ସଭ୍ୟ
(ମୁଖ୍ୟ ବନ ସଂରକ୍ଷକ/ଅତିରିକ୍ତ ମୁଖ୍ୟ ବନ ସଂରକ୍ଷକ/ବନ ସଂରକ୍ଷକ ପଦବୀ ମଧ୍ୟରୁ)

୫. ଉପଯୁକ୍ତ ମନ୍ତ୍ରୀଙ୍କ ଦ୍ୱାରା ମନୋନୀତ ସଂପୃକ୍ତ - ସଭ୍ୟ ସଚିବ

୬. ସରକାରଙ୍କ ଦ୍ୱାରା ମନୋନୀତ ଜଙ୍ଗଲ ପରିଚାଳନା କ୍ଷେତ୍ରରେ କାର୍ଯ୍ୟରତ ଦୁଇ ଜଣ କର୍ମୀ - ସଭ୍ୟ

୭. ସରକାରଙ୍କ ଦ୍ୱାରା ମନୋନୀତ ଦୁଇ ଜଣ ସେବାନିବୃତ୍ତ ବିଶେଷଜ୍ଞ - ସଭ୍ୟ

ଷ୍ଟିଆରିଂ କମିଟିକୁ ଥରେ ମନୋନୀତ ହେଲେ ଉକ୍ତ ସଭ୍ୟଙ୍କ କାର୍ଯ୍ୟକାଳ ଦୁଇ ବର୍ଷ ହେବ।

୧୭. ଏତଦ୍ଦ୍ୱାରା ସରକାରଙ୍କ ଜଙ୍ଗଲ ଓ ପଶୁପାକ୍ଷୀ ବିଭାଗ ଅଧିସୂଚନା ସଂଖ୍ୟା ୨୯୫୨୫-୧୦-ଏଫ୍-(ପ୍ରବ)୪-୯୦-ଏଫ୍.ଏଫ୍.ଏ.ଏବ୍., ତା. ୨୧.୨୨.୧୯୯୦ ବିଲୋପିତ ହେଲା।

ରାଜ୍ୟପାଳଙ୍କ ଆଦେଶକ୍ରମେ

ଶ୍ରୀ ହିମାଂଶୁ ଶେଖର ସରକାର

କମିଶନର ତଥା ଶାସନ ସଚିବ, ଜଙ୍ଗଲ ଏବଂ ପରିବେଶ ବିଭାଗ

APPENDIX-XXIV

DLC Data(Revised) 19.10.1997 of Kalahandi District

List of items	Ara in ha.	Kalahandi North		Kalahandi South	
		no.of blocks	area in ha.	no. of blocks	area in ha.
Reserve Forest	144903	43	82614	53	62289
P.R.F.	48551.07	18	26364.62	22	22186.45
V.F.	299.652	30	199.652	10	100
Unclassed Forest	54.02		5.02		49
UDPF(revised from 31336.87 ha. to 31310.91 ha. by DFO,Kld Divison)	31310.91	27	16682.94	35	14627.97
Revenue forest	28655.72		19418.36		9237.36
unsurveyed land demarcated as proposed Revenue village- 26 no.s proposed villages having forest land included in DLC	1381.6	22 villages	1381.6		0
Plantation in Govt. land	5943.024				
Plantation in private land	627.086				
Other unsurveyed land	23680.95				
Total :- 2854.07 sq.k. m.	**285407.032**				
AANALYSIS OF DLC & actuals :-		**kalahandi north**		**kalahandi south**	
Actuals:-		**no.of blocks**	**area in ha.**	**no. of blocks**	**area in ha.**
Reserve Forest	144903	43	82614	53	62289
P.R.F.	48551.07	18	26364.62	22	22186.45
V.F.	299.652	30	199.652	10	100
Unclassed Forest	54.06		5.06		49
dpf/udpf	40580.89	38	18607.6	47	21973.29
pf-Kalahandi south	721.673	0	0	12	721.673
revenue forest	27206.877		18691.19		8515.687
total			**146482.122**		**115835.1**
unsurveyed land demarcated as proposed Revenue village- 22 no.s proposed villages having forest land included in DLC	1381.6	22 villages	1381.6		0
Plantation in private land	627.086		627.028		
Other unsurveyed land	21081		6100		14981
total area as per DLC -2854.07 sq.k.m.	**285406.908**		153963.722		

*The detaild DLC area in respect of Kalahandi North Division is annexed in a separate volume.

APPENDIX-XXV
INFORMATION ON WEEKLY MARKET DAYS UNDER JURIDISCTION KALAHANDI NORTH DIVISION (BLOCK WISE)

NAME OF THE BLOCK: BHAWANIPATNA

Sl. No.	Name of the G.P.	Name of Weekly Market	Market Day	Regulated by
1	2	3	4	5
1	Artul	Artul	Saturday	Gram Panchayat
2	Borbhata	Borbhata	Friday	-do-
3	Borda	Borda	Sunday	-do-
4	Dadpur	Dadpur	Friday	-do-
5	Deypur	Deypur	Wednesday	-do-
6	Karlapada	Madingpadar	Wednesday	-do-
7	Palna	Palna	Monday	-do-
8	Kutrukhamar	Gohara	Monday	-do-

NAME OF THE BLOCK: GOLAMUNDA

Sl. No.	Name of the G.P.	Name of Weekly Market	Market Day	Regulated by
1	2	3	4	5
1	Golamunda	Golamunda	Thursday	Gram Panchayat
2	Manjhari	Manjhari	Tuesday	-do-
3	Chapria	Chapria	Wednesday	-do-
4	Kegaon	Kegaon	Saturday	-do-
5	Mahaling	Mahaling	Wednesday	-do-
6	Kuhurla	Kantamal	Saturday	-do-
7	Badchergaon	Gargab	Sunday	-do-
8	Dhamanpur	Dhamanpur	Saturday	-do-
9	Daspur	Dasupur	Wednesday	-do-
10	Daspur	Temri	Friday	-do-
11	Chichia	Chichia	Saturday	-do-
12	Farang	Farang	Thursday	-do-
13	Rengsapali	Rengsapali	Saturday	-do-
14	Brundabahal	Brundabahal	Wednesday	-do-
15	Khaliakani	Khaliakani	Sunday	-do-

NAME OF THE BLOCK: NARLA

Sl. No.	Name of the G.P.	Name of Weekly Market	Market Day	Regulated by
1	2	3	4	5
1	Santpur	Santpur	Saturday	Gram Panchayat
2	Narla	Narla	Sunday & Thursday	-do-
3	Rupra Road	Rupra Road	Friday	-do-
4	Regsi	Budhiapadar	Monday	-do-
5	Rupra	Rupra	Monday	-do-
6	Muskuti	Muskuti	Friday	-do-
7	Palam	Palam	Sunday	-do-
8	Sergarh	Sergarh	Thursday	-do-
9	Bhanpur	Balipada	Monday	R.M.C.
10	Nisanpur	Nisanpur	Friday	Gram Panchayat

NAME OF THE BLOCK: KARLAMUNDA

Sl. No.	Name of the G.P.	Name of Weekly Market	Market Day	Regulated by
1	**2**	**3**	**4**	**5**
1	Karlamunda	Karlamunda	Friday	Gram Panchayat
2	Rishida	Rishida	Saturday	R.M.C.
3	Joradobra	Joradobra	Friday	Gram Panchayat
4	Rinja	Rinja	Wednesday	-do-
5	Regda	Regda	Monday	-do-

NAME OF THE BLOCK: M.RAMPUR

Sl. No.	Name of the G.P.	Name of Weekly Market	Market Day	Regulated by
1	**2**	**3**	**4**	**5**
1	M.Rampur	M.Rampur	Tuesday	Gram Panchayat
2	Madanpur	Madanpur	Wednesday	-do-
3	Mohangiri	Mohangiri	Wednesday	-do-
4	Barabandh	Barabandh	Friday	-do-
5	Muding	Muding	Wednesday	-do-

NAME OF THE BLOCK: KESINGA

Sl. No.	Name of the G.P.	Name of Weekly Market	Market Day	Regulated by
1	**2**	**3**	**4**	**5**
1	Utkela	Utkela	Thursday	R.M.C
2	Pastikudi	Pastikudi	Monday	-do-
3	Kesinga NAC	Kesinga NAC	Wednesday/Sunday	N.A.C
4	Gokuleswar	Gokuleswar	Sunday	Gram Panchayat
5	Kikia	Kikia	Sunday	-do-
6	Tundla	Tundla	Saturday	-do-
7	Balsi	Masaniband	Friday	-do-

APPENDIX-XXVI

Extent of Encroachment in Kalahandi North Division

As per the records available the total area 46.5 Ha(45.5 Ha in plan area and 1 Ha in Ravenue Forest) of Forest land in Kegaon Range has been encroached by the individuals and applied for Patta (Title Card) under FRA 2006 but those have been rejected by the DLC. Steps should be taken to evict the above encroach land and to take up plantation in the said blank patches. The details of such rejected claims are given below.

Sl No.	DLC Sl No.	Name of the Applicant		Village	Area in Ha.	Range	Section	Latitude	Longitude	Name of FB
1	434	Jubagobinda Khamari	S/o- Maheswar khamari	Bodelpalli	3	Kegaon	Daspur	19 59 17.8	82 58 0.4	Chura B RF
2	435	Dharmu Bag	S/o- Gunju Bag	Bodelpalli	6.3	Kegaon	Daspur	19 59 15.9	82 57 41.1	Chura B RF
3	436	Sumanta Sunani	S/o- Khageswar Sunani	Bodelpalli	0.5	Kegaon	Daspur	19 59 14.9	82 57 45.8	Chura B RF
4	437	Manjari Bag	D/o- Maheswar Bag	Bodelpalli	2	Kegaon	Daspur	19 59 14.5	82 57 46.8	Chura B RF
5	450	Muge Bag	S/o- Pandara Bag	Ainli	1.5	Kegaon	Gargab	20 04 44.3	83 02 28.6	Daka RF
6	451	Bhaskar Bag	S/o- Pandara Bag	Ainli	1	Kegaon	Gargab	20 04 43.3	83 02 30.5	Daka RF
7	452	Koili Saraf	S/o- Lakhana Saraf	Ainli	1	Kegaon	Gargab	20 04 49.6	83 02 31.1	Daka RF
8	453	Budu Bag	S/o- Bhaskar Bag	Ainli	1.5	Kegaon	Gargab	20 04 56.2	83 02 07.2	Daka RF
9	454	Kabi Bag	S/o- Bhaskar Bag	Ainli	1	Kegaon	Gargab	20 04 38.0	83 02 22.4	Daka RF
10	455	Balaram Bag	S/o- Dhanful Bag	Ainli	1.2	Kegaon	Gargab	20 04 44.4	83 02 28.7	Daka RF
11	459	Muni Mirdha	S/o- Gangadhar Mirdha	Ramchandrapur	1	Kegaon	Gargab	20 03 22.2	82 59 42.6	Revenue Forest
12	589	Tikchan Sunani	S/o- Madhu harijan	Amurlapadar	2	Kegaon	Golamunda	20 00 00	82 46 31.9	Nageswar RF
13	590	Dhoba Harijan	S/o- Motilal Harijan	Amurlapadar	2	Kegaon	Golamunda	20 00 23.4	82 46 29.1	Nageswar RF
14	591	Ugre Sunani	S/o- Sanyasi Sunani	Amurlapadar	2	Kegaon	Golamunda	19 59 51.4	82 47 02.1	Nageswar RF
15	592	Raj Sunani	S/o- Parsu Sunani	Amurlapadar	1	Kegaon	Golamunda	20 00 20.9	82 46 33.6	Nageswar RF
16	593	Gurubaru Sunani	S/o- Ugre Sunani	Amurlapadar	1	Kegaon	Golamunda	20 00 19.2	82 46 30.1	Nageswar RF
17	594	Sarojini Sunani	W/o- Padmalochan Sunani	Amurlapadar	1	Kegaon	Golamunda	20 00 17.3	82 46 29.2	Nageswar RF

Sl No.	DLC Sl No.	Name of the Applicant		Village	Area in Acre	Range	Section	Latitude	Longitude	Name of FB
18	595	Sobha Sunani	S/o- Ganbudi Sunani	Amurlapadar	2	Kegaon	Golamunda	19 59 51.4	82 47 02.1	Nageswar RF
19	596	Chitramani Harijan	S/o- Dhotia Harijan	Amurlapadar	2	Kegaon	Golamunda	20 00 19.6	82 46 32.2	Nageswar RF
20	597	Sitaram Suna	S/o- Khengai Suna	Amurlapadar	2	Kegaon	Golamunda	19 59 51.4	82 47 02.1	Nageswar RF
21	598	Tularam Durga	S/o- Kabi Durga	Tipiguda	1.2	Kegaon	Golamunda	19 58 25.2	82 44 13.4	Nageswar RF
22	599	Pradipta Senapati	S/o- Harban Senapati	Tipiguda	1.3	Kegaon	Golamunda	19 58 25.8	82 44 22.6	Nageswar RF
23	600	Trinath Durga	S/o- Dhanmal Durga	Tipiguda	2.7	Kegaon	Golamunda	19 58 21.5	82 44 17.0	Nageswar RF
24	601	Pabitra Durga	S/o- Bashistha Durga	Tipiguda	1	Kegaon	Golamunda	19 58 23.4	82 44 19.7	Nageswar RF
25	602	Lachham Rout		Kirkakani	5.3	Kegaon	Golamunda	19 58 45.8	82 44 53.7	Nageswar RF
		Total			45.50 +*1.00= 46.50					

*Area under Revenue Forest

No encroachment is noticed in Kalahandi North Forest Division from the year 2006-07 to 2020-21 (up to January 2021).

APPENDIX-XXVII

LIST OF SHG/VSS INVOVLED IN PROCUREMENT OF NTFP

Narla Range

Sl. No.	Name of the Range	Name of the Block	Name of the SHG	Name of the VSS
1	Narla	Narla	Trinath Thakur	Kurmel
2			Maa Dharani	Bamak
3			Maa Manikeswari	Chapatkhanda
4			Maa Durga	Regdimal
5			Maa Mangala	
6			Mahila Bhuasuni	Samarkata
7			Maa Jagatjanani	
8			Maa Tarini	
9			Maa Manikeswari	
10			Maa Durga	Nuapada
11			Trinath Thakur	
12			Shanti	
13			Chanchala	Sripali
14			Maa Tarini	
15			Maa Mangala	
16			Tara Tarini	Panga
17			Maa Sarala	
18			Sriram Thakur	
19			Maa Mangala	Ulisirka
20			Maa Sarala	
21			Maa Saraswati	
22			Maa Binapani	
23			Maa Jibandhara	
24			Maa Mahalaxmi	
25			Brundabati	
26			Chetana Jiban Dhara	
27			Maa Gojabayani	
28			Maa Taratarini	
29			Choota Asha Jiban Dhara	
30			Mahalaxmi	
31			Maa Durga Jiban Dhara	
32			Maa Surjyamukhi	
33			Maa Manikeswari	Boringpadar
34			Sabetri Satyaban	
35			Subhadra	
36			Patakhanda	
37			Maa Laxmi	
38			Maa Saraswati	
39			Maa Tarini	
40			Mahalaxmi	Indramal
41			Maa Samaleswari	
42			Haragouri Mahila Mandal	Keshpala
43			Shri Budha Deo	
44			Maa Gouri	

Sl. No.	Name of the Range	Name of the Block	Name of the SHG	Name of the VSS
45	Narla	Lanjigarh	Maa Durga	Mundighati
46			Laxmi Narayana	
47			Jai Seva Budha Deo	Mahinal
48			Maa Dharani	Redhapadar
49			Maa Bhairabi	Jamguda
50			Maa Mangala	
51			Maa Laxmi	
52			Maa Durga	
53			Baba Mani	
54			Jai Jagannath	Dhamankata
55			Maa Jagatjanani	
56			Maa Samaleswari	
57			Maa Dukerigudi	Sikerguda
58			Jhati Dangar	
59			Maa Diger	
60			Maa Rajani	Kamarda
61			Maa Mauli	
62			Maa Mahima	
63			Maa Brundabati	
64			Maa Bhairabi	
65			Maa Santoshi	
66			Maa Durga	
67			Shiba Sambhu	
68			Maa Laxmi	
69			Maa Sarala	
70			Maa Jharini	
71			Maa Ambika	
72			Maa Nageswari	
73			Maa Dharani	
74			Maa Saraswati	
75			Sri Ganesh	
76			Maa Dukeri	Mundabahal
77			Maa Gayatri	Maskaguda
78			Maa Santoshi	
79			Maa Tarini	
80			Brundabati	
81			Maa Samaleswari	
82			Maa Manikeswari	
83			Haragouri	
84			Radha Krushna	
85			Maa Tulasi	
86			Maa Mahalaxmi	
87			Maa Sakti Maya	
88		M.Rampur	Ganga Jamuna	Bimlapadar
89			Maa Durga	
90			Maa Sarala Jibandhara	
91			Mahalaxmi	Chochobahali
92			Maa Santoshi	
93			Maa Brundabati	
94			Patadei	Khaliamunda
95			Kasana Mahila Mandal	
96			Mahalaxmi	

Sl. No.	Name of the Range	Name of the Block	Name of the SHG	Name of the VSS
97			Jotirmayee	
98			Purnima	Khaliamunda
99			Rut	
100			Arnnapuran	
101			Maa Brundabati	
102			Maa Durga	
103			Mahalaxmi	
104			Maa Jagatjanani	
105			Sailasuta	Nagjhari
106			Girisuta	
107			Banashri	
108			Jai Buda Deo	
109			Maa Tulasi	
110			Indira Sanchaya Samiti	
111			Aam Jharan Sanchaya Samiti	Udeigiri
112	Narla	M.Rampur	Subhashree	Rangapadar
113			Sibani	
114			Maa Durga	Matapadar
115			Maa Tulasi	
116			Maa Laxmi	Lundrubaru
117			Indira Sanchaya Samiti	Dhobamunda
118			Aadibasi Kalyani	
119			Tarini	
120			Shibani	
121			Meerabai	
122			Radha Krushna	
123			Arnnapurana	Pujiladu
124			Maa Kamala	
125			Maa Bimala	
126			Maa Gouri	
127			Maa Pravati	
128			Maa Sabetri	

M.Rampur Range

Sl. No.	Name of the Range	Name of the Block	Name of the SHG	Name of the VSS
1	M.Rampur	M.Rampur		Ainlapali
2		M.Rampur		Dhauramal
3		M.Rampur		Paiksadel
4		M.Rampur		Turchi
5		M.Rampur		Aranjharan
6		M.Rampur		Chandanpinda
7		M.Rampur		Jakabahali
8		M.Rampur		Manignala
9		M.Rampur		Karnimal
10		M.Rampur	Maa Rudrakali SHG	Ambagaon
11		M.Rampur		Pandakamal
12		M.Rampur		Mankadakhola
13		M.Rampur		Ulurupi
14		M.Rampur		Bankel
15		Karlamunda	Maa Laxmipriya SHG	Batikupa
16		Karlamunda		Jamunapur
17		M.Rampur	Maa Jagatjanani	Jharandungri
18		M.Rampur	Maa Sunamukhi	Kabichandrapur
19		M.Rampur		Penjikupa
20		M.Rampur		Srigun
21		Karlamunda		Goindamunda
22		Karlamunda		Bhatapala
23		Karlamunda		Sarabahali
24		M.Rampur		Araskupa
25		M.Rampur		Manikera
26		M.Rampur	Maa Durgati Nasini SHG	Pajikeri
27		M.Rampur		Talnuagaon
28		M.Rampur	Padmalaya SHG Jagannath SHG	Upernuagaon
29		M.Rampur		Later
30		M.Rampur		Tejipada
31		M.Rampur		Podelkuna
32		M.Rampur		Kumerpata
33		M.Rampur		Kotobahali
34		M.Rampur		Muchelpadar
35		M.Rampur		Bagbeda
36		M.Rampur		Banjipadar
37		M.Rampur		Gajipadar
38		M.Rampur	Mamata SHG	Talkuna
39		M.Rampur		Taprang
40		M.Rampur		Tentuliguda
41		M.Rampur	Maa Laxmibai SHG	Putrimahul
42		M.Rampur	Priyadarsini SHG	Urladani
43		M.Rampur	Maa Mahalaxmi SHG	Bijamal
44		M.Rampur		Kand Kundeipali
45		M.Rampur		D.Karlakhunta

APPENDIX-XXVIII

TIMBER & FIREWOOD DEPOTS OF OFDC LTD. IN KALAHANDI NORTH DIVISION

Name of the Range	Location of the timber depot	Location of the firewood depot
Bhawanipatna	-	Bhawanipatna
Kesinga	-	Kesinga
	-	Rupra Road
	-	Narla Road
Madanpur Rampur	Mandirapada	Mandirapada

TIMBER & FIREWOOD DEPOTS OF PRIVATE PERSONS IN KALAHANDI NORTH DIVISION

Name of the Range	Location of the timber depot	Location of the firewood depot	Name of the Owner
Bhawanipatna	Bhawanipatna	-	Kashinath Maharana
Kesinga	Kesinga	-	Mohammad Sajid Anwar
		-	Prabin Kumar Jain

APPENDIX-XXIX
LIST OF KL PHADIES

Sl. No.	Name of Phadi	Name of CD Block	Name of G.P.	Name of village
1	2	3	4	5
	BHAWANIPATNA KL RANGE			
	BHAWANIPATNA 'A' SECTION			
1	Podapadar	Th.Rampur	Karlapat	Podapadar
2	Merghara	Th.Rampur	Karlapat	Podapadar
3	Musiguda	Bhawanipatna	Duarsuni	Musiguda
4	Sagada	Bhawanipatna	Bhawanipatna	Sagada
5	Sargiguda	Bhawanipatna	Sagada	Sargiguda
6	Rachuguda B	Bhawanipatna	Sagada	Rachuguda
7	Ampada	Bhawanipatna	Risigaon	Ampada
8	Amjore	Bhawanipatna	Sagada	Amjore
9	Bondelguda	Bhawanipatna	Jugsaipatna	Pipili
	BHAWANIPATNA'B'SECTION			
10	Bileikani			
11	Funda	Junagarh	Kutrkhamar	Funda
12	Malgaon	Bhawanipatna	Li;oa,a;	Malgaon
13	Bargaon	Bhawanipatna	Kutrkhamar	Bargaon
14	Barajhola	Bhawanipatna	Kutrkhamar	Barajhola
15	Tiljodi	Bhawanipatna	Kutrkhamar	Tiljodi
	PARAMANANDPUR SECTION			
16	PARAMANANDPUR	Gotvatta		
17	PARAMANANDPUR	Palsipada	Bhawanipatna	Duarsuni
18	PARAMANANDPUR	Pipili A		
19	PARAMANANDPUR	Pipili B		
20	PARAMANANDPUR	Belgaon		
21	PARAMANANDPUR	Rachuguda A		
22	PARAMANANDPUR	Chancher		
23	PARAMANANDPUR	Sikerguda		
	DEDAR SECTION			
24	Padampur			
25	Bagpada			
26	Borguda			
27	Kasabahi			
28	Jhikipada	Junagarh	Budhidar	Jhikipada
29	Tetelkhunti D	Junagarh	Kaleigaon	Tetelkhunti
30	Dundelmal	Junagarh	Dedar	Dundelmal
31	Tetelpada	Junagarh	Budhidar	Tetelpada

Sl. No.	Name of Phadi	Name of CD Block	Name of G.P.	Name of village
32	Banjibahal	Junagarh	Dedar	Banjibahal
33	Dedar	Junagarh	Dedar	Dedar
34	Katingpadar	Junagarh	Dedar	Katingpadar
35	Kashipadar	Junagarh	Sagada	Kashipadar
36	Tikrapada	Junagarh	Budhidar	Tikrapada
37	Karlakot	Junagarh	Banijora	Karlakot
	BANAMALIPUR SECTION			
38	Banamalipur	Junagarh	Meriabandli	Banamalipr
39	Eknaguda	Junagarh	Meriabandli	Eknaguda
40	Jaring	Junagarh	Nandol	Jaring
41	Colamunda			
42	Dangapala	Junagarh	Nandol	Dangapala
43	Jharbandh	Junagarh	Nandol	Jharbandh
44	Makarsola	Junagarh	Nandol	Makarsola
45	Panigaon	Junagarh	Nandol	Panigaon
46	Murlapadar	Junagarh	Kuruguda	Murlapadar
47	Labanipur	Junagarh	Nandol	Labanipur
48	Bandhuguda	Junagarh	Dedar	Bandhuguda
	MADING SECTION			
49	Dumal	Bhawanipatna	Kamthana	Badkhairmal
50	Marding	Bhawanipatna	Karlapada	Marding
51	Vejapadar	Kesinga	Chancher	Lamdalja;
52	Kholan	Bhawanipatna	Cheliamal	Sargiguda
53	Kaugopna	Bhawanipatna	Loharakani	Kaugopna
54	Tentelkhunti P			
55	Dorapadar			
	M.RAMPUR KL RANGE			
	M.RAMPUR SECTION			
56	G.K.Khunta	M.Rampur	M.Rampur	G.K.Khunta
57	Chandanpinda	M.Rampur	M.Rampur	Chandanpinda
58	Dhekunkupa	M.Rampur	Nunpur	Dhekunkupa
59	Nunpur	M.Rampur	Nunpur	Nunpur
60	Makarkhola	M.Rampur	Sardalanga	Makarkhola
61	Pandakamal	M.Rampur	M.Rampur	Pandakamal
62	Amagaon	M.Rampur	M.Rampur	Amagaon
63	Jhaliaguva	M.Rampur	Sardalanga	Jhaliaguva
64	Kadhal	M.Rampur	Sardalanga	Kadhal
65	Harlanga	M.Rampur	Urladani	Harlanga
66	Urladani	M.Rampur	Urladani	Urladani
67	Jurakhaman	M.Rampur	Urladani	Jurakhaman

Sl. No.	Name of Phadi	Name of CD Block	Name of G.P.	Name of village
	MADANPUR SECTION			
68	Baliguda	M.Rampur	Ainlatara	Baliguda
69	Metaguda	M.Rampur	Ainlatara	Metaguda
70	G.Dengen	M.Rampur	G.Dangen	G.Dengen
71	Dumerguda	M.Rampur	Madanpur	Dumerguda
72	K,Dangern	M.Rampur	Ainlatara	K,Dangern
73	D.K,Khunta	M.Rampur	Madanpur	D.K,Khunta
74	Pudelcona	M.Rampur	Madanpur	Pudelcona
75	Antarla	M.Rampur	Madanpur	Antarla
76	Gopalpur	M.Rampur	Ainlatara	Gopalpur
77	Aeinlatara	M.Rampur	Ainlatara	Aeinlatara
78	Madanpur	M.Rampur	Madanpur	Madanpur
	SERGARH SECTION			
79	Sergarh	Narla	Sergarh	Sergarh
80	Limursinga	Narla	Sergarh	Limursinga
81	Upher	Narla	Sergarh	Upher
82	Sripali	Narla	Sergarh	Sripali
83	Dutta	M.Rampur	Sardalanga	Dutta
84	Karnimal	M.Rampur	Sardalanga	Karnimal
85	Salepali	M.Rampur	Sardalanga	Salepali
86	Gunangbeda	M.Rampur	Barbenda	Gunangbeda
87	Balbeda	M.Rampur	Barbenda	Balbeda
88	Belgaon	M.Rampur	Barbenda	Belgaon
89	Nuapada	Narla	Sergarh	Nuapada
90	Pujiladu	M.Rampur	Barbenda	Pujiladu
	GAJBAHAL SECTION			
91	Gajbahal	Karlamunda	Gajbahal	Gajbahal
92	Budhikhaman	M.Rampur	Gochadegen	Budhikhaman
93	Pirumal	M.Rampur	Gajbahal	Pirumal
94	Risida	Karlamunda	Risida	Risida
95	B.D,Guda	Karlamunda	Gajbahal	B.D,Guda
96	Pourkela	Karlamunda	Risida	Pourkela
97	Kansil	Karlamunda	Gajbahal	Kansil
98	Kumerpeta	Karlamunda	Gajbahal	Kumerpeta
99	Dh.khaman	Karlamunda	Gajbahal	Dh.khaman
100	Narsingpur	M.Rampur	Ainlatara	Narsingpur
101	Talcona	M.Rampur	Gochadegen	Talcona
	MOHANGIRI SECTION			
102	Mohangiri A	M.Rampur	Mohangiri	Mohangiri
103	Kotbahali	M.Rampur	Mohangiri	Kotbahali

Sl. No.	Name of Phadi	Name of CD Block	Name of G.P.	Name of village
104	Singpur	M.Rampur	Mohangiri	Singpur
105	Talnuagaon	M.Rampur	Manikera	Talnuagaon
106	Manikera	M.Rampur	Manikera	Manikera
107	Pipalpada	M.Rampur	Manikera	Pipalpada
108	Pajikera	M.Rampur	Manikera	Pajikera
109	Kutrupala	M.Rampur	Mohangiri	Kutrupala
110	Pandapadar	M.Rampur	Mohangiri	Pandapadar
111	Later	M.Rampur	Mohangiri	Later
112	Mohangiri B	M.Rampur	Mohangiri	Mohangiri
113	Taprang	M.Rampur	Manikera	Taprang
114	Gandapadar	M.Rampur	Manikera	Gandapadar
	BHATAPALA SECTION			
115	Bhatapala	Karlamunda	Barpadar	Bhatapala
116	Sarabahali	Karlamunda	Barpadar	Sarabahali
117	Khaliapali	Karlamunda	Barpadar	Khaliapali
118	Sitarampali	Karlamunda	Barpadar	Sitarampali
119	Boromunda	Karlamunda	Barpadar	Boromunda
120	Jamunapur	Karlamunda	Barpadar	Jamunapur
121	Oriyamunda	Karlamunda	Karlamunda	Oriyamunda
122	Surjuli	Karlamunda	Gajbahal	Surjuli
123	Banjipadar	Karlamunda	Gajbahal	Banjipadar
124	Bhalupia	Karlamunda	Gajbahal	Bhalupia
125	Goindimunda	Karlamunda	Barpadar	Gondimunda
	KESINGA KL RANGE			
	KESINGA SECTION			
126	Dumermunda	Kesinga	Laitara	Dumermunda
127	Rengali	Kesinga	Balsi	Rengali
128	Bagad	Kesinga	Laitara	Bagad
129	Sirol	Kesinga	Kandel	Sirol
130	Podkhaman	Kesinga	Parlasinga	Podkhaman
131	Kuten	Narla	Muskuti	Kuten
132	Rupra	Narla	Rupra	Rupra
133	Jurkavadi	Kesinga	Parlasinga	Jurkavadi
134	Kantesir	Kesinga	Parlasinga	Kantesir
135	Godipita	Narla	Rupra	Godipita
136	Saharapadar	Kesinga	Parlasinga	Saharapadar
137	Bahadurpita	Kesinga	Parlasinga	Bahadurpita
138	Karunpadar	Narla	Muskuti	Karunpadar

Sl. No.	Name of Phadi	Name of CD Block	Name of G.P.	Name of village
	MATIA SECTION			
139	Deogaon	Kesinga	Gokluleswar	Deogaon
140	Jamjore	Kesinga	Gokluleswar	Jamjore
141	Badbrahamani	Kesinga	Kandel	Badbrahamani
142	Sanbrahamani	Narla	Saria	Sanbrahamani
143	Dendrobahali	Narla	Rupra Road	Dendrobahali
144	Budipadar	Narla	Saria	Budipadar
145	Dendoguda	Narla	Saria	Dendoguda
146	Raxi	Narla	Saria	Raxi
147	Chhatamahul	Narla	Rupra Road	Chhatamahul
148	Khaichuan	Narla	Saria	Khaichuan
	MUSKUTI SECTION			
149	Kendupada	Narla	Muskuti	Kendupada
150	Jodabandh	Narla	Gigina	Jodabandh
151	Muskuti	Narla	Muskuti	Muskuti
152	Ulikupa	M.Rampur	Mading	Ulikupa
153	Sinang	Narla	Gigina	Sinang
154	Dampadar	Kesinga	Gigina	Dampadar
155	Dangapatta	Kesinga	Mading	Dangapatta
156	Khetupada	Narla	Gigina	Khetupada
157	Suding	Kesinga	Palam	Suding
158	Raidhuni	Kesinga	Palam	Raidhuni
159	Taprang	Narla	Gigina	Taprang
	RAJAPADA SECTION			
160	Rajapada	Kesinga	Tundla	Rajapada
161	Singaribahal	Kesinga	Hatikhuj	Singaribahal
162	Karlamunda	Kesinga	Hatikhuj	Karlamunda
163	Turlakhaman	Kesinga	Nunmath	Turlakhaman
164	Sisakhal	Karlamunda	Joradobra	Sisakhal
165	Karnikhunit	Karlamunda	Joradobra	Karnikhunit
166	Bhaludungri	Kesinga	Hatikhuj	Bhaludungri
167	Tundla	Kesinga	Tundla	Tundla
168	Sirjapali	Kesinga	Hatikhuj	Sirjapali
169	Binekela	Kesinga	Kasurpada	Binekela
170	Khasbahal	Kesinga	Nunmath	Khasbahal
171	Bijkhaman	Kesinga	Nunmath	Bijkhaman
172	Khairmal	Narla	Palam	Khairmal
173	Salevata	Narla	Palam	Salevata

Sl. No.	Name of Phadi	Name of CD Block	Name of G.P.	Name of village
	HAJARIPADA SECTION			
174	Joradobra	Karlamunda	Joradobra	Joradobra
175	Ekatara	Karlamunda	Joradobra	Ekatara
176	Karlabahali	M.Rampur	Mading	Karlabahali
177	Bhoipada	Karlamunda	Regada	Bhoipada
178	Palam	Narla	Palam	Palam
179	Hajaripara	Karlamunda	Joradobra	Hajaripara
180	Rendobahali	Narla	Palam	Rendobahali
181	Maskadani	M.Rampur	Mading	Maskadani
182	Pakelpada	M.Rampur	Mading	Pakelpada
183	Durladani	M.Rampur	Mading	Durladani
184	Mahagaon	Narla	Palam	Mahagaon
185	Bhormunda	Karlamunda	Regada	Bhormunda
186	Dandibhanja	Karlamunda	Regada	Dandibhanja
187	Sahajpati	Kesinga	Belkhandi	Sahajpati
	NARLA KL RANGE			
	NARLA SECTION			
188	Narla	Narla	Narla	Dangarmal
189	Jurkabhata	Narla	Narla	Jurkabhata
190	Karnikhunti	Narla	Bagpur	Karnikhunti
191	Baghpur	Narla	Bagpur	Bagpur
192	Badibahal	Narla	Kamarda	Amjore
193	Mundagaon	Narla	Kamarda	Mundagaon
194	Dahal	Narla	Sargiguda	Dahal
195	Ulisirka	Narla	Sargiguda	Bankel
	KAMEI SECTION			
196	Ratanpur	Narla	Tulapada	Ratanpur
197	Jodabandh	Narla	Ghodabandha	Lamsinga
198	Kamei	Narla	Tulapada	Kamei
199	Khairmal	Narla	Kurmel	Nuapada
200	Budeiguma	Narla	Kurmel	Budelguma
201	Jampadar	Narla	Tulapada	Jampadar
202	Kanakpur	Narla	Tulapada	Kanakpur
203	Dhauramal	Narla	Ghodabandha	Dhauramal
204	Boringpadar	Narla	Tulapada	Boringpadar
205	Ponga	Narla	Kamarda	Ponga
206	Bafla	Narla	Bhanpur	Gudangucha
	GHANTMAL SECTION			
207	Gadebandh	Narla	Ghantmal	Gadebandh
208	Karanja	Narla	Nisanpur	Ranipatta
209	Arding	Narla	Ghantmal	Arding

Sl. No.	Name of Phadi	Name of CD Block	Name of G.P.	Name of village
210	Keshpala	Narla	Ghantmal	Keshpala
211	Baddharpur / Khaing	Narla	Santpur	Alabulla
212	Mandel	Narla	Santpur	Mandel
213	Niasanpur	Narla	Nisanpur	Ranimunda
214	Chiching	Narla	Santpur	Chiching
215	Sapdhuni	Narla	Santpur	Pajeeduni
216	Tikrapada	Narla	Santpur	Tikrapada
	LANJIGARH ROAD SECTION			
217	Dungriguda	Biswanathpur	Lanjigarh Road	Dungriguda
218	Jharmunda	Biswanathpur	Lanjigarh Road	Jharmunda
219	Kiding	Biswanathpur	Lanjigarh Road	Kiding
220	Sikerkupa	Biswanathpur	Lanjigarh Road	Sikerkupa
221	Amjhari	Biswanathpur	Lanjigarh Road	Amjhari
222	Khiksavata	Biswanathpur	Lanjigarh Road	Khiksavata
	BISWANATHPUR SECTION			
223	Biswanathpur	Biswanathpur	Biswanathpur	Biswanathpur
224	Pokharibandh	Biswanathpur	Biswanathpur	Pokharibandh
225	Champadeipur	Biswanathpur	Biswanathpur	Jodabandh
226	Golangbandh	Biswanathpur	Biswanathpur	Golangbandh
227	Niali	Biswanathpur	Chatrapur	Niali
228	Basen	Biswanathpur	Chatrapur	Gopinathpur
229	Nangalbeda	Biswanathpur	Chatrapur	Nangalbeda
230	Tangankana(Boringpadar)	Biswanathpur	Chatrapur	Tangankana
231	Kenduguda / Basantpada	Biswanathpur	Chatrapur	Kenduguda
	KEGAON RANGE			
	KEGAON SECTION			
232	Bordi	Golamunda	Kuhura	Bordi
233	Kholpala	Bhawanipatna	Borda	Kholpala
234	Rajanpur	Bhawanipatna	Dumeria	Rajanpur
235	Bandajore	Golamunda	Kegaon	Bandajore
236	Mahendrapur	Golamunda	Kegaon	Mahendrapur
237	Sinapali	Golamunda	Kegaon	Sinapali
238	Baramund	Golamunda	Kegaon	Baramund
239	Karlapada	Golamunda	Kegaon	Karlapada
240	Nuagaon	Golamunda	Kegaon	Nuagaon
241	Karanjakot	Golamunda	Kegaon	Karanjakot
242	Kantamal	Golamunda	Kuhura	Kantamal
243	Kegaon	Golamunda	Kegaon	Kegaon
	DHAMANPUR SECTION			
244	Dhamanpur	Golamunda	Dhamanpur	Dhamanpur
245	Jamjharan	Golamunda	Dhamanpur	Jamjharan

Sl. No.	Name of Phadi	Name of CD Block	Name of G.P.	Name of village
246	Kulerguda	Golamunda	Dhamanpur	Kulerguda
247	Khairpadar	Golamunda	Daspur	Khairpadar
248	Baijalpur	Golamunda	Brundabahal	Baijalpur
249	Makundrapur	Golamunda	Dhamanpur	Makundrapur
250	Mirimiri	Golamunda	Chaparia	Mirimiri
251	Tingipadar	Golamunda	Chaparia	Tingipadar
252	Badjore	Golamunda	Chaparia	Badjore
253	Khaliapali	Golamunda	Chaparia	Khaliapali
254	Kanakpur	Golamunda	Chaparia	Kanakpur
	RENGSAPALI SECTION			
255	Rengsapali	Golamunda	Rengsapali	Rengsapali
256	Padampur	Golamunda	Rengsapali	Padampur
257	Pitaguda	Golamunda	Rengsapali	Pitaguda
258	Belpada	Golamunda	Rengsapali	Belpada
259	Karli	Golamunda	Rengsapali	Karli
260	Bagbahal	Golamunda	Farang	Bagbahal
261	Funda	Golamunda	Farang	Funda
262	Bandhagaon	Golamunda	Rengsapali	Bandhagaon
263	Karlaguda	Golamunda	Farang	Karlaguda
264	Putiachura	Golamunda	Rengsapali	Putiachura
265	Karmat	Golamunda	Rengsapali	Karmat
	GARGAB SECTION			
266	Mermahul	Golamunda	Badchergaon	Mermahul
267	Gundri	Golamunda	Badchergaon	Gundri
268	Jorpada	Golamunda	Uchala	Jorpada
269	Balipati	Golamunda	Uchala	Balipati
270	Dhauramal	Golamunda	Uchala	Dhauramal
271	Limpada	Golamunda	Badchergaon	Limpada
272	Bagder	Golamunda	Badchergaon	Bagder
273	Sambasa	Golamunda	Dambasa	Sambasa
274	Gargab	Golamunda	Badchergaon	Gargab
	DUNGRIGUDA SECTION			
275	Dungriguda	Golamunda	Manjheri	Dungriguda
276	Manjheri	Golamunda	Manjheri	Manjheri
277	Grendul	Golamunda	Manjheri	Grendul
278	Baghmunda	Golamunda	Mahaling	Baghmunda
279	Jayantpur	Golamunda	Mahaling	Jayantpur
280	Dudkel	Golamunda	Manjheri	Dudkel
281	Makaraguda	Golamunda	Mahaling	Makaraguda
282	Betrajpali	Golamunda	Mahaling	Betrajpali

Sl. No.	Name of Phadi	Name of CD Block	Name of G.P.	Name of village
	PALSAPADA SECTION			
283	Palsapada	Golamunda	Brundabahal	Palsapada
284	Sargiguda	Golamunda	Brundabahal	Sargiguda
285	Ganjapada	Golamunda	Daspur	Ganjapada
286	Khaliakani	Golamunda	Khaliakani	Khaliakani
287	Naktikani	Golamunda	Khaliakani	Naktikani
288	Tekpada	Golamunda	Dumerguda	Tekpada
289	Karangamunda	Golamunda	Khaliakani	Karangamunda
290	Phairipani	Golamunda	Khaliakani	Phairipani
	LADUGAON KL RANGE			
	JAIPATNA A SECTION			
291	Sindhakaguda	Jaipatna	Banner	Sindhakaguda
292	Podaguda	Jaipatna	Banner	Podaguda
293	Balagaon			
294	Prajanagphani			
295	Ghatrunagphani			
296	Badkarlakot			
297	Eketaguda			
298	Chhatapadarnuaguda			
299	Chancharamal			
300	Sanpujhariguda			
301	Pabli			
302	Hirapur			
	RENGALPALI SECTION			
303	Nuaguda	Jaipatna	Uchhala	Nuaguda
304	Gopalpur	Jaipatna	Rengalpali	Gopalpur
305	P.Pakhan	Jaipatna	Uchhala	P.Pakhan
306	Ainly	Jaipatna	Ladugaon	Aeinli
307	Chachiguda	Jaipatna	Aeinlibhata	Chachiguda
308	Godbhanja	Jaipatna	Regalpali	Godbhanja
309	Kumjore	Jaipatna	Uchhala	Kumjore
310	Pipalguda	Jaipatna	B.Pujhariguda	Pipalguda
311	Kandagarh			
312	Kukudi	Jaipatna	Aeinlibhata	Kukudi
313	Tetelpada	Jaipatna	Uchhala	Tetelpada
314	Jariguma	Jaipatna	Aeinlibhata	Jariguma
	PONDI SECTION			
315	Ghenuguda	Jaipatna	Mangalpur	Ghenuguda
316	Chh.B.Guda	Jaipatna	Dhansuli	Chh.B.Guda
317	Dhansuli	Jaipatna	Dhansuli	Dhansuli
318	San K.Kot	Jaipatna	Dhansuli	San K.Kot

Sl. No.	Name of Phadi	Name of CD Block	Name of G.P.	Name of village
319	Sastuguda	Jaipatna	Dhansuli	Sastuguda
320	Pandi	Jaipatna	Dhansuli	Pondi
321	Chandpur	Jaipatna	Dhansuli	Chandpur
	BIJUMERA A SECTION			
322	Kulerguda	Koksara	Mohima	Kulerguda
323	Ampani	Koksara	Ampani	Ampani
324	Rohiniguda	Koksara	Podaguda	Rohiniguda
325	Ghantiguda	Koksara	Mohima	Ghantiguda
326	Bijumera	Koksara	Mohima	Bijumera
327	Khaligarh	Koksara	Mohima	Khaligarh
328	Dhobenchanchara	Koksara	Podaguda	Dhobenchanchara S
329	Birimuhan	Koksara	Ampani	Birimuhan
330	Paikpada			
331	Gotomunda			
332	Jayantpur			
333	Kanakpur			
334	Pipaljhpadar			

LIST OF CG

Sl No	Name of the Range	Name of CG complex	No of CG Complex
1	Bhawanipatna	Bhawanipatna	3
2		Junagarh	4
3	Ladugaon	Bijmara	2
4		Jaypatna	1
5		Baner	5
6	Kegaon	Palsapada	3
7		Kegaon	4
8	Narla	Narla	3
9	M.Rampur	M.Rampur	1
10		Madanpur	5
11		Sergarh	3
12	Kesinga	Kesinga	2
13		Tundla	2
		TOTAL	**38**

APPENDIX-XXX

List of Range/ Sections/ Beats of Kalahandi North Forest Division		
No. of Ranges	**No. of Sections**	**No. of the Beats**
5	**20**	**94**
Name of the Range	**Name of the Section**	**Name of the Beat**
Bhawanipatna	Bhawanipatna	Purunapada
		Dambarupadar
		Tikrapada
		Surli
		Kutrukhamar
		Sirliguda
	Karlapada	Karlapada
		Kundabandh
		Kurmachuan
		Turpi
		Tiljodi
	Bhatangpadar	Bhatangpadar
		Sulia
		Nuagaon
		Sarlanji
	Santpur	Santpur 'A'
		Santpur 'B'
		Burat
Kesinga	Kesinga	Kesinga
		Podhkhaman
		Dumermunda
		Degaon
	Kasrupada	Kasrupada
		Singjharan
		Bijkhaman
		Palam
		Tundla
		Amath
		Thapen
	Rupra Road	Rupra Road
		Dampadar
		Gigina
		Gadebandh
Kegaon	Kegaon	Kegaon
		Nuagaon
		Khaliapali
		Tureichhada
		Bagmunda
		Jayantpur

Name of the Range	Name of the Section	Name of the Beat
Kegaon	Gargab	Gargab
		Ramchandrapur
		Sialjodi
		Karmat
		Sankripali
	Golamunda	Golamunda
		Kendupati
		Dudkel
		Antarla
		Bokrasil
		Kirkakani
	Daspur	Daspur
		Dhamanpur
		Putiachura
		Karpa
	Borda	Borda
		Balipati
		Sikuan
		Dumuria
Narla	Narla	Narla
		Kerbandi
		Kamei
		Sargiguda
	Belgaon	Belgaon
		Gunangbeda
		Sripali
		Chochobahali
	Kamarda	Kamarda
		Bhurti
	Harlanga	Harlanga 'A'
		Harlanga 'B'
		Urladani 'A'
		Urladani 'B'
M.Rampur	M.Rampur	M.Rampur
		Pandakamal
		Gourkela
		Ramud
		Kachharpali
		Ainlapali
	Madanpur	Madanpur
		Pramanandapur
		Ainlatara
		Gochhadengen
		Jamunapur
		Surujuli
		Kumerpeta

Name of the Range	Name of the Section	Name of the Beat
M.Rampur	Mohangiri	Mohangiri
		Manikera
		Pandapadar
		Araskupa
		Juger
	Jurakhaman	Mudis
		Pongabaju
		Taparang
		Pudrimahul
5	**20**	**94**

APPENDIX-XXXI

OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS, ORISSA

Memo No: **19664** (5) / 1F- Crop. 634/2001.
Dated, Bhubaneswar, the 13 th Sept'2001.

To

All the Conservator of Forests, Territorial Circles /
Field Director, S.T.R., Baripada

Sub: - **Execution of Salvage Operation and delivery of Salvaged materials.**

The Forest Department has been created for forest conservancy, improving and extending the forest wealth of the State. To achieve this objective, presently felling of trees in forests has been banned by the State Government since 1992.

Further, to save the forest from fire and to utilize purposefully, the fallen trees on the ground and the materials left in the forest by the smugglers after taking away the choicest portion of the trees, these trees and materials are salvaged to road side and delivered to the Orissa Forest Development Corporation Ltd. after due passing and finalizing royalty of the same.

The Government orders vide F & E Department Memo No.104/F & E Dated.02.01.2001, No.9978/ F & E dated.21.06.2001 and instructions issued from this office vide Memo No.1769 (5) dated 22.01.2001 are so minor clear and strict for executing salvage operations that even dried standing trees are not consideration it is found that even green standing trees are being cut in large number and salvaged.

To make salvaging operations uniform, rational and transparent following additional instructions should be observed in execution of salvage operation :

i) Each Forest Guard should be issued two registers with a Certificate given on the first page of each register by the Range Officer about the number of pages each register contains. One of these registers will be used for recording the details of dry fallen trees for which a proforma is enclosed with this letter as **Annexure- I**. The other register will be sued for recovering the left out materials in course of illicit felling by smugglers. The proforma for this register is enclosed as **Annexure-II**. The Forest Guard as usual while patrolling his beat will hammer mark on fallen tree at base and B.H. by making two 9" x 9" blazes at those places. Similarly, in case of left out materials the stump of tree concerned will be branded with seized hammer mark at its top and left materials will be branded with seized hammer mark at both cut ends of the logs or at every 10".0" length of the stem portion, if it is not logged, by making blazes. At each place 3 un-pression of seized hammer will be given.

All the fallen trees will be given Sl.No. which will continue in a particular beat for the whole financial year.

The Forest Guard will take measurement of the left out portions of illicitly felled trees i.e. length and mid girth and record the same in the register concerned.

Here, also the Forest Guard will continue the Sl. No. for such left out materials for the whole financial year.

The Forester of a Section will check these registers of each Forest Guard of his section every fortnight and take out an abstract of information of each register separately and submit a consolidated report beat-wise to the Range Officer about such trees and left out materials. Before submission of this report to Range Officer, he will personally verify 50% of the information of each register for each beat about correctness of this information and physical availability of trees / materials. The Forester will not keep this matter pending at his level for more that a week.

The Range Officer will consolidate both those information section–wise separately and submit the same to the Divisional Forest Officer for every calendar month by 7th of succeeding month. Before submitting those information to the Divisional Forest Officer, the Range Officer will verify at-least 25% of the materials in each beat / section about the correctness of measurement and physical availability of these materials.

After receipt of such report from the Range Officer, the Divisional Forest Officer will submit a divisional consolidated report to his Conservator of Forests every month by 15th of succeeding month. The Divisional Forest Officer will wait for 15 days before taking up salvage operations of those materials. In the information submitted by the Divisional Forest Officer by sending the Mobile Asst. Conservator of Forests or by himself or any party. Before submitting the information to the Conservator of Forests, the Divisional Forest Officer should check at- least 5 – 10 % of the materials so reported in each Range about the correctness of measurement and physical availability personally and 10% checking must be done by his A.C.F. in each Range.

In no case, the Divisional Forest Officer should take up Salvage operations without receipt of such information from Range Officers and without waiting for 15 days after submission of this information to his Conservator of Forests.

Basing on such information, the Conservator of Forests will control the allotment of funds for salvage operations to a particular division. The Conservator of Forests should make it a point to physically check such information about fallen trees and left out materials. He should regularly monitor the progress of materials both timber and firewood salvaged in a division, its delivery to OFDC and royalty finalization.

Delivery of Salvaged materials.

For every calendar month by 7th of succeeding month, the Divisional Forest Officer will submit a list of materials both timber and firewood salvaged during the month in each Range. Site-wise / Lot-wise to his Conservator of Forests with a copy to concerned Divisional Manager, OFDC Ltd, he will submit a proposal to the Conservator of Forests for its approval. In case, the materials salvaged in a particular month are quite less the list of these materials may be submitted to Divisional Manager, OFDC Ltd. once in 2 to 3 months and royalty discussion will be held on these occasions. Materials will be delivered to OFDC Ltd. only after royalty is finalized. In divisions where the practice of getting approval of rates of royalty first and then submission of proposal for royalty approval on various occassion is being followed may continue.

A quarterly Progress Report on Salvage Operations will be submitted to this office with a copy to Conservator of Forests in the proforma enclosed as **Annexure-III.** Instances have come to our notice where salvaged materials are not delivered fully to the OFDC Ltd. and this may be due to over charging the quantity of materials salvaged in the vouchers or false vouchers. For any omission about felling standing, dry or green trees for salvaging, the Divisional Forest Officer along-with the concerned Range Officer will be held fully responsible.

Along with branding and enumeration of left out materials and stump of illicitly felled trees with seized hammer by the Forest Guard he will book offence cases for the same i.e., tree felled and Forester and Forest Ranger should make concerted efforts to find out the offenders and recover the stolen materials.

Necessary enquiry should be conducted as per the provisions of the Orissa Forest (Detection, Enquiry and disposal of Forest Offence) Rules, 1980. We should not remain content with salvaging the left overs only as it is now.

Before salvaging a fallen tree the marking hammer issued to Range Officer will be impressed on the blazed portion alongside of the seized hammer mark. This marking hammer will impressed on the top of the stump after this tree is salvaged, to prove that it is a salvaged tree stump.

Conversion Register should be maintained by the Range Officer for all salvaging operations. Logs of fallen trees as well as left out materials will be given log serial basing on the tree number given in the register of Forest Guard with coaltar / digit using an initial word of the beat name and suffix. Before salvaging a fallen tree of left out materials it should be worked out as to whether the salvaging is economical of not. There may be cases where expenditure involved on salvaging will be more than the royalty to be obtained. In such cases, the salvaging may not be attempted.

Reconciliation of salvaged materials with materials delivered to O.F.D.C.Ltd.

The conservator of Forests should review for each quarter ending 31st March, 30th June, 30th September and 31st December after obtaining a report from the Divisional Forest Officer the position about the materials salvaged during the quarter and materials delivered to O.F.D.C.Ltd.. So also he should get a report from Divisional Manager about materials taken delivery. He should take up this work immediately for the financial year 2000-2001 and 1999-2000, as it is feared that in a number of divisions the materials salvaged during these years may not have been delivered to O.F.D.C.Ltd. fully and in 1999 there was large scale salvaging in some divisions due to super cyclone.

For this purpose, even verification of 60-Ps of the divisions is also needed to find out the amount spent and materials obtained. Similarly, the royalty assessed and received from O.F.D.C.Ltd. for the delivered materials needs to be reviewed and reconciled. Each Conservator of Forests is instructed to make this exercise and report materials obtained in salvage operations, materials delivered to O.F.D.C.Ltd., out of these, royalty approved , royalty obtained and cost incurred on these salvage operations in each divisions of his circle. From this information, cost benefit ratio may be worked out for each divisions in each year.

You may be aware of the case of felling green standing trees in the garb o salvage operations in Jeypore division in which some senior officers were suspended. Let us at-least now learn lessons from our mistakes and adopt all corrective measures.

Sd/-
Principal Chief Conservator
of Forests, Orissa.

ANNEXURE-I

PROFORMA FOR THE REGISTER OF NATURALLY DRY FALLEN TREES TO BE MAINTAINED BY THE FOREST GUARD

Name of the Beat: - Name of the Forest Guard: -

Date of inspection of site	Name of Forest Block	Sl. No. given to fallen tree	Species	Girth in C.Ms, at B.H.	Sound / Un-sound or partly sound	Length of clear pole in meters	Approximate period of felling	Cause of failing	Remarks & signature of Forest Guard with date
1	2	3	4	5	6	7	8	9	10

Notes: 1. The Serial Number in Column 3 will be continuous for a particular Beat for the whole financial year.

2. Opposite pages of register should have five columns each and two opposite pages will be used together.

ANNEXURE-II

PROFORMA FOR THE REGISTER OF LEFT OVER MATERIALS OF ILLICITILY FELLED TREES TO BE MAINTAINED BY THE FOREST GUARD

Name of the Beat: - Name of the Forest Guard: -

Date of inspection of site	Name of the Forest Block	Sl. No. of trees illicitly felled	Species	Girth of timber in C.Ms	Approximate length of log stolen away	Girth & length in C.Ms of each log / portin g left in forest	Sound/ Un-sound or partly sound	Approximate period of felling	FIR No. & Date	Brief note on enquiru made to find out the offender	Remarks and signature of Forest Guard
1	2	3	4	5	6	7	8	9	10	11	12

Notes: 1. The Serial Number in Column 3 will be continuous for a particular Beat for the whole financial year.

2. Under Column 7 measurements (length & girth) of each log / portion will be recorded if more than one portion.

3. There will be six or so columns on each opposite page of register and two opposite pages will be used together.

ANNEXURE-III

QUARTELY PROGRESS REPORT ON SALVAGE OPERATIONS FOR QUARTER ENDING 30TH JUNE / 30TH SEPT / 31ST DECEMBER /31ST MARCH OF……YEAR FOR…..…CIRCLE (PLEASE TEAK MARK THE QUARTER FOR WHICH THE REPORT IS FURNISHED)

Name of the Forest Division	No. of trees salvaged		Quantity of forest produce obtained			Expenditure incurred	Quantity delivered to OFDC Ltd.		
	Naturally fallen	Illicitly felled	Timber (in cum)	Poles (in Nos)	F/W (in MT)		Timber (in cum)	Poles (in Nos)	F/W (in MT)
1	2	3	4	5	6	7	8	9	10

Quantity other-wise disposed off if any				Balance available			Causes of non-delivery if any	Amount of royalty fixed	Amount of royalty realised		Remarks
Type of disposal	Quantity Disposed off			Timber (in cum)	Poles (in Nos)	F/W (in MT)			From OFDC Ltd.	From others	
	Timber (in cum)	Poles (in Nos)	F/W (in MT)								
11	12	13	14	15	16	17	18	19	20	21	22

Notes: 1. Progressive total up to the reporting quarter should be indicated starting with relevant financial year.

2. Opening balance of various types of produce of previous year be reported separately along-with lst quarter of a year i.e. April- June quarter.

APPENDIX-XXXII
INCUMBENCY CHART OF KALAHANDI FOREST DIVISION

Sl. No.	Name	Period	
		From	To
1	Sri D.Patra	Pre merger	09.01.1948
2	Sri G.S.Deb	09.01.1948	12.12.1948
3	Sri S.Jee, AIFC	12.12.1948	02.03.1950
4	Sri S.R.Choudhury, AIFC	02.03.1950	17.04.1953
5	Sri S.S.Panigrahi, AIFC	17.04.1953	20.07.1953
6	Sri L.S.Deo	20.07.1953	03.08.1953
7	Sri R.C.Mohanty, AIFC	03.08.1953	11.10.1956
8	Sri B.Das, AIFC	11.10.1956	10.12.1957
9	Sri B.Mahapatra, AIFC	10.12.1957	20.12.1959
10	Sri G.C.Das, AIFC	20.12.1959	19.01.1960
11	Sri M.N.Mitra, AIFC	19.01.1960	23.08.1961
12	Sri C.V.S.Murthy, AIFC	23.08.1961	30.06.1964
13	Sri T.Das, AIFC	30.06.1964	30.10.1964
14	Sri C.V.S.Murthy, AIFC	30.10.1964	18.06.1965
15	Sri R.N.Mohanty, AIFC	18.06.1965	06.07.1965
16	Sri C.V.S.Murthy, AIFC	06.07.1965	15.10.1965
17	Sri A.Nath, AIFC	15.10.1965	07.05.1966
18	Sri S.R.Choudhury, AIFC	07.05.1966	11.06.1966
19	Sri C.G.Mishra, AIFC, ACF	11.06.1966	13.07.1966
20	Sri S.R.Choudhury, AIFC	13.07.1966	07.09.1966
21	Sri C.V.S.Murthy, AIFC	07.09.1966	02.12.1966
22	Sri T.Rath, AIFC	02.12.1966	10.03.1968
23	Sri M.C.Das, AIFC	10.03.1968	18.05.1970
24	Sri S.K.Patnaik, AIFC, ACF	18.05.1970	04.07.1970
25	Sri T.Das, AIFC	04.07.1970	20.09.1970
26	Sri S.K.Patnaik, AIFC, ACF	20.09.1970	01.11.1970
27	Sri T.Das, AIFC	01.11.1970	03.08.1971
28	Sri S.K.Patnaik, AIFC, ACF	03.08.1971	22.08.1971
29	Sri J.N.Patel, OFS	22.08.1971	30.06.1974
30	Sri P.Pradhan, OFS	30.06.1974	22.05.1977
31	Sri S.K.Patnaik, IFS	23.05.1977	09.07.1979
32	Sri B.B.Routray, IFS	10.07.1979	21.09.1983
33	Sri S.C.Bohidar, IFS	22.09.1983	30.12.1984
34	Sri M.Gourinath, IFS	31.12.1984	02.10.1989
35	Sri R.N.Reddy, IFS	02.10.1989	07.11.1993
36	Sri S.S.Srivastava, IFS	08.11.1993	20.11.1993
37	Sri P.K.Mohan, IFS	20.11.1993	09.10.1995
38	Sri S.P.Mohapatra, IFS	09.10.1995	22.08.1998
39	Sri P.K.Mallick, IFS	22.08.1998	16.09.1998
40	Sri P.K.Sahoo, IFS	16.09.1998	10.11.2000
41	Sri P.K.Mallick, IFS	11.11.2000	04.12.2000
42	Sri P.K.Sahoo, IFS	05.12.2000	18.06.2004
43	Sri J.S.Mohanty, OFS-I	18.06.2004	12.05.2008
44	Sri Godabarish Panda, OFS-I	12.05.2008	11.09.2013
45	Sri S.M Singh, OFS-I	11.09.2013	01.11.2013
46	Sri Lalitendu Jena,OFS-I	01.11.2013	30.08.2017
45	Sri Nitish Kumar,IFS	30.08.2017	02.09.2017
46	Sri Viswanath Neelannavar, IFS	06.09.2017	20.12.2017
47	Sri Nitish Kumar, IFS	20.12.2017	Continuing

APPENDIX-XXXIII

OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS, ORISSA, BHUBANESWAR

Memo No.15931/10F (Cons.)8/07
Dated, the Bhubaneswar 3rd Aug. 2007-11-06

To

All Conservator of Forests

Sub: - **Survey & demarcation with construction of pillars.**

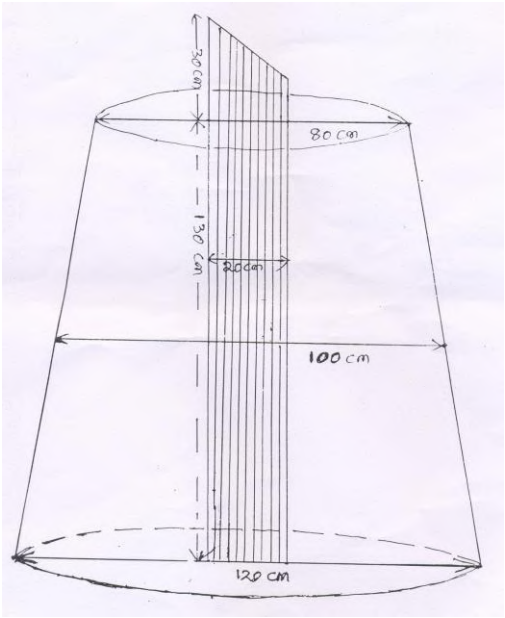
Ref: - This office letter No. 7487(70/7F(Misc.) 301/02 dt.9.4.2004

Instruction has been given for construction of boundary pillars on the (1) **Reserve Forest Boundary** vide this office letter under reference. It has been clarified in the said letter that the pillars shall be constructed in size of 100 cm. diameter and 130 cm. height having a pole of firth 60-75 cm(using locally available stones and boulders). The pole of 100 cm. length to be fixed in the centre shall be 70 cm inside pillar and 30 cm above. The visible portion of pole shall be dressed and it will face towards outside, with the pillar number written on it. The outer surface of the pillar shall be cemented.

However in execution of the work henceforward, certain modifications are allowed as per details given below to ensure stability.

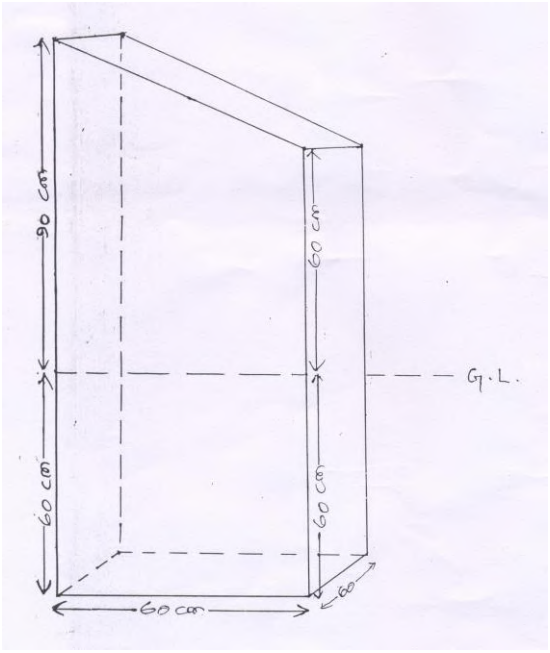
(a) **Stone Pillars (Figure I a) :**

1. The ground shall be leveled before construction of pillar.
2. The diameter at the base of the pillar shall be kept 120 cm and that at the top 80 cm so that the diameter at the centre will be 100 cm. Height of pillar shall be 130 cm. Locally available stones and boulders shall be fixed using mud mortar.
3. The pole of 160 cm length (duly painted with coal tar) to be fixed in the centre shall be 130 cm inside pillar and 30 cm above, i.e. one end of pole shall be embedded in ground.
4. The visible portion of pole shall be flattened with face towards outside and the pillar number written on it. The pillar number shall also be written at the base of the pillar.
5. The voids on the outer surface of the pillar should invariably be cemented.



(b) **Masonry Pillars (Figure I b)**

Masonry pillars may also be constructed on the RF boundary line where adequate curing is possible. The foundation of such pillar shall be 60cmX60cmX60cm. The size of the pillar above foundation (ground) shall be 60cmX60cmX60cm (ht)on back side and 60cmX60cmX60cm(ht) on front side with face slanting outside. This will have a volume of 18 cft.

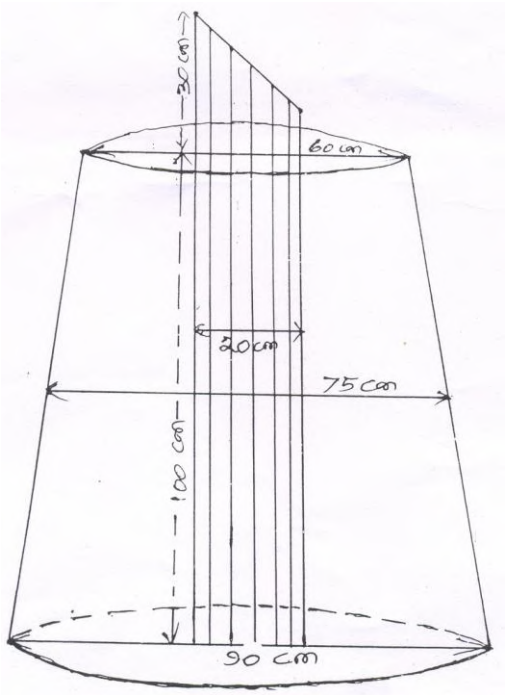


(II) Boundary pillars on the PRF & DPF boundary

(a) **Stone cairns (Figure II a)**

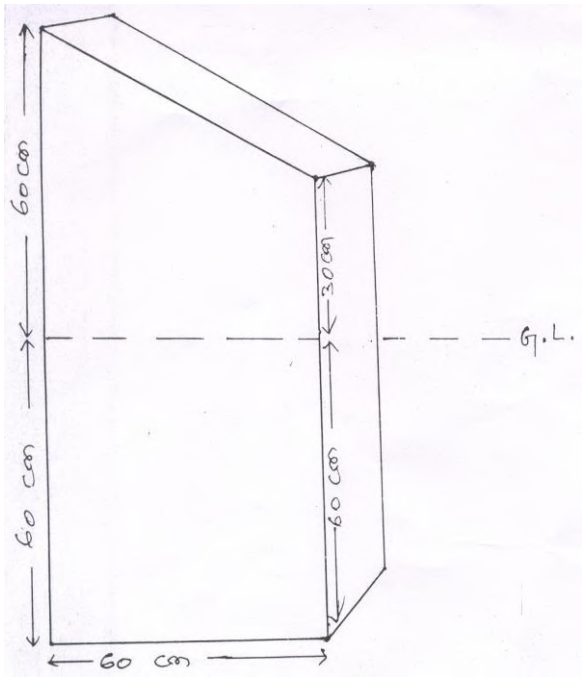
1. The ground shall be leveled before construction of the pillar.

2. The diameter at the base of the pillar shall be 90 cm while that at top 60 cm. Thus diameter at centre will be 75 cm. Height of pillar shall be 100 cm. Locally available stones and boulders shall be used and made stable before filling up voids with mud mortar.
3. The pole of 130 cm. length (duly painted with coal tar) to be fixed in the centre shall be 100 cm inside pillar and 30 cm above, i.e. one end of pole shall be embedded in ground.
4. The visible portion of pole shall be flattened with face towards outside and pillar number written on it. The pillar number shall also be written at the base of pillar.



(b) **Masonry Pillars (Figure IIb)**

Masonry pillars may also be constructed on the PRF/DPF boundary at places where adequate curing is possible. The foundation of such pillar shall be 60cmX60cmX60cm. The size of the pillar above foundation (ground) shall be 60cmX60cm (ht) on back side and 60 cm X 30 cm (ht) on front side with the slanting surface facing outside. The pillar shall be plastered and duly numbered with name of PRF/DPF written on the slanting portion. This will have a volume of 14 Cft.

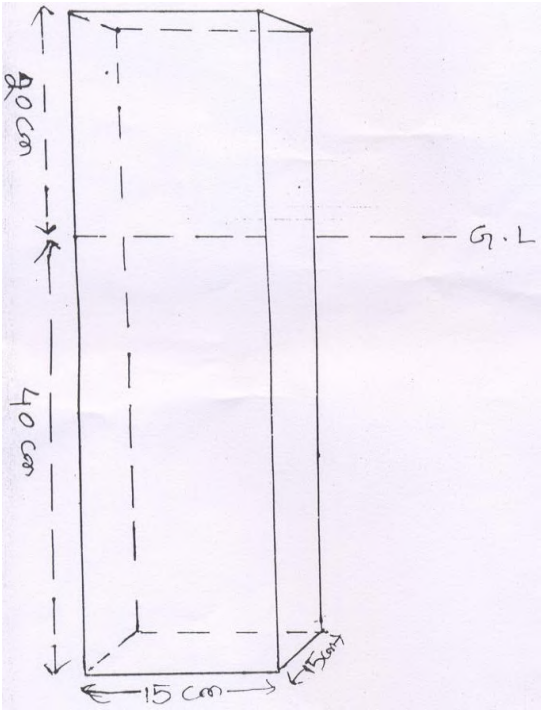


(III) Other Pillars:

Pillars posting along other demarcation lines is also required in the field, such as demarcation of VSS areas, ANR areas, plantation areas and other treatment areas. This demarcation pillar shall be of different size and shape. To bring uniformity in the construction of pillars, following type of pillars along demarcation shall be ensured for different type of areas.

(a) **VSS area (Figure III a)**

VSS area shall be demarcated using concrete / cut stone pillar of 15 cm X 15 cm cross-section and of 60 cm length of which 40 cm shall be below the found and 20 cm above the ground. The name of VSS on the side & pillar number on the top shall be written.



(b) **Demarcation of ANR/Plantation / other treatment area :**

The pillars for this purpose shall be similar to that of VSS area but instead of VSS, words lime ANR (Assisted Natural Regeneration), BP (Block Plantation) can be written.

The above is being attempted to ensure uniformity in the shape , size and look of various pillars, cairns etc. used in boundary delineation of various forest areas and are crucial fro m management point of view. Thus due importance to the above instructions is required to be attached in all Divisions, for which the respective officers are directly responsible.

Principal Chief Conservator of Forests,
Orissa, Bhubaneswar.

APPENDIX-XXXIV

Criteria and Indicators under Bhopal India process for Sustainable Forest Management

Criteria		Indicators	Data Availability	FMU	National
Criterion 1: Increase in the extent of forest and tree cover	1.1	Area and type of forest cover under (a) Natural forest	A	X	X
		(b) man-made forest (tree plantations)	A	X	X
	1.2	Forest area officially diverted for non-forestry purposes	A	X	X
	1.3	Forest area under encroachment	A	X	X
	1.4	Area of dense, open and scrub forests	A	X	X
	1.5	Tree cover outside forest area	C	X	X
Criterion 2: Maintenance, conservation and enhancement of biodiversity	2.1	Area of protected eco-systems (PAs)	A	X	X
	2.2	Number of (a) Animal and	B	X	X
		(b) Plant species	B	X	X
	2.3	Number and status of threatened species Animal	C	X	X
		(b) Plant species	C	X	X
	2.4	Status of locally significant species (a) Animal and	C	X	-
		(b) Plant species	C	X	-
	2.5	Status of species prone to over exploitation	C	X	X
	2.6	Status of non-destructive harvest of wood and Non-Wood Forest Produce	B	X	X
Criterion 3: Maintenance and enhancement of ecosystem function and vitality	3.1	Status natural regeneration	A	X	X
	3.2	Incidence of forest fires	A	X	X
	3.3	Extent of livestock grazing (a) Forest area open for grazing	A	X	X
		(b) Number of livestock grazing in forest	B	X	X
	3.4	Occurrence of weeds in forest (a) Area	B	X	X
		(b) Weed type	B	X	X
	3.5	Incidences of pest and diseases	B	X	---
Criterion 4: Conservation and maintenance of soil and water resources	4.1	Area under watershed treatment	A	X	X
	4.2	Area prone to soil erosion	B	X	X
	4.3	Area under ravine, saline, alkaline soils and deserts (hot and cold)	B	X	X
	4.4	Soil fertility/Site Quality	C	X	X
	4.5	(a) Duration of water flow in the selected streams	B	X	---
		(b) Ground water in the vicinity of the forest areas	B	X	---
Criteria 5: Maintenance and Enhancement of Forest Resource Productivity	5.1	Growing stock of wood	A	X	X
	5.2	Increment in volume of identified species of wood	C	X	X
	5.3	Efforts towards enhancement of forest productivity: (a) Technological inputs	A	X	X
		(b)Area under Hi-tech plantations	A	X	X
		(c) Area under Seed Production Areas, Clonal Seed Orchards etc.	A	X	X

Criteria		Indicators	Data Availability	FMU	National
Criteria 6: Optimization of forest resource utilization	6.1	Recorded removal of wood	A	X	X
	6.2	Recorded collection of Non-Wood Forest Produce	A	X	X
	6.3	Efforts towards reduction of wastages of forest products	C	X	X
	6.4	Aggregate and per capita consumption of Wood and Non-Wood Forest Produce	B	X	X
	6.5	Direct employment in forestry and forest based industries	B	X	X
	6.6	Contribution of forests to the income of forest dependent people	B	X	X
	6.7	Demand and Supply of Wood and Non-Wood Forest Produce	C	X	X
	6.8	Import and Export of wood and Non-Wood Forest Produce	A	---	X
Criteria 7: Maintenance and enhancement of social, cultural and spiritual benefits	7.1	(a) Number of JFM committees and areas(s) protected by them	A	X	X
		(b) Degree of people's participation in management and benefit-sharing	A	X	X
		(c) Level of participation of women	A	X	X
	7.2	Use of indigenous technical knowledge: Identification, Documentation and Application	A	X	---
	7.3	Quality and extent to which concessions and privileges are provided	A	X	X
	7.4	Extent of cultural/sacred protected landscapes: forests, trees, ponds, streams, etc. (a) Type and area of landscape	A	X	X
		(b) Number of visitors	A	X	X
Criteria 8: Adequacy of Policy, Legal and Institutional framework	8.1	Existence of policy and legal framework	A	X	X
	8.2	Number of forest related offences	A	X	X
	8.3	Level of investment in Research and Development	A	X	X
	8.4	Human resource capacity building efforts	A	X	X
	8.5	Forest Resource Accounting (a) Contribution of forestry sector to the GDP	B	X	X
		(b) Budgetary allocations to the forestry sector	B	X	X
	8.6	Monitoring and Evaluation mechanisms	B	X	X
	8.7	Status of information dissemination and utilization	B	X	X

APPENDIX-XXXV

HERB IVI of All RANGE

Bhawanipatna

Sl. No.	Forest Block	Name of the species	Density (No. of herb/ unit area)	Frequency	IVI
1	Brahmani	Ankula	1578.95	15.79	19.54
		Apamaranga	2368.42	31.58	34.00
		Baghanakhi	1842.11	15.79	21.24
		Bajramuli	789.47	10.53	11.33
		Banhaldi	263.16	5.26	4.82
		Bantulasi	526.32	5.26	6.51
		Bhuinimba	263.16	5.26	4.82
		Bisalyakarani	526.32	5.26	6.51
		Dhatiki	2368.42	26.32	30.88
		Iswarjata	1578.95	15.79	19.54
		Kurei/kher	526.32	5.26	6.51
		Poksunga	2894.74	26.32	34.27
		Total	**15526.32**	**168.42**	**200.00**
2	Dhanupanchan	Dhatiki	5000.00	100.00	83.33
		Kurei/kher	10000.00	100.00	116.67
		Total	**15000.00**	**200.00**	**200.00**
3	Gundi	Ankhukoli	166.67	3.33	2.57
		Ankula	3333.33	46.67	42.26
		Apamaranga	333.33	6.67	5.14
		Badichand/Cadichang	166.67	3.33	2.57
		Bajramuli	333.33	6.67	5.14
		Bantulasi	1666.67	23.33	21.13
		Bhuinimba	500.00	6.67	6.19
		Chitaparu	166.67	3.33	2.57
		Dhatiki	1833.33	26.67	23.70
		Iswarjata	1000.00	10.00	10.86
		Kurei/kher	3500.00	46.67	43.32
		Mirgichra/Barenga	166.67	3.33	2.57
		Poksunga	2666.67	33.33	31.99
		Total	**15833.33**	**220.00**	**200.00**
4	Th.Gundi	Ankula	3875.00	50.00	48.61
		Apamaranga	375.00	5.00	4.78
		Arakha	125.00	2.50	1.99
		Bajramuli	1625.00	17.50	18.73
		Ban soris	125.00	2.50	1.99
		Banhaldi	250.00	2.50	2.79
		Bantulasi	1500.00	20.00	19.12
		Dhatiki	1375.00	20.00	18.32
		Iswarjata	1000.00	17.50	14.73
		Kurei/kher	2750.00	40.00	36.65
		Poksunga	2625.00	32.50	32.28
		Total	**15625.00**	**210.00**	**200.00**

Sl. No.	Forest Block	Name of the species	Density (No. of herb/ unit area)	Frequency	IVI
5	Kadalighati	Ankula	3750.00	50.00	63.33
		Bajramuli	2500.00	25.00	36.67
		Bantulasi	2500.00	25.00	36.67
		Kurei/kher	2500.00	25.00	36.67
		Poksunga	1250.00	25.00	26.67
		Total	**12500.00**	**150.00**	**200.00**
6	Kanamanjur	Ankula	5833.33	66.67	62.50
		Bajramuli	1666.67	16.67	16.67
		Bantulasi	1666.67	16.67	16.67
		Dhatiki	3333.33	33.33	33.33
		Poksunga	7500.00	66.67	70.83
		Total	20000.00	200.00	200.00
7	Alma	Ankula	2500.00	50.00	29.17
		Dhatiki	2500.00	50.00	29.17
		Kurei/kher	7500.00	100.00	70.83
		Poksunga	7500.00	100.00	70.83
		Total	**20000.00**	**300.00**	**200.00**
8	Pordhar	Ankula	3333.33	66.67	38.89
		Bajramuli	3333.33	33.33	27.78
		Bantulasi	1666.67	33.33	19.44
		Dhatiki	6666.67	100.00	66.67
		Iswarjata	1666.67	33.33	19.44
		Poksunga	3333.33	33.33	27.78
		Total	**20000.00**	**300.00**	**200.00**
9	Dhangada dhangidi	Ankula	10000.00	100.00	200.00
10	Sadalgochha	Bajramuli	2500.00	50.00	41.67
		Bantulasi	2500.00	50.00	41.67
		Kurei/kher	5000.00	50.00	58.33
		Poksunga	5000.00	50.00	58.33
		Total	**15000.00**	**200.00**	**200.00**
11	Kutrukhai	Dhatiki	10000.00	100.00	100.00
		Iswarjata	10000.00	100.00	100.00
		Total	20000.00	200.00	200.00
12	Madakhola A	Ankula	6666.67	66.67	69.70
		Bajramuli	6666.67	66.67	69.70
		Dhatiki	5000.00	66.67	60.61
		Total	**18333.33**	**200.00**	**200.00**
13	Madakhola B	Ankula	2500.00	50.00	32.50
		Dhatiki	10000.00	100.00	90.00
		Dudura	2500.00	50.00	32.50
		Poksunga	5000.00	50.00	45.00
		Total	**20000.00**	**250.00**	**200.00**

Kegaon

Sl. No.	Forest Block	Name of the species	Density (No. of herb/ unit area)	Frequency	IVI
1	Chura A	Akanabindhi	200.00	4.00	3.46
		Amla	200.00	4.00	3.46
		Badichand/Cadichang	200.00	4.00	3.46
		Baghanakhi	400.00	8.00	6.92
		Banhaldi	200.00	4.00	3.46
		Banmalli	400.00	4.00	5.00
		Bansaru	400.00	8.00	6.92
		Bantulasi	600.00	12.00	10.38
		Bhuinimba	1200.00	20.00	18.85
		Bisalyakarani	400.00	8.00	6.92
		Char	400.00	8.00	6.92
		Dhatiki	200.00	4.00	3.46
		Dhaura	400.00	4.00	5.00
		Kendu	4600.00	64.00	66.15
		Kharal	200.00	4.00	3.46
		Kurei/kher	200.00	4.00	3.46
		Phula jhadu	200.00	4.00	3.46
		Poksunga	1200.00	16.00	16.92
		Sal	600.00	8.00	8.46
		Sidha	200.00	4.00	3.46
		Sugandhi lai	200.00	4.00	3.46
		Talmuli	400.00	8.00	6.92
		Total	**13000.00**	**208.00**	**200.00**
2	Chura B	Banmali	357.14	7.14	8.33
		Bela	357.14	7.14	8.33
		Char	1071.43	14.29	20.24
		Dhaura	714.29	14.29	16.67
		Gangasiuli	357.14	7.14	8.33
		Kendu	3214.29	35.71	55.95
		Kurei/kher	1428.57	21.43	28.57
		Poksunga	714.29	14.29	16.67
		Sal	357.14	7.14	8.33
		Sugandhi lai	357.14	7.14	8.33
		Sunari	1071.43	14.29	20.24
		Total	**10000.00**	**150.00**	**200.00**
3	Kumkot	Baghanakhi	312.50	6.25	5.32
		Banmalli	312.50	6.25	5.32
		Bantulasi	1875.00	31.25	28.99
		Bhuinimba	937.50	18.75	15.97
		Dhatiki	937.50	18.75	15.97
		Dhaura	1562.50	18.75	20.73
		Gangasiuli	1562.50	25.00	23.67
		Kendu	2812.50	37.50	39.08
		Kurei/kher	625.00	12.50	10.64
		Neem	312.50	6.25	5.32
		Phula jhadu	937.50	12.50	13.03
		Sabai ghasa	312.50	6.25	5.32
		Sugandhi lai	312.50	6.25	5.32
		Talmuli	312.50	6.25	5.32
		Total	**13125.00**	**212.50**	**200.00**

Sl. No.	Forest Block	Name of the species	Density (No. of herb/ unit area)	Frequency	IVI
4	Nageswar	Bantulasi	5000.00	100.00	66.67
		Gangasiuli	5000.00	100.00	66.67
		Kurei/kher	5000.00	100.00	66.67
		Total	**15000.00**	**300.00**	**200.00**
5	Sindhibhadi	Dhatiki	5000.00	100.00	100.00
		Kurei/kher	5000.00	100.00	100.00
		Total	**10000.00**	**200.00**	**200.00**
6	Lini	Asana	5000.00	100.00	28.57
		Bantulasi	5000.00	100.00	28.57
		Bhuinimba	5000.00	100.00	28.57
		Dhatiki	5000.00	100.00	28.57
		Kendu	5000.00	100.00	28.57
		Phula jhadu	5000.00	100.00	28.57
		Piasal	5000.00	100.00	28.57
		Total	**35000.00**	**700.00**	**200.00**
7	Daka	Kurei/kher	5000.00	100.00	200.00
8	Patramara	Bantulasi	5000.00	100.00	75.00
		Kendu	15000.00	100.00	125.00
		Total	**20000.00**	**200.00**	**200.00**

M.Rampur

Sl. No.	Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
1	Pudrimahul	Iswarjata	2500.00	50.00	40.00
		Kurei/kher	2500.00	50.00	40.00
		Lajwanti/Lajkulilata	2500.00	50.00	40.00
		Poksunga	5000.00	100.00	80.00
		Total	**12500.00**	**250.00**	**200.00**
2	Tal Nuagaon	Badichand/Cadichang	1666.67	33.33	50.00
		Banachanda	1666.67	33.33	50.00
		Iswarjata	1666.67	33.33	50.00
		Kurei/kher	1666.67	33.33	50.00
		Total	**6666.67**	**133.33**	**200.00**
3	Turchi	Amla	5000.00	100.00	66.67
		Kendu	5000.00	100.00	66.67
		Muri	5000.00	100.00	66.67
		Total	**15000.00**	**300.00**	**200.00**
4	Telen	Ankula	555.56	11.11	11.00
		Bajramuli	925.93	11.11	14.33
		Banhaldi	370.37	7.41	7.33
		Bankhajuri/Pinokhajuri	370.37	7.41	7.33
		Banmalli	185.19	3.70	3.67
		Bantulasi	740.74	7.41	10.67
		Bhuinimba	185.19	3.70	3.67
		Dhatiki	370.37	7.41	7.33
		Harida	185.19	3.70	3.67
		Iswarjata	3148.15	55.56	58.33
		Khajuri	185.19	3.70	3.67
		Kurei/kher	925.93	14.81	16.33
		muri	555.56	11.11	11.00
		Poksunga	2037.04	29.63	34.33
		Sal	185.19	3.70	3.67
		Sunaragada	185.19	3.70	3.67
		Total	**11111.11**	**185.19**	**200.00**

Sl. No.	Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
5	Satami	Banhaldi	555.56	11.11	7.03
		Bhuinimba	2777.78	33.33	27.15
		Bichuati	555.56	11.11	7.03
		Iswarjata	6111.11	88.89	65.33
		Kurei/kher	2222.22	33.33	24.12
		Lajwanti/Lajkulilata	555.56	11.11	7.03
		muri	1111.11	22.22	14.06
		Palua	555.56	11.11	7.03
		Poksunga	3333.33	44.44	34.18
		Sunaragada	555.56	11.11	7.03
		Total	18333.33	277.78	200.00
6	Taprang	Amla	58.14	1.16	0.71
		Anantamula	232.56	3.49	2.46
		Apamaranga	116.28	1.16	1.04
		Arakha	58.14	1.16	0.71
		Badianla	58.14	1.16	0.71
		Bajramuli	174.42	3.49	2.13
		Ban soris	58.14	1.16	0.71
		Banhaldi	1511.63	27.91	17.71
		Bankhajuri/Pinokhajuri	174.42	3.49	2.13
		Banmug	58.14	1.16	0.71
		Bantulasi	755.81	12.79	8.47
		Bhuinimba	1569.77	22.09	16.10
		Dhatiki	232.56	4.65	2.84
		Dhaura	58.14	1.16	0.71
		Gangasiuli	174.42	2.33	1.75
		Iswarjata	2209.30	39.53	25.47
		Kasi	116.28	1.16	1.04
		Kendu	465.12	8.14	5.30
		Khajuri	1395.35	23.26	15.51
		Kurei/kher	1627.91	24.42	17.20
		Lajwanti/Lajkulilata	465.12	6.98	4.91
		Mayurachulia	348.84	6.98	4.26
		muri	755.81	15.12	9.24
		Piasal	58.14	1.16	0.71
		Poksunga	3313.95	54.65	36.65
		Sabai ghasa	58.14	1.16	0.71
		Sal	232.56	4.65	2.84
		Sunaragada	1511.63	24.42	16.55
		Talmuli	58.14	1.16	0.71
		Total	17906.98	301.16	200.00

Sl. No.	Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
7	Pongabaju	Bajramuli	1400.00	20.00	13.04
		Ban soris	400.00	8.00	4.51
		Banchakunda	200.00	4.00	2.25
		Banhaldi	2800.00	32.00	23.35
		Bankhajuri/Pinokhajuri	1000.00	12.00	8.53
		Bantulasi	200.00	4.00	2.25
		Bhuinimba	2000.00	36.00	21.18
		Dhatiki	1000.00	12.00	8.53
		Iswarjata	3400.00	48.00	31.48
		Khajuri	1200.00	20.00	12.16
		Kurei/kher	1200.00	20.00	12.16
		muri	200.00	4.00	2.25
		Poksunga	6400.00	72.00	52.98
		Sunaragada	1200.00	20.00	12.16
		Total	22600.00	292.00	200.00
8	Sulia	Ankula	423.73	6.78	5.89
		Apamaranga	169.49	3.39	2.65
		Badianla	84.75	1.69	1.33
		Badichand/Cadichang	84.75	1.69	1.33
		Bajramuli	254.24	5.08	3.98
		Ban soris	169.49	3.39	2.65
		Banhaldi	338.98	6.78	5.30
		Bantulasi	423.73	6.78	5.89
		Bhuinimba	3474.58	44.07	43.24
		Bhuinkurwan/telkurwan	84.75	1.69	1.33
		Dhatiki	423.73	8.47	6.63
		Indrajal	84.75	1.69	1.33
		Iswarjata	2966.10	49.15	41.95
		Kendu	84.75	1.69	1.33
		Kukurchhatia	84.75	1.69	1.33
		Kurei/kher	1949.15	28.81	26.04
		Lajwanti/Lajkulilata	84.75	1.69	1.33
		Mayurachulia	423.73	5.08	5.15
		muri	423.73	8.47	6.63
		Piasal	169.49	3.39	2.65
		Poksunga	1355.93	22.03	18.99
		Sal	84.75	1.69	1.33
		Sunaragada	762.71	11.86	10.45
		Talmuli	84.75	1.69	1.33
		Total	14491.53	228.81	200.00

Sl. No.	Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
9	Puijhari	Ankula	227.27	4.55	3.34
		Bajramuli	227.27	4.55	3.34
		Banhaldi	1590.91	27.27	21.47
		Bankhajuri/Pinokhajuri	454.55	4.55	4.79
		Bhuinimba	454.55	9.09	6.67
		Char	227.27	4.55	3.34
		Dhatiki	909.09	13.64	11.46
		Gayas	227.27	4.55	3.34
		Iswarjata	2272.73	36.36	29.59
		Kendu	454.55	4.55	4.79
		Khajuri	454.55	9.09	6.67
		Khirkoli	227.27	4.55	3.34
		Kurei/kher	1590.91	22.73	19.58
		Lajwanti/Lajkulilata	227.27	4.55	3.34
		muri	909.09	13.64	11.46
		Nahalbell	454.55	4.55	4.79
		Poksunga	3636.36	50.00	43.94
		Sal	454.55	4.55	4.79
		Sunaragada	681.82	13.64	10.01
		Total	15681.82	240.91	200.00
10	Chandanpinda	Iswarjata	10000.00	100.00	65.00
		Kendu	5000.00	100.00	45.00
		muri	5000.00	100.00	45.00
		Poksunga	5000.00	100.00	45.00
			25000.00	400.00	200.00
11	Ramud	Dhatiki	2500.00	50.00	38.18
		Iswarjata	6250.00	100.00	85.45
		Khajuri	1250.00	25.00	19.09
		Kurei/kher	2500.00	50.00	38.18
		Sunaragada	1250.00	25.00	19.09
		Total	13750.00	250.00	200.00
12	Sadel A	Kendu	5000.00	100.00	50.00
		Khajuri	5000.00	100.00	50.00
		muri	5000.00	100.00	50.00
		Sal	5000.00	100.00	50.00
13	Podgudi	Banhaldi	5000.00	100.00	36.67
		Bhuinimba	5000.00	100.00	36.67
		Kurei/kher	10000.00	100.00	53.33
		Lajwanti/Lajkulilata	5000.00	100.00	36.67
		Poksunga	5000.00	100.00	36.67
		Total	30000.00	500.00	200.00
14	Karla	Bankhajuri/Pinokhajuri	5000.00	100.00	40.00
		Kurei/kher	5000.00	100.00	40.00
		Lajwanti/Lajkulilata	5000.00	100.00	40.00
		muri	5000.00	100.00	40.00
		Poksunga	5000.00	100.00	40.00
		Total	25000.00	500.00	200.00
15	Kutigudum	Bhuinimba	2500.00	50.00	30.95
		Kurei/kher	7500.00	100.00	76.19
		muri	2500.00	50.00	30.95
		Poksunga	2500.00	50.00	30.95
		Sunaragada	2500.00	50.00	30.95
		Total	17500.00	300.00	200.00

Sl. No.	Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
16	Mudramaska	Banhaldi	7500.00	125.00	57.34
		Bhuinimba	10000.00	100.00	59.78
		Bhuinkurwan/telkurwan	5000.00	100.00	42.39
		Iswarjata	6250.00	75.00	40.49
		Total	28750.00	400.00	200.00
17	Jerka	Anantamula	416.67	8.33	5.32
		Apamaranga	416.67	8.33	5.32
		Banchakunda	416.67	8.33	5.32
		Banhaldi	2916.67	33.33	28.43
		Banpiaja	416.67	8.33	5.32
		Bantulasi	833.33	16.67	10.64
		Bhuinimba	2083.33	33.33	23.67
		Iswarjata	3333.33	58.33	39.64
		Khajuri	2083.33	41.67	26.61
		Mayurachulia	416.67	8.33	5.32
		Poksunga	3333.33	41.67	33.75
		Sunaragada	833.33	16.67	10.64
		Total	17500.00	283.33	200.00
18	Sunamukhi	Bantulasi	1730.77	19.23	24.30
		Bhuinimba	1153.85	15.38	17.65
		Dhatiki	384.62	7.69	7.33
		Iswarjata	961.54	11.54	13.98
		Khajuri	192.31	3.85	3.67
		Kurei/kher	1538.46	30.77	29.33
		muri	2692.31	30.77	38.29
		Patalgaruda	192.31	3.85	3.67
		Pogostemon	192.31	3.85	3.67
		Poksunga	1730.77	23.08	26.48
		Sunaragada	1346.15	15.38	19.14
		Talmuli	769.23	11.54	12.49
		Total	12884.62	176.92	200.00
19	Benaguda	Agnijhal	106.38	2.13	1.48
		Anantamula	319.15	6.38	4.44
		Apamaranga	212.77	4.26	2.96
		Badichand/Cadichang	106.38	2.13	1.48
		Bajramuli	106.38	2.13	1.48
		Banhaldi	1808.51	21.28	19.17
		Bankhajuri/Pinokhajuri	106.38	2.13	1.48
		Bansaru	212.77	4.26	2.96
		Bantulasi	957.45	17.02	12.46
		Bhuinimba	2127.66	29.79	24.47
		Bhuinkurwan/telkurwan	319.15	4.26	3.58
		Bichuati	106.38	2.13	1.48
		Bisalyakarani	425.53	8.51	5.92
		Dhatiki	425.53	6.38	5.06
		Haladi	212.77	4.26	2.96
		Iswarjata	3617.02	44.68	39.20
		Khirkit/Khirkichi	106.38	2.13	1.48
		Kukurchhatia	106.38	2.13	1.48
		Kurei/kher	744.68	12.77	9.50
		Mayurachulia	957.45	12.77	10.75
		muri	319.15	4.26	3.58
		Patalgaruda	531.91	6.38	5.69
		Poksunga	1276.60	17.02	14.34
		Sunaragada	1595.74	25.53	19.63
		Talmuli	212.77	4.26	2.96
		Total	17021.28	248.94	200.00

Sl. No.	Forest Block	Name of the species	Density (No. of tree/ unit area)	Frequency	IVI
20	Dengen	Dhatiki	5000.00	100.00	200.00
21	Gochhadengen	Banhaldi	5000.00	100.00	83.33
		Muri	10000.00	100.00	116.67
		Total	15000.00	200.00	200.00
22	Bidabaru	Ankula	1875.00	25.00	20.60
		Bajramuli	625.00	6.25	6.01
		Ban soris	312.50	6.25	4.29
		Banhaldi	937.50	12.50	10.30
		Bantulasi	937.50	12.50	10.30
		Bhuinimba	1875.00	25.00	20.60
		Bhuinkurwan/telkurwan	312.50	6.25	4.29
		Dhatiki	625.00	6.25	6.01
		Iswarjata	1250.00	25.00	17.15
		Khajuri	625.00	12.50	8.58
		Kurei/kher	1250.00	25.00	17.15
		Lajwanti/Lajkulilata	625.00	6.25	6.01
		muri	937.50	12.50	10.30
		Nahalbell	625.00	6.25	6.01
		Poksunga	5312.50	56.25	52.39
		Total	18125.00	243.75	200.00

Narla

Sl. No.	Forest Block	Name of the species	Density (No. of herb/ unit area)	Frequency	IVI
1	Urladani	Amla	52.63	1.05	0.69
		Asana	157.89	3.16	2.06
		Atundi	105.26	2.11	1.37
		Banachanda	52.63	1.05	0.69
		Banhaldi	1263.16	14.74	12.70
		Bantulasi	157.89	2.11	1.68
		Bela	52.63	1.05	0.69
		Bhuinimba	2526.32	43.16	30.26
		Bisalyakarani	105.26	1.05	1.00
		Char	105.26	2.11	1.37
		Dhatiki	421.05	7.37	5.11
		Dhaura	52.63	1.05	0.69
		Gandhara	52.63	1.05	0.69
		Haladi	52.63	1.05	0.69
		Iswarjata	2894.74	45.26	33.19
		Kendu	157.89	3.16	2.06
		Khajuri	473.68	9.47	6.17
		Kurei/kher	52.63	1.05	0.69
		Piasal	52.63	1.05	0.69
		Poksunga	3473.68	62.11	42.59
		Sal	473.68	5.26	4.67
		Satavar	684.21	13.68	8.91
		Sugandhi lai	421.05	8.42	5.48
		Sunaragada	3000.00	48.42	34.93
		Sunari	105.26	1.05	1.00
		Total	16947.37	281.05	200.00

Sl. No.	Forest Block	Name of the species	Density (No. of herb/ unit area)	Frequency	IVI
2	Kerbandi	Bhuinimba	5000.00	100.00	50.00
		Poksunga	5000.00	100.00	50.00
		Sal	5000.00	100.00	50.00
		Sunaragada	5000.00	100.00	50.00
		Total	20000.00	400.00	200.00
3	Porgel Extn.	Ankula	1000.00	20.00	16.23
		Bhuinimba	6000.00	80.00	79.22
		Bisalyakarani	3000.00	40.00	39.61
		Iswarjata	1000.00	20.00	16.23
		Poksunga	2000.00	40.00	32.47
		Sunaragada	1000.00	20.00	16.23
		Total	14000.00	220.00	200.00
4	Porgel	Bajramuli	3333.33	50.00	48.08
		Bhuinimba	3333.33	50.00	48.08
		Bisalyakarani	833.33	16.67	13.94
		Iswarjata	833.33	16.67	13.94
		Poksunga	3333.33	50.00	48.08
		Sunaragada	1666.67	33.33	27.88
		Total	13333.33	216.67	200.00
5	Dengsur	Iswarjata	2500.00	50.00	50.00
		Poksunga	2500.00	50.00	50.00
		Satavar	5000.00	100.00	100.00
		Total	10000.00	200.00	200.00
6	Jamguda	Bhuinimba	5000.00	100.00	100.00
		Poksunga	5000.00	100.00	100.00
		Total	10000.00	200.00	200.00
7	Mundighati	Bajramuli	10000.00	100.00	200.00

Kesinga

Sl. No.	Forest Block	Name of the species	Density (No. of herb/ unit area)	Frequency	IVI
1	Nangalguda	Anantamula	961.54	19.23	17.55
		Banhaldi	192.31	3.85	3.51
		Bantulasi	1153.85	19.23	19.14
		Bhuinimba	4807.69	61.54	70.45
		Bisalyakarani	384.62	7.69	7.02
		Kurei/kher	576.92	11.54	10.53
		Lajwanti/Lajkulilata	192.31	3.85	3.51
		Nagapheni	192.31	3.85	3.51
		Patalgaruda	961.54	15.38	15.63
		Poksunga	1346.15	26.92	24.57
		Tulasi	1346.15	26.92	24.57
		Total	12115.38	200.00	200.00
2	Bazargarh	Anantamula	714.29	20.00	12.92
		Bantulasi	1428.57	40.00	25.83
		Bhuinimba	2142.86	60.00	38.75
		Bisalyakarani	2142.86	60.00	38.75
		Kurei/kher	714.29	20.00	12.92
		Talmuli	1428.57	40.00	25.83
		Tulasi	2857.14	60.00	45.00
		Total	11428.57	300.00	200.00

APPENDIX-XXXVI

Indices of Topo sheet covering Kalahandi North Divison

Serial No. of Topo sheet	Topo sheet no.	Serial No. of Topo sheet	Topo sheet no.
1	64 P/3	52	65 I/9
2	65 M/14	53	65 I/11
3	64 P/15	54	65 I/13
4	64 P/10	55	65 I/14
5	65 M/10	56	65 I/16
6	64 P/14	57	64 P/11
7	64 L/10	58	64 P/16
8	64 P/2 L/14	59	65 I
9	64 K	60	64 M
10	64 L/10	61	64 L/16
11	64 L/15	62	64 P/4
12	65 M/9	63	64 P/7
13	65 M/13	64	64 P/8
14	65 M/6	65	64 P/11
15	65 M/4	66	64 P/12
16	65/1-SE	67	64 P/16
17	65 I/NE	68	65 I/11
18	64 L/12	69	65 I/13
19	64 P/4	70	65 I/14
20	65 M/7	71	65 I/15
21	64 L/16	72	65 M/1
22	64 P/13	73	65 M/2
23	65 M/7	74	65 M/3
24	65 M/3	75	65 M/5
25	65 M/2	76	65 M/6
26	64 L/16	77	64 L/16
27	65 M/5	78	65 M/4
28	65 M/9	79	65 M/7
29	64 P/8	80	64 P/3
30	64 H, P/65 (DEA – 1, 64D 64 H 64 P)	81	64 P/3
31	65 M/4	82	64 P/5
32	64 L/12	83	65 M/5
33	65 M/4	84	65 M/5
34	64 L/16	85	64 P/14
35	64 P/16	86	64 P/2 L/14
36	65 M/9	87	64 P/10
37	65 M/7	88	65 M/14
38	64 P/3	89	65 M/6
39	64 L/16	90	64 P/15
40	64 P/16	91	65 M/7

Serial No. of Topo sheet	Topo sheet no.	Serial No. of Topo sheet	Topo sheet no.
41	64 P/3	92	64 K
42	65 M/6	93	64 P/4
43	64 P/7	94	65 M/3
44	64 L/12	95	64 L/10
45	65 I/9	96	64 P
46	65 I/10	97	64 H
47	65I/14	98	64 L/16
48	64 P/3	99	65 M/4
49	64 P/4	100	65 P/11
50	64 P/7	101	65 M/9
51	65 L	102	65 M/16
103	64 L/12	160	65 M/1/NE
104	64 P/3	161	65 M/1/SW
105	64 L/16	162	65 M/2/SW
106	64 L/16	163	65 M/2/NE
107	64 L/12	164	65 M/2/NW
108	65 M/9	165	65 M/2/SE
109	65 M/7	166	65 M/5/SW
110	64 P/7	167	65 M/5/NW
111	64 L/11	168	65 M/6/NE
112	64 P/11	169	65 M/8/SE
113	65 M/4	170	64 P/8/SE
114	64 P/16	171	64 P/11/SE
115	64 P/2	172	64 /P/12/SE
116	64 L/12	173	64 P/12/NE
117	65 M/9	174	65 I/14 SE
118	64 L/16	175	65 I/14/NW
119	64 L/12	176	65 N/I/SE
120	65 I/N	177	65 M/2/SW
121	65 M/13	178	65 M/5/NW
122	65 M/10	179	65 M/6/SE
123	64 P/4	180	65 M/6/SW
124	64 P/7	181	64 I
125	64 P/8	182	64 P
126	64 P/12	183	64 L
127	65 I/9	184	65 M
128	65 I/10	185	65 M/5/NE
129	65 I/11	186	64 P/4
130	65 I/13	187	64 P/7
131	65 I/14	188	64 P/8
132	65 I/15	189	64 P/12
133	65 M/5	190	64 P/16
134	65 M/6	191	65 I/13
135	65 M/8	192	64 P/2 NE

Serial No. of Topo sheet	Topo sheet no.	Serial No. of Topo sheet	Topo sheet no.
136	65 M/10	193	64 P/2 NW
137	64 P/4/SW	194	64 P/2 SE
138	64 P/4/NW	195	64 P/12 SW
139	64 P/8/NW	196	64 P/14 NE
140	64 P/8/NE	197	64 P/14 NE
141	64 P/8/SW	198	64 P/14 SW
142	64 P/7/SW	199	64 L/12 NE
143	64 P/7/SE	200	64 L/12 NE
144	64 P/4/SE	201	65 I/10 NE
145	64 L/12/SE	202	65 I/10 NW
146	64 L/16/NW	203	65 I/10 SE
147	64 L/16/SW	204	65 I/11 NW
148	64 L/16/SE	205	65 I/13 NE
149	64 L/16 NE	206	65 I/15 NE
150	64 P/11/NW	207	64 P/3/NE
151	64 P/11/SE	208	64 P/3 NW
152	65 I/5/NW	209	64 P/3 SE
153	65/ I/9/NE	210	64 P/3 SW
154	65 I/9/SW	211	65 I/16/NW
155	65 I/10/SW	212	65 I/16/SE
156	65 I/15/SE	213	65 I/16/SW
157	65 I/15/NW	214	65 M/3/NE
158	65 I/14/NE	215	65 M/3/NW
159	65 M/1/SW	216	65 M/3/SW
217	64 L/12/SE	274	64 P/16 SE
218	64 /L/16/ NE	275	64 P/16 NW
219	64 /L/16/SE	276	64 P/16 SW
220	64 L/16/SW	277	64 L/12 NE
221	64 P/4/NW	278	64 L/12 SE
222	64 P/4/SE	279	64 L/12 NW
223	64 P/8/NE	280	64 L/12 SW
224	64 P/8/NW	281	64 L/16 NE
225	64 /P/11/NW	282	64 L/16 SE
226	64 P/12/NE	283	64 L/16 NW
227	64 P/12/NE	284	64 L/16 SW
228	65 I/9/NE	285	65 I/9 NE
229	65 I/9/SW	286	65 I/9 SE
230	65 I/14/SE	287	65 I/9 NW
231	65 I/14/NW	288	65 I/9 SW
232	65 I/15/NW	289	65 I/10 NE
233	65 M/I/SE	290	65 I/10 SE
234	65 M/2/NE	291	65 I/10 SW
235	65 M/2/NW	292	65 I/10 NW
236	65 M/2/SW	293	65 I/11 NE

Serial No. of Topo sheet	Topo sheet no.	Serial No. of Topo sheet	Topo sheet no.
237	64 P	294	65 I/11 SE
238	65 I	295	65 I/11 NW
239	65 M	296	65 I/11 SW
240	64 P/2	297	65 I/13 NE
241	64 P/3	298	65 I/13 SE
242	64 P/4	299	65 I/13 SW
243	64 P/12	300	65 I/13 NW
244	65 M/3	301	65 I/14 NE
245	65 I/10	302	65 I/14 SE
246	65 I/11	303	65 I/14 NW
247	65 I/14	304	65 I/14 SW
248	65 I/16	305	65 I/15 SE
249	64 P/3 SW	306	65 I/15 NE
250	64 P/3 SE	307	65 I/15 NW
251	64 P/3 NW	308	65 I/15 SW
252	64 P/3 NE	309	65 I/16 NE
253	64 P/4 NW	310	65 I/16 SE
254	64 P/4 NE	311	65 I/16 NW
255	64 P/4 SW	312	65 I/16 SW
256	64 P/4 SE	313	65 M/1 NE
257	64 P/7 NE	314	65 M/1 SE
258	64 P/7 SW	315	65 M/1 NW
259	64 P/7 SE	316	65 M/1 SW
260	64 P/7 NW	317	65 M/2 NE
261	64 P/8 NE	318	65 M/2 SE
262	64 P/8 SE	319	65 M/2 NW
263	64 P/8 NW	320	65 M/2 SW
264	64 P/8 SE	321	65 M/3 NE
265	64 P/11 NE	322	65 M/3 SE
266	64 P/11 SE	323	65 M/3 NW
267	64 P/17 NW	324	65 M/ SW
268	64 P/14 SW	325	65 M/5 NE
269	64 P/12 NE	326	65 M/5 SE
270	64 P/12 SE	327	65 M/5 NW
271	64 P/12 NW	328	65 M/5 SW
272	64 P/12 SW	329	65 M/6 NE
273	64 P/16 NE	330	65 M/6 SE
331	65 M/6 NW	337	64 P/7 &P/11
332	65 M/6 SW	338	64 P/16
333	65 M/9 NE	339	64 P/8 & P/12
334	85 M/9 SE		
335	85 M/9 SW		
336	85 M/9 MW		

APPENDIX-XXXVII

FOREST FRINGE VILLAGES OF BHAWANIPATNA RANGE

FOREST FRINGE VILLAGES OF BHAWANIPATNA RANGE						
Sl.No.	**Name of R.F.**	**Name of Forest Fringe Village**			**Distance of nearest**	
		0 Km -1 Km	**1 Km - 2 Km**	**2 Km - 3 Km**	**Road**	**Market**
1	Kutrukhai R.F.	Dungriguda				6.00
		Sirliguda				6.00
		Bundelguda				7.00
2	Sinanga R.F.	Kerukoda				6.00
		Narengkhola				3.00
		Kasakendu				3.00
		Risigaon				3.00
		Pattola				3.00
		G.Bandopala				5.00
		K.Bandopala				6.00
		Herateka				12.00
		Gachhkhola				8.00
			Bhoiguda			15.00
			Dungaripada			12.00
			Badli			9.00
			Singjharan			5.00
3	Alma R.F.	Ambalsa				18.00
		Olbahali				17.00
		Kasipadar				19.00
		Rakastonda				9.00
		Dalguma				10.00
		Kusumbara				9.00
		Katingpadar				14.00
		Surli				10.00
		Dakibundel				10.00
4	Kanamanjur R.F.	Khangarguda				4.00
		Poirmal				3.00
		Dakibundel				5.00
		Ampada				6.00
			Tikrapada			8.00
			Rangiguda			12.00
			Sargipada			12.00
			Phunda			12.00
			Kutrukhamar			10.00
5	Poddara R.F.	Musiguda				7.00
		Kitpadar				10.00
		Kutingkona				10.00
		Bengaon				12.00
		Sankriguda				9.00
			Sirliguda			6.00
			Jamunasagar			8.00
			Banipada			8.00
				Beheraguda		10.00
				Duarsuni		6.00
				Atangguda		5.00

Sl.No	Name of R.F.	Name of Forest Fringe Village			Distance of nearest	
		0 Km -1 Km	1 Km - 2 Km	2 Km - 3 Km	Road	Market
6	Bhalu R.F.	Kapsara				9.00
		Badli				8.00
		Herateka				10.00
7	Dhangada Dhangadi R.F.	Dambrupadar				6.00
		Raisingpur				5.00
		Rakabahali				6.00
		Ghumerguda				7.00
			Balijore			1.00
			Dumal			0.5
			Kusumkhunti			3.00
				Thuapadar		10.00
				Tentulikhunti		7.00
				Gochhapada		8.00
				Belamal		9.00
				Pastikudi		5.00
				Bhejipadar		5.00
8	Gundi P.R.F.	Laxmipur				5.00
		Gotbhata				6.00
		Kenduguda				5.00
		Ranikata				7.00
		Tangankona				7.00
		Pajipata				7.00
		Kanarla				6.00
		Jurkabhata				8.00
		Musguda				9.00
		Colgaon				10.00
		Malenda				10.00
		Padtula				10.00
		Dudguda				12.00
		Saked				12.00
		Sulia				13.00
		Makaguda				15.00
		Sindbahali				15.00
		Ampadar				15.00
		Hatigaon				14.00
		Aankrasal				16.00
		Bagnakhi				16.00
		Talnangalbahali				15.00
		Uparnangalbahali				16.00
		Khaksi				9.00
		Jamchuan				11.00
		Tutguma				10.00
		Chatur				10.00
		Parabahali				12.00
		Turka				12.00
		Kusumsila				6.00
		Medinipur				4.00
		Basmatipur				5.00
		Udepur				6.00
		Gopinathpur				6.00
		Deypur				8.00
		Suhagpur				9.00
		Khairmal				9.00
		Karli				9.00
		Gunduri				9.00
		Pidul				10.00
		Sarlanji				8.00
		Jamkuna				10.00

Sl. No.	Name of R.F.	Name of Forest Fringe Village			Distance of nearest	
		0 Km -1 Km	1 Km - 2 Km	2 Km - 3 Km	Road	Market
8	Gundi P.R.F.	Khaing				9.00
		Talbelgaon				8.00
		Uparbelgaon				9.00
		Budipadar				10.00
		Baringdoro				11.00
			Bhatangpadar			8.00
			Sirpur			5.00
			Bhirkapada			5.00
			Kinkhola			6.00
			Bhawanipur			5.00
			Kanikupa			6.00
			Kutedghati			7.00
			Gananathpur			7.00
			Balrampur			8.00
			Bijepur			8.00
			Sardapur			8.00
			Janakpur			7.00
			Ichhapur			6.00
			Raksi			6.00
			Kutruguda			7.00
9	Brahmani R.F	Rajnaguda				10
		Loharakuni				12.00
		Kurmachuan				13.00
		Kaugokna				5.00
		Ghusrigudi				6.00
		Palsijharan				6.00
		Bhikajharan				6.00
		Turpi				6.00
		Tentulipada				6.00
		Themra				5.00
		Lebed				5.00
		Bileikuni				7.00
		Sargiguda				4.00
		Kholandi				5.00
		Kalam				0.5
		Chandopala				2.00
		Borgaon				3.00
		Bhataguda				3.00
		Karatikli				3.00
		Tiljhudi				12.00
			Kuliamal			8.00
			Tenteluchuan			9.00
			Dungipunga			5.00
			Podmundi			6.00
			Chheliamal			7.00
			Kandbarajhola			8.00

Sl. No.	Name of R.F.	Name of Forest Fringe Village			Distance of nearest	
		0 Km -1 Km	1 Km - 2 Km	2 Km - 3 Km	Road	Market
9	Brahmani R.F		Gandbarajhola			8.00
			Phatapada			8.00
				Pastipada		3.00
				Maning		0.5
				Paria		3.00
10	Dhanupanchan R.F	Karlapada				5.00
		Dangriguda				5.00
		Ghughurpala				6.00
		Makri				6.00
		Kundabandh				7.00
		Kendumundi				6.00
		Bhejapadar				7.00
		Kandakhal				5.00
			Pandigaon			3.00
			Chahagaon			4.00
			Budhipadar			5.00
			Haldi			3.00
				Ghantabahali		4.00
				Bandhpada		5.00
				Chhenagaon		3.00
				Dumermunda		4.00
				Kokodmal		3.00
				Amtha		3.00
11	Kadalighati R.F.	Tutingjhula				3.00
		Dhurkuti				3.00
		Tentulipadar				4.00
		Nagjhari				4.00
		Kukurjhula				4.5
		Sapdohani				5.00
		Karkata				6.00
		Kucheijore				3.00
		Baddharpur				2.00
		Sandharpur				3.00
		Khaing				3.5
		Lakhpadar				5.2
		Kadam				6.00
		Manibandha				7.00
		Thuapadar				6.00
			Pajidohani			6.00
			Ratul			4.00
			Tikrapada			3.00
				Santpur		6.00
				Gohirapadar		4.00
12	Madakhola "A" R.F.	Alabula				9.00
		Burat				8.00

Sl. No.	Name of R.F.	Name of Forest Fringe Village			Distance of nearest	
		0 Km -1 Km	1 Km - 2 Km	2 Km - 3 Km	Road	Market
12	Madakhola "A" R.F.	Ghantmal				7.00
		Adring				8.00
		Luhajore				2
		Karanja				3
		Darlipada				4.5
		Sankarmal				4.00
			Panimunda			4.00
			Mandel			5.00
				Gohirapadar		3.00
				Khasbahali		4.00
				Pajibahali		4.00
13	Madakhola "B" R.F.	Nishanpur				1.00
		Khamanpada				1.5
		Gunpur				4.00
		Badgunduri				4.00
		Mahulpada				6.00
		Dhoben				7.00
		Mahagaon				2.00
		Tolbrahmani				3.00
		Parbangi				4.00
		Dendoguda				3.00
			Sarian			0.5
			Ranipata			4.00
				Konagaon		5.00
				Sangunduri		3.00
				Ullikupa		3.00
				Dumerbahal		6.00
14	Th.Gundi P.R.F.	Lakhpadar				6.00
		Thuapadar				6.5
		Kadam				6.00
		Hatimunda				8.00
		Barampadar				10.00
		Sansuspadar				10.5
		Badsuspadar				11.00
		Adostala				10.00
		Barengdoro				10.00
		Batua				11.00
		Torngol				10.00
		Kutijore				7.00

NARLA RANGE

Sl. No	Name of the R.F	Distance from R.F to Fringe Village			Distance of nearest	
		0-1Km	1-2Km	2-3Km	Road	Market
1	Kerbandi R.F	Boringpadar			-	3 km
			Patangpadar		-	4 km
		Kerbandi			-	5 km
			Kusmal		-	4 km
				Pipalpada	-	5 km
		Panga			-	7 km
			Dudalu		-	8 km
			Terlo		-	6 km
2	Narla R.F.	Samarkata			-	2 km
			Ulisirka		-	2 km
				Bankel	-	2 km
			Bhatang		-	2 km
				Regdimal	-	1 km
				Budelguma	-	4 km
		Bamak			-	2 km
			Kilbeda		-	3 km
				Maskaguda	-	3 km
3	Kamei R.F.	Jampada			-	1 km
				Kamegaon	-	2 km
4	Karladangar R.F.		Budelpadar		-	3 km
		Keshpala			-	4 km
		Indramal			-	4 km
5	Porgel R.F.	Amjhiri			-	5 km
		Kadamguda			-	7 km
			Bhurty		-	8 km
			Mundagaon		-	6 km
				Kamarda	-	5 km
6	Urladani R.F.	Rangapadar			-	3 km
		Harlanga			-	2 km
		Khaliamunda			-	2 km
		Urladani			-	-
		Nagjhari			-	4 km
		Gadadi			-	4 km
		Dhobamunda			-	1.5 km
		Dudkaranja			-	3 km
		Sikuli			-	5 km
		Gundrupi			-	5 km
		Udegiri			-	5 km
				Pipadi	-	7 km
			Bimlapadar		-	3 km
			Belgoan		-	1 km
			Barabandha		-	-
7	Limursinga R.F.		Nuapada		-	3 km
		Limursinga			-	3 km
				Chanchrapada	-	2 km
8	Sripali R.F.	Sripali			-	1 km

Kegaon Range

Sl. No	Name of the R.F	Distance from R.F to Fringe Village			Distance of nearest	
		0-1Km	1-2Km	2-3Km	Road Km	Market Km
1	Daka R.F.	Batrimunda				5.0
		Dharamal				2.0
		Dungripada				1.0
			Aili			3.0
				Jorepada		2.0
2	Kumkot R.F.	Mahendrapur				5.0
		Bandajore				4.0
		Nuagaon				1.0
		Sikuan				2.0
		Salegaon				3.0
		Rajanapur				5.0
		Markhan				3.0
		Dumria				2.0
			Lanji			3.0
			Sialjodi			2.0
			Purnapani			1.0
			Pendamal			5.0
				Balipati		3.0
				Chahaka		2.0
				Sinapali		4.0
				Kanduljhar		3.0
3	Chura 'A' R.F.	Sankripali				3.0
		Padampur				1.0
		Putrachuan				0.5
		Karlaguda				1.0
		Amtha				2.0
		Daspur				3.0
		Kamlabari				1.0
		Jamjharan				0.5
		Udepur				2.0
		Sanchergaon				3.0
		BandarKachhar				1.0
		Sargiphuljuba				0.5
		Karamjkot				3.0
		Balabhadrapita				2.0
			Nuagaon			1.0
			Khaliapali			0.5
			Baramud			1.0
				Kegaon		0.5
				Daspur		3.0
				Khaliapali		2.0

Sl. No	Name of the R.F	Distance from R.F to Fringe Village			Distance of nearest	
		0-1Km	1-2Km	2-3Km	Road Km	Market Km
4	Chura 'B' R.F.	Sankripali				1
		Bodlipali				3.0
		Karpa				2.0
		Nuamunda				5.0
		Karli				6.0
		Karmat				1.0
		Gundri				3.0
		Phatamunda				2.0
			Bagdori			5.0
				Ramchandrapur		6.0
5	Gujia R.F.	Jayantpur				3.0
		Babelmunda				2.0
			Jayantpur			5.0
				Babelmunda		2.0
6	Lini R.F.	Bordi				4.0
		Bhatipada				3.0
7	Ghatual R.F.	Betrajpali				1.0
			Kodobhata			2.0
				Mahaling		3.0
				Bhatipada		2.5
				Bordi		1.5
8	Adabari R.F.	Dudkel				4.0
		Kuresini				3.0
		Suknimunda				1.0
		Kadlimunda				2.0
			Tendopani			3.0
			Dungripada			2.5
				Grindol		1.5
				Grindol		2.5
9	Bisibarni R.F.	Banjipadar				5.0
		Tingipadar				2.5
		Turechada				1.5
		Udesurung				4.0
			Chapria			3.0
			Dudkel			1.0
				Manjhari		2.0
10	Nageswar R.F.	Gudluguma				3.5
		Naktikani				2.5
		Kendupani				1.5
		Mukhiguda				1.0
		Karangamunda				2.0
		Tekpada				3.0
			Bokrasil			2.5
			Sargiguda			1.5
			Antrla			2.5
			Kirkakani			1.0
				Golamunda		2.0
				Tumra		3.5

Kesinga Range

Sl.No	Name of the R.F	Distance from R.F to Fringe Village			Distance of nearest	
		0-1Km	1-2Km	2-3Km	Road Km	Market Km
1	Bazargarh RF	Sourapadar				2.0
		Bagad				0.0
		Masanimunda				1.0
		Kurlupada				1.0
		Dumermunda				2.0
		Podhkham				3.0
		Taprang				6.0
		Jodabandh				5.0
		Dampadar				2.5
		Kantesir				3.0
		Ghantasola				2.0
		Rengali				1.5
		Khasbahal				4.0
		Kinerkela				4.0
		Nunmath				2.5
		Amath				2.0
		Bijkhaman				3.0
		Limgaon				2.0
		Babejor				2.0
		Thapen				3.0
		Salebhata				3.0
		Rindabahali				3.0
		Magaon				2.5
		Mundapala				3.0
		Pitapada				3.0
		Singhjharan				4.0
		Takarla				0.0
		Suding				3.0

Sl.No	Name of the R.F	Distance from R.F to Fringe Village			Distance of nearest	
		0-1Km	1-2Km	2-3Km	Road Km	Market Km
1	Bazargarh RF	Raidhunipadar				5.0
		Kundejharan				9.0
		Samajodipada (Palam)				2.0
			Bahadurpita			1.0
			Tahansir			3.0
			Karumpadar			1.0
			Kuten			3.0
			Kendupada			3.0
			Muskuti			3.0
			Gigina			4.0
			Suknabhata			1.0
			Ghatpada			2.0
			Turlakhaman			3.0
			Tundla			0.0
			Kajurpada			1.0
			Alim			4.0
			Kashrupada			0.0
			Sinag			3.5
			Gahakapada			5.0
				Paralsinga		0.0
				Bharmal		1.0
				Sirol		4.0
				Karlabhadi		2.0
				Madanpur		1.0
				Tuting		3.0
				Thuapadar		3.0
				Jurkabhadi		3.0
				Saling		5.0
				Binekela		1.0
				Bandhpada		1.0
				Rajapada		1.0
				Kendubahali		5.0
				Khairmal		3.0
				Rastamal		1.5
				Karlabahali		3.0
				Bhirkapada		3.0
				Kendupada		3.0

Sl.No	Name of the R.F	Distance from R.F to Fringe Village			Distance of nearest	
		0-1Km	1-2Km	2-3Km	Road Km	Market Km
2	Nangalguda RF	Chhatamahul				5.0
		Phtakabahli				4.5
		Boringpadar				1.0
		Balbaspur				1.0
		Raksi				5.0
		Dahal				3.0
		Tilemal				3.0
		Bilat				1.0
		Dorapadar				4.0
			Bargaon			2.0
			Khaichua			12.0
			Gokhara			8.0
			Rupra Road			0.0
			Gadebandh			8.0
			Borpadar			7.0
			Ghantmal			6.0
			Indramal			3.0
			Budelpadar			4.0
			Mandel			3.0
			Sargiguda			0.0
			Ranipata			8.0
				Lakhpadar		5.0
				Mudsing		4.0
				Dendrobahali		6.0
				Lakhguda		4.0

APPENDIX-XXXVIII

ANALYSIS REPORT OF SOIL DATA								
Sl.No	**Lab.No**	**Name of Forest Range**	**Forest Sample No**	**PH**	**EC**	**OC**	**P**	**K**
1	5345	Kesinga	137	4.6	0.05	0.2	6	80
2	5346	Kesinga	164	4.5	0.06	0.2	21	90
3	5347	Kesinga	165	5.1	0.02	0.12	6	100
4	5348	Kesinga	166	5	0.01	0.2	3	100
5	5349	Kesinga	180	5.2	0.01	0.2	9	100
6	5350	Kesinga	199	5.3	0.01	0.28	3	130
7	5351	Kesinga	200	5.2	0.01	0.28	3	110
8	5352	Kesinga	201	5.3	0.01	0.24	3	100
9	5353	Kesinga	202	4.9	0.01	0.16	3	110
10	5354	Kesinga	206	5.4	0.01	0.12	3	100
11	5355	Kesinga	207	5.3	0.01	0.16	3	90
12	5356	Kesinga	230	5.5	0.01	0.28	3	110
13	5357	Kesinga	231	5.3	0.02	0.24	3	100
14	5358	Kesinga	251	5.4	0.02	0.44	48	100
15	5359	Kesinga	256	4.8	0.02	0.08	3	100
16	5360	Kesinga	254	5.1	0.02	0.08	3	120
17	5361	Kesinga	255	4.8	0.02	0.12	3	130
18	5362	Kesinga	266	4.7	0.01	0.32	3	110
19	5363	Kesinga	267	5.2	0.01	0.08	3	100
20	5364	Kesinga	309	5.1	0.01	0.28	3	110
21	5365	Kesinga	310	5.2	0.01	0.36	3	110
22	5366	Kesinga	311	5.2	0.02	0.24	3	120
23	5367	Kesinga	312	4.5	0.01	0.24	6	110
24	5368	Kesinga	313	5.5	0.01	0.36	9	110
25	5369	Kesinga	356	5.4	0.01	0.2	3	120
26	5370	Kesinga	357	5.1	0.01	0.08	9	106
27	5371	Kesinga	580	5.2	0.02	0.12	3	120
28	5372	Kesinga	582	5.4	0.01	0.08	3	120
29	5373	Kesinga	586	5.2	0.01	0.24	3	130
30	5374	Kesinga	587	5.2	0.02	0.16	3	100
31	5375	Kesinga	593	5.4	0.02	0.08	3	120
32	5376	Kesinga	594	5.2	0.01	0.2	3	90
33	5377	Kesinga	786	5.2	0.02	0.08	3	90
34	5378	Kesinga	809	4.9	0.01	0.08	3	80
35	5379	Kegaon	622	5.1	0.03	0.08	6	70
36	5380	Kegaon	671	5.3	0.02	0.8	3	100
37	5381	Kegaon	656	5.1	0.1	0.56	6	90
38	5382	Kegaon	619	5.5	0.06	0.2	9	60
39	5383	Kegaon	640	5.8	0.03	0.56	18	120
40	5384	Kegaon	655	5.8	0.02	0.4	9	120

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
41	5385	Kegaon	663	5.7	0.03	0.64	3	100
42	5386	Kegaon	618	5.8	0.03	0.32	3	60
43	5387	Kegaon	653	5.6	0.03	1.44	12	180
44	5388	Kegaon	670	5.9	0.1	0.32	15	80
45	5389	Kegaon	652	6.2	0.04	0.56	21	90
46	5390	Kegaon	672	6	0.1	0.72	12	160
47	5391	Kegaon	660	5.9	0.04	0.4	3	140
48	5392	Kegaon	646	6.1	0.03	0.56	6	100
49	5393	Kegaon	645	6.2	0.03	0.52	3	70
50	5394	Kegaon	664	6.2	0.03	0.64	6	50
51	5395	Kegaon	662	6.5	0.09	0.56	3	100
52	5396	Kegaon	673	6.1	0.02	0.44	6	290
53	5397	Kegaon	651	6.1	0.07	0.4	6	100
54	5398	Kegaon	678	6.1	0.08	0.84	3	140
55	5399	Kegaon	605	6.2	0.03	0.2	6	90
56	5400	Kegaon	606	6.1	0.05	0.56	3	110
57	5401	Kegaon	638	6	0.05	0.28	3	130
58	5402	Kegaon	661	5.8	0.05	0.4	9	80
59	5403	Kegaon	620	6	0.01	0.8	3	170
60	5404	Kegaon	639	5.8	0.04	0.64	3	180
61	5405	Kegaon	669	6.6	0.01	0.8	3	100
62	5406	Kegaon	623	6.3	0.04	1.08	3	110
63	5407	Kegaon	794	6	0.01	0.44	3	150
64	5408	Kegaon	579	5.3	0.01	0.12	3	100
65	5409	Kegaon	632	6	0.07	0.84	3	200
66	5410	Kegaon	812	6.1	0.4	0.84	9	180
67	5411	Kegaon	814	5.9	0.6	0.76	15	150
68	5412	Kegaon	808	5.4	0.01	0.64	6	120
69	5413	Kegaon	644	5.5	0.01	1.04	9	100
70	5414	Kegaon	807	5.8	0.01	0.64	3	80
71	5415	Kegaon	657	5.7	0.8	0.64	3	90
72	5416	Kegaon	595	5.6	0.05	0.52	2	100
73	5417	Kegaon	659	5.9	0.03	1.04	3	200
74	5418	Kegaon	581	6.1	0.06	0.68	3	90
75	5419	Kegaon	604	5.6	0.01	0.52	3	70
76	5420	Kegaon	810	7.5	0.1	0.24	3	80
77	5421	Kegaon	848	7.5	0.08	1.24	6	100
78	5422	Kegaon	668	6.9	0.03	1.28	3	210
79	5423	Kegaon	821	7	0.04	0.4	3	90
80	5424	Kegaon	825	6.8	0.1	0.72	9	70
81	5425	Kegaon	570	6.1	0.1	0.4	3	190
82	5426	Kegaon	665	5.9	0.08	0.6	12	180
83	5427	Kegaon	651	6.1	0.1	0.28	3	100

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
84	5428	Kegaon	585	7.1	0.1	0.16	9	120
85	5429	Kegaon	839	6.2	0.1	0.4	12	80
86	5430	Kegaon	575	6.1	0.5	0.4	18	70
87	5431	Kegaon	571	6.2	0.01	0.96	21	90
88	5432	Kegaon	598	7.3	0.01	0.28	6	120
89	5433	Kegaon	576	6.2	0.03	0.52	3	140
90	5434	Kegaon	597	6.1	0.03	0.76	3	200
91	5435	Kegaon	557	6.3	0.1	0.4	3	100
92	5436	Kegaon	569	6.2	0.01	0.32	15	150
93	5437	Kegaon	589	5.8	0.02	1.16	24	210
94	5438	Kegaon	599	5.9	0.7	0.44	3	170
95	5439	Kegaon	568	5	0.5	0.2	3	170
96	5440	Kegaon	556	6	0.2	0.16	3	160
97	5441	Kegaon	555	6.3	0.1	0.64	3	140
98	5442	Kegaon	577	6.2	0.1	0.52	3	200
99	5443	Kegaon	540	6.2	0.2	0.48	3	100
100	5444	Kegaon	574	6.2	0.03	0.56	21	80
101	5445	Kegaon	785	5.9	0.4	0.72	3	100
102	5446	Kegaon	512	6.3	0.1	0.52	3	130
103	5447	Kegaon	538	6.3	0.4	1.04	21	120
104	5448	Kegaon	539	6.6	0.1	1.96	18	250
105	5449	Kegaon	591	4.4	0.01	0.44	21	160
106	5450	Kegaon	590	4.6	0.01	0.32	6	100
107	107	M.Rampur	73	5.1	0.01	0.72	42	10
108	5452	M.Rampur	42	5.9	0.01	0.88	12	120
109	5453	M.Rampur	294	5	0.02	0.56	21	120
110	5454	M.Rampur	170	5.4	0.02	1.48	21	30
111	5455	M.Rampur	156	6	0.01	1.04	9	600
112	5456	M.Rampur	378	5.4	0.01	0.68	6	90
113	5457	M.Rampur	824	5.5	0.02	2	12	600
114	5458	M.Rampur	130	5.7	0.01	0.52	3	130
115	5459	M.Rampur	319	5	0.01	0.4	18	130
116	5460	M.Rampur	328	5.9	0.03	0.68	3	140
117	5461	M.Rampur	162	5.3	0.01	1.44	6	100
118	5462	M.Rampur	221	5.6	0.01	1.48	3	50
119	5463	M.Rampur	28	6	0.01	1.76	6	600
120	5464	M.Rampur	89	6.4	0.01	1.28	12	110
121	5465	M.Rampur	331	6.4	0.01	1.98	3	80
122	5466	M.Rampur	60	5.8	0.01	1.52	9	150
123	5467	M.Rampur	216	5.8	0.03	0.28	12	180
124	5468	M.Rampur	75	5.9	0.03	1.44	6	80
125	5469	M.Rampur	413	5.5	0.02	1.56	6	60
126	5470	M.Rampur	3	5.8	0.01	0.52	21	150

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
127	5471	M.Rampur	369	5.6	0.02	1.96	3	140
128	5472	M.Rampur	423	5.7	0.01	1.28	33	120
129	5473	M.Rampur	198	5.8	0.03	0.8	15	150
130	5474	M.Rampur	235	5.8	0.02	1.12	3	170
131	5475	M.Rampur	365	5.8	0.02	0.72	3	60
132	5476	M.Rampur	118	5.3	0.03	1.44	9	140
133	5477	M.Rampur	62	5.6	0.02	1	3	120
134	5478	M.Rampur	2	5.9	0.03	0.72	6	100
135	5479	M.Rampur	77	6.3	0.02	1.92	18	50
136	5480	M.Rampur	354	6	0.01	2	3	600
137	5481	M.Rampur	241	6	0.03	1.52	15	140
138	5482	M.Rampur	195	5.6	0.01	0.48	27	180
139	5483	M.Rampur	16	5.9	0.01	0.72	3	100
140	5484	M.Rampur	43	5.8	0.01	1.16	3	190
141	5485	M.Rampur	9	5.9	0.01	1.04	18	90
142	5486	M.Rampur	1	6.5	0.01	1.76	12	10
143	5487	M.Rampur	37	6.4	0.01	0.92	9	150
144	5488	M.Rampur	418	6.8	0.01	1.04	18	100
145	5489	M.Rampur	53	6.1	0.01	1.2	12	180
146	5490	M.Rampur	90	6	0.01	0.84	18	90
147	5491	M.Rampur	36	5.9	0.01	1.04	15	70
148	5492	M.Rampur	416	5.9	0.01	1.6	18	190
149	5493	M.Rampur	245	5.7	0.01	1	15	100
150	5494	M.Rampur	92	5.8	0.02	0.88	21	90
151	5495	M.Rampur	212	5.7	0.01	0.72	9	190
152	5496	M.Rampur	29	5.5	0.02	1.72	18	70
153	5497	M.Rampur	296	5.9	0.03	0.76	30	90
154	5498	M.Rampur	474	6	0.01	1.96	9	180
155	5499	M.Rampur	177	6.1	0.01	1.16	3	100
156	5500	M.Rampur	181	6.1	0.01	1.16	9	90
157	5501	M.Rampur	317	6.2	0.01	1.16	6	70
158	5502	M.Rampur	101	6.6	0.01	1.84	3	30
159	5503	M.Rampur	175	6.2	0.01	1.12	3	100
160	5504	M.Rampur	17	6.4	0.01	0.88	3	130
161	5505	M.Rampur	159	6.4	0.01	0.8	3	160
162	5506	M.Rampur	79	6.1	0.02	0.56	9	100
163	5507	M.Rampur	336	6	0.01	1.12	3	90
164	5508	M.Rampur	290	6	0.01	1.4	12	180
165	5509	M.Rampur	114	6.2	0.01	0.76	6	100
166	5510	M.Rampur	210	5.7	0.02	0.44	9	50
167	5511	M.Rampur	68	5.8	0.02	1	12	100
168	5512	M.Rampur	184	5.9	0.02	0.84	12	140
169	5513	M.Rampur	329	5.9	0.03	0.8	3	130

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
170	5514	M.Rampur	185	6	0.02	0.88	9	130
171	5515	M.Rampur	261	5.7	0.01	0.88	3	180
172	5516	M.Rampur	79	5.8	0.01	1.4	3	30
173	5517	M.Rampur	19	6.1	0.01	0.76	18	80
174	5518	M.Rampur	21	6	0.01	1.36	6	100
175	5519	M.Rampur	398	6	0.01	0.56	18	180
176	5520	M.Rampur	7	5.9	0.01	1.24	3	200
177	5521	M.Rampur	252	5.5	0.01	0.92	9	100
178	5522	M.Rampur	104	6	0.01	1.84	3	10
179	5523	M.Rampur	167	5.9	0.01	1.76	3	80
180	5524	M.Rampur	196	6.5	0.01	1.96	9	100
181	5525	M.Rampur	55	7	0.01	1.56	6	80
182	5526	M.Rampur	191	6.6	0.01	1.84	12	50
183	5527	M.Rampur	333	6	0.01	0.84	9	150
184	5528	M.Rampur	74	5.9	0.01	1.04	3	130
185	5529	M.Rampur	306	5.6	0.01	0.92	9	120
186	5530	M.Rampur	31	5.9	0.01	1.4	12	60
187	5531	M.Rampur	41	5.9	0.01	0.96	3	70
188	5532	M.Rampur	44	5.9	0.01	0.6	3	120
189	5533	M.Rampur	71	6.1	0.01	1.84	3	100
190	5534	M.Rampur	107	6.4	0.01	1.12	3	80
191	5535	M.Rampur	417	6.2	0.01	1.52	3	60
192	5536	M.Rampur	116	5.7	0.01	1.36	12	30
193	5537	M.Rampur	265	5.9	0.01	0.64	21	140
194	5538	M.Rampur	47	5.6	0.01	1.16	9	80
195	5539	M.Rampur	111	5.7	0.01	1.24	6	80
196	5540	M.Rampur	840	5.9	0.01	1.48	9	60
197	5541	M.Rampur	70	6	0.01	0.28	3	70
198	5542	M.Rampur	93	5.7	0.01	1.56	12	110
199	5543	M.Rampur	57	5.9	0.01	1.48	12	100
200	5544	M.Rampur	112	6	0.01	0.88	9	90
201	5545	M.Rampur	178	6.1	0.01	1.24	6	100
202	5546	M.Rampur	30	5.9	0.01	0.72	3	600
203	5547	M.Rampur	395	5.8	0.02	0.68	3	600
204	5548	M.Rampur	826	5.9	0.01	1.04	3	600
205	5549	M.Rampur	27	6.1	0.01	1.6	9	600
206	5550	M.Rampur	146	6.3	0.01	1.24	15	600
207	5551	M.Rampur	346	6.2	0.01	0.88	3	600
208	5552	M.Rampur	38	6.1	0.01	1.4	6	600
209	5553	M.Rampur	939	6.1	0.03	1.04	3	600
210	5554	M.Rampur	134	5.9	0.03	2.12	3	600
211	5555	M.Rampur	136	5.3	0.02	0.32	12	600
212	5556	M.Rampur	831	6.6	0.01	0.04	18	600

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
213	5557	M.Rampur	253	6.2	0.01	0.68	3	30
214	5558	M.Rampur	415	6.1	0.2	1.08	9	10
215	5559	M.Rampur	320	6.1	0.02	0.8	6	600
216	5560	M.Rampur	78	5.9	0.01	1.56	9	600
217	5561	M.Rampur	243	5.8	0.03	1.8	15	600
218	5562	M.Rampur	50	5.3	0.02	2.12	3	10
219	5563	M.Rampur	412	5.6	0.01	0.16	27	600
220	5564	M.Rampur	260	5.8	0.01	1.36	15	600
221	5565	M.Rampur	61	6.1	0.01	0.92	6	600
222	5566	M.Rampur	286	6.1	0.01	0.8	12	100
223	5567	M.Rampur	182	6.1	0.03	1.08	9	600
224	5568	M.Rampur	141	6.1	0.2	1.72	15	90
225	5569	M.Rampur	281	6.3	0.2	1.68	9	70
226	5570	M.Rampur	308	6.2	0.1	1.04	6	90
227	5571	M.Rampur	63	5.6	0.1	0.64	6	100
228	5572	M.Rampur	376	5.4	0.1	0.88	9	180
229	5573	M.Rampur	49	5.9	0.1	1.72	18	100
230	5574	M.Rampur	339	6	0.1	1.92	15	90
231	5575	M.Rampur	67	6.1	0.1	0.4	18	100
232	5576	M.Rampur	88	6.3	0.2	1.8	21	100
233	5577	M.Rampur	363	6.2	0.02	1.2	21	180
234	5578	M.Rampur	69	6.4	0.03	1.36	24	200
235	5579	M.Rampur	219	6.3	0.01	0.4	15	100
236	5580	M.Rampur	25	6.2	0.02	1.36	24	100
237	5581	M.Rampur	214	5.9	0.01	0.92	18	70
238	5582	M.Rampur	100	5.8	0.01	0.72	12	90
239	5583	M.Rampur	223	5.7	0.02	1.12	18	10
240	5584	M.Rampur	823	5.8	0.01	0.72	3	80
241	5585	M.Rampur	215	5.6	0.02	0.84	12	90
242	5586	M.Rampur	211	6.1	0.02	1.52	33	200
243	5587	M.Rampur	81	6.3	0.01	1	18	100
244	5588	M.Rampur	289	6.1	0.02	0.8	12	80
245	5589	M.Rampur	54	5.9	0.1	1.08	18	600
246	5590	M.Rampur	34	5.8	0.2	0.8	9	90
247	5591	M.Rampur	94	6.5	0.2	2.2	9	220
248	5592	M.Rampur	220	6.3	0.2	1.52	27	180
249	5593	M.Rampur	795	6.2	0.1	0.92	12	90
250	5594	M.Rampur	65	5.9	0.1	1.16	21	100
251	5595	M.Rampur	259	5.8	0.1	0.44	9	90
252	5596	M.Rampur	8	6.1	0.2	0.72	9	180
253	5597	M.Rampur	6	6.3	0.1	1.16	15	100
254	5598	M.Rampur	17	6.2	0.1	1.56	3	20
255	5599	M.Rampur	155	6.1	0.01	0.4	6	80

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
256	5600	M.Rampur	132	6.3	0.01	1.4	18	90
257	5601	M.Rampur	337	6.1	0.2	0.88	9	300
258	5602	M.Rampur	338	6.3	0.2	0.72	18	600
259	5603	M.Rampur	138	6.2	0.03	1.2	6	180
260	5604	M.Rampur	151	6.4	0.01	1.12	21	100
261	5605	M.Rampur	362	5.9	0.01	1.24	27	80
262	5606	M.Rampur	149	5.8	0.01	0.96	30	600
263	5607	M.Rampur	242	5.7	0.03	1.8	21	600
264	5608	M.Rampur	84	5.6	0.02	1.04	15	40
265	5609	M.Rampur	801	5.6	0.01	1.16	27	100
266	5610	M.Rampur	39	5.7	0.01	0.88	6	180
267	5611	M.Rampur	340	6.1	0.03	1.12	48	220
268	5612	M.Rampur	503	6.3	0.01	0.72	12	100
269	5613	M.Rampur	847	6	0.01	1.12	18	10
270	5614	M.Rampur	99	5.8	0.03	1.04	30	600
271	5615	M.Rampur	157	5.3	0.01	1.12	9	600
272	5616	M.Rampur	380	6.1	0.01	1.52	30	10
273	5617	M.Rampur	23	6.2	0.01	0.92	21	600
274	5618	M.Rampur	4	6.3	0.01	1.04	15	100
275	5619	M.Rampur	282	5.9	0.03	1.28	18	100
276	5620	M.Rampur	287	5.8	0.02	1.12	12	100
277	5621	M.Rampur	83	5.6	0.02	0.88	15	140
278	5622	M.Rampur	285	5.4	0.02	0.28	15	20
279	5623	M.Rampur	327	6.1	0.01	1.04	27	600
280	5624	M.Rampur	176	6.2	0.01	0.52	21	100
281	5625	M.Rampur	26	6.3	0.01	1.32	24	90
282	5626	M.Rampur	59	5.9	0.03	1.76	9	180
283	5627	M.Rampur	46	5.8	0.02	0.64	15	100
284	5628	M.Rampur	171	6.1	0.02	0.56	18	70
285	5629	M.Rampur	844	6.1	0.01	1.72	3	30
286	5630	M.Rampur	222	6.3	0.1	1.52	18	200
287	5631	M.Rampur	335	5.8	0.1	0.52	24	100
288	5632	M.Rampur	280	6.1	0.1	1.04	9	600
289	5633	M.Rampur	203	6.3	0.1	0.92	39	290
290	5634	M.Rampur	58	5.6	0.1	1.24	24	100
291	5635	M.Rampur	142	5.7	0.01	1.04	21	80
292	5636	M.Rampur	76	6.1	0.02	1.44	3	180
293	5637	M.Rampur	283	6.3	0.01	1.8	3	100
294	5638	M.Rampur	355	6.1	0.03	1.68	15	20
295	5639	M.Rampur	209	6.1	0.3	0.96	3	40
296	5640	M.Rampur	163	5.9	0.2	1.48	6	100
297	5641	M.Rampur	233	6.9	0.1	1.52	3	600
298	5642	M.Rampur	806	6.7	0.1	1.08	3	200

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
299	5643	M.Rampur	414	5.8	0.02	1.56	6	100
300	5644	M.Rampur	118	6.1	0.01	1.84	12	80
301	5645	M.Rampur	66	6.3	0.01	1.76	3	100
302	5646	M.Rampur	307	5.8	0.01	0.76	6	30
303	5647	M.Rampur	197	5.7	0.01	0.92	3	80
304	5648	M.Rampur	179	5.6	0.02	0.92	3	90
305	5649	M.Rampur	297	6.1	0.03	1.28	3	270
306	5650	M.Rampur	20	6.4	0.01	1.24	6	100
307	5651	M.Rampur	288	6.6	0.01	1.24	9	200
308	5652	M.Rampur	237	6.8	0.01	1.48	3	100
309	5653	M.Rampur	145	6.1	0.1	0.48	3	80
310	5654	M.Rampur	440	6	0.1	0.16	3	600
311	5655	M.Rampur	102	6.3	0.1	1.12	6	100
312	5656	M.Rampur	150	5.9	0.1	1.48	48	100
313	5657	M.Rampur	277	6.1	0.2	1.8	21	100
314	5658	M.Rampur	103	6.3	0.2	2.08	27	30
315	5659	M.Rampur	291	6.4	0.1	1.04	24	40
316	5660	M.Rampur	377	5.8	0.1	1.72	18	10
317	5661	M.Rampur	374	5.3	0.2	0.48	24	600
318	5662	M.Rampur	332	5.4	0.1	0.72	12	100
319	5663	M.Rampur	813	5.6	0.01	0.52	21	90
320	5664	M.Rampur	304	5.8	0.2	1.12	30	100
321	5665	M.Rampur	169	6.1	0.02	0.72	30	90
322	5666	M.Rampur	168	5.1	0.04	1.8	3	200
323	5667	M.Rampur	108	5.9	0.9	1.76	3	600
324	5668	M.Rampur	271	6.4	0.3	0.4	3	130
325	5669	M.Rampur	190	6.3	0.2	1.52	3	430
326	5670	M.Rampur	161	6.4	0.2	1.16	3	270
327	5671	M.Rampur	106	5.8	0.04	0.76	3	180
328	5672	M.Rampur	341	5.7	0.3	1.12	3	290
329	5673	M.Rampur	802	5.7	0.08	0.88	3	140
330	5674	M.Rampur	421	5.9	0.1	1.84	3	210
331	5675	M.Rampur	444	5.8	0.2	1.56	3	230
332	5676	M.Rampur	268	6.1	0.09	1.92	3	250
333	5677	M.Rampur	227	5.9	0.08	1.52	3	180
334	5678	M.Rampur	187	5.4	0.3	1.44	3	10
335	5679	M.Rampur	189	5.6	0.09	0.6	3	130
336	5680	M.Rampur	15	5.2	0.06	1.2	3	110
337	5681	M.Rampur	105	5.5	0.06	1.48	3	140
338	5682	M.Rampur	303	5.5	0.02	1.04	3	160
339	5683	M.Rampur	342	5.6	0.06	0.72	3	140
340	5684	M.Rampur	321	4.7	0.09	0.44	3	120
341	5685	M.Rampur	173	5.1	0.03	0.84	3	150

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
342	5686	M.Rampur	262	5.9	0.1	0.56	6	190
343	5687	M.Rampur	830	5.7	0.1	1.36	3	220
344	5688	M.Rampur	239	5.7	0.2	0.92	6	140
345	5689	M.Rampur	144	5.3	0.05	1.24	3	120
346	5690	M.Rampur	293	5.4	0.2	0.76	3	120
347	5691	M.Rampur	125	5.7	0.2	0.44	6	110
348	5692	M.Rampur	128	5.9	0.6	0.72	6	600
349	5693	M.Rampur	172	6.9	0.2	0.64	3	130
350	5694	M.Rampur	204	6.3	0.6	1.72	6	600
351	5695	M.Rampur	842	6.7	0.2	1.4	3	170
352	5696	M.Rampur	351	5.8	0.05	1.52	3	210
353	5697	M.Rampur	139	5.5	0.09	1.84	3	180
354	5698	M.Rampur	35	5.9	0.04	1.36	30	100
355	5699	M.Rampur	140	5.7	0.02	0.36	18	220
356	5700	M.Rampur	143	5.4	0.04	0.12	6	120
357	5701	M.Rampur	428	5.8	0.01	0.76	3	130
358	5702	M.Rampur	12	5.6	0.2	0.84	3	380
359	5703	M.Rampur	349	6.1	0.1	1.24	3	230
360	5704	M.Rampur	52	6.4	0.08	0.96	3	130
361	5705	M.Rampur	442	5.8	0.1	0.56	3	180
362	5706	M.Rampur	148	5.9	0.1	0.76	3	440
363	5707	M.Rampur	785	5.8	0.05	1.04	3	250
364	5708	M.Rampur	229	5.3	0.04	0.52	3	100
365	5709	M.Rampur	318	5.2	0.1	1.28	3	180
366	5710	M.Rampur	11	5.4	0.04	1.48	3	290
367	5711	M.Rampur	85	5.6	0.07	1.44	3	280
368	5712	M.Rampur	400	5.9	0.09	0.48	3	130
369	5713	M.Rampur	82	5.4	0.04	0.8	3	190
370	5714	M.Rampur	324	5.5	0.1	0.8	3	130
371	5715	M.Rampur	314	5.4	0.04	0.56	3	180
372	5716	M.Rampur	382	5.7	0.05	1	3	180
373	5717	M.Rampur	315	5.3	0.2	1.48	3	600
374	5718	M.Rampur	270	6.3	0.06	1.72	6	150
375	5719	M.Rampur	334	6.1	0.08	1.92	3	600
376	5720	M.Rampur	410	5.8	0.06	0.72	3	180
377	5721	M.Rampur	152	5.9	0.05	0.76	3	600
378	5722	M.Rampur	109	5	0.06	0.76	3	240
379	5723	M.Rampur	360	5.1	0.3	0.88	3	120
380	5724	M.Rampur	402	5.3	0.1	0.36	3	150
381	5725	M.Rampur	422	5.7	0.07	0.88	3	170
382	5726	M.Rampur	300	5.1	0.04	0.04	3	60
383	5727	M.Rampur	113	5.4	0.01	0.48	3	490
384	5728	M.Rampur	188	4.9	0.08	0.88	3	120

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
385	5729	M.Rampur	13	4.8	0.09	1.24	3	340
386	5730	M.Rampur	98	5.2	0.07	1.84	3	480
387	5731	M.Rampur	381	5.4	0.09	0.48	3	130
388	5732	M.Rampur	445	5.6	0.2	1.48	6	290
389	5733	M.Rampur	186	5.7	0.2	1.2	3	600
390	5734	M.Rampur	10	5.3	0.08	0.68	6	180
391	5735	M.Rampur	153	5.9	0.05	1.36	15	100
392	5736	M.Rampur	95	5.6	0.02	1.12	3	220
393	5737	M.Rampur	33	5.2	0.05	0.88	3	280
394	5738	M.Rampur	345	5.5	0.06	1	3	150
395	5739	M.Rampur	295	5.7	0.1	1.44	3	100
396	5740	M.Rampur	358	5.8	0.2	1.6	9	180
397	5741	M.Rampur	395	6.1	0.04	0.64	12	100
398	5742	M.Rampur	86	5.9	0.07	1.28	3	270
399	5743	M.Rampur	322	5.7	0.09	1.12	3	100
400	5744	M.Rampur	301	5.7	0.03	1.12	6	180
401	5745	M.Rampur	367	5.6	0.06	0.72	6	190
402	5746	M.Rampur	278	4.5	0.02	1.32	6	160
403	5747	M.Rampur	298	5.1	0.08	1.96	3	230
404	5748	M.Rampur	64	5.2	0.2	1.8	9	180
405	5749	M.Rampur	193	4.9	0.04	1.76	3	100
406	5750	M.Rampur	822	5.4	0.1	0.36	3	150
407	5751	M.Rampur	284	5.5	0.1	1.08	3	100
408	5752	M.Rampur	119	5.6	0.2	2.08	6	290
409	5753	M.Rampur	40	5.9	0.06	1.8	6	180
410	5754	M.Rampur	98	5.8	0.06	1.24	3	100
411	5755	M.Rampur	371	4.9	0.07	0.72	15	100
412	5756	M.Rampur	115	5.3	0.1	1.48	3	230
413	5757	M.Rampur	250	6.1	0.1	0.56	3	80
414	5758	M.Rampur	224	5.9	0.2	1.76	3	100
415	5759	M.Rampur	824	6.2	0.4	0.36	6	180
416	5760	M.Rampur	174	6.5	0.2	1.36	6	100
417	5761	M.Rampur	834	6	0.2	1.04	9	170
418	5762	M.Rampur	789	6.6	0.06	1.24	3	250
419	5763	M.Rampur	411	6.2	0.01	1.04	3	480
420	5764	M.Rampur	425	5.3	0.01	1.48	18	290
421	5765	M.Rampur	227	5.8	0.07	1.6	9	170
422	5766	M.Rampur	124	6.5	0.02	1.4	3	190
423	5767	M.Rampur	240	5.7	0.04	1.24	3	100
424	5768	M.Rampur	228	5.8	0.05	0.8	6	180
425	5769	M.Rampur	234	6.2	0.06	1.12	3	60
426	5770	M.Rampur	386	6.3	0.07	0.72	3	100
427	5771	M.Rampur	130	6.1	0.05	0.32	3	180

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
428	5772	M.Rampur	133	6.2	0.05	0.24	3	170
429	5773	M.Rampur	213	6.5	0.04	0.04	3	70
430	5774	M.Rampur	22	5.7	0.04	0.12	3	200
431	5775	M.Rampur	361	7.5	0.01	1.4	3	600
432	5776	M.Rampur	248	5.8	0.09	0.8	3	220
433	5777	M.Rampur	516	6.3	0.06	1.16	3	70
434	5778	M.Rampur	370	5.9	0.08	1.2	6	210
435	5779	M.Rampur	475	6.2	0.08	0.44	6	170
436	5780	M.Rampur	325	5.8	0.02	0.8	6	270
437	5781	M.Rampur	208	5.9	0.02	0.88	3	100
438	5782	M.Rampur	443	6.2	0.04	1.52	3	250
439	5783	M.Rampur	72	6	0.07	1.48	6	570
440	5784	M.Rampur	384	6	0.04	1.2	3	310
441	5785	M.Rampur	45	7.6	0.07	0.8	3	380
442	5786	M.Rampur	247	5.8	0.02	0.48	3	140
443	5787	M.Rampur	246	6.2	0.08	0.16	3	150
444	5788	M.Rampur	257	6.4	0.06	0.08	3	180
445	5789	M.Rampur	347	5.3	0.06	0.28	3	210
446	5790	M.Rampur	502	5.3	0.07	0.12	3	110
447	5791	M.Rampur	323	6.3	0.06	0.12	3	160
448	5792	M.Rampur	373	6.3	0.06	0.4	3	600
449	5793	M.Rampur	87	5.3	0.06	0.04	3	160
450	5794	M.Rampur	127	5.5	0.05	0.28	3	230
451	5795	M.Rampur	5	5.5	0.05	0.56	3	170
452	5796	M.Rampur	837	5.6	0.02	0.48	3	180
453	5797	M.Rampur	123	5.4	0.02	0.36	3	200
454	5798	M.Rampur	424	5.8	0.01	0.48	3	130
455	5799	M.Rampur	419	5.7	0.02	0.12	3	260
456	5800	M.Rampur	264	5.4	0.02	0.16	3	100
457	5801	M.Rampur	135	5.4	0.01	0.12	3	70
458	5802	M.Rampur	279	6.1	0.01	0.24	3	100
459	5803	M.Rampur	398	6.3	0.02	0.2	3	90
460	5804	M.Rampur	369	5.5	0.01	0.12	3	200
461	5805	M.Rampur	366	5.5	0.08	0.04	3	100
462	5806	M.Rampur	226	5.1	0.01	0.56	6	150
463	5807	M.Rampur	330	6.7	0.02	0.08	3	150
464	5808	M.Rampur	14	6.6	0.01	0.08	3	170
465	5809	M.Rampur	258	6.1	0.07	0.28	3	110
466	5810	M.Rampur	154	5.4	0.06	0.56	3	190
467	5811	M.Rampur	51	5.6	0.05	0.12	6	160
468	5812	M.Rampur	192	5.6	0.01	0.2	6	140
469	5813	M.Rampur	399	5.4	0.04	0.12	3	180
470	5814	M.Rampur	244	5.4	0.04	0.12	12	170

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
471	5815	M.Rampur	120	5.6	0.02	0.08	3	100
472	5816	M.Rampur	205	5.9	0.01	0.16	3	110
473	5817	M.Rampur	343	5.4	0.01	0.16	3	120
474	5818	M.Rampur	117	5.5	0.01	0.36	3	180
475	5819	M.Rampur	500	5.3	0.01	0.24	3	100
476	5820	M.Rampur	302	5.8	0.03	0.28	3	180
477	5821	M.Rampur	183	5.3	0.04	0.16	3	100
478	5822	M.Rampur	232	5.2	0.01	0.44	3	200
479	5823	M.Rampur	379	5.6	0.08	0.52	3	100
480	5824	M.Rampur	250	5.5	0.08	0.44	6	200
481	5825	M.Rampur	336	5.6	0.05	0.08	3	180
482	5826	M.Rampur	299	6.2	0.01	0.56	3	160
483	5827	M.Rampur	396	6.1	0.04	0.12	6	120
484	5828	M.Rampur	91	5.8	0.06	0.04	3	160
485	5829	M.Rampur	160	6.9	0.01	0.04	3	110
486	5830	M.Rampur	126	7	0.01	0.48	3	200
487	5831	M.Rampur	447	6.5	0.1	0.32	3	100
488	5832	M.Rampur	804	5.8	0.1	0.68	3	180
489	5833	M.Rampur	292	6.9	0.06	0.24	3	100
490	5834	M.Rampur	501	5.8	0.04	0.16	3	180
491	5835	M.Rampur	321	5.9	0.04	0.04	3	200
492	5836	M.Rampur	375	5.8	0.02	0.2	3	150
493	5837	M.Rampur	276	6.5	0.02	0.04	3	90
494	5838	M.Rampur	97	6.4	0.1	0.32	3	180
495	5839	M.Rampur	129	6.1	0.01	0.4	3	100
496	5840	M.Rampur	238	6.1	0.01	0.04	3	180
497	5841	M.Rampur	359	5.6	0.1	0.16	3	70
498	5842	M.Rampur	499	6.2	0.1	0.04	3	20
499	5843	M.Rampur	110	6.5	0.1	0.24	3	100
500	5844	M.Rampur	409	6	0.03	0.08	3	200
501	5845	M.Rampur	383	6.2	0.09	0.12	6	100
502	5846	M.Rampur	147	5.7	0.04	0.04	6	140
503	5847	M.Rampur	397	5.8	0.05	0.2	3	150
504	5848	M.Rampur	817	7	0.02	0.52	3	220
505	5849	M.Rampur	275	6.8	0.01	0.72	3	200
506	5850	M.Rampur	429	6.4	0.02	0.2	6	160
507	5851	M.Rampur	797	6.3	0.05	0.08	3	200
508	5852	M.Rampur	269	6.4	0.01	0.52	6	130
509	5853	M.Rampur	316	7.2	0.04	0.12	3	170
510	5854	M.Rampur	845	7.8	0.01	0.12	3	100
511	5855	M.Rampur	273	7.9	0.05	0.24	3	200
512	5856	M.Rampur	368	7.9	0.05	0.04	3	70
513	5857	M.Rampur	263	6.5	0.08	0.88	3	160

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
514	5858	M.Rampur	252	6.1	0.04	0.2	6	160
515	5859	M.Rampur	441	6.6	0.09	0.2	3	180
516	5860	M.Rampur	80	5	0.03	0.52	6	70
517	6158	M.Rampur		6.3	0.04	0.32	9	580
518	5861	Narla	390	5.5	0.1	0.56	3	200
519	5862	Narla	391	5.3	0.03	0.52	9	100
520	5863	Narla	392	6.2	0.08	0.28	6	110
521	5864	Narla	393	6.1	0.05	0.24	6	160
522	5865	Narla	394	5.9	0.04	0.16	3	100
523	5866	Narla	387	6.6	0.05	0.24	9	120
524	5867	Narla	388	4.6	0.03	0.24	15	150
525	5868	Narla	389	5.5	0.03	0.28	3	110
526	5869	Narla	403	5.7	0.1	0.28	3	200
527	5870	Narla	404	5.8	0.08	0.88	3	100
528	5871	Narla	405	6	0.06	0.12	3	180
529	5872	Narla	406	6	0.1	0.36	3	100
530	5873	Narla	407	6.7	0.2	0.72	6	160
531	5874	Narla	408	5.8	0.07	0.32	3	120
532	5875	Narla	431	5.5	0.1	0.32	9	130
533	5876	Narla	433	7	0.04	0.12	3	180
534	5877	Narla	434	7.1	0.09	0.2	27	110
535	5878	Narla	435	7.3	0.05	0.16	30	130
536	5879	Narla	436	6.8	0.08	0.48	3	200
537	5880	Narla	437	6.4	0.1	0.44	9	180
538	5881	Narla	438	6.4	0.2	0.68	3	100
539	5882	Narla	430	6.2	0.08	0.48	3	190
540	5883	Narla	448	6.2	0.04	0.32	3	70
541	5884	Narla	449	6.1	0.04	0.4	3	200
542	5885	Narla	450	6.3	0.02	0.44	3	100
543	5886	Narla	452	7.1	0.03	0.2	3	120
544	5887	Narla	453	6.5	0.03	0.24	3	170
545	5888	Narla	454	5.9	0.05	0.12	6	170
546	5889	Narla	455	5.9	0.06	0.4	12	120
547	5890	Narla	456	6.2	0.04	0.36	3	150
548	5891	Narla	457	5.9	0.02	0.16	3	160
549	5892	Narla	458	6.2	0.1	0.16	3	110
550	5893	Narla	459	6.5	0.04	0.16	3	140
551	5894	Narla	460	6.2	0.03	0.16	3	110
552	5895	Narla	461	6	0.04	0.4	3	180
553	5896	Narla	462	5.7	0.01	0.36	3	140
554	5897	Narla	463	5.8	0.02	0.36	3	140
555	5898	Narla	464	6	0.02	0.44	3	180
556	5899	Narla	465	6.2	0.02	0.36	3	160

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
557	5900	Narla	466	5.9	0.01	0.52	3	140
558	5901	Narla	467	6	0.04	0.56	3	180
559	5902	Narla	468	6	0.08	0.52	6	150
560	5903	Narla	469	6.2	0.06	0.56	3	150
561	5904	Narla	470	6	0.04	0.28	3	100
562	5905	Narla	471	6.1	0.04	0.52	3	90
563	5906	Narla	472	7.3	0.03	0.36	3	600
564	5907	Narla	473	7.1	0.04	0.36	6	600
565	5908	Narla	476	6.4	0.04	0.56	72	560
566	5909	Narla	477	6.3	0.02	0.92	69	440
567	5910	Narla	478	6.1	0.04	0.68	72	200
568	5911	Narla	479	6.2	0.1	0.52	66	560
569	5912	Narla	480	6.3	0.04	1.04	66	200
570	5913	Narla	481	6.3	0.04	0.64	69	470
571	5914	Narla	482	6.2	0.04	0.68	69	480
572	5915	Narla	483	6.1	0.09	0.56	69	180
573	5916	Narla	484	6.2	0.04	0.88	66	280
574	5917	Narla	486	6.5	0.01	0.12	66	290
575	5918	Narla	487	6	0.02	0.96	69	360
576	5919	Narla	488	6.4	0.1	1.36	75	570
577	5920	Narla	489	6.6	0.07	1.6	63	170
578	5921	Narla	491	6.3	0.03	0.56	66	320
579	5922	Narla	492	6.1	0.03	0.96	81	410
580	5923	Narla	493	5.9	0.03	0.36	69	440
581	5924	Narla	494	6.3	0.04	0.4	75	600
582	5925	Narla	495	6.2	0.02	1.04	66	540
583	5926	Narla	496	6.2	0.01	1.56	63	440
584	5927	Narla	497	6.1	0.05	1.52	66	360
585	5928	Narla	498	6.5	0.03	0.6	60	290
586	5929	Narla	504	6.3	0.03	0.44	66	570
587	5930	Narla	505	6.1	0.02	0.28	63	350
588	5931	Narla	506	6.2	0.01	1.36	63	150
589	5932	Narla	507	6	0.02	1.24	66	430
590	5933	Narla	508	6.1	0.02	0.8	69	600
591	5934	Narla	509	6.5	0.02	1	66	370
592	5935	Narla	510	6.5	0.01	0.36	60	250
593	5936	Narla	511	6.4	0.05	0.76	63	260
594	5937	Narla	513	6.2	0.04	0.72	66	340
595	5938	Narla	514	6.5	0.04	0.72	66	600
596	5939	Narla	515	7.4	0.2	1.44	72	600
597	5940	Narla	517	6.9	0.1	0.72	63	600
598	5941	Narla	518	7.6	0.01	0.2	63	540
599	5942	Narla	519	7.7	0.04	0.36	57	600

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
600	5943	Narla	520	7	0.04	0.44	66	600
601	5944	Narla	521	6.7	0.04	0.4	66	600
602	5945	Narla	522	6.8	0.01	0.04	66	600
603	5946	Narla	523	6.4	0.01	1.84	63	600
604	5947	Narla	524	5.9	0.01	0.4	69	600
605	5948	Narla	525	6.1	0.03	0.64	72	110
606	5949	Narla	526	7.7	0.02	0.12	66	600
607	5950	Narla	527	7.6	0.02	0.24	66	580
608	5951	Narla	528	6.5	0.03	0.36	66	210
609	5952	Narla	529	6.9	0.04	0.36	60	600
610	5953	Narla	530	6.7	0.04	0.64	69	600
611	5954	Narla	531	4.6	0.03	1.96	78	600
612	5955	Narla	532	6.3	0.1	0.64	72	490
613	5956	Narla	533	5.5	0.05	1.44	75	350
614	5957	Narla	534	5.9	0.05	0.8	66	520
615	5958	Narla	535	6.4	0.06	0.08	63	600
616	5959	Narla	536	6.4	0.07	0.44	63	600
617	5960	Narla	537	6	0.08	1.04	66	500
618	5964	Narla	542	6.4	0.01	0.72	75	600
619	5965	Narla	543	7.6	0.02	0.08	66	600
620	5966	Narla	544	4.1	0.08	0.2	3	600
621	5967	Narla	545	4.2	0.1	0.24	24	290
622	5968	Narla	546	4.5	0.04	0.76	3	170
623	5969	Narla	547	4.9	0.05	0.12	3	600
624	5970	Narla	548	4.8	0.1	0.92	3	50
625	5971	Narla	549	5.4	0.07	0.6	21	80
626	5972	Narla	550	5.3	0.06	0.56	9	80
627	6122	Narla	799	5.9	0.4	0.64	3	340
628	5974	Narla	551	5.4	0.05	0.52	3	90
629	5975	Narla	552	5.8	0.02	0.28	3	600
630	5976	Narla	553	6.8	0.02	0.48	3	160
631	5977	Narla		6.6	0.1	0.76	3	40
632	5978	Narla	561	6.4	0.07	0.4	3	160
633	5979	Narla	562	6.2	0.1	0.52	3	120
634	5980	Narla	563	6.3	0.04	1.68	3	110
635	5981	Narla	564	6.4	0.06	0.28	3	240
636	5982	Narla	565	6.1	0.02	0.92	3	200
637	5983	Narla	567	5.4	0.01	0.44	3	110
638	5984	Narla	558	6.2	0.1	1.12	3	140
639	5985	Narla	559	6.4	0.6	1.24	6	140
640	5986	Narla	560	6.1	0.2	1.8	3	250
641	6108	Narla	833	5.8	0.5	0.72	3	440
642	5988	Narla	573	6.2	0.3	1.8	9	600

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
643	5989	Narla	583	6.8	0.1	0.6	9	180
644	5990	Narla	584	6.6	0.06	2.08	9	230
645	5991	Narla	566	8.1	1	1.2	3	600
646	5992	Narla	572	7.1	0.6	0.4	3	270
647	5993	Narla	588	6.6	0.2	0.32	3	50
648	5994	Narla	596	6.3	1	1.36	9	600
649	6029	Narla	628	6.1	0.9	0.04	3	600
650	6030	Narla	647	6.4	0.4	0.64	21	230
651	6031	Narla	626	6.6	0.1	1.84	3	50
652	6032	Narla	601	6.8	0.4	0.16	15	60
653	6033	Narla	627	6.1	0.1	1.12	3	600
654	6034	Narla	613	5.9	0.9	1.44	12	50
655	6035	Narla	650	6.6	0.3	1.56	3	600
656	6016	Narla	633	6.1	0.2	1.24	3	600
657	6017	Narla	642	6.4	0.05	0.76	3	600
658	6018	Narla	624	6.7	0.1	1.08	21	200
659	6019	Narla	600	6.8	0.1	1.56	21	600
660	6077	Narla	803	5.4	0.1	0.84	3	530
661	6078	Narla	625	4.8	0.3	0.64	3	500
662	6079	Narla	621	5	0.3	1.04	3	450
663	6080	Narla	603	5.1	0.1	1	6	530
664	6081	Narla	723	5.4	0.09	0.92	6	350
665	6082	Narla	705	5.2	0.3	0.6	9	490
666	6083	Narla	841	5.8	0.1	0.24	9	260
667	6084	Narla	734	5.3	0.4	0.72	3	600
668	6085	Narla	713	5.8	0.4	0.32	3	240
669	6086	Narla	843	5.8	0.5	0.64	3	300
670	6087	Narla	776	5.4	0.6	0.84	3	600
671	6088	Narla	765	6.5	0.6	0.92	3	180
672	6089	Narla	703	6.1	0.5	0.96	3	600
673	6090	Narla	758	5.4	0.6	0.64	3	600
674	6091	Narla	828	5.4	0.5	0.76	3	170
675	6092	Narla	819	5.4	0.5	0.72	3	140
676	6037	Narla	602	6.9	0.1	0.44	15	20
677	6043	Narla	790	6.7	0.2	0.4	3	210
678	6045	Narla	792	6.8	0.05	0.56	3	230
679	6047	Narla	634	5.8	0.1	0.36	3	600
680	6051	Narla	614	5.2	0.08	0.4	15	200
681	6049	Narla	679	6.1	0.04	0.88	21	90
682	6053	Narla	643	5.7	0.04	0.88	3	120
683	6057	Narla	791	7.1	0.3	0.72	3	170
684	6058	Narla	629	6.7	0.1	0.8	3	160
685	6059	Narla	787	6.7	0.1	0.4	3	200

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
686	6062	Narla	649	5.4	0.2	0.68	3	80
687	6063	Narla	798	6.3	0.2	0.28	3	270
688	6066	Narla	641	5.2	0.1	0.64	3	190
689	6068	Narla	631	4.2	0.2	1	12	600
690	6036	Bhawanipatna	686	6.7	0.1	1	3	520
691	6038	Bhawanipatna	747	6.7	0.3	1.84	3	270
692	6039	Bhawanipatna	698	6.9	0.09	1.68	3	150
693	6040	Bhawanipatna	699	7	0.2	0.2	3	120
694	6041	Bhawanipatna	615	6.4	0.05	0.72	3	240
695	6042	Bhawanipatna	768	6.4	0.09	1.96	6	250
696	6044	Bhawanipatna	767	6.8	0.2	0.32	21	130
697	6046	Bhawanipatna	636	4.9	0.05	1.4	18	170
698	6048	Bhawanipatna	607	5.9	0.1	0.64	3	600
699	6050	Bhawanipatna	700	5.3	0.4	0.08	18	600
700	6052	Bhawanipatna	701	5.8	0.1	0.92	3	210
701	6054	Bhawanipatna	727	6.1	0.1	0.2	18	280
702	6055	Bhawanipatna	685	6.7	0.1	0.32	3	290
703	6056	Bhawanipatna	759	6.9	0.04	0.44	24	280
704	6060	Bhawanipatna	712	5.6	1	1.6	3	600
705	6061	Bhawanipatna	791	5.6	1.1	0.44	3	40
706	6064	Bhawanipatna	832	6.4	0.09	1.4	21	260
707	6065	Bhawanipatna	773	6.4	0.1	0.2	12	600
708	6067	Bhawanipatna	729	4.5	0.2	0.76	3	600
709	6069	Bhawanipatna	740	4.3	0.3	1.4	3	600
710	6070	Bhawanipatna	760	4.5	0.1	0.72	3	600
711	6071	Bhawanipatna	735	4.9	0.6	1	3	600
712	6072	Bhawanipatna	707	5.1	0.2	0.48	3	440
713	6073	Bhawanipatna	731	5.6	0.2	1.04	12	460
714	6074	Bhawanipatna	732	5.5	0.3	1.2	3	480
715	6075	Bhawanipatna	749	5.4	0.1	1.16	3	180
716	6076	Bhawanipatna	770	5.5	0.4	0.32	3	450
717	6093	Bhawanipatna	716	4.7	0.3	0.64	3	450
718	6094	Bhawanipatna	714	5.8	0.6	0.76	6	360
719	6095	Bhawanipatna	782	5.9	0.7	0.92	3	180
720	6096	Bhawanipatna	827	5.5	0.5	0.88	15	600
721	6097	Bhawanipatna	820	5.5	0.4	0.56	9	210
722	6098	Bhawanipatna	780	6.5	0.5	0.24	3	180
723	6099	Bhawanipatna	774	5.7	0.5	0.8	3	410
724	6100	Bhawanipatna	781	6.3	0.5	0.84	3	280
725	6101	Bhawanipatna		5.7	0.3	0.84	18	440
726	6102	Bhawanipatna	783	6.5	0.5	0.96	3	300
727	6103	Bhawanipatna	775	5.6	0.5	0.88	21	160
728	6104	Bhawanipatna	750	5.5	0.5	0.88	9	130

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
729	6105	Bhawanipatna	752	6.5	0.4	0.88	12	220
730	6106	Bhawanipatna	754	5.7	0.4	0.84	3	440
731	6107	Bhawanipatna	737	5.8	0.5	0.88	21	410
732	6109	Bhawanipatna	682	5.4	0.2	0.84	3	440
733	6110	Bhawanipatna	805	5.6	0.4	0.64	9	430
734	6111	Bhawanipatna	687	5.7	0.8	1.28	3	210
735	6112	Bhawanipatna	725	6.6	0.8	0.8	3	410
736	6113	Bhawanipatna	726	5.8	0.5	0.72	18	220
737	6114	Bhawanipatna	736	5.4	0.8	0.88	3	390
738	6115	Bhawanipatna	796	5.8	0.6	1	3	460
739	6116	Bhawanipatna	876	5.4	0.2	0.84	9	410
740	6117	Bhawanipatna	704	6.6	0.6	0.52	3	320
741	6118	Bhawanipatna	742	6.3	0.4	0.72	3	250
742	6119	Bhawanipatna	756	6.1	0.4	0.52	3	380
743	6120	Bhawanipatna	710	6	0.4	0.68	3	310
744	6121	Bhawanipatna	764	5.8	0.1	0.56	3	340
745	6123	Bhawanipatna	784	5.8	0.4	0.72	3	200
746	6124	Bhawanipatna	690	5.9	0.1	0.84	24	210
747	6125	Bhawanipatna	688	5.8	0.1	0.12	3	240
748	6126	Bhawanipatna	666	5.4	0.1	0.84	3	260
749	6127	Bhawanipatna	608	6	0.02	0.44	21	500
750	6128	Bhawanipatna	772	6.5	0.06	0.52	27	490
751	6129	Bhawanipatna	676	7.2	0.08	0.6	9	510
752	6130	Bhawanipatna	746	4.8	0.1	0.56	18	480
753	6131	Bhawanipatna	777	4.7	0.1	88	18	130
754	6132	Bhawanipatna	757	4.8	0.3	0.04	3	460
755	6133	Bhawanipatna	762	5.7	0.2	0.44	3	370
756	6134	Bhawanipatna	771	5.2	0.09	0.84	15	510
757	6135	Bhawanipatna	745	6	0.08	0.8	3	600
758	6136	Bhawanipatna	718	5.1	0.05	0.56	15	390
759	6137	Bhawanipatna	748	5.5	0.5	0.72	9	170
760	6138	Bhawanipatna	702	5.5	0.5	0.36	3	410
761	6139	Bhawanipatna	739	5.6	0.5	0.52	3	150
762	6140	Bhawanipatna	788	5.4	0.04	0.52	3	460
763	6141	Bhawanipatna	680	5.4	0.02	1	3	140
764	6142	Bhawanipatna	751	5.4	0.04	0.64	3	380
765	6143	Bhawanipatna	779	5.4	0.07	0.64	3	330
766	6144	Bhawanipatna	767	5.9	0.06	0.6	6	450
767	6145	Bhawanipatna	730	5.8	0.03	0.72	12	370
768	6146	Bhawanipatna	846	5.7	0.04	0.28	3	360
769	6147	Bhawanipatna	755	6.3	0.05	0.92	18	190
770	6148	Bhawanipatna	720	5.8	0.03	0.96	9	560
771	6149	Bhawanipatna	711	6.1	0.06	1.08	21	380

Sl.No	Lab.No	Name of Forest Range	Forest Sample No	PH	EC	OC	P	K
772	6150	Bhawanipatna	743	5.8	0.08	0.76	3	330
773	6151	Bhawanipatna	694	6.1	0.04	0.48	21	290
774	6152	Bhawanipatna	722	6	0.05	0.28	9	340
775	6153	Bhawanipatna	763	6.1	0.04	0.92	3	290
776	6154	Bhawanipatna	778	6.5	0.04	0.12	3	270
777	6155	Bhawanipatna	744	6.6	0.05	0.32	15	600
778	6156	Bhawanipatna	766	6.6	0.02	0.32	3	520
779	6157	Bhawanipatna	838	6.3	0.03	0.4	12	170
780	5961	Bhawanipatna	592	7.7	0.4	1.6	66	70
781	5962	Bhawanipatna	612	7.8	0.1	1	66	600
782	5963	Bhawanipatna	541	7	0.01	1.8	63	290
783	5973	Bhawanipatna	578	5.3	0.06	0.44	3	140
784	5987	Bhawanipatna	769	5.8	0.06	1	3	200
785	5995	Bhawanipatna	733	6.4	0.5	0.16	3	150
786	5996	Bhawanipatna	695	6.4	0.4	1.24	3	200
787	5997	Bhawanipatna	681	6.1	0.1	0.72	6	270
788	5998	Bhawanipatna	689	6.4	0.1	0.32	3	600
789	5999	Bhawanipatna	609	6.4	0.2	0.24	3	600
790	6000	Bhawanipatna	617	7.3	0.5	1.4	3	60
791	6001	Bhawanipatna	677	7.5	0.2	0.64	3	290
792	6002	Bhawanipatna	684	7.1	0.05	0.88	6	250
793	6003	Bhawanipatna	691	7.1	0.05	0.4	18	600
794	6004	Bhawanipatna	697	6.4	0.04	0.56	9	600
795	6005	Bhawanipatna	674	6.1	0.6	0.88	9	50
796	6006	Bhawanipatna	667	7	0.2	0.92	12	220
797	6007	Bhawanipatna	692	6.8	0.08	0.44	3	20
798	6008	Bhawanipatna	611	6.4	0.07	0.52	32	600
799	6009	Bhawanipatna	616	6.2	0.2	1.24	9	600
800	6010	Bhawanipatna	675	6.1	0.5	1.6	9	150
801	6011	Bhawanipatna	693	6.7	0.2	0.64	6	270
802	6012	Bhawanipatna	753	6.8	0.2	1.76	6	210
803	6013	Bhawanipatna	658	6.3	0.1	1.08	3	60
804	6014	Bhawanipatna	696	6.5	0.04	0.28	6	70
805	6015	Bhawanipatna	683	6.7	0.04	0.16	9	600
806	6020	Bhawanipatna	657	6.3	0.2	0.76	3	130
807	6021	Bhawanipatna	635	6.8	0.06	0.64	3	120
808	6022	Bhawanipatna	719	6.4	0.2	1.12	15	600
809	6023	Bhawanipatna	706	6.4	0.05	0.64	15	150
810	6024	Bhawanipatna	738	6.4	0.2	1.68	3	190
811	6025	Bhawanipatna	717	6.7	0.06	0.48	3	200
812	6026	Bhawanipatna	708	5.3	0.08	0.44	3	600
813	6027	Bhawanipatna	728	5.7	0.08	0.6	3	170
814	6028	Bhawanipatna	715	5.6	1	1.28	3	600

APPENDIX-XXXIX

MODIS SATELLITE DATA (FOREST FIRE)

Kalahandi North Division.				Latitude	longitude	Type of land affected by fire	Name of village/ location	Nature of fire	Damage to forest in ha.
Year	Sl. No.	Name of Range	Date of occurrence						
1	2	3	4	5	6	7	8	9	10
2007	1	Kegaon	06.03.2007	N20 03 14	E82 50 13	RF	Adabari RF	Ground	3.0
	2	Kegaon	31.03.2007	N20 00 21	E83 00 14	RF	Chura RF	Ground	2.5
	3	M.Rampur	31.03.2007	N20 09 46	E83 67 40	RF	Taprang	Ground	1.0
	4	M.Rampur	31.03.2007	N20 09 06	E83 13 18	VF	Bidabaru VF	Ground	1.5
	5	M.Rampur	31.03.2007	N20 08 31	E83 42 43	VF	Mading	Ground	1.0
	6	M.Rampur	31.03.2007	N20 08 06	E83 41 36	UDF	Mading	Ground	1.5
	7	M.Rampur	31.03.2007	N20 08 06	E83 42 21	UDF	Mading	Ground	1.0
	8	M.Rampur	02.04.2007	N20 16 11	E83 40 58	PRF	Sulia	Ground	1.5
	9	M.Rampur	05.04.2007	N20 15 36	E83 42 33	Revenue Land	Palsapada	Ground	0.5
	10	M.Rampur	06.04.2007	N20 11 27	E83 36 30	Revenue Land	Chandanpinda	Ground	0.5
	11	M.Rampur	06.04.2007	N20 10 58	E83 45 07	Revenue Land	Makhapadar	Ground	1.0
	12	M.Rampur	06.04.2007	N20 10 51	E83 36 54	RF	Taprang	Ground	1.5
	13	M.Rampur	06.04.2007	N20 10 40	E83 42 08	RF	Telen	Ground	1.5
	14	M.Rampur	06.04.2007	N20 15 30	E83 42 04	Revenue Landa	Palsapada	Ground	0.5
	15	M.Rampur	08.04.2007	N20 12 00	E83 44 56	Revenue land	Pongabaju	Ground	1.5
	16	M.Rampur	08.04.2007	N20 11 49	E83 43 55	UDF	Pongabaju	Ground	1.0
	17	M.Rampur	08.04.2007	N20 10 33	E83 40 51	RF	Telen	Ground	1.5
	18	M.Rampur	13.04.2007	N20 15 54	E83 42 25	PRF	Sulia	Ground	0.5
	19	M.Rampur	13.04.2007	N20 15 28	E83 42 50	UDF	Palsapada	Ground	0.5
	20	M.Rampur	13.04.2007	N20 15 25	E83 42 14	UDF	Palsapada	Ground	0.5
	21	M.Rampur	13.04.2007	N20 13 19	E83 33 36	UDF	Tudupadar	Ground	0.5
	22	M.Rampur	13.04.2007	N20 12 03	E83 38 38	UDF	Gandiguda	Ground	0.5
	23	M.Rampur	13.04.2007	N20 11 49	E83 38 50	UDF	Balibaju	Ground	0.5
	24	M.Rampur	13.04.2007	N20 09 25	E83 39 38	UDF	Musungudi	Ground	1.0
	25	M.Rampur	13.04.2007	N20 09 08	E83 38 52	Revenue Land	Kusumdihi	Ground	1.5
	26	M.Rampur	13.04.2007	N20 08 45	E83 39 00	VF	Bidabaru	Ground	1.0
	27	M.Rampur	14.04.2007	N20 13 58	E83 42 54	UDF	Padelpada	Ground	1.5
	28	M.Rampur	14.04.2007	N20 13 30	E83 42 32	UDF	Madramaska	Ground	1.5
	29	M.Rampur	24.04.2007	N20 11 38	E83 42 28	RF	Telen	Ground	1.5
	30	M.Rampur	24.04.2007	N20 10 15	E83 49 08	UDF	Patrapada	Ground	1.0
	31	M.Rampur	25.04.2007	N20 10 01	E83 42 54	UDF	Maskapadar	Ground	1.5
	32	M.Rampur	25.04.2007	N20 09 57	E83 42 00	RF	Telen	Ground	2.0
	33	M.Rampur	25.04.2007	N20 07 51	E83 42 14	UDF	Mading	Ground	1.5
	34	M.Rampur	25.04.2007	N20 07 48	E83 14 20	RF	Jerka	Ground	1.5
TOTAL: -									**41.0**
2008	1	M. Rampur	12.03.2008	N-20-15-07	E-83-30-25	PRF	Ramud	Ground	1.0
	2	M.	30.03.2008	N-20-05-07	E-82-58-40	RF	Benaguda,	Ground	1.0

		Rampur					RF		
	3	M. Rampur	13.04.2008	N-20-05-07	E-82-58-40	RF	Sunamukhi RF	Ground	0.5
	4	M. Rampur	01.05.2008	N-20-09-10	E-83-40-48	PRF	Bidabaru	Ground	1.5
	5	M. Rampur	01.05.2008	N-20-09-03	E-83-40-12	RF	Jerka RF	Ground	2.0
	6	M. Rampur	03.05.2008	N-20-14-24	E-83-43-37	PRF	Sulia PRF	Ground	3.0
	7	M. Rampur	03.05.2008	N-20-11-39	E-83-39-54	(UDF)	Pungabaju (UDF)	Ground	2.0
	8	M. Rampur	03.05.2008	N-20-11-42	E-83-39-03	(UDF)	Pungabaju (UDF)	Ground	3.0
	9	M. Rampur	08.05.2008	N-20-14-16	E-83-43-22	PRF	Sulia PRF	Ground	2.5
	10	M. Rampur	13.05.2008	N-20-11-24	E-83-44-45	(UDF)	Pungabaju (UDF)	Ground	1.5
	11	Narla	03.05.2008	N-20-01-33	E-83-28-30	PRF	Porgel Extn.	Ground	2.5
	12	Narla	13.05.2008	N-20-00-54	E-83-27-57	PRF	Porgel Extn.	Ground	1.0
	13	Narla	13.05.2008	N-20-01-33	E-83-21-30	RF	Porgel RF	Ground	1.0
	14	Kesinga	15.04.2008	N-19-51-21	E-83-16-12	RF	Bajargarh	Ground	1.0
	15	M.Rampur	15.04.2008	N-20-10-48	E-83-35-24	RF	Taprang RF	Ground	3.5
	16	M.Rampur	22.04.2008	N-20-14-49	E-83-38-06	RF	Taprang RF	Ground	3.0
	17	M.Rampur	22.04.2008	N-20-05-07	E-82-58-40	RF	Taprang RF	Ground	1.0
	18	M.Rampur	22.04.2008	N-20-09-32	E-83-38-24	PRF	Puijhari PRF	Ground	2.5
	19	M.Rampur	22.04.2008	N-20-06-57	E-83-41-16	(UDF)	Putrimahul (UDF)	Ground	2.5
	20	M.Rampur	18.04.2008	N-20-05-07	E-82-58-40	RF	Jerka RF	Ground	3.0
	21	M.Rampur	20.04.2008	N-20-14-52	E-83-38-42	RF	Satami RF	Ground	2.5
	22	M.Rampur	20.04.2008	N-20-05-07	E-82-58-40	PRF	Pungabaju PRF	Ground	3.0
	23	M.Rampur	20.04.2008	N-20-17-16	E-83-40-58	PRF	Sulia PRF	Ground	3.0
	24	M.Rampur	20.04.2008	N-20-17-13	E-83-41-34	PRF	Sulia PRF	Ground	3.5
	25	M.Rampur	20.04.2008	N-20-14-42	E-83-40-26	(UDF)	Mudis (UDF)	Ground	3.5
	26	M.Rampur	20.04.2008	N-20-14-38	E-83-39-46	(UDF)	Mudis (UDF)	Ground	3.5
	27	M.Rampur	20.04.2008	N-20-04-34	E-83-39-43	(UDF)	Mudis (UDF)	Ground	3.0
	28	M.Rampur	20.04.2008	N-20-12-18	E-83-43-44	(UDF)	Pongabaju (UDF)	Ground	4.0
	29	M.Rampur	20.04.2008	N-20-11-49	E-83-46-44	(UDF)	Pongabaju (UDF)	Ground	4.0
	30	M.Rampur	20.04.2008	N-20-11-42	E-83-36-07	RF	Taprang RF	Ground	3.5
	31	M.Rampur	20.04.2008	N-20-11-31	E-83-44-24	(UDF)	Pongabaju (UDF)	Ground	3.0
	32	M.Rampur	20.04.2008	N-20-10-58	E-83-45-14	PRF	Pongabaju PRF	Ground	3.5
	33	M.Rampur	20.04.2008	N-20-10-55	E-83-44-31	PRF	Pongabaju PRF	Ground	3.5

	34	M.Rampur	20.04.2008	N-20-10-33	E-83-37-01	RF	Taprang RF	Ground	3.0
	35	M.Rampur	20.04.2008	N-20-08-56	E-83-44-06	(UDF)	Putrimahul (UDF)	Ground	3.0
	36	M.Rampur	20.04.2008	N-20-07-58	E-83-41-06	RF	Jerka RF	Ground	4.0
	37	M.Rampur	20.04.2008	N-20-07-55	E-83-40-22	RF	Jerka RF	Ground	3.0
	38	M.Rampur	21.04.2008	N-20-10-51	E-83-43-04	RF	Telen RF	Ground	4.0
	39	M.Rampur	21.04.2008	N-20-10-33	E-83-43-15	RF	Telen RF	Ground	4.0
	40	M.Rampur	01.05.2008	N-20-05-07	E-82-58-40	PRF	Bidabaru PRF	Ground	1.5
	41	M.Rampur	01.05.2008	N-20-05-07	E-82-58-40	PRF	Bidabaru PRF	Ground	3.0
	42	M.Rampur	17.05.2008	N-20-17-27	E-83-39-39	RF	Satami RF	Ground	2.0
	43	Narla	22.04.2008	N-20-07-37	E-83-36-46	RF	Urladani RF	Ground	3.0
	44	Narla	20.04.2008	N-20-09-03	E-83-34-55	RF	Urladani RF	Ground	1.0
	45	Narla	20.04.2008	N-20-04-15	E-83-29-56	PRF	Belgaon PRF	Ground	3.0
	46	Narla	20.04.2008	N-20-04-08	E-83-25-13	PRF	Belgaon PRF	Ground	2.0
	47	Narla	17.05.2008	N-20-00-43	E-83-31-15	PRF	Porgel Ext.	Ground	2.5
	48	Narla	20.05.2008	N-19-58-58	E-83-29-27	PRF	Porgel Ext.	Ground	1.0
TOTAL: -									**122.5**
2009	1	Kegaon	03.01.2009	N-20-05-07	E-82-58-40	RF	Kumkot RF	Ground	4.45
	2	Kegaon	27.02.2009	N-20-05-02	E-82-57-00	RF	Kumkot RF	Ground	3.5
	3	Kegaon	27.02.2009	N-20-00-32	E-82-56-16	RF	Chura RF	Ground	4.3
	4	Bhawanipatna	03.01.2009	N-19-51-39	E-83-17-02	PRF	Gundi PRF	Ground	1.0
	5	Bhawanipatna	27.02.2009	N-19-49-22	E-83-15-32	PRF	Gundi PRF	Ground	1.0
	6	Bhawanipatna	05.03.2009	N-19-55-08	E-83-20-42	RF	Kadalighati RF	Ground	3.5
	7	Bhawanipatna	06.03.2009	N-19-46-40	E-83-15-21	PRF	Gundi PRF	Ground	5.5
	8	Bhawanipatna	31.03.2009	N-19-50-02	E-83-15-39	PRF	Gundi PRF	Ground	1.5
	9	Bhawanipatna	03.04.2009	N-19-46-40	E-83-13-12	PRF	Gundi PRF	Ground	3.5
	10	Bhawanipatna	05.04.2009	N-19-51-28	E-83-16-19	PRF	Gundi PRF	Ground	1.0
	11	Bhawanipatna	07.04.2009	N-20-11-34	E-83-43-37	PRF	Gundi PRF	Ground	1.0
	12	Narla	05.03.2009	N-20-02-20	E-83-20-02	PRF	Porgel Extn. PRF	Ground	1.0
	13	Narla	08.03.2009	N-20-08-13	E-83-33-57	RF	Urladani RF	Ground	2.0
	14	Narla	13.03.2009	N-20-06-00	E-83-38-20	RF	Urladani RF	Ground	3.3
	15	Narla	07.04.2009	N-20-05-16	E-83-32-52	PRF	Belgaon PRF	Ground	2.5

	16	Narla	07.04.2009	N-20-08-13	E-83-21-52	PRF	Bardhandangor	Ground	2.5
	17	Narla	05.04.2009	N-20-18-21	E-83-42-03	Unsurveyed land	Un-surveyed land	Ground	1.5
	18	M.Rampur	06.03.2009	N-20-06-57	E-83-41-16	RF	Jerka RF	Ground	2.5
	19	M.Rampur	13.03.2009	N-20-11-55	E-83-35-02	RF	Benaguda RF	Ground	1.3
	20	M.Rampur	14.03.2009	N-20-16-51	E-83-36-40	RF	Benaguda RF	Ground	1.5
	21	M.Rampur	17.03.2009	N-20-10-09	E-83-43-22	PRF	Pongabaju PRF	Ground	1.0
	22	M.Rampur	31.03.2009	N-20-10-19	E-83-44-13	PRF	Pongabaju PRF	Ground	2.0
	23	M.Rampur	03.04.2009	N-20-10-85	E-83-41-52	RF	Telen RF	Ground	3.7
	24	M.Rampur	06.04.2009	N-20-11-06	E-83-30-31	RF	Taparang RF	Ground	4.0
	25	M.Rampur	07.04.2009	N-20-11-34	E-83-43-37	PRF	Pongabaju PRF	Ground	2.0
	26	M.Rampur	07.04.2009	N-20-08-13	E-83-41-52	RF	Jerka RF	Ground	1.5
	27	Kesinga	20.03.2009	N-20-02-20	E-83-20-06	RF	Nangalguda RF	Ground	5.0
Total: -									**67.55**
2010	1	M.Rampur	20.03.2010	N-20-18-21	E-83-42-03	PRF	Sulia PRF	Ground	3.00
	2	M.Rampur	22.03.2010	N-20-10-26	E-83-46-33	PRF	Pangabaju PRF	Ground	2.00
	3	M.Rampur	25.03.2010	N-20-13-15	E-83-38-16	PRF	Manikera PRF	Ground	1.50
	4	M.Rampur	31.03.2010	N-20-11-34	E-83-45-43	PRF	Pangabaju PRF	Ground	3.00
	5	M.Rampur	31.03.2010	N-20-11-38	E-83-35-34	RF	Taprang RF	Ground	0.50
	6	M.Rampur	06.04.2010	N-20-12-54	E-83-42-10	PRF	Pangabaju PRF	Ground	4.00
	7	M.Rampur	06.04.2010	N-20-13-48	E-83-42-54	PRF	Pangabaju PRF	Ground	1.50
	8	M.Rampur	10.04.2010	N-20-23-51	E-83-42-14	PRF	Pangabaju PRF	Ground	2.50
	9	M.Rampur	10.04.2010	N-20-11-27	E-83-42-21	PRF	Putrimahul PRF	Ground	1.50
	10	M.Rampur	10.04.2010	N-20-16-40	E-83-40-33	PRF	Sulia PRF	Ground	2.50
	11	M.Rampur	12.04.2010	N-20-11-49	E-83-44-27	PRF	Pangabaju PRF	Ground	1.00
	12	M.Rampur	12.04.2010	N-20-16-30	E-83-42-46	PRF	PuijharI PRF	Ground	1.00
	13	M.Rampur	15.04.2010	N-20-11-13	E-83-43-58	PRF	Pangabaju PRF	Ground	1.50
	14	M.Rampur	16.04.2010	N-20-15-54	E-83-43-01	PRF	Sulia PRF	Ground	2.00
	15	M.Rampur	17.04.2010	N-20-09-21	E-83-40-21	PRF	Pangabaju PRF	Ground	3.00
	16	M.Ramp	19.04.2010	N-20-12-39	E-83-41-42	RF	Satami RF	Ground	2.00

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	17	M.Rampur	19.04.2010	N-20-12-36	E-83-41-06	RF	Telen RF	Ground	1.00
	18	M.Rampur	21.04.2010	N-20-09-43	E-83-40-55	PRF	Putrimahul PRF	Ground	2.00
	19	M.Rampur	21.04.2010	N-20-11-56	E-83-40-48	RF	Satami RF	Ground	9.00
	20	M.Rampur	21.04.2010	N-20-12-03	E-83-41-24	PRF	Sulia PRF	Ground	3.50
	21	M.Rampur	23.04.2010	N-20-14-13	E-83-39-46	RF	Satami RF	Ground	4.50
	22	M.Rampur	24.04.2010	N-20-10-55	E-83-45-10	PRF	Puijhar PRF	Ground	3.05
	23	M.Rampur	24.04.2010	N-20-12-54	E-83-41-13	PRF	Sulia PRF	Ground	1.00
	24	M.Rampur	26.04.2010	N-20-14-24	E-83-42-50	PRF	Puijhari PRF	Ground	2.50
	25	M.Rampur	26.04.2010	N-20-14-52	E-83-41-16	PRF	Sulia PRF	Ground	1.00
	26	M.Rampur	26.04.2010	N-20-15-28	E-83-41-09	RF	Sadel RF	Ground	1.00
	27	M.Rampur	29.04.2010	N-20-12-18	E-83-29-25	PRF	Sulia PRF	Ground	0.50
	28	M.Rampur	03.05.2010	N-20-12-50	E-83-41-45	RF	Satami RF	Ground	1.00
	29	M.Rampur	11.05.2010	N-20-12-54	E-83-41-13	RF	Satami RF	Ground	1.00
	30	Kegaon	20.03.2010	N-20-06-07	E-82-58-15	RF	Kumkot RF	Ground	2.75
	31	Bhawanipatna	23.03.2010	N-19-50-20	E-83-17-52	PRF	Gundi PRF	Ground	0.80
	32	Bhawanipatna	10.04.2010	N-19-49-51	E-83-16-15	PRF	Gundi PRF	Ground	0.004
	33	Bhawanipatna	11.04.2010	N-19-52-33	E-83-17-38	PRF	Gundi PRF	Ground	0.40
	34	Bhawanipatna	29.04.2010	N-19-51-21	E-83-14-13	PRF	Gundi PRF	Ground	0.10
	35	Bhawanipatna	29.04.2010	N-19-49-30	E-83-14-31	PRF	Gundi PRF	Ground	0.10
	36	Narla	22.03.2010	N-20-03-28	E-83-30-25	PRF	Belgaon PRF	Ground	3.75
	37	Narla	10.04.2010	N-20-03-28	E-83-32-38	RF	Urladani RF	Ground	2.00
	38	Narla	10.04.2010	N-20-01-58	E-83-25-30	RF	Narla RF	Ground	1.00
	39	Narla	10.04.2010	N-20-58-51	E-83-29-09	PRF	Porgel Ext. PRF	Ground	1.50
	40	Narla	21.04.2010	N-20-00-43	E-83-28-22	PRF	Porgel RF	Ground	2.00
	41	Narla	10.05.2010	N-20-02-13	E-83-28-38	PRF	Badi Bahal PRF	Ground	2.70
	42	Kesinga	20.03.2010	N-20-02-24	E-83-20-34	RF	Nangalguda RF	Ground	1.21
Total: -									**81.864**
2011	1	Bhawanipatna	12.05.2011	N-19-51-13	E-83-13-37	PRF	Sulia PRF	Ground	1.0
	2	Bhawanipatna	12.05.2011	N-19-50-31	E-83-14-34	PRF	Sulia PRF	Ground	0.7
	3	Bhawanipatna	12.05.2011	N-19-51-10	E-83-14-27	PRF	Sulia PRF	Ground	1.5
	4	Narla	01.04.2011	N-20-02-31	E-83-29-16	Belga	Belgaon	Ground	2.0

						on PRF			
	5	Narla	01.04.2011	N-20-02-24	E-83-28-33	PRF	Porgel Ext. PRF	Ground	3.0
	6	Narla	06.04.2011	N-20-02-34	E-83-29-34	Belgaon	Belgaon	Ground	1.5
	7	Narla	08.04.2011	N-20-09-21	E-83-31-15	RF	Urladani RF	Ground	2.0
	8	Narla	13.05.2011	N-19-592-02	E-83-29-24	PRF	Porgel Ext. PRF	Ground	2.0
	9	Narla	19.05.2011	N-20-01-26	E-83-27-40	PRF	Sikerguda PRF	Ground	3.0
	10	Narla	19.05.2011	N-20-01-33	E-83-28-26	PRF	Sikerguda PRF	Ground	2.5
	11	Narla	19.05.2011	N-20-02-27	E-83-30-25	Belgaon	Belgaon	Ground	2.0
	12	Narla	22.05.2011	N-19-58-33	E-83-29-27	PRF	Porgel Ext. PRF	Ground	3.0
	13	Narla	22.05.2011	N-19-57-54	E-83-29-31	PRF	Porgel Ext. PRF	Ground	3.0
	14	M.Rampur	01.04.2011	N-20-09-50	E-83-37-08	RF	Jerka RF	Ground	1.5
	15	M.Rampur	01.04.2011	N-20-08-34	E-83-40-08	RF	Jerka RF	Ground	2.0
	16	M.Rampur	01.04.2011	N-20-10-26	E-83-37-01	RF	Telen RF	Ground	1.5
	17	M.Rampur	01.04.2011	N-20-08-27	E-83-39-23	RF	Jerka RF	Ground	1.0
	18	M.Rampur	18.04.2011	N-20-11-24	E-83-42-07	PRF	Mudramaska PRF	Ground	1.5
	19	M.Rampur	18.04.2011	N-20-11-13	E-83-42-07	PRF	Mudramaska PRF	Ground	1.5
	20	M.Rampur	18.04.2011	N-20-10-33	E-83-42-14	RF	Telen RF	Ground	2.0
	21	M.Rampur	29.04.2011	N-20-18-07	E-83-36-57	RF	Benaguda RF	Ground	1.5
	22	M.Rampur	29.04.2011	N-20-10-37	E-83-46-48	PRF	Kutrimahul PRF	Ground	2.0
	23	M.Rampur	01.05.2011	N-20-10-37	E-83-42-25	PRF	Mudramaska PRF	Ground	2.0
	24	M.Rampur	01.05.2011	N-20-12-25	E-83-43-19	PRF	Mudramaska PRF	Ground	2.0
	25	M.Rampur	03.05.2011	N-20-13-51	E-83-42-43	RF	Telen RF	Ground	1.0
	26	M.Rampur	03.05.2011	N-20-11-38	E-83-44-45	PRF	Mudramaska PRF	Ground	1.5
	27	M.Rampur	03.05.2011	N-20-13-40	E-83-43-04	PRF	Sulia PRF	Ground	1.0
	28	M.Rampur	04.05.2011	N-20-11-02	E-83-38-24	PRF	Sulia PRF	Ground	2.0
	29	M.Rampur	04.05.2011	N-20-11-09	E-83-39-50	PRF	Puijhari PRF	Ground	1.0
	30	M.Rampur	04.05.2011	N-20-11-13	E-83-39-28	PRF	Puijhari PRF	Ground	1.0
	31	M.Rampur	05.05.2011	N-20-14-27	E-83-40-30	PRF	Puijhari PRF	Ground	1.5
	32	M.Rampur	06.05.2011	N-20-12-07	E-83-40-40	PRF	Puijhari PRF	Ground	1.5
	33	M.Rampur	10.05.2011	N-20-07-04	E-83-41-49	RF	Jerka RF	Ground	1.0
	34	M.Rampur	11.05.2011	N-20-11-49	E-83-38-42	RF	Satami RF	Ground	0.5
	35	M.Rampur	12.05.2011	N-20-15-25	E-83-42-00	RF	Satami RF	Ground	1.0

	36	M.Rampur	12.05.2011	N-20-15-18	E-83-41-09	RF	Satami RF	Ground	1.5
	37	M.Rampur	12.05.2011	N-20-15-10	E-83-42-21	RF	Satami RF	Ground	1.0
	38	M.Rampur	12.05.2011	N-20-15-03	E-83-41-34	RF	Satami RF	Ground	1.0
	39	M.Rampur	12.05.2011	N-20-14-52	E-83-40-40	RF	Satami RF	Ground	1.0
	40	M.Rampur	12.05.2011	N-20-13-37	E-83-40-58	PRF	Mudramaska PRF	Ground	1.5
	41	M.Rampur	12.05.2011	N-20-12-21	E-83-41-09	PRF	Pongabaju PRF	Ground	1.0
	42	M.Rampur	12.05.2011	N-20-12-14	E-83-40-22	RF	Telen RF	Ground	1.0
	43	M.Rampur	14.05.2011	N-20-11-56	E-83-45-28	PRF	Pongabaju PRF	Ground	1.0
	44	M.Rampur	15.05.2011	N-20-16-12	E-83-40-04	RF	Satami RF	Ground	1.0
	45	M.Rampur	15.05.2011	N-20-16-04	E-83-40-08	RF	Satami RF	Ground	1.0
	46	M.Rampur	15.05.2011	N-20-15-36	E-83-40-01	RF	Satami RF	Ground	1.0
	47	M.Rampur	17.05.2011	N-20-14-31	E-83-40-33	RF	Satami RF	Ground	1.0
	48	M.Rampur	19.05.2011	N-20-08-21	E-83-40-37	RF	Jerka RF	Ground	1.0
	49	M.Rampur	24.05.2011	N-20-09-07	E-83-41-02	RF	Jerka RF	Ground	1.0
TOTAL: -									**73.70**
2012	1	Narla Range	31.03.2013	N-19-59-19	E-83-29-09	PRF	Porgel Extn.	Ground	2.0
	2	Narla Range	30.03.2013	N-19-59-24	E-83-29-06	PRF	Porgel Extn.	Ground	1.5
	3	Narla Range	31.03.2013	N-20-08-36	E-83-33-22	R.F.	Urladani R.F.	Ground	2.5
	4	Narla Range	30.03.2013	N-20-08-28	E-83-32-34	R.F.	Urladani R.F.	Ground	2.5
	5	Narla Range	30.03.2013	N-20-06-39	E-43-39-03	PRF	Harlanga	Ground	2.0
	6	Kegaon Range	02.04.2013	N-20-04-50	E-82-56-30	Nuagaon	Nuagaon	Ground	0.5
	7	Narla Range	06.04.2013	N-20-05-13	E-83-32-45	P.R.F.	Belgaon P.R.F.	Ground	3.0
	8	Narla Range	06.04.2013	N-20-07-00	E-83-36-30	R.F.	Urladani R.F.	Ground	2.5
	9	Narla Range	06.04.2013	N-20-06-56	E-83-32-26	R.F.	Urladani R.F.	Ground	3.5
	10	M. Rampur	06.04.2013	N-20-16-03	E-83-39-57	P.R.F.	Sulia P.R.F.	Ground	2.5
	11	M. Rampur	06.04.2013	N-20-15-57	E-83-39-18	R.F.	Satami R.F.	Ground	2.0
	12	M. Rampur	06.04.2013	N-20-15-20	E-83-42-46	P.R.F.	Sulia P.R.F.	Ground	2.5
	13	M. Rampur	06.04.2013	N-20-12-17	E-83-35-48	R.F.	Taprang R.F.	Ground	3.5
	14	M. Rampur	06.04.2013	N-20-12-12	E-83-37-53	R.F.	Taprang R.F.	Ground	3.0
	15	M. Rampur	06.04.2013	N-20-11-23	E-83-40-07	P.R.F.	Puijhari P.R.F.	Ground	1.5

	16	M. Rampur	06.04.2013	N-20-11-04	E-83-39-53	P.R.F.	Puijhari P.R.F.	Ground	2.0
	17	M. Rampur	07.04.2013	N-20-00-42	E-83-29-16	PRF	Porgel Extn.	Ground	2.0
	18	M. Rampur	07.04.2013	N-20-18-35	E-83-37-35	P.R.F.	Tal Nuagaon P.R.F.	Ground	2.0
	19	M. Rampur	07.04.2013	N-20-18-23	E-83-41-29	P.R.F.	Sulia P.R.F.	Ground	2.5
	20	M. Rampur	07.04.2013	N-20-17-02	E-83-36-32	R.F.	Benaguda R.F.	Ground	2.0
	21	M. Rampur	07.04.2013	N-20-16-56	E-83-37-09	R.F.	Benaguda R.F.	Ground	2.5
	22	M. Rampur	07.04.2013	N-20-12-09	E-83-35-57	R.F.	Taprang R.F.	Ground	4.0
	23	M. Rampur	07.04.2013	N-20-10-22	E-83-43-52	R.F.	Telen R.F.	Ground	1.5
	24	M. Rampur	07.04.2013	N-20-10-16	E-83-44-20	R.F.	Telen R.F.	Ground	1.0
	25	M. Rampur	07.04.2013	N-20-10-31	E-83-45-30	P.R.F.	Pongabaju P.R.F.	Ground	2.5
	26	M. Rampur	07.04.2013	N-20-08-21	E-83-42-06	R.F.	Telen R.F.	Ground	3.0
	27	M. Rampur	08.04.2013	N-19-45-58	E-83-14-09	Nuagaon	Nuagaon	Ground	0.5
	28	M. Rampur	08.04.2013	N-20-08-22	E-83-35-55	R.F.	Urladani R.F.	Ground	3.0
	29	M. Rampur	08.04.2013	N-20-17-25	E-83-41-18	P.R.F.	Sulia P.R.F.	Ground	2.0
	30	M. Rampur	08.04.2013	N-20-17-24	E-83-37-03	R.F.	Satami R.F.	Ground	2.5
	31	M. Rampur	08.04.2013	N-20-10-43	E-83-43-07	R.F.	Telen R.F.	Ground	2.0
	32	M. Rampur	08.04.2013	N-20-10-32	E-83-42-04	R.F.	Telen R.F.	Ground	3.0
	33	M. Rampur	08.04.2013	N-20-11-14	E-83-46-07	P.R.F.	Pongabaju P.R.F.	Ground	3.0
	34	M. Rampur	08.04.2013	N-20-10-22	E-83-45-10	P.R.F.	Pongabaju P.R.F.	Ground	2.5
	35	M. Rampur	10.04.2013	N-20-11-45	E-83-43-18	PRF	Pongabaju	Ground	2.0
	36	M. Rampur	11.04.2013	N-20-15-55	E-83-40-11	R.F.	Sulia R.F.	Ground	4.0
	37	M. Rampur	11.04.2013	N-20-15-50	E-83-39-32	R.F.	Satami R.F.	Ground	6.0
	38	M. Rampur	11.04.2013	N-20-13-45	E-83-39-38	P.R.F.	Puijhari P.R.F.	Ground	6.0
	39	M. Rampur	11.04.2013	N-20-13-40	E-83-39-01	R.F.	Satami R.F.	Ground	6.0
	40	Bhawanipatna	11.04.2013	N-19-47-54	E-83-15-21	PRF	Sulia	Ground	1.0
	41	Narla Range	11.04.2013	N-20-01-14	E-83-28-15	P.R.F.	Sikerguda P.R.F.	Ground	3.0
	42	Narla Range	11.04.2013	N-20-00-40	E-83-28-07	P.R.F.	Sikerguda P.R.F.	Ground	3.0
	43	M. Rampur	18.04.2013	N-20-12-21	E-83-41-34	P.R.F.	Mundramasha P.R.F.	Ground	4.0

	44	M. Rampur	18.04.2013	N-20-12-26	E-83-42-18	P.R.F.	Mundram asha P.R.F.	Ground	3.5
	45	M. Rampur	18.04.2013	N-20-12-31	E-83-43-04	P.R.F.	Mundram asha P.R.F.	Ground	3.0
	46	M. Rampur	18.04.2013	N-20-15-00	E-83-42-44	P.R.F.	Mundram asha P.R.F.	Ground	3.0
	47	Bhawanipa tna	29.04.2013	N-19-53-25	E-83-17-14	Santp ur	Santpur	Ground	0.5
	48	M. Rampur	02.05.2013	N-20-12-22	E-83-41-09	P.R.F.	Mundram asha P.R.F.	Ground	3.0
	49	M. Rampur	02.05.2013	N-20-13-07	E-83-41-58	P.R.F.	Mundram asha P.R.F.	Ground	3.0
	50	M. Rampur	02.05.2013	N-20-13-14	E-83-43-12	P.R.F.	Mundram asha P.R.F.	Ground	2.0
	51	M. Rampur	02.05.2013	N-20-13-16	E-83-42-17	P.R.F.	Mundram asha P.R.F.	Ground	2.0
	52	M. Rampur	02.05.2013	N-20-13-24	E-83-43-29	P.R.F.	Pongabaj u P.R.F.	Ground	2.0
	53	M. Rampur	02.05.2013	N-20-14-00	E-83-43-01	P.R.F.	Mundram asha P.R.F.	Ground	2.5
	54	M. Rampur	02.05.2013	N-20-13-53	E-83-41-51	P.R.F.	Mundram asha P.R.F.	Ground	3.0
	55	M. Rampur	04.05.2013	N-20-14-32	E-83-40-16	R.F.	Sarami R.F.	Ground	3.5
	56	Bhawanipa tna	06.05.2013	N-19-47-22	E-83-14-31	PRF	Sulia	Ground	0.4
TOTAL: -									**147.6**
2013	1	Kegaon Range	02.04.2013	N-20-04-50	E-82-56-30	Nuagaon	Nuagaon	Ground	0.5
	2	Bhawanipatna	08.04.2013	N-19-45-58	E-83-14-09	Nuagaon	Nuagaon	Ground	0.5
	3	Bhawanipatna	11.04.2013	N-19-47-54	E-83-15-21	PRF	Sulia	Ground	1
	4	Bhawanipatna	29.04.2013	N-19-53-25	E-83-17-14	Santpur	Santpur	Ground	0.5
	5	Bhawanipatna	06.05.2013	N-19-47-22	E-83-14-31	PRF	Sulia	Ground	0.4
	6	Narla Range	06.04.2013	N-20-05-13	E-83-32-45	P.R.F.	Belgaon P.R.F.	Ground	3
	7	Narla Range	08.04.2013	N-20-08-22	E-83-35-55	R.F.	Urladani R.F.	Ground	3
	8	Narla Range	07.04.2013	N-20-00-42	E-83-29-16	PRF	Porgel Extn.	Ground	2
	9	Narla Range	06.04.2013	N-20-07-00	E-83-36-30	R.F.	Urladani R.F.	Ground	2.5
	10	Narla Range	06.04.2013	N-20-06-56	E-83-32-26	R.F.	Urladani R.F.	Ground	3.5

	11	Narla Range	31.03.2013	N-19-59-19	E-83-29-09	PRF	Porgel Extn.	Ground	2
	12	Narla Range	30.03.2013	N-19-59-24	E-83-29-06	PRF	Porgel Extn.	Ground	1.5
	13	Narla Range	31.03.2013	N-20-08-36	E-83-33-22	R.F.	Urladani R.F.	Ground	2.5
	14	Narla Range	30.03.2013	N-20-08-28	E-83-32-34	R.F.	Urladani R.F.	Ground	2.5
	15	Narla Range	30.03.2013	N-20-06-39	E-43-39-03	PRF	Harlanga	Ground	2
	16	Narla Range	11.04.2013	N-20-01-14	E-83-28-15	PRF	Sikerguda P.R.F.	Ground	3
	17	Narla Range	11.04.2013	N-20-00-40	E-83-28-07	PRF	Sikerguda P.R.F.	Ground	3
	18	Narla Range	23.05.2013	N-20-01-48	E-83-30-56	PRF	Sikerguda P.R.F.	Ground	3
	19	Narla Range	23.05.2013	N-20-01-46	E-83-31-28	PRF	MundIghati P.R.F.	Ground	2
	20	Narla Range	23.05.2013	N-20-01-36	E-83-28-30	PRF	Porgel Extn.	Ground	3
	21	Narla Range	23.05.2013	N-20-01-33	E-83-28-57	PRF	Porgel Extn.	Ground	2
	22	Narla Range	06.05.2013	N-20-03-14	E-83-29-10	U.D.P.F.	Belgaon U.D.P.F.	Ground	3
	23	M. Rampur	10.04.2013	N-20-11-45	E-83-43-18	Pongabaju	Pongabaju	Ground	2
	24	M. Rampur	08.04.2013	N-20-17-25	E-83-41-18	P.R.F.	Sulia P.R.F.	Ground	2
	25	M. Rampur	08.04.2013	N-20-17-24	E-83-37-03	R.F.	Satami R.F.	Ground	2.5
	26	M. Rampur	08.04.2013	N-20-10-43	E-83-43-07	R.F.	Telen R.F.	Ground	2
	27	M. Rampur	08.04.2013	N-20-10-32	E-83-42-04	R.F.	Telen R.F.	Ground	3
	28	M. Rampur	07.04.2013	N-20-18-35	E-83-37-35	P.R.F.	Tal Nuagaon P.R.F.	Ground	2
	29	M. Rampur	07.04.2013	N-20-18-23	E-83-41-29	P.R.F.	Sulia P.R.F.	Ground	2.5
	30	M. Rampur	07.04.2013	N-20-17-02	E-83-36-32	R.F.	Benaguda R.F.	Ground	2
	31	M. Rampur	07.04.2013	N-20-16-56	E-83-37-09	R.F.	Benaguda R.F.	Ground	2.5
	32	M. Rampur	07.04.2013	N-20-12-09	E-83-35-57	R.F.	Taprang R.F.	Ground	4
	33	M. Rampur	07.04.2013	N-20-10-22	E-83-43-52	R.F.	Telen R.F.	Ground	1.5
	34	M. Rampur	07.04.2013	N-20-10-16	E-83-44-20	R.F.	Telen R.F.	Ground	1
	35	M. Rampur	06.04.2013	N-20-16-03	E-83-39-57	R.F.	Sulia R.F.	Ground	2.5
	36	M. Rampur	06.04.2013	N-20-15-57	E-83-39-18	R.F.	Satami R.F.	Ground	2
	37	M. Rampur	06.04.2013	N-20-15-20	E-83-42-46	R.F.	Sulia R.F.	Ground	2.5
	38	M. Rampur	06.04.2013	N-20-12-17	E-83-35-48	R.F.	Taprang R.F.	Ground	3.5
	39	M. Rampur	06.04.201	N-20-	E-83-37-	R.F.	Taprang R.F.	Ground	3

			3	12-12	53				
	40	M. Rampur	06.04.2013	N-20-11-23	E-83-40-07	P.R.F.	Puijhari P.R.F.	Ground	1.5
	41	M. Rampur	06.04.2013	N-20-11-04	E-83-39-53	P.R.F.	Puijhari P.R.F.	Ground	2
	42	M. Rampur	11.04.2013	N-20-15-55	E-83-40-11	R.F.	Sulia R.F.	Ground	4
	43	M. Rampur	11.04.2013	N-20-15-50	E-83-39-32	R.F.	Satami R.F.	Ground	6
	44	M. Rampur	11.04.2013	N-20-13-45	E-83-39-38	P.R.F.	Puijhari P.R.F.	Ground	6
	45	M. Rampur	11.04.2013	N-20-13-40	E-83-39-01	R.F.	Satami R.F.	Ground	6
	46	M. Rampur	18.04.2013	N-20-12-21	E-83-41-34	P.R.F.	Mundramasha P.R.F.	Ground	4
	47	M. Rampur	18.04.2013	N-20-12-26	E-83-42-18	P.R.F.	Mundramasha P.R.F.	Ground	3.5
	48	M. Rampur	18.04.2013	N-20-12-31	E-83-43-04	P.R.F.	Mundramasha P.R.F.	Ground	3
	49	M. Rampur	18.04.2013	N-20-15-00	E-83-42-44	P.R.F.	Mundramasha P.R.F.	Ground	3
	50	M. Rampur	02.05.2013	N-20-12-22	E-83-41-09	P.R.F.	Mundramasha P.R.F.	Ground	3
	51	M. Rampur	02.05.2013	N-20-13-07	E-83-41-58	P.R.F.	Mundramasha P.R.F.	Ground	3
	52	M. Rampur	02.05.2013	N-20-13-14	E-83-43-12	PRF	Mundramasha P.R.F.	Ground	2
	53	M. Rampur	02.05.2013	N-20-13-16	E-83-42-17	PRF	Mundramasha P.R.F.	Ground	2
	54	M. Rampur	02.05.2013	N-20-13-24	E-83-43-29	PRF	Pongabaju P.R.F.	Ground	2
	55	M. Rampur	02.05.2013	N-20-14-00	E-83-43-01	PRF	Mundramasha P.R.F.	Ground	2.5
	56	M. Rampur	02.05.2013	N-20-13-53	E-83-41-51	PRF	Mundramasha P.R.F.	Ground	3
	57	M. Rampur	04.05.2013	N-20-14-32	E-83-40-16	R.F.	Sarami R.F.	Ground	3.5
	58	M. Rampur	07.04.2013	N-20-10-31	E-83-45-30	PRF	Pongabaju P.R.F.	Ground	2.5
	59	M. Rampur	07.04.2013	N-20-08-21	E-83-42-06	R.F.	Telen R.F.	Ground	3
	60	M. Rampur	08.04.2013	N-20-11-14	E-83-46-03	P.R.F.	Pongabaju P.R.F.	Ground	3
	61	M. Rampur	08.04.2013	N-20-10-22	E-83-45-10	PRF	Pongabaju P.R.F.	Ground	2.5
TOTAL: -									**157.9**
2014	1	Kegaon	29.03.2014	20 06 45 N	82 57 17 E	R.F.	Kumkot R.F.	Ground	1.2
	2	Kegaon	29.03.2014	20 00 44 N	82 58 00 E	R.F.	Chura R.F.	Ground	0.8
	3	Kegaon	31.03.2014	20 02 08 N	82 50 16 E	R.F.	Adabari R.F.	Ground	1.4
	4	Kegaon	01.04.2014	20 05 08 N	82 57 02 E	R.F.	Kumkot R.F.	Ground	2.0
	5	Kegaon	01.04.2014	20 04 33 N	82 56 59 E	R.F.	Kumkot R.F.	Ground	1.11

	6	Narla	31.03.2014	20 03 04 N	83 32 20 E	Natural	Natural	Ground	1.8
	7	Narla	31.03.2014	19 59 43 N	83 28 28 E	Natural	Natural	Ground	1.2
	8	Narla	01.04.2014	19 59 48 N	83 29 32 E	Natural	Natural	Ground	1.6
	9	Narla	14.04.2014	20 09 08 N	83 34 55 E	R.F.	Urladani R.F.	Ground	0.8
	10	Narla	28.04.2014	20 01 44 N	83 29 14 E	Natural	Natural	Ground	2.6
	11	Narla	20.05.2014	20 01 00 N	83 27 54 E	Natural	Natural	Ground	1.6
	12	Bhawanipatna	21.04.2014	19 51 57 N	83 17 35 E	R.F.	R.F.	Ground	0.4
	13	Bhawanipatna	27.04.2014	19 51 12 N	83 17 51 E	R.F.	R.F.	Ground	0.4
	14	Bhawanipatna	27.04.2014	19 51 00 N	83 16 41 E	R.F.	R.F.	Ground	0.2
	15	Bhawanipatna	27.04.2014	19 50 59 N	83 18 15 E	R.F.	R.F.	Ground	0.2
	16	Bhawanipatna	27.04.2014	19 50 48 N	83 17 10 E	R.F.	R.F.	Ground	0.3
	17	Bhawanipatna	04.05.2014	19 50 21 N	83 15 26 E	R.F.	R.F.	Ground	0.3
	18	Bhawanipatna	04.05.2014	19 49 59 N	83 16 03 E	R.F.	R.F.	Ground	0.2
	19	Bhawanipatna	16.05.2014	19 49 37 N	83 17 02 E	R.F.	R.F.	Ground	0.4
	20	Bhawanipatna	19.05.2014	19 52 37 N	83 16 49 E	R.F.	R.F.	Ground	0.2
	21	Bhawanipatna	20.05.2014	19 47 48 N	83 15 34 E	R.F.	R.F.	Ground	0.4
	22	M. Rampur	26.04.2014	20 14 52 N	83 42 44 E	V.F.	V.F.	Ground	2.0
	23	M. Rampur	25.04.2014	20 16 10 N	83 39 55 E	P.R.F.	Sulia P.R.F.	Ground	1.5
	24	M. Rampur	25.04.2014	20 14 03 N	83 42 41 E	V.F.	V.F.	Ground	1.5
	25	M. Rampur	16.04.2014	20 12 07 N	83 36 34 E	R.F.	Taprang R.F.	Ground	1.5
	26	M. Rampur	15.04.2014	20 12 29 N	83 37 21 E	R.F.	Taprang R.F.	Ground	1.7
	27	M. Rampur	20.04.2014	20 15 08 N	83 41 42 E	P.R.F.	Mundramaska P.R.F.	Ground	2.0
	28	M. Rampur	20.04.2014	20 14 52 N	83 40 21 E	P.R.F.	Sulia P.R.F.	Ground	2.05
	29	M. Rampur	21.04.2014	20 12 16 N	83 42 32 E	P.R.F.	Sulia P.R.F.	Ground	2.15
	30	M. Rampur	21.04.2014	20 07 58 N	83 43 13 E	P.R.F.	Putrimahul P.R.F.	Ground	1.3
	31	M. Rampur	23.04.2014	20 14 16 N	83 42 08 E	P.R.F.	Mundramaska P.R.F.	Ground	2.3
	32	M. Rampur	02.05.2014	20 12 06 N	83 44 53 E	P.R.F.	Pongabaju P.R.F.	Ground	1.93
	33	M. Rampur	03.04.2014	20 17 53 N	83 35 30 E	R.F.	Benaguda R.F.	Ground	2.9
	34	M. Rampur	29.04.201	20 08	83 37 50	R.F.	Taprang R.F.	Ground	1.03

			4	59 N	E				
	35	M. Rampur	29.04.2014	20 09 05 N	83 38 07 E	R.F.	Taprang R.F.	Ground	1.25
	36	M. Rampur	29.04.2014	20 09 21 N	83 39 41 E	R.F.	Puijhari R.F.	Ground	1.35
	37	M. Rampur	30.04.2014	20 12 06 N	83 44 23 E	P.R.F.	Pongabaju P.R.F.	Ground	1.32
	38	M. Rampur	30.04.2014	20 11 52 N	83 44 46 E	P.R.F.	Pongabaju P.R.F.	Ground	1.6
	39	M. Rampur	30.04.2014	20 11 47 N	83 44 08 E	P.R.F.	Pongabaju P.R.F.	Ground	1.8
	40	M. Rampur	08.05.2014	20 13 03 N	83 40 15 E	R.F.	Taprang R.F.	Ground	1.53
	41	M. Rampur	05.05.2014	20 09 34 N	83 44 53 E	P.R.F.	Putrimahul P.R.F.	Ground	1.96
	42	M. Rampur	05.05.2014	20 09 25 N	83 44 36 E	P.R.F.	Putrimahul P.R.F.	Ground	1.63
	43	M. Rampur	21.05.2014	20 14 01 N	83 41 07 E	P.R.F.	Mundramaska P.R.F.	Ground	2.2
TOTAL: -									**57.61**
2015	1	Bhawanipatna	16.03.2015	19 51 48 N	83 17 23 E	Rev. Forest	Rev. Forest Near vill - Saked	Ground	0.4
	2	Kegaon	21.03.2015	20 07 45 N	82 49 14 E	R.F.	Gojia R.F.	Ground	3.0
	3	Bhawanipatna	28.03.2015	19 51 10 N	83 15 02 E	Rev. Forest	Rev. Forest Near vill - Ampadar	Ground	0.4
	4	M. Rampur	03.04.2015	20 12 14 N	83 36 04 E	R.F.	Taprang R.F.	Ground	2.0
	5	M. Rampur	03.04.2015	20 07 21 N	83 40 16 E	R.F.	Jarka R.F.	Ground	3.0
	6	M. Rampur	03.04.2015	20 07 09 N	83 42 43 E	U.D.F.	Taprang U.D.F.	Ground	2.0
	7	M. Rampur	03.04.2015	20 06 49 N	83 40 21 E	R.F.	Jarka R.F.	Ground	3.0
	8	Narla	03.04.2015	20 09 59 N	83 32 14 E	R.F.	Urladani R.F.	Ground	2.0
	9	Kegaon	03.04.2015	20 02 23 N	82 57 15 E	R.F.	Chura R.F.	Ground	2.0
	10	Bhawanipatna	03.04.2015	19 48 17 N	83 13 17 E	P.R.F.	Gundi P.R.F. near Padmanjharan	Ground	0.6
	11	Kesinga	04.04.2015	20 12 17 N	83 18 03 E	Near vill - Kurumpadar	Near vill - Kurumpadar	Ground	0.3
	12	Kegaon	04.04.2015	20 06 32 N	82 57 29 E	R.F.	Kumkot R.F.	Ground	2.5
	13	Narla	04.04.2015	20 04 58 N	83 32 40 E	R.F.	Urladani R.F.	Ground	1.5
	14	Narla	04.04.2015	20 00 35 N	83 29 17 E	P.R.F.	Porgen Extn. P.R.F.	Ground	1.4
	15	Narla	04.04.2015	20 00 00 N	83 29 10 E	P.R.F.	Porgen Extn. P.R.F.	Ground	2.5
	16	Bhawanipatna	04.04.2015	19 52 51 N	83 16 51 E	Rev. Forest	Rev. Forest near vill - Makhanghara	Ground	0.6

	17	M. Rampur	04.04.2015	20 09 56 N	83 46 08 E	P.R.F.	Pongabaju P.R.F.	Ground	2.0
	18	Kesinga	05.04.2015	20 12 52 N	83 18 24 E	Near vill - Singhjharan	Near vill - Singhjharan	Ground	0.4
	19	M. Rampur	05.04.2015	20 11 35 N	83 35 28 E	R.F.	Taprang R.F.	Ground	2.0
	20	M. Rampur	05.04.2015	20 10 25 N	83 46 15 E	P.R.F.	Pongabaju P.R.F.	Ground	2.5
	21	M. Rampur	05.04.2015	20 09 15 N	83 43 04 E	P.R.F.	Lahari P.R.F.	Ground	2.2
	22	Kesinga	05.04.2015	20 03 15 N	83 19 17 E	Near vill - Phatkabahali	Near vill - Phatkabahali	Ground	0.4
	23	Bhawanipatna	05.04.2015	19 50 36 N	83 18 05 E	Near village Dalimpadar	Near village Dalimpadar	Ground	0.2
	24	M. Rampur	10.04.2015	20 16 40 N	83 41 46 E	P.R.F.	Sulia P.R.F.	Ground	3.0
	25	M. Rampur	10.04.2015	20 16 35 N	83 41 12 E	P.R.F.	Sulia P.R.F.	Ground	3.2
	26	M. Rampur	10.04.2015	20 16 12 N	83 42 25 E	V.F.	Jamuli V.F.	Ground	2.0
	27	M. Rampur	10.04.2015	20 16 08 N	83 41 51 E	P.R.F.	Mundramaska P.R.F.	Ground	2.3
	28	Narla	10.04.2015	20 06 32 N	83 36 33 E	R.F.	Urladani R.F.	Ground	3.0
	29	Narla	10.04.2015	20 05 20 N	83 28 02 E	R.F.	Kerbandi R.F.	Ground	0.5
	30	M. Rampur	22.04.2015	20 15 27 N	83 42 28 E	P.R.F.	Mundramaska P.R.F.	Ground	2.1
	31	M. Rampur	22.04.2015	20 15 19 N	83 41 12 E	P.R.F.	Sulia P.R.F.	Ground	2.4
	32	M. Rampur	22.04.2015	20 14 24 N	83 40 04 E	P.R.F.	Sulia P.R.F.	Ground	2.1
	33	M. Rampur	22.04.2015	20 12 29 N	83 44 05 E	U.D.P.F.	Pongabaju U.D.P.F.	Ground	1.8
	34	M. Rampur	22.04.2015	20 11 52 N	83 45 53 E	P.R.F.	Pongabaju P.R.F.	Ground	2.1
	35	M. Rampur	22.04.2015	20 11 50 N	83 45 26 E	P.R.F.	Pongabaju P.R.F.	Ground	2.2
	36	M. Rampur	22.04.2015	20 11 44 N	83 44 36 E	P.R.F.	Pongabaju P.R.F.	Ground	1.5
	37	M. Rampur	22.04.2015	20 11 42 N	83 44 09 E	uP.R.F.	Pongabaju P.R.F.	Ground	1.8
	38	M. Rampur	22.04.2015	20 11 34 N	83 42 51 E	U.D.P.F.	Pongabaju U.D.P.F.	Ground	1.8
	39	M. Rampur	22.04.2015	20 11 19 N	83 40 28 E	U.D.P.F.	Pongabaju U.D.P.F.	Ground	1.5
	40	M. Rampur	22.04.2015	20 11 11 N	83 39 12 E	U.D.P.F.	Pongabaju U.D.P.F.	Ground	2.2
	41	M. Rampur	22.04.2015	20 11 11 N	83 39 39 E	U.D.P.F.	Pongabaju U.D.P.F.	Ground	1.9
	42	M. Rampur	22.04.2015	20 10 26 N	83 39 21 E	R.F.	Telen R.F.	Ground	2.1
	43	M. Rampur	22.04.2015	20 10 25 N	83 39 46 E	R.F.	Telen R.F.	Ground	1.9
	44	M. Rampur	21.04.2015	20 20 39 N	83 41 51 E	P.R.F.	Sulia 'B' P.R.F.	Ground	3.0

	45	M. Rampur	21.04.2015	20 16 46 N	83 41 52 E	P.R.F.	Sulia 'A' P.R.F.	Ground	2.4
	46	M. Rampur	21.04.2015	20 15 52 N	83 42 24 E	P.R.F.	Mundramaska P.R.F.	Ground	1.8
	47	M. Rampur	21.04.2015	20 13 27 N	83 39 30 E	P.R.F.	Puijhari P.R.F.	Ground	2.1
	48	M. Rampur	21.04.2015	20 12 31 N	83 45 32 E	P.R.F.	Pongabaju P.R.F.	Ground	2.0
	49	M. Rampur	21.04.2015	20 12 23 N	83 44 45 E	P.R.F.	Pongabaju P.R.F.	Ground	2.2
	50	M. Rampur	21.04.2015	20 12 15 N	83 43 56 E	P.R.F.	Pongabaju P.R.F.	Ground	1.7
	51	M. Rampur	20.04.2015	20 12 48 N	83 42 43 E	U.D.F.	Pongabaju U.D.F.	Ground	2.4
	52	Bhawanipatna	30.04.2015	19 49 33 N	83 15 01 E	Near village Saked	Near village Saked	Ground	0.4
	53	Bhawanipatna	30.04.2015	19 49 22 N	83 13 58 E	Near village Jorejharan	Near village Jorejharan	Ground	0.2
	54	M. Rampur	03.05.2015	20 12 48 N	83 43 30 E	U.D.F.	U.D.F. near Kachalaka village	Ground	0.5
	55	Bhawanipatna	03.05.2015	19 47 44 N	83 16 03 E	Near village Dahinipadar	Near village Dahinipadar	Ground	0.2
	56	Bhawanipatna	03.05.2015	19 47 11 N	83 16 06 E	Near village Dahinipadar	Near village Dahinipadar	Ground	0.2
	57	Narla	02.05.2015	20 00 03 N	83 30 00 E	P.R.F.	Porgel Extn. P.R.F.	Ground	0.8
	58	Narla	02.05.2015	19 59 57 N	83 29 37 E	. P.R.F.	Porgel Extn. P.R.F.	Ground	0.6
	59	Narla	02.05.2015	19 59 41 N	83 28 06 E	P.R.F.	Porgel Extn. P.R.F.	Ground	0.5
	60	Bhawanipatna	08.05.2015	19 49 08 N	83 15 51 E	Near village Chatur	Near village Chatur	Ground	0.3
	61	Narla	23.05.2015	20 02 56 N	83 31 55 E	R.F.	Urladani R.F.	Ground	0.7
	62	Narla	23.05.2015	20 02 48 N	83 31 06 E	R.F.	Urladani R.F.	Ground	0.5
	63	Narla	26.05.2015	20 18 30 N	83 35 27 E	R.F.	Benaguda R.F.	Ground	1.2
TOTAL: -									**48.75**
2016	1	Kegaon Range	06.03.2016	20 06 19 N	82 58 40 E	R.F.	Kumkot	Ground	0.20
2016	2	Narla Range	07.03.2016	20 00 19 N	83 29 13 E	P.R.F.	Porgel Extn.	Ground	0.60
2016	3	M. Rampur Range	13.03.2016	20 15 28 N	83 42 25 E	P.R.F.	Sulia	Ground	0.80
2016	4	M. Rampur Range	13.03.2016	20 15 34 N	83 43 05 E	P.R.F.	Sulia	Ground	1.00
2016	5	Narla Range	20.03.2016	20 06 52 N	83 32 24 E	R.F.	Urladani	Ground	0.80

2016	6	M. Rampur Range	20.03.2016	20 09 26 N	83 42 07 E	R.F.	Telen	Ground	1.20
2016	7	M. Rampur Range	20.03.2016	20 11 54 N	83 36 19 E	R.F.	Taprang	Ground	1.20
2016	8	M. Rampur Range	20.03.2016	20 13 33 N	83 43 27 E	U.D.F.	Pongabaju	Ground	1.20
2016	9	Narla Range	21.03.2016	19 59 03 N	83 29 25 E	P.R.F.	Porgel Extn.	Ground	0.40
2016	10	Kesinga Range	22.03.2016	20 02 54 N	83 20 35 E	R.F.	Nangalguda	Ground	0.25
2016	11	Kesinga Range	22.03.2016	20 14 36 N	83 20 10 E	R.F.	Bajargarh	Ground	0.30
2016	12	Narla Range	22.03.2016	19 58 41 N	83 29 56 E	P.R.F.	Porgel Extn.	Ground	0.70
2016	13	Narla Range	23.03.2016	20 07 25 N	83 34 44 E	R.F.	Urladani	Ground	0.30
2016	14	M. Rampur Range	23.03.2016	20 08 10 N	83 42 03 E	U.D.P.F.	Taprang	Ground	0.20
2016	15	M. Rampur Range	23.03.2016	20 08 12 N	83 42 29 E	U.D.P.F.	Taprang	Ground	0.75
2016	16	M. Rampur Range	23.03.2016	20 16 03 N	83 35 57 E	R.F.	Taprang	Ground	0.60
2016	17	M. Rampur Range	24.03.2016	20 14 07 N	83 35 29 E	R.F.	Taprang	Ground	0.80
2016	18	Kesinga Range	24.03.2016	20 15 04 N	83 19 03 E	R.F.	Bajargarh	Ground	0.30
2016	19	Narla Range	25.03.2016	20 08 12 N	83 33 44 E	R.F.	Urladani	Ground	0.60
2016	20	M. Rampur Range	25.03.2016	20 10 14 N	83 44 59 E	P.R.F.	Pongabaju	Ground	0.75
2016	21	Bhawanipatna Range	27.03.2016	19 51 00 N	83 18 24 E	P.R.F.	Gundi	Ground	0.40
2016	22	M. Rampur Range	27.03.2016	20 08 45 N	83 38 38 E	P.R.F.	Bidabaru	Ground	0.65

2016	23	M. Rampur Range	27.03.2016	20 09 45 N	83 37 30 E	R.F.	Taprang	Ground	0.65
2016	24	M. Rampur Range	27.03.2016	20 14 50 N	83 38 26 E	R.F.	Satami	Ground	0.75
2016	25	Bhawanipatna Range	28.03.2016	19 46 41 N	83 15 08 E	P.R.F.	Gundi	Ground	0.28
2016	26	Bhawanipatna Range	28.03.2016	19 47 37 N	83 15 38 E	P.R.F.	Gundi	Ground	0.31
2016	27	Narla Range	29.03.2016	19 59 20 N	83 28 12 E	P.R.F.	Porgel Extn.	Ground	0.70
2016	28	Narla Range	29.03.2016	19 59 27 N	83 28 53 E	P.R.F.	Porgel Extn.	Ground	0.30
2016	29	Narla Range	31.03.2016	20 08 02 N	83 34 17 E	R.F.	Urladani	Ground	0.50
2016	30	Bhawanipatna Range	31.03.2016	19 49 52 N	83 17 13 E	P.R.F.	Gundi	Ground	0.30
2016	31	Bhawanipatna Range	31.03.2016	19 49 40 N	83 16 10 E	P.R.F.	Gundi	Ground	0.20
2016	32	M. Rampur Range	01.04.2016	20 13 25 N	83 40 51 E	P.R.F.	Pongabaju	Ground	0.65
2016	33	Narla Range	01.04.2016	20 08 58 N	83 34 19 E	R.F.	Urladani	Ground	0.50
2016	34	Bhawanipatna Range	03.04.2016	19 48 49 N	83 15 01 E	P.R.F.	Gundi	Ground	0.27
2016	35	Bhawanipatna Range	03.04.2016	19 48 54 N	83 15 37 E	P.R.F.	Gundi	Ground	0.29
2016	36	M. Rampur Range	03.04.2016	20 11 06 N	83 41 32 E	R.F.	Telen	Ground	0.45
2016	37	M. Rampur Range	03.04.2016	20 15 22 N	83 40 29 E	U.D.P.F.	Manikera	Ground	0.40
2016	38	Bhawanipatna Range	06.04.2016	19 45 08 N	83 16 16 E	P.R.F.	Gundi	Ground	0.32

2016	39	Bhawanipatna Range	06.04.2016	19 52 57 N	83 17 49 E	P.R.F.	Th. Padar Gundi	Ground	0.36
2016	40	Bhawanipatna Range	07.04.2016	19 45 05 N	83 16 55 E	P.R.F.	Gundi	Ground	0.20
2016	41	Narla Range	07.04.2016	20 03 18 N	83 30 16 E	P.R.F.	Belgaon	Ground	0.30
2016	42	Narla Range	07.04.2016	20 03 26 N	83 31 04 E	P.R.F.	Belgaon	Ground	0.40
2016	43	Narla Range	07.04.2016	20 03 31 N	83 29 55 E	P.R.F.	Belgaon	Ground	0.30
2016	44	Narla Range	07.04.2016	20 03 39 N	83 30 42 E	P.R.F.	Belgaon	Ground	0.20
2016	45	Narla Range	07.04.2016	20 03 56 N	83 30 08 E	P.R.F.	Belgaon	Ground	0.20
2016	46	Narla Range	07.04.2016	20 04 04 N	83 30 56 E	P.R.F.	Belgaon	Ground	0.30
2016	47	Narla Range	07.04.2016	20 04 09 N	83 29 45 E	P.R.F.	Belgaon	Ground	0.50
2016	48	Narla Range	07.04.2016	20 04 17 N	83 30 34 E	P.R.F.	Belgaon	Ground	0.40
2016	49	M. Rampur Range	07.04.2016	20 11 29 N	83 42 34 E	R.F.	Telen	Ground	0.50
2016	50	M. Rampur Range	07.04.2016	20 11 58 N	83 42 53 E	U.D.P.F.	Putrimahul	Ground	0.45
2016	51	Narla Range	10.04.2016	20 09 51 N	83 34 41 E	R.F.	Urladani	Ground	0.40
2016	52	Narla Range	10.04.2016	20 09 56 N	83 35 26 E	R.F.	Urladani	Ground	0.50
2016	53	M. Rampur Range	10.04.2016	20 13 54 N	83 42 52 E	P.R.F.	Duding dangar	Ground	0.45
2016	54	M. Rampur Range	10.04.2016	20 14 25 N	83 42 03 E	P.R.F.	Sulia	Ground	0.50
2016	55	M. Rampur Range	10.04.2016	20 14 31 N	83 42 48 E	P.R.F.	Sulia	Ground	0.55
2016	56	Bhawanipatna Range	12.04.2016	19 44 23 N	83 17 27 E	P.R.F.	Gundi	Ground	0.23

2016	57	Bhawanipatna Range	12.04.2016	19 50 09 N	83 14 58 E	P.R.F.	Gundi	Ground	0.20
2016	58	Bhawanipatna Range	12.04.2016	19 50 13 N	83 15 32 E	P.R.F.	Gundi	Ground	0.20
2016	59	Narla Range	12.04.2016	20 03 30 N	83 31 14 E	P.R.F.	Belgaon	Ground	0.30
2016	60	Narla Range	12.04.2016	20 03 35 N	83 31 48 E	P.R.F.	Belgaon	Ground	0.50
2016	61	Narla Range	12.04.2016	20 10 47 N	83 35 45 E	R.F.	Urladani	Ground	0.30
2016	62	M. Rampur Range	12.04.2016	20 08 58 N	83 42 52 E	U.D.F.	Taprang	Ground	0.40
2016	63	M. Rampur Range	12.04.2016	20 11 49 N	83 43 10 E	U.D..F.	Putrimahul	Ground	0.50
2016	64	M. Rampur Range	13.04.2016	20 14 32 N	83 39 57 E	U.D.F.	Manikera	Ground	0.55
2016	65	Bhawanipatna Range	14.04.2016	19 46 39 N	83 13 38 E	P.R.F.	Gundi	Ground	0.35
2016	66	Bhawanipatna Range	14.04.2016	19 46 45 N	83 14 21 E	P.R.F.	Gundi	Ground	0.21
2016	67	Bhawanipatna Range	14.04.2016	19 46 47 N	83 13 59 E	P.R.F.	Gundi	Ground	0.25
2016	68	Bhawanipatna Range	14.04.2016	19 47 22 N	83 13 53 E	P.R.F.	Gundi	Ground	0.21
2016	69	M. Rampur Range	14.04.2016	20 10 55 N	83 42 08 E	R.F.	Telen	Ground	0.50
2016	70	M. Rampur Range	16.04.2016	20 08 55 N	83 40 21 E	P.R.F.	Bidabaru	Ground	0.55
2016	71	M. Rampur Range	16.04.2016	20 09 06 N	83 41 18 E	P.R.F.	Bidabaru	Ground	0.45
2016	72	Bhawanipatna Range	17.04.2016	19 46 47 N	83 12 41 E	P.R.F.	Gundi	Ground	0.31

2016	73	Bhawanipatna Range	17.04.2016	19 52 04 N	83 17 04 E	P.R.F.	Th. Padar Gundi	Ground	0.40
2016	74	Narla Range	17.04.2016	20 02 58 N	83 28 10 E	P.R.F.	Porgel	Ground	0.50
2016	75	Narla Range	17.04.2016	20 03 03 N	83 29 02 E	P.R.F.	Belgaon	Ground	0.30
2016	76	M. Rampur Range	19.04.2016	20 13 04 N	83 41 19 E	U.D.F.	Pongabaju	Ground	0.60
2016	77	Bhawanipatna Range	21.04.2016	19 45 54 N	83 13 32 E	P.R.F.	Gundi	Ground	0.31
2016	78	Narla Range	21.04.2016	20 03 10 N	83 29 25 E	P.R.F.	Belgaon	Ground	0.50
2016	79	M. Rampur Range	21.04.2016	20 11 20 N	83 39 32 E	U.D.F.	Pongabaju	Ground	0.50
2016	80	M. Rampur Range	23.04.2016	20 15 05 N	83 40 37 E	P.R.F.	Sulia	Ground	0.80
2016	81	M. Rampur Range	23.04.2016	20 14 57 N	83 39 51 E	P.R.F.	Sulia	Ground	1.00
2016	82	M. Rampur Range	26.04.2016	20 14 53 N	83 42 27 E	U.D.F.	Mudis	Ground	1.00
2016	83	Narla Range	26.04.2016	20 02 02 N	83 28 06 E	P.R.F.	Kamarda	Ground	0.30
2016	84	Narla Range	26.04.2016	20 02 07 N	83 28 50 E	R.F.	Porgel	Ground	0.40
2016	85	Narla Range	26.04.2016	20 02 13 N	83 29 33 E	P.R.F.	Belgaon	Ground	0.40
2016	86	Narla Range	26.04.2016	20 02 44 N	83 28 44 E	R.F.	Porgel	Ground	0.30
2016	87	Bhawanipatna Range	28.04.2016	19 53 37 N	83 20 44 E	R.F.	Kadlighati	Ground	0.35
2016	88	Bhawanipatna Range	28.04.2016	19 54 05 N	83 20 05 E	R.F.	Kadlighati	Ground	0.41
2016	89	Bhawanipatna Range	28.04.2016	19 54 10 N	83 20 39 E	R.F.	Kadlighati	Ground	0.30

2016	90	Narla Range	28.04.2016	19 59 50 N	83 29 13 E	P.R.F.	Porgel Extn.	Ground	0.30
2016	91	Narla Range	28.04.2016	19 59 55 N	83 29 47 E	P.R.F.	Porgel Extn.	Ground	0.30
2016	92	Narla Range	28.04.2016	20 01 41 N	83 30 40 E	P.R.F.	Porgel Extn.	Ground	0.30
2016	93	Narla Range	28.04.2016	20 01 45 N	83 31 14 E	P.R.F.	Porgel Extn.	Ground	0.50
2016	94	Narla Range	28.04.2016	20 02 13 N	83 30 34 E	R.F.	Urladani	Ground	0.30
2016	95	Narla Range	28.04.2016	20 02 45 N	83 30 29 E	R.F.	Urladani	Ground	0.40
2016	96	Narla Range	28.04.2016	20 03 22 N	83 30 59 E	R.F.	Urladani	Ground	0.50
2016	97	M. Rampur Range	28.04.2016	20 09 30 N	83 39 34 E	P.R.F.	Bidabaru	Ground	0.70
2016	98	M. Rampur Range	28.04.2016	20 11 45 N	83 43 53 E	P.R.F.	Pongabaju	Ground	0.80
2016	99	Bhawanipatna Range	01.05.2016	19 47 22 N	83 14 51 E	P.R.F.	Gundi	Ground	0.20
2016	100	Bhawanipatna Range	01.05.2016	19 47 44 N	83 13 55 E	P.R.F.	Gundi	Ground	0.25
2016	101	Bhawanipatna Range	01.05.2016	19 47 52 N	83 15 15 E	P.R.F.	Gundi	Ground	0.19
2016	102	Bhawanipatna Range	01.05.2016	19 48 13 N	83 14 47 E	P.R.F.	Gundi	Ground	0.25
2016	103	M. Rampur Range	07.05.2016	20 11 21 N	83 39 49 E	R.F.	Telen	Ground	0.60
2016	104	M. Rampur Range	09.05.2016	20 14 42 N	83 40 57 E	P.R.F.	Sulia	Ground	0.65
2016	105	M. Rampur Range	10.05.2016	20 11 45 N	83 40 15 E	P.R.F.	Puijhari	Ground	0.35
2016	106	Narla Range	10.05.2016	19 59 20 N	83 29 40 E	P.R.F.	Porgel Extn.	Ground	0.50
TOTAL: -									48.85

2017	1	Bhawanipatna	11.02.2017	20 00 54 N	83 03 29 E	R.F	Brahmani	Ground	0.18
2017	2	Kegaon	12.02.2017	20 06 27 N	82 56 52 E	R.F	Kumkot	Ground	0.12
2017	3	Narla	12.02.2017	20 01 21 N	83 26 49 E	P.R.F	Kamarda	Ground	0.08
2017	4	Kegaon	12.02.2017	20 06 23 N	82 56 53 E	R.F	Kumkot	Ground	0.13
2017	5	Kegaon	12.02.2017	19 58 27 N	82 43 21 E	R.F	Nageswar	Ground	0.17
2017	6	Kegaon	12.02.2017	19 58 15 N	82 43 23 E	R.F	Nageswar	Ground	0.12
2017	7	Bhawanipatna	13.02.2017	20 00 05 N	83 03 58 E	R.F	Brahmani	Ground	0.1
2017	8	Bhawanipatna	13.02.2017	20 00 05 N	83 03 58 E	R.F	Brahmani	Ground	0.3
2017	9	Bhawanipatna	13.02.2017	20 00 28 N	83 02 52 E	R.F	Brahmani	Ground	0.11
2017	10	Kegaon	13.02.2017	20 06 28 N	82 57 03 E	R.F	Kumkot	Ground	0.15
2017	11	Kegaon	13.02.2017	19 58 10 N	82 43 13 E	R.F	Nageswar	Ground	0.13
2017	12	Kegaon	13.02.2017	20 03 19 N	82 54 11 E	R.F	Chura - A	Ground	0.12
2017	13	Kegaon	13.02.2017	20 06 14 N	82 57 14 E	R.F	Kumkot	Ground	0.1
2017	14	Kegaon	13.02.2017	19 57 58 N	82 43 10 E	R.F	Nageswar	Ground	0.21
2017	15	Kegaon	12.02.2017	19 57 54 N	82 43 15 E	R.F	Nageswar	Ground	0.09
2017	16	Bhawanipatna	14.02.2017	19 44 43 N	84 30 21 E	R.F	Brahmani	Ground	0.17
2017	17	Bhawanipatna	14.02.2017	19 58 03 N	83 04 32 E	R.F	Turpi	Ground	0.13
2017	18	Bhawanipatna	14.02.2017	19 59 42 N	83 03 56 E	R.F	Turpi	Ground	0.22
2017	19	Bhawanipatna	14.02.2017	19 59 53 N	83 04 16 E	R.F	Turpi	Ground	0.18
2017	20	Bhawanipatna	14.02.2017	20 00 15 N	83 03 11 E	R.F	Turpi	Ground	0.08
2017	21	Bhawanipatna	14.02.2017	20 00 28 N	83 03 14 E	R.F	Turpi	Ground	0.15
2017	22	Bhawanipatna	15.02.2017	19 59 51 N	83 04 24 E	R.F	Brahmani	Ground	0.21

2017	23	Bhawanipatna	15.02.2017	20 00 09 N	83 04 30 E	R.F	Brahmani	Ground	0.18
2017	24	Bhawanipatna	15.02.2017	20 00 09 N	83 04 30 E	R.F	Brahmani	Ground	0.12
2017	25	Bhawanipatna	15.02.2017	20 00 14 N	83 04 35 E	R.F	Brahmani	Ground	0.2
2017	26	Kegaon	15.02.2017	20 03 07 N	82 57 19 E	R.F	Chura - A	Ground	0.13
2017	27	Bhawanipatna	17.02.2017	19 59 18 N	83 04 13 E	R.F	Turpi	Ground	0.18
2017	28	Bhawanipatna	17.02.2017	19 59 04 N	83 04 17 E	R.F	Brahmani	Ground	0.21
2017	29	Kegaon	17.02.2017	19 58 32 N	82 44 11 E	R.F	Nageswar	Ground	0.28
2017	30	Kegaon	17.02.2017	19 58 26 N	82 44 05 E	R.F	Nageswar	Ground	0.12
2017	31	Kegaon	17.02.2017	19 58 28 N	82 44 19 E	R.F	Nageswar	Ground	0.18
2017	32	Kegaon	17.02.2017	19 58 57 N	82 44 43 E	R.F	Nageswar	Ground	0.15
2017	33	Kegaon	17.02.2017	19 59 11 N	82 44 54 E	R.F	Nageswar	Ground	0.21
2017	34	Kegaon	17.02.2017	19 59 11 N	82 44 54 E	R.F	Nageswar	Ground	0.12
2017	35	Kegaon	18.02.2017	20 05 20 N	82 57 22 E	R.F	Kumkot	Ground	0.23
2017	36	Kegaon	18.02.2017	20 05 04 N	82 57 36 E	R.F	Kumkot	Ground	0.11
2017	37	Kegaon	18.02.2017	20 05 07 N	82 57 20 E	R.F	Kumkot	Ground	0.18
2017	38	Bhawanipatna	18.02.2017	20 01 01 N	83 04 39 E	R.F	Brahmani	Ground	0.25
2017	39	Bhawanipatna	18.02.2017	20 00 59 N	83 04 53 E	R.F	Brahmani	Ground	0.23
2017	40	Bhawanipatna	18.02.2017	20 00 56 N	83 05 08 E	R.F	Brahmani	Ground	0.21
2017	41	Bhawanipatna	18.02.2017	20 00 49 N	83 04 35 E	R.F	Brahmani	Ground	0.14
2017	42	Bhawanipatna	18.02.2017	19 58 37 N	83 04 41 E	R.F	Brahmani	Ground	0.23
2017	43	Bhawanipatna	18.02.2017	19 58 48 N	83 04 59 E	R.F	Brahmani	Ground	0.35
2017	44	Bhawanipatna	18.02.2017	19 59 03 N	83 04 46 E	R.F	Brahmani	Ground	0.19

2017	45	Bhawanipatna	19.02.2017	19 53 56 N	83 16 45 E	D.P.F	Thuapadargundi	Ground	0.21
2017	46	Kegaon	19.02.2017	20 05 09 N	82 57 52 E	R.F	Kumkot	Ground	0.29
2017	47	Kegaon	19.02.2017	20 04 56 N	82 57 50 E	R.F	Kumkot	Ground	0.18
2017	48	Kegaon	19.02.2017	19 59 41 N	82 43 35 E	R.F	Nageswar	Ground	0.47
2017	49	Kegaon	19.02.2017	19 58 59 N	82 45 26 E	R.F	Nageswar	Ground	0.33
2017	50	Kegaon	19.02.2017	19 59 18 N	82 43 17 E	R.F	Nageswar	Ground	0.19
2017	51	Kegaon	19.02.2017	19 58 47 N	82 45 24 E		Sahajkhol	Ground	0.25
2017	52	Bhawanipatna	19.02.2017	20 01 23 N	83 04 58 E	R.F	Brahmani	Ground	0.29
2017	53	Bhawanipatna	19.02.2017	20 01 21 N	83 05 12 E	R.F	Brahmani	Ground	0.14
2017	54	Bhawanipatna	19.02.2017	19 57 31 N	83 04 11 E	R.F	Brahmani	Ground	0.43
2017	55	Bhawanipatna	19.02.2017	19 54 08 N	83 05 47 E	R.F	Sinang	Ground	0.38
2017	56	Kegaon	20.02.2017	20 04 42 N	82 57 35 E	R.F	Kumkot	Ground	0.19
2017	57	Kegaon	20.02.2017	20 04 46 N	82 57 04 E	R.F	Kumkot	Ground	0.37
2017	58	Kegaon	20.02.2017	20 04 51 N	82 57 44 E	R.F	Kumkot	Ground	0.21
2017	59	Kegaon	20.02.2017	20 04 56 N	82 56 56 E	R.F	Kumkot	Ground	0.28
2017	60	Kegaon	21.02.2017	20 04 40 N	82 50 48 E	R.F	Bisiberni	Ground	0.09
2017	61	Kegaon	21.02.2017	20 04 40 N	82 50 53 E	R.F	Bisiberni	Ground	0.42
2017	62	Kegaon	21.02.2017	20 05 09 N	82 56 43 E	R.F	Kumkot	Ground	0.23
2017	63	Kegaon	21.02.2017	20 04 57 N	82 56 45 E	R.F	Kumkot	Ground	0.25
2017	64	Kegaon	21.02.2017	20 04 44 N	82 56 45 E	R.F	Kumkot	Ground	0.35
2017	65	Kegaon	21.02.2017	20 07 01 N	82 59 17 E	R.F	Kumkot	Ground	0.15
2017	66	Kegaon	21.02.2017	20 06 57 N	82 59 08 E	R.F	Kumkot	Ground	0.09

2017	67	Kegaon	21.02.2017	20 05 17 N	82 56 54 E	R.F	Kumkot	Ground	0.25
2017	68	Kegaon	21.02.2017	20 05 15 N	82 56 38 E	R.F	Kumkot	Ground	0.12
2017	69	Kegaon	21.02.2017	20 04 56 N	82 56 25 E	R.F	Kumkot	Ground	0.29
2017	70	Kegaon	21.02.2017	20 03 04 N	82 58 02 E	U.D.P.F	Sindibhadi	Ground	0.21
2017	71	Kegaon	22.02.2017	20 03 44 N	82 54 32 E	R.F	Chura - A	Ground	0.31
2017	72	Kegaon	22.02.2017	20 04 34 N	82 56 35 E	R.F	Kumkot	Ground	0.14
2017	73	Kegaon	22.02.2017	20 04 57 N	82 56 18 E	R.F	Kumkot	Ground	0.14
2017	74	Kegaon	22.02.2017	20 05 15 N	82 56 21 E	R.F	Kumkot	Ground	0.42
2017	75	Kegaon	22.02.2017	20 05 30 N	82 56 42 E	R.F	Kumkot	Ground	0.36
2017	76	Kegaon	22.02.2017	20 05 31 N	82 56 33 E	R.F	Kumkot	Ground	0.12
2017	77	Kegaon	22.02.2017	20 05 43 N	82 56 47 E	R.F	Kumkot	Ground	0.23
2017	78	Kegaon	22.02.2017	19 58 24 N	82 42 55 E	R.F	Nageswar	Ground	0.28
2017	79	Kegaon	22.02.2017	19 59 19 N	82 58 59 E	R.F	Chura - B	Ground	0.13
2017	80	Kegaon	22.02.2017	20 05 29 N	82 56 14 E	R.F	Kumkot	Ground	0.08
2017	81	Kegaon	22.02.2017	20 03 47 N	82 55 39 E	R.F	Chura	Ground	0.09
2017	82	Bhawanipatna	22.02.2017	19 58 21 N	83 01 42 E	R.F	Brahmani	Ground	0.12
2017	83	Bhawanipatna	23.02.2017	19 55 02 N	83 17 57 E		Santpur	Ground	0.12
2017	84	Bhawanipatna	23.02.2017	19 57 15 N	83 14 59 E	D.P.F	Thuapadargundi	Ground	0.25
2017	85	Bhawanipatna	23.02.2017	19 58 35 N	83 03 46 E	R.F	Brahmani	Ground	0.15
2017	86	Bhawanipatna	23.02.2017	19 59 02 N	83 03 53 E	R.F	Brahmani	Ground	0.23
2017	87	Kegaon	23.02.2017	20 03 03 N	82 54 39 E	R.F	Chura - A	Ground	0.23
2017	88	Kegaon	23.02.2017	20 03 40 N	82 56 30 E	R.F	Chura - A	Ground	0.31

2017	89	Kegaon	23.02.2017	20 05 48 N	82 56 19 E	R.F	Kumkot	Ground	0.3
2017	90	Narla	23.02.2017	20 01 23 N	83 26 47 E	P.R.F	Kamarda	Ground	0.19
2017	91	Narla	23.02.2017	20 03 28 N	83 28 15 E	P.R.F	Porgel Ext..	Ground	0.09
2017	92	Kegaon	23.02.2017	20 02 16 N	82 50 13 E	R.F	Adabari	Ground	0.23
2017	93	Kegaon	23.02.2017	20 04 15 N	82 57 25 E	D.P.F	Ammuda	Ground	0.15
2017	94	Bhawanipatna	24.02.2017	19 54 28 N	83 17 49 E	D.P.F	Thuapadargundi	Ground	0.16
2017	95	Bhawanipatna	24.02.2017	19 54 30 N	83 17 36 E	D.P.F	Thuapadargundi	Ground	0.16
2017	96	Bhawanipatna	24.02.2017	19 55 27 N	83 18 00 E	D.P.F	Thuapadargundi	Ground	0.13
2017	97	Bhawanipatna	24.02.2017	19 56 39 N	83 15 30 E	D.P.F	Thuapadargundi	Ground	0.09
2017	98	Bhawanipatna	24.02.2017	19 58 38 N	83 04 08 E	R.F	Brahmani	Ground	0.18
2017	99	Bhawanipatna	24.02.2017	19 59 27 N	83 03 49 E	R.F	Brahmani	Ground	0.28
2017	100	Bhawanipatna	24.02.2017	20 01 15 N	83 04 07 E	R.F	Brahmani	Ground	0.19
2017	101	Bhawanipatna	24.02.2017	20 01 17 N	83 03 54 E	R.F	Brahmani	Ground	0.23
2017	102	Bhawanipatna	24.02.2017	20 01 27 N	83 04 09 E	R.F	Brahmani	Ground	0.28
2017	103	Bhawanipatna	24.02.2017	20 01 29 N	83 03 56 E	R.F	Brahmani	Ground	0.06
2017	104	Kegaon	24.02.2017	20 01 47 N	82 54 03 E	R.F	Chura - A	Ground	0.23
2017	105	Kegaon	24.02.2017	20 01 49 N	82 53 49 E	R.F	Chura - A	Ground	0.08
2017	106	Kegaon	24.02.2017	20 01 56 N	82 54 18 E	R.F	Chura - A	Ground	0.12
2017	107	Kegaon	24.02.2017	20 02 19 N	82 50 30 E	R.F	Adabari	Ground	0.15
2017	108	Kegaon	24.02.2017	20 02 31 N	82 50 33 E	R.F	Adabari	Ground	0.26
2017	109	Kegaon	24.02.2017	20 03 04 N	82 54 57 E	R.F	Chura - A	Ground	0.08
2017	110	Kegaon	24.02.2017	20 05 02 N	82 59 22 E	R.F	Kumkot	Ground	0.12

2017	111	Kegaon	24.02.2017	20 05 28 N	82 59 13 E	R.F	Kumkot	Ground	0.14
2017	112	Kegaon	24.02.2017	20 05 46 N	82 57 14 E	R.F	Kumkot	Ground	0.12
2017	113	Kegaon	24.02.2017	20 06 08 N	82 56 09 E	R.F	Kumkot	Ground	0.12
2017	114	Kegaon	24.02.2017	20 04 47 N	82 59 23 E	R.F	Kumkot	Ground	0.09
2017	115	Bhawanipatna	25.02.2017	19 57 30 N	83 03 50 E	R.F	Brahmani	Ground	0.11
2017	116	Kegaon	25.02.2017	20 01 27 N	82 54 10 E	R.F	Chura - A	Ground	0.19
2017	117	Kegaon	25.02.2017	20 02 07 N	82 54 41 E	R.F	Chura - A	Ground	0.16
2017	118	Kegaon	25.02.2017	20 02 20 N	82 54 58 E	R.F	Chura - A	Ground	0.21
2017	119	Kegaon	25.02.2017	20 02 22 N	82 54 43 E	R.F	Chura - A	Ground	0.11
2017	120	Kegaon	25.02.2017	20 02 47 N	82 55 15 E	R.F	Chura - A	Ground	0.25
2017	121	Kegaon	25.02.2017	20 02 49 N	82 55 03 E	R.F	Chura - A	Ground	0.15
2017	122	Kegaon	25.02.2017	20 02 49 N	82 55 13 E	R.F	Chura - A	Ground	0.14
2017	123	Kegaon	25.02.2017	20 02 50 N	82 55 00 E	R.F	Chura - A	Ground	0.11
2017	124	Kegaon	25.02.2017	20 05 33 N	82 59 00 E	R.F	Kumkot	Ground	0.25
2017	125	Kegaon	25.02.2017	20 05 47 N	82 59 02 E	R.F	Kumkot	Ground	0.15
2017	126	Kegaon	25.02.2017	20 01 31 N	82 58 05 E	R.F	Chura - A	Ground	0.21
2017	127	Kegaon	25.02.2017	20 01 30 N	82 58 06 E	R.F	Chura - A	Ground	0.14
2017	128	Kegaon	25.02.2017	19 59 48 N	82 45 36 E	R.F	Nageswar	Ground	0.15
2017	129	Kegaon	25.02.2017	19 59 44 N	82 45 20 E	R.F	Nageswar	Ground	0.23
2017	130	Kegaon	26.02.2017	20 01 52 N	82 58 08 E	R.F	Chura - A	Ground	0.22
2017	131	Kegaon	26.02.2017	20 01 52 N	82 54 47 E	R.F	Chura - A	Ground	0.15
2017	132	Kegaon	26.02.2017	20 01 51 N	82 58 19 E	R.F	Chura - A	Ground	0.12

2017	133	Kegaon	26.02.2017	19 59 42 N	82 46 08 E	R.F	Nageswar	Ground	0.11
2017	134	Kegaon	26.02.2017	19 58 45 N	82 43 07 E	R.F	Nageswar	Ground	0.21
2017	135	Kegaon	26.02.2017	19 58 37 N	82 43 13 E	R.F	Nageswar	Ground	0.13
2017	136	Kegaon	26.02.2017	20 01 49 N	82 57 43 E	R.F	Chura - A	Ground	0.32
2017	137	Bhawanipatna	26.02.2017	19 53 44 N	83 18 19 E	D.P.F	Thuapadargundi	Ground	0.12
2017	138	Bhawanipatna	26.02.2017	19 53 39 N	83 17 45 E	D.P.F	Thuapadargundi	Ground	0.22
2017	139	Bhawanipatna	26.02.2017	19 45 55 N	83 13 34 E	R.F	Jugsaipatna RF	Ground	0.21
2017	140	Kegaon	27.02.2017	19 59 09 N	82 45 28 E	R.F	Nageswar	Ground	0.18
2017	141	Kegaon	27.02.2017	19 59 07 N	82 45 40 E	R.F	Nageswar	Ground	0.25
2017	142	Bhawanipatna	27.02.2017	19 51 58 N	83 04 31 E	R.F	Kanamanjur	Ground	0.22
2017	143	Kegaon	28.02.2017	20 06 01 N	82 58 40 E	R.F	Kumkot	Ground	0.16
2017	144	Kegaon	28.02.2017	20 06 03 N	82 58 26 E	R.F	Kumkot	Ground	0.23
2017	145	Kegaon	28.02.2017	20 01 11 N	82 58 23 E	R.F	Chura - A	Ground	0.11
2017	146	Bhawanipatna	28.02.2017	19 53 54 N	83 14 20 E	D.P.F	Thuapadargundi	Ground	0.11
2017	147	Bhawanipatna	28.02.2017	19 52 26 N	83 04 08 E	R.F	Kanamanjur	Ground	0.18
2017	148	Bhawanipatna	28.02.2017	19 52 29 N	83 03 55 E	R.F	Kanamanjur	Ground	0.24
2017	149	Kegaon	28.02.2017	20 05 43 N	83 01 26 E	R.F	Kumkot	Ground	0.2
2017	150	Kegaon	28.02.2017	20 05 37 N	82 58 05 E	R.F	Kumkot	Ground	0.17
2017	151	Kegaon	28.02.2017	20 04 49 N	82 59 34 E	R.F	Kumkot	Ground	0.23
2017	152	Kegaon	28.02.2017	20 03 11 N	82 50 09 E	R.F	Adabari	Ground	0.12
2017	153	Kegaon	28.02.2017	20 02 04 N	82 50 48 E	R.F	Adabari	Ground	0.09
2017	154	Narla	28.02.2017	19 59 20 N	83 26 25 E	R.F	Porgel	Ground	0.14

2017	155	Bhawanipatna	28.02.2017	19 53 55 N	83 17 26 E	D.P.F	Thuapadargundi	Ground	0.11
2017	156	Bhawanipatna	28.02.2017	19 52 10 N	83 05 48 E	R.F	Kanamanjur	Ground	0.23
2017	157	Bhawanipatna	28.02.2017	19 52 08 N	83 05 35 E	R.F	Kanamanjur	Ground	0.28
2017	158	Kegaon	01.03.2017	20 01 28 N	82 58 41 E	R.F	Chura - A	Ground	0.15
2017	159	Kegaon	01.03.2017	20 00 53 N	82 56 02 E	R.F	Chura - A	Ground	0.36
2017	160	Kegaon	01.03.2017	20 01 10 N	82 56 47 E	R.F	Chura - A	Ground	0.22
2017	161	Kegaon	01.03.2017	20 00 44 N	82 56 03 E	R.F	Chura - A	Ground	0.12
2017	162	Kegaon	01.03.2017	20 00 45 N	82 54 39 E	R.F	Chura - A	Ground	0.25
2017	163	Kegaon	01.03.2017	20 00 22 N	82 55 45 E	R.F	Chura - A	Ground	0.21
2017	164	Kegaon	01.03.2017	20 00 32 N	82 56 00 E	R.F	Chura - A	Ground	0.35
2017	165	Kegaon	01.03.2017	20 00 36 N	82 55 33 E	R.F	Chura - A	Ground	0.41
2017	166	Kegaon	01.03.2017	19 58 48 N	82 55 15 E	R.F	Chura - A	Ground	0.25
2017	167	Kegaon	01.03.2017	19 58 53 N	82 54 47 E	R.F	Chura - A	Ground	0.13
2017	168	Kegaon	01.03.2017	19 59 00 N	82 55 17 E	R.F	Chura - A	Ground	0.12
2017	169	Kegaon	01.03.2017	19 58 38 N	82 54 59 E	R.F	Chura - A	Ground	0.16
2017	170	Narla	01.03.2017	20 00 44 N	83 24 34 E	P.R.F	Narla Ext.	Ground	0.12
2017	171	Narla	01.03.2017	20 00 46 N	83 24 20 E	P.R.F	Narla Ext.	Ground	0.11
2017	172	Bhawanipatna	01.03.2017	19 57 24 N	83 16 30 E	D.P.F	Thuapadargundi	Ground	0.08
2017	173	Bhawanipatna	01.03.2017	19 57 26 N	83 16 16 E	D.P.F	Thuapadargundi	Ground	0.21
2017	174	Bhawanipatna	01.03.2017	19 57 30 N	83 16 28 E	D.P.F	Thuapadargundi	Ground	0.25
2017	175	Bhawanipatna	01.03.2017	19 56 35 N	83 03 49 E	R.F	Brahmani	Ground	0.21
2017	176	Bhawanipatna	01.03.2017	19 56 42 N	83 03 08 E	R.F	Brahmani	Ground	0.16

2017	177	Bhawanipatna	01.03.2017	19 56 59 N	83 03 53 E	R.F	Brahmani	Ground	0.19
2017	178	Bhawanipatna	01.03.2017	19 52 47 N	83 03 38 E	R.F	Kanamanjur	Ground	0.12
2017	179	Bhawanipatna	01.03.2017	19 53 39 N	83 19 04 E	D.P.F	Thuapadargundi	Ground	0.12
2017	180	Bhawanipatna	01.03.2017	19 53 50 N	83 14 13 E	D.P.F	Thuapadargundi	Ground	0.13
2017	181	Bhawanipatna	01.03.2017	19 54 02 N	83 14 15 E	D.P.F	Thuapadargundi	Ground	0.27
2017	182	Bhawanipatna	01.03.2017	19 52 18 N	83 05 24 E	R.F	Kanamanjur	Ground	0.22
2017	183	Kegaon	01.03.2017	20 04 54 N	82 50 29 E	R.F	Bisiberni	Ground	0.13
2017	184	Kegaon	01.03.2017	19 59 17 N	82 46 10 E	R.F	Nageswar	Ground	0.16
2017	185	Kegaon	01.03.2017	19 59 31 N	82 46 08 E	R.F	Nageswar	Ground	0.22
2017	186	Kegaon	02.03.2017	20 01 06 N	82 54 56 E	R.F	Chura - A	Ground	0.32
2017	187	Kegaon	02.03.2017	20 01 24 N	82 56 05 E	R.F	Chura - A	Ground	0.27
2017	188	Kegaon	02.03.2017	20 01 26 N	82 55 49 E	R.F	Chura - A	Ground	0.24
2017	189	Kegaon	02.03.2017	20 00 11 N	82 55 04 E	R.F	Chura - A	Ground	0.08
2017	190	Kegaon	02.03.2017	20 00 09 N	82 55 18 E	R.F	Chura - A	Ground	0.12
2017	191	Kegaon	02.03.2017	20 00 09 N	82 55 18 E	R.F	Chura - A	Ground	0.1
2017	192	Kegaon	02.03.2017	20 00 07 N	82 55 33 E	R.F	Chura - A	Ground	0.11
2017	193	Kegaon	02.03.2017	20 00 07 N	82 55 33 E	R.F	Chura - A	Ground	0.02
2017	194	Bhawanipatna	02.03.2017	19 57 57 N	83 16 34 E	D.P.F	Thuapadargundi	Ground	0.13
2017	195	Bhawanipatna	02.03.2017	19 57 48 N	83 16 01 E	D.P.F	Thuapadargundi	Ground	0.24
2017	196	Bhawanipatna	02.03.2017	19 57 46 N	83 16 18 E	D.P.F	Thuapadargundi	Ground	0.2
2017	197	Bhawanipatna	02.03.2017	19 57 43 N	83 16 33 E	D.P.F	Thuapadargundi	Ground	0.19
2017	198	Bhawanipatna	02.03.2017	19 56 58 N	83 04 11 E	R.F	Brahmani	Ground	0.12

2017	199	Bhawanipatna	02.03.2017	19 56 12 N	83 14 42 E	D.P.F	Thuapadargundi	Ground	0.13
2017	200	Bhawanipatna	02.03.2017	19 56 21 N	83 03 47 E	R.F	Brahmani	Ground	0.17
2017	201	Narla	02.03.2017	19 59 43 N	83 26 06 E	R.F	Porgel	Ground	0.22
2017	202	Bhawanipatna	02.03.2017	19 53 46 N	83 16 06 E	D.P.F	Thuapadargundi	Ground	0.08
2017	203	Bhawanipatna	02.03.2017	19 54 00 N	83 15 39 E	D.P.F	Thuapadargundi	Ground	0.21
2017	204	Kesinga	02.03.2017	20 12 34 N	83 18 32 E	R.F	Bazargarh	Ground	0.23
2017	205	Kegaon	03.03.2017	20 01 24 N	82 55 06 E	R.F	Chura - A	Ground	0.12
2017	206	Kegaon	03.03.2017	20 01 22 N	82 55 25 E	R.F	Chura - A	Ground	0.17
2017	207	Kegaon	03.03.2017	20 01 22 N	82 55 28 E	R.F	Chura - A	Ground	0.13
2017	208	Kegaon	03.03.2017	20 01 24 N	82 55 04 E	R.F	Chura - A	Ground	0.12
2017	209	Bhawanipatna	03.03.2017	19 53 58 N	83 16 26 E	D.P.F	Thuapadargundi	Ground	0.19
2017	210	Kegaon	03.03.2017	20 04 58 N	82 59 37 E	R.F	Kumkot	Ground	0.22
2017	211	Kegaon	03.03.2017	20 04 58 N	82 59 37 E	R.F	Kumkot	Ground	0.21
2017	212	Kegaon	03.03.2017	20 00 56 N	82 53 16 E	R.F	Chura - A	Ground	0.21
2017	213	Kegaon	03.03.2017	20 00 57 N	82 53 29 E	R.F	Chura - A	Ground	0.31
2017	214	Bhawanipatna	03.03.2017	19 53 39 N	83 19 25 E	D.P.F	Thuapadargundi	Ground	0.15
2017	215	Bhawanipatna	03.03.2017	19 53 32 N	83 19 49 E	D.P.F	Thuapadargundi	Ground	0.12
2017	216	Bhawanipatna	03.03.2017	19 53 26 N	83 18 58 E	D.P.F	Thuapadargundi	Ground	0.18
2017	217	Bhawanipatna	03.03.2017	19 53 26 N	83 18 58 E	D.P.F	Thuapadargundi	Ground	0.17
2017	218	Bhawanipatna	03.03.2017	19 53 41 N	83 19 35 E	D.P.F	Thuapadargundi	Ground	0.11
2017	219	Bhawanipatna	03.03.2017	19 53 41 N	83 19 35 E	D.P.F	Thuapadargundi	Ground	0.12
2017	220	Bhawanipatna	03.03.2017	19 53 42 N	83 19 50 E	D.P.F	Thuapadargundi	Ground	0.14

2017	221	Bhawanipatna	03.03.2017	19 53 45 N	83 19 20 E	D.P.F	Thuapadargundi	Ground	0.43
2017	222	Bhawanipatna	03.03.2017	19 53 47 N	83 19 34 E	D.P.F	Thuapadargundi	Ground	0.19
2017	223	Bhawanipatna	03.03.2017	19 53 47 N	83 19 34 E	D.P.F	Thuapadargundi	Ground	0.12
2017	224	Bhawanipatna	03.03.2017	19 53 48 N	83 19 49 E	D.P.F	Thuapadargundi	Ground	0.19
2017	225	Kegaon	04.03.2017	20 05 04 N	82 59 57 E	R.F	Kumkot	Ground	0.09
2017	226	Kegaon	04.03.2017	20 05 04 N	82 59 57 E	R.F	Kumkot	Ground	0.32
2017	227	Kegaon	04.03.2017	20 00 37 N	82 59 13 E	R.F	Chura - B	Ground	0.36
2017	228	Kegaon	04.03.2017	20 00 35 N	82 59 27 E	R.F	Chura - B	Ground	0.26
2017	229	Kegaon	04.03.2017	20 00 30 N	82 59 48 E	R.F	Chura - B	Ground	0.13
2017	230	Kegaon	04.03.2017	20 00 32 N	82 59 31 E	R.F	Chura - B	Ground	0.15
2017	231	Kegaon	04.03.2017	20 00 27 N	82 59 54 E	R.F	Chura - B	Ground	0.18
2017	232	Kegaon	04.03.2017	20 00 30 N	82 59 48 E	R.F	Chura - B	Ground	0.22
2017	233	Kegaon	04.03.2017	20 00 27 N	82 59 54 E	R.F	Chura - B	Ground	0.17
2017	234	Kegaon	04.03.2017	20 00 25 N	82 53 22 E	R.F	Chura - B	Ground	0.05
2017	235	Kegaon	04.03.2017	20 00 17 N	82 59 03 E	R.F	Chura - B	Ground	0.08
2017	236	Kegaon	04.03.2017	20 00 15 N	82 59 06 E	R.F	Chura - B	Ground	0.12
2017	237	Kegaon	04.03.2017	19 59 53 N	82 58 59 E	R.F	Chura - B	Ground	0.08
2017	238	Bhawanipatna	04.03.2017	19 51 49 N	83 12 59 E	P.R.F	Gundi	Ground	0.08
2017	239	Bhawanipatna	04.03.2017	19 51 40 N	83 12 46 E	P.R.F	Gundi	Ground	0.12
2017	240	Narla	04.03.2017	20 06 54 N	83 33 16 E	R.F	Urladani	Ground	0.12
2017	241	Narla	04.03.2017	20 01 13 N	83 27 51 E	P.R.F	Sikerguda	Ground	0.21
2017	242	Narla	04.03.2017	20 01 06 N	83 27 41 E	P.R.F	Sikerguda	Ground	0.21

2017	243	Narla	04.03.2017	20 00 57 N	83 27 53 E	P.R.F	Sikerguda	Ground	0.14
2017	244	Kegaon	04.03.2017	20 08 10 N	82 49 38 E	R.F	Gojia	Ground	0.15
2017	245	Kegaon	04.03.2017	20 02 45 N	82 55 46 E	R.F	Chura - A	Ground	0.14
2017	246	Kegaon	04.03.2017	20 00 43 N	82 58 26 E	R.F	Chura - A	Ground	0.17
2017	247	Kegaon	04.03.2017	20 00 36 N	82 59 42 E	R.F	Chura - B	Ground	0.17
2017	248	Kegaon	04.03.2017	20 00 10 N	82 59 51 E	R.F	Chura - B	Ground	0.14
2017	249	Kegaon	04.03.2017	20 00 10 N	82 59 51 E	R.F	Chura - B	Ground	0.21
2017	250	Kegaon	04.03.2017	20 01 03 N	82 59 21 E	R.F	Chura - B	Ground	0.21
2017	251	Kegaon	04.03.2017	20 00 10 N	82 59 51 E	R.F	Chura - B	Ground	0.32
2017	252	Kegaon	04.03.2017	20 00 10 N	82 59 51 E	R.F	Chura - B	Ground	0.14
2017	253	Bhawanipatna	04.03.2017	19 51 22 N	83 07 46 E	R.F	Kutrukhai	Ground	0.11
2017	254	Bhawanipatna	04.03.2017	19 50 28 N	83 11 22 E	P.R.F	Gundi	Ground	0.32
2017	255	Bhawanipatna	04.03.2017	19 48 40 N	83 05 05 E	R.F	Alma	Ground	0.35
2017	256	Bhawanipatna	04.03.2017	19 48 05 N	83 04 40 E	R.F	Alma	Ground	0.12
2017	257	Bhawanipatna	04.03.2017	19 48 05 N	83 04 40 E	R.F	Alma	Ground	0.39
2017	258	Bhawanipatna	05.03.2017	19 53 25 N	83 04 19 E	R.F	Kanamanjur	Ground	0.12
2017	259	Bhawanipatna	05.03.2017	19 50 28 N	83 05 22 E	R.F	Alma	Ground	0.22
2017	260	Bhawanipatna	05.03.2017	19 50 28 N	83 05 22 E	R.F	Alma	Ground	0.29
2017	261	Bhawanipatna	05.03.2017	19 50 28 N	83 05 22 E	R.F	Alma	Ground	0.14
2017	262	Kegaon	05.03.2017	19 58 44 N	82 53 18 E	R.F	Chura - A	Ground	0.23
2017	263	Kegaon	05.03.2017	19 59 01 N	82 53 19 E	R.F	Chura - A	Ground	0.12
2017	264	Kegaon	05.03.2017	19 59 02 N	82 53 09 E	R.F	Chura - A	Ground	0.08

2017	265	Kegaon	05.03.2017	19 59 16 N	82 53 24 E	R.F	Chura - A	Ground	0.22
2017	266	Kegaon	05.03.2017	19 59 35 N	82 58 49 E	R.F	Chura - B	Ground	0.31
2017	267	Kegaon	05.03.2017	20 00 44 N	82 58 50 E	R.F	Chura - B	Ground	0.12
2017	268	Kegaon	05.03.2017	20 00 50 N	82 59 44 E	R.F	Chura - B	Ground	0.21
2017	269	Kegaon	05.03.2017	20 00 57 N	82 59 10 E	R.F	Chura - B	Ground	0.08
2017	270	Kegaon	05.03.2017	20 01 10 N	82 59 32 E	R.F	Chura - B	Ground	0.09
2017	271	Kegaon	05.03.2017	20 01 13 N	82 59 15 E	R.F	Chura - B	Ground	0.14
2017	272	Kegaon	05.03.2017	20 02 56 N	82 49 11 E	R.F	Adabari	Ground	0.15
2017	273	Kegaon	05.03.2017	20 03 13 N	82 44 59 E	R.F	Nageswar	Ground	0.12
2017	274	Kegaon	05.03.2017	20 03 13 N	82 44 59 E	R.F	Nageswar	Ground	0.11
2017	275	Kegaon	05.03.2017	20 03 13 N	82 44 59 E	R.F	Nageswar	Ground	0.1
2017	276	Kegaon	05.03.2017	20 03 13 N	82 44 59 E	R.F	Nageswar	Ground	0.1
2017	277	Kegaon	05.03.2017	20 03 13 N	82 44 59 E	R.F	Nageswar	Ground	0.11
2017	278	Kegaon	05.03.2017	20 03 13 N	82 44 59 E	R.F	Nageswar	Ground	0.12
2017	279	Kegaon	06.03.2017	20 08 08 N	82 53 46 E	R.F	Lini	Ground	0.14
2017	280	Kegaon	06.03.2017	20 02 59 N	82 44 33 E	R.F	Nageswar	Ground	0.11
2017	281	Kegaon	06.03.2017	20 02 59 N	82 44 33 E	R.F	Nageswar	Ground	0.1
2017	282	Kegaon	06.03.2017	20 04 48 N	82 55 55 E	R.F	Kumkot	Ground	0.1
2017	283	Kegaon	06.03.2017	20 02 06 N	82 50 30 E	R.F	Adabari	Ground	0.11
2017	284	Bhawanipatna	12.03.2017	19 57 08 N	83 20 49 E	R.F	Kadalighati	Ground	0.12
2017	285	Bhawanipatna	12.03.2017	19 57 08 N	83 20 49 E	R.F	Kadalighati	Ground	0.1
2017	286	Bhawanipatna	12.03.2017	19 57 08 N	83 20 49 E	R.F	Kadalighati	Ground	0.11

2017	287	Bhawanipatna	14.03.2017	19 48 54 N	83 04 52 E	R.F	Alma	Ground	0.14
2017	288	Bhawanipatna	14.03.2017	19 48 54 N	83 04 52 E	R.F	Alma	Ground	0.11
2017	289	Narla	15.03.2017	20 02 48 N	83 25 04 E	R.F	Narla	Ground	0.08
2017	290	Kegaon	16.03.2017	20 02 51 N	82 57 35 E	R.F	Chura - A	Ground	0.04
2017	291	Kegaon	16.03.2017	20 02 35 N	82 57 11 E	R.F	Chura - A	Ground	0.12
2017	292	Kegaon	16.03.2017	20 00 36 N	82 57 32 E	R.F	Chura - A	Ground	0.11
2017	293	Bhawanipatna	19.03.2017	19 50 49 N	83 05 45 E	R.F	Alma	Ground	0.09
2017	294	Bhawanipatna	21.03.2017	19 51 17 N	83 18 38 E	D.P.F	Thuapadargundi	Ground	0.14
2017	295	Kegaon	21.03.2017	20 00 37 N	82 57 36 E	R.F	Chura - A	Ground	0.09
2017	296	Bhawanipatna	22.03.2017	19 52 09 N	83 18 16 E	D.P.F	Thuapadargundi	Ground	0.23
2017	297	Bhawanipatna	22.03.2017	19 53 40 N	83 13 23 E	D.P.F	Thuapadargundi	Ground	0.09
2017	298	Bhawanipatna	22.03.2017	19 55 16 N	83 20 27 E	R.F	Kaglighati	Ground	0.12
2017	299	Bhawanipatna	22.03.2017	19 55 18 N	83 15 15 E	D.P.F	Thuapadargundi	Ground	0.18
2017	300	Bhawanipatna	22.03.2017	19 55 19 N	83 20 13 E	R.F	Kadalighati	Ground	0.22
2017	301	Bhawanipatna	22.03.2017	19 55 21 N	83 14 59 E	D.P.F	Thuapadargundi	Ground	0.29
2017	302	Bhawanipatna	22.03.2017	19 57 13 N	83 02 56 E	R.F	Brahmani	Ground	0.12
2017	303	Bhawanipatna	22.03.2017	19 59 21 N	83 01 53 E	R.F	Turpi	Ground	0.15
2017	304	Narla	22.03.2017	20 01 50 N	83 25 22 E	P.R.F	Kamarda	Ground	0.08
2017	305	Bhawanipatna	22.03.2017	19 54 37 N	83 21 24 E	R.F	Kadalighati	Ground	0.11
2017	306	Bhawanipatna	22.03.2017	19 54 38 N	83 21 30 E	R.F	Kadalighati	Ground	0.15
2017	307	Bhawanipatna	22.03.2017	19 54 42 N	83 11 42 E	R.F	Kutrukhai	Ground	0.29
2017	308	Kegaon	22.03.2017	20 02 32 N	82 50 27 E	R.F	Adabari	Ground	0.02

2017	309	M. Rampur	23.03.2017	20 22 23 N	83 34 15 E	P.R.F	GochhaDengen	Ground	0.12
2017	310	Narla	23.03.2017	20 02 01 N	83 31 59 E	R.F	Belgaon	Ground	0.18
2017	311	Bhawanipatna	23.03.2017	19 53 51 N	83 22 10 E	R.F	Kadalighati	Ground	0.1
2017	312	Bhawanipatna	24.03.2017	19 52 28 N	83 17 02 E	D.P.F	Thuapadargundi	Ground	0.11
2017	313	Bhawanipatna	24.03.2017	19 53 16 N	83 17 04 E	D.P.F	Thuapadargundi	Ground	0.12
2017	314	Narla	24.03.2017	20 00 43 N	83 23 58 E	R.F	Narla	Ground	0.22
2017	315	Bhawanipatna	24.03.2017	19 59 27 N	83 05 11 E	R.F	Brahmani	Ground	0.05
2017	316	Bhawanipatna	24.03.2017	19 59 44 N	83 05 12 E	R.F	Brahmani	Ground	0.18
2017	317	Kegaon	24.03.2017	20 06 33 N	82 57 24 E	R.F	Kumkot	Ground	0.09
2017	318	M. Rampur	25.03.2017	20 22 41 N	83 40 03 E	P.R.F	Sulia	Ground	0.1
2017	319	Narla	26.03.2017	20 04 03 N	83 29 58 E	R.F	Belgaon	Ground	0.11
2017	320	Kegaon	26.03.2017	20 06 18 N	82 58 14 E	R.F	Kumkot	Ground	0.17
2017	321	Kegaon	26.03.2017	20 06 29 N	82 56 21 E	R.F	Kumkot	Ground	0.11
2017	322	Bhawanipatna	27.03.2017	19 51 32 N	83 05 33 E	R.F	Kanamanjur	Ground	0.08
2017	323	Bhawanipatna	27.03.2017	19 53 18 N	83 20 28 E	R.F	Kadalighati	Ground	0.09
2017	324	Bhawanipatna	27.03.2017	19 54 24 N	83 14 25 E	D.P.F	Thuapadargundi	Ground	0.14
2017	325	Bhawanipatna	28.03.2017	19 54 01 N	83 20 15 E	D.P.F	Thuapadargundi	Ground	0.12
2017	326	Bhawanipatna	28.03.2017	19 54 04 N	83 20 28 E	D.P.F	Thuapadargundi	Ground	0.12
2017	327	Kegaon	28.03.2017	20 00 50 N	82 56 35 E	R.F	Chura - A	Ground	0.09
2017	328	Kegaon	28.03.2017	20 01 42 N	82 56 59 E	R.F	Chura - A	Ground	0.14
2017	329	Kegaon	28.03.2017	20 03 03 N	82 45 25 E	R.F	Nageswar	Ground	0.13
2017	330	Narla	28.03.2017	20 07 53 N	83 34 22 E	R.F	Urladani	Ground	0.16

2017	331	M. Rampur	28.03.2017	20 12 12 N	83 36 23 E	R.F	Taprang	Ground	0.1
2017	332	Kesinga	28.03.2017	20 13 46 N	83 19 34 E	R.F	Bazargarh	Ground	0.27
2017	333	Kesinga	28.03.2017	20 13 59 N	83 19 23 E	R.F	Bazargarh	Ground	0.18
2017	334	Kesinga	28.03.2017	20 14 14 N	83 19 20 E	R.F	Bazargarh	Ground	0.09
2017	335	Kesinga	28.03.2017	20 14 17 N	83 19 35 E	R.F	Bazargarh	Ground	0.11
2017	336	Kegaon	29.03.2017	19 59 55 N	82 56 30 E	R.F	Chura - A	Ground	0.12
2017	337	M. Rampur	30.03.2017	20 21 05 N	83 37 25 E	R.F	Sikerpat RF	Ground	0.12
2017	338	Narla	30.03.2017	20 02 35 N	83 31 53 E	R.F	Belgaon	Ground	0.21
2017	339	Bhawanipatna	30.03.2017	19 53 45 N	83 06 07 E	R.F	Sinang	Ground	0.16
2017	340	Bhawanipatna	30.03.2017	19 49 59 N	83 06 49 E	R.F	Kanamanjur	Ground	0.25
2017	341	Bhawanipatna	30.03.2017	19 49 58 N	83 07 02 E	R.F	Kanamanjur	Ground	0.35
2017	342	Bhawanipatna	30.03.2017	19 53 43 N	83 06 10 E	R.F	Sinang	Ground	0.24
2017	343	Bhawanipatna	30.03.2017	19 51 17 N	83 17 38 E	P.R.F	Gundi	Ground	0.1
2017	344	Bhawanipatna	30.03.2017	19 45 52 N	83 14 14 E	P.R.F	Gundi	Ground	0.08
2017	345	Bhawanipatna	30.03.2017	19 46 01 N	83 14 07 E	P.R.F	Gundi	Ground	0.14
2017	346	Bhawanipatna	30.03.2017	19 51 29 N	83 12 02 E	P.R.F	Gundi	Ground	0.18
2017	347	Bhawanipatna	30.03.2017	19 54 46 N	83 17 07 E	D.P.F	Thuapadargundi	Ground	0.23
2017	348	Bhawanipatna	30.03.2017	19 55 20 N	83 19 38 E	D.P.F	Thuapadargundi	Ground	0.24
2017	349	Bhawanipatna	30.03.2017	19 55 40 N	83 19 39 E	D.P.F	Thuapadargundi	Ground	0.12
2017	350	Narla	30.03.2017	19 59 18 N	83 29 42 E	P.R.F	Porgel Ext..	Ground	0.2
2017	351	Kegaon	30.03.2017	20 00 05 N	83 00 08 E	R.F	Chura - B	Ground	0.23
2017	352	M. Rampur	30.03.2017	20 10 58 N	83 46 50 E	P.R.F	Pongabaju	Ground	0.18

2017	353	Kesinga	30.03.2017	20 11 58 N	83 19 11 E	R.F	Bazargarh	Ground	0.26
2017	354	Kesinga	30.03.2017	20 12 16 N	83 19 17 E	R.F	Bazargarh	Ground	0.21
2017	355	Kesinga	30.03.2017	20 12 20 N	83 19 10 E	R.F	Bazargarh	Ground	0.18
2017	356	Bhawanipatna	31.03.2017	19 53 14 N	83 04 07 E	R.F	Kanamanjur	Ground	0.21
2017	357	Bhawanipatna	31.03.2017	19 53 16 N	83 04 17 E	R.F	Kanamanjur	Ground	0.23
2017	358	Kegaon	31.03.2017	20 04 47 N	82 50 06 E	R.F	Bisiberni	Ground	0.3
2017	359	Narla	31.03.2017	20 00 02 N	83 28 00 E	P.R.F	Porgel Ext..	Ground	0.19
2017	360	Narla	31.03.2017	20 00 03 N	83 28 13 E	P.R.F	Porgel Ext..	Ground	0.24
2017	361	Narla	31.03.2017	20 00 15 N	83 27 46 E	P.R.F	Kamarda	Ground	0.12
2017	362	Narla	31.03.2017	20 07 51 N	83 31 13 E	R.F	Urladani	Ground	0.23
2017	363	Narla	31.03.2017	20 07 53 N	83 31 24 E	R.F	Urladani	Ground	0.12
2017	364	Narla	31.03.2017	20 08 17 N	83 34 37 E	R.F	Urladani	Ground	0.12
2017	365	M. Rampur	31.03.2017	20 13 15 N	83 34 49 E	R.F	Taprang	Ground	0.09
2017	366	M. Rampur	31.03.2017	20 18 47 N	83 33 27 E	R.F	Sunamukhi	Ground	0.24
2017	367	M. Rampur	01.04.2017	20 20 31 N	83 42 03 E	P.R.F	Sulia	Ground	0.16
2017	368	Kegaon	01.04.2017	20 01 05 N	82 58 01 E	R.F	Chura - A	Ground	0.08
2017	369	Kegaon	01.04.2017	20 02 01 N	82 57 11 E	R.F	Chura - A	Ground	0.1
2017	370	Narla	01.04.2017	20 07 18 N	83 31 54 E	R.F	Urladani	Ground	0.13
2017	371	Narla	01.04.2017	20 07 21 N	83 31 39 E	R.F	Urladani	Ground	0.09
2017	372	Bhawanipatna	02.04.2017	19 52 34 N	83 12 43 E	D.P.F	Thuapadargundi	Ground	0.2
2017	373	Bhawanipatna	02.04.2017	19 57 20 N	83 15 55 E	D.P.F	Thuapadargundi	Ground	0.15
2017	374	Narla	02.04.2017	20 00 25 N	83 29 03 E	P.R.F	Porgel Ext..	Ground	0.28

2017	375	M. Rampur	02.04.2017	20 20 20 N	83 36 53 E	R.F	Benaguda	Ground	0.11
2017	376	M. Rampur	02.04.2017	20 20 30 N	83 37 10 E	R.F	Benaguda	Ground	0.06
2017	377	Bhawanipatna	02.04.2017	19 48 12 N	83 15 57 E	R.F	Kanamanjur	Ground	0.13
2017	378	Bhawanipatna	02.04.2017	19 49 18 N	83 04 58 E	R.F	Alma	Ground	0.22
2017	379	Bhawanipatna	02.04.2017	19 50 35 N	83 17 15 E	P.R.F	Gundi	Ground	0.11
2017	380	Bhawanipatna	02.04.2017	19 50 43 N	83 17 05 E	P.R.F	Gundi	Ground	0.09
2017	381	Narla	02.04.2017	19 59 36 N	83 27 01 E	R.F	Porgel	Ground	0.18
2017	382	Narla	02.04.2017	20 06 47 N	83 35 56 E	P.R.F	Harlanga	Ground	0.21
2017	383	M. Rampur	02.04.2017	20 07 06 N	83 40 17 E	R.F	Zerka	Ground	0.18
2017	384	M. Rampur	02.04.2017	20 10 43 N	83 42 21 E	R.F	Telen	Ground	0.22
2017	385	M. Rampur	02.04.2017	20 12 12 N	83 46 49 E	P.R.F	Pongabaju	Ground	0.13
2017	386	M. Rampur	02.04.2017	20 12 27 N	83 42 08 E	P.R.F	Pongabaju	Ground	0.31
2017	387	M. Rampur	02.04.2017	20 12 37 N	83 43 48 E	P.R.F	Pongabaju	Ground	0.13
2017	388	Bhawanipatna	03.04.2017	19 52 13 N	83 06 01 E	R.F	Kanamanjur	Ground	0.02
2017	389	Bhawanipatna	03.04.2017	19 52 15 N	83 05 44 E	R.F	Kanamanjur	Ground	0.26
2017	390	Bhawanipatna	03.04.2017	19 53 03 N	83 13 05 E	D.P.F	Thuapadargundi	Ground	0.23
2017	391	M. Rampur	03.04.2017	20 17 43 N	83 41 34 E	P.R.F	Sulia	Ground	0.15
2017	392	M. Rampur	03.04.2017	20 17 48 N	83 41 39 E	P.R.F	Sulia	Ground	0.11
2017	393	M. Rampur	03.04.2017	20 18 05 N	83 41 10 E	P.R.F	Sulia	Ground	0.12
2017	394	M. Rampur	03.04.2017	20 18 11 N	83 41 22 E	P.R.F	Sulia	Ground	0.2
2017	395	M. Rampur	03.04.2017	20 18 13 N	83 41 07 E	P.R.F	Sulia	Ground	0.27
2017	396	M. Rampur	03.04.2017	20 18 26 N	83 41 09 E	P.R.F	Sulia	Ground	0.07

2017	397	M. Rampur	03.04.2017	20 18 37 N	83 41 26 E	P.R.F	Sulia	Ground	0.17
2017	398	M. Rampur	03.04.2017	20 18 39 N	83 41 11 E	P.R.F	Sulia	Ground	0.18
2017	399	M. Rampur	03.04.2017	20 20 18 N	83 41 56 E	P.R.F	Sulia	Ground	0.21
2017	400	Bhawanipatna	03.04.2017	19 51 16 N	83 04 15 E	R.F	Kanamanjur	Ground	0.09
2017	401	Bhawanipatna	03.04.2017	19 57 08 N	83 04 09 E	R.F	Brahmani	Ground	0.2
2017	402	Kegaon	03.04.2017	20 03 07 N	82 49 31 E	R.F	Adabari	Ground	0.6
2017	403	M. Rampur	03.04.2017	20 08 22 N	83 43 30 E	R.F	Zerka	Ground	0.15
2017	404	M. Rampur	03.04.2017	20 08 27 N	83 43 36 E	R.F	Zerka	Ground	0.14
2017	405	M. Rampur	03.04.2017	20 16 50 N	83 40 50 E	P.R.F	Sulia	Ground	0.12
2017	406	M. Rampur	03.04.2017	20 17 12 N	83 40 57 E	P.R.F	Sulia	Ground	0.21
2017	407	M. Rampur	03.04.2017	20 17 15 N	83 41 08 E	P.R.F	Sulia	Ground	0.22
2017	408	M. Rampur	03.04.2017	20 17 17 N	83 41 18 E	P.R.F	Sulia	Ground	0.12
2017	409	M. Rampur	03.04.2017	20 17 32 N	83 41 03 E	P.R.F	Sulia	Ground	0.08
2017	410	M. Rampur	04.04.2017	20 11 57 N	83 43 44 E	P.R.F	Puijhari	Ground	0.06
2017	411	M. Rampur	04.04.2017	20 12 11 N	83 43 49 E	P.R.F	Puijhari	Ground	0.14
2017	412	M. Rampur	04.04.2017	20 10 59 N	83 38 51 E	P.R.F	Puijhari	Ground	0.09
2017	413	M. Rampur	04.04.2017	20 11 06 N	83 39 47 E	P.R.F	Puijhari	Ground	0.17
2017	414	M. Rampur	04.04.2017	20 11 09 N	83 39 07 E	P.R.F	Puijhari	Ground	0.1
2017	415	M. Rampur	04.04.2017	20 11 16 N	83 40 05 E	P.R.F	Puijhari	Ground	0.27
2017	416	M. Rampur	04.04.2017	20 11 41 N	83 38 47 E	P.R.F	Puijhari	Ground	0.08
2017	417	M. Rampur	04.04.2017	20 11 47 N	83 39 43 E	P.R.F	Puijhari	Ground	0.28
2017	418	M. Rampur	04.04.2017	20 12 05 N	83 42 31 E	P.R.F	Puijhari	Ground	0.47

2017	419	M. Rampur	04.04.2017	20 12 57 N	83 37 42 E	R.F	Taprang	Ground	0.18
2017	420	M. Rampur	04.04.2017	20 11 27 N	83 39 15 E	P.R.F	Puijhari	Ground	0.08
2017	421	M. Rampur	04.04.2017	20 11 29 N	83 39 34 E	P.R.F	Puijhari	Ground	0.15
2017	422	M. Rampur	04.04.2017	20 11 30 N	83 39 51 E	P.R.F	Puijhari	Ground	0.19
2017	423	M. Rampur	04.04.2017	20 11 49 N	83 39 18 E	P.R.F	Puijhari	Ground	0.16
2017	424	M. Rampur	04.04.2017	20 11 51 N	83 39 34 E	P.R.F	Puijhari	Ground	0.25
2017	425	M. Rampur	04.04.2017	20 11 52 N	83 39 51 E	P.R.F	Puijhari	Ground	0.32
2017	426	M. Rampur	04.04.2017	20 13 11 N	83 37 52 E	R.F	Taprang	Ground	0.41
2017	427	M. Rampur	04.04.2017	20 11 06 N	83 39 33 E	P.R.F	Puijhari	Ground	0.13
2017	428	M. Rampur	04.04.2017	20 11 08 N	83 39 52 E	P.R.F	Puijhari	Ground	0.21
2017	429	Bhawanipatna	04.04.2017	19 52 51 N	83 18 19 E	D.P.F	Thuapadargundi	Ground	0.315
2017	430	Bhawanipatna	04.04.2017	19 52 58 N	83 19 10 E	D.P.F	Thuapadargundi	Ground	0.47
2017	431	Bhawanipatna	04.04.2017	19 53 03 N	83 18 45 E	D.P.F	Thuapadargundi	Ground	0.25
2017	432	Bhawanipatna	04.04.2017	19 52 07 N	83 14 28 E	D.P.F	Thuapadargundi	Ground	0.16
2017	433	Bhawanipatna	04.04.2017	19 53 36 N	83 18 42 E	D.P.F	Thuapadargundi	Ground	0.22
2017	434	Bhawanipatna	04.04.2017	19 53 14 N	83 18 43 E	D.P.F	Thuapadargundi	Ground	0.23
2017	435	Bhawanipatna	04.04.2017	19 53 16 N	83 19 00 E	D.P.F	Thuapadargundi	Ground	0.08
2017	436	Bhawanipatna	04.04.2017	19 53 37 N	83 18 58 E	D.P.F	Thuapadargundi	Ground	0.2
2017	437	Bhawanipatna	05.04.2017	19 52 47 N	83 15 46 E	D.P.F	Thuapadargundi	Ground	0.13
2017	438	Bhawanipatna	05.04.2017	19 52 53 N	83 15 52 E	D.P.F	Thuapadargundi	Ground	0.23
2017	439	Bhawanipatna	05.04.2017	19 47 56 N	83 15 37 E	P.R.F	Gundi	Ground	0.12
2017	440	Bhawanipatna	05.04.2017	19 49 47 N	83 17 54 E	P.R.F	Gundi	Ground	0.21

2017	441	Bhawanipatna	05.04.2017	19 50 06 N	83 18 10 E	P.R.F	Gundi	Ground	0.23
2017	442	Bhawanipatna	05.04.2017	19 50 21 N	83 15 54 E	P.R.F	Gundi	Ground	0.36
2017	443	Bhawanipatna	05.04.2017	19 51 19 N	83 15 02 E	D.P.F	Thuapadargundi	Ground	0.15
2017	444	Bhawanipatna	05.04.2017	19 53 27 N	83 19 28 E	D.P.F	Thuapadargundi	Ground	0.31
2017	445	Bhawanipatna	05.04.2017	19 53 29 N	83 19 43 E	D.P.F	Thuapadargundi	Ground	0.38
2017	446	Bhawanipatna	05.04.2017	19 53 31 N	83 19 58 E	D.P.F	Thuapadargundi	Ground	0.08
2017	447	Bhawanipatna	05.04.2017	19 53 06 N	83 18 41 E	D.P.F	Thuapadargundi	Ground	0.05
2017	448	M. Rampur	05.04.2017	20 12 19 N	83 46 19 E	P.R.F	Pongabaju	Ground	0.12
2017	449	M. Rampur	05.04.2017	20 11 18 N	83 47 05 E	P.R.F	Pongabaju	Ground	0.2
2017	450	M. Rampur	05.04.2017	20 11 32 N	83 44 20 E	P.R.F	Pongabaju	Ground	0.15
2017	451	M. Rampur	05.04.2017	20 11 34 N	83 44 37 E	P.R.F	Pongabaju	Ground	0.15
2017	452	M. Rampur	05.04.2017	20 11 42 N	83 36 06 E	R.F	Taprang	Ground	0.12
2017	453	M. Rampur	05.04.2017	20 11 48 N	83 44 17 E	P.R.F	Pongabaju	Ground	0.12
2017	454	M. Rampur	05.04.2017	20 11 51 N	83 44 35 E	P.R.F	Pongabaju	Ground	0.29
2017	455	M. Rampur	05.04.2017	20 11 52 N	83 44 52 E	P.R.F	Pongabaju	Ground	0.23
2017	456	M. Rampur	05.04.2017	20 12 07 N	83 44 33 E	P.R.F	Pongabaju	Ground	0.13
2017	457	M. Rampur	05.04.2017	20 12 15 N	83 45 43 E	P.R.F	Pongabaju	Ground	0.24
2017	458	M. Rampur	05.04.2017	20 12 17 N	83 46 01 E	P.R.F	Pongabaju	Ground	0.09
2017	459	M. Rampur	05.04.2017	20 15 41 N	83 41 33 E	P.R.F	Mundramashka	Ground	0.16
2017	460	M. Rampur	05.04.2017	20 15 57 N	83 41 32 E	P.R.F	Mundramashka	Ground	0.2
2017	461	M. Rampur	05.04.2017	20 15 59 N	83 41 50 E	P.R.F	Mundramashka	Ground	0.21
2017	462	M. Rampur	05.04.2017	20 18 29 N	83 37 13 E	R.F	Benaguda	Ground	0.14

2017	463	Bhawanipatna	06.04.2017	19 48 29 N	83 15 02 E	P.R.F	Gundi	Ground	0.28
2017	464	Bhawanipatna	06.04.2017	19 50 59 N	83 13 14 E	P.R.F	Gundi	Ground	0.22
2017	465	Bhawanipatna	06.04.2017	19 51 29 N	83 16 44 E	D.P.F	Thuapadargundi	Ground	0.11
2017	466	Bhawanipatna	06.04.2017	19 51 31 N	83 16 58 E	D.P.F	Thuapadargundi	Ground	0.13
2017	467	Bhawanipatna	06.04.2017	19 51 39 N	83 15 03 E	D.P.F	Thuapadargundi	Ground	0.39
2017	468	Bhawanipatna	06.04.2017	19 51 52 N	83 15 02 E	D.P.F	Thuapadargundi	Ground	0.47
2017	469	Bhawanipatna	06.04.2017	19 53 12 N	83 12 42 E	D.P.F	Thuapadargundi	Ground	0.25
2017	470	Bhawanipatna	06.04.2017	19 53 22 N	83 12 26 E	D.P.F	Thuapadargundi	Ground	0.31
2017	471	Bhawanipatna	06.04.2017	19 53 24 N	83 12 40 E	D.P.F	Thuapadargundi	Ground	0.32
2017	472	Bhawanipatna	06.04.2017	19 54 11 N	83 21 05 E	D.P.F	Thuapadargundi	Ground	0.08
2017	473	Narla	06.04.2017	19 58 17 N	83 29 33 E	P.R.F	Porgel Ext..	Ground	0.09
2017	474	Narla	06.04.2017	19 58 25 N	83 29 03 E	P.R.F	Porgel Ext..	Ground	0.11
2017	475	Narla	06.04.2017	19 58 27 N	83 29 17 E	P.R.F	Porgel Ext..	Ground	0.13
2017	476	Narla	06.04.2017	19 58 29 N	83 29 31 E	P.R.F	Porgel Ext..	Ground	0.17
2017	477	Narla	06.04.2017	19 58 37 N	83 29 01 E	P.R.F	Porgel Ext..	Ground	0.12
2017	478	Narla	06.04.2017	20 04 49 N	83 26 52 E	R.F	Kerbandi	Ground	0.17
2017	479	Narla	06.04.2017	20 07 10 N	83 34 45 E	R.F	Urladani	Ground	0.22
2017	480	M. Rampur	06.04.2017	20 08 41 N	83 41 05 E	P.R.F	Bidabaru (Harlanga)	Ground	0.21
2017	481	M. Rampur	06.04.2017	20 10 56 N	83 46 38 E	P.R.F	Pongabaju	Ground	0.1
2017	482	M. Rampur	06.04.2017	20 11 05 N	83 43 07 E	R.F	Telen	Ground	0.16
2017	483	M. Rampur	06.04.2017	20 11 19 N	83 44 49 E	P.R.F	Pongabaju	Ground	0.11
2017	484	M. Rampur	06.04.2017	20 12 43 N	83 41 57 E	P.R.F	Pongabaju	Ground	0.12

2017	485	M. Rampur	06.04.2017	20 12 46 N	83 36 07 E	R.F	Taprang	Ground	0.21
2017	486	M. Rampur	06.04.2017	20 15 33 N	83 42 29 E	P.R.F	Sulia	Ground	0.27
2017	487	M. Rampur	06.04.2017	20 15 35 N	83 42 44 E	P.R.F	Sulia	Ground	0.14
2017	488	M. Rampur	06.04.2017	20 15 43 N	83 42 13 E	P.R.F	Sulia	Ground	0.13
2017	489	M. Rampur	06.04.2017	20 15 56 N	83 42 11 E	P.R.F	Sulia	Ground	0.22
2017	490	M. Rampur	06.04.2017	20 17 31 N	83 42 57 E	P.R.F	Sulia	Ground	0.12
2017	491	Bhawanipatna	08.04.2017	19 47 13 N	83 16 41 E	P.R.F	Gundi	Ground	0.12
2017	492	Bhawanipatna	08.04.2017	19 47 00 N	83 16 41 E	P.R.F	Gundi	Ground	0.19
2017	493	Bhawanipatna	08.04.2017	19 53 53 N	83 21 24 E	D.P.F	Thuapadargundi	Ground	0.16
2017	494	Bhawanipatna	08.04.2017	19 51 39 N	83 20 13 E	D.P.F	Thuapadargundi	Ground	0.21
2017	495	Bhawanipatna	08.04.2017	19 52 06 N	83 19 33 E	D.P.F	Thuapadargundi	Ground	0.11
2017	496	Bhawanipatna	08.04.2017	19 52 12 N	83 20 08 E	D.P.F	Thuapadargundi	Ground	0.09
2017	497	Bhawanipatna	08.04.2017	19 52 39 N	83 19 26 E	D.P.F	Thuapadargundi	Ground	0.2
2017	498	Bhawanipatna	08.04.2017	19 52 44 N	83 20 02 E	R.F	Kadalighati	Ground	0.1
2017	499	Kegaon	08.04.2017	19 58 35 N	83 00 14 E	R.F	Chura - B	Ground	0.12
2017	500	Kegaon	08.04.2017	20 01 01 N	82 55 59 E	R.F	Chura - A	Ground	0.5
2017	501	Narla	08.04.2017	20 07 42 N	83 34 49 E	R.F	Urladani	Ground	0.15
2017	502	M. Rampur	08.04.2017	20 09 31 N	83 38 35 E	P.R.F	Bidabaru (Harlanga)	Ground	0.15
2017	503	M. Rampur	08.04.2017	20 15 10 N	83 42 47 E	P.R.F	Sulia	Ground	0.09
2017	504	M. Rampur	08.04.2017	20 16 14 N	83 42 29 E	P.R.F	Sulia	Ground	0.14
2017	505	M. Rampur	08.04.2017	20 16 18 N	83 42 02 E	P.R.F	Mundramashka	Ground	0.09
2017	506	M. Rampur	08.04.2017	20 17 01 N	83 42 51 E	P.R.F	Sulia	Ground	0.21

2017	507	M. Rampur	08.04.2017	20 17 40 N	83 37 04 E	R.F	Benaguda	Ground	0.13
2017	508	M. Rampur	08.04.2017	20 08 33 N	83 40 39 E	R.F	Zerka	Ground	0.08
2017	509	M. Rampur	08.04.2017	20 10 47 N	83 44 42 E	P.R.F	Pongabaju	Ground	0.05
2017	510	M. Rampur	08.04.2017	20 11 19 N	83 44 37 E	P.R.F	Pongabaju	Ground	0.12
2017	511	M. Rampur	08.04.2017	20 11 24 N	83 45 11 E	P.R.F	Pongabaju	Ground	0.11
2017	512	M. Rampur	08.04.2017	20 11 34 N	83 45 03 E	P.R.F	Pongabaju	Ground	0.14
2017	513	M. Rampur	08.04.2017	20 12 02 N	83 35 53 E	R.F	Taprang	Ground	0.14
2017	514	M. Rampur	08.04.2017	20 12 03 N	83 35 59 E	R.F	Taprang	Ground	0.15
2017	515	M. Rampur	08.04.2017	20 12 24 N	83 44 26 E	P.R.F	Pongabaju	Ground	0.17
2017	516	M. Rampur	08.04.2017	20 14 13 N	83 34 10 E	R.F	Taprang	Ground	0.18
2017	517	M. Rampur	08.04.2017	20 14 18 N	83 42 20 E	D.P.F	Dengidangar	Ground	0.14
2017	518	M. Rampur	08.04.2017	20 14 23 N	83 42 55 E	P.R.F	Sulia	Ground	0.24
2017	519	M. Rampur	08.04.2017	20 14 31 N	83 42 45 E	D.P.F	Dengidangar	Ground	0.21
2017	520	M. Rampur	08.04.2017	20 14 32 N	83 34 13 E	R.F	Taprang	Ground	0.23
2017	521	M. Rampur	08.04.2017	20 16 04 N	83 42 50 E	P.R.F	Sulia	Ground	0.08
2017	522	M. Rampur	08.04.2017	20 16 11 N	83 42 39 E	P.R.F	Sulia	Ground	0.08
2017	523	M. Rampur	08.04.2017	20 16 37 N	83 42 44 E	P.R.F	Sulia	Ground	0.18
2017	524	M. Rampur	08.04.2017	20 17 10 N	83 39 03 E	R.F	Satami	Ground	0.12
2017	525	M. Rampur	08.04.2017	20 17 41 N	83 38 46 E	P.R.F	Tal Nuagaon	Ground	0.11
2017	526	M. Rampur	08.04.2017	20 17 43 N	83 38 57 E	P.R.F	Tal Nuagaon	Ground	0.19
2017	527	M. Rampur	08.04.2017	20 17 47 N	83 40 45 E	P.R.F	Sulia	Ground	0.15
2017	528	M. Rampur	08.04.2017	20 17 48 N	83 39 32 E	P.R.F	Tal Nuagaon	Ground	0.24

2017	529	M. Rampur	08.04.2017	20 18 01 N	83 39 01 E	P.R.F	Tal Nuagaon	Ground	0.12
2017	530	M. Rampur	08.04.2017	20 18 05 N	83 39 20 E	P.R.F	Tal Nuagaon	Ground	0.1
2017	531	M. Rampur	08.04.2017	20 18 06 N	83 39 07 E	P.R.F	Tal Nuagaon	Ground	0.32
2017	532	M. Rampur	08.04.2017	20 22 02 N	83 37 37 E	R.F	Benaguda	Ground	0.14
2017	533	Bhawanipatna	09.04.2017	19 54 30 N	83 18 31 E	D.P.F	Thuapadargundi	Ground	0.258
2017	534	Narla	09.04.2017	19 58 27 N	83 30 01 E	P.R.F	Porgel Ext..	Ground	0.23
2017	535	Narla	09.04.2017	20 07 35 N	83 35 04 E	R.F	Urladani	Ground	0.41
2017	536	Narla	09.04.2017	20 08 22 N	83 35 11 E	R.F	Urladani	Ground	0.15
2017	537	Narla	09.04.2017	20 09 20 N	83 33 13 E	R.F	Urladani	Ground	0.09
2017	538	Narla	09.04.2017	20 09 31 N	83 33 03 E	R.F	Urladani	Ground	0.23
2017	539	M. Rampur	09.04.2017	20 15 57 N	83 41 00 E	P.R.F	Sulia	Ground	0.15
2017	540	M. Rampur	09.04.2017	20 16 05 N	83 40 39 E	P.R.F	Sulia	Ground	0.147
2017	541	M. Rampur	09.04.2017	20 17 39 N	83 40 54 E	P.R.F	Sulia	Ground	0.18
2017	542	M. Rampur	09.04.2017	20 16 01 N	83 43 05 E	P.R.F	Sulia	Ground	0.21
2017	543	M. Rampur	09.04.2017	20 16 07 N	83 43 05 E	P.R.F	Sulia	Ground	0.34
2017	544	M. Rampur	09.04.2017	20 08 18 N	83 40 19 E	R.F	Zerka	Ground	0.14
2017	545	M. Rampur	09.04.2017	20 08 26 N	83 40 10 E	P.R.F	Bidabaru (Harlanga)	Ground	0.23
2017	546	M. Rampur	09.04.2017	20 08 28 N	83 40 33 E	R.F	Zerka	Ground	0.11
2017	547	M. Rampur	09.04.2017	20 10 24 N	83 44 33 E	P.R.F	Pongabaju	Ground	0.12
2017	548	M. Rampur	09.04.2017	20 10 41 N	83 44 33 E	P.R.F	Pongabaju	Ground	0.08
2017	549	M. Rampur	09.04.2017	20 13 21 N	83 35 22 E	R.F	Taprang	Ground	0.05
2017	550	M. Rampur	09.04.2017	20 13 45 N	83 35 21 E	R.F	Taprang	Ground	0.17

2017	551	M. Rampur	09.04.2017	20 15 22 N	83 42 55 E	P.R.F	Sulia	Ground	0.11
2017	552	M. Rampur	09.04.2017	20 15 44 N	83 42 39 E	P.R.F	Sulia	Ground	0.18
2017	553	M. Rampur	09.04.2017	20 17 26 N	83 40 27 E	P.R.F	Sulia	Ground	0.12
2017	554	Kesinga	10.04.2017	20 17 51 N	83 18 19 E	R.F	Bazargarh	Ground	0.22
2017	555	M. Rampur	10.04.2017	20 22 33 N	83 41 05 E	P.R.F	Sulia	Ground	0.13
2017	556	M. Rampur	10.04.2017	20 14 04 N	83 39 46 E	P.R.F	Puijhari	Ground	0.18
2017	557	M. Rampur	10.04.2017	20 14 23 N	83 39 19 E	P.R.F	Sulia	Ground	0.15
2017	558	M. Rampur	10.04.2017	20 14 31 N	83 40 08 E	P.R.F	Sulia	Ground	0.27
2017	559	Bhawanipatna	10.04.2017	19 51 26 N	83 19 24 E	P.R.F	Gundi	Ground	0.08
2017	560	M. Rampur	10.04.2017	20 09 56 N	83 46 29 E	P.R.F	Pongabaju	Ground	0.11
2017	561	Bhawanipatna	10.04.2017	19 50 02 N	83 13 14 E	P.R.F	Gundi	Ground	0.08
2017	562	Bhawanipatna	10.04.2017	19 50 03 N	83 13 30 E	P.R.F	Gundi	Ground	0.17
2017	563	Bhawanipatna	10.04.2017	19 51 25 N	83 15 15 E	D.P.F	Thuapadargundi	Ground	0.22
2017	564	Kegaon	10.04.2017	20 05 01 N	82 58 41 E	R.F	Kumkot	Ground	0.14
2017	565	Narla	10.04.2017	20 09 04 N	83 32 52 E	R.F	Urladani	Ground	0.25
2017	566	Narla	10.04.2017	20 09 06 N	83 32 44 E	R.F	Urladani	Ground	0.18
2017	567	Narla	10.04.2017	20 09 22 N	83 32 50 E	R.F	Urladani	Ground	0.22
2017	568	M. Rampur	10.04.2017	20 09 55 N	83 46 18 E	P.R.F	Pongabaju	Ground	0.07
2017	569	M. Rampur	10.04.2017	20 14 40 N	83 39 35 E	P.R.F	Sulia	Ground	0.17
2017	570	M. Rampur	10.04.2017	20 14 42 N	83 39 57 E	P.R.F	Sulia	Ground	0.21
2017	571	M. Rampur	10.04.2017	20 14 58 N	83 39 33 E	P.R.F	Sulia	Ground	0.23
2017	572	M. Rampur	10.04.2017	20 15 00 N	83 39 55 E	P.R.F	Sulia	Ground	0.12

2017	573	M. Rampur	10.04.2017	20 15 59 N	83 38 01 E	R.F	Satami	Ground	0.14
2017	574	M. Rampur	10.04.2017	20 16 00 N	83 37 50 E	R.F	Satami	Ground	0.28
2017	575	M. Rampur	10.04.2017	20 16 06 N	83 39 16 E	R.F	Satami	Ground	0.22
2017	576	M. Rampur	10.04.2017	20 16 09 N	83 39 38 E	P.R.F	Sulia	Ground	0.13
2017	577	M. Rampur	10.04.2017	20 16 10 N	83 39 25 E	R.F	Satami	Ground	0.31
2017	578	M. Rampur	10.04.2017	20 16 43 N	83 39 15 E	R.F	Satami	Ground	0.22
2017	579	M. Rampur	10.04.2017	20 16 47 N	83 39 25 E	R.F	Satami	Ground	0.24
2017	580	M. Rampur	10.04.2017	20 16 54 N	83 41 04 E	P.R.F	Sulia	Ground	0.12
2017	581	M. Rampur	10.04.2017	20 16 58 N	83 41 13 E	P.R.F	Sulia	Ground	0.26
2017	582	Bhawanipatna	11.04.2017	19 47 18 N	83 15 26 E	P.R.F	Gundi	Ground	0.14
2017	583	Bhawanipatna	11.04.2017	19 47 24 N	83 15 28 E	P.R.F	Gundi	Ground	0.21
2017	584	Bhawanipatna	11.04.2017	19 47 35 N	83 15 35 E	P.R.F	Gundi	Ground	0.12
2017	585	Bhawanipatna	11.04.2017	19 47 38 N	83 15 23 E	P.R.F	Gundi	Ground	0.1
2017	586	Bhawanipatna	11.04.2017	19 47 59 N	83 15 16 E	P.R.F	Gundi	Ground	0.1
2017	587	Bhawanipatna	11.04.2017	19 48 05 N	83 15 16 E	P.R.F	Gundi	Ground	0.23
2017	588	Bhawanipatna	11.04.2017	19 50 11 N	83 14 29 E	D.P.F	Thuapadargundi	Ground	0.12
2017	589	Bhawanipatna	11.04.2017	19 50 44 N	83 16 27 E	D.P.F	Thuapadargundi	Ground	0.09
2017	590	Narla	11.04.2017	20 05 20 N	83 38 11 E	R.F	Lankagarh RF	Ground	0.12
2017	591	M. Rampur	11.04.2017	20 07 44 N	83 40 39 E	R.F	Jerka	Ground	0.17
2017	592	M. Rampur	11.04.2017	20 08 44 N	83 39 13 E	P.R.F	Bidabaru (Harlanga)	Ground	0.21
2017	593	M. Rampur	11.04.2017	20 08 50 N	83 43 10 E	P.R.F	Bidabaru (Harlanga)	Ground	0.25
2017	594	Kesinga	11.04.2017	20 08 58 N	83 09 09 E	D.P.F	Biripura	Ground	0.14

2017	595	Narla	11.04.2017	20 09 10 N	83 32 30 E	R.F	Urladani	Ground	0.13
2017	596	Narla	11.04.2017	20 09 28 N	83 32 35 E	R.F	Urladani	Ground	0.22
2017	597	Narla	11.04.2017	20 09 29 N	83 32 40 E	R.F	Urladani	Ground	0.16
2017	598	Narla	11.04.2017	20 09 30 N	83 32 25 E	R.F	Urladani	Ground	0.31
2017	599	Narla	11.04.2017	20 09 31 N	83 32 29 E	R.F	Urladani	Ground	0.28
2017	600	M. Rampur	11.04.2017	20 09 42 N	83 42 15 E	R.F	Telen	Ground	0.22
2017	601	Narla	11.04.2017	20 09 47 N	83 32 39 E	R.F	Urladani	Ground	0.1
2017	602	Narla	11.04.2017	20 09 50 N	83 32 34 E	R.F	Urladani	Ground	0.2
2017	603	M. Rampur	11.04.2017	20 10 05 N	83 46 32 E	P.R.F	Pongabaju	Ground	0.11
2017	604	M. Rampur	11.04.2017	20 10 06 N	83 44 59 E	P.R.F	Putrimahul	Ground	0.17
2017	605	M. Rampur	11.04.2017	20 10 56 N	83 34 59 E	R.F	Taprang	Ground	0.21
2017	606	M. Rampur	11.04.2017	20 10 57 N	83 37 58 E	R.F	Taprang	Ground	0.18
2017	607	M. Rampur	11.04.2017	20 12 08 N	83 41 39 E	P.R.F	Puijhari	Ground	0.11
2017	608	M. Rampur	11.04.2017	20 12 09 N	83 43 05 E	P.R.F	Puijhari	Ground	0.21
2017	609	M. Rampur	11.04.2017	20 12 10 N	83 41 28 E	P.R.F	Puijhari	Ground	0.23
2017	610	M. Rampur	11.04.2017	20 12 23 N	83 37 25 E	R.F	Taprang	Ground	0.21
2017	611	M. Rampur	11.04.2017	20 12 53 N	83 35 02 E	R.F	Taprang	Ground	0.17
2017	612	M. Rampur	11.04.2017	20 13 02 N	83 37 23 E	R.F	Taprang	Ground	0.15
2017	613	M. Rampur	11.04.2017	20 13 05 N	83 40 14 E	P.R.F	Puijhari	Ground	0.16
2017	614	M. Rampur	11.04.2017	20 13 08 N	83 40 03 E	P.R.F	Puijhari	Ground	0.12
2017	615	M. Rampur	11.04.2017	20 13 15 N	83 33 16 E	P.R.F	Ramud	Ground	0.1
2017	616	M. Rampur	11.04.2017	20 13 19 N	83 43 49 E	P.R.F	Puijhari	Ground	0.15

2017	617	M. Rampur	11.04.2017	20 13 27 N	83 43 13 E	P.R.F	Puijhari	Ground	0.13
2017	618	M. Rampur	11.04.2017	20 14 34 N	83 39 13 E	R.F	Satami	Ground	0.11
2017	619	M. Rampur	11.04.2017	20 14 36 N	83 39 16 E	P.R.F	Sulia	Ground	0.21
2017	620	M. Rampur	11.04.2017	20 14 41 N	83 38 42 E	R.F	Satami	Ground	0.18
2017	621	M. Rampur	11.04.2017	20 14 43 N	83 38 44 E	R.F	Satami	Ground	0.14
2017	622	M. Rampur	11.04.2017	20 14 48 N	83 39 38 E	P.R.F	Sulia	Ground	0.17
2017	623	M. Rampur	11.04.2017	20 14 50 N	83 39 41 E	P.R.F	Sulia	Ground	31
2017	624	M. Rampur	11.04.2017	20 14 54 N	83 34 43 E	R.F	Taprang	Ground	0.22
2017	625	M. Rampur	11.04.2017	20 15 05 N	83 41 40 E	P.R.F	Mundramaska	Ground	0.18
2017	626	M. Rampur	11.04.2017	20 15 21 N	83 41 40 E	P.R.F	Mundramaska	Ground	0.17
2017	627	M. Rampur	11.04.2017	20 15 31 N	83 37 52 E	R.F	Satami	Ground	0.14
2017	628	M. Rampur	11.04.2017	20 15 33 N	83 37 55 E	R.F	Satami	Ground	0.15
2017	629	M. Rampur	11.04.2017	20 16 29 N	83 39 26 E	R.F	Satami	Ground	0.12
2017	630	M. Rampur	11.04.2017	20 16 36 N	83 38 56 E	R.F	Satami	Ground	0.15
2017	631	M. Rampur	11.04.2017	20 16 52 N	83 36 09 E	R.F	Benaguda	Ground	0.16
2017	632	M. Rampur	11.04.2017	20 16 53 N	83 40 37 E	P.R.F	Sulia	Ground	0.11
2017	633	M. Rampur	11.04.2017	20 17 08 N	83 39 30 E	R.F	Satami	Ground	0.32
2017	634	M. Rampur	11.04.2017	20 17 10 N	83 39 20 E	R.F	Satami	Ground	0.33
2017	635	M. Rampur	11.04.2017	20 17 17 N	83 41 52 E	P.R.F	Sulia	Ground	0.22
2017	636	Kesinga	11.04.2017	20 17 19 N	83 18 43 E	R.F	Bazargarh	Ground	0.35
2017	637	M. Rampur	11.04.2017	20 17 49 N	83 36 16 E	R.F	Benaguda	Ground	0.21
2017	638	M. Rampur	11.04.2017	20 18 03 N	83 39 46 E	P.R.F	Sulia	Ground	0.12

2017	639	M. Rampur	11.04.2017	20 18 22 N	83 39 50 E	P.R.F	Sulia	Ground	0.11
2017	640	M. Rampur	11.04.2017	20 19 25 N	83 36 27 E	R.F	Benaguda	Ground	0.21
2017	641	Bhawanipatna	11.04.2017	19 47 31 N	83 15 50 E	P.R.F	Gundi	Ground	0.21
2017	642	Bhawanipatna	11.04.2017	19 50 53 N	83 15 36 E	D.P.F	Thuapadargundi	Ground	0.22
2017	643	Narla	11.04.2017	19 59 22 N	83 25 49 E	R.F	Porgel	Ground	0.23
2017	644	Narla	11.04.2017	19 59 51 N	83 29 57 E	P.R.F	Porgel Ext.	Ground	0.08
2017	645	M. Rampur	11.04.2017	20 07 05 N	83 40 44 E	P.R.F	Bidabaru (Harlanga)	Ground	0.12
2017	646	Narla	11.04.2017	20 07 43 N	83 32 44 E	R.F	Urladani	Ground	0.32
2017	647	Narla	11.04.2017	20 07 48 N	83 32 10 E	R.F	Urladani	Ground	0.21
2017	648	M. Rampur	11.04.2017	20 08 56 N	83 39 42 E	P.R.F	Bidabaru (Harlanga)	Ground	0.21
2017	649	M. Rampur	11.04.2017	20 09 40 N	83 42 08 E	R.F	Telen	Ground	0.18
2017	650	M. Rampur	11.04.2017	20 12 53 N	83 35 07 E	R.F	Taprang	Ground	0.12
2017	651	M. Rampur	11.04.2017	20 14 55 N	83 32 54 E	P.R.F	Ramud	Ground	0.17
2017	652	M. Rampur	11.04.2017	20 14 59 N	83 39 52 E	P.R.F	Sulia	Ground	0.21
2017	653	Kesinga	11.04.2017	20 15 08 N	83 19 48 E	R.F	Bazargarh	Ground	0.18
2017	654	M. Rampur	11.04.2017	20 16 06 N	83 36 00 E	R.F	Taprang	Ground	0.21
2017	655	M. Rampur	11.04.2017	20 16 13 N	83 38 55 E	R.F	Satami	Ground	0.23
2017	656	M. Rampur	11.04.2017	20 16 18 N	83 38 21 E	R.F	Satami	Ground	0.21
2017	657	M. Rampur	11.04.2017	20 16 52 N	83 41 55 E	P.R.F	Mundramaska	Ground	0.2
2017	658	M. Rampur	11.04.2017	20 06 14 N	83 41 18 E	P.R.F	Bidabaru (Harlanga)	Ground	0.17
2017	659	M. Rampur	11.04.2017	20 12 23 N	83 46 41 E	P.R.F	Pongabaju	Ground	0.12
2017	660	M. Rampur	11.04.2017	20 12 27 N	83 46 45 E	P.R.F	Pongabaju	Ground	0.11

2017	661	Bhawanipatna	11.04.2017	19 44 26 N	83 15 35 E	P.R.F	Gundi	Ground	0.23
2017	662	Bhawanipatna	11.04.2017	19 46 38 N	83 15 59 E	P.R.F	Gundi	Ground	0.18
2017	663	Bhawanipatna	11.04.2017	19 47 18 N	83 15 54 E	P.R.F	Gundi	Ground	0.21
2017	664	Bhawanipatna	11.04.2017	19 47 31 N	83 15 53 E	P.R.F	Gundi	Ground	0.22
2017	665	Bhawanipatna	11.04.2017	19 49 33 N	83 17 34 E	P.R.F	Gundi	Ground	0.16
2017	666	Bhawanipatna	11.04.2017	19 51 12 N	83 16 33 E	P.R.F	Gundi	Ground	0.15
2017	667	Bhawanipatna	11.04.2017	19 53 19 N	83 20 50 E	D.P.F	Thuapadargundi	Ground	0.21
2017	668	Bhawanipatna	11.04.2017	19 53 32 N	83 20 49 E	D.P.F	Thuapadargundi	Ground	0.2
2017	669	Bhawanipatna	11.04.2017	19 54 10 N	83 15 35 E	D.P.F	Thuapadargundi	Ground	0.1
2017	670	Narla	11.04.2017	19 59 06 N	83 25 53 E	R.F	Porgel	Ground	0.08
2017	671	Narla	11.04.2017	19 59 19 N	83 25 50 E	R.F	Porgel	Ground	0.1
2017	672	Bhawanipatna	11.04.2017	20 00 06 N	83 20 00 E	R.F	Madakhola - A	Ground	0.08
2017	673	Narla	11.04.2017	20 00 32 N	83 26 32 E	R.F	Porgel	Ground	0.1
2017	674	Narla	11.04.2017	20 01 33 N	83 24 10 E	R.F	Narla	Ground	0.15
2017	675	Kegaon	11.04.2017	20 03 46 N	82 59 06 E	R.F	Kumkot	Ground	0.14
2017	676	Kegaon	11.04.2017	20 03 59 N	82 59 04 E	R.F	Kumkot	Ground	0.21
2017	677	M. Rampur	11.04.2017	20 06 27 N	83 41 16 E	P.R.F	Bidabaru (Harlanga)	Ground	0.22
2017	678	Narla	11.04.2017	20 06 42 N	83 34 27 E	D.P.F	Dengsur	Ground	0.18
2017	679	Narla	11.04.2017	20 07 01 N	83 31 50 E	R.F	Urladani	Ground	0.12
2017	680	M. Rampur	11.04.2017	20 07 05 N	83 40 53 E	P.R.F	Bidabaru (Harlanga)	Ground	0.13
2017	681	M. Rampur	11.04.2017	20 07 20 N	83 41 07 E	P.R.F	Bidabaru (Harlanga)	Ground	0.21
2017	682	M. Rampur	11.04.2017	20 07 33 N	83 41 04 E	P.R.F	Bidabaru (Harlanga)	Ground	0.14

2017	683	Narla	11.04.2017	20 07 37 N	83 36 18 E	R.F	Urladani	Ground	0.16
2017	684	Narla	11.04.2017	20 07 45 N	83 32 16 E	R.F	Urladani	Ground	0.18
2017	685	Narla	11.04.2017	20 07 52 N	83 33 07 E	R.F	Urladani	Ground	0.11
2017	686	Narla	11.04.2017	20 08 41 N	83 35 52 E	R.F	Urladani	Ground	0.16
2017	687	M. Rampur	11.04.2017	20 08 42 N	83 42 56 E	P.R.F	Bidabaru (Harlanga)	Ground	0.11
2017	688	M. Rampur	11.04.2017	20 08 43 N	83 39 31 E	P.R.F	Bidabaru (Harlanga)	Ground	0.12
2017	689	Narla	11.04.2017	20 08 45 N	83 33 01 E	R.F	Urladani	Ground	0.09
2017	690	M. Rampur	11.04.2017	20 08 58 N	83 39 45 E	P.R.F	Bidabaru (Harlanga)	Ground	0.21
2017	691	Narla	11.04.2017	20 09 01 N	83 33 16 E	R.F	Urladani	Ground	0.1
2017	692	M. Rampur	11.04.2017	20 09 34 N	83 42 31 E	R.F	Telen	Ground	0.19
2017	693	M. Rampur	11.04.2017	20 09 34 N	83 44 16 E	R.F	Telen	Ground	0.16
2017	694	Narla	11.04.2017	20 09 45 N	83 35 26 E	R.F	Urladani	Ground	0.11
2017	695	Narla	11.04.2017	20 09 47 N	83 34 01 E	R.F	Urladani	Ground	0.19
2017	696	Narla	11.04.2017	20 09 59 N	83 35 24 E	R.F	Urladani	Ground	0.21
2017	697	M. Rampur	11.04.2017	20 10 00 N	83 42 26 E	R.F	Telen	Ground	0.14
2017	698	Narla	11.04.2017	20 10 01 N	83 33 59 E	R.F	Urladani	Ground	0.16
2017	699	M. Rampur	11.04.2017	20 10 01 N	83 35 40 E	R.F	Taprang	Ground	0.13
2017	700	Narla	11.04.2017	20 10 09 N	83 34 02 E	R.F	Urladani	Ground	0.12
2017	701	M. Rampur	11.04.2017	20 10 17 N	83 34 14 E	R.F	Taprang	Ground	0.13
2017	702	M. Rampur	11.04.2017	20 10 17 N	83 37 37 E	R.F	Taprang	Ground	0.21
2017	703	M. Rampur	11.04.2017	20 10 20 N	83 45 00 E	P.R.F	Pongabaju	Ground	0.12
2017	704	M. Rampur	11.04.2017	20 10 31 N	83 42 54 E	R.F	Telen	Ground	0.14

2017	705	M. Rampur	11.04.2017	20 10 33 N	83 46 39 E	P.R.F	Pongabaju	Ground	0.16
2017	706	M. Rampur	11.04.2017	20 10 43 N	83 37 33 E	R.F	Taprang	Ground	0.14
2017	707	M. Rampur	11.04.2017	20 11 01 N	83 38 04 E	P.R.F	Puijhari	Ground	0.21
2017	708	M. Rampur	11.04.2017	20 11 05 N	83 37 51 E	R.F	Taprang	Ground	0.21
2017	709	M. Rampur	11.04.2017	20 11 07 N	83 38 07 E	P.R.F	Puijhari	Ground	0.09
2017	710	M. Rampur	11.04.2017	20 11 12 N	83 37 46 E	R.F	Taprang	Ground	0.12
2017	711	M. Rampur	11.04.2017	20 11 14 N	83 38 02 E	R.F	Taprang	Ground	0.17
2017	712	M. Rampur	11.04.2017	20 11 26 N	83 33 19 E	R.F	Taprang	Ground	0.15
2017	713	M. Rampur	11.04.2017	20 11 28 N	83 33 50 E	R.F	Taprang	Ground	0.16
2017	714	M. Rampur	11.04.2017	20 11 30 N	83 34 07 E	R.F	Taprang	Ground	0.14
2017	715	M. Rampur	11.04.2017	20 11 33 N	83 34 30 E	R.F	Taprang	Ground	0.11
2017	716	M. Rampur	11.04.2017	20 11 36 N	83 38 20 E	P.R.F	Puijhari	Ground	0.1
2017	717	M. Rampur	11.04.2017	20 11 46 N	83 34 21 E	R.F	Taprang	Ground	0.08
2017	718	M. Rampur	11.04.2017	20 11 49 N	83 38 18 E	P.R.F	Puijhari	Ground	0.1
2017	719	M. Rampur	11.04.2017	20 11 58 N	83 37 43 E	R.F	Taprang	Ground	0.12
2017	720	M. Rampur	11.04.2017	20 12 07 N	83 37 08 E	R.F	Taprang	Ground	0.16
2017	721	M. Rampur	11.04.2017	20 12 24 N	83 39 19 E	P.R.F	Puijhari	Ground	0.12
2017	722	M. Rampur	11.04.2017	20 12 34 N	83 44 10 E	P.R.F	Puijhari	Ground	0.14
2017	723	M. Rampur	11.04.2017	20 12 36 N	83 37 19 E	R.F	Taprang	Ground	0.21
2017	724	M. Rampur	11.04.2017	20 12 53 N	83 37 51 E	R.F	Taprang	Ground	0.15
2017	725	M. Rampur	11.04.2017	20 12 59 N	83 33 20 E	D.P.F	Karla	Ground	0.13
2017	726	M. Rampur	11.04.2017	20 13 01 N	83 44 03 E	P.R.F	Puijhari	Ground	0.12

2017	727	M. Rampur	11.04.2017	20 13 05 N	83 37 33 E	R.F	Taprang	Ground	0.16
2017	728	M. Rampur	11.04.2017	20 13 10 N	83 33 02 E	P.R.F	Ramud	Ground	0.18
2017	729	M. Rampur	11.04.2017	20 13 16 N	83 38 56 E	P.R.F	Puijhari	Ground	0.17
2017	730	M. Rampur	11.04.2017	20 13 26 N	83 40 17 E	P.R.F	Puijhari	Ground	0.21
2017	731	M. Rampur	11.04.2017	20 13 33 N	83 39 26 E	P.R.F	Puijhari	Ground	0.22
2017	732	M. Rampur	11.04.2017	20 13 46 N	83 34 04 E	R.F	Taprang	Ground	0.18
2017	733	M. Rampur	11.04.2017	20 14 30 N	83 34 32 E	R.F	Taprang	Ground	0.21
2017	734	M. Rampur	11.04.2017	20 14 45 N	83 38 09 E	R.F	Satami	Ground	0.14
2017	735	M. Rampur	11.04.2017	20 14 48 N	83 40 21 E	P.R.F	Sulia	Ground	0.1
2017	736	M. Rampur	11.04.2017	20 15 07 N	83 32 27 E	P.R.F	Ramud	Ground	0.1
2017	737	M. Rampur	11.04.2017	20 15 23 N	83 37 46 E	R.F	Satami	Ground	0.11
2017	738	M. Rampur	11.04.2017	20 15 31 N	83 35 19 E	R.F	Taprang	Ground	0.12
2017	739	M. Rampur	11.04.2017	20 15 34 N	83 36 11 E	R.F	Taprang	Ground	0.31
2017	740	M. Rampur	11.04.2017	20 15 44 N	83 38 49 E	R.F	Satami	Ground	0.25
2017	741	M. Rampur	11.04.2017	20 15 50 N	83 36 02 E	R.F	Taprang	Ground	0.12
2017	742	M. Rampur	11.04.2017	20 15 51 N	83 39 37 E	P.R.F	Sulia	Ground	0.08
2017	743	Kesinga	11.04.2017	20 15 57 N	83 18 29 E	R.F	Bazargarh	Ground	0.21
2017	744	M. Rampur	11.04.2017	20 16 01 N	83 35 44 E	R.F	Taprang	Ground	0.22
2017	745	M. Rampur	11.04.2017	20 16 02 N	83 39 19 E	R.F	Satami	Ground	0.09
2017	746	M. Rampur	11.04.2017	20 16 03 N	83 40 55 E	P.R.F	Sulia	Ground	0.12
2017	747	M. Rampur	11.04.2017	20 16 03 N	83 36 01 E	R.F	Taprang	Ground	0.1
2017	748	M. Rampur	11.04.2017	20 16 05 N	83 36 18 E	R.F	Taprang	Ground	0.15

2017	749	M. Rampur	11.04.2017	20 16 10 N	83 41 14 E	P.R.F	Mundramaska	Ground	0.17
2017	750	M. Rampur	11.04.2017	20 16 11 N	83 38 46 E	R.F	Satami	Ground	0.12
2017	751	M. Rampur	11.04.2017	20 16 13 N	83 39 02 E	R.F	Satami	Ground	0.19
2017	752	M. Rampur	11.04.2017	20 16 15 N	83 39 17 E	R.F	Satami	Ground	0.21
2017	753	M. Rampur	11.04.2017	20 16 20 N	83 41 35 E	P.R.F	Mundramaska	Ground	0.21
2017	754	M. Rampur	11.04.2017	20 16 23 N	83 38 29 E	R.F	Satami	Ground	0.33
2017	755	M. Rampur	11.04.2017	20 16 25 N	83 38 45 E	R.F	Satami	Ground	0.21
2017	756	M. Rampur	11.04.2017	20 16 25 N	83 37 06 E	R.F	Benaguda	Ground	0.09
2017	757	Kesinga	11.04.2017	20 16 29 N	83 20 54 E	R.F	Bazargarh	Ground	0.16
2017	758	M. Rampur	11.04.2017	20 16 33 N	83 41 33 E	P.R.F	Mundramaska	Ground	0.13
2017	759	M. Rampur	11.04.2017	20 16 36 N	83 38 28 E	R.F	Satami	Ground	0.14
2017	760	M. Rampur	11.04.2017	20 16 38 N	83 37 03 E	R.F	Benaguda	Ground	0.25
2017	761	M. Rampur	11.04.2017	20 16 51 N	83 40 22 E	P.R.F	Sulia	Ground	0.19
2017	762	M. Rampur	11.04.2017	20 16 57 N	83 36 47 E	R.F	Benaguda	Ground	0.21
2017	763	M. Rampur	11.04.2017	20 17 02 N	83 36 40 E	R.F	Benaguda	Ground	0.11
2017	764	M. Rampur	11.04.2017	20 17 03 N	83 41 47 E	P.R.F	Sulia	Ground	0.18
2017	765	M. Rampur	11.04.2017	20 17 14 N	83 34 41 E	R.F	Sunamukhi	Ground	0.19
2017	766	Kesinga	11.04.2017	20 17 20 N	83 18 50 E	R.F	Bazargarh	Ground	0.31
2017	767	M. Rampur	11.04.2017	20 17 40 N	83 35 13 E	R.F	Benaguda	Ground	0.16
2017	768	M. Rampur	11.04.2017	20 18 07 N	83 33 32 E	R.F	Sunamukhi	Ground	0.21
2017	769	M. Rampur	11.04.2017	20 18 25 N	83 34 04 E	R.F	Sunamukhi	Ground	0.24
2017	770	M. Rampur	11.04.2017	20 18 41 N	83 39 42 E	P.R.F	Sulia	Ground	0.21

2017	771	M. Rampur	11.04.2017	20 18 51 N	83 35 40 E	R.F	Benaguda	Ground	0.16
2017	772	M. Rampur	11.04.2017	20 18 59 N	83 36 44 E	R.F	Benaguda	Ground	0.13
2017	773	M. Rampur	11.04.2017	20 19 01 N	83 37 01 E	R.F	Benaguda	Ground	0.14
2017	774	M. Rampur	11.04.2017	20 21 07 N	83 32 14 E	R.F	Sunamukhi	Ground	0.15
2017	775	M. Rampur	11.04.2017	20 21 16 N	83 33 23 E	R.F	Sunamukhi	Ground	0.21
2017	776	Bhawanipatna	11.04.2017	19 47 45 N	83 15 54 E	P.R.F	Gundi	Ground	0.23
2017	777	Bhawanipatna	12.04.2017	19 46 28 N	83 15 16 E	P.R.F	Gundi	Ground	0.22
2017	778	Bhawanipatna	12.04.2017	19 46 31 N	83 15 00 E	P.R.F	Gundi	Ground	0.18
2017	779	Bhawanipatna	12.04.2017	19 46 32 N	83 16 14 E	P.R.F	Gundi	Ground	0.19
2017	780	Bhawanipatna	12.04.2017	19 46 45 N	83 16 17 E	P.R.F	Gundi	Ground	0.15
2017	781	Bhawanipatna	12.04.2017	19 50 41 N	83 15 05 E	D.P.F	Thuapadargundi	Ground	0.31
2017	782	Bhawanipatna	12.04.2017	19 52 48 N	83 16 26 E	D.P.F	Thuapadargundi	Ground	0.25
2017	783	Bhawanipatna	12.04.2017	19 52 51 N	83 16 08 E	D.P.F	Thuapadargundi	Ground	0.12
2017	784	Bhawanipatna	12.04.2017	19 53 02 N	83 16 30 E	D.P.F	Thuapadargundi	Ground	0.1
2017	785	Bhawanipatna	12.04.2017	19 53 05 N	83 16 13 E	D.P.F	Thuapadargundi	Ground	0.08
2017	786	Bhawanipatna	12.04.2017	19 54 38 N	83 22 04 E	R.F	Kadalighati	Ground	0.24
2017	787	Bhawanipatna	12.04.2017	19 54 44 N	83 21 55 E	R.F	Kadalighati	Ground	0.18
2017	788	Bhawanipatna	12.04.2017	19 56 52 N	83 16 49 E	D.P.F	Thuapadargundi	Ground	0.17
2017	789	Kegaon	12.04.2017	19 59 04 N	82 58 35 E	R.F	Chura - B	Ground	0.13
2017	790	Bhawanipatna	12.04.2017	20 00 38 N	83 19 35 E	R.F	Madakhola - A	Ground	0.12
2017	791	Bhawanipatna	12.04.2017	20 00 42 N	83 19 16 E	R.F	Madakhola - A	Ground	0.21
2017	792	Bhawanipatna	12.04.2017	20 00 49 N	83 03 00 E	R.F	Brahmani	Ground	0.11

2017	793	Narla	12.04.2017	20 01 54 N	83 23 42 E	R.F	Narla	Ground	0.1
2017	794	Kegaon	12.04.2017	20 02 06 N	82 56 00 E	R.F	Chura - A	Ground	0.15
2017	795	Narla	12.04.2017	20 02 08 N	83 32 50 E	R.F	Urladani	Ground	0.17
2017	796	Narla	12.04.2017	20 04 48 N	83 28 44 E	R.F	Urladani	Ground	0.11
2017	797	Narla	12.04.2017	20 05 33 N	83 37 49 E	R.F	Urladani	Ground	0.2
2017	798	Narla	12.04.2017	20 06 18 N	83 37 41 E	R.F	Urladani	Ground	0.16
2017	799	Narla	12.04.2017	20 06 41 N	83 38 10 E	R.F	Urladani	Ground	0.32
2017	800	M. Rampur	12.04.2017	20 06 42 N	83 42 02 E	R.F	Taprang	Ground	0.12
2017	801	Narla	12.04.2017	20 06 55 N	83 30 31 E	R.F	Urladani	Ground	0.15
2017	802	Narla	12.04.2017	20 07 33 N	83 33 31 E	R.F	Urladani	Ground	0.14
2017	803	M. Rampur	12.04.2017	20 07 35 N	83 41 13 E	R.F	Taprang	Ground	0.21
2017	804	Narla	12.04.2017	20 07 47 N	83 33 34 E	R.F	Urladani	Ground	0.08
2017	805	Narla	12.04.2017	20 07 50 N	83 33 15 E	R.F	Urladani	Ground	0.12
2017	806	Narla	12.04.2017	20 07 51 N	83 31 54 E	R.F	Urladani	Ground	0.11
2017	807	M. Rampur	12.04.2017	20 07 52 N	83 40 57 E	R.F	Jerka	Ground	0.14
2017	808	M. Rampur	12.04.2017	20 07 55 N	83 40 39 E	R.F	Jerka	Ground	0.16
2017	809	M. Rampur	12.04.2017	20 07 58 N	83 40 21 E	R.F	Jerka	Ground	0.18
2017	810	M. Rampur	12.04.2017	20 08 12 N	83 40 25 E	R.F	Jerka	Ground	0.19
2017	811	Narla	12.04.2017	20 08 18 N	83 33 21 E	R.F	Urladani	Ground	0.17
2017	812	M. Rampur	12.04.2017	20 08 22 N	83 39 29 E	P.R.F	Bidabaru (Harlanga)	Ground	0.12
2017	813	Narla	12.04.2017	20 08 22 N	83 33 02 E	R.F	Urladani	Ground	0.11
2017	814	M. Rampur	12.04.2017	20 08 27 N	83 43 04 E	R.F	Taprang	Ground	0.16

2017	815	M. Rampur	12.04.2017	20 08 44 N	83 42 47 E	R.F	Taprang	Ground	0.13
2017	816	Narla	12.04.2017	20 08 46 N	83 32 09 E	R.F	Urladani	Ground	0.15
2017	817	M. Rampur	12.04.2017	20 08 47 N	83 39 52 E	P.R.F	Bidabaru (Harlanga)	Ground	0.21
2017	818	M. Rampur	12.04.2017	20 08 58 N	83 40 13 E	P.R.F	Bidabaru (Harlanga)	Ground	0.19
2017	819	Narla	12.04.2017	20 09 03 N	83 31 55 E	R.F	Urladani	Ground	0.18
2017	820	Narla	12.04.2017	20 09 17 N	83 31 59 E	R.F	Urladani	Ground	0.13
2017	821	M. Rampur	12.04.2017	20 09 30 N	83 42 37 E	R.F	Telen	Ground	0.11
2017	822	M. Rampur	12.04.2017	20 09 44 N	83 42 38 E	R.F	Telen	Ground	0.1
2017	823	Narla	12.04.2017	20 09 44 N	83 32 05 E	R.F	Urladani	Ground	0.12
2017	824	M. Rampur	12.04.2017	20 09 55 N	83 43 00 E	R.F	Telen	Ground	0.31
2017	825	M. Rampur	12.04.2017	20 09 57 N	83 42 46 E	R.F	Telen	Ground	0.21
2017	826	Narla	12.04.2017	20 09 58 N	83 32 09 E	R.F	Urladani	Ground	0.24
2017	827	M. Rampur	12.04.2017	20 10 04 N	83 42 10 E	R.F	Telen	Ground	0.15
2017	828	M. Rampur	12.04.2017	20 10 05 N	83 42 05 E	R.F	Telen	Ground	0.15
2017	829	M. Rampur	12.04.2017	20 10 11 N	83 41 29 E	R.F	Telen	Ground	0.13
2017	830	M. Rampur	12.04.2017	20 10 11 N	83 41 34 E	R.F	Telen	Ground	0.12
2017	831	M. Rampur	12.04.2017	20 10 15 N	83 42 30 E	R.F	Telen	Ground	0.17
2017	832	M. Rampur	12.04.2017	20 10 20 N	83 35 25 E	R.F	Taprang	Ground	0.11
2017	833	M. Rampur	12.04.2017	20 10 22 N	83 41 49 E	R.F	Telen	Ground	0.11
2017	834	M. Rampur	12.04.2017	20 10 23 N	83 43 05 E	R.F	Telen	Ground	0.16
2017	835	M. Rampur	12.04.2017	20 10 25 N	83 41 36 E	R.F	Telen	Ground	0.18
2017	836	M. Rampur	12.04.2017	20 10 27 N	83 34 48 E	R.F	Taprang	Ground	0.12

2017	837	M. Rampur	12.04.2017	20 10 58 N	83 34 35 E	R.F	Taprang	Ground	0.16
2017	838	M. Rampur	12.04.2017	20 11 13 N	83 38 27 E	P.R.F	Puijhari	Ground	0.15
2017	839	M. Rampur	12.04.2017	20 11 13 N	83 36 02 E	R.F	Taprang	Ground	0.17
2017	840	M. Rampur	12.04.2017	20 11 16 N	83 38 10 E	P.R.F	Puijhari	Ground	0.15
2017	841	M. Rampur	12.04.2017	20 11 16 N	83 35 36 E	R.F	Taprang	Ground	0.31
2017	842	M. Rampur	12.04.2017	20 11 17 N	83 38 16 E	P.R.F	Puijhari	Ground	0.21
2017	843	M. Rampur	12.04.2017	20 11 22 N	83 42 59 E	P.R.F	Puijhari	Ground	0.18
2017	844	M. Rampur	12.04.2017	20 11 26 N	83 42 40 E	P.R.F	Puijhari	Ground	0.11
2017	845	M. Rampur	12.04.2017	20 11 27 N	83 38 30 E	P.R.F	Puijhari	Ground	0.13
2017	846	M. Rampur	12.04.2017	20 11 31 N	83 38 18 E	P.R.F	Puijhari	Ground	0.15
2017	847	M. Rampur	12.04.2017	20 11 36 N	83 35 02 E	R.F	Taprang	Ground	0.21
2017	848	M. Rampur	12.04.2017	20 11 38 N	83 35 08 E	R.F	Taprang	Ground	0.18
2017	849	M. Rampur	12.04.2017	20 11 43 N	83 42 26 E	P.R.F	Puijhari	Ground	0.19
2017	850	M. Rampur	12.04.2017	20 11 45 N	83 34 31 E	R.F	Taprang	Ground	0.11
2017	851	M. Rampur	12.04.2017	20 11 56 N	83 38 41 E	P.R.F	Puijhari	Ground	0.18
2017	852	M. Rampur	12.04.2017	20 12 06 N	83 39 02 E	P.R.F	Puijhari	Ground	0.12
2017	853	M. Rampur	12.04.2017	20 12 16 N	83 36 53 E	R.F	Taprang	Ground	0.21
2017	854	M. Rampur	12.04.2017	20 12 24 N	83 38 47 E	P.R.F	Puijhari	Ground	0.11
2017	855	M. Rampur	12.04.2017	20 12 27 N	83 37 13 E	R.F	Taprang	Ground	0.13
2017	856	M. Rampur	12.04.2017	20 12 27 N	83 38 29 E	P.R.F	Puijhari	Ground	0.16
2017	857	M. Rampur	12.04.2017	20 12 44 N	83 36 58 E	R.F	Taprang	Ground	0.14
2017	858	M. Rampur	12.04.2017	20 12 48 N	83 40 28 E	P.R.F	Puijhari	Ground	0.12

2017	859	M. Rampur	12.04.2017	20 12 54 N	83 34 46 E	R.F	Taprang	Ground	0.11
2017	860	M. Rampur	12.04.2017	20 12 58 N	83 37 01 E	R.F	Taprang	Ground	0.12
2017	861	M. Rampur	12.04.2017	20 13 02 N	83 37 59 E	R.F	Taprang	Ground	0.13
2017	862	M. Rampur	12.04.2017	20 13 27 N	83 40 54 E	P.R.F	Puijhari	Ground	0.15
2017	863	M. Rampur	12.04.2017	20 13 35 N	83 42 50 E	P.R.F	Puijhari	Ground	0.19
2017	864	Kesinga	12.04.2017	20 13 42 N	83 16 54 E	R.F	Bazargarh	Ground	0.12
2017	865	M. Rampur	12.04.2017	20 13 45 N	83 40 37 E	P.R.F	Puijhari	Ground	0.11
2017	866	M. Rampur	12.04.2017	20 13 48 N	83 40 19 E	P.R.F	Puijhari	Ground	0.1
2017	867	M. Rampur	12.04.2017	20 13 51 N	83 40 01 E	P.R.F	Puijhari	Ground	0.08
2017	868	M. Rampur	12.04.2017	20 13 55 N	83 39 42 E	P.R.F	Puijhari	Ground	0.16
2017	869	M. Rampur	12.04.2017	20 14 17 N	83 42 56 E	P.R.F	Puijhari	Ground	0.18
2017	870	M. Rampur	12.04.2017	20 14 43 N	83 38 00 E	R.F	Satami	Ground	0.24
2017	871	M. Rampur	12.04.2017	20 14 52 N	83 31 59 E	P.R.F	Ramud	Ground	0.15
2017	872	M. Rampur	12.04.2017	20 14 57 N	83 38 02 E	R.F	Satami	Ground	0.12
2017	873	M. Rampur	12.04.2017	20 14 58 N	83 39 15 E	P.R.F	Sulia	Ground	0.18
2017	874	Kesinga	12.04.2017	20 15 09 N	83 18 52 E	R.F	Bazargarh	Ground	0.12
2017	875	Kesinga	12.04.2017	20 15 09 N	83 19 21 E	R.F	Bazargarh	Ground	0.32
2017	876	M. Rampur	12.04.2017	20 15 11 N	83 38 03 E	R.F	Satami	Ground	0.15
2017	877	M. Rampur	12.04.2017	20 15 19 N	83 41 15 E	P.R.F	Mundramaska	Ground	0.18
2017	878	M. Rampur	12.04.2017	20 15 22 N	83 38 24 E	R.F	Satami	Ground	0.19
2017	879	M. Rampur	12.04.2017	20 15 23 N	83 39 38 E	P.R.F	Sulia	Ground	0.21
2017	880	M. Rampur	12.04.2017	20 15 26 N	83 39 20 E	P.R.F	Sulia	Ground	0.15

2017	881	M. Rampur	12.04.2017	20 15 27 N	83 32 44 E	P.R.F	Ramud	Ground	0.16
2017	882	M. Rampur	12.04.2017	20 15 31 N	83 37 32 E	R.F	Satami	Ground	0.13
2017	883	M. Rampur	12.04.2017	20 15 33 N	83 40 00 E	P.R.F	Sulia	Ground	0.14
2017	884	M. Rampur	12.04.2017	20 15 43 N	83 31 13 E	P.R.F	Kutigudum	Ground	0.15
2017	885	M. Rampur	12.04.2017	20 15 45 N	83 36 19 E	R.F	Taprang	Ground	0.15
2017	886	M. Rampur	12.04.2017	20 15 47 N	83 40 03 E	P.R.F	Sulia	Ground	0.16
2017	887	M. Rampur	12.04.2017	20 15 48 N	83 36 01 E	R.F	Taprang	Ground	0.12
2017	888	M. Rampur	12.04.2017	20 15 57 N	83 39 08 E	R.F	Satami	Ground	0.11
2017	889	M. Rampur	12.04.2017	20 16 01 N	83 41 25 E	P.R.F	Mundramaska	Ground	0.32
2017	890	M. Rampur	12.04.2017	20 16 01 N	83 40 06 E	P.R.F	Sulia	Ground	0.08
2017	891	M. Rampur	12.04.2017	20 16 11 N	83 40 28 E	P.R.F	Sulia	Ground	0.12
2017	892	M. Rampur	12.04.2017	20 16 15 N	83 40 09 E	P.R.F	Sulia	Ground	0.13
2017	893	M. Rampur	12.04.2017	20 16 18 N	83 39 51 E	P.R.F	Sulia	Ground	0.14
2017	894	M. Rampur	12.04.2017	20 16 23 N	83 36 47 E	R.F	Benaguda	Ground	0.16
2017	895	M. Rampur	12.04.2017	20 16 24 N	83 30 05 E	P.R.F	Podgudi	Ground	0.19
2017	896	M. Rampur	12.04.2017	20 16 26 N	83 35 11 E	R.F	Benaguda	Ground	0.12
2017	897	M. Rampur	12.04.2017	20 16 28 N	83 40 13 E	P.R.F	Sulia	Ground	0.18
2017	898	M. Rampur	12.04.2017	20 16 37 N	83 36 48 E	R.F	Benaguda	Ground	0.19
2017	899	Kesinga	12.04.2017	20 16 44 N	83 17 58 E	R.F	Bazargarh	Ground	0.31
2017	900	M. Rampur	12.04.2017	20 16 49 N	83 39 40 E	P.R.F	Sulia	Ground	0.33
2017	901	M. Rampur	12.04.2017	20 16 56 N	83 40 20 E	P.R.F	Sulia	Ground	0.25
2017	902	M. Rampur	12.04.2017	20 16 58 N	83 40 06 E	P.R.F	Sulia	Ground	0.08

2017	903	M. Rampur	12.04.2017	20 16 59 N	83 40 02 E	P.R.F	Sulia	Ground	0.12
2017	904	M. Rampur	12.04.2017	20 17 01 N	83 35 56 E	R.F	Benaguda	Ground	0.16
2017	905	M. Rampur	12.04.2017	20 17 02 N	83 39 48 E	P.R.F	Sulia	Ground	0.13
2017	906	M. Rampur	12.04.2017	20 17 03 N	83 39 44 E	P.R.F	Sulia	Ground	0.15
2017	907	M. Rampur	12.04.2017	20 17 04 N	83 34 22 E	R.F	Sunamukhi	Ground	0.19
2017	908	M. Rampur	12.04.2017	20 17 12 N	83 34 59 E	R.F	Benaguda	Ground	0.17
2017	909	M. Rampur	12.04.2017	20 17 15 N	83 35 58 E	R.F	Benaguda	Ground	0.12
2017	910	M. Rampur	12.04.2017	20 17 15N	83 38 39 E	P.R.F	Tal Nuagaon	Ground	0.11
2017	911	M. Rampur	12.04.2017	20 17 16 N	83 38 34 E	P.R.F	Tal Nuagaon	Ground	0.16
2017	912	M. Rampur	12.04.2017	20 17 22 N	83 35 19 E	R.F	Benaguda	Ground	0.13
2017	913	M. Rampur	12.04.2017	20 17 26 N	83 35 01 E	R.F	Benaguda	Ground	0.12
2017	914	M. Rampur	12.04.2017	20 17 29 N	83 38 41 E	P.R.F	Tal Nuagaon	Ground	0.14
2017	915	M. Rampur	12.04.2017	20 17 30 N	83 38 37 E	P.R.F	Tal Nuagaon	Ground	0.15
2017	916	M. Rampur	12.04.2017	20 17 46 N	83 34 30 E	R.F	Sunamukhi	Ground	0.16
2017	917	M. Rampur	12.04.2017	20 17 50 N	83 38 07 E	R.F	Benaguda	Ground	0.19
2017	918	M. Rampur	12.04.2017	20 18 11 N	83 36 12 E	R.F	Benaguda	Ground	0.12
2017	919	M. Rampur	12.04.2017	20 18 11 N	83 36 07 E	R.F	Benaguda	Ground	0.11
2017	920	M. Rampur	12.04.2017	20 18 15 N	83 35 55 E	R.F	Benaguda	Ground	0.21
2017	921	M. Rampur	12.04.2017	20 18 27 N	83 33 23 E	R.F	Sunamukhi	Ground	0.32
2017	922	M. Rampur	12.04.2017	20 18 28 N	83 35 53 E	R.F	Benaguda	Ground	0.12
2017	923	M. Rampur	12.04.2017	20 18 29 N	83 35 57 E	R.F	Benaguda	Ground	0.12
2017	924	M. Rampur	12.04.2017	20 18 31 N	83 33 10 E	R.F	Sunamukhi	Ground	0.15

2017	925	M. Rampur	12.04.2017	20 18 32 N	83 36 49 E	R.F	Benaguda	Ground	0.14
2017	926	M. Rampur	12.04.2017	20 18 32 N	83 35 40 E	R.F	Benaguda	Ground	0.15
2017	927	M. Rampur	12.04.2017	20 18 33 N	83 36 54 E	R.F	Benaguda	Ground	0.19
2017	928	M. Rampur	12.04.2017	20 18 36 N	83 36 35 E	R.F	Benaguda	Ground	0.21
2017	929	M. Rampur	12.04.2017	20 18 39 N	83 40 09 E	P.R.F	Sulia	Ground	0.25
2017	930	M. Rampur	12.04.2017	20 18 42 N	83 35 56 E	R.F	Benaguda	Ground	0.14
2017	931	M. Rampur	12.04.2017	20 18 43 N	83 36 00 E	R.F	Benaguda	Ground	0.08
2017	932	M. Rampur	12.04.2017	20 18 53 N	83 40 13 E	P.R.F	Sulia	Ground	0.12
2017	933	M. Rampur	12.04.2017	20 18 53 N	83 36 21 E	R.F	Benaguda	Ground	0.11
2017	934	M. Rampur	12.04.2017	20 18 56 N	83 39 55 E	P.R.F	Sulia	Ground	0.18
2017	935	M. Rampur	12.04.2017	20 18 56 N	83 36 03 E	R.F	Benaguda	Ground	0.17
2017	936	M. Rampur	12.04.2017	20 18 57 N	83 37 18 E	R.F	Benaguda	Ground	0.14
2017	937	M. Rampur	12.04.2017	20 19 00 N	83 39 38 E	P.R.F	Sulia	Ground	0.16
2017	938	M. Rampur	12.04.2017	20 19 00 N	83 35 47 E	R.F	Benaguda	Ground	0.13
2017	939	M. Rampur	12.04.2017	20 19 03 N	83 35 29 E	R.F	Benaguda	Ground	0.12
2017	940	M. Rampur	12.04.2017	20 19 06 N	83 35 11 E	R.F	Benaguda	Ground	0.12
2017	941	M. Rampur	12.04.2017	20 19 07 N	83 40 17 E	P.R.F	Sulia	Ground	0.16
2017	942	M. Rampur	12.04.2017	20 19 10 N	83 39 59 E	P.R.F	Sulia	Ground	0.13
2017	943	M. Rampur	12.04.2017	20 19 11 N	83 40 09 E	P.R.F	Sulia	Ground	0.15
2017	944	M. Rampur	12.04.2017	20 19 17 N	83 35 32 E	R.F	Benaguda	Ground	0.19
2017	945	M. Rampur	12.04.2017	20 19 21 N	83 40 21 E	P.R.F	Sulia	Ground	0.17
2017	946	M. Rampur	12.04.2017	20 19 23 N	83 34 56 E	R.F	Benaguda	Ground	0.12

2017	947	M. Rampur	12.04.2017	20 19 24 N	83 40 03 E	P.R.F	Sulia	Ground	0.11
2017	948	M. Rampur	12.04.2017	20 19 27 N	83 34 38 E	R.F	Benaguda	Ground	0.16
2017	949	M. Rampur	12.04.2017	20 19 34 N	83 35 17 E	R.F	Benaguda	Ground	0.13
2017	950	M. Rampur	12.04.2017	20 19 37 N	83 34 59 E	R.F	Benaguda	Ground	0.12
2017	951	M. Rampur	12.04.2017	20 19 41 N	83 39 48 E	P.R.F	Sulia	Ground	0.14
2017	952	M. Rampur	12.04.2017	20 20 53 N	83 32 04 E	R.F	Sunamukhi	Ground	0.15
2017	953	M. Rampur	12.04.2017	20 21 18 N	83 32 27 E	R.F	Sunamukhi	Ground	0.16
2017	954	M. Rampur	12.04.2017	20 21 31 N	83 32 31 E	R.F	Sunamukhi	Ground	0.19
2017	955	Bhawanipatna	12.04.2017	19 46 40 N	83 16 23 E	P.R.F	Gundi	Ground	0.12
2017	956	Bhawanipatna	12.04.2017	19 46 4 1N	83 12 36 E	R.F	Jugsaipatna RF	Ground	0.11
2017	957	Bhawanipatna	12.04.2017	19 46 52 N	83 16 20 E	P.R.F	Gundi	Ground	0.21
2017	958	Bhawanipatna	12.04.2017	19 48 05 N	83 16 49 E	D.P.F	Thuapadargundi	Ground	0.32
2017	959	Bhawanipatna	12.04.2017	19 48 25 N	83 16 18 E	D.P.F	Thuapadargundi	Ground	0.12
2017	960	Bhawanipatna	12.04.2017	19 48 27 N	83 16 31 E	D.P.F	Thuapadargundi	Ground	0.12
2017	961	Bhawanipatna	12.04.2017	19 48 47 N	83 16 00 E	D.P.F	Thuapadargundi	Ground	0.15
2017	962	Bhawanipatna	12.04.2017	19 51 01 N	83 15 48 E	D.P.F	Thuapadargundi	Ground	0.14
2017	963	Narla	12.04.2017	19 59 22 N	83 26 08 E	R.F	Porgel	Ground	0.15
2017	964	Narla	12.04.2017	20 03 13 N	83 30 59 E	P.R.F.	Belgaon	Ground	0.19
2017	965	Narla	12.04.2017	20 03 21 N	83 30 56 E	R.F	Belgaon	Ground	0.21
2017	966	Narla	12.04.2017	20 04 40 N	83 28 51 E	R.F	Belgaon	Ground	0.25
2017	967	Narla	12.04.2017	20 06 30 N	83 31 18 E	R.F	Belgaon	Ground	0.14
2017	968	Narla	12.04.2017	20 06 46 N	83 31 43 E	R.F	Urladani	Ground	0.08

2017	969	Narla	12.04.2017	20 06 52 N	83 31 01 E	R.F	Urladani	Ground	0.12
2017	970	Narla	12.04.2017	20 07 04 N	83 30 58 E	R.F	Urladani	Ground	0.11
2017	971	Narla	12.04.2017	20 07 05 N	83 33 43 E	R.F	Urladani	Ground	0.18
2017	972	Narla	12.04.2017	20 07 05 N	83 32 21 E	R.F	Urladani	Ground	0.17
2017	973	Narla	12.04.2017	20 07 16 N	83 30 56 E	R.F	Urladani	Ground	0.14
2017	974	Narla	12.04.2017	20 07 39 N	83 33 24 E	R.F	Urladani	Ground	0.16
2017	975	Narla	12.04.2017	20 07 39 N	83 35 56 E	R.F	Urladani	Ground	0.13
2017	976	Narla	12.04.2017	20 08 04 N	83 34 42 E	R.F	Urladani	Ground	0.12
2017	977	Narla	12.04.2017	20 08 24 N	83 35 34 E	R.F	Urladani	Ground	0.12
2017	978	Narla	12.04.2017	20 08 25 N	83 33 02 E	R.F	Urladani	Ground	0.16
2017	979	Narla	12.04.2017	20 08 29 N	83 33 29 E	R.F	Urladani	Ground	0.13
2017	980	Narla	12.04.2017	20 08 40 N	83 34 36 E	R.F	Urladani	Ground	0.15
2017	981	Narla	12.04.2017	20 08 50 N	83 34 20 E	R.F	Urladani	Ground	0.19
2017	982	Narla	12.04.2017	20 08 52 N	83 34 33 E	R.F	Urladani	Ground	0.17
2017	983	Narla	12.04.2017	20 08 53 N	83 32 02 E	R.F	Urladani	Ground	0.12
2017	984	Narla	12.04.2017	20 09 02 N	83 34 18 E	R.F	Urladani	Ground	0.11
2017	985	Narla	12.04.2017	20 09 16 N	83 35 52 E	R.F	Urladani	Ground	0.16
2017	986	M. Rampur	12.04.2017	20 09 21 N	83 42 22 E	R.F	Telen	Ground	0.13
2017	987	M. Rampur	12.04.2017	20 09 26 N	83 43 24 E	R.F	Telen	Ground	0.12
2017	988	Narla	12.04.2017	20 09 34 N	83 35 07 E	R.F	Urladani	Ground	0.14
2017	989	Narla	12.04.2017	20 09 38 N	83 34 11 E	R.F	Urladani	Ground	0.15
2017	990	Narla	12.04.2017	20 09 44 N	83 34 52 E	R.F	Urladani	Ground	0.16

2017	991	Narla	12.04.2017	20 09 46 N	83 35 05 E	R.F	Urladani	Ground	0.19
2017	992	Narla	12.04.2017	20 09 54 N	83 34 36 E	R.F	Urladani	Ground	0.12
2017	993	Narla	12.04.2017	20 10 06 N	83 34 34 E	R.F	Urladani	Ground	0.11
2017	994	M. Rampur	12.04.2017	20 10 23 N	83 41 39 E	R.F	Telen	Ground	0.21
2017	995	M. Rampur	12.04.2017	20 10 28 N	83 40 24 E	R.F	Telen	Ground	0.32
2017	996	M. Rampur	12.04.2017	20 10 39 N	83 34 43 E	R.F	Taprang	Ground	0.12
2017	997	M. Rampur	12.04.2017	20 10 41 N	83 40 46 E	R.F	Telen	Ground	0.12
2017	998	M. Rampur	12.04.2017	20 10 43 N	83 41 46 E	R.F	Telen	Ground	0.15
2017	999	M. Rampur	12.04.2017	20 10 49 N	83 36 59 E	R.F	Taprang	Ground	0.14
2017	1000	M. Rampur	12.04.2017	20 11 00 N	83 36 57 E	R.F	Taprang	Ground	0.15
2017	1001	M. Rampur	12.04.2017	20 11 01 N	83 34 25 E	R.F	Taprang	Ground	0.19
2017	1002	M. Rampur	12.04.2017	20 11 05 N	83 40 50 E	R.F	Telen	Ground	0.21
2017	1003	M. Rampur	12.04.2017	20 11 06 N	83 36 14 E	R.F	Taprang	Ground	0.25
2017	1004	M. Rampur	12.04.2017	20 11 07 N	83 41 04 E	R.F	Telen	Ground	0.14
2017	1005	M. Rampur	12.04.2017	20 11 10 N	83 36 41 E	R.F	Taprang	Ground	0.08
2017	1006	M. Rampur	12.04.2017	20 11 16 N	83 40 18 E	P.R.F	Puijhari	Ground	0.12
2017	1007	M. Rampur	12.04.2017	20 11 17 N	83 40 48 E	P.R.F	Puijhari	Ground	0.11
2017	1008	M. Rampur	12.04.2017	20 11 19 N	83 42 24 E	R.F	Telen	Ground	0.18
2017	1009	M. Rampur	12.04.2017	20 11 25 N	83 38 15 E	P.R.F	Puijhari	Ground	0.17
2017	1010	M. Rampur	12.04.2017	20 11 27 N	83 34 34 E	R.F	Taprang	Ground	0.14
2017	1011	M. Rampur	12.04.2017	20 11 29 N	83 40 38 E	P.R.F	Puijhari	Ground	0.16
2017	1012	M. Rampur	12.04.2017	20 11 30 N	83 36 10 E	R.F	Taprang	Ground	0.13

2017	1013	M. Rampur	12.04.2017	20 11 35 N	83 46 41 E	P.R.F	Pongabaju	Ground	0.12
2017	1014	M. Rampur	12.04.2017	20 11 40 N	83 46 07 E	P.R.F	Pongabaju	Ground	0.12
2017	1015	M. Rampur	12.04.2017	20 11 40 N	83 43 16 E	P.R.F	Puijhari	Ground	0.16
2017	1016	M. Rampur	12.04.2017	20 11 47 N	83 46 39 E	P.R.F	Pongabaju	Ground	0.13
2017	1017	M. Rampur	12.04.2017	20 11 50 N	83 35 39 E	R.F	Taprang	Ground	0.15
2017	1018	M. Rampur	12.04.2017	20 11 59 N	83 46 37 E	P.R.F	Pongabaju	Ground	0.19
2017	1019	M. Rampur	12.04.2017	20 12 11 N	83 46 35 E	P.R.F	Pongabaju	Ground	0.17
2017	1020	M. Rampur	12.04.2017	20 12 17 N	83 46 21 E	P.R.F	Pongabaju	Ground	0.12
2017	1021	M. Rampur	12.04.2017	20 12 18 N	83 43 50 E	P.R.F	Puijhari	Ground	0.11
2017	1022	M. Rampur	12.04.2017	20 12 26 N	83 36 55 E	R.F	Taprang	Ground	0.16
2017	1023	Kesinga	12.04.2017	20 13 11 N	83 16 56 E	R.F	Bazargarh	Ground	0.13
2017	1024	M. Rampur	12.04.2017	20 13 17 N	83 34 29 E	D.P.F	Karla	Ground	0.12
2017	1025	M. Rampur	12.04.2017	20 13 21 N	83 41 22 E	P.R.F	Puijhari	Ground	0.14
2017	1026	Kesinga	12.04.2017	20 13 25 N	83 17 07 E	R.F	Bazargarh	Ground	0.15
2017	1027	M. Rampur	12.04.2017	20 13 33 N	83 41 20 E	P.R.F	Puijhari	Ground	0.16
2017	1028	M. Rampur	12.04.2017	20 13 33 N	83 41 20 E	P.R.F	Puijhari	Ground	0.19
2017	1029	M. Rampur	12.04.2017	20 13 44 N	83 42 27 E	P.R.F	Puijhari	Ground	0.12
2017	1030	M. Rampur	12.04.2017	20 13 47 N	83 37 37 E	R.F	Satami	Ground	0.11
2017	1031	M. Rampur	12.04.2017	20 13 57 N	83 37 21 E	R.F	Taprang	Ground	0.21
2017	1032	M. Rampur	12.04.2017	20 14 07 N	83 34 33 E	R.F	Taprang	Ground	0.32
2017	1033	M. Rampur	12.04.2017	20 14 11 N	83 33 38 E	P.R.F	Ramud	Ground	0.12
2017	1034	M. Rampur	12.04.2017	20 14 23 N	83 33 36 E	P.R.F	Ramud	Ground	0.12

2017	1035	M. Rampur	12.04.2017	20 14 25 N	83 39 39 E	P.R.F	Sulia	Ground	0.15
2017	1036	M. Rampur	12.04.2017	20 14 38 N	83 40 27 E	P.R.F	Sulia	Ground	0.14
2017	1037	M. Rampur	12.04.2017	20 14 50 N	83 40 25 E	P.R.F	Sulia	Ground	0.15
2017	1038	Kesinga	12.04.2017	20 14 56 N	83 19 24 E	R.F	Bazargarh	Ground	0.19
2017	1039	M. Rampur	12.04.2017	20 14 57 N	83 38 34 E	R.F	Satami	Ground	0.21
2017	1040	M. Rampur	12.04.2017	20 14 58 N	83 32 07 E	P.R.F	Kutigudum	Ground	0.25
2017	1041	Kesinga	12.04.2017	20 15 04 N	83 18 55 E	R.F	Bazargarh	Ground	0.14
2017	1042	M. Rampur	12.04.2017	20 15 09 N	83 38 32 E	R.F	Satami	Ground	0.08
2017	1043	M. Rampur	12.04.2017	20 15 14 N	83 35 03 E	R.F	Taprang	Ground	0.12
2017	1044	M. Rampur	12.04.2017	20 15 14 N	83 38 58 E	R.F	Satami	Ground	0.11
2017	1045	Kesinga	12.04.2017	20 15 47 N	83 19 29 E	R.F	Bazargarh	Ground	0.18
2017	1046	M. Rampur	12.04.2017	20 16 04 N	83 40 26 E	P.R.F	Sulia	Ground	0.17
2017	1047	M. Rampur	12.04.2017	20 16 15 N	83 35 06 E	R.F	Benaguda	Ground	0.14
2017	1048	M. Rampur	12.04.2017	20 16 29 N	83 35 17 E	R.F	Benaguda	Ground	0.16
2017	1049	M. Rampur	12.04.2017	20 16 40 N	83 35 02 E	R.F	Benaguda	Ground	0.13
2017	1050	M. Rampur	12.04.2017	20 17 03 N	83 35 12 E	R.F	Benaguda	Ground	0.12
2017	1051	M. Rampur	12.04.2017	20 17 32 N	83 34 24 E	R.F	Sunamikhi	Ground	0.12
2017	1052	M. Rampur	12.04.2017	20 17 33 N	83 35 43 E	R.F	Benaguda	Ground	0.16
2017	1053	M. Rampur	12.04.2017	20 17 40 N	83 37 50 E	R.F	Benaguda	Ground	0.13
2017	1054	M. Rampur	12.04.2017	20 17 42 N	83 38 03 E	R.F	Benaguda	Ground	0.15
2017	1055	M. Rampur	12.04.2017	20 18 17 N	83 36 35 E	R.F	Benaguda	Ground	0.19
2017	1056	M. Rampur	12.04.2017	20 18 21 N	83 33 07 E	R.F	Sunamukhi	Ground	0.17

2017	1057	M. Rampur	12.04.2017	20 18 39 N	83 36 18 E	R.F	Benaguda	Ground	0.12
2017	1058	M. Rampur	12.04.2017	20 19 17 N	83 35 01 E	R.F	Benaguda	Ground	0.11
2017	1059	M. Rampur	12.04.2017	20 19 19 N	83 35 15 E	R.F	Benaguda	Ground	0.16
2017	1060	M. Rampur	12.04.2017	20 19 24 N	83 34 32 E	R.F	Benaguda	Ground	0.13
2017	1061	M. Rampur	12.04.2017	20 20 52 N	83 33 21 E	R.F	Sunamukhi	Ground	0.12
2017	1062	M. Rampur	12.04.2017	20 21 21 N	83 32 35 E	R.F	Sunamukhi	Ground	0.14
2017	1063	Bhawanipatna	12.04.2017	19 48 42 N	83 16 15 E	P.R.F.	Thuapadargundi	Ground	0.15
2017	1064	M. Rampur	12.04.2017	20 07 46 N	83 41 36 E	R.F	Taprang	Ground	0.16
2017	1065	M. Rampur	12.04.2017	20 14 02 N	83 39 05 E	R.F	Satami	Ground	0.19
2017	1066	M. Rampur	12.04.2017	20 14 07 N	83 39 39 E	P.R.F	Puijhari	Ground	0.12
2017	1067	M. Rampur	12.04.2017	20 14 49 N	83 40 42 E	P.R.F	Sulia	Ground	0.11
2017	1068	Bhawanipatna	12.04.2017	19 44 47 N	83 15 44 E	P.R.F	Gundi	Ground	0.21
2017	1069	Bhawanipatna	13.04.2017	19 47 16 N	83 15 31 E	P.R.F	Gundi	Ground	0.32
2017	1070	Narla	13.04.2017	20 02 53 N	83 31 55 E	P.R.F.	Belgaon	Ground	0.12
2017	1071	M. Rampur	13.04.2017	20 08 13 N	83 42 25 E	R.F	Taprang	Ground	0.12
2017	1072	Bhawanipatna	13.04.2017	19 50 34 N	83 05 59 E	R.F	Kanamanjur	Ground	0.12
2017	1073	Bhawanipatna	13.04.2017	19 56 40 N	83 17 11 E	D.P.F	Thuapadargundi	Ground	0.14
2017	1074	Bhawanipatna	13.04.2017	19 56 42 N	83 17 25 E	D.P.F	Thuapadargundi	Ground	0.12
2017	1075	Bhawanipatna	13.04.2017	19 56 55 N	83 17 07 E	D.P.F	Thuapadargundi	Ground	0.11
2017	1076	Bhawanipatna	13.04.2017	19 56 56 N	83 03 48 E	R.F	Brahmani	Ground	0.16
2017	1077	Bhawanipatna	13.04.2017	19 58 50 N	83 20 27 E	R.F	Kadalighati	Ground	0.13
2017	1078	Bhawanipatna	13.04.2017	20 00 49 N	83 18 35 E	R.F	Madakhola - A	Ground	0.12

2017	1079	Kegaon	13.04.2017	20 01 12 N	82 55 26 E	R.F	Chura - A	Ground	0.14
2017	1080	Kegaon	13.04.2017	20 01 16 N	82 55 12 E	R.F	Chura - A	Ground	0.15
2017	1081	Kegaon	13.04.2017	20 01 19 N	82 55 28 E	R.F	Chura - A	Ground	0.16
2017	1082	Narla	13.04.2017	20 02 53 N	83 32 07 E	R.F	Belgaon	Ground	0.11
2017	1083	Narla	13.04.2017	20 05 16 N	83 27 01 E	R.F	Kerbandi	Ground	0.09
2017	1084	Narla	13.04.2017	20 05 38 N	83 34 26 E	D.P.F	Dengsur	Ground	0.11
2017	1085	Narla	13.04.2017	20 06 02 N	83 33 52 E	D.P.F	Dengsur	Ground	0.13
2017	1086	Narla	13.04.2017	20 06 46 N	83 33 41 E	D.P.F	Dengsur	Ground	0.14
2017	1087	Narla	13.04.2017	20 06 52 N	83 31 28 E	R.F	Urladani	Ground	0.12
2017	1088	Narla	13.04.2017	20 06 57 N	83 34 38 E	R.F	Urladani	Ground	0.12
2017	1089	Narla	13.04.2017	20 07 00 N	83 39 02 E	R.F	Urladani	Ground	0.13
2017	1090	M. Rampur	13.04.2017	20 07 00 N	83 41 48 E	R.F	Taprang	Ground	0.14
2017	1091	M. Rampur	13.04.2017	20 07 02 N	83 42 02 E	R.F	Taprang	Ground	0.15
2017	1092	Narla	13.04.2017	20 07 04 N	83 38 03 E	R.F	Urladani	Ground	0.11
2017	1093	M. Rampur	13.04.2017	20 07 15 N	83 41 46 E	R.F	Taprang	Ground	0.21
2017	1094	M. Rampur	13.04.2017	20 07 44 N	83 41 40 E	R.F	Taprang	Ground	0.25
2017	1095	M. Rampur	13.04.2017	20 07 47N	83 41 54 E	R.F	Taprang	Ground	0.14
2017	1096	Narla	13.04.2017	20 07 51 N	83 35 25 E	R.F	Urladani	Ground	0.08
2017	1097	M. Rampur	13.04.2017	20 08 07 N	83 42 18 E	R.F	Taprang	Ground	0.12
2017	1098	M. Rampur	13.04.2017	20 08 09 N	83 42 32 E	R.F	Taprang	Ground	0.11
2017	1099	M. Rampur	13.04.2017	20 08 14 N	83 42 59 E	R.F	Taprang	Ground	0.18
2017	1100	Narla	13.04.2017	20 08 35 N	83 33 48 E	R.F	Urladani	Ground	0.17

2017	1101	M. Rampur	13.04.2017	20 08 50 N	83 42 06 E	R.F	Jerka	Ground	0.14
2017	1102	Narla	13.04.2017	20 08 51 N	83 35 12 E	R.F	Urladani	Ground	0.16
2017	1103	Narla	13.04.2017	20 08 56 N	83 34 57 E	R.F	Urladani	Ground	0.13
2017	1104	Narla	13.04.2017	20 08 59 N	83 35 11 E	R.F	Urladani	Ground	0.12
2017	1105	M. Rampur	13.04.2017	20 09 02 N	83 41 48 E	P.R.F.	Bidabaru (Harlanga)	Ground	0.12
2017	1106	Narla	13.04.2017	20 09 03 N	83 34 55 E	R.F	Urladani	Ground	0.11
2017	1107	M. Rampur	13.04.2017	20 09 05 N	83 42 02 E	P.R.F.	Bidabaru (Harlanga)	Ground	0.13
2017	1108	Narla	13.04.2017	20 09 06 N	83 35 09 E	R.F	Urladani	Ground	0.12
2017	1109	M. Rampur	13.04.2017	20 09 07 N	83 40 51 E	P.R.F.	Bidabaru (Harlanga)	Ground	0.19
2017	1110	Narla	13.04.2017	20 09 08 N	83 34 40 E	R.F	Urladani	Ground	0.1
2017	1111	Narla	13.04.2017	20 09 11 N	83 34 54 E	R.F	Urladani	Ground	0.12
2017	1112	Narla	13.04.2017	20 09 15 N	83 34 38 E	R.F	Urladani	Ground	0.11
2017	1113	Narla	13.04.2017	20 09 18 N	83 34 52 E	R.F	Urladani	Ground	0.14
2017	1114	Narla	13.04.2017	20 09 20 N	83 31 39 E	R.F	Urladani	Ground	0.13
2017	1115	Narla	13.04.2017	20 09 23 N	83 31 54 E	R.F	Urladani	Ground	0.12
2017	1116	Narla	13.04.2017	20 09 23 N	83 34 37 E	R.F	Urladani	Ground	0.17
2017	1117	Narla	13.04.2017	20 09 26 N	83 34 51 E	R.F	Urladani	Ground	0.12
2017	1118	Narla	13.04.2017	20 09 38 N	83 34 33 E	R.F	Urladani	Ground	0.14
2017	1119	M. Rampur	13.04.2017	20 09 50 N	83 43 22 E	R.F	Telen	Ground	0.19
2017	1120	M. Rampur	13.04.2017	20 10 29 N	83 36 21 E	R.F	Taprang	Ground	0.12
2017	1121	M. Rampur	13.04.2017	20 11 08 N	83 35 44 E	R.F	Taprang	Ground	0.11
2017	1122	M. Rampur	13.04.2017	20 11 30 N	83 45 44 E	P.R.F	Pongabaju	Ground	0.21

2017	1123	M. Rampur	13.04.2017	20 11 32 N	83 45 57 E	P.R.F	Pongabaju	Ground	0.32
2017	1124	M. Rampur	13.04.2017	20 11 57 N	83 40 05 E	P.R.F	Puijhari	Ground	0.12
2017	1125	Kesinga	13.04.2017	20 13 23 N	83 20 03 E	R.F	Bazargarh	Ground	0.12
2017	1126	Kesinga	13.04.2017	20 13 37 N	83 19 59 E	R.F	Bazargarh	Ground	0.15
2017	1127	M. Rampur	13.04.2017	20 14 58 N	83 42 39 E	P.R.F	Sulia	Ground	0.14
2017	1128	M. Rampur	13.04.2017	20 15 07 N	83 40 40 E	P.R.F	Sulia	Ground	0.15
2017	1129	Kesinga	13.04.2017	20 15 21 N	83 18 05 E	R.F	Bazargarh	Ground	0.19
2017	1130	Kesinga	13.04.2017	20 15 36 N	83 18 03 E	R.F	Bazargarh	Ground	0.21
2017	1131	M. Rampur	13.04.2017	20 16 47 N	83 41 30 E	P.R.F	Sulia	Ground	0.25
2017	1132	M. Rampur	13.04.2017	20 16 50 N	83 35 32 E	R.F	Benaguda	Ground	0.14
2017	1133	M. Rampur	13.04.2017	20 16 53 N	83 35 45 E	R.F	Benaguda	Ground	0.08
2017	1134	M. Rampur	13.04.2017	20 16 56 N	83 41 27 E	P.R.F	Sulia	Ground	0.12
2017	1135	M. Rampur	13.04.2017	20 16 59 N	83 41 40 E	P.R.F	Sulia	Ground	0.11
2017	1136	M. Rampur	13.04.2017	20 17 04 N	83 41 40 E	P.R.F	Sulia	Ground	0.18
2017	1137	M. Rampur	13.04.2017	20 17 11 N	83 41 24 E	P.R.F	Sulia	Ground	0.17
2017	1138	M. Rampur	13.04.2017	20 17 17 N	83 37 53 E	R.F	Benaguda	Ground	0.14
2017	1139	M. Rampur	13.04.2017	20 18 56 N	83 38 29 E	R.F	Benaguda	Ground	0.16
2017	1140	M. Rampur	13.04.2017	20 21 20 N	83 39 09 E	D.P.F	Dengen	Ground	0.13
2017	1141	Bhawanipatna	14.04.2017	19 57 12 N	83 03 44 E	R.F	Brahmani	Ground	0.13
2017	1142	Bhawanipatna	14.04.2017	19 57 15 N	83 03 42 E	R.F	Brahmani	Ground	0.12
2017	1143	Kegaon	14.04.2017	20 00 44 N	82 55 30 E	R.F	Chura - A	Ground	0.08
2017	1144	Kegaon	14.04.2017	20 00 48 N	82 55 02 E	R.F	Chura - A	Ground	0.13

2017	1145	Kegaon	14.04.2017	20 01 22 N	82 54 26 E	R.F	Chura - A	Ground	0.11
2017	1146	Kegaon	14.04.2017	20 01 28 N	82 55 35 E	R.F	Chura - A	Ground	0.12
2017	1147	Narla	14.04.2017	20 05 41 N	83 33 36 E	R.F	Urladani	Ground	0.1
2017	1148	Narla	14.04.2017	20 05 54 N	83 33 43 E	R.F	Urladani	Ground	0.12
2017	1149	Narla	14.04.2017	20 05 55 N	83 33 38 E	R.F	Urladani	Ground	0.11
2017	1150	Narla	14.04.2017	20 07 28 N	83 30 42 E	R.F	Urladani	Ground	0.13
2017	1151	M. Rampur	14.04.2017	20 07 58 N	83 41 44 E	R.F	Taprang	Ground	0.11
2017	1152	Narla	14.04.2017	20 08 03 N	83 35 36 E	R.F	Urladani	Ground	0.08
2017	1153	M. Rampur	14.04.2017	20 08 24 N	83 42 06 E	R.F	Jerka	Ground	0.1
2017	1154	M. Rampur	14.04.2017	20 08 26 N	83 41 47 E	R.F	Jerka	Ground	0.11
2017	1155	M. Rampur	14.04.2017	20 08 31 N	83 41 09 E	R.F	Jerka	Ground	0.09
2017	1156	M. Rampur	14.04.2017	20 08 38 N	83 42 07 E	R.F	Jerka	Ground	0.12
2017	1157	M. Rampur	14.04.2017	20 08 41 N	83 41 48 E	R.F	Jerka	Ground	0.12
2017	1158	M. Rampur	14.04.2017	20 09 05 N	83 38 40 E	P.R.F.	Bidabaru (Harlanga)	Ground	0.13
2017	1159	M. Rampur	14.04.2017	20 09 07 N	83 38 21 E	P.R.F.	Bidabaru (Harlanga)	Ground	0.11
2017	1160	M. Rampur	14.04.2017	20 09 16 N	83 39 02 E	P.R.F.	Bidabaru (Harlanga)	Ground	0.08
2017	1161	Narla	14.04.2017	20 09 19 N	83 31 16 E	R.F	Urladani	Ground	0.12
2017	1162	Narla	14.04.2017	20 09 31 N	83 31 38 E	R.F	Urladani	Ground	0.11
2017	1163	Narla	14.04.2017	20 09 33 N	83 31 18 E	R.F	Urladani	Ground	0.14
2017	1164	M. Rampur	14.04.2017	20 09 52 N	83 43 33 E	R.F	Telen	Ground	0.11
2017	1165	M. Rampur	14.04.2017	20 09 54 N	83 39 45 E	P.R.F.	Bidabaru (Harlanga)	Ground	0.13
2017	1166	M. Rampur	14.04.2017	20 09 55 N	83 43 17 E	R.F	Telen	Ground	0.11

2017	1167	M. Rampur	14.04.2017	20 10 03 N	83 40 25 E	R.F	Telen	Ground	0.11
2017	1168	M. Rampur	14.04.2017	20 10 06 N	83 43 36 E	R.F	Telen	Ground	0.14
2017	1169	M. Rampur	14.04.2017	20 10 20 N	83 43 39 E	R.F	Telen	Ground	0.12
2017	1170	M. Rampur	14.04.2017	20 10 26 N	83 41 07 E	R.F	Telen	Ground	0.11
2017	1171	M. Rampur	14.04.2017	20 10 28 N	83 40 49 E	R.F	Telen	Ground	0.11
2017	1172	M. Rampur	14.04.2017	20 10 34 N	83 43 41 E	R.F	Telen	Ground	0.13
2017	1173	M. Rampur	14.04.2017	20 10 38 N	83 34 03 E	R.F	Taprang	Ground	0.14
2017	1174	M. Rampur	14.04.2017	20 10 45 N	83 44 02 E	P.R.F	Pongabaju	Ground	0.16
2017	1175	M. Rampur	14.04.2017	20 11 04 N	83 43 30 E	R.F	Telen	Ground	0.14
2017	1176	Kesinga	14.04.2017	20 11 42 N	83 16 30 E	R.F	Bazargarh	Ground	0.11
2017	1177	M. Rampur	14.04.2017	20 12 25 N	83 40 34 E	P.R.F	Puijhari	Ground	0.14
2017	1178	M. Rampur	14.04.2017	20 12 32 N	83 41 33 E	P.R.F	Puijhari	Ground	0.12
2017	1179	M. Rampur	14.04.2017	20 12 46 N	83 41 35 E	P.R.F	Puijhari	Ground	0.13
2017	1180	M. Rampur	14.04.2017	20 13 04 N	83 42 55 E	P.R.F	Puijhari	Ground	0.11
2017	1181	Kesinga	14.04.2017	20 13 11 N	83 20 03 E	R.F	Bazargarh	Ground	0.12
2017	1182	M. Rampur	14.04.2017	20 15 12 N	83 41 02 E	P.R.F	Sulia	Ground	0.11
2017	1183	M. Rampur	14.04.2017	20 20 35 N	83 38 15 E	D.P.F	Dengen	Ground	0.13
2017	1184	Bhawanipatna	14.04.2017	19 54 56 N	83 14 04 E	D.P.F	Thuapadargundi	Ground	0.14
2017	1185	Bhawanipatna	14.04.2017	19 55 14 N	83 13 59 E	D.P.F	Thuapadargundi	Ground	0.16
2017	1186	Narla	14.04.2017	20 05 34 N	83 33 35 E	R.F	Urladani	Ground	0.18
2017	1187	Narla	14.04.2017	20 05 45 N	83 33 15 E	R.F	Urladani	Ground	0.17
2017	1188	Narla	14.04.2017	20 05 48 N	83 33 30 E	R.F	Urladani	Ground	0.12

2017	1189	Narla	14.04.2017	20 05 51 N	83 33 15 E	R.F	Urladani	Ground	0.1
2017	1190	Narla	14.04.2017	20 06 07 N	83 33 23 E	R.F	Urladani	Ground	0.13
2017	1191	Narla	14.04.2017	20 06 14 N	83 33 22 E	R.F	Urladani	Ground	0.11
2017	1192	Narla	14.04.2017	20 07 04 N	83 32 54 E	R.F	Urladani	Ground	0.12
2017	1193	Narla	14.04.2017	20 08 45 N	83 34 13 E	R.F	Urladani	Ground	0.14
2017	1194	M. Rampur	14.04.2017	20 10 50 N	83 37 24 E	R.F	Taprang	Ground	0.11
2017	1195	M. Rampur	14.04.2017	20 11 10 N	83 37 19 E	R.F	Taprang	Ground	0.13
2017	1196	M. Rampur	14.04.2017	20 11 13 N	83 43 59 E	P.R.F	Pongabaju	Ground	0.13
2017	1197	M. Rampur	14.04.2017	20 11 41 N	83 39 33 E	P.R.F	Puijhari	Ground	0.11
2017	1198	M. Rampur	14.04.2017	20 12 03 N	83 39 48 E	P.R.F	Puijhari	Ground	0.11
2017	1199	M. Rampur	14.04.2017	20 12 06 N	83 40 04 E	P.R.F	Puijhari	Ground	0.08
2017	1200	M. Rampur	14.04.2017	20 12 10 N	83 39 33 E	P.R.F	Puijhari	Ground	0.09
2017	1201	Bhawanipatna	15.04.2017	19 51 20 N	83 18 23 E	D.P.F	Thuapadargundi	Ground	0.12
2017	1202	Bhawanipatna	15.04.2017	19 58 24 N	83 20 50 E	R.F	Kadalighati	Ground	0.16
2017	1203	Narla	15.04.2017	19 59 20 N	83 27 34 E	P.R.F	Porgel	Ground	0.11
2017	1204	Narla	15.04.2017	20 02 02 N	83 31 36 E	P.R.F	Porgel Ext.	Ground	0.15
2017	1205	Narla	15.04.2017	20 07 28 N	83 33 57 E	R.F	Urladani	Ground	0.12
2017	1206	Narla	15.04.2017	20 09 03 N	83 31 18 E	R.F	Urladani	Ground	0.09
2017	1207	M. Rampur	15.04.2017	20 10 10 N	83 36 10 E	R.F	Taprang	Ground	0.11
2017	1208	M. Rampur	15.04.2017	20 11 32 N	83 44 01 E	P.R.F	Pongabaju	Ground	0.12
2017	1209	M. Rampur	15.04.2017	20 11 51 N	83 44 05 E	P.R.F	Pongabaju	Ground	0.08
2017	1210	M. Rampur	15.04.2017	20 11 59 N	83 39 32 E	P.R.F	Puijhari	Ground	0.12

2017	1211	M. Rampur	15.04.2017	20 15 57 N	83 32 18 E	P.R.F	Kutigudum	Ground	0.11
2017	1212	Bhawanipatna	15.04.2017	19 45 19 N	83 14 52 E	P.R.F	Gundi	Ground	0.12
2017	1213	Bhawanipatna	15.04.2017	19 45 29 N	83 14 43 E	P.R.F	Gundi	Ground	0.11
2017	1214	Bhawanipatna	15.04.2017	19 45 30 N	83 14 56 E	P.R.F	Gundi	Ground	0.11
2017	1215	Bhawanipatna	15.04.2017	19 45 38 N	83 14 41 E	P.R.F	Gundi	Ground	0.13
2017	1216	Bhawanipatna	15.04.2017	19 51 09 N	83 17 18 E	D.P.F	Thuapadargundi	Ground	0.14
2017	1217	Bhawanipatna	15.04.2017	19 51 10 N	83 17 41 E	D.P.F	Thuapadargundi	Ground	0.16
2017	1218	Bhawanipatna	15.04.2017	19 51 14 N	83 17 52 E	D.P.F	Thuapadargundi	Ground	0.14
2017	1219	Bhawanipatna	15.04.2017	19 51 28 N	83 17 20 E	D.P.F	Thuapadargundi	Ground	0.11
2017	1220	Bhawanipatna	15.04.2017	19 51 29 N	83 17 32 E	D.P.F	Thuapadargundi	Ground	0.14
2017	1221	Bhawanipatna	15.04.2017	19 51 30 N	83 17 45 E	D.P.F	Thuapadargundi	Ground	0.12
2017	1222	Bhawanipatna	15.04.2017	19 51 33 N	83 17 21 E	D.P.F	Thuapadargundi	Ground	0.13
2017	1223	Bhawanipatna	15.04.2017	19 51 35 N	83 17 33 E	D.P.F	Thuapadargundi	Ground	0.11
2017	1224	Narla	15.04.2017	20 00 57 N	83 28 17 E	P.R.F	Sikerguda	Ground	0.12
2017	1225	Narla	15.04.2017	20 01 02 N	83 28 17 E	P.R.F	Sikerguda	Ground	0.11
2017	1226	Narla	15.04.2017	20 01 07 N	83 28 51 E	P.R.F	Sikerguda	Ground	0.11
2017	1227	Narla	15.04.2017	20 01 17 N	83 28 17 E	P.R.F	Sikerguda	Ground	0.13
2017	1228	Narla	15.04.2017	20 01 18 N	83 28 30 E	P.R.F	Sikerguda	Ground	0.14
2017	1229	Narla	15.04.2017	20 06 39 N	83 33 11 E	R.F	Urladani	Ground	0.16
2017	1230	Narla	15.04.2017	20 06 44 N	83 33 45 E	R.F	Urladani	Ground	0.14
2017	1231	Narla	15.04.2017	20 06 46 N	83 33 23 E	R.F	Urladani	Ground	0.11
2017	1232	Narla	15.04.2017	20 06 47 N	83 33 15 E	R.F	Urladani	Ground	0.14

2017	1233	Narla	15.04.2017	20 06 48 N	83 33 29 E	R.F	Urladani	Ground	0.12
2017	1234	Kesinga	15.04.2017	20 11 42 N	83 16 13 E	R.F	Bazargarh	Ground	0.13
2017	1235	Kesinga	15.04.2017	20 11 48 N	83 16 09 E	R.F	Bazargarh	Ground	0.11
2017	1236	Kesinga	15.04.2017	20 12 49 N	83 18 06 E	R.F	Bazargarh	Ground	0.12
2017	1237	M. Rampur	15.04.2017	20 23 12 N	83 34 0 8 E	P.R.F	Gochhadengen	Ground	0.11
2017	1238	Bhawanipatna	15.04.2017	19 45 17 N	83 15 10 E	P.R.F	Gundi	Ground	0.11
2017	1239	Kegaon	16.04.2017	20 00 12 N	82 53 37 E	R.F	Chura - A	Ground	0.1
2017	1240	Bhawanipatna	16.04.2017	19 50 09 N	83 15 33 E	D.P.F	Thuapadargundi	Ground	0.12
2017	1241	Bhawanipatna	16.04.2017	19 50 23 N	83 15 32 E	D.P.F	Thuapadargundi	Ground	0.08
2017	1242	Kegaon	16.04.2017	19 59 49 N	82 53 45 E	R.F	Chura - A	Ground	0.08
2017	1243	M. Rampur	16.04.2017	20 08 00 N	83 41 57 E	R.F	Taprang	Ground	0.11
2017	1244	Narla	16.04.2017	20 09 51 N	83 30 45 E	R.F	Urladani	Ground	0.08
2017	1245	Narla	16.04.2017	20 10 06 N	83 30 43 E	R.F	Urladani	Ground	0.1
2017	1246	Kesinga	16.04.2017	20 11 28 N	83 16 01 E	R.F	Bazargarh	Ground	0.12
2017	1247	M. Rampur	16.04.2017	20 12 00 N	83 36 11 E	R.F	Taprang	Ground	0.11
2017	1248	M. Rampur	16.04.2017	20 14 03 N	83 40 51 E	P.R.F	Puijhari	Ground	0.11
2017	1249	M. Rampur	16.04.2017	20 14 05 N	83 41 06 E	P.R.F	Puijhari	Ground	0.12
2017	1250	M. Rampur	16.04.2017	20 14 20 N	83 41 03 E	P.R.F	Mundramaska	Ground	0.08
2017	1251	M. Rampur	16.04.2017	20 21 33 N	83 39 33 E	D.P.F	Dengen	Ground	0.1
2017	1252	Kegaon	17.04.2017	19 59 31 N	82 53 52 E	R.F	Chura - A	Ground	0.11
2017	1253	Kegaon	17.04.2017	19 59 49 N	82 53 32 E	R.F	Chura - A	Ground	0.09
2017	1254	Kegaon	17.04.2017	20 00 09 N	82 53 13 E	R.F	Chura - A	Ground	0.12

2017	1255	Bhawanipatna	17.04.2017	19 54 17 N	83 15 18 E	D.P.F	Thuapadargundi	Ground	0.12
2017	1256	Narla	17.04.2017	20 01 23 N	83 29 12 E	P.R.F	Porgel Ext.	Ground	0.13
2017	1257	M. Rampur	17.04.2017	20 14 03 N	83 39 18 E	P.R.F	Puijhari	Ground	0.11
2017	1258	Bhawanipatna	17.04.2017	19 44 51 N	83 15 22 E	P.R.F	Gundi	Ground	0.08
2017	1259	Bhawanipatna	17.04.2017	19 51 59 N	83 04 55 E	R.F	Kanamanjur	Ground	0.12
2017	1260	Narla	17.04.2017	20 01 35 N	83 29 25 E	P.R.F	Porgel Ext.	Ground	0.11
2017	1261	Narla	17.04.2017	20 01 38 N	83 29 51 E	P.R.F	Porgel Ext.	Ground	0.08
2017	1262	Narla	17.04.2017	20 01 42 N	83 28 57 E	P.R.F	Porgel Ext.	Ground	0.11
2017	1263	Narla	17.04.2017	20 01 44 N	83 29 09 E	P.R.F	Porgel Ext.	Ground	0.07
2017	1264	Narla	17.04.2017	20 01 56 N	83 29 08 E	P.R.F	Porgel Ext.	Ground	0.11
2017	1265	Kesinga	17.04.2017	20 02 28 N	83 19 07 E	R.F	Nangalguda	Ground	0.11
2017	1266	M. Rampur	17.04.2017	20 14 23 N	83 39 15 E	P.R.F	Sulia	Ground	0.11
2017	1267	M. Rampur	17.04.2017	20 14 31 N	83 40 09 E	P.R.F	Sulia	Ground	0.12
2017	1268	M. Rampur	17.04.2017	20 18 50 N	83 32 23 E	P.R.F	Sulia	Ground	0.11
2017	1269	Narla	18.04.2017	20 01 04 N	83 29 16 E	P.R.F	Porgel Ext.	Ground	0.08
2017	1270	Narla	18.04.2017	20 01 18 N	83 29 13 E	P.R.F	Porgel Ext.	Ground	0.1
2017	1271	Narla	18.04.2017	20 01 28 N	83 28 53 E	P.R.F	Porgel Ext.	Ground	0.11
2017	1272	Narla	18.04.2017	20 01 31 N	83 29 11 E	P.R.F	Porgel Ext.	Ground	0.13
2017	1273	M. Rampur	18.04.2017	20 11 05 N	83 40 57 E	R.F	Telen	Ground	0.11
2017	1274	M. Rampur	18.04.2017	20 11 18 N	83 40 55 E	P.R.F.	Puijhari	Ground	0.12
2017	1275	Bhawanipatna	19.04.2017	19 54 02 N	83 07 03 E	P.R.F.	Sinang	Ground	0.09
2017	1276	Bhawanipatna	19.04.2017	19 54 02 N	83 07 03 E	R.F	Sinang	Ground	0.08

2017	1277	Bhawanipatna	19.04.2017	19 59 29 N	83 19 47 E	D.P.F	Thuapadargundi	Ground	0.11
2017	1278	Narla	19.04.2017	20 01 14 N	83 25 05 E	R.F	Kamarda	Ground	0.11
2017	1279	Narla	19.04.2017	20 03 15 N	83 33 17 E	R.F	Belgaon	Ground	0.12
2017	1280	M. Rampur	19.04.2017	20 08 56 N	83 44 15 E	R.F	Taprang	Ground	0.09
2017	1281	M. Rampur	19.04.2017	20 09 16 N	83 42 51 E	R.F	Telen	Ground	0.08
2017	1282	M. Rampur	19.04.2017	20 15 26 N	83 39 43 E	P.R.F	Sulia	Ground	0.08
2017	1283	M. Rampur	19.04.2017	20 15 28 N	83 39 54 E	P.R.F	Sulia	Ground	0.1
2017	1284	Bhawanipatna	20.04.2017	19 45 14 N	83 15 19 E	P.R.F	Gundi	Ground	0.11
2017	1285	Bhawanipatna	20.04.2017	19 45 15 N	83 15 32 E	P.R.F	Gundi	Ground	0.08
2017	1286	Bhawanipatna	21.04.2017	19 46 54 N	83 12 43 E	P.R.F	Gundi	Ground	0.12
2017	1287	Bhawanipatna	21.04.2017	19 47 26 N	83 13 11 E	P.R.F	Gundi	Ground	0.07
2017	1288	Bhawanipatna	21.04.2017	19 47 32 N	83 14 01 E	P.R.F	Gundi	Ground	0.09
2017	1289	Bhawanipatna	20.04.2017	19 47 35 N	83 13 33 E	P.R.F	Gundi	Ground	0.11
2017	1290	Bhawanipatna	20.04.2017	19 47 36 N	83 13 48 E	P.R.F	Gundi	Ground	0.09
2017	1291	Bhawanipatna	20.04.2017	19 47 47 N	83 13 35 E	P.R.F	Gundi	Ground	0.08
2017	1292	Bhawanipatna	20.04.2017	19 47 48 N	83 13 50 E	P.R.F	Gundi	Ground	0.1
2017	1293	Bhawanipatna	20.04.2017	19 47 57 N	83 13 30 E	P.R.F	Gundi	Ground	0.1
2017	1294	Narla	21.04.2017	19 58 48 N	83 28 17 E	P.R.F	Porgel Ext.	Ground	0.11
2017	1295	Narla	21.04.2017	19 58 54 N	83 29 10 E	P.R.F	Porgel Ext.	Ground	0.09
2017	1296	Narla	20.04.2017	19 59 04 N	83 28 50 E	P.R.F	Porgel Ext.	Ground	0.09
2017	1297	Narla	20.04.2017	19 59 26 N	83 28 46 E	P.R.F	Porgel Ext.	Ground	0.11
2017	1298	Narla	20.04.2017	19 59 49 N	83 28 58 E	P.R.F	Porgel Ext.	Ground	0.12

2017	1299	Narla	20.04.2017	20 00 11 N	83 28 55 E	P.R.F	Porgel Ext.	Ground	0.09
2017	1300	Narla	20.04.2017	20 00 12 N	83 29 10 E	P.R.F	Porgel Ext.	Ground	0.11
2017	1301	Narla	21.04.2017	20 00 14 N	83 28 58 E	P.R.F	Porgel Ext.	Ground	0.12
2017	1302	Narla	20.04.2017	20 00 14 N	83 29 29 E	P.R.F	Porgel Ext.	Ground	0.08
2017	1303	Narla	20.04.2017	20 00 15 N	83 29 48 E	P.R.F	Porgel Ext.	Ground	0.12
2017	1304	Narla	21.04.2017	20 00 21 N	83 29 54 E	P.R.F	Porgel Ext.	Ground	0.08
2017	1305	Narla	20.04.2017	20 00 36 N	83 29 30 E	P.R.F	Porgel Ext.	Ground	0.11
2017	1306	Narla	20.04.2017	20 01 02 N	83 30 16 E	P.R.F	Porgel Ext.	Ground	0.08
2017	1307	M. Rampur	21.04.2017	20 14 36 N	83 40 33 E	P.R.F	Sulia	Ground	0.09
2017	1308	M. Rampur	20.04.2017	20 14 39 N	83 41 32 E	P.R.F	Mundramaska	Ground	0.08
2017	1309	M. Rampur	21.04.2017	20 14 42 N	83 41 29 E	P.R.F	Mundramaska	Ground	0.11
2017	1310	M. Rampur	20.04.2017	20 14 58 N	83 40 54 E	P.R.F	Sulia	Ground	0.12
2017	1311	M. Rampur	20.04.2017	20 14 58 N	83 41 00 E	P.R.F	Sulia	Ground	0.08
2017	1312	M. Rampur	20.04.2017	20 15 00 N	83 41 11 E	P.R.F	Mundramaska	Ground	0.12
2017	1313	M. Rampur	20.04.2017	20 15 00 N	83 41 17 E	P.R.F	Mundramaska	Ground	0.11
2017	1314	M. Rampur	20.04.2017	20 15 01 N	83 41 28 E	P.R.F	Mundramaska	Ground	0.08
2017	1315	M. Rampur	20.04.2017	20 15 01 N	83 41 35 E	P.R.F	Mundramaska	Ground	0.09
2017	1316	M. Rampur	21.04.2017	20 15 12 N	83 41 04 E	P.R.F	Mundramaska	Ground	0.08
2017	1317	M. Rampur	21.04.2017	20 15 17 N	83 40 27 E	P.R.F	Sulia	Ground	0.11
2017	1318	M. Rampur	20.04.2017	20 15 22 N	83 41 09 E	P.R.F	Mundramaska	Ground	0.12
2017	1319	M. Rampur	20.04.2017	20 15 22 N	83 41 16 E	P.R.F	Mundramaska	Ground	0.08
2017	1320	M. Rampur	20.04.2017	20 15 23 N	83 41 24 E	P.R.F	Mundramaska	Ground	0.12

2017	1321	M. Rampur	20.04.2017	20 15 39 N	83 40 13 E	P.R.F	Sulia	Ground	0.11
2017	1322	M. Rampur	20.04.2017	20 15 39 N	83 40 20 E	P.R.F	Sulia	Ground	0.08
2017	1323	M. Rampur	20.04.2017	20 15 44 N	83 41 14 E	P.R.F	Mundramaska	Ground	0.09
2017	1324	M. Rampur	20.04.2017	20 15 46 N	83 40 05 E	P.R.F	Sulia	Ground	0.08
2017	1325	Bhawanipatna	22.04.2017	19 46 21 N	83 13 57 E	P.R.F	Gundi	Ground	0.11
2017	1326	Bhawanipatna	22.04.2017	19 46 25 N	83 13 46 E	P.R.F	Gundi	Ground	0.12
2017	1327	Bhawanipatna	22.04.2017	19 46 27 N	83 14 00 E	P.R.F	Gundi	Ground	0.08
2017	1328	Bhawanipatna	22.04.2017	19 46 37 N	83 13 44 E	P.R.F	Gundi	Ground	0.12
2017	1329	Bhawanipatna	22.04.2017	19 46 39 N	83 13 58 E	P.R.F	Gundi	Ground	0.11
2017	1330	Narla	22.04.2017	19 58 58 N	83 29 58 E	P.R.F	Porgel Ext.	Ground	0.08
2017	1331	Narla	22.04.2017	19 59 08 N	83 29 58 E	P.R.F	Porgel Ext.	Ground	0.09
2017	1332	Narla	22.04.2017	19 59 10 N	83 29 56 E	P.R.F	Porgel Ext.	Ground	0.08
2017	1333	Narla	22.04.2017	20 01 55 N	83 24 30 E	R.F	Narla	Ground	0.11
2017	1334	Narla	22.04.2017	20 05 33 N	83 28 03 E	R.F	Kerbandi	Ground	0.12
2017	1335	Narla	22.04.2017	20 05 45 N	83 28 01 E	R.F	Kerbandi	Ground	0.08
2017	1336	Narla	22.04.2017	20 05 46 N	83 31 09 E	R.F	Belgaon	Ground	0.12
2017	1337	Narla	22.04.2017	20 05 48 N	83 31 08 E	R.F	Belgaon	Ground	0.11
2017	1338	Narla	22.04.2017	20 07 23 N	83 36 45 E	R.F	Urladani	Ground	0.12
2017	1339	M. Rampur	22.04.2017	20 11 20 N	83 40 45 E	P.R.F.	Puijhari	Ground	0.07
2017	1340	M. Rampur	22.04.2017	20 11 32 N	83 40 44 E	P.R.F.	Puijhari	Ground	0.09
2017	1341	M. Rampur	22.04.2017	20 11 49 N	83 45 51 E	P.R.F	Pongabaju	Ground	0.11
2017	1342	M. Rampur	22.04.2017	20 11 49 N	83 47 21 E	P.R.F	Pongabaju	Ground	0.09

2017	1343	Kesinga	22.04.2017	20 15 47 N	83 17 32 E	R.F	Bazargarh	Ground	0.08
2017	1344	Kesinga	22.04.2017	20 15 59 N	83 17 30 E	R.F	Bazargarh	Ground	0.1
2017	1345	Bhawanipatna	22.04.2017	19 46 23 N	83 13 32 E	P.R.F	Gundi	Ground	0.11
2017	1346	M. Rampur	23.04.217	20 22 00 N	83 39 12 E	D.P.F	Dengen	Ground	0.09
2017	1347	Bhawanipatna	23.04.217	19 47 33 N	83 13 56 E	P.R.F	Gundi	Ground	0.08
2017	1348	Bhawanipatna	23.04.217	19 47 35 N	83 13 52 E	P.R.F	Gundi	Ground	0.11
2017	1349	Bhawanipatna	23.04.217	19 47 51 N	83 14 26 E	P.R.F	Gundi	Ground	0.07
2017	1350	Bhawanipatna	23.04.217	19 48 41 N	83 12 54 E	P.R.F	Gundi	Ground	0.09
2017	1351	Bhawanipatna	23.04.217	19 48 54 N	83 12 51 E	P.R.F	Gundi	Ground	0.11
2017	1352	Bhawanipatna	23.04.217	19 52 35 N	83 16 26 E	D.P.F	Thuapadargundi	Ground	0.09
2017	1353	Bhawanipatna	23.04.217	19 52 37 N	83 16 41 E	D.P.F	Thuapadargundi	Ground	0.08
2017	1354	Bhawanipatna	23.04.217	19 52 50 N	83 16 38 E	D.P.F	Thuapadargundi	Ground	0.1
2017	1355	Bhawanipatna	23.04.217	19 55 21 N	83 15 08 E	D.P.F	Thuapadargundi	Ground	0.07
2017	1356	Bhawanipatna	23.04.217	19 56 50 N	83 14 51 E	D.P.F	Thuapadargundi	Ground	0.11
2017	1357	Kegaon	23.04.217	19 59 29 N	82 45 37 E	R.F	Nageswar	Ground	0.09
2017	1358	Narla	23.04.217	20 01 07 N	83 24 43 E	R.F	Narla	Ground	0.09
2017	1359	Narla	23.04.217	20 01 34 N	83 28 45 E	P.R.F	Porgel Ext.	Ground	0.07
2017	1360	Narla	23.04.217	20 01 41 N	83 24 41 E	R.F	Narla	Ground	0.09
2017	1361	Narla	23.04.217	20 05 08 N	83 32 58 E	R.F	Urladani	Ground	0.09
2017	1362	Kegaon	23.04.217	20 06 43 N	82 57 37 E	R.F	Kumkot	Ground	0.08
2017	1363	M. Rampur	23.04.217	20 09 39 N	83 40 45 E	P.R.F.	Bidabaru (Harlanga)	Ground	0.1
2017	1364	M. Rampur	23.04.217	20 09 56 N	83 35 52 E	R.F	Taprang	Ground	0.08

2017	1365	Narla	23.04.217	20 10 16 N	83 31 14 E	R.F	Urladani	Ground	0.11
2017	1366	Narla	23.04.217	20 10 18 N	83 30 13 E	R.F	Urladani	Ground	0.08
2017	1367	Narla	23.04.217	20 10 26 N	83 30 57 E	R.F	Urladani	Ground	0.11
2017	1368	M. Rampur	23.04.217	20 12 21 N	83 34 41 E	R.F	Taprang	Ground	0.08
2017	1369	M. Rampur	23.04.217	20 12 36 N	83 36 09 E	R.F	Taprang	Ground	0.09
2017	1370	M. Rampur	23.04.217	20 13 18 N	83 42 54 E	P.R.F	Puijhari	Ground	0.08
2017	1371	M. Rampur	23.04.217	20 16 08 N	83 41 52 E	P.R.F	Mundramaska	Ground	0.1
2017	1372	M. Rampur	23.04.217	20 16 20 N	83 41 49 E	P.R.F	Mundramaska	Ground	0.1
2017	1373	Kegaon	24.04.2017	20 04 53 N	82 50 18 E	R.F	Bisiberni	Ground	0.07
2017	1374	Kegaon	24.04.2017	20 05 08 N	82 50 25 E	R.F	Bisiberni	Ground	0.11
2017	1375	Bhawanipatna	24.04.2017	19 53 58 N	83 05 30 E	R.F	Sinang	Ground	0.09
2017	1376	Bhawanipatna	24.04.2017	19 54 22 N	83 16 31 E	D.P.F	Thuapadargundi	Ground	0.09
2017	1377	Narla	24.04.2017	20 09 53 N	83 30 30 E	R.F	Sripali	Ground	0.07
2017	1378	Narla	25.04.2017	20 02 14 N	83 30 54 E	P.R.F	Porgel Ext.	Ground	0.09
2017	1379	M. Rampur	25.04.2017	20 21 21 N	83 41 25 E	P.R.F	Sulia	Ground	0.08
2017	1380	M. Rampur	25.04.2017	20 21 30 N	83 41 35 E	P.R.F	Sulia	Ground	0.1
2017	1381	Narla	25.04.2017	20 01 56 N	83 26 59 E	R.F	Kamarda	Ground	0.07
2017	1382	Narla	25.04.2017	20 09 54 N	83 31 19 E	R.F	Urladani	Ground	0.09
2017	1383	Kesinga	25.04.2017	20 11 07 N	83 16 37 E	R.F	Bazargarh	Ground	0.11
2017	1384	Kegaon	25.04.2017	19 58 51 N	82 57 48 E	R.F	Chura - B	Ground	0.09
2017	1385	Bhawanipatna	25.04.2017	19 55 42 N	83 20 54 E	R.F	Kadalighati	Ground	0.08
2017	1386	Narla	25.04.2017	20 01 48 N	83 23 49 E	R.F	Narla	Ground	0.1

2017	1387	M. Rampur	25.04.2017	20 14 16 N	83 27 57 E	R.F	Sadel - B	Ground	0.07
2017	1388	Kesinga	26.04.2017	20 02 13 N	83 19 51 E	R.F	Nangalguda	Ground	0.11
2017	1389	Kesinga	26.04.2017	20 13 40 N	83 15 41 E	R.F	Kashrupada	Ground	0.09
2017	1390	M. Rampur	26.04.2017	20 15 36 N	83 39 54 E	P.R.F	Sulia	Ground	0.09
2017	1391	M. Rampur	26.04.2017	20 15 44 N	83 40 41 E	P.R.F	Sulia	Ground	0.07
2017	1392	Bhawanipatna	26.04.2017	19 45 56 N	83 15 36 E	P.R.F	Gundi	Ground	0.09
2017	1393	Kesinga	26.04.2017	20 14 01 N	83 15 54 E	R.F	Kashrupada	Ground	0.09
2017	1394	M. Rampur	26.04.2017	20 18 40 N	83 33 53 E	R.F	Sunamukhi	Ground	0.08
2017	1395	M. Rampur	26.04.2017	20 18 39 N	83 33 55 E	R.F	Sunamukhi	Ground	0.11
2017	1396	Narla	27.04.2017	20 01 46 N	83 21 08 E	R.F	Karladangar	Ground	0.11
2017	1397	M. Rampur	27.04.2017	20 11 19 N	83 39 50 E	P.R.F	Puijhari	Ground	0.08
2017	1398	Bhawanipatna	27.04.2017	19 50 11 N	83 15 42 E	D.P.F	Thuapadargundi	Ground	0.1
2017	1399	Bhawanipatna	27.04.2017	19 50 31 N	83 16 25 E	D.P.F	Thuapadargundi	Ground	0.12
2017	1400	Bhawanipatna	27.04.2017	19 50 19 N	83 16 52 E	D.P.F	Thuapadargundi	Ground	0.09
2017	1401	Bhawanipatna	27.04.2017	19 50 38 N	83 17 31 E	D.P.F	Thuapadargundi	Ground	0.1
2017	1402	Bhawanipatna	27.04.2017	19 50 27 N	83 18 01 E	D.P.F	Thuapadargundi	Ground	0.09
2017	1403	Bhawanipatna	28.04.2017	19 51 36 N	83 14 07 E	D.P.F	Thuapadargundi	Ground	0.1
2017	1404	M. Rampur	28.04.2017	20 11 54 N	83 30 14 E	R.F	Sadel - A	Ground	0.08
2017	1405	Bhawanipatna	28.04.2017	19 53 05 N	83 15 56 E	D.P.F	Thuapadargundi	Ground	0.09
2017	1406	Kesinga	28.04.2017	20 15 10 N	83 17 45 E	R.F	Bazargarh	Ground	0.07
2017	1407	Kesinga	28.04.2017	20 15 00 N	83 18 00 E	R.F	Bazargarh	Ground	0.09
2017	1408	Bhawanipatna	28.04.2017	19 50 28 N	83 18 15 E	D.P.F	Thuapadargundi	Ground	0.11

2017	1409	Bhawanipatna	29.04.2017	19 49 00 N	83 15 02 E	P.R.F	Gundi	Ground	0.09
2017	1410	Kesinga	29.04.2017	20 13 00 N	83 17 19 E	R.F	Bazargarh	Ground	0.08
2017	1411	Bhawanipatna	29.04.2017	19 52 38 N	83 17 40 E	D.P.F	Thuapadargundi	Ground	0.1
2017	1412	Kesinga	29.04.2017	20 03 16 N	83 18 35 E	R.F	Nangalguda	Ground	0.1
2017	1413	Kesinga	29.04.2017	20 03 14 N	83 18 48 E	R.F	Nangalguda	Ground	0.11
2017	1414	Kesinga	29.04.2017	20 03 26 N	83 18 51 E	R.F	Nangalguda	Ground	0.09
2017	1415	Kesinga	29.04.2017	20 03 00 N	83 19 00 E	R.F	Nangalguda	Ground	0.09
2017	1416	M. Rampur	29.04.2017	20 10 15 N	83 34 54 E	R.F	Taprang	Ground	0.1
2017	1417	Kegaon	29.04.2017	20 06 21 N	82 58 13 E	R.F	Kumkot	Ground	0.1
2017	1418	Bhawanipatna	29.04.2017	19 57 46 N	83 04 20 E	R.F	Brahmani	Ground	0.09
2017	1419	Bhawanipatna	29.04.2017	19 49 09 N	83 15 11 E	P.R.F	Gundi	Ground	0.11
2017	1420	Bhawanipatna	29.04.2017	19 48 54N	83 15 14 E	D.P.F	Thuapadargundi	Ground	0.08
2017	1421	Bhawanipatna	29.04.2017	19 48 56 N	83 15 30 E	D.P.F	Thuapadargundi	Ground	0.08
2017	1422	Narla	29.04.2017	20 01 03 N	83 25 49 E	R.F	Porgel	Ground	0.12
2017	1423	Bhawanipatna	29.04.2017	19 48 55 N	83 15 06 E	P.R.F	Gundi	Ground	0.08
2017	1424	M. Rampur	29.04.2017	20 06 59 N	83 41 48 E	R.F	Taprang	Ground	0.07
2017	1425	Narla	30.04.2017	19 58 31 N	83 27 57 E	P.R.F	Porgel Ext..	Ground	0.07
2017	1426	M. Rampur	01.05.2017	20 16 26 N	83 40 02 E	P.R.F	Sulia	Ground	0.08
2017	1427	M. Rampur	01.05.2017	20 16 30 N	83 40 37 E	P.R.F	Sulia	Ground	0.09
2017	1428	M. Rampur	01.05.2017	20 13 49 N	83 41 02 E	P.R.F	Puijhari	Ground	0.07
2017	1429	M. Rampur	01.05.2017	20 10 17 N	83 43 46 E	P.R.F	Pongabaju	Ground	0.09
2017	1430	M. Rampur	01.05.2017	20 12 19 N	83 45 57 E	P.R.F	Pongabaju	Ground	0.1

2017	1431	Bhawanipatna	01.05.2017	19 53 49 N	83 21 37 E	D.P.F	Thuapadargundi	Ground	0.09
2017	1432	Bhawanipatna	01.05.2017	19 53 51 N	83 21 50 E	D.P.F	Thuapadargundi	Ground	0.08
2017	1433	Narla	01.05.2017	20 05 47 N	83 34 21 E	D.P.F	Dengsur	Ground	0.1
2017	1434	Narla	01.05.2017	20 05 45 N	83 34 31 E	R.F	Urladani	Ground	0.09
2017	1435	Narla	01.05.2017	20 05 48 N	83 34 35 E	D.P.F	Dengsur	Ground	0.07
2017	1436	M. Rampur	01.05.2017	20 10 04 N	83 40 49 E	R.F	Bidabaru (Harlanga)	Ground	0.09
2017	1437	M. Rampur	01.05.2017	20 13 45 N	83 41 20 E	P.R.F	Puijhari	Ground	0.08
2017	1438	M. Rampur	01.05.2017	20 07 13 N	83 42 56 E	R.F	Taprang	Ground	0.1
2017	1439	M. Rampur	02.05.2017	20 11 46 N	83 40 57 E	P.R.F	Puijhari	Ground	0.07
2017	1440	M. Rampur	04.05.2017	20 16 13 N	83 40 46 E	P.R.F	Sulia	Ground	0.11
2017	1441	M. Rampur	04.05.2017	20 14 56 N	83 41 19 E	P.R.F	Mundramaska	Ground	0.08
2017	1442	M. Rampur	04.05.2017	20 08 30 N	83 41 49 E	R.F	Jerka	Ground	0.07
2017	1443	Kegaon	05.05.2017	20 01 38 N	82 46 43 E	R.F	Nageswar	Ground	0.1
2017	1444	Bhawanipatna	05.05.2017	20 03 41 N	83 15 02 E	R.F	Madakhola - B	Ground	0.08
2017	1445	Bhawanipatna	05.05.2017	20 03 43 N	83 15 14 E	R.F	Madakhola - B	Ground	0.1
2017	1446	Kesinga	05.05.2017	20 15 16 N	83 20 59 E	R.F	Bazargarh	Ground	0.09
2017	1447	Bhawanipatna	06.05.2017	19 52 15 N	83 15 55 E	D.P.F	Thuapadargundi	Ground	0.09
2017	1448	Narla	06.05.2017	20 03 37 N	83 29 59 E	R.F	Belgaon	Ground	0.08
2017	1449	Narla	06.05.2017	20 03 33 N	83 30 03 E	R.F	Belgaon	Ground	0.07
2017	1450	Narla	06.05.2017	20 03 39 N	83 30 19 E	R.F	Belgaon	Ground	0.1
2017	1451	Narla	08.05.2017	20 03 34 N	83 29 57 E	R.F	Belgaon	Ground	0.08
2017	1452	Narla	08.05.2017	20 03 37 N	83 30 12 E	R.F	Belgaon	Ground	0.11

2017	1453	Narla	08.05.2017	20 03 24 N	83 30 14 E	R.F	Belgaon	Ground	0.12
2017	1454	Narla	08.05.2017	20 03 26 N	83 30 28 E	R.F	Belgaon	Ground	0.08
2017	1455	M. Rampur	08.05.2017	20 14 50 N	83 41 22 E	R.F	Mundramaska	Ground	0.09
2017	1456	Narla	08.05.2017	20 03 21 N	83 30 07 E	R.F	Belgaon	Ground	0.08
2017	1457	Narla	08.05.2017	20 03 26 N	83 30 44 E	R.F	Belgaon	Ground	0.07
2017	1458	M. Rampur	10.05.2017	20 14 48 N	83 39 42 E	P.R.F	Sulia	Ground	0.1
2017	1459	Bhawanipatna	13.05.2017	19 45 15 N	83 15 55 E	R.F	Gundi	Ground	0.11
2017	1460	M. Rampur	13.05.2017	20 13 31 N	83 41 28 E	P.R.F	Puijhari	Ground	0.07
2017	1461	Narla	14.05.2017	20 06 23 N	83 32 26 E	R.F	Urladani	Ground	0.1
2017	1462	Narla	17.05.2017	20 00 21 N	83 25 19 E	R.F	Porgel	Ground	0.08
2017	1463	Bhawanipatna	18.05.2017	19 48 17 N	83 14 53 E	P.R.F	Gundi	Ground	0.11
2017	1464	Bhawanipatna	18.05.2017	19 57 48 N	83 11 11 E	R.F	Dhangdadhangdi	Ground	0.07
2017	1465	Bhawanipatna	18.05.2017	19 58 28 N	83 02 55 E	R.F	Brahmani	Ground	0.1
2017	1466	M. Rampur	18.05.2017	20 07 49 N	83 42 33 E	R.F	Jerka	Ground	0.08
2017	1467	Narla	20.05.2017	20 00 48 N	83 26 09 E	R.F	Kamarda	Ground	0.08
2017	1468	Kegaon	20.05.2017	20 08 23 N	82 58 29 E	R.F	Kumkot	Ground	0.11
2017	1469	Bhawanipatna	23.05.2017	19 57 29 N	83 15 24 E	D.P.F	Thuapadargundi	Ground	0.1
2017	1470	Narla	23.05.2017	20 05 18 N	83 27 51 E	R.F	Kerbandi	Ground	0.09
2017	1471	Kegaon	25.05.2017	19 54 29 N	82 43 23 E	R.F	Nageswar	Ground	0.09
2017	1472	Bhawanipatna	04.06.2017	20 07 44 N	86 06 35 E	R.F	Brahmani	Ground	0.08
TOTAL: -									256.18

*N.B. From 2018 to 2021 fire data available on FSI website. (www.fsi.nic.in)

APPENDIX-XL

Wet lands and water bodies in the Division

Sl.no.	Block	GP	Village	Code	Wet name	Description	Area	Latitude			Longitude		
								D	M	S	D	M	S
1	Bhawanipatna	Duarsani	Jamunasagar	1201		Reservoir	21.83	18	51	47.183	83	10	31.917
2	Bhawanipatna	Dadpur	Dumerbahal	1201		Reservoir	12.28	19	59	26.460	83	14	58.165
3	Bhawanipatna	Karlapada	Haldigarh	1201		Reservoir	10.50	20	04	20.410	83	07	8.642
4	Bhawanipatna	Senpur	Sapsilet	1201		Reservoir	14.69	20	08	41.854	83	04	30.841
5	Bhawanipatna	Artal	Aratola	1202		Tank/Pond	13.01	20	07	41.317	83	01	51.994
6	Golamunda	Khaliakani	Khaliakani	1201		Reservoir	18.88	20	01	16.766	82	47	47.057
7	Golamunda	Badachergaon	Latabanji	1201		Reservoir	21.76	20	01	45.483	82	59	7.164
8	Golamunda	Golamunda	Golamunda	1201		Reservoir	17.55	20	02	13.032	82	46	22.194
9	Golamunda	Nuagaon	Sargiphuljuba	1201		Reservoir	53.63	20	03	24.140	82	56	9.372
10	Golamunda	Nuagaon	Ramachandrapur	1201		Reservoir	38.68	20	03	37.779	82	59	1.740
11	Golamunda	Golamunda	Golamunda	1201		Reservoir	11.01	20	03	45.659	82	47	11.865
12	Golamunda	Mahaling	Makraguda	1201		Reservoir	12.41	20	08	50.699	82	49	45.475
13	Golamunda	Khamarhaldi	Khamarhaldi	1202		Tank/Pond	12.89	19	55	49.510	82	47	50.808
14	Karlamunda	Pourkela	Terekela	1104		Riverine	10.93	20	25	34.691	83	27	43.392
15	Karlamunda	Jorabobra	Kushurla	1201		Reservoir	11.45	20	14	53.238	83	25	53.074
16	Kesinga	Kantesir	Kurlupada	1104		Reservoir	10.18	20	12	08.393	83	13	43.944
17	Kesinga	Kashrupada	Kashrupada	1104		Reservoir	20.14	20	14	55.673	83	14	41.238
18	Kesinga	Sirjapali	Digsira	1104		Reservoir	14.27	20	19	44.077	83	22	13.527
19	Kesinga	Kesinga NAC	Kesinga	1105		Natural waterlogged	11.32	20	10	26.066	83	12	05.193
20	Kesinga	Turlakhaman	Limgaon	1105		Natural waterlogged	12.31	20	18	09.367	83	19	52.594
21	Kesinga	Kandel	Turla	1201		Reservoir	172.72	20	06	02.974	83	16	32.620
22	Kesinga	Kikia	Kikia	1201		Reservoir	26.08	20	07	35.925	83	09	09.845
23	Kesinga	Kesinga NAC	Kesinga	1201		Reservoir	11.13	20	10	40.614	83	14	42.409
24	Kesinga	Kashrupada	Ghantasola	1201		Reservoir	18.14	20	13	39.555	83	15	52.652
25	Kesinga	Kashrupada	Singjharan	1201		Reservoir	18.83	20	13	43.732	83	17	30.050

Sl.no.	Block	GP	Village	Code	Wet name	Description	Area	Latitude			Longitude		
								D	M	S	D	M	S
26	Kesinga	Kashrupada	Kashrupada	1201		Reservoir	31.15	20	14	30.967	83	15	36.424
27	Kesinga	Tundla	Bandhapada	1201		Reservoir	11.54	20	17	34.772	83	21	50.153
28	Lanjigarh	Bhatangpadar	Kolagaon	1201		Reservoir	43.44	19	52	43.695	83	14	8.7000
29	M.Rampur	M.Rampur	M.Rampur	1202		Reservoir	24.75	20	11	39.290	83	31	20.433
30	Narla	Saria	Saria	1105		Natural waterlogged	12.31	20	05	46.026	83	15	41.510
31	Narla	Tulapada	Tulapada	1105		Natural waterlogged	19.27	20	07	53.514	83	25	51.188
32	Narla	Narla	Narla	1201		Reservoir	10.13	20	03	11.601	83	22	57.302
33	Narla	Narla	Dongermal	1201		Reservoir	10.56	20	04	14.611	83	23	43.269
34	Narla	Mandel	Asurgarh	1201		Reservoir	53.88	20	04	38.791	83	21	34.977
35	Narla	RupraRoad	Balbaspur	1201		Reservoir	12.23	20	05	09.488	83	19	32.553
36	Narla	Tulapada	Tulapada	1201		Reservoir	28.33	20	08	21.770	83	25	49.280
37	Narla	Rupra	Ruphuda	1201		Reservoir	35.12	20	08	25.329	83	20	51.754
38	Narla	Gigina	Sripur	1201		Reservoir	16.00	20	09	7.155	83	22	53.623
39	Narla	Sergad	Bhatel	1201		Reservoir	12.97	20	10	34.744	83	29	14.412
40	Narla	Gigina	Taprang	1201		Reservoir	13.09	20	11	39.079	83	20	35.580
41	Narla	Takarla	Kundeijharan	1201		Reservoir	14.21	20	13	43.897	83	21	0.452
42	Narla	Saria	Saria	1202		Tank/Pond	10.04	20	04	03.051	83	16	41.247
43	Narla	Rupra	Titkela	1202		Tank/Pond	21.13	20	07	51.935	83	21	43.546
						TOTAL	**976.77**						

Wet lands in forest

Sl.no.	Range	Forest	Type of Forest	Code	Wet name	Description	Area	Latitude			Longitude		
1	Kegaon	Chura A	RF	1202		Tank/Pond	15.55	20	06	19.421	83	00	01.196
2	Kesinga	Bazargarh	RF	1201		Reservoir	56.86	20	11	46.121	83	15	42.688
3	Kesinga	Bazargarh	RF	1201		Reservoir	43.05	20	14	52.317	83	17	41.500
4	Kesinga	Bazargarh	RF	1201		Reservoir	42.06	20	15	28.463	83	21	44.663
5	Kesinga	Bazargarh	RF	1201		Reservoir	13.42	20	16	32.671	83	20	20.372
6	M.Rampur	Kutigudum	PRF	1201		Reservoir	10.81	20	07	30.870	83	29	41.052
						TOTAL	**181.75**						

Total Wet land in forest area

Name of division.	Total no of wet land available		Extent of forest area under wet land (ha.)	
	Perennial	Seasonal	Perennial	Seasonal
1	**2**	**3**	**4**	**5**
Kalahandi North	-	6	-	181.75

Water bodies created ending the reporting year 2013-14		Budget allocated & utilized ending 31.3.2014	Remarks
Perennial	Seasonal		
6	**7**	**8**	**9**
34 Nos	-	Rs. 1,13,00,000	

Divisional Forest Officer,
Kalahandi North Division

APPENDIX-XLI

List of well and tube well in Kalahandi North Division

Name of Range	Location	No. of well	No. of tube well
Bhawanipatna	**Range Office**	1	1
	Forest Colony	2	1
	Divisional Forest Officer's Residence	1	1
	ACF's Residence	0	1
	Kutrukhai CN	1	2
M.Rampur	**Range Office**	1	0
	M.Rampur (Barrack)	0	1
	Gourkela	0	1
	Jurakhaman	1	1
	Bhatel CN	0	1
	Madanpur	1	1
	Mohangiri	1	0
	Manikera	1	0
Narla	**Range Office**	1	2
	Narla	1	0
	Harlanga	0	1
	Sikuli	0	1
	Belgaon	0	1
	Kamarda	1	1
Kesinga	**Range Office**	1	1
	Kashrupada	1	1
	Amath CNG	0	1
	Podkham	1	0
	RupraRoad	1	0
	Tahasir CN	1	1
Kegaon	**Range Office**	1	2
	Borda	1	0
	Golamunda	1	1
	Daspur	1	1

APPENDIX-XLII

Rate of royalty on regular coupes for the year 2020-21

As per Letter No.15593/ 1F (FU & FP) (FU) Dated 08.10.2020 of the Principal Chief Conservator of Forests , Odisha Bhubaneswar the rate of Royalty of regular coupes for the 2020-21 is fixed to Rs.2006 /- per Unit.

Rate of royalty on irregular lots for the year 2020-21

As per Letter No.15593/ 1F (FU & FP) (FU) Dated 08.10.2020 of the Principal Chief Conservator of Forests , Odisha Bhubaneswar the rate of Royalty of irregular lots for the 2020-21 is fixed to Rs.305 /- per CFT.

Sawn Sizes & Rough Hand Dressed Sizes

As regards sawn & rough dressed sizes the rate of royalty is fixed to Rs.397/- per Cft.

For Poles & Firewood the following rates are approved for the year 2020-21.

Sal Pole - Rs.60/- per piece
Teak Pole - Rs.50/- per piece
Other poles - Rs.35/- per piece
Firewood(Sal & non-Sal) - Rs.405/- per stack(12'x3'x3')
Firewood (Casuarina) - Rs.155/- per quintal

APPENDIX-XLIII

The details of diversion of Forest area for Non-forestry purpose is given below

Sl.no.	Name of the project	Name of the forest block from which diverted in ha.	Area diverted in ha.
1	Ghatpara MIP	Bazargarh RF 49.00	49.00
2	Latabanji MIP	Village forest 8.43	8.43
3	Katikuda MIP	Village forest 7.61	7.61
4	Ret Irrigation Project	Dusaguda village Forest 39.40	39.40
5	Railway double line L.road to titilagarh	Sargiguda RF 3.529 **KLD (S)** Gobardhanpur VF 0.324 **KLD (S)** Dumermunda VF 0.028	3.881
6	400 KV line from Meramanduli to Jeypore	**Kesinga Range (VF) 10.6394** **Bazargarh RF 5.8923** **Bhawanipatna Range (VF) 3.2901** Junagarh Range (VF) 5.6980 KLD(S) Pariagarh RF 0.3439 KLD(S) Pandi PRF 7.4463 KLD(S)	33.3100
7	132 KV/SC line from Therubali to Kesinga	Kadalighati RF 7.468 Ha. Madhakhola A RF 1.215 Ha Kalahandi South & Rayagada Division-11.61 Ha	20.293

ABSTRACT

Name of the Division	Name of RF/ PRF/ Other in Ha.	Name of the revenue forest area in Ha.
Kalahandi North Division	Bazargarh RF – 54.89 Ha Kadalighati RF – 7.468 Ha Madhakhola A RF – 1.215 Ha **Total - 63.573**	Latabanji 8.43 Katikuta 7.61 Dhusuguda 39.40 Dumermunda VF 0.028 (Kesinga range VF Bhawanipatna Range VF) 13.93 **Total - 69.398**

Name of forest	Area diverted in Ha.
Reserve Forest	63.573
Revenue forest land	69.398
Total	**132.971**

APPENDIX-XLIV

Details of Plantations raised during the Plan Period

Sl	Year	Name of the Scheme	Name of the Range	Name of the site	Area in Ha	Name of the Forest	Type of Forest	Prescription
1	2011-12	MGNREGS	Bhawanipatna	Dakibundel	40	Kanamanjur RF	RF	Restocking
2	2011-12	MGNREGS	Bhawanipatna	Dumal	20	Dhangada Dhangidi RF	RF	Restocking
3	2011-12	MGNREGS	Kesinga	Kantesir	22	Kantesir	proposed vF	Restocking
4	2011-12	MGNREGS	Kesinga	Dumermunda	20	Bazargarh (S) RF	RF	Restocking
5	2011-12	MGNREGS	Kegaon	Dumuria	20	Kumkot RF	RF	Restocking
6	2011-12	MGNREGS	Kegaon	Barfa	20	Kumkot RF	RF	Restocking
7	2011-12	MGNREGS	Kegaon	Gandbasa	20	Kumkot RF	RF	Restocking
8	2011-12	MGNREGS	Kegaon	Betrajpali	25	Ghatual RF	RF	Restocking
9	2011-12	MGNREGS	Kegaon	Kodobhata	25	Ghatual RF	RF	Restocking
10	2011-12	MGNREGS	Kegaon	Rengsapali	25	Patramara PRF	PRF	Restocking
11	2011-12	MGNREGS	Kegaon	Padampur	25	Patramara PRF	PRF	Restocking
12	2011-12	MGNREGS	Kegaon	Pitaguda	15	Chura B RF	RF	Restocking
13	2011-12	MGNREGS	Kegaon	Bodelpali	10	Chura B RF	RF	Restocking
14	2011-12	MGNREGS	Kegaon	Sakripali	15	Chura B RF	RF	Restocking
15	2012-13	MGNREGS	Bhawanipatna	Turpi	15	Bramhani RF	RF	Restocking
16	2012-13	MGNREGS	Kegaon	Lanji	20	Kumkot RF	RF	Restocking
17	2012-13	MGNREGS	Kegaon	Daspur	20	Chura A	RF	Restocking
18	2012-13	MGNREGS	Kesinga	Turlakhaman	10	Bazargarh (N) RF	RF	Restocking
19	2012-13	MGNREGS	Kesinga	Balbaspur	10	Nangalguda RF	RF	Restocking
20	2013-14	MGNREGS	Bh.Patna	Salepali	22	Salepali	proposed VF	Restocking
21	2013-14	MGNREGS	Bh.Patna	Dambarupadar	11	Dambarupadar	proposed VF	Restocking
22	2013-14	MGNREGS	Kegaon	Batirmunda	20	Daka RF	RF	Restocking
23	2013-14	MGNREGS	Kegaon	Gandbasa	10	Kumkot RF	RF	Restocking
24	2013-14	MGNREGS	Kegaon	Karmath	10	Chura B RF	RF	Restocking
25	2013-14	MGNREGS	Bh.Patna	Bhejapadar	22	Bhejapadar	proposed VF	Restocking
26	2013-14	MGNREGS	Bh.Patna	Kandakhal	11	Kandakhal	proposed VF	Restocking
27	2013-14	MGNREGS	Kesinga	Singhjharan	25	Bazargarh (N) RF	RF	Restocking
28	2013-14	MGNREGS	Kesinga	Kurlupada	15	Bazargarh (S) RF	RF	Restocking
29	2013-14	MGNREGS	Kesinga	Limgaon	10	Bazargarh (N) RF	RF	Restocking
30	2013-14	MGNREGS	Kesinga	Ghantsola	15	Bazargarh (N) RF	RF	Restocking
31	2013-14	MGNREGS	Bhawanipatna	Bhalu	10	Bhalu	RF	Restocking
32	2014-15	MGNREGS	Bh.Patna	Dungripadar	10	Dungripadar	proposed VF	Restocking
33	2014-15	MGNREGS	Kesinga	Dumermunda	5	Bazargah	RF	Restocking
34	2014-15	MGNREGS	Kesinga	Kinerkela	5	Bazargah	RF	Restocking
35	2014-15	MGNREGS	Kesinga	Phatakabahali	5	Nangalguda	RF	Restocking
36	2014-15	MGNREGS	Kegaon	Patelpada	10	Nageswar	RF	Restocking

37	2015-16	MGNREGS	Narla	Narla	5	Bhatel RF	RF	Restocking
38	2015-16	MGNREGS	Narla	Narla	5	Kerbandi RF	RF	Restocking
39	2015-16	MGNREGS	Kesinga	Kesinga	5	Bazargarh RF	RF	Restocking
40	2015-16	MGNREGS	Golamunda	Golamunda	10	Chura 'A'RF	RF	Restocking
	Total				**618**			

Sl	Year	Name of the SCHEME	Name of the Range	Name of the site	AR	ANR	Name of the Forest	Type of Forest	Prescription
1	2004-05	Compensatory Afforestation	Bhawanipatna	Dengen, Upper Gochhakhola	436		Upper Gochhakhola	CA	Tending
2	2007-08	BWC	Kegaon	Chura	**50**		Chura A RF	RF	Tending
3	2008-09	RLTAP	Bhawanipatna	Dalguma	30		Alma RF	RF	Tending
4	2008-09	RLTAP	Narla	Mahinal	30		Porgel Extn. PRF	PRF	Tending
5	2008-09	RLTAP	Kesinga	Badmal	20		Bazargarh RF	RF	Tending
6	2008-09	RLTAP	Kegaon	Goindimunda	10		Goilbindha	DPF	Tending
7	2008-09	RLTAP	Kegaon	Kanduljhar	20		Kumkot RF	RF	Tending
8	2008-09	RLTAP	Kegaon	Baijalpur	20		Adbari RF	RF	Tending
9	2008-09	RLTAP	Bhawanipatna	Ulikupa	30		Madakhola B RF	RF	Tending
10	2008-09	RLTAP	Bhawanipatna	Dambarupadar	30		Dh. Dhangdi RF	RF	Tending
11	2008-09	RLTAP	Kesinga	Kantesir	25		Bazargarh (N) RF	RF	Tending
12	2008-09	RLTAP	Kesinga	Tulangpadar	25		Bazargarh (N) RF	RF	Tending
13	2008-09	RLTAP	Kesinga	Tundla	20		Bazargarh	RF	Tending
14	2008-09	RLTAP	Kegaon	Bianrpada	20		Goilbindha	DPF	Tending
15	2008-09	RLTAP	Kegaon	Bhatipada	20		Lini	RF	Tending
16	2008-09	NBM	Bhawanipatna	Bhalu RF	25		Bhalu RF	RF	Tending
17	2008-09	NBM	Bhawanipatna	Kadalighati RF	25		Kadalighati RF	RF	Tending
18	2008-09	NBM	Kegaon	Chura A RF	20		Chura A RF	RF	Tending
19	2009-10	RLTAP	Bhawanipatna	Herateka	100		Kanamajur RF	RF	Tending
20	2009-10	RLTAP	Bhawanipatna	Karkata	100		Kadalighati RF	RF	Tending
21	2009-10	RLTAP	Kesinga	Bijkhaman	100		Bazargarh (N) RF	RF	Tending
22	2010-11	RLTAP	Bhawanipatna	Singhjharan	125		Sinang RF	RF	Tending
23	2010-11	RLTAP	M.Rampur	Chandanpinda	125		Chandanpinda DPF	DPF	Tending
24	2010-11	RLTAP	Kegaon	Kalipur	125		Chura A RF	RF	Tending
25	2010-11	CAMPA	Bhawanipatna	Pairmal	115		Kanamanjur RF	RF	Tending
26	2010-11	CAMPA	Bhawanipatna	Tagankona	60		Gundi PRF	PRF	Tending
27	2010-11	CAMPA	Bhawanipatna	Ampada	60		Sinang RF	RF	Tending
28	2010-11	CAMPA	Bhawanipatna	Talabrahmani	48		Madakhola A RF	RF	Tending
29	2010-11	CAMPA	Bhawanipatna	Jamkona	30		Th.Gundi	DPF	Tending

30	2010-11	CAMPA	Bhawanipatna	Podmundi	20		Brahmani	RF	Tending
31	2010-11	CAMPA	Kegaon	Jamgudabahali	50		Chura A RF	RF	Tending
32	2010-11	CAMPA	Kegaon	Karli	100		Chura A RF	RF	Tending
33	2010-11	CAMPA	Kegaon	Kamalabari	150		Chura A RF	RF	Tending
34	2010-11	CAMPA	Kegaon	Sanchergaon	150		Chura A RF	RF	Tending
35	2010-11	CAMPA	Kegaon	Phatamunda	110		Chura B	RF	Tending
36	2010-11	CAMPA	Kegaon	Sialjodi	63		Kumkote RF	RF	Tending
37	2010-11	CAMPA	M.Rampur	Gopalpur	90		Podgudi PRF	PRF	Tending
38	2010-11	CAMPA	Narla	Samarkanta	104		Narla RF	RF	Tending
39	2010-11	CAMPA	Narla	Sikerguda	15		Sikerguda PRF	PRF	Tending
40	2010-11	CAMPA	Narla	Kurmel	15		Narla RF	RF	Tending
41	2010-11	CAMPA	Kesinga	Kumarpur	50		Bazargarh (N) RF	RF	Tending
42	2010-11	CAMPA	Kesinga	Salebhata	35		Bazargarh (N) RF	RF	Tending
43	2010-11	CAMPA	Kesinga	Kinerkela	40		Bazargarh (N) RF	RF	Tending
44	2010-11	CAMPA	Kesinga	Taparang	35		Bazargarh (S) RF	RF	Tending
45	2010-11	OBDP	M.Rampur	Kachhadengan	**25**		Gochadangen	PRF	Tending
46	2011-12	13th FC Grant	Kesinga	Kumarpur	22		Kumerpur VF(propsoed)	Proposed VF	Tending
47	2011-12	13th FC Grant	Kesinga	Surujore	11		Surujore VF(proposed)	Proposed VF	Tending
48	2011-12	13th FC Grant	Narla	Nuapada	11		Nuapada VF(proposed)	Proposed VF	Tending
49	2012-13	13th F.C.G.	Kegaon	Banjipadar	20		Bisibarni RF	RF	Tending
50	2012-13	CAMPA (CATP)	Bhawanipatna	Adastala	**50**		Adastala	Proposed PF	Tending
51	2012-13	CAMPA (CATP)	Bhawanipatna	Baringdara		200	Baringdara	Proposed PF	Tending
52	2012-13	CAMPA (CATP)	Bhawanipatna	Batua		300	Batua	Proposed PF	Tending
53	2013-14	OBDP	M.Rampur	Kutigudum	**20**		Kutigudum PRF	PRF	Tending
54	2013-14	Bald Hill Plantation	Bh.Patna	Dungripada Donger	12		Dungripadar	proposed VF	Tending
55	2013-14	Bald Hill Plantation	Bh.Patna	Suben Donger	22		Suben	proposed VF	Tending
56	2013-14	Bald Hill Plantation	Bh.Patna	Durla Donger	11		Durla	proposed VF	Tending
57	2013-14	Bald Hill Plantation	Kesinga	Sagram Donger	22		Sagram	proposed VF	Tending
58	2013-14	Bald Hill Plantation	Kegaon	Kuhura Donger	33		Kuhura	proposed VF	Tending
59	2013-14	Bald Hill Plantation	Kegaon	Goilbindha Donger	10		Goilbindha	DPF	Tending
60	2013-14	13th FC Grant (Plant within W.C.)	Bh.Patna	Themra	8		Brahmani	RF	Tending
61	2013-14	14th FC Grant (Plant within W.C.)	Bh.Patna	Mahagaon	20		Madakhola B RF	RF	Tending

62	2013-14	15th FC Grant (Plant within W.C.)	Bh.Patna	Tentulipada	12		Brahmani	RF	Tending
63	2013-14	16th FC Grant (Plant within W.C.)	Kesinga	Dampadar	20		Bazargarh (S) RF	RF	Tending
64	2013-14	17th FC Grant (Plant within W.C.)	Kegaon	Borguma	20		Banakdei	DPF	Tending
65	2013-14	18th FC Grant (Plant within W.C.)	Kegaon	Gandabasa	20		Kumkot RF	RF	Tending
66	2013-14	19th FC Grant (Plant within W.C.)	Kegaon	Bhutpada	10		Goilbindha	DPF	Tending
67	2013-14	20th FC Grant (Plant within W.C.)	Kegaon	Bordi	15		Ghatual RF	RF	Tending
68	2013-14	13th FCG (Outside WP area)	Bh.Patna	Jhikimiki A	17		Jhikimi A	proposedVF	Tending
69	2013-14	15th FCG (Outside WP area)	Kegaon	Bhutpada	10		Goilbindha	DPF	Tending
70	2013-14	CAMPA	Bh.Patna	Kanarla	15		Th.Gundi	DPF	Tending
71	2013-14	Bald Hill Plantation	Bh.Patna	Ulikupa	15		Madakhola B RF	RF	Tending
72	2013-14	Bald Hill Plantation	Kesinga	Bagad	20		Bazargarh (S) RF	RF	Tending
73	2013-14	Bald Hill Plantation	Kegaon	Karangamunda	20		Nageswar RF	RF	Tending
74	2013-14	Bald Hill Plantation	Kegaon	Kankri-A	20		Kankeri A	DPF	Tending
75	2013-14	Bald Hill Plantation	Kegaon	Kankri -A	10		Kankeri A	DPF	Tending
76	2013-14	MGNREGS	Bh.Patna	Jhikimiki-B		100	JHIKIMIKI B	Proposed PF	Tending
77	2013-14	State Plan	Kegaon	Goilbindha Donger	11	0	Goilbindha	proposed VF	Tending
78	2013-14	MGNREGS	Narla	Chapatkhanda	28	0	Chapatkhanda	proposed VF	Tending
79	2014-15		Kegaon	Purnapani	30		Kumkot RF	RF	Tending
80	2014-15	OBDP	Kegaon	Karlaguda	**20**		Chura B	RF	Tending
81	2014-15	NBM	Kegaon	Nuagaon	20		Chura A RF	RF	Tending
82	2014-15	NBM	Kegaon	Karlaguda	10		Chura B	RF	Tending
83	2014-15	NBM	Narla	Dudlu	30		Kerbandi	RF	Tending
84	2014-15	Bald hill pltn.	Bh.Patna	Saked	22		Saked	proposed VF	Tending
85	2014-15	State Plan	Kegaon	Goindamunda	10		Goilbindha	DPF	Tending
86	2014-15	State Plan	Kegaon	Baijalpur	20		Baijalpur	DpF	Tending
87	2014-15	13th FC IWP	Kegaon	Jaintput	20		Jayantpur	DPF	Tending
88	2014-15	14th FC IWP	Kegaon	Kholpada	10		Banakdei	DPF	Tending
89	2014-15	13th FC outside WP	Bhawanipatna	Fukjodi	10		Brahamani	RF	Tending
90	2014-15	14th FC outside WP	Bhawanipatna	Kundugupa	11		Kendugupa	proposed VF	Tending
91	2014-15	15th FC outside WP	Kesinga	Turlakhaman	10		Turlakhaman	DPF	Tending
92	2014-15	16th FC outside WP	Kesinga	Ghantsola	11		Ghantsola	proposed VF	Tending
93	2014-15	NAP	Kesinga	Bilat	50		Nangalguda	RF	Tending

94	2015-16	State Plan (economic plantation)	Kegaon	Golamunda	20		Jayantpur	DPF	Tending
95	2015-16	State Plan (economic plantation)	Kegaon	Golamunda	30		Daka RF	RF	Tending
96	2015-16	State Plan obdp	Narla	Narla	20		Sripali RF	RF	Tending
97	2015-16	State Plan (BALD HILL)	Bhawanipatna	Bhawanipt na	15		Brahmani	RF	Tending
98	2015-16	State Plan (bald hill)	kegaon	Golamunda	10		Goilbindha	DPF	Tending
99	2015-16	State Plan fodder plantation	narla	Narla	10		Sripali RF	RF	Tending
100	2015-16	CAMPA Bamboo Plantation	Bhawanipatna	Bhawanipat na	20		Poddara R.F	RF	Tending
101	2015-16	CAMPA(BAMBOO PLANTATION)	Bhawanipatna	Bhawanipat na	200		Brahmani	RF	Tending
102	2015-16	CAMPA (BAMBOO PLANTATION)	Bhawanipatna	Baddharpur	250		Kadalighati R.F	RF	Tending
103	2015-16	CAMPA (BAMBOO PLANTATION)	Bhawanipatna	Lanjigarh	200		Gundi PRF	PRF	Tending
104	2015-16	CAMPA (BAMBOO PLANTATION)	Kegaon	Golamunda	300		Chura B	RF	Tending
105	2015-16	CAMPA Bamboo Plantation	Kegaon	Golamunda	100		Chura A RF	RF	Tending
106	2015-16	CAMPA Bamboo Plantation	Kegaon	Golamunda	200		Chura A RF	RF	Tending
107	2015-16	CAMPA Bamboo Plantation	Kegaon	Golamunda	200		Chura A RF	RF	Tending
108	2015-16	CAMPA Bamboo Plantation	Kegaon	Golamunda	100		Chura A RF	RF	Tending
109	2015-16	CAMPA 13th FC	Bhawanipatna	Bhawanipat na	20		Kumkot RF	RF	Tending
110	2015-16	CAMPA 13th FC	M.rampur	M.Rampur	10		Podgudi PRF	PRF	Tending
	Total				**5420**	**600**			
	G. Total				**6020**				

APPENDIX XLV

Calculation of Carbon Stock of Tree Outside Forest (TOF) by using Biomass regeneration Equations

Avenue Plantation					
Sl No.	Year	No. of seedlings Survived	Dia in cm.	Biomass per tree in kilogram	Total Biomass in kilogram
1	2012--13	3125	24	216.39	676218.8
2	2013--14	14750	18	111.01	1637398
3	2014--15	15000	14	61.96	929400
4	2015--16	16250	12	43.33	704112.5
5	2016-17	15800	9	22.23	351234
6	2017-18	15000	7	12.41	186150
7	2018-19	15000	5	5.68	85200
	Total				**4569713**

Urban Tree Plantation					
Sl No.	Year	No. of seedlings Survived	Dia in cm.	Biomass per tree in kilogram	Total Biomass in kilogram
1	2012--13	40000	30	363.14	14525600
2	2013--14	8000	25	237.89	1903120
3	2014--15	12000	20	141.75	1701000
4	2015--16	16000	15	77.72	1243520
5	2016-17	8000	10	28.39	227120
6	2018-19	35200	7	12.41	436832
7	2019-20	22880	5	5.68	129958.4
	Total				**20167150**

APPENDIX XLVI RANGE WISE STATUS WISE CONSTITUTION OF WORKING CIRCLE

Sl No	RANGE	Name of the Forest Block	Type	Area in ha	Area diverted (in ha)		Area under this plan in ha	Area alloted to different working circles in Ha								
					Under FRA	Under FC		Selection WC	Rehabilation WC	Plantation WC	Bamboo ovelapping WC	Protection overlapping WC	NTFP overlapping WC	Wildlife ovelapping WC	JFM overlapping WC	SWC(O) WC
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
RESERVE FOREST																
1	Bhawanipatna	Alma RF	RF	1360			1360		1330	30	1360		1360	1360	298	250
2	Bhawanipatna	Brahmani RF	RF	5919	72.1036		5846.8964		5546.8964	300	5846.8964		5846.8964	5846.8964	2386	200
3	Bhawanipatna	Dhangada dhangadi RF	RF	229			229		179	50	0		229		229	0
4	Bhawanipatna	Dhanupanchan RF	RF	726			726		706	20	0		726		726	0
5	Bhawanipatna	Kanamanjur RF	RF	1902	87.6405		1814.3595		1559.3595	255	1814.3595		1814.3595	1814.3595	790	200
6	Bhawanipatna	Kutrukhai RF	RF	326	11.0279		314.9721		304.9721	10	314.9721		314.9721		230	100
7	Bhawanipatna	Madhakhola (B) RF	RF	597			597		532	65			597		597	0
8	Bhawanipatna	Pordhar RF	RF	848	14.565		833.435		813.435	20	833.435		833.435	833.435	200	0
9	Bhawanipatna	Sinang RF	RF	1221	0.2428		1220.7572		1035.7572	185			1220.7572	1220.7572	982	100
10	Bhawanipatna	Bhalu RF	RF	54			54		19	35			54		54	**0**
11	Bhawanipatna	Kadalighati RF	RF	1725		7.468	1717.532		1342.532	375	1717.532		1717.532	1717.532	605	350
12	Bhawanipatna	Madhakhola (A) RF	RF	746		1.215	744.785		696.785	48			744.785	744.785	744.785	0
BHAWANIPATNA RANGE TOTAL				**15653**	**185.5798**	**8.683**	15458.7372	**0**	**14065.7372**	**1393**	**11887.195**	**0**	**15458.7372**	**13537.7651**	**7841.785**	**1200**
13	Kegaon	Adabari RF	RF	921	225.065		695.935		675.935	20			695.935	695.935	495	150
14	Kegaon	Bisibarni RF	RF	198			198		178	20			198		198	50
15	Kegaon	Chura (A) RF	RF	7782	883.4821		6898.5179		5583.5179	1315	6898.5179		6898.5179	6898.5179	3840	300
16	Kegaon	Chura (B) RF	RF	2384	34.6585		2349.3415		1837.5415	511.8	2076.71		2349.3415	2349.3415	600	250

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
17	Kegaon	Daka RF	RF	335	5.4229		329.5771		252.3771	77.2			329.5771		275	70
18	Kegaon	Ghatual RF	RF	276			276		211	65			276		200	50
19	Kegaon	Gojia RF	RF	347			347		347	0			347		230	60
20	Kegaon	Kumkot RF	RF	5124	286.6852		4837.3148		4594.3148	243			4837.3148	4837.3148	2000	400
21	Kegaon	Lini RF	RF	134			134		114	20			134	134	126.38	40
22	Kegaon	Nageswar RF	RF	3020	603.7179		2416.2821		2359.7821	56.5		2416.2821	2416.2821	2416.2821	1350	210
KEGAON RANGE TOTAL				**20521**	**2039.0316**	**0**	18481.9684	**0**	**16153.4684**	**2328.5**	**8975.2279**	**2416.2821**	**18481.9684**	**17331.3913**	**9314.38**	**1580**
23	Kesinga	Bazargarh RF	RF	7987	210.89	54.89	7721.22		7181.22	540			7721.22	7721.22	3729.05	500
24	Kesinga	Nangalguda RF	RF	1488			1488		1413	75			1488	1488	703	100
KESINGA RANGE TOTAL				**9475**	**210.89**	**54.89**	9209.22	**0**	**8594.22**	**615**	**0**	**0**	**9209.22**	**9209.22**	**4432.05**	**600**
25	M.Rampur	Dengen RF	RF	476			476	0	456	20	0	0	476	476	205	100
26	M.Rampur	Jerka RF	RF	1019	4.2053		1014.7947	1014.7947			0	1014.7947	1014.7947	1014.7947		100
27	M.Rampur	Sadel (A) RF	RF	273			273	0	263	10	0	0	273	273	200	50
28	M.Rampur	Sadel (B) RF	RF	307			307	0	307		0	0	307	307	307	50
29	M.Rampur	Satami RF	RF	1898	3.775		1894.225	1894.225	0		1894.225	1894.23	1894.225	1894.225	320	300
30	M.Rampur	Sunamukhi RF	RF	2393	53.3047		2339.6953	2339.6953			0	2339.9	2339.6953	2339.9	510	200
31	M.Rampur	Taparang RF	RF	7181	293.1931		6887.8069	6887.8069			5227.97	6887.8069	6887.8069	6887.8069	670	250
32	M.Rampur	Telen RF	RF	2660			2660	2660			2660	2660	2660	2660		150
33	M.Rampur	Turchi RF	RF	257			257	0	257		0	0	257	257	257	50
34	M.Rampur	Benaguda RF	RF	4974	45.7062		4928.2938	4928.2938			4928.2938	4928.2938	4928.2938	4928.2938	500	200
35	M.Rampur	Bhatel RF	RF	37			37	0	32	5	0	0	37	37		10
M.RAMPUR RANGE TOTAL				**21475**	**400.1843**	**0**	21074.8157	**19724.816**	**1315**	**35**	**14710.4888**	**19725.0204**	**21074.8157**	**21075.0204**	**2969**	**1460**
36	Narla	Porgel RF	RF	1712			1712	1712			1712	1712	1712	1712	839.75	50
37	Narla	Kamei RF	RF	156			156		136	20	0		156	156	156	0
38	Narla	Kerbandi RF	RF	1231			1231		1176	55	0		1231	1231	1148	400

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
39	Narla	Lumersinga RF	RF	175			175		175		0		175	175	100	0
40	Narla	Narla RF	RF	1293			1293		1174	119	0		1293	1293	945	150
41	Narla	Sripali RF	RF	46			46		16	30	0		46	46	46	5
42	Narla	Urladani RF	RF	10528	250.0968		10277.9032	10277.903			7010.75	10277.9	10277.9032	10277.9032	527.05	700
43	Narla	Karladangar RF	RF	349			349		339	10	0		349	349		
NARLA RANGE TOTAL				**15490**	**250.0968**	**0**	15239.9032	**11989.903**	**3016**	**234**	**8722.75**	**11989.9032**	**15239.9032**	**15239.9032**	**3761.8**	**1305**
DIVISION TOTAL RESERVE FOREST				**82614**	**3085.7825**	**63.573**	79464.6445	**31714.719**	**43144.4256**	**4605.5**	**44295.6617**	**34131.2057**	**79464.6445**	**76393.3**	**28319.015**	**6145**
PROPOSED RESERVE FOREST (PRF)							0									
1	Bhawanipatna	Gundi PRF	PRF	6720.2	5.1711		6715.0289		6455.0289	260	0		6715.0289	6715.0289	1296	700
BHAWANIPATNA RANGE TOTAL				**6720.2**	**5.1711**	**0**	6715.0289	**0**	**6455.0289**	**260**	**0**	**0**	**6715.0289**	**6715.0289**	**1296**	**700**
2	M.Rampur	Podgudi PRF	PRF	793.52			793.52	0	683.52	110	0		793.52	793.52	600	150
3	M.Rampur	Ramud PRF	PRF	597.07	49.978		547.092	547.092			547.092	547.092	547.092	547.092	400	120
4	M.Rampur	Sulia PRF	PRF	5668	50.663		5617.337	5617.337			5617.337	5617.337	5617.337	5617.337	502.34	300
5	M.Rampur	Manikera PRF	PRF	66.4			66.4	66.4			0	66.4	66.4	66.4	66.4	0
6	M.Rampur	Mundramaska PRF	PRF	750			750	750			0	750	750	750	50	100
7	M.Rampur	Gochhadengen PRF	PRF	346.34			346.34	0	321.34	25	0		346.34	346.34	150	0
8	M.Rampur	Kutigudum PRF	PRF	628	249.893		378.107	0	358.107	20	0		378.107	378.107	378.107	0
9	M.Rampur	Talanuagaon PRF	PRF	277.73	100.2646		177.4654	177.4654			177.4654	177.4654	177.4654	177.4654	177.4654	0
10	M.Rampur	Puijhari PRF	PRF	2251.21	0		2251.21	2251.21			2251.21	2251.21	2251.21	2251.21	78	150
11	M.Rampur	Pongabaju PRF	PRF	2331.91			2331.91	2331.91			0	2331.91	2331.91	2331.91	128	150
12	M.Rampur	Bidabaru (Harlanga) PRF	PRF	1464.8	0.185		1464.615	1464.615			0	1464.615	1464.615	1464.615	315	0
M.RAMPUR RANGE TOTAL				**15174.98**	**450.9836**	**0**	14723.9964	**13206.029**	**1362.967**	**155**	**8593.1044**	**13206.0294**	**14723.9964**	**14723.9964**	**2845.3124**	**970**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
13	Narla	Narla Extension PRF	PRF	292.5			292.5	0	292.5		0		292.5	292.5		50
14	Narla	Kamarda PRF	PRF	444.6			444.6	0	444.6	0	0		444.6	444.6		0
15	Narla	Porgel Extension PRF	PRF	3222			3222	0	3182	40	3222		3222	3222	303	100
16	Narla	Badibahal PRF	PRF	44.94			44.94	0	44.94		44.94		44.94	44.94	40	10
17	Narla	Sikerguda PRF	PRF	358			358	0	343	15	358		358	358		
18	Narla	Jamguda PRF	PRF	107.4			107.4	0	107.4	0	107.4		107.4	107.4		
NARLA RANGE TOTAL				**4469.44**	**0**	**0**	4469.44	**0**	**4414.44**	**55**	**3732.34**	**0**	**4469.44**	**4469.44**	**343**	**160**
DIVISION TOTAL PROPOSED RESERVE FOREST				**26364.62**	**456.1547**	**0**	25908.4653	**13206.029**	**12232.4359**	**470**	**12325.4444**	**13206.0294**	**25908.4653**	**25908.4653**	**4484.3124**	**1830**
DPF/ UDPF							0									
1	Bhawan ipatna	Thuapadar Gundi DPF	DPF	9187.7			9187.7		9142.7	45	9187.7		9187.7	9187.7	880	
2	Bhawan ipatna	Kadalighati Extn DPF	DPF	68			68		68		0		68			
BHAWANIPATNA RANGE TOTAL				**9255.7**	**0**	**0**	9255.7	**0**	**9210.7**	**45**	**9187.7**	**0**	**9255.7**	**9187.7**	**880**	**0**
3	Kegaon	Jayantpur DPF	DPF	199.2			199.2		159.2	40			199.2	199.2	50	
4	Kegaon	Masigaon DPF	DPF	30.8			30.8		30.8				30.8			
5	Kegaon	Sikuan DPF	DPF	23.19			23.19		23.19				23.19			
6	Kegaon	Kankeri (A) DPF	DPF	32			32		2	30			32		30	
7	Kegaon	Kankeri (B) DPF	DPF	26.5			26.5		26.5				26.5		20	
8	Kegaon	Sindabhadi DPF	DPF	72.4			72.4		72.4				72.4		72	
9	Kegaon	Ammuda DPF	DPF	241.94			241.94		241.94				241.94	241.94	50	
10	Kegaon	Patramara DPF	DPF	132.72			132.72		82.72	50			132.72	132.72		
11	Kegaon	Goilbindha DPF	DPF	160			160		80	80			160		160	
12	Kegaon	Banakdei DPF	DPF	92.5			92.5		62.5	30			92.5	92.5	92.1	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
13	Kegaon	Gandamer DPF	DPF	70			70		70				70			
14	Kegaon	Makardani DPF	DPF	30.3			30.3		30.3				30.3			
15	Kegaon	Baijalpur DPF	DPF	72			72		52	20			72			
16	Kegaon	Chanchermunda DPF	DPF	73			73		73				73			
17	Kegaon	Kirkakani DPF	DPF	26			26		26				26			
18	Kegaon	Kalamdei	UDPF	3.2			3.2		3.2				3.2			
KEGAON RANGE TOTAL				**1285.75**	**0**	**0**	1285.75	**0**	**1035.75**	**250**	**0**	**0**	**1285.75**	**666.36**	**474.1**	**0**
19	Kesinga	Dumermunda DPF	DPF	45.76			45.76		45.76				45.76	45.76	45.76	
20	Kesinga	Biripura DPF	DPF	332.8			332.8		332.8				332.8	332.8	250	
21	Kesinga	Gudang DPF	DPF	54.88			54.88		54.88				54.88	54.88		
22	Kesinga	Turlakhaman DPF	DPF	160			160		150	10			160	160		
23	Kesinga	Laitara DPF	DPF	83			83		83				83	83	24	
24	Kesinga	Brahamanidonger DPF	DPF	50.7			50.7		50.7				50.7	50.7		
KESINGA RANGE TOTAL				**727.14**	**0**	**0**	727.14	**0**	**717.14**	**10**	**0**	**0**	**727.14**	**727.14**	**319.76**	**0**
25	M.Rampur	Pudrimahul DPF	DPF	303	0		303	303			0	303	303	303	120	
26	M.Rampur	Chandanpinda DPF	DPF	298.25			298.25	0	173.25	125	0		298.25	298.25	100	
27	M.Rampur	Karla DPF	DPF	432.11			432.11	0	432.11		0		432.11	432.11	130	
28	M.Rampur	Sulia Extn. DPF	DPF	138.05			138.05	0	138.05		0		138.05	138.05		
29	M.Rampur	Kuthiheju DPF	DPF	208			208	0	208		0		208	208		
30	M.Rampur	Sihidi DPF	DPF	181.5			181.5	0	181.5		0		181.5	181.5		
31	M.Rampur	Mugei DPF	DPF	26.4			26.4	0	26.4		0		26.4	26.4		
32	M.Rampur	Dengidonger DPF	DPF	575.77			575.77	0	575.77		0		575.77	575.77		
33	M.Rampur	Goutami DPF	DPF	388			388	0	388		0		388	388		
M.RAMPUR RANGE TOTAL				**2551.08**	**0**	**0**	2551.08	**303**	**2123.08**	**125**	**0**	**303**	**2551.08**	**2551.08**	**350**	**0**
34	Narla	Barpati DPF	DPF	148.67			148.67	0	148.67				148.67	148.67	40	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
35	Narla	Dengsur DPF	DPF	255.06			255.06	255.06			255.06	255.06	255.06	255.06	148	
36	Narla	Mundighati DPF	DPF	88.2			88.2	0	88.2		88.2		88.2	88.2	40	
37	Narla	Lamer DPF	DPF	66			66	0	66	0			66	66		
38	Narla	Belgaon DPF	DPF	4230	403.006		3826.994	0	3826.994	0			3826.994	3826.994	692	
NARLA RANGE TOTAL				**4787.93**	**403.006**	**0**	4384.924	**255.06**	**4129.864**	**0**	**343.26**	**255.06**	**4384.924**	**4384.924**	**920**	**0**
DIVISION TOTAL DPF/UDPF				**18607.6**	**403.006**	**0**	18204.594	**558.06**	**17216.534**	**430**	**9530.96**	**558.06**	**18204.594**	**17517.204**	**2943.86**	**0**
PROPOSED PF AND CA							0									
1	Bhawanipatna	Upper Gochhakola	CA	436			436			436			436			
2	Bhawanipatna	Adastala	Proposed PF	50			50			50			50			
3	Bhawanipatna	Baringdar	Proposed PF	200			200			200			200			
4	Bhawanipatna	Batua	Proposed PF	300			300			300			300			
5	Bhawanipatna	Jhikimi B	Proposed DPF	100			100			100			100			
BHAWANIPATNA RANGE TOTAL				**1086**	**0**	**0**	1086	**0**	**0**	**1086**	**0**	**0**	**1086**	**0**	**0**	**0**
DIVISION TOTAL				**1086**	**0**	**0**	1086	**0**	**0**	**1086**	**0**	**0**	**1086**	**0**	**0**	**0**
VF/ PROPOSED VF							0									
1	Bhawanipatna	Admunda VF	VF	5			5			5			5		5	
2	Bhawanipatna	-do-	VF	5			5			5			5		5	
3	Bhawanipatna	-do-	VF	10			10			10			10		10	
4	Bhawanipatna	Matia VF	VF	10			10			10			10		10	
5	Bhawanipatna	Bhejipadar VF	VF	8			8			8			8		8	
6	Bhawanipatna	Jajaldeipur VF	VF	5.1			5.1			5.1			5.1		5.1	
7	Bhawanipatna	Jhikimiki VF	VF	3.28			3.28			3.28			3.28		3.28	
8	Bhawanipatna	Dumerbahal VF	VF	8.044			8.044			8.044			8.044		8.044	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
9	Bhawanipatna	Khairbhadi VF	VF	3.6			3.6			3.6			3.6		3.6	
10	Bhawanipatna	Gopinathpur VF	VF	2			2			2			2		2	
11	Bhawanipatna	Khairmal VF	VF	5			5			5			5		5	
12	Bhawanipatna	Sarlanji VF	VF	8.5			8.5			8.5			8.5		8.5	
13	Bhawanipatna	Bramhani VF	VF	6			6			6			6		6	
14	Bhawanipatna	Jhikimiki VF	VF	10			10			10			10		10	
15	Bhawanipatna	Dungripadar	Proposed VF	22			22			22			22		22	
16	Bhawanipatna	Suben	Proposed VF	22			22			22			22		22	
17	Bhawanipatna	Durla	Proposed VF	11			11			11			11		11	
18	Bhawanipatna	Sagram	Proposed VF	22			22			22			22		22	
19	Bhawanipatna	Kuhura	Proposed VF	33			33			33			33		33	
20	Bhawanipatna	Goilibindha	Proposed VF	11			11			11			11		11	
21	Bhawanipatna	Saked	Proposed VF	22			22			22			22		22	
22	Bhawanipatna	Kendugupka	Proposed VF	11			11			11			11		11	
23	Bhawanipatna	Jhikimi A	Proposed VF	17			17			17			17		17	
24	Bhawanipatna	Salepali	Proposed VF	22			22			22			22		22	
25	Bhawanipatna	Dambarupadar	Proposed VF	11			11			11			11		11	
26	Bhawanipatna	Bhejapadar	Proposed VF	22			22			22			22		22	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
27	Bhawanipatna	Kandakhal	Proposed VF	11			11			11			11		11	
BHAWANIPATNA RANGE TOTAL				**326.524**	**0**	**0**	326.524	**0**	**0**	**326.524**	**0**	**0**	**326.524**	**0**	**326.524**	**0**
28	Kegaon	Daspur	VF	20			20			20			20		20	
KEGAON RANGE TOTAL				**20**	**0**	**0**	20	**0**	**0**	**20**	**0**	**0**	**20**	**0**	**20**	**0**
29	Kesinga	Jamjore VF	VF	6			6			6			6		6	
30	Kesinga	Brahmani VF	VF	10			10			10			10		10	
31	Kesinga	Jamjore VF	VF	10			10			10			10		10	
32	Kesinga	Dendrobahali VF	VF	3.6			3.6			3.6			3.6		3.6	
33	Kesinga	-do-	VF	5			5			5			5		5	
34	Kesinga	Khairmal VF	VF	3			3			3			3		3	
35	Kesinga	Palam VF	VF	2			2			2			2		2	
36	Kesinga	Matia VF	VF	2			2			2			2		2	
37	Kesinga	Kurlupada VF	VF	1.96			1.96			1.96			1.96		1.96	
38	Kesinga	Rengali VF	VF	11.36			11.36			11.36			11.36		11.36	
39	Kesinga	Balsi VF	VF	9.2			9.2			9.2			9.2		9.2	
40	Kesinga	-do-	VF	13.64			13.64			13.64			13.64		13.64	
41	Kesinga	Kumarpur	Proposed VF	22			22			22			22		22	
42	Kesinga	Surujore	Proposed VF	11			11			11			11		11	
43	Kesinga	Kantesir	Proposed VF	22			22			22			22		22	
44	Kesinga	Ghantsola	Proposed VF	11			11			11			11		11	
KESINGA RANGE TOTAL				**143.76**	**0**	**0**	143.76	**0**	**0**	**143.76**	**0**	**0**	**143.76**	**0**	**143.76**	**0**
45	M.Rampur	Pipalbhadi VF	VF	6.22			6.22			6.22			6.22		6.22	
46	M.Rampur	Saling VF	VF	5.2			5.2			5.2			5.2		5.2	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
47	M.Rampur	Kuten VF	VF	0.948			0.948			0.948			0.948		0.948	
M.RAMPUR RANGE TOTAL				**12.368**	**0**	**0**	12.368	**0**	**0**	**12.368**	**0**	**0**	**12.368**	**0**	**12.368**	**0**
48	Narla	Nuapada	Proposed VF	11			11			11			11		11	
49	Narla	Chapatkhanda	Proposed VF	28			28			28			28		28	
NARLA RANGE TOTAL				**39**	**0**	**0**	39	**0**	**0**	**39**	**0**	**0**	**39**	**0**	**39**	**0**
DIVISION TOTAL VF/PROPOSED VF				**541.652**			541.652	0	0	541.652	0	0	541.652	0	541.652	0
GRAND TOTAL				**129213.872**	**3944.9432**	**63.573**	125205.36	**45478.81**	**72593.40**	**7133.15**	**66152.07**	**47895.30**	**125205.36**	**119818.97**	**36288.8394+*6864.58 = 43153.42**	**7975.00**

***JFM area under Revenue Forest**