GOVERNMENT OF ODISHA
FOREST AND ENVIRONMENT DEPARTMENT

REVISED WORKING PLAN

OF

KHORDHA FOREST DIVISION
FOR THE PERIOD 2021-22 to 2030-31



By

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FOREWORD

The Revised Working Plan of Khordha Forest Division for the period from 2021-22 to 2030-31 has been approved vide Letter No. (8(31)42/2017-FCE dt. 03/03/2022 of the Govt. of India Ministry of Environment Forest & Climate Change, Integrated Regional office, Bhubaneswar. This Division was one of the oldest forest divisions in Odisha which was scientifically managed by HATT'S Plan from the year 1896-97 to 1905-06. After the expiry of outgoing Working Plan (2007-08 to 2016-17), the Forests of the Division were managed through approved Annual Working Scheme from 2017-18 to 2020-21).

This Plan has been prepared with realistic prescriptions to achieve expected outcome based on the SWOT Analysis, Nine Working Circles, both exclusive & overlapping are prescribed in this Working Plan covering a total area 58,531,92ha. The Catchment Treatment Overlapping Circle is the new Working Circle which encompasses all forest areas of this division as they form an important catchment for Chilika Lane. The Car Timber Working Circle a special Working Circle for this division which encompasses an area of 16358.81 Ha. aimed at meeting the requirement of Car Timbers for Lord Shree Jagannath & Lord Shree Lingaraj Temples every year.

The Khordha Forest Division is very sensitive to Wild animal depredation, particularly elephants. The Wildlife Overlapping Working Circle has recommended many mitigative measures and habitat improvement activities. Adequate attention has also been assigned to the Trees outside Forest Area since they play an important role in amelioration of climate, and satisfy public demand for small timber etc.

Sri Manoj Mohapatra, IFS, CCF & WPO, Bhubaneswar who is also the Regional CCF, Bhubaneswar Circle has carried out a commendable job in revising the Working Plan to meet the challenging circumstances linked to modern forest management. I hope this plan will serve as a technical and scientific document to achieve its state objectives for the management of forest in Khordha Forest Division.

(Sisir Kumar Ratho,IFS)

Preface

After carving out the Chandaka Wild Life Division from the erstwhile Puri Forest Division during December-1985 and after reorganization of the Forest department during August 2003 the last revision of the Working Plan was made by Shri Abhiram Das, IFS the then Working Plan Officer, Working Plan Division ,Bhubaneswar. It was prepared for the period from 2007-08 to 2016-17 and covered the forests of Khordha Forest Division, City Forest Division, Puri Wild life Division and Chilka Forest Division. But the new revised Working Plan covers the Forest Blocks of Khordha Forest Division only. After the expiry of the outgoing Working Plan no Working Plan was in function and the management of the Forest of Khordha Forest Division was based on the approved Working Scheme till date. The Preliminary Working Plan Report was drawn up by Smt P Mekro, IFS the then Regional Chief Conservator of Forests ,Bhubaneswar circle and the approval of the PWPR made vide memo no-16768, dtd.22.07.2017 of O/o the Pr.C.C.F ,Odisha. Subsequently the first part draft of Revised Working Plan of Khordha Forest Division was prepared and submitted to the Pr.C.C.F ,Odisha, Bhubaneswar by Shri Atish Kumar Behera, IFS the Ex-Working Plan Officer, Bhubaneswar. This Plan has been prepared keeping in view the principles contained in the National Working Plan Code -2014. It is decided by the State Govt. to use satellite imageries while preparation of the Working Plan to make the Growing Stock analysis more authentic. The National Remote Sensing Agency (NRSA), Hyderabad was associated for provision and analysis of the satellite imageries and identification of suitable points on the ground on stratified random sampling basis rather grid based uniform sampling method for collection and verification of the details of vegetation and other spatial features in the forests. The Odisha Remote Sensing Application Center (ORSAC) was entrusted to act as a Nodal Agency between the Working Plan Officer and the NRSA for facilitating correlation between field data and satellite imageries. For the preparation of Revised Working Plan NRSA has provided 422 Nos. of Sample Points for collection of data on the growing Stocks, Bio-diversity, Regeneration status, impact of Forest Fire, etc. Around each Sample Point an area of 0.1 Ha was delineated and detailed information has been collected by the field staff. The data thus collected have been analyzed and compared with the satellite imageries with the supports of NRSA and ORSAC and then the management maps, Stock maps, Index maps and Working Plan maps, etc. have been prepared.

In this context, I owe a debt of gratitude to every individuals and organizations who are involved directly or indirectly in preparation of this Plan with the application of new modern technology of GIS and Remote Sensing, without collective efforts of whom it could not have been completed. Their contributions, guidance and suggestions for giving new dimension for revision of the outgoing Working Plan are duly acknowledged.

I extend my heartfelt thanks to Shri Atish Kumar Behera,IFS who had drafted the PWPR and first part draft of Revised Working Plan.

I am very much thankful to my predecessor Shri Kedar Chandra Dalai,IFS for his sincere efforts and guidance to facilitate in drafting of various working plan chapters.

The ORSAC and NRSA, Hyderabad have played a vital role by using the Remote Sensing techniques for selecting Sample Points and various analysis for growing Stock, and preparation of maps

etc. I convey my gratitude to all of them for their co-operation and help to make it possible for writing this Plan.

I am very much thankful to Shri Sandep Tripathy,IFS Principal Chief Conservator of Forests& HoFF ,Odisha , and Shri A K Jayaswal,IFS ,CF (Working Plan) for providing their valuable guidance in drafting of this Working Plan chapters successful .

Credit must go to Shri Dibakar Mishra,IFS Ex-RCCF, Bhubaneswar Circle, Smt. P. Mekro, IFS Ex-RCCF, Bhubaneswar Circle for their sincere inspirations for writing the Working Plan draft chapters.

I am very much thankful to the DFO and ACFs of Khordha Forest Division as well as the Range Officers and field staff of Khordha Forest Division for rendering their valuable support and co-operation time to time for completion of this Plan successful.

I extend my gratitude to Shri Sudhanshu Sekhar Sahu, ACF, who deserves special appreciation for utilizing his hard work and experience for making this plan a success.

I also extend my gratitude to Shri Bibhuti Bhusun Pattanaik, Ex-ACF of this Division, Shri Himanshu Sekhar Muduli, ACF , Shri Shishir Kumar Mishra, Ex-ACF of this Division , Shri Chittaranjan Khuntia, ACF, Shri P.K Sahu, RO, Shri Alekha Charan Mallick, RO, Shri Kaina Pradhan, Fr, Shri Pratap Kumar Behera, FG, Shri Abhijit Mohanty, FG, Smt. Manini Mishra, FG, Shri Pradeep Kumar Sethi, Ex-FG, Shri Sachidananda Tripathy, Stenographer, Shri Suniram Raut, Jr Clerck, Shri Debi Prasad Das, and also Shri Deepak Kumar Beura, the DEO of Khordha Forest Division for providing their valuable and timely co-operation and for field works and collection of data, etc. for making this Plan successful.

Lastly, I am thankful to all the staff of Working Plan Division, Bhubaneswar for rendering assistance to the Working Plan Officer in compilation and computation of various data in time.

I hope, this Working Plan will provide vital guidance to the Field staff, Readers, Research Scholars, Planners, and many others who are working in the field of Forestry and Wildlife.

Thanking you all,

Shri Manoj Mahapatra,IFS
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I. INTRODUCTION

The first planned working of forests in the country was crafted in 1837 by Mr. U.V. Munro, the then Superintendent of Forests in Travancore. On the basis of his personal observation and long experience of working in the woods he estimated that about 1, 00,000 trees of teak were fit to be felled. Later in 1856, Dr. Dietrich Brandis propounded the fundamental principle that the first class trees (trees over a prescribed diameter) to be felled in a year should be restricted to the growing stock of the second class trees that will eventually replace them in that year. Based on this principle of yield control, he prepared the first Forest Management Plan using strip sampling for the Pegu Yoma Forests of Myanmar in the year 1860.

When the Forest Department was decentralized in 1882, it caused a major setback to the progress of Working Plan. However in 1884, the diligent efforts of Sir Wilhelm Schlich, Inspector General of Forests, resulted in a countrywise unified approach towards the preparation of Working Plans and Scientific Management of Forests as per prescription of Working Plans. The experience so gained in the past led W.E. D'arcy to bring out his treatise "Preparation of Forest Working Plans in India" (1891), providing guidelines for systematic Working Plan preparations.

From, 1906, the work of checking working plans was entrusted to the superintendent of Working Plans stationed at Forest Research Institute, Dehradun. It is from this time the Working Plans in our country reached the stage of academic discussions based on research undertaken in the institutional forum. Working Plan Officers based their prescriptions on more definite information about the silvicultural characters of most of the important tree species, techniques of obtaining their regeneration and their probable response to the main silvicultural treatments. However, central control was once again lost in 1935 and felling of forests was carried out in total disregard to the working plan prescriptions.

After India became independent in 1947, the forest department undertook big drives to recover substantial areas under the Working Plans. For the next half century, the State Provincial Governments adopted their own Provincial/State Working Plan Codes. As per regional requirements, Provincial/State Working Plan Codes were adopted in different states of the country. However, with the intervention of Hon'ble Supreme Court of India in 1996, it was clarified that all Working Plans were to be approved by the Central Government on account of forests being brought in the concurrent list. The Ministry of Environment and Forests (MoEF), Govt. of India then adopted a uniform code, the National Working Plan Code – 2004 for preparation of Working Plans for the management of forest under the prescriptions of a Working Plan to standardize the procedure. The Working Plan facilitates monitoring, evaluation and impact assessment of forest management practices being followed in the country. The Govt. of India MoEF & CC have further brought an uniform code in the year, 2014 called National Working Plan Code, 2014 in place of National Working Plan Code, 2004. The present Working Plan is prepared as per guidelines of National Working Plan Code, 2014.

Preparation of Working Plan is a highly technical exercise undertaken at regular interval for each forest division. It is based on stock and vegetation maps prepared through ground surveys, recently, the use of modern tools like Remote Sensing, GIS, GPS and DGPS is being utilized for preparing the forest cover maps of Forest Division. Satelite imagery of forest areas is scientifically analyzed for prepartation of better Working Plan with scientific prescriptions for proper management of forests of a particular forest division. These prescriptions enable necessary co-existence of development with nature for simultaneous implementation of Indian Forest Act, 1927, Wildlife (Protection) Act, 1972, Orissa Forest Act, 1972, Forest Conservation Act, 1980, Panchayat (extension to the Scheduled Areas) (PESA) Act, 1996, Biological Diversity Act, 2002 and Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Right) Act, 2006 and meeting the requirements of the objectives of the National Forest Policy and other international conventions / agreements.

In the year 1804 the Khordha estate was brought under British Rule. The Rayats had been encouraged for extending their cultivation by clearing forests from 1804 to 1870. It is in the year 1870, Mr. W.C Taylor, Dy. Collector restricted felling and taila caltivation. The system of permits and passes was introduced and some regulations were framed. Subsequently, the Govt. of India vide Letter No. 402-T dated 09.06.1879 appointed Mr. E.E. Wylly as Forest Officer under the collector. With the sincere efforts of Mr. Taylor, the local Govt. issued Notification dtd. 09.08.1880 declaring all the unsettled lands in Khordha estate to be Protected Forests under Chapter-IV and Indian Forest Act.

In 1883, the forest of Khordha estates were placed under the control of Forest Department through administrative unit known as Khordha Forest Sub-division with Head Quarter at Khordha under Orissa Forest Division with Head Quarter at Cuttack. In the year 1891, Puri Forest Division was constituted. Most of the Forests of Puri Division were notified reserved between 1888 to 1911.

A portion of Puri Forest Division was carved out and Chandaka (WL) Division was created vide notification no. 8F(N)-49/85,22126/FFAH dtd. 30.12.1985. The Puri Forest Division was re-organised vide Govt. Notification No. 1F(A)-99/2003/13214/F&E dtd. 08.08. 2003 to form **(1)** Khordha Forest Division, **(2)** City Forest Division, **(3)** Puri (WL) Division and **(4)** Chilika Forest Division. The Revised Working Plan of Puri Division prepared by Sri J. D. Sharma, IFS for the period form 1989-90 to 1998-99 was revised by Sri A. Das, IFS for the period from 2007-08 to 2016-17 which covered the Forest Division of **(1)** Khordha Forest Division, **(2)** City Forest Division, **(3)** Puri (WL) Division and **(4)** Chilika Forest Division. This Revised Working Plan of Khordha Forest Division will cover the Forest Blocks of Khordha Forest Division only. The Revised Working Plan of Puri Forest Division expired on 31-03-2017. The Govt. of Odisha in Forest & Environment Department vide their Letter No-13642/F&E dated 31-07-2015 assigned the revision of Working Plan of Khordha Forest Division to the Working Plan Officer, Bhubaneswar. As the preparation of Working Plan of Khordha Forest Division could not be completed within 31.07.2017 and the preparation of Working Plan was under progress, the

Divisional Forest Officer, Khordha Forest Division submitted a Working Scheme for the year 2017-18 for taking up Forestry operation. The Govt. of India, MoEF & CC, Eastern Regional Office Bhubaneswar on dated on 13th October, 2017 approved the Working Scheme of Khordha Forest Division for the year 2017-18. Further as the preparation of Working Plan of Khordha Forest Division was under progress, the Divisional Forest Officer, Khordha Forest Division submitted another Working Scheme for the year 2018-19 for taking up Forestry operation and the Govt. of India MoEF & CC, ERO, Bhubaneswar have approved the Working Scheme of Khordha Forest Division for the year 2018-19 on 8th November, 2018. Also another working scheme is approved for the year 2019-20 as the working plan preparation was under progress.

a) Vision Statement:

The forest in India as well as Odisha have been protected and managed for obtaining sustained yield and conserving bio-diversity. The forest management has always remained production oriented. Due to increase in population & demand of forest produce, there has been tremendous increase of biotic interference which has resulted in the deforestation, degradation & increase in the emission of Green House Gas (GHG). The rapid industrializations by the developed countries, deforestation & degradation of the existing forests, have caused the global warming and Climate Change. To mitigate the effect of the environmental pollution, the United Nation Framework Convention on Climate Change has emphasized on sustainable management, enhancement of carbon stock and ecological stability of forest. Now, the new Working Plan Code-2014 has come into force. This code emphasizes on the study of forest growth on each and every forest type by taking up grid based sample point enumeration. Further the code also emphasizes the thematic use of GIS, remote sensing, e-Greenwatch in assessment of the growing stock of the forest and proper accounting of carbon stock of the forest.

This Revised Working Plan of Khordha Forest Division will exclusively cover the forest area of Khordha Forest Division only, extending over an area of 57,595.49 ha. It will include 22 nos. of Reserved Forests, 05 nos. of Proposed

Reserved Forests, 31 nos. of Demarcated Protected Forests & 142 nos. of Village Forests.

i) The Revised Working Plan of Khordha Forest Division will be conservation oriented rather than production oriented

ii) There will be increasing growing stock and carbon sequestration during the plan period.

iii) The bio-diversity of flora and fauna will be conserved.

iv) Livelihood option of the local people will be provided.

v) Demand of forest produce locally and commercially will be fulfilled by taking up suitable scientific forestry operation and by harvesting the matured class trees by regulating yield of exploitable trees as calculatd by Smythies' Safeguarding Formula

b) Goals and Objectives of Management:

Forest Management Planning aims at providing sustainable management of forests and its biodiversity encompassing the ecological (environmental), economic (production) and social (including cultural) dimensions. The objectives for attaining this goal include conservation of forests and reducing forest degradation, maintenance and enhancement of ecosystem services including ecotourism, enhancement of forest productivity together with establishment of regeneration to improve forest health and vitality as per ecological and silvicultural requirements of the species, progressively increasing the growing stock and carbon sequestration potential, maintenance of biological diversity, sustainable yield of forest produce, prevention of soil erosion and stabilization of the terrain; improvement and regulation of hydrological regime; people's involvement in planning and management of forests fulfilling socio-economic and livelihood needs of the people, albeit with simultaneous implementation of Orissa Forest Act, Wildlife (Protection) Act, Forest Conservation Act, Biological Diversity Act, PESA Act and Forest Rights Act. All these entail that the specific composition and the structure of forests must harmonise with the environment of the locality.

The Revised Working Plan of Khordha Forest Division will give emphasis on sustainable management of forests and its biodiversity as per National Forest Policy encompassing the ecological (environmental), economic (production) and Social (including cultural) dimensions. The main objectives are mentioned below:

- Conservation of Forests
- Reduction forest degradation
- Maintenance and enhancement of ecosystem services including ecotourism
- Enhancement of forest productivity together with establishment of regeneration to improve forest health
- Progressively increasing the growing stock
- Maintenance of biological diversity
- Sustainable yield of forest produce
- Prevention of soil erosion
- Stabilization of the terrain
- Improvement and regulation of hydrological regime
- People's involvement in planning and management of forests fulfilling socio-economic and livelihood needs of the people.
- Maintenance of forest with simultaneous implementation of Indian Forest Act, Orissa Forest Act, Wildlife (Protection) Act, Forest Conservation Act, Biological Diversity Act, PESA Act and Forest Rights Act.

c) SWOT Analysis:-

STRENGTHS: The Khordha Forest Division consists of 6 Ranges, 25 Sections & 95 Beats for management and protection of forests of the Division. One company of CRPF had been deployed by the Govt. of India, since 1994 till 2015 for protection of forest in Berbera landscape of this Division. In view of the withdrawal of CRPF, the State Govt. has deployed two platoons of Odisha Special Striking Force comprising retired Army personnel for the safe guard of above landscape. Further

specially this Division has recruited 4 nos. of Foresters & 25 nos. of Forest Guards to be deployed in that locality for management and protection of valuable Teak Forest after duly sanctioned by the State Govt. There are 108 nos. of VSS which have been formed for joint management and protection the forest of this Division. There are 320 nos. of Eco-clubs formed in the concerned schools of 10 CD blocks in Khordha District for creating awareness among the local peoples for management, protection and conservation of forest in the locality. For catering the need of sawn sizes of local people, there are 10 nos. of Govt. Approved Saw Mills established in the Industrial area located in foot hill of the historical Barunei Temple. Besides that 01 no of Saw Mills has been established in the Industrial area of Sarua village of Khordha Range. In the interior pockets of Berbera landscape there are VHF communication system to the beats and vulnerable points to transmit messages about illicit felling and smuggling of timbers in this Division. A Divisional control room has been established in the office premises of the Divisional Forest Officer which functions round the clock to collect & transmit the informations among the concerned field staffs in the Division. Sufficient numbers of four wheelers vehicles and motor cycles have been provided for strengthening the protection activities. Hired & Govt vehicles have been provided even if to the Range level staff to reach the locations of occurrence of smuggling, hunting, fire etc very promptly.

A Railway control room also has been established in the office premises of Divisional Railway Manager (DRM), South-East Railway, Khordha road to transmit the elephant movement news along the railway line corridors from Kendujhar, Angul, Athgarh, Dhenkanal, Cuttack, Chandaka, City, Puri, Berhampur & Khordha Divisions to Railway Authority of South-East Railway, Khordha.

WEAKNESSES: Illicit removal of Teak, Sal, Asan, Miscellaneous trees, Bamboos & Canes are regular phenomenon of timber maphias and anti-social elements of local and neighbour districts. Contiguous forest patch comprising of Balugaon, Ranpur & Tangi Range are susceptible to illicit felling by the smugglers due to heavy increase in the demand of forest produce for their construction, decoration of houses & domestic use by the local people. During rainy season, the

forest is non-approachable in view of Nallah, Stream sorrounding the forest and profuse invasive weeds. There is no adequate movable road inside the forest. The economic condition of the people living on the fringe villages are not good. Besides that excavation of latterite stone is also regular phenomena in some of the forest areas such as Bhusundpur DPF of Tangi Range & Jariput DPF of Khordha Range, etc. of this Division which needs stringent action against the illegal intruders. Excavation of Soil of Kumuka PRF of Delanga Range is also in alaraming situations which need attention to save the natural resources of the Division.

OPPORTUNITIES: Development of communication system in the Khordha Forest Division such as VHF, Mobile network & Road communication, etc. definitely help for prompt detection of Forest & Wildlife offence cases which intern will minimize activities of forest offenders resulting in improvement of forest resource, conservation of biodiversity of the forest landscape. Deployment of Odisha Special Stricking Force (OSSF) with Arm & Ammunitions in Berbera landscape will minimize the activities of forest intruders if OSSF personnels are properly mobilized by the officer incharge. Posting of a Class-I Officers (ACF), 4 nos. of Foresters & 25 nos. of Forest Guards above the cadre strength, definitely will improve the protection and conservation of forests in Berbera landscape and adjoining area of the Division. Provision of sufficient nos. of motor cycles & four wheelers will facilitate to involve the staffs for protection, execution and conservation of valuable forest resource of the Division. Development of infrastructures such as Buildings, Watch towers in Mahishagotha, Mahulia, Berbera, Dhuanali, Sankhajodi, Betuli & other remote area will enhance the protection efficiency with presence of staffs deployed in these places to perform their duty. Participatory Management of forest in the fringe villages have been taken up among the **108** VSS for protection and management of forest. Public awareness are being created through Eco-clubs in different schools of the Division. General Body Meeting of the Forest Development Agency (FDA). Decentralized nurseries have been established to strengthen the VSS. Deployment of Young Para Forest Staffs more than 100 nos. alongwith regular staffs is enriching the protection systems of forests.

THREATS: Development of township sorrounding of this Division increases demand of forest produce for decoration, furnitures, doors and windows etc resulting removal of forest produce illegally from forests area. Similarly laterite stone excavation from revenue as well as forest areas in Tangi and Khordha Range for construction of buildings and excavation of morums and boulders in Delang Range for construction of roads also create critical situation to save forest lands. Poaching of wild animals in Balugaon, Ranpur, and Tangi Range area is posing a great threat to the faunal biodiversity. The Wild Animals are depreding to the human habitation in search of food & water. The conflict between wild animal and human being is a serious problem in the Division. Elephants from Chandaka Wild Life Sanctuary are migrating to Khordha Division and are becoming resident to the Division. The wild elephants damage agriculture crops in surrounding paddy fields. Encroachment for habitations and agricultural practices are taking place in the demarcated protected forests of the Division. Invasion of weeds on the moist locality and destruction of forest growth by insects, leaf defoliaters, skeletoniser & stem borers are taking place in the Division. The occurrence of fire in summer season is also major threat for the forest.

d) Expected Out-come:

The matured and exploitable trees will be harvested on sustainable basis and the demand of timber, Fire wood, bamboo and NTFT of the local people and also for commercial uses will be fullfiled maintaining the ecological balance and conserving the biodiversity of forests. The livelihood options of local people can be provided and employment can be generated.The carbon stock in the forest will be increased by adopting sustaninable management practices and by raising of quality plantions in the forest. The emission of Green House Gas will be reduced and effect of Climate Change will be mitigated. The eco-tourism facilities will be developed in forest area there by attracting tourist to visit the forest, enjoy the scenic beauty of the forest, and develop love and affection to the wild life.

Year wise Annual Physical Target proposed under different Working Circle							
Year	Selection Cum Improvement Working Circle in Ha.	Rehabilitation Working Circle in Ha.	Plantation Working Circle				Bamboo (OL) Working Circle in Ha.
			Planting Series in Ha.	Tending Series (Old Plantation) in Ha.	Tending Series (VF) in Ha.	Total PWC in Ha.	
2021-22	2527.85	1551.661	209.058	465	86.3	760.358	6194.86
2022-23	2935.99	1336.927	182.617	379.674	103.36	665.651	7079.98
2023-24	3558.95	1318.413	203.393	305	92.8	601.193	7715.89
2024-25	4030.88	2005.072	231.444	381	83.82	696.264	8387.78
2025-26	3235.71	2095.626	162.582	405	84.04	651.622	6194.86
2026-27	3860.04	2093.426	195.082	461	92.45	748.532	7079.98
2027-28	3809.69	1888.276	165.607	401	97.16	663.767	7715.89
2028-29	3138.74	1911.9865	174.629	460	92.47	727.099	8387.78
2029-30	4143.86	1865.72	188.316	405	97.15	690.466	6194.86
2030-31	2224.3	2020.771	192.853	485	95.07	772.923	7079.98

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II. LIST OF FLORA

(Indicating RET and unique species)

List of Flora of Khordha Forest Division:-

The plant species found in the forests of Khordha Forest Division are listed below

Sl.	Botanical Name	Local Name	Habit	Family
1	*Abelnoschus moschotus*	Bana bhendi	Herb & Grass	Malvaceae
2	*Acacia mangium*	Acacia	Tree	Mimosaceae
3	*Acacia Pinata*	Dantari	Climber	Mimosaceae
4	*Acalypha hispida*	Bileikhoji	Climber	Euphorbiaceae
5	*Achyranthes bidentata*	Chirchira	Herb & Grass	Amaranthaceae
6	*Adenanthera pavonina*	Manda kaincha	Tree	Mimosaceae
7	*Adhatoda vasica*	Basanga	Shrub	Acanthaceae
8	*Adiantum lunulatum*	Hanspadi	Herb & Grass	Adiantaceae
9	*Aeginetia indica*	Aankuri bankuri	Herb & Grass	Orobanchaceae
10	*Aerva lanata*	Paunsia	Herb & Grass	Amaranthaceae
11	*Aerva sanguinolenta*	Chauladhua	Shrub	Amaranthaceae
12	*Aganosma caryophyllata*	Gandha malati	Climber	Apocynaceae
13	*Aganosma dichotoma*	Malati	Climber	Apocynaceae
14	*Agave americana*	Baramasi	Shrub	Liliaceae
15	*Ageratum conyzoides*	Pokasunga	Herb & Grass	Asteraceae
16	*Alangium lamarckii*	Ankula	Tree	Cornaceae
17	*Albizia lebbeck*	Tinia	Tree	Mimosaceae
18	*Albizia odoratissima*	Kala sirisa	Tree	Mimosaceae
19	*Albizia thompsonii*	Dhala sirisa	Tree	Mimosaceae
20	*Albizzia stipulata*	Ghodalanjia	Tree	Fabaceae
21	*Allium sps.*	Rasuna	Herb & Grass	Alliaceae
22	*Allophlus cobbe*	Kanta kapali	Shrub	Apocynaceae
23	*Allophylus serratus*	Khanda koli	Shrub	Sapindaceae
24	*Alocasia montana*	Bana saru	Herb & Grass	Araceae
25	*Alpinia malaccensis*	Kulinjan	Herb & Grass	Zingiberaceae
26	*Alstonia venenata*	Bagmari	Tree	Apocynaceae

Sl.	Botanical Name	Local Name	Habit	Family
27	*Alternanthera sessilis*	Madaranga	Herb & Grass	Amaranthaceae
28	*Alysicarpus vaginalis*	Sauri	Herb & Grass	Fabaceae
29	*Amaranthus spinosus*	Kanta leutia	Herb & Grass	Amaranthaceae
30	*Amaranthus viridis*	Leutia saga	Herb & Grass	Amaranthaceae
31	*Amorphophallus bulbifer*	Devils tongue	Herb & Grass	Araceae
32	*Amorphophallus campanulatus*	Olua	Herb & Grass	Araceae
33	*Amorphophalus paeoniifolius*	Olua	Herb & Grass	Araceae
34	*Ampelocissus latifolia*	Kanjia loi	Climber	Vitaceae
35	*Anamirta cocculus*	Kalabati	Climber	Menispermaceae
36	*Anisochilus carnosus*	Panjiri	Herb & Grass	Lamiaceae
37	*Anisomeles indica*	Bhutamari	Herb & Grass	Lamiaceae
38	*Annona reticulata*	Sitaphal	Tree	Annonaceae
39	*Annona sqoamosa*	Aata	Shrub	Annonaceae
40	*Annona squamosa*	Aata	Tree	Annonaceae
41	*Antidesma diandrum*	Mamari	Shrub	Phyllanthaceae
42	*Antidesma ghaesembilla*	Suankali	Tree	Euphorbiaceae
43	*Aphanamixis polystachya*	Khanda gilakusuma	Tree	Meliaceae
44	*Aporusa octandra*	Masania/Mosu	Tree	Phyllanthaceae
45	*Arachis hypogea*	Bhuin chana	Herb & Grass	Fabaceae
46	*Aristolochia bracteata*	Paniri	Climber	Aristolochiaceae
47	*Aristolochia indica*	Ishwarmuli	Climber	Aristolochiaceae
48	*Artemisia nilagirica*	Panairi	Herb & Grass	Asteraceae
49	*Artocarpus lacucha*	Jeutha	Tree	Moraceae
50	*Artocarpus lakoocha*	Jeotha	Tree	Moraceae
51	*Asparagus racemosa*	Satavari	Climber	Liliaceae
52	*Atalantia monophylla*	Narguni	Tree	Rutaceae
53	*Atlantia malabarica*	Narguni	Tree	Rutaceae
54	*Atlantia monophylla*	Narguni	Shrub	Rutaceae
55	*Atylosia cajanifolia*	Kanduli	Herb & Grass	Fabaceae
56	*Atylosia scarabaeoides*	Bana kolatha	Climber	Fabaceae
57	*Averrhoea carambola*	Karamanga	Tree	Oxalidaceae
58	*Balanites aegyptiaca*	Poi chandia	Tree	Zygophyllaceae
59	*Baleria prionitis*	Daskerenta	Herb & Grass	Acanthaceae
60	*Baliospermum montanum*	Danti	Herb & Grass	Euphorbiaceae

Sl.	Botanical Name	Local Name	Habit	Family
61	*Bambax ceiba*	Simili	Tree	Bombacaceae
62	*Bambusa pallida*	Pani baunsa	Herb & Grass	Poaceae
63	*Bambusa tulda*	Baunsa	Tree	Poaceae
64	*Baringtonia acutangula*	Hinjala	Tree	Lecythidaceae
65	*Barleria prionitis*	Kanta malati	Herb & Grass	Acanthaceae
66	*Barleria strigosa*	Vajra danti	Herb & Grass	Acanthaceae
67	*Bauhinia retusa*	Barada	Tree	Leguminosae
68	*Bauhinia vahillii*	Siali	Climber	Caesalpiniaceae
69	*Benkara malabarica*	Phiriki	Shrub	Rubiaceae
70	*Benkara malaberica*	Firika	Shrub	Rubiaceae
71	*Biophytum sensitivum*	Lajavanti	Herb & Grass	Oxalidaceae
72	*Blumea lacera*	Pokasunga	Herb & Grass	Asteraceae
73	*Borassus flabelifer*	Tala	Tree	Arecaceae
74	*Brachiaria ramosa*	Bansapalli	Herb & Grass	Poaceae
75	*Breynia vitisidaea*	Jajhangi	Shrub	Euphorbiaceae
76	*Breynia vitis-idaea*	Pohala koli / Jajan	Shrub	Euphorbiaceae
77	*Bridelia monoica*		Tree	Euphorbiaceae
78	*Bridelia stipularis*	Goura kasi	Climber	Euphorbiaceae
79	*Byttneria herbacea*	Padarojhati / Samarkhoi	Herb & Grass	Sterculiaceae
80	*Caesalpinia bonduc*	Gila	Climber	Caesalpiniaceae
81	*Caesalpinia decapetala*	Gilla	Climber	Caesalpiniaceae
82	*Caesalpinia digyna*	Krishnachuda	Climber	Caesalpiniaceae
83	*Cajanus cajan*	Bana harada	Herb & Grass	Fabaceae
84	*Calamus latifolius*	Beta (Gouri)	Shrub	Arecaceae
85	*Calamus latispinus*	Beta	Climber	Arecaceae
86	*Calamus rotang*	Beta	Shrub	Arecaceae
87	*Calamus sps.*	Beta	Shrub	Arecaceae
88	*Callicarpa arborea*	Badapatri	Tree	Verbenaceae
89	*Calophyllum inophyllum**	Polanga	Tree	Clusiaceae
90	*Calycopteris floribunda*	Akandi	Climber	Combretaceae
91	*Canna indica*	Kedara	Shrub	Cannaceae
92	*Canscora diffusa*	Bana bana	Herb & Grass	Gentianaceae
93	*Canthium dicoccum*	Dalsingha	Tree	Rubiaceae
94	*Canthium didymum*	Dalasingha/ Kumbharchikini	Tree	Rubiaceae

Sl.	Botanical Name	Local Name	Habit	Family
95	*Canthium diococcum*	Kurma/ Karuna	Tree	Rubiaceae
96	*Capparis horrida*	Asadua	Climber	Capparaceae
97	*Capparis zeylanica*	Ashadhua	Climber	Capparaceae
98	*Carallia brachiata*	Bhuasuni	Tree	Rhizophoraceae
99	*Cardiospermum helicacabum*	Karabhi	Climber	Sapindaceae
100	*Carissa carandas*	Kerenda koli	Climber	Apocynaceae
101	*Carissa spinaraum*	Khira koli	Shrub	Apocynaceae
102	*Carmona retusa*	Kujiparna	Herb & Grass	Boraginaceae
103	*Carum copticum*	Joain (Madhura)	Tree	Apiaceae
104	*Cascabela thevetia*	Kaniara	Shrub	Apocynaceae
105	*Casearia graveolens*	Giridi	Tree	Flacourtiaceae
106	*Casia sophera*	Kasunda	Herb & Grass	Fabaceae
107	*Casia tora*	Chakundi	Shrub	Leguminosae
108	*Cassia mimosoides*	Patwa-ghas	Herb & Grass	Caesalpiniaceae
109	*Cassia occidentalis*	Ghoda chakunda	Herb & Grass	Caesalpiniaceae
110	*Cassia tora*	Chakunda	Herb & Grass	Caesalpiniaceae
111	*Catunaregam spinosa*	Salara	Shrub	Rubiaceae
112	*Celastrus paniculata*	Lai beheda	Climber	Celastraceae
113	*Celastrus paniculatus*	Kharasana	Climber	Celastraceae
114	*Celastrus timorensis*	Gundi	Tree	Asteraceae
115	*Celosia argentea*	Gudgudia saga	Herb & Grass	Amaranthaceae
116	*Centella asiatica*	Thalakudi	Herb & Grass	Apiaceae
117	*Centilla asiatica*	Bhuin patali/Thalkudi	Herb & Grass	Apiaceae
118	*Chionanthus mala-elengi*	Chauli	Tree	Oleaceae
119	*Chloris barbata*		Herb & Grass	Poaceae
120	*Chlorophytum tuberosum*	Musli	Herb & Grass	Liliaceae
121	*Chloroxylon swietenia*	Bheru	Tree	Rutaceae
122	*Chrysopogon aciculatus*	Guguchia	Herb & Grass	Poaceae
123	*Chrysopogon verticillatus*		Herb & Grass	Poaceae
124	*Cissus quadrangula*	Gandiana	Herb & Grass	Vitaceae
125	*Citrullus aurantium*	Karuna	Tree	Cucurbitaceae
126	*Citrus aurantifolia*	Lembu	Tree	Rutaceae
127	*Cleome monophylla*	Ranga sorisa	Herb & Grass	Capparaceae
128	*Cleome viscosa*	Bana sorisa	Herb & Grass	Capparaceae

Sl.	Botanical Name	Local Name	Habit	Family
129	*Clerodendrum indicum*	Naragi	Tree	Verbenaceae
130	*Clerodendrum viscosum*	Kharkhari	Shrub	Verbenaceae
131	*Clinogyne dichotoma*	Kharsanga	Shrub	Marantaceae
132	*Clitoria ternatea*	Aparajita	Herb & Grass	Fabaceae
133	*Coccinia grandis*	Banakunduri	Climber	Cucurbitaceae
134	*Cocholospermum gossypium*	Ganiari	Tree	Cochlospermaceae
135	*Codariocalyx motorius*		Shrub	Fabaceae
136	*Coffea benghalensis*	Banamali	Shrub	Rubiaceae
137	*Colebrokia oppositifolia*		Shrub	Lamiaceae
138	*Colocasia forniculata*		Shrub	Araceae
139	*Colocasia macrorhiza*	Mankanda	Shrub	Araceae
140	*Colocasia sps.*	Bana saru	Herb & Grass	Araceae
141	*Combretum albidum*	Aatandi / korakpudia	Climber	Combretaceae
142	*Combretum roxburghii*	Aatandi / korakpudia	Climber	Combretaceae
143	*Commelina benghalensis*	Kansira	Herb & Grass	Commelinaceae
144	*Commelina kurzii*	Kanyari / Konisir	Herb & Grass	Commelinaceae
145	*Corchorus acutangulus*	Bananalita	Herb & Grass	Tiliaceae
146	*Cordia dichotoma*	Ambota /Bari	Tree	Ehretiaceae
147	*Cordia obliqua*	Dhuanla	Tree	Moraginaceae
148	*Crataeva religiosa*	Baruna	Tree	Capparaceae
149	*Crateva magna*	Varuna	Tree	Capparaceae
150	*Crotalaria albida*	Bana methi	Herb & Grass	Fabaceae
151	*Crotalaria pallida*	Junjunka	Herb & Grass	Fabaceae
152	*Crotalaria retusa*		Herb & Grass	Fabaceae
153	*Crotolaria spectabilis*	Jhunka	Herb & Grass	Fabaceae
154	*Croton bonplandianus*	Gandha tulasi	Herb & Grass	Euphorbiaceae
155	*Croton caudatus*	Farudi	Climber	Euphorbiaceae
156	*Croton oblongifolius*	Gotha	Tree	Euphorbiaceae
157	*Cryptocarya amygdalina*	Dhual	Tree	Lauraceae
158	*Cucumis sativus*	Kakudi	Climber	Cucurbitaceae
159	*Cucumis trigonus*		Climber	Cucurbitaceae
160	*Curculigo recurvata*		Shrub	Hypoxidaceae
161	*Curcuma angustifolia*	Palua	Herb & Grass	Zingiberaceae

Sl.	Botanical Name	Local Name	Habit	Family
162	*Curcuma aromatica*	Bana haladi	Herb & Grass	Zingiberaceae
163	*Curcuma montana*	Sakta	Climber	Zingiberaceae
164	*Cycas sphaerica*		Tree	Cycadaceae
165	*Cymbopogon flexuosus*	Dhanwantari	Herb & Grass	Poaceae
166	*Cyperus alternifolius*	Umbrella palm	Herb & Grass	Cyperaceae
167	*Cyperus articulatus*	Nut grass	Herb & Grass	Cyperaceae
168	*Cyperus distans*		Herb & Grass	Cyperaceae
169	*Cyperus rotundus*	Mutha	Herb & Grass	Cyperaceae
170	*Dactyloctenium acgyptium*	Kakudia grass	Herb & Grass	Poaceae
171	*Dactyloctenium aegyptiacum*	Kakudia grass	Herb & Grass	Poaceae
172	*Dalbergia lanceolaria*	Sajanapati	Tree	Fabaceae
173	*Dalbergia paniculata*	Barbakulia	Tree	Fabaceae
174	*Dalbergia rubiginosa*	Kanchanai	Climber	Fabaceae
175	*Dalbergia sisoo*	Sisoo	Tree	Fabaceae
176	*Dalbergia sissoo*	Sisua	Tree	Fabaceae
177	*Datura stramonium*	Dudura	Shrub	Solanaceae
178	*Delonix regia*	Krushnachuda	Tree	Caesalpiniaceae
179	*Dendrophthoe falcata*	Madanga	Herb & Grass	Loranthaceae
180	*Desmodium cephalotes*	Ranidanturi	Shrub	Fabaceae
181	*Desmodium gangeticum*	Salaparni	Herb & Grass	Fabaceae
182	*Desmodium heterocarpon*	Krushnaparni	Shrub	Fabaceae
183	*Desmodium pulchellum*	Jatasalaparni	Shrub	Fabaceae
184	*Desmodium triangulare*		Shrub	Fabaceae
185	*Desmodium velutinum*		Shrub	Fabaceae
186	*Desmostachya bipinnata*	Kusa grass	Herb & Grass	Poaceae
187	*Diaspyras ferrea*	Guakoli	Shrub	Celastraceae
188	*Digitaria cilliaris*		Herb & Grass	Poaceae
189	*Digitaria longiflora*		Herb & Grass	Poaceae
190	*Dimorphocalyx glabellus*	Gaigutia/ Sinhala	Tree	Euphorbiaceae
191	*Dioscorea alata*	Deshi aalu	Climber	Dioscoreaceae
192	*Dioscorea asuleata*	Cheranga	Climber	Dioscoreaceae
193	*Dioscorea belophylla*	Kandha aalu	Climber	Dioscoreaceae

Sl.	Botanical Name	Local Name	Habit	Family
194	*Dioscorea bulbifera*	Khamba aalu	Climber	Dioscoreaceae
195	*Dioscorea glabra*	Kanta alu	Climber	Dioscoreaceae
196	*Dioscorea hamiltonii*	Palru / Suta alu	Climber	Dioscoreaceae
197	*Dioscorea hispida*	Bana alu	Climber	Dioscoreaceae
198	*Dioscorea oppositifolia*	Pani aalu	Climber	Dioscoreaceae
199	*Dioscorea puber*	Kasa alu	Climber	Dioscoreaceae
200	*Dioscorea spinosa*	Sana alu	Climber	Dioscoreaceae
201	*Diospyros cordifolia*	Halda / Tari	Tree	Ebenaceae
202	*Diospyros embryopteris*	Mankadakendu	Tree	Ebenaceae
203	*Diospyros ferrea*	Gua koli	Tree	Ebenaceae
204	*Diplazium esculentum*		Herb & Grass	Athyriaceae
205	*Diplocyclos palmatus*	Shivlinga / Shivlingi	Climber	Cucurbitaceae
206	*Dolichus trilobus*		Climber	Fabaceae
207	*Dracaena terniflora*	Rakta khai	Herb & Grass	Agavaceae
208	*Dryopteris cochleata*		Herb & Grass	Dryopteridaceae
209	*Drypetes assamica*	Ahira	Tree	Euphorbiaceae
210	*Dunbaria conspersa*		Climber	Fabaceae
211	*Echinochloa colonum*	Panidala	Herb & Grass	Poaceae
212	*Eclipta alba*	Bhrungaraj	Herb & Grass	Asteraceae
213	*Ehretia laevis*	Mosania	Tree	Ehretiaceae
214	*Elaedendron glaucum*	Chauli	Tree	Celastraceae
215	*Eleusine indica*	Nandia ghasa	Herb & Grass	Poaceae
216	*Embelia tsjeriam-cottam*	Bai-bidanga	Shrub	Myrsinaceae
217	*Entada acandens*	Gila	Climber	Fabaceae
218	*Entada rheedii*		Climber	Caesalpiniaceae
219	*Entada scandens*	Bada gila	Climber	Fabaceae
220	*Eragrostis ciliaris*		Herb & Grass	Poaceae
221	*Eragrostis nutans*	Luhabena	Herb & Grass	Poaceae
222	*Eranthemum capensis*		Herb & Grass	Acanthaceae
223	*Erycibe paniculata*	Dura koli	Climber	Convolvulaceae
224	*Erycibe peniculata*	Durkoli	Climber	Convolvulaceae
225	*Erythrina indica*	Paladhua	Tree	Fabaceae
226	*Erythrina suberosa*	Paldhua / Chauladhua	Tree	Fabaceae
227	*Eucalyptus sps.*	Eucalyptus	Tree	Myrtaceae

Sl.	Botanical Name	Local Name	Habit	Family
228	*Eugenia bracteata*	Sagar batua	Shrub	Myrtaceae
229	*Euphorbia ligularia*	Siju (Tikanta)	Herb & Grass	Euphorbiaceae
230	*Euphorbia royalenna*	Siju	Shrub	Euphorbiaceae
231	*Evolvulus nummularius*	Bichhamalia	Herb & Grass	Convolvulaceae
232	*Femingia stricta*		Shrub	Fabaceae
233	*Fern sps.*	Fern	Herb & Grass	Aspidiaceae
234	*Ficus benghalensis*	Bara	Tree	Moraceae
235	*Ficus benjamina*	Kuji bara	Tree	Moraceae
236	*Ficus elastica*	Rubber	Tree	Moraceae
237	*Ficus exasperta*	Koritosono	Tree	Moraceae
238	*Ficus glaberrina*	Kharsan	Tree	Moraceae
239	*Ficus glomerata*	Dimiri	Tree	Moraceae
240	*Ficus heterophylla*	Bhuin dimiri	Tree	Moraceae
241	*Ficus hispida*	Kharasana / Dimiri	Tree	Moraceae
242	*Ficus racemosa*	Dimiri	Tree	Moraceae
243	*Ficus semicordata*	Bhuindumuri	Tree	Moraceae
244	*Ficus tinctoria*	Udabara/Jirang	Tree	Moraceae
245	*Fimbristylis acuminata*		Herb & Grass	Cyperaceae
246	*Finlaysonia obovata*	Bana lati / Khalua	Climber	Periplocaceae
247	*Firmiana indica*	Kantei koli	Shrub	Flacourtiaceae
248	*Flacourtia jangomas*	Baincha	Shrub	Flacourtiaceae
249	*Flacourtia jangomos*	Baincha koli	Shrub	Salicaceae
250	*Flacourtia ramontchii*	Kontaikuli	Climber	Flacourtiaceae
251	*Flemengia chappar*	Rani dantakathi	Shrub	Fabaceae
252	*Floscopa scandens*		Herb & Grass	Commelinaceae
253	*Garcinia cowa*	Sarbena / Rajkusuma	Tree	Clusiaceae
254	*Gardenia gummifera*	Ghurudu	Shrub	Rubiaceae
255	*Garuga pinnata*	Pitamoi	Tree	Burseraceae
256	*Geophila repens*		Herb & Grass	Rubiaceae
257	*Glinus oppositifolius*	Pita saga	Herb & Grass	Molluginaceae
258	*Gliricidia sepium*		Tree	Fabaceae
259	*Globba orixensis*		Shrub	Zingiberaceae
260	*Glochidion lanceolarium*	Kalichua	Tree	Euphorbiaceae
261	*Glochidion zeylanicum*	Kalchua	Shrub	Phyllanthaceae
262	*Glycosmis arborea*	Aanachara	Shrub	Rutaceae

Sl.	Botanical Name	Local Name	Habit	Family
263	*Glycosmis pentaphylla*	Homobicha	Shrub	Rutaceae
264	*Gnetum scandens*	Lolari	Climber	Gnetaceae
265	*Gomphrena celosoides*	Hiragole	Herb & Grass	Amaranthaceae
266	*Gouania leptostachya*	Rakta pichali	Climber	Rhamnaceae
267	*Gouaria leptostachya*	Raktapituli	Climber	Rubiaceae
268	*Grewia disperma*	Mrutanjibi/Mrugachar	Tree	Tiliaceae
269	*Grewia tilaefolia*	Dhaman	Tree	Tiliaceae
270	*Guazuma ulmifolia*	Rudrakshya	Tree	Sterculiaceae
271	*Gymneva sylvestris*	Gudamari	Climber	Apocynaceae
272	*Hedyotis brachiata*		Herb & Grass	Rubiaceae
273	*Hedyotis nitida*		Herb & Grass	Rubiaceae
274	*Hedyotis ovatifolia*		Herb & Grass	Rubiaceae
275	*Helectris isora*	Mura	Shrub	Sterculiaceae
276	*Helicteres isora*	Modi modika	Shrub	Sterculiaceae
277	*Heliotropium indicum*	Nagadanti	Herb & Grass	Boraginaceae
278	*Hemigraphis latebrosa*	Bareng Phul	Herb & Grass	Acanthaceae
279	*Hemionitis arifolia*		Herb & Grass	Hemionitidaceae
280	*Heteropogon contortus*	Sinkula	Herb & Grass	Poaceae
281	*Heteropogon contrortus*	Sinkula	Herb & Grass	Poaceae
282	*Hewittia sublobata*		Climber	Convolvulaceae
283	*Hibiscus mutabilis*	Stala padma	Tree	Malvaceae
284	*Hiptage benghalensis*	Bana malli	Climber	Moraceae
285	*Holoptelea integrifolia*	Dhauranga / Pithala	Tree	Ulmaceae
286	*Holoptelia integrifolia*	Dhaurang	Tree	Ulmaceae
287	*Homalium nepalense*	Kakhada	Tree	Flacourtiaceae
288	*Homonoia riparia*	Jamala	Shrub	Euphorbiaceae
289	*Hybanthus emeasfermus*	Madan mostok	Herb & Grass	Violaceae
290	*Hybanthus enneaspermus*	Madanmasta	Herb & Grass	Violaceae
291	*Hygrophila auriculata*	Koili khia	Herb & Grass	Acanthaceae
292	*Hymenachne acutigluma*		Herb & Grass	Poaceae
293	*Hymenodictyon orixense*	Bhrukundi	Tree	Rubiaceae
294	*Hymenodictyon orixensis*	Bodaka / ghana ugaragandha	Tree	Rubiaceae

Sl.	Botanical Name	Local Name	Habit	Family
295	*Hyptis suaveolens*	Ganga tulasi	Herb & Grass	Lamiaceae
296	*Ichnocarpus frutiscens*	Soyam nai	Shrub	Apocynaceae
297	*Imperata arundinacea*	Chhana	Herb & Grass	Poaceae
298	*Imperata cylindrica*	Chhana grass	Herb & Grass	Poaceae
299	*Indigofera linifolia*	Indego	Herb & Grass	Fabaceae
300	*Indigofera pulchella*	Giliri	Shrub	Fabaceae
301	*Indigofera tinctorea*	Nilachara	Shrub	Fabaceae
302	*Ipomoea nil*	Kaladana	Climber	Convolvulaceae
303	*Ipomoea pes-tigridis*	Balaipada	Climber	Convolvulaceae
304	*Ixora parviflora*	Tela kuruan	Tree	Rubiaceae
305	*Ixora undulata*	Karuna	Tree	Rubiaceae
306	*Jasminum arborescens*	Banamali	Climber	Oleaceae
307	*Jasminum auriculatum*	Bana malati	Climber	Oleaceae
308	*Jasminum auriculatum*	Jari	Tree	Moraceae
309	*Jasminum scandens*	Bana malli	Climber	Oleaceae
310	*Jasminum scandens*	Jagal	Climber	Onagraceae
311	*Jasminum scandens*		Climber	Fabaceae
312	*Jatrapha gossypifolia*	Lankagaba	Shrub	Euphorbiaceae
313	*Jatropha gossypifolia*	Baigaba	Shrub	Euphorbiaceae
314	*Justicia gendarussa*	Kukurdanti	Shrub	Acanthaceae
315	*Kalanchoe pinnata*	Hemakal kiri	Herb & Grass	Crassulaceae
316	*Knoxia sumatrensis*		Herb & Grass	Rubiaceae
317	*Kyllinga triceps*	Mutha grass	Herb & Grass	Cyperaceae
318	*Lagerstoemia parviflora*	Sidha	Tree	Lythraceae
319	*Lagerstoremia reginae*	Patuli	Tree	Lythraceae
320	*Lanea grandis*	Moi	Tree	Arecaceae
321	*Lasiococca comberi*	Kukuri hari	Tree	Euphorbiaceae
322	*Leea indica*	Kukur biri	Shrub	Leeaceae
323	*Leea macrophylla*	Hansia dabar	Tree	Leeaceae
324	*Lepidagathis fasciculata*	Rasna	Herb & Grass	Acanthaceae
325	*Lepisanthes tetraphylla*	Pani kusuma	Tree	Sapindaceae
326	*Leucaena leucocephala**	Subabula	Tree	Mimosaceae
327	*Leucas lanata*	Gayasa	Herb & Grass	Lamiaceae

Sl.	Botanical Name	Local Name	Habit	Family
328	*Lindernia anagalis*		Herb & Grass	Scrophulariaceae
329	*Lindernia ciliata*		Herb & Grass	Scrophulariaceae
330	*Lindernia cordifolia*		Herb & Grass	Scrophulariaceae
331	*Lippia javanica*	Naguari	Shrub	Verbenaceae
332	*Litsaea polyantha*	Bastura	Tree	Lauraceae
333	*Litsea monopetala*	Bana aairi	Tree	Lauraceae
334	*Litsea sebifera*	Jaisanda	Tree	Lauraceae
335	*Ludwigia perrenis*	Latkera	Herb & Grass	Onagraceae
336	*Luffa acutangula*	Bana janhi	Climber	Cucurbitaceae
337	*Luffa cylindrica*	Jani	Climber	Cucurbitaceae
338	*Lygodium flexuosum*	Kala Mahajal	Climber	Lygodiaceae
339	*Maba boxifolia*	Guakoli	Shrub	Ebenaceae
340	*Macaranga peltata*	Gandhaguria	Tree	Euphorbiaceae
341	*Mallotus philipinensis*	Kamalagundi / Kumkuma	Tree	Euphorbiaceae
342	*Manilkara hexandra*	Khira koli	Tree	Sapotaceae
343	*Mariscus paniceus*		Herb & Grass	Cyperaceae
344	*Marsdenia hamiltonii*	Gudaguhala	Herb & Grass	Apocynaceae
345	*Maytenus emarginatus*	Gaurakasa	Shrub	Celastraceae
346	*Melastoma malabathricum*	Gangai tree	Shrub	Melastomaceae
347	*Melia azadirachata*	Maha nima	Tree	Meliaceae
348	*Melia azedarach*	Maha nimba	Tree	Meliaceae
349	*Melia composita*	Batra	Tree	Meliaceae
350	*Melia dubia*	Bahal	Tree	Meliaceae
351	*Melochia corchorifolia*	Telpuri	Herb & Grass	Sterculiaceae
352	*Merremia emarginata*	Musakani	Climber	Convolvulaceae
353	*Merremia hastata*		Climber	Convolvulaceae
354	*Mesua ferrea*	Nageswar	Tree	Calophyllaceae
355	*Michelia champaca*	Champa	Tree	Magnoliaceae
356	*Michelia champaka*	Champa	Tree	Magnoliaceae
357	*Micrococca mercurialis*		Herb & Grass	Euphorbiaceae
358	*Miliusa velutina*	Gandha palas	Tree	Annonaceae
359	*Milletia auriculata*	Gaja	Climber	Leguminosae
360	*Milletia racemosa*	Marda	Climber	Fabaceae
361	*Millettia extensa*	Guadhuni	Climber	Fabaceae
362	*Millettia racemosa*	Swarbhang	Climber	Fabaceae

Sl.	Botanical Name	Local Name	Habit	Family
363	*Milliusa velutina*	Gandhapalas	Tree	Annonaceae
364	*Mimosa himalayan*	Khiri koli	Shrub	Mimosaceae
365	*Mimosa intsia*	Rahana	Shrub	Mimosaceae
366	*Mimusops elengi*	Baula	Shrub	Sapotaceae
367	*Mitragyna parviflora*	Mundi / Kelikadamba	Tree	Rubiaceae
368	*Mitreola petiolata*		Herb & Grass	Spigeliaceae
369	*Mollugo pentaphylla*	Pitasaga	Herb & Grass	Molluginaceae
370	*Momordica charantia*	Kalara	Climber	Cucurbitaceae
371	*Morinda pubescens*	Achu / Achchu	Tree	Rubiaceae
372	*Mukia maderaspatana*	Pahadi kakharu	Climber	Cucurbitaceae
373	*Murdannia spirata*		Herb & Grass	Commelinaceae
374	*Murraya koenigii*	Bhersunga/ Mersunga	Shrub	Rutaceae
375	*Murraya paniculata*	Banamallica	Tree	Rutaceae
376	*Musa ornata*	Bana kadali	Shrub	Musaceae
377	*Neolamarckia cadamba*	Kadamba	Tree	Rubiaceae
378	*Nyctanthus arbor-tristis*	Ganga siuli	Tree	Oleaceae
379	*Ocimum americanum*	Subasi / Kapurkanti	Herb & Grass	Lamiaceae
380	*Ocimum canum*	Bana tulasi	Herb & Grass	Lamiaceae
381	*Operculina turpethum*	Dudhaloma	Climber	Convolvulaceae
382	*Opilia amantacea*	Durikoli	Shrub	Amantacea
383	*Oplismenus burmanii*	Kougodia	Herb & Grass	Poaceae
384	*Oplismenus compositus*	Kaugudia / Mohara	Herb & Grass	Poaceae
385	*Orthosiphon pallidus*	Gayatulasi	Herb & Grass	Lamiaceae
386	*Oxytenenthera nigrociliata*	Balangi baunsa	Herb & Grass	Ancanthaceae
387	*Pachystylidium hirsutum*		Climber	Euphorbiaceae
388	*Paederia foetida*	Pasaruni	Climber	Rubiaceae
389	*Pandanus fascicularis*	Jambala/Kia	Shrub	Pandanaceae
390	*Panicum montanum*		Herb & Grass	Poaceae
391	*Panicum notatum*		Herb & Grass	Poaceae
392	*Paspalidium flavidum*	Bileilanja	Herb & Grass	Poaceae
393	*Paspalidium scrobiculatum*	Kodua	Herb & Grass	Poaceae
394	*Passiflora suberosa*	Tamala lata	Climber	Passifloraceae
395	*Pavetta tomentosa*	Machhi kanda	Tree	Rubiaceae

Sl.	Botanical Name	Local Name	Habit	Family
396	*Pennisetum pedicillatum*		Herb & Grass	Poaceae
397	*Pentapetes phoenicea*	Ostha puspa	Tree	Malvaceae
398	*Peperomia pellucida*	Ghusuri panna	Herb & Grass	Piperaceae
399	*Phyllanthus emblica*	Badaianala	Tree	Euphorbiaceae
400	*Phyllanthus fraternus*	Bari anla	Herb & Grass	Phyllanthaceae
401	*Phyllanthus reticulatus*	Jandakhai	Shrub	Euphorbiaceae
402	*Phyllanthus simplex*	Bhui aonla	Herb & Grass	Euphorbiaceae
403	*Phyllanthus urinarius*	Bhuin amla	Herb & Grass	Euphorbiaceae
404	*Phyllochlamys spinosa*	Jhumpuri	Shrub	Moraceae
405	*Piper longum*	Pipali	Climber	Piperaceae
406	*Plumbago zeylanica*	Dhalachita	Herb & Grass	Plumbaginaceae
407	*Plumeria rubra*	Katha Champa	Tree	Apocynaceae
408	*Pogostemon plectranthoides*	Juilata	Herb & Grass	Lamiaceae
409	*Polyalthia longifolia*	Debadaru	Tree	Annonaceae
410	*Polyalthia simiarum*	Mangai / Ojhara	Tree	Annonaceae
411	*Polyalthia suberosa*	Gana koli	Tree	Annonaceae
412	*Polycarpaea aurea*	Pasan vedi	Herb & Grass	Caryophyllaceae
413	*Polycarpaea corimbosa*	Palua	Herb & Grass	Caryophyllaceae
414	*Polygonum hydropiper*		Herb & Grass	Polygonaceae
415	*Pomatocalpa decipiens*		Herb & Grass	Orchidaceae
416	*Pongamia glabra*	Karanja	Tree	Legumes
417	*Pouzolzia indica*		Herb & Grass	Urticaceae
418	*Premna latifolia*	Arani / Dankaroni	Tree	Verbenaceae
419	*Pronephrium nudatum*		Herb & Grass	Thelypteridaceae
420	*Protium serratum*	Nimburu mahi	Tree	Burseraceae
421	*Pseudarthria viscida*		Herb & Grass	Fabaceae
422	*Psidium sps.*	Chaulia	Tree	Myrtaceae
423	*Psychopria adenophylla*	Chhelianthua	Herb & Grass	Rubiaceae
424	*Pteris cretica*		Herb & Grass	Pteridaceae
425	*Pterocarpus santalinus*	Rakta chandan	Tree	Legumes
426	*Pterospermum acerifolium*	Muchukunda	Tree	Sterculiaceae

Sl.	Botanical Name	Local Name	Habit	Family
427	*Pterospermum canescens*	Giringa	Tree	Sterculiaceae
428	*Pterospermum heyneanum*	Giringa	Tree	Sterculiaceae
429	*Pterospermum xylocarpum*	Muchukundo	Tree	Sterculiaceae
430	*Ptrocarpus marsupium*	Piasala	Tree	Legumes
431	*Putranjiva roxburghii*	Poichandia	Tree	Euphorbiaceae
432	*Randia dumetorum*	Mahana / Potua	Shrub	Rubiaceae
433	*Randia dumetorum*	Rangakain / Padma	Herb & Grass	Nymphaeaceae
434	*Rauvolfia serpentina*	Patal garuda	Herb & Grass	Apocynaceae
435	*Rauvolfia tetraphylla*	Sarpaganda	Herb & Grass	Apocynaceae
436	*Riccinus communis*	Jada / Gaba	Tree	Euphorbiaceae
437	*Ricinus communis*	Gaba	Shrub	Euphorbiaceae
438	*Ruellia tuberosa*		Herb & Grass	Acanthaceae
439	*Rungia pectinata*		Herb & Grass	Acanthaceae
440	*Saccharum bengalense*	Bamboo grass	Herb & Grass	Poaceae
441	*Saccharum spontaneum*	Kashtandi	Herb & Grass	Poaceae
442	*Sansevieria roxburghiana*	Murga	Herb & Grass	Asparagaceae
443	*Santalum album*	Chandan	Tree	Santalaceae
444	*Sapindus laurifolia*	Rithaphala	Tree	Sapindaceae
445	*Schefflera venulosa*	Suring lahu / Takua / jari	Climber	Araliaceae
446	*Schumannianthus dichotomus*	Khorsung	Shrub	Marantaceae
447	*Scindaphsus officinalis*	Gaja Pipalli	Climber	Araceae
448	*Scindapsus officinalis*	Gaja pippali	Climber	Araceae
449	*Scoparia dulcis*	Chiraita	Herb & Grass	Scrophulariaceae
450	*Securinega virosa*	Jajangi	Tree	Euphorbiaceae
451	*Semicarpus anacardium*	Bhalia	Tree	Anacardiaceae
452	*Sida cordata*	Bajramuli / Bhumibandha	Herb & Grass	Malvaceae
453	*Sida cordifolia*	Bisiripi	Herb & Grass	Malvaceae
454	*Sida rhombifolia*	Sahadeva	Herb & Grass	Malvaceae
455	*Simaruba glouca*	Simaruba	Tree	Simaroubaceae
456	*Sipadesa fruiticosa*	Nalbeli	Shrub	Meliaceae
457	*Smilax macrophylla*	Muturi	Climber	Smilacaceae
458	*Smithia sensitiva*		Herb & Grass	Fabaceae

Sl.	Botanical Name	Local Name	Habit	Family
459	*Solanum nigrum*	Lunu lunia	Herb & Grass	Solanaceae
460	*Solanum virginianum*	Ankaranti	Herb & Grass	Solanaceae
461	*Solena amplexicaulis*	Karakia / Bana kunduri	Climber	Cucurbitaceae
462	*Sonneratia apetala*	Keruan	Tree	Lythraceae
463	*Soymida febrifuga*	Rohini	Tree	Meliaceae
464	*Spermacoce articularis*	Solaganthia	Herb & Grass	Rubiaceae
465	*Spermacoce mauritiana*		Herb & Grass	Rubiaceae
466	*Spondius mangifera*	Ambada	Tree	Anacardiaceae
467	*Spondius pinnata*	Ambada	Tree	Anacardiaceae
468	*Stachytarpheta indica*	Jalajali	Herb & Grass	Verbenaceae
469	*Stemona tuberosa*	Koilikanda	Climber	Roxburghiaceae
470	*Stereospermum chelnoides*	Parudi / Pamphunia	Tree	Bignoniaceae
471	*Stereospermum chelonoides*	Patuli	Tree	Bignoniaceae
472	*Stereospermum suaveolens*	Patuli	Tree	Bignonaceae
473	*Sterospermum aungustifolium*	Chhuinpatuli	Tree	Myrtaceae
474	*Streblus aasper*	Sahada	Tree	Moraceae
475	*Strobilathes scaber*	Khakusa	Herb & Grass	Acanthaceae
476	*Strychnos nux-vomica*	Kochila	Tree	Strychnaceae
477	*Suaeda monoica*	Ninia	Herb & Grass	Chenopodiaceae
478	*Suregada multiflora*	Lahajodi	Tree	Euphorbiaceae
479	*Symbopogon martini*	Dhanwantary	Herb & Grass	Gramineae
480	*Symphorema involucratum*	Bhingri / Chokantua	Climber	Verbenaceae
481	*Symphorema polyandrum*	Balikhai	Herb & Grass	Lamiaceae
482	*Symplocus racemosa*	Lodha	Shrub	Symplocaceae
483	*Synedrella nodiflora*		Herb & Grass	Asteraceae
484	*Syzygium cumini*	Jamu koli	Tree	Myrtaceae
485	*Tagetes patula*	Gendu	Tree	Asteraceae
486	*Tamarindus indica*	Tentuli / Kaiyan	Tree	Caesalpiniaceae
487	*Tamilnadia uliginosa*	Telkuruan	Tree	Rubiaceae
488	*Tarenna asiatica*	Jajanka	Shrub	Rubiaceae
489	*Tephrosia villosa*	Sweta kolathia	Herb & Grass	Fabaceae
490	*Teramnus mollis*	Bana Kolatha	Climber	Fabaceae

Sl.	Botanical Name	Local Name	Habit	Family
491	*Terminalia belerica*	Bahada	Tree	Combretaceae
492	*Terminalia beleriea*	Bahada	Tree	Combretaceae
493	*Terminalia bellirica*	Bahada	Tree	Combretaceae
494	*Themeda triandra*	Wild grass	Shrub	Poaceae
495	*Tiliacora acuminata*	Kalajati Noi	Climber	Menispermaceae
496	*Torenia cordifolia*	Guluchi lata	Herb & Grass	Scrophulariaceae
497	*Trachyspermum ammi*	Juani	Herb & Grass	Apiaceae
498	*Tragia involacrata*	Bichhuati	Shrub	Euphorbiaceae
499	*Tragia involucrata*	Bichhuati	Climber	Euphorbiaceae
500	*Trichosanthes cucumerina*	Kolathia	Shrub	Cucurbitaceae
501	*Tridax procumbens*	Bisalya karani	Herb & Grass	Asteraceae
502	*Triumfetta neglecta*	Tata tatia	Herb & Grass	Tiliaceae
503	*Tylophora indica*	Anantamula	Climber	Asclepiadaceae
504	*Typhonium trilobatum*		Herb & Grass	Araceae
505	*Urena lobata*	Bila kapasia	Shrub	Malvaceae
506	*Urena sinuata*	Nalu kuro / Okhra(Bengali)	Shrub	Malvaceae
507	*Urginea indica*	Bana piaja	Herb & Grass	Liliaceae
508	*Uvaria lurida*	Gaichiria	Climber	Annonaceae
509	*Vernonia cinerea*	Pokasunga	Herb & Grass	Asteraceae
510	*Vernonia roxburghii*	Agnijal	Shrub	Compositae
511	*Vetiveria zizaniodes*	Bena	Herb & Grass	Gramineae
512	*Vetiveria zizanioides*	Bena	Herb & Grass	Poaceae
513	*Vigna pilosa*	Bana birhi	Climber	Fabaceae
514	*Vigna sublobata*	Bana Biri	Climber	Fabaceae
515	*Vitex leucoxylon*	Chireigudia	Shrub	Lamiaceae
516	*Vitex trifolia*	Begundia	Shrub	Verbenaceae
517	*Vitis adnata*		Climber	Vitaceae
518	*Watakaka volubilis*	Dugdhika	Climber	Asclepiadacaea
519	*Wedlandia excreta*	Panijamu	Shrub	Rubiaceae
520	*Wedlandia tinctoria*	Tilei	Shrub	Rubiaceae
521	*Wrightia arborea*	Phad kuraan	Tree	Apocynaceae
522	*Xanthium stramonium*	Bana gokhara	Herb & Grass	Asteraceae
523	*Xantolis tomentosa*	Kanta boula	Tree	Sapotaceae
524	*Xylocarpus granatum*	Chepeti	Tree	Meliaceae
525	*Zingiber capitatum*	Machhi kanda	Herb & Grass	Zingiberaceae

Sl.	Botanical Name	Local Name	Habit	Family
526	*Zingiber zerumbet*	Karpura harida	Shrub	Zingiberaceae
527	*Ziziphus rugosa*	Tina koli	Climber	Rhamnaceae
528	*Zizyphus jujuba*	Barkoli	Tree	Rhamnaceae
529	*Zyzyphus oenoplia*	Kantaikoli	Shrub	Rhamnaceae

Rare Endangered & Threatened (RET) Plant Species Listed in IUCN Red Data Book:

IUCN have estimated that about 10 % of world's vascular plant species to tune of 20 -25 thousands species are under varying degree of threat on global basis. In India about 1500 species i.e about 10 % of the flowering plants are under varying degrees of threat in India. Some 75 species of vascular plants are threat to be endemic to Eastern Ghat region of India spreading across the states of Odisha, Andhara Pradesh, Tamil Nadu and Karnataka. In a recent census 17 endemic, 12 apparent endemic and 56 rare / endangered plant species have been reported from Odisha state alone.

Presently, the Regional Plant Research Plant Centre (RPRC), Bhubaneswar has a collection of 31 species of plants which are endemic /rare /endangered /threatened plants to Eastern Ghat region. These species are being maintained in Botanical Garden of RPRC for conservation, propagation, study, education and public awareness.

Sl No.	BOTANICAL NAME	FAMILY	COMMON NAME
1	*Alphonsea maderaspatana*	Annonaceae	Ghanti
2	*Cajanus cajanifolius*	Fabaceae	Bana Harada
3	*Cassipourea ceylanica*	Rhizophoraceae	Kannum
4	*Cordia macleodii*	Ehretiaceae	Samar Singha
5	*Cryptocarya amygdalina*	Lauraceae	Guala
6	*Cycas beddomei*	Cycadaceae	Kamakshi
7	*Cycas sphaerica*	Cycadaceae	Orguna
8	*Dendrobium regium*	Orchidaceae	Orchid
9	*Dimorphocalyx glabellus*	Euphorbiaceae	Gaigothia
10	*Drypetes assamica*	Euphorbiaceae	Putranjiva
11	*Eria meghasaniensis*	Orchidaceae	Orchid
12	*Gnetum ula*	Gnetaceae	India Jaintfin
13	*Gyrocarpus americanus*	Hernandiaceae	Helicapter tree
14	*Heritiera fomes*	Malvaceae	Sundri
15	*Hildegardia populifolia*	Sterculiaceae	Pichipoliki

Sl No.	BOTANICAL NAME	FAMILY	COMMON NAME
16	*Hypericum gaitii*	Hypericaceae	Gaitti
17	*Homalium nepalense*	Flacourtiaceae	Chaulia
18	*Lasiococca comberi*	Euphorbiaceae	Kukruhari
19	*Litesa glutinosa*	Lauraceae	Medha
20	*Pecteilis gigantea*	Orchidaceae	Orchid
21	*Polyalthia simiarum*	Annonaceae	Ojhar
22	*Pomatocalpa decipiens*	Orchidaceae	Orchid
23	*Psoralia corylifolia*	Fabaceae	Bakuchi
24	*Pterocarpus santalinus*	Fabaceae	Rakta chandan
25	*Saraca asoca*	Caesalpiniaceae	Ashoka
26	*Siphonodon celastrineus*	Siphonodentaceae	Ivory wood
27	*Stemona tuberosa*	Stemonaceae	Kelia Kanda
28	*Symplocos racemosa*	Symplocaceae	Lodha
29	*Tainia hookeriana*	Orchidaceae	Orchid
30	*Uraria picta*	Fabaceae	Krushnaparni
31	*Uvaria hamiltonii*	Annonaceae	Laxman Koli

Source: RPRC, Bhubaneswar

LIST OF LICHENS, ALGAE, FUNGI:

The outcome of the work revealed the occurrence of 252 species of Lichens belonging to 81 genera and 35 families in the state of Odisha. In Khordha district 3 species of Lichens are found as given below

Distribution of Lichens		
Sl No	**Name of the Species**	**Family**
1	Arthonia sps.	Arthoniaceae
2	Cryptothecia sps.	Arthoniaceae
3	Lecanora sps.	Lecanoraceae
Distribution of Algae		
Sl No	**Name of the Species**	**Family**
1	Calothrix sps.	Rivulariaceae
2	Oscillatoria sps.	Arthoniaceae
3	Oedogonium sps.	Lecanoraceae
4	Rivularia sps.	Rivulariaceae
5	Spirulina sps.	Spirulinaceae
6	Spirogyra sps.	Zygnemataceae
7	Tetraspora sps.	Tetrasporaceae
8	Ulothrix sps.	Ulotrichaceae

Distribution of Fungi		
Sl No	**Name of the Species**	**Family**
1	Agaricus sps.	Agaricaceae
2	Ganoderma sps.	Ganodermataceae
3	Polyporous sps.	Polyporaceae
4	Tricholoma sps.	Tricholomataceae
5	Xyleria sps	Xylariaceae
6	Auricularia sps.	Auriculariaceae
7	Langermannia sps.	Agaricaceae

III. LIST OF FAUNA

The Fauna species found in the forests of Khordha Forest Division are listed below,

Sl. No.	English Name	Latin Name
Animals		
1	Barking deer	*Muntiacus muntijack*
2	Bison	*Bibos gaurus*
3	Black bear	*Mehursus ursinus*
4	Common mangoose	*Herpestes eduardsii*
5	Common otter	*Lutra lutra*
6	Fox	*Vulpes bengalensis*
7	Hyena	*Hyaena hyaena*
8	Indian elephant	*Elephas maximma*
9	Indian Gaint flying squirrels	*Petaurista philipnensis*
10	Indian Gaint squirrels	*Ratufa Indica*
11	Jangle cat	*Felis chaus affinis*
12	Leopard	*Panthera pardus fusca*
13	Monkey (Hanu)	*Presbytis entellus*
14	Mouse deer	*Tragulus minna*
15	Pangolin	*Menis crassicaudata*
16	Porcupine	*Hystrix indica*
17	Rat	*Rattus rattus*
18	Rhesus macacue	*Macaca mulatta*
19	Sambar	*Carvus unicolour*
20	Shortnosed fruitbat	*Cynopterus spinax*

Sl. No.	English Name	Latin Name
21	Small Indian civet	*Viverricula indica*
22	Spotted deer	*Axis axis*
23	Squirrel	*Funumbulus pennanli*
24	Tiger	*Panthera tigris*
25	Wild boar	*Sus scrofa cristatus*
26	Wild dog	*Cuon alpinus dukhunensis*
Reptiles and Amphibians		
27	Banded krait	*Bungarus fasiatus*
28	Checkeered keel back	*Natrix piscator*
29	Common green whip snake	*Dryophis nasutrus*
30	Common Indian Krait	*Bungarus cacruleus*
31	Green Keel Back	*Macropisthodon plumbicolor*
32	Indian cobra	*Naja naja naja*
33	Indian python	*Pythonmolurus*
34	King Cobra	*Ophiophagus hannah*
35	Monocellata cobra	*Naja naja kuathia*
36	Rat snake	*Ptyas mucosus*
37	Russels viper	*Viper russelli*
Lizards		
38	Cargelandmonitor	*Vernus monitor*
39	Common garden lizard	*Calotesversicolor*
40	House lizard	*Homidactylus flaviriridis*
41	Indian chameleon	*Chammaeleon zeylanicus*
42	Mabuya	*Mabuya bibro*
Tortiles and Tortoises		
43	Land tortoise	*Testudo elonguta*
44	Water tortle	*Lissemys punctan granose*
Fishes		
45	Cat Fish	*Wallagonia attu*
46	The Tank Goby	*Glossogobius giuris*
47	Catla Fish	*Catle catla*
48	Dwart Snake Head	*Ophiocaphalus gachua*
49	Clown Knife Fish	*Notopterus chitala*

Sl. No.	English Name	Latin Name
50	Shark Catfishes	*Pangasisus*
51	Chile Arsentine	*Chela argentea*
52	Kfrandi	*Myotus cavasius*
53	Puntis	*Barbus ambassis*
54	Walking Catfish	*Clarias batrachus*
55	Mrigal Card	*Cirrhina mrigala*
56	Mola Carplet	*Amblypharyngodon mola*
57	Bronze Featherback	*Notopterus notopterus*
58	Rohu	*Labeo rohita*
59	Asian Snake Head	*Ophiocephalus striatus*
60	Asian Stinging Catfish	*Heterophneustes fossil*
61	Tire Trac Eel	*Mastacembelus armatus*
Birds		
62	Alexandrine Parakeet	*Psittacula eupatria*
63	Ashy Drongo	*Dicrurus leucophaeus*
64	Ashy Prinia	*Prinia socialis*
65	Ashy Minivet	*Pericrocotus digaricatus*
66	Ashy Woodswallow	*Artamus fuscus*
67	Asian Brown Flycatcher	*Muscicapa dauurica*
68	Asian Koel	*Eudynamys scolopacea*
69	Asian Openbill	*Anastomus oscitans*
70	Asian Palm Swift	*Cypsiurus balasiensis*
71	Asian Paradise Flycatcher	*Terpsiphone paradisi*
72	Asian Pied Starling	*Sturnus contra*
73	Banded Bay Cuckoo	*Cacomantis sonneratii*
74	Bar-winged Flycatcher Shrike	*Hemipus picatus*
75	Baya Weaver	*Ploceus philippinus*
76	Besra	*Accipiter virgatus*
77	Black Drongo	*Dicrurus macrocercus*
78	Black headed Cuckooshrike	*Coracina melanoptera*
79	Black Kite	*Milvus migrans*
80	Black-crested Bulbul	*Pycnonotus melanicterus*
81	Black-crowned Night Heron	*Nycticorax nycticorax*

Sl. No.	English Name	Latin Name
82	Black-headed Munia	*Lonchura malacca*
83	Black-hooded Oriole	*Oriolus xanthornus*
84	Black-naped Monarch	*Hypothymis azurea*
85	Black-shouldered Kite	*Elanus caeruleus*
86	Blue Bearded Bee-eater	*Nyctyornis athertoni*
87	Blue Rock Pigeon	*Columba livia*
88	Blue Rock Thrush	*Monticola solitarius*
89	Blue Capped Rock Thrush	*Monticola cinclorhynchus*
90	Brahminy Kite	*Haliastur indus*
91	Brahminy Starling	*Sturnus pagodarum*
92	Bronze Winged Jacana	*Metopidius indicus*
93	Bronzed Drongo	*Dicrurus aeneus*
94	Brown capped pygmy Woodpecker	*Dendrocopos nanus*
95	Brown hawk Owl	*Ninox scutulata*
96	Brown Shrike	*Lanius cristatus*
97	Brown-cheeked Fulvetta	*Alcippe poioicephala*
98	Cattle Egret	*Bubulcus ibis*
99	Crested Hawk Eagle	*Spizaetus cirrhatus*
100	Chestnut Headed Bee-eater	*Merops leschenaulti*
101	Chestnut-Bellied Nuthatch	*Sitta cinnamoventris*
102	Chestnut-tailed Starling	*Sturnus malabaricus*
103	Cinnamon Bittern	*Ixobrychus cinnamomeus*
104	Common Greenshank	*Tringa nebularia*
105	Common Hawk Cuckoo	*Hierococcyx varius*
106	Common Hoopoe	*Upupa epops*
107	Common Iora	*Aegithina tiphia*
108	Common Kestrel	*Falco tinnunculus*
109	Common Myna	*Acridotheres tristis*
110	Common Tailorbird	*Orthotomus sutorius*
111	Coppersmith Barbet	*Megalaima haemacephala*
112	Crested Goshawk	*Accipiter trivirgatus*
113	Crested Serpent Eagle	*Spilornis cheela*

Sl. No.	English Name	Latin Name
114	Crested Treeswift	*Hemiprocne coronata*
115	Dollar Bird	*Eunystomus orientalis*
116	Emerald Dove	*Chalcophaps indica*
117	Eurasian Collared Dove	*Streptopelia decaocto*
118	Forest Wagtail	*Dendronanthus indicus*
119	Fulvous-breasted Woodpecker	*Dendrocopos macei*
120	Golden-fronted Leaf-bird	*Chloropsis aurifrons*
121	Great Tit	*Parus major*
122	Greater Coucal	*Centropus sinensis*
123	Greater flameback Woodpecker	*Chrysocolaptes guttacristatus*
124	Greater Racket-Tailed Drongo	*Dicrurus paradiseus*
125	Green Bee-eater	*Merops orientalis*
126	Green-billed Malkoha	*Phaenicophaeus tristis*
127	Greenish Warbler	*Phylloscopus trochiloides*
128	Grey Backed Shrike	*Lanius tephronotus*
129	Grey bellied Cuckoo	*Cacomantis passerinus*
130	Grey Francolin	*Francolinus pondicerianus*
131	Grey Headed Woodpecker	*Picus canus*
132	Grey Treepie	*Dendrocitta formosae*
133	Grey Wagtail	*Motacilla cinerea*
134	Grey-breasted Prinia	*Prinia hodgsonii*
135	Grey-headed Canary Flycatcher	*Culicicapa ceylonensis*
136	Heart spotted Woodpecker	*Hemicircus canente*
137	Hill Myna	*Gracula religiosa*
138	House Crow	*Corvus splendens*
139	Hume's Warbler	*Phylloscopus humei*
140	Imperial Green Pigeon	*Ducula aenea*
141	Indian Cuckoo	*Cuculus micropterus*
142	Indian Golden Oriole	*Oriolus (oriolus) kundoo*
143	Indian Grey Hornbill	*Ocyceros birostris*
144	Indian Nightjar	*Caprimulgus asiaticus*
145	Indian Peafowl	*Pavo cristatus*
146	Indian Pitta	*Pitta brachyura*

Sl. No.	English Name	Latin Name
147	Indian Pond Heron	*Ardeola grayii*
148	Indian Robin	*Saxicoloides fulicata*
149	Indian Roller	*Coracias benghalensis*
150	Indian Scimitar Babbler	*Pomatorhinus horsfieldii*
151	Indian Silverbill	*Lonchura malabarica*
152	Indian yellow tit	*Parus xanthogenys*
153	Intermediate Egret	*Mesophoyx intermedia*
154	Jerdon's Baza	*Aviceda jerdoni*
155	Jerdon's Lark	*Mirafra affinis*
156	Jerdon's Leaf-Bird	*Chloropsis jerdoni*
157	Jerdon's Nightjar	*Caprimulgus atripennis*
158	Jungle Babbler	*Turdoides striata*
159	Jungle Crow	*Corvus macrorhymchos*
160	Jungle Myna	*Acridotheres fuscus*
161	Jungle Owlet	*Glaucidium radiatum*
162	Large Cuckooshrike	*Coracina macei*
163	Large Hawk Cuckoo	*Hierococcyx sparverioides*
164	Large Woodshrike	*Tephrodornis gularis*
165	Large-billed Crow	*Corvus macrorhyncos*
166	Laughing Dove	*Streptopelia senegalensis*
167	Lesser Flameback Woodpecker	*Dinopium benghalense*
168	Lesser Yellownape Woodpecker	*Picus chlorolophus*
169	Little Egret	*Egretta garzetta*
170	Long-tailed Shrike	*Lanius schach*
171	Malabar pied Hornbill	*Anthracoceros coronatus*
172	Malabar Trogon	*Harpactes fasciatus*
173	Orange Breasted Green Pigeon	*Treron bicinctus*
174	Orange-headed Thrush	*Zoothera citrina*
175	Oriental Honey Buzzard	*Pernis ptilorhyncus*
176	Oriental Magpie Robin	*Copsychus saularis*
177	Oriental Skylark	*Alauda gulgula*
178	Oriental Turtle Dove	*Streptopelia orientalis*
179	Oriental White-eye	*Zosterops palpebrosus*

Sl. No.	English Name	Latin Name
180	Olivebacked Pipit	*Anthus hodgsoni*
181	Paddyfield Pipit	*Anthus rufulus*
182	Pale Billed Flowerpecker	*Dicaeum erythrorhynchos*
183	Pale-capped Pigeon	*Columba punicea*
184	Pale-chinned Flycatcher	*Cyornis poliogenys*
185	Peregrine Falcon	*Falco peregrinus*
186	Pied Bushchat	*Saxicola caprata*
187	Pied Kingfisher	*Ceryle rudis*
188	Pied Starling	*Gracupica contra*
189	Pin Striped Tit Babbler	*Macronous gularis*
190	Plain Prinia	*Prinia inornata*
191	Plum-headed Parakeet	*Psittacula cyanocephala*
192	Puff-throated Babbler	*Pellorneum ruficeps*
193	Purple Sunbird	*Nectarinia asiatica*
194	Purple-rumped Sunbird	*Nectarinia zeylonica*
195	Red Jungle Fowl	*Gallus gallus*
196	Red-rumped Swallow	*Hirundo daurica*
197	Red-vented Bulbul	*Pycnonotus cafer*
198	Red-wattled Lapwing	*Vanellus indicus*
199	Red-whiskered Bulbul	*Pycnonotus jocosus*
200	Rose-ringed Parakeet	*Psittacula krameri*
201	Rosy Minivet	*Pericrocotus roseus*
202	Rufous Treepie	*Dendrocitta vagabunda*
203	Rufous Woodpecker	*Celeus brachyurus*
204	Rufous-capped Babbler	*Stachyris ruficeps*
205	Scaly-breasted Munia	*Lonchura punctulata*
206	Scarlet Minivet	*Pericrocotus flammeus*
207	Shikra	*Accipiter badius*
208	Small Minivet	*Pericrocotus cinnamomeus*
209	Spotted Dove	*Streptopelia chinensis*
210	Streaked Weaver	*Ploceus manyar*
211	Taiga Flycatcher	*Ficedula parva*
212	Thick-billed Flowerpecker	*Dicaeum agile*

Sl. No.	English Name	Latin Name
213	Tickell's Blue Flycatcher	*Cyornis tickelliae*
214	Velvet-fronted Nuthatch	*Sitta frontalis*
215	Verditer Flycatcher	*Eumyias thalassinus*
216	White Bellied Drongo	*Dicrurus caerulescens*
217	White Naped Woodpacker	*Chrysocolaptes festivus*
218	White Throated Fantail	*Rhipidura albicollis*
219	White-breasted Waterhen	*Amaurornis phoenicurus*
220	White-browed Bulbul	*Pycnonotus luteolus*
221	White-browed Fantail	*Rhipidura aureola*
222	White-rumped Munia	*Lonchura striata*
223	White-rumped Needletail	*Zoonavena sylvatica*
224	White-rumped Shama	*Copsychus malabaricus*
225	White-throated Kingfisher	*Halcyon smyrnensis*
226	Wire-Tailed Swallow	*Hirundo smithii*
227	Yellow crowned Woodpecker	*Leiopicus mahrattensis*
228	Yellow eyed Babbler	*Chrysomma sinense*
229	Yellow-footed Green Pigeon	*Treron phoenicopterus*
230	Yellow-wattled Lapwing	*Vanellus malabaricus*

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PART-I

CHAPTER – 1
THE TRACT DEALT WITH

1. THE TRACT DEALT WITH:

1.1. NAME AND SITUATION:

The Erstwhile Puri Forest Division was the oldest Division of the State, which had its headquarters at Khordha. A portion of Puri Forest Division was carved out and Chandaka (WL) Division was created vide notification no. 8F(N)-49/85,22126/FFAH dtd. 30.12.1985 for management of forest and resident elephants. Thereafter, Chilika Forest Division was created by carving out a portion of Puri Forest Division for management of forest and migratory birds. At the time of reoraganization of the Orissa Forest Department on 1st October, 2003, vide Notification No-.1F (A)-99/2003/13214/F&E Dated 08.08.2003 of Govement of Odisha, Forest & Enivironment Department, the Puri Forest Division was reorganised when a portion was carved out from the old Puri Division to create Puri (Wild Life) Division with headquarters presently at Puri, another portion was carved out and included in newly created City Forest Division. The remaining portion of Old Puri Division was reorganized as Khordha Forest Division with headquarter at Khordha. Khordha Forest Division lies between latitude 19^0 40'to 20^0 28' N and longitude. 84^0 55' to 86^0 05'E. The geographical area of the Division is 3553.58 sq km and the recorded forest area is 57892.53 Ha. which is about 16.3% of geographical area.

The Revised Working Plan of Khordha Forest Division covers the forest blocks of Khordha Forest Division, which spread over major parts of Khordha Revenue Districts, part of Puri, Nayagarh and Cuttack Revenue District. The descriptions of the boundaries of the Khordha Forest Division are as detailed below:

North- The river Mahanadi, Athagarh Division, Chandaka (WL) Division

South- Chilika Wildlife Division & Berhampur Division.

East- City Forest Division and Puri Wildlife Division.

West- Nayagarh Forest Division, Ghumsar South Forest Division.

There are 6 Forest Ranges, 24 Forest Sections and 95 Forest Beats are in the Division.

Table 1.1 Details of the Forest Ranges in Khordha Forest Division are:

Name of the District	Name of the Range	Name of the CD Block
1	2	3
Khordha	Khordha(Part)	Khordha, Jatni(Part), Begunia(Part) and Bolagargh
	Tangi (Part)	Tangi, Begunia(Part)
	Balugaon	Balugaon, Banapur
	Balipatna(Part)	Balianta, Balipatna
Nayagarh	Ranpur	Ranpur(Part)
	Tangi(Part)	Ranpur (Part)
Cuttack	Khordha(Part)	Banki, Dampara
Puri	Delanga	Delanga, Kanasa
	Balipatna(Part)	Pipili

1.2. CONFIGURATION OF THE GROUND:

The entire working plan area is situated mainly in the coastal region of the State. Physically, the area is trisected by the NH-16 (Kolkata-BBSR-Visakhapatnam-Chennai) and National Highway-203 (BBSR-Puri). The portion between NH-203 and Bay of Bengal is almost plain and is almost at the M.S.L. The portion between NH-16 and NH-203 is also almost plain with some scattered hillocks having with little natural vegetation. The portion that lies between NH-16 on one side and Ganjam District and Nayagarh District on the other is having very good forest cover. The topography of the area is undulating and has bigger hills with steep slopes

The configuration of land from forest vegetation point of view can be classified into two groups.

1) The South-Western portion locally known as the Banpur Forests comprising of the Rajin, Tamana, Katwal,Bankard, Aranga, Mala, Patia, Dhani and Maninag blocks etc.

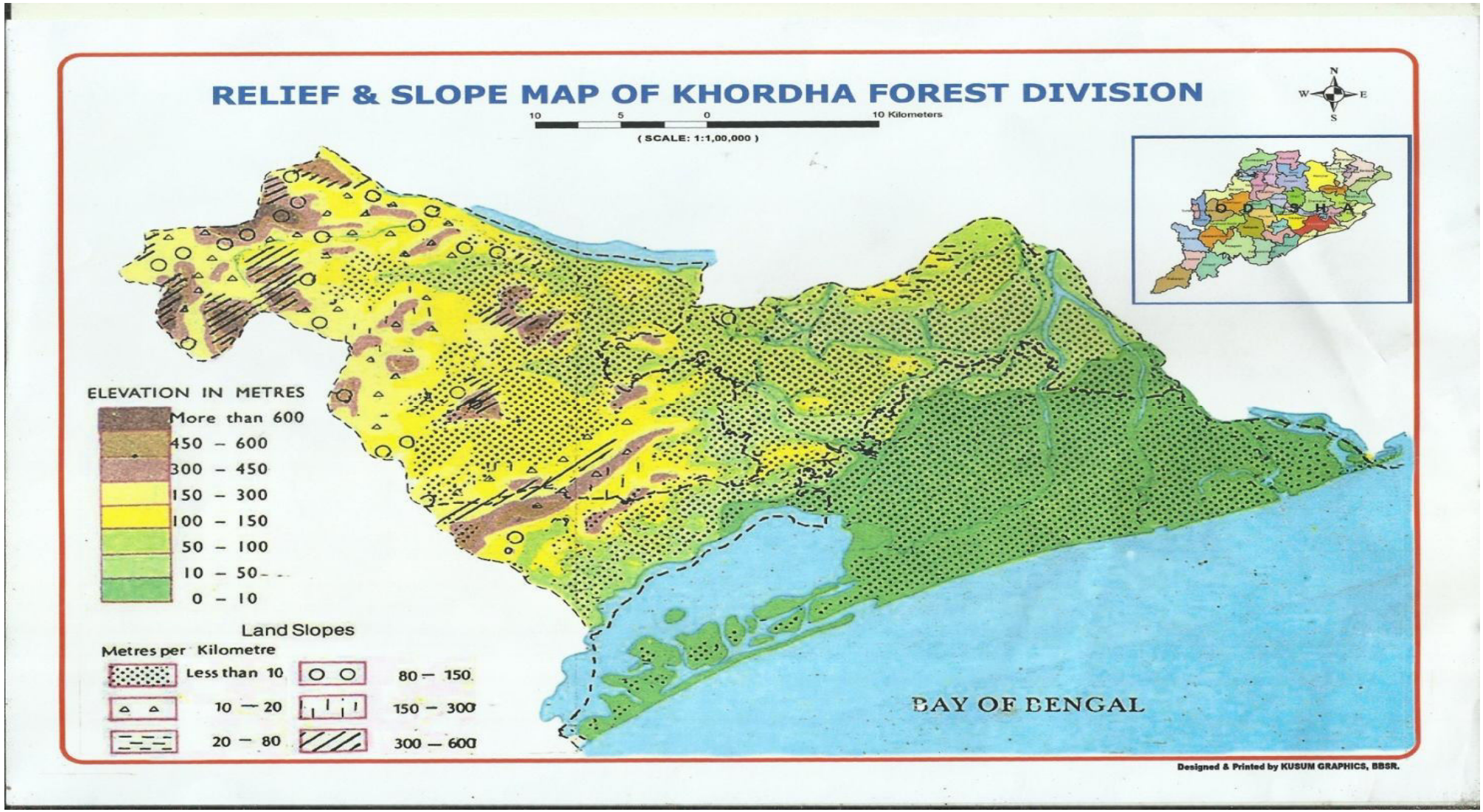
2) The scattered isolated patches forming the remainder of the Forest Blocks locally known under various names comprising of Jayamangal, Panchagarh, Barunei, Kuhudi and Sulia Blocks.

Most of these hills are less than 100m height from MSL. The South-Western portion comprises of high hills having height more then 600m from MSL. These hills are steep and often precipitous with deep valleys containing a few perennial streams. At places, bare rocks are found over which no vegetation can withstand. The eastern slopes are much more precipitous and rocky than western slopes, owing to the westward dip of the under lying rock.

In the 3rd category, there are isolated blocks like Jayamangal, Pangarsingha, Tartua, Jariput etc. where the ground is plain to moderately undulating. In other blocks like Nagapalli, Panchagarh, Barunei, Sulia the configuration is similar to the South-Western portion.

The Forest Blocks of Balugaon Range,Ranpur Range, part of Tangi Range and part of Khordha Range have the configuration very hilly on the top portion having more then 40degree slope, hilly on the middle portion and gradually slope becoming undulating and gently rolling at foot hills. The slope of the Khordha Forest division is shown in the following map.

RELIEF AND SLOPE MAP OF KHORDHA FOREST DIVISION



1.3. GEOLOGY, ROCK, AND SOIL:

1.3.1. Geomorphology:

Geological formations found in the Khordha Forest Division are arranged in order of its geological stature of Bankigada Formations, Brahmani/Mahanadi Formation, Bolgarh Formation, Athagarh Formation and Khandalite Group of Pleistocene Gondwana Super group, Proterozoic and Archean to Proterozoic age.

Western and South-western is of hilly terrain of Eastern Ghats. The hilly area in the west and south-west gradually passes on to the low undulating rugged terrain towards the central part of the Division. In the northern, eastern, south-eastern sides, the Division is having flood plain and deltaic of Mahanadi river basin. Daya,Bharagavi,Kuakhai and Kusabhadra river emanate as distributaries from Mahanadi river system, drain southerly though the eastern flank of the Division and merge either the, Chilika lake or with the Bay of Bengal.

The rock types found the Division can be broadly classified into Eastern Ghat Supergroup of Archean to Proterozoic age, Proterozoic intrusive, Gondwana and Quaternary formations of Pleistocene to Holocene age. The rocks belonging to Eastern Ghat Supergroup are mostly Khondalites and their variants (i.e., quartz-feldspar-sillimanite-garnet+, - graphite Schist / gneiss, garnetiferous quartzites, leptynite etc.), charnockite and pyroxene granulite. These rocks are mostly found on the Western and South western parts of the Division. Granite gneiss of Archaean to Proterozoic age, exposed in the western part of the Divisions, are well foliated and are often garnetiferous. The Eastern Ghat Super group of rocks have been intruded by plugs/apophyses of anorthosite, popularly known as Banpur anorthosite and are found age cluster of anorthosite bodies around Banpur. Quartz veins cut across the granulitic country at random. The outcrops of Gondwana Supergroup mostly occure as cluster forming upland in the

north-eastern parts of the Divisions. They are represented by conglomerate, gritty sand stone, occasionally pebbly, silt stone and clay belonging to the Athgarh formation of upper Gondwanas. The earliest Quaternary deposit, the Bolgarh formations occupy central and northern part of the Dividion, overlying the Khandalite group of rocks. It comprises hard crust laterite, latosol and also residual soil. Bramhani formation consists of residual soil and alluvium and occupies and appreciable part of the Division and are particularly conspicuous in the eastern and southern parts of the Division. Bankigarh formations mostly comprise brownish silty clay and occur in the flood plain/deltaic plains of Mahanadi river basin.

1.3.2. Rocks:

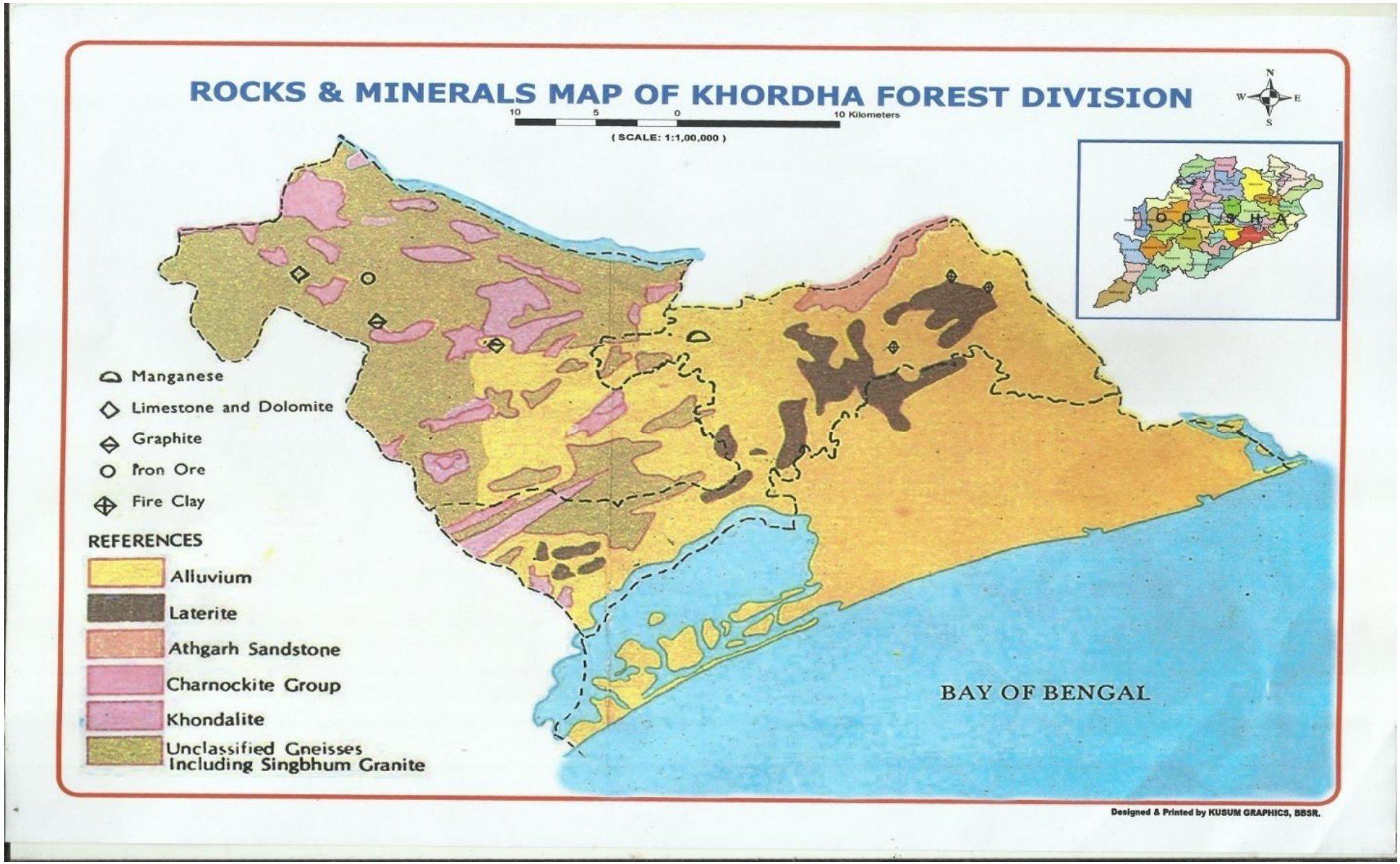
The Khondalites are found in Rajin RF,Tamana RF, Katwal RF, Bankada RF, Aranga RF of Balugaon Range, Mala RF, Dhani(N) RF, Maninaga RF, Champagarh RF,Nuapada RF,Sulia-B RF,Satabhaya RF of Ranapur Range. Dhani (S) RF,Patia RF,Kuhudi RF,Sulia RF of Tangi Range. In this category of Khondulite Supergroup good Forest vegetations are noticed.

The outcrops of Gondwana Supergroup mostly occure in Barunei RF,Jaymangal RF,Manibandha RF, Nagapalli RF,Panchagarh RF and Pangarsingha RF of Khordha Range. These types of rocks are found in most of the Demarcated Protected Forests and Proposed Reserve Forests of the Division. In this category of Gondwana Supergroup, poor vegetations are not noticed.

The hills of Ranpur Range mostly consist of gneisses and schists belonging to the Archanean age. Khondalites are the oldest rocks in the area and these are found upto in Tamana hill range, they are exposed on the tops of Sulia B-RF and Maninag hills. These rocks are also found near the hills of Champagarh, the southern parts of Ranpur Range and these rocks are also found on the top of Dhani hill. Khondalites are of essentially Quartz-feldspar-garnctsillimanite

gneisses and schists and on weathering give rise to red loamy soil. Hypersthene genisses and granulites consisting of feldspar, quartz, hypersthene and biotite are noticed on Satbhaya hill and on the hillocks situated south of Rajsunakhala. Garnetifer-rous-granite-gneisses and granulites are the most pre-dominant rock types in the area. They occur on Maninag Hill Range, on GauniaMundia on Jarjoni Mundia on Dhani hill, and porphyrite granite gneisses with several. The soil derived from the weathering of these rocks has good plasticity, which enables for the growth of good vegetation. Laterite also occurs near Patia, Chandpur and Ostapara of Khordha Forest Division. The soil in this portion is reddish brown in colour due to presence of ferric oxides as it is derived from laterite. Poor vegetation is noticed in those areas.

The Geological formation for this Division is shown in the following Rocks and Minerals Maps.


ROCKS & MINERALS MAP OF KHORDHA FOREST DIVISION
10 5 0 10 Kilometers
(SCALE: 1:1,00,000)
N
W
E
S
Manganese
Limestone and Dolomite
Graphite
Iron Ore
Fire Clay
REFERENCES
Alluvium
Laterite
Athgarh Sandstone
Charnockite Group
Khondalite
Unclassified Gneisses Including Singbhum Granite
BAY OF BENGAL
Designed & Printed by KUSUM GRAPHICS, BBSR.

1.3.3. Soils:

A large portion of Mala forest contains deep alluvium loamy soil around SuliaNala. In some parts of Aranga block, the soil is calcareous and clayey. The poorest soil in the southern Range is met with in the extreme west in Rajin Block between Mahulia village and Kriamba village in Ganjam border. *Dendrocalamus strictus* and dry miscellaneous vegetation are noticed due to the presence of ferric oxides in the soil.

The relationship between geology, soil and minerals on the distribution of forest types is complex and depends on several factors. The physical conditions of the soil, moisture supply, soil aeration, and availability of chemical nutrients influence the distribution of species and forest types. Depth and soil moisture are more important than the nature of rock. Lateritic soils exercise a marked effect on the vegetation. Generally Teak avoids lateritic soils but Sal is tolerant to it. The associated species of Sal are Xylia and Cleistanthus. Most of the forests are found to occur on the hill slopes, many of them being steep having shallow soil and sometimes extremely rocky. Consequently, the hill slopes carry a poor quality Sal forest and at places dry miscellaneous forest. The soil derived from the Khondalite rock supports miscellaneous forests generally rich with Bamboos. This is probably the main reason for concentration of bamboo forests in Khordha Forest Division.

1.3.3.1. Red Gravelly Soils:

Red Gravelly Soil is a type of soil that develops in a warm, temperate, moist climate under deciduous or mixed forest, having thin organic and organic-mineral layers overlying a yellowish-brown leached layer resting on an alluvial red layer. Red soil is generally derived from crystalline rock. They are usually poor growing soils, low in nutrients and humus and difficult to cultivate because of its low water holding capacity. The main features are light texture, single grained to weakly granular structured surface soil, highly porous with low available water holding capacity. Lime kankar and free carbonates are absent and soils are non saline. The red colour is due to presence of iron oxides. These soils do not contain lateritic mass within the control section of the soil profile, are

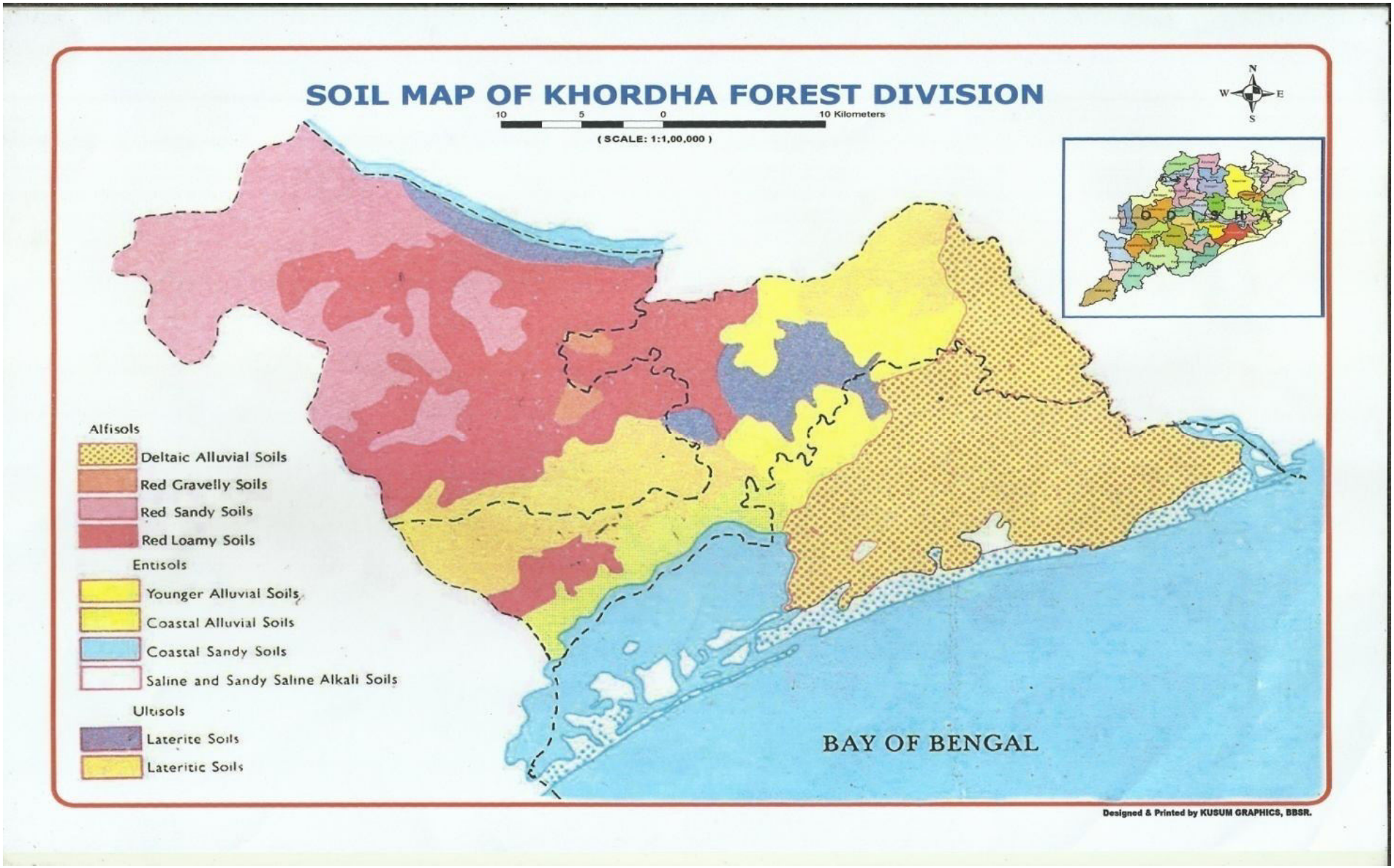
moderately acidic and are generally deficient in Nitrogen, organic matter and Calcium. The clay fraction is rich in Kaolinite type clay mineral with varying proportion of Illite. Phosphate fixation is a problem in the sesoilsl due to presence of free Iron and Aluminium Oxides.

1.3.3.2. Calcareous Alluvial Soils:

Calcareous alluvial soils are found in most of the compartments of Khordha Forest Division. These soils are found on the lower topographic situation, due to enrichment of Calcium in thin exchange complex and fine textured colluviums and alluvium. The alluvial soils are rich in potash and calcium but are deficient in organic matter, nitrogen and phosphours. The favorable structure of the pore space is suggested to be stipulated by the active of the numerous and diverse representatives of soil biota. The composition of this phylum is dominated by the elevated number of both higher and lower action bacteria. The high biodiversity of bacteria against the background of their great total number and the developed atrophic interactions in the microbial community promote the well-balanced production of specific metabolites including gaseous ones (CO2, H2). This circumstance allows this clayed soil to function rather actively while protecting the pore space against compaction and maintaining the optimal density, porosity and hydrological properties.

1.3.3.3. Skeletal Soils:

Skeletal soils are found indifferent compartments of Khordha Forest Division. Lateritic soils are also found in these areas. The soil contains lateritic mass within control section of the profile. The lateritic mass is characterized by compact to vesicular, sometimes honey combed structure composed essentially of a mixture of hydrated oxides of iron and Aluminum with small amounts of Manganese and Titanium oxides and quartz as a necessary low fertility status being proper in organic matter, nitrogen, available phosphorous, potash and calcium. Soil is acidic. The clay fraction constitutes predominantly laolinite type of clay mineral. The soil of Khordha Forest Division is shown in the soil map of Khordha Forest Division.


SOIL MAP OF KHORDHA FOREST DIVISION
10 5 0 10 Kilometers
(SCALE: 1:1,00,000)
N
W E
S
Alfisols
Deltaic Alluvial Soils
Red Gravelly Soils
Red Sandy Soils
Red Loamy Soils
Entisols
Younger Alluvial Soils
Coastal Alluvial Soils
Coastal Sandy Soils
Saline and Sandy Saline Alkali Soils
Ultisols
Laterite Soils
Lateritic Soils
BAY OF BENGAL
Designed & Printed by KUSUM GRAPHICS, BBSR.

The soil samples collected from the representative forest blocks during the outgoing working plans show low organic carbon besides mostly low potassium and phosphorous contents as well implying that the plantations to be raised will need application of fertilizers to some extent. The parameters for assessment of these nutrient values are given at **Table No. 1.2.** The soil analysis has been done at Soil Testing Laboratory of OUAT at Semiliguda.

Table No.1.2: Parameters for Nutrient Value Assessment			
1	**2**	**3**	**4**
CONTENT	**LOW**	**MEDIUM**	**HIGH**
Organic Carbon	Up to 0.50%	0.51 to 0.75%	0.76% and above
Phosphorous(P2O5)	0 to 14 kg/Ha	14 to 40 kg/Ha	More than 40 kg/Ha.
Potassium(K2O)	up to 118 kg/Ha	118 to 280 kg/Ha	More than 280 kg/Ha

The soil is slightly acidic to neutral in nature though mineralogically, it is a mixed soil with practically nil calcareous contents. The basis for soil reaction is at **Table No. 1.3**

Table No.1.3: Soil Reaction Criteria	
1	**2**
CLASS	**pH VALUE**
Strongly Acidic	< 4.5
Moderately Acidic	4.5 to 5.5
Slightly Acidic	5.5 to 6.5
Neutral	6.5 to 7.5
Slightly Alkaline	7.5 to 8.5
Moderately Alkaline	8.5 to 9.5
Strongly Alkaline	> 9.5

1.4. CLIMATIC PARAMETERS:

1.4.1. Climate:

Climate is an active factor in the physical environmental of all things. Climate change and variability are impacting forest ecosystem processes and functioning. Response time of forest ecosystems to disturbances ranges from

a very short duration to decades and even centuries, depending on the condition of the system and the type, intensity and duration of the external stimuli. The actual state of forest ecosystem largely depends on processes and practices of the past. Therefore, forests are extremely complex to understand their functioning. Climate change further magnifies those complexities and adds more uncertainties.

- Forests are linked to climate change in three ways,
  - They are source of Green House Gas (GHG) emissions.
  - They offer mitigation opportunities to stabilize GHG concentrations.
  - They are impacted by climate change.
- Impacts of climate change on forest ecosystem are getting manifested as species range shifts, changing biodiversity, physiological changes in plant life cycles, forest growth pattern of species, changing boundaries of ecosystems and other biotic and abiotic responses / stresses. There are evidences of increase in the frequency and severity of forest fires, changing water regimes and expanding forest insect infestation.

Since forest ecosystems operate on large temporal scales, long observational studies are necessary to identify the key changes. Accordingly grid based sampling is designed to provide relevant information to cover the characteristic time scales.

The climate is highly humid round the year because of the proximity to sea. Mainly three seasons are experienced:-

i) Cold weather - November to February
ii) Hot weather - March to June
iii) Rainy season - July to October

The rains are well distributed during the rainy season. Recently droughts, floods and storm are occurring due to climatic changes.

1.4.2. Rainfall:

The state of Orissa normally receives 80% to 85% rains by south-west monsoon between second week of June and last week of September. The rainfall is evenly distributed across the Division except in interior pockets like Barbera, Dhuanali etc. of Balugaon Range. 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. Heavy precipitations occurs due to thick vegetations. It is observed that this Division receives most rainfall during the month of June, July and August and gradually decreases towards end of the September. The yearwise rainfall data of different Ranges of Khordha Forest Division is shown in the Table **No. 1.4**

Table No. 1.4: Yearwise Rainfall data of different Ranges of Khordha Forest Division

(Rainfall in mm.)

STATION : RANPUR

Year - 2007		**Year - 2008**		**Year - 2009**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
1	**2**	**3**	**4**	**5**	**6**
June	311.6	June	339.8	June	116.6
July	108.2	July	200.6	July	743
Aug	310.2	Aug	249.2	Aug	161
Sept	300.8	Sept	395.2	Sept	235.2
Oct	15.2	Oct	0	Oct	158.4
	1046		**1184.8**		**1414.2**
Year-2010		**Year-2011**		**Year-2012**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	351.8	June	155.6	June	235
July	223.3	July	148.4	July	296
Aug	313.2	Aug	329	Aug	422
Sept	292	Sept	306.8	Sept	342
Oct	239.6	Oct	60.2	Oct	128
	1419.9		**1000**		**1423**
Year - 2013		**Year - 2014**		**Year - 2015**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	407	June	14	June	151.7
July	658.2	July	493.5	July	144.6
Aug	108.5	Aug	176	Aug	262
Sept	46.9	Sept	205.2	Sept	261
Oct	950.2	Oct	97.3	Oct	55.5
	2170.8		**986**		**874.8**
Year - 2016		**Year - 2017**		**Year - 2018**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	75.05	June	133.80	June	173.12
July	254.80	July	250.80	July	343.80
Aug	203.40	Aug	285.40	Aug	191.60
Sept	245.80	Sept	177.00	Sept	214.60
Oct	19.40	Oct	216.60	Oct	265.40
	798.45		**1063.60**		**1188.52**

Year - 2019		Year - 2020		Year - 2021	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	85.00	June	183.60	June	108.45
July	235.20	July	100.60	July	336.60
Aug	274.20	Aug	320.20		
Sept	894.20	Sept	128.00		
	1488.60		**732.40**		**445.05**

STATION : TANGI

Year - 2007		Year - 2008		Year - 2009	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	350	June	218	June	152
July	139	July	322	July	655
Aug	198	Aug	259	Aug	276
Sept	422	Sept	279	Sept	170
Oct	92	Oct	5	Oct	148
	1201		**1083**		**1401**
Year - 2010		**Year - 2011**		**Year - 2012**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	255	June	154	June	150
July	166.5	July	106	July	282.4
Aug	369	Aug	204	Aug	300.2
Sept	201	Sept	198.2	Sept	178
Oct	221	Oct	4	Oct	59
	1212.5		**666.2**		**969.6**
Year - 2013		**Year - 2014**		**Year - 2015**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	240.5	June	55	June	91
July	408	July	491	July	172
Aug	327	Aug	309	Aug	283
Sept	383	Sept	144	Sept	296
Oct	587	Oct	137	Oct	52
	1945.5		**1136**		**894**
Year - 2016		**Year - 2017**		**Year - 2018**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	180	June	150.06	June	141.06
July	410	July	355	July	455
Aug	270	Aug	204	Aug	268.66
Sep	255	Sep	220.8	Sep	268.04
Oct	221	Oct	118	Oct	222
	1336		**1047.86**		**1354.76**
Year - 2019		**Year - 2020**		**Year - 2021**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	101.6	June	194.6	June	99.4
July	287.44	July	152.4	July	235.6
Aug	225.08	Aug	255.92	Aug	
Sep	358.8	Sep	122.8	Sep	
Oct	393.2	Oct	224.02	Oct	
	1366.12		**949.74**		**335**

STATION : PIPILI

Year - 2007		Year - 2008		Year - 2009	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	212	June	349.6	June	49.4
July	68.4	July	408	July	461.2
Aug	452.7	Aug	307.4	Aug	243
Sept	431.3	Sept	332.5	Sept	302
Oct	119.4	Oct	12	Oct	150
	1283.8		**1409.5**		**1205.6**
Year - 2010		**Year - 2011**		**Year - 2012**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	170.5	June	133	June	232
July	180	July	260	July	303
Aug	461	Aug	312.6	Aug	334.9
Sept	275	Sept	390.1	Sept	213.2
Oct	240	Oct	0	Oct	58.7
	1326.5		**1095.7**		**1141.8**
Year-2013		**Year-2014**		**Year-2015**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	246	June	38.5	June	217.5
July	412	July	540.3	July	186.4
Aug	300.5	Aug	275.8	Aug	480.2
Sept	236.2	Sept	378.7	Sept	239
Oct	465.1	Oct	69.6	Oct	46.2
	1659.8		**1095.7**		**1141.8**
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
Year-2016		**Year-2017**		**Year-2018**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	228	June	62.6	June	153
July	148.2	July	346.2	July	789.3
Aug	274	Aug	374.2	Aug	418.2
Sep	295.2	Sep	315.6	Sep	369
Oct	44	Oct	351	Oct	214
	989.4		**1449.6**		**1943.5**
Year-2019		**Year-2020**		**Year-2021**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	183	June	108.7	June	216.2
July	404	July	94.2	July	271.8
Aug	182	Aug	630	Aug	
Sep	514	Sep	64	Sep	
Oct	325	Oct	356	Oct	
	1608		**1252.9**		**488**

STATION : BANKI-DAMPARA

Year - 2007		Year - 2008		Year - 2009	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	N/A	June	N/A	June	N/A
July	N/A	July	N/A	July	N/A
Aug	N/A	Aug	N/A	Aug	N/A
Sept	N/A	Sept	N/A	Sept	N/A
Oct	N/A	Oct	N/A	Oct	N/A

Year - 2010		Year - 2011		Year - 2012	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	N/A	June	N/A	June	329
July	N/A	July	N/A	July	712
Aug	N/A	Aug	11	Aug	915
Sept	N/A	Sept	N/A	Sept	469
Oct	N/A	Oct	N/A	Oct	233
					2658
Year - 2013		**Year - 2014**		**Year - 2015**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	0	June	129	June	281
July	617.6	July	720	July	445
Aug	85	Aug	783	Aug	466
Sept	415	Sept	309	Sept	223
Oct	1060	Oct	368	Oct	88
	2177.6		**2309**		**1503**
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
Year - 2016		**Year - 2017**		**Year - 2018**	
June	17	June	28	June	8
July	35	July	32	July	13
Aug	27	Aug	22	Aug	18
Sep	14	Sep	18	Sep	15
Oct	18	Oct	3	Oct	7
	111		**103**		**61**
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
Year - 2019		**Year - 2020**		**Year - 2021**	
June	8	June	13	June	22
July	18	July	18	July	18
Aug	23	Aug	25	Aug	
Sep	17	Sep	18	Sep	
Oct	5	Oct	6	Oct	
	71		**80**		**40**

STATION : BALIPATNA

Year - 2007		Year - 2008		Year - 2009	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	N/A	June	N/A	June	N/A
July	N/A	July	N/A	July	N/A
Aug	N/A	Aug	N/A	Aug	N/A
Sept	N/A	Sept	N/A	Sept	N/A
Oct	N/A	Oct	N/A	Oct	N/A
Year - 2010		**Year - 2011**		**Year - 2012**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	N/A	June	N/A	June	38
July	N/A	July	N/A	July	208
Aug	N/A	Aug	N/A	Aug	270
Sept	N/A	Sept	N/A	Sept	100
Oct	N/A	Oct	N/A	Oct	31
					647

Year - 2013		Year - 2014		Year - 2015	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	0	June	20	June	101
July	129	July	334	July	220
Aug	126	Aug	149	Aug	311
Sept	231	Sept	272	Sept	211
Oct	476	Oct	98	Oct	37
	962		**873**		**880**
Year-2016		**Year-2017**		**Year-2018**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	177.2	June	175	June	278.8
July	260.8	July	360.5	July	177
Aug	261.04	Aug	327.4	Aug	408.2
Sep	277	Sep	198.6	Sep	367.2
Oct	99.8	Oct	223.6	Oct	235.8
	1075.84		**1285.1**		**1467**
Year-2019		**Year-2020**		**Year-2021**	
Month	**Total Rainfall**	**Month**	**Total Rainfall**	**Month**	**Total Rainfall**
June	187.6	June	99.8	June	272.8
July	430.6	July	121.4	July	201.1
Aug	303.8	Aug	592	Aug	
Sep	357.4	Sep	99.4	Sep	
Oct	264.2	Oct	293.8	Oct	
	1543.6		**1206.4**		**473.9**

Source- Respective C.D Block offices

On study of the rainfall data of the year 2013, it is observed that this Division had received unprecedented torrential rainfall in the month of October. not only in this Division but also the entire state had been affected by such unprecedented rains resulting in cyclone named Phaillin created in the Bay of Bengal. At Ranpur station of this division received a rainfall of 2170.8 mm and at Tangi station 1945.5 mm of rainfall have been recorded from June to October as against the average annual rainfall of 1400 mm to 1500 mm. Due to this cyclone and unprecedented rainfall a lot of damage has been caused to the forest & Wild life of the Division.

From the analysis of the rain fall data of the rainy season it is revealed that heavy rain fall is occurring in the area having good vegetations and rain fall is decreasing with the decrease of vegetation.

1.4.3. Temperature:

Days become hot during the period from last part of February to 15th of June of the year. Terrible heat of the sun is experienced in the month of May. This has been observed during the last decade that the mercury level sometimes touches 46° to 48° centigrade. There is also report of death/causalities of human, animals and birds due to abnormal abrupt rise of temperature in the last few years. Gradually the mercury level falls down and temperature becomes minimum in between the last part of November, December and first part of January. The year wise & month wise temperature recorded in Khordha Division is shown in **Table No.1.5**

Table No.1.5

YEAR WISE & MONTH-WISE TEMPERATURE OF KHORDHA DIVISION					
Year	**State**	**District**	**Month**	**Monthly Temperature (Mini.) (Degree C)**	**Monthly Temperature (Max.) (Degree C)**
1	**2**	**3**	**4**	**5**	**6**
2007	ORISSA	KHORDHA	January	16	30
2007	ORISSA	KHORDHA	February	19	32
2007	ORISSA	KHORDHA	March	23	35
2007	ORISSA	KHORDHA	April	25	37
2007	ORISSA	KHORDHA	May	26	38
2007	ORISSA	KHORDHA	June	26	35
2007	ORISSA	KHORDHA	July	26	33
2007	ORISSA	KHORDHA	August	26	32
2007	ORISSA	KHORDHA	September	25	31
2007	ORISSA	KHORDHA	October	23	32
2007	ORISSA	KHORDHA	November	20	32
2007	ORISSA	KHORDHA	December	16	29
2008	ORISSA	KHORDHA	January	16	30
2008	ORISSA	KHORDHA	February	18	29
2008	ORISSA	KHORDHA	March	23	35

Year	State	District	Month	Monthly Temperature (Mini.) (Degree C)	Monthly Temperature (Max.) (Degree C)
1	2	3	4	5	6
2008	ORISSA	KHORDHA	April	25	37
2008	ORISSA	KHORDHA	May	26	38
2008	ORISSA	KHORDHA	June	26	33
2008	ORISSA	KHORDHA	July	26	33
2008	ORISSA	KHORDHA	August	26	32
2008	ORISSA	KHORDHA	September	25	32
2008	ORISSA	KHORDHA	October	27	33
2008	ORISSA	KHORDHA	November	19	30
2008	ORISSA	KHORDHA	December	18	31
2009	ORISSA	KHORDHA	January	18	31
2009	ORISSA	KHORDHA	February	21	35
2009	ORISSA	KHORDHA	March	23	36
2009	ORISSA	KHORDHA	April	26	39
2009	ORISSA	KHORDHA	May	27	38
2009	ORISSA	KHORDHA	June	27	39
2009	ORISSA	KHORDHA	July	26	31
2009	ORISSA	KHORDHA	August	26	33
2009	ORISSA	KHORDHA	September	26	33
2009	ORISSA	KHORDHA	October	22	32
2009	ORISSA	KHORDHA	November	20	32
2009	ORISSA	KHORDHA	December	16	30
2010	ORISSA	KHORDHA	January	15	29
2010	ORISSA	KHORDHA	February	19	34
2010	ORISSA	KHORDHA	March	25	38
2010	ORISSA	KHORDHA	April	27	40
2010	ORISSA	KHORDHA	May	27	37
2010	ORISSA	KHORDHA	June	27	36
2010	ORISSA	KHORDHA	July	26	33

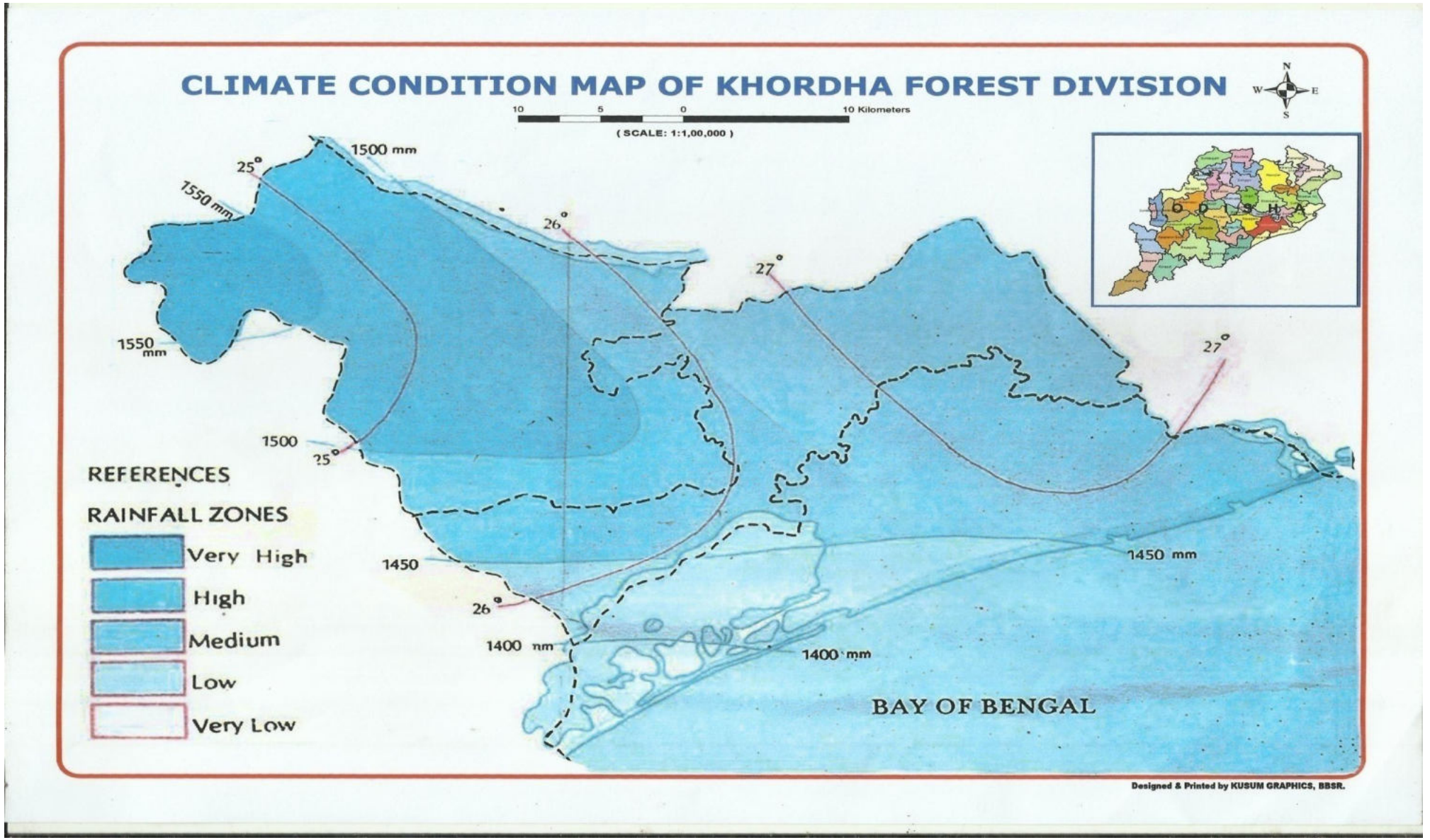
Year	State	District	Month	Monthly Temperature (Mini.) (Degree C)	Monthly Temperature (Max.) (Degree C)
1	2	3	4	5	6
2010	ORISSA	KHORDHA	August	26	34
2010	ORISSA	KHORDHA	September	26	33
2010	ORISSA	KHORDHA	October	24	32
2010	ORISSA	KHORDHA	November	22	31
2010	ORISSA	KHORDHA	December	15	27
2011	ORISSA	KHORDHA	January	14.8	29
2011	ORISSA	KHORDHA	February	18.5	32.3
2011	ORISSA	KHORDHA	March	22.5	36.1
2011	ORISSA	KHORDHA	April	24.2	36.8
2011	ORISSA	KHORDHA	May	26.7	37.6
2011	ORISSA	KHORDHA	June	26.3	34.7
2011	ORISSA	KHORDHA	July	25.7	32.6
2011	ORISSA	KHORDHA	August	25.6	32.1
2011	ORISSA	KHORDHA	September	24.8	31.5
2011	ORISSA	KHORDHA	October	23.2	33.5
2011	ORISSA	KHORDHA	November	19	32.3
2011	ORISSA	KHORDHA	December	16.6	29.1
2012	ORISSA	KHORDHA	January	16.9	28.8
2012	ORISSA	KHORDHA	February	NA	NA
2012	ORISSA	KHORDHA	March	NA	NA
2012	ORISSA	KHORDHA	April	NA	NA
2012	ORISSA	KHORDHA	May	NA	NA
2012	ORISSA	KHORDHA	June	NA	NA
2012	ORISSA	KHORDHA	July	25	32
2012	ORISSA	KHORDHA	August	25	32
2012	ORISSA	KHORDHA	September	25	32
2012	ORISSA	KHORDHA	October	23	32
2012	ORISSA	KHORDHA	November	19	30

Year	State	District	Month	Monthly Temperature (Mini.) (Degree C)	Monthly Temperature (Max.) (Degree C)
1	2	3	4	5	6
2012	ORISSA	KHORDHA	December	16	30
2013	ORISSA	KHORDHA	January	NA	NA
2013	ORISSA	KHORDHA	February	NA	NA
2013	ORISSA	KHORDHA	March	NA	NA
2013	ORISSA	KHORDHA	April	NA	NA
2013	ORISSA	KHORDHA	May	NA	NA
2013	ORISSA	KHORDHA	June	NA	NA
2013	ORISSA	KHORDHA	July	NA	NA
2013	ORISSA	KHORDHA	August	NA	NA
2013	ORISSA	KHORDHA	September	NA	NA
2013	ORISSA	KHORDHA	October	NA	NA
2013	ORISSA	KHORDHA	November	NA	NA
2013	ORISSA	KHORDHA	December	NA	NA
2014	ORISSA	KHORDHA	January	NA	NA
2014	ORISSA	KHORDHA	February	NA	NA
2014	ORISSA	KHORDHA	March	NA	NA
2014	ORISSA	KHORDHA	April	NA	NA
2014	ORISSA	KHORDHA	May	NA	NA
2014	ORISSA	KHORDHA	June	NA	NA
2014	ORISSA	KHORDHA	July	NA	NA
2014	ORISSA	KHORDHA	August	NA	NA
2014	ORISSA	KHORDHA	September	NA	NA
2014	ORISSA	KHORDHA	October	NA	NA
2014	ORISSA	KHORDHA	November	NA	NA
2014	ORISSA	KHORDHA	December	NA	NA
2015	ORISSA	KHORDHA	January	NA	NA
2015	ORISSA	KHORDHA	February	NA	NA
2015	ORISSA	KHORDHA	March	NA	NA

Year	State	District	Month	Monthly Temperature (Mini.) (Degree C)	Monthly Temperature (Max.) (Degree C)
1	2	3	4	5	6
2015	ORISSA	KHORDHA	April	NA	NA
2015	ORISSA	KHORDHA	May	27.4	39.4
2015	ORISSA	KHORDHA	June	25.9	36.3
2015	ORISSA	KHORDHA	July	25.7	33.4
2015	ORISSA	KHORDHA	August	26.9	33
2015	ORISSA	KHORDHA	November	20.7	31.5
2015	ORISSA	KHORDHA	December	18.1	29.5
2016	ORISSA	KHORDHA	January	16.8	30.3
2017	ORISSA	KHORDHA	April	NA	NA
2017	ORISSA	KHORDHA	May	NA	NA
2018	ORISSA	KHORDHA	April	NA	NA
2018	ORISSA	KHORDHA	May	NA	NA
2019	ORISSA	KHORDHA	April	NA	NA
2019	ORISSA	KHORDHA	May	NA	NA
2020	ORISSA	KHORDHA	April	NA	NA
2020	ORISSA	KHORDHA	May	NA	NA
2021	ORISSA	KHORDHA	April	NA	NA
2021	ORISSA	KHORDHA	May	NA	NA

Source- Khordha C.D Block office

Normally wind blows from South-Western direction in between the period from March to August. The velocity of the wind is stronger during the months from March to August than the other months of the year. Similarly wind blows from North – Eastern direction from September to March. There are sudden storms and occasional rains coupled with thunder storms experienced in the month of April and May. The occurrence of unprecedented rain falls in the month of October due to depression in the Bay of Bengal. During the month of October 2013 Orissa coast of Bay of Bengal was severely affected by the cyclone which damaged life and property of the people and also damaged the plantations of the Division and also created a major damage to forests throughout the Division. The prevailing average rain fall and temperature in the forests of Khordha Forest Division are shown in the climate condition map of Khordha Forest Division.


CLIMATE CONDITION MAP OF KHORDHA FOREST DIVISION
10 5 0 10 Kilometers
(SCALE: 1:1,00,000)
N
W
E
S
1500 mm
25°
1550 mm
26°
27°
1550 mm
1500
25°
27°
1450
26°
1450 mm
1400 mm
1400 mm
BAY OF BENGAL
REFERENCES
RAINFALL ZONES
Very High
High
Medium
Low
Very Low
Designed & Printed by KUSUM GRAPHICS, BBSR.

1.4.4. Humidity:

Due to proximity to the sea relative humidity is quite high during hot summer days. Khordha Division being situated nearer to the sea records high relative humidity during day time. Its effect is felt up to late hours of night. The relative humidity is comparatively higher in coastal areas. The people get very tired and feel suffocated due to profuse sweating. The presence of high degree of relative humidity in the air certainly affects the normal life of the people and animals of the locality. The relative humidity recorded in different months during the outgoing plan period is shown in the **Table No.1.6.**

Table No.1.6

YEARWISE & MONTH-WISE RELATIVE HUMIDITY DATA OF KHORDHA DIVISION.				
Year	**State**	**District**	**Month**	**Relative Humidity (%)**
1	**2**	**3**	**4**	**5**
2007	ORISSA	KHORDHA	January	73
2007	ORISSA	KHORDHA	February	79
2007	ORISSA	KHORDHA	March	78
2007	ORISSA	KHORDHA	April	74
2007	ORISSA	KHORDHA	May	75
2007	ORISSA	KHORDHA	June	83
2007	ORISSA	KHORDHA	July	87
2007	ORISSA	KHORDHA	August	88
2007	ORISSA	KHORDHA	September	93
2007	ORISSA	KHORDHA	October	83
2007	ORISSA	KHORDHA	November	76
2007	ORISSA	KHORDHA	December	69
2008	ORISSA	KHORDHA	January	77
2008	ORISSA	KHORDHA	February	81
2008	ORISSA	KHORDHA	March	81
2008	ORISSA	KHORDHA	April	76
2008	ORISSA	KHORDHA	May	76
2008	ORISSA	KHORDHA	June	87

1	2	3	4	5
2008	ORISSA	KHORDHA	July	90
2008	ORISSA	KHORDHA	August	90
2008	ORISSA	KHORDHA	September	88
2008	ORISSA	KHORDHA	October	79
2008	ORISSA	KHORDHA	November	73
2008	ORISSA	KHORDHA	December	86
2009	ORISSA	KHORDHA	January	89
2009	ORISSA	KHORDHA	February	83
2009	ORISSA	KHORDHA	March	76
2009	ORISSA	KHORDHA	April	71
2009	ORISSA	KHORDHA	May	71
2009	ORISSA	KHORDHA	June	72
2009	ORISSA	KHORDHA	July	92
2009	ORISSA	KHORDHA	August	89
2009	ORISSA	KHORDHA	September	88
2009	ORISSA	KHORDHA	October	78
2009	ORISSA	KHORDHA	November	75
2009	ORISSA	KHORDHA	December	77
2010	ORISSA	KHORDHA	January	74
2010	ORISSA	KHORDHA	February	78
2010	ORISSA	KHORDHA	March	77
2010	ORISSA	KHORDHA	April	74
2010	ORISSA	KHORDHA	May	77
2010	ORISSA	KHORDHA	June	84
2010	ORISSA	KHORDHA	July	88
2010	ORISSA	KHORDHA	August	87
2010	ORISSA	KHORDHA	September	89
2010	ORISSA	KHORDHA	October	87
2010	ORISSA	KHORDHA	November	84
2010	ORISSA	KHORDHA	December	77

1	2	3	4	5
2011	ORISSA	KHORDHA	January	74
2011	ORISSA	KHORDHA	February	80
2011	ORISSA	KHORDHA	March	74
2011	ORISSA	KHORDHA	April	71
2011	ORISSA	KHORDHA	May	78
2011	ORISSA	KHORDHA	June	86
2011	ORISSA	KHORDHA	July	90
2011	ORISSA	KHORDHA	August	93
2011	ORISSA	KHORDHA	September	92
2011	ORISSA	KHORDHA	October	80
2011	ORISSA	KHORDHA	November	69
2011	ORISSA	KHORDHA	December	68
2012	ORISSA	KHORDHA	January	NA
2012	ORISSA	KHORDHA	February	NA
2012	ORISSA	KHORDHA	March	NA
2012	ORISSA	KHORDHA	April	NA
2012	ORISSA	KHORDHA	May	NA
2012	ORISSA	KHORDHA	June	NA
2012	ORISSA	KHORDHA	July	92
2012	ORISSA	KHORDHA	August	89
2012	ORISSA	KHORDHA	September	88.5
2012	ORISSA	KHORDHA	October	79.5
2012	ORISSA	KHORDHA	November	83.5
2012	ORISSA	KHORDHA	December	73
2013	ORISSA	KHORDHA	January	NA
2013	ORISSA	KHORDHA	February	NA
2013	ORISSA	KHORDHA	March	NA
2013	ORISSA	KHORDHA	April	NA
2013	ORISSA	KHORDHA	May	NA
2013	ORISSA	KHORDHA	June	NA

1	2	3	4	5
2013	ORISSA	KHORDHA	July	NA
2013	ORISSA	KHORDHA	August	NA
2013	ORISSA	KHORDHA	September	NA
2013	ORISSA	KHORDHA	October	NA
2013	ORISSA	KHORDHA	November	NA
2013	ORISSA	KHORDHA	December	NA
2014	ORISSA	KHORDHA	January	NA
2014	ORISSA	KHORDHA	February	NA
2014	ORISSA	KHORDHA	March	NA
2014	ORISSA	KHORDHA	April	NA
2014	ORISSA	KHORDHA	May	NA
2014	ORISSA	KHORDHA	June	NA
2014	ORISSA	KHORDHA	July	NA
2014	ORISSA	KHORDHA	August	NA
2014	ORISSA	KHORDHA	September	NA
2014	ORISSA	KHORDHA	October	NA
2014	ORISSA	KHORDHA	November	NA
2014	ORISSA	KHORDHA	December	NA
2015	ORISSA	KHORDHA	January	NA
2015	ORISSA	KHORDHA	February	NA
2015	ORISSA	KHORDHA	March	NA
2015	ORISSA	KHORDHA	April	NA
2015	ORISSA	KHORDHA	May	NA
2015	ORISSA	KHORDHA	June	NA
2015	ORISSA	KHORDHA	July	NA
2015	ORISSA	KHORDHA	August	NA
2015	ORISSA	KHORDHA	November	51
2015	ORISSA	KHORDHA	December	72.4
2016	ORISSA	KHORDHA	January	70.4
2017	ORISSA	KHORDHA	NA	NA
2018	ORISSA	KHORDHA	NA	NA
2019	ORISSA	KHORDHA	NA	NA
2020	ORISSA	KHORDHA	NA	NA
2021	ORISSA	KHORDHA	NA	NA

Source –C.D Block office Khordha

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CHAPTER – 2

MAINTENANCE/ INCREASE IN THE EXTENT OF FOREST AND TREE COVER

2. MAINTENANCE/INCREASE IN THE EXTENT OF FOREST AND TREE COVER:

2.1. AREA OF FOREST UNDER DIFFERENT LEGAL CLASSES:

The Revised Working Plan of Khordha Forest Division prepared for the period 2006-07 to 2016-17 by Sri Abhiram Dash, IFS includes all the Reserve Forests and Demarcated Protected Forests. Further, the Village Forests are also proposed to be included in the present plan.

This Working Plan shall cover **58138.78** Ha of notified forest land, which comprises 22 RFs of **40084.29**Ha, 31 nos DPF of **16602.59** Ha, 05 PRFs of **527.28** Ha and 142 VFs of **924.62** Ha as per the recommendation of the State Working Plan Committee, the area of which has been given in **Table No.2.1** However, the forest area diverted for non-forestry purpose and forest area over which title rights have been issued under Forest Right Act, 2006 will be excluded from the prescription of the Working Plan.

The area statement of different categories of Forest areas of Khordha Forest Division and categories of Forest included in the revision of Working Plan are given here.

Table No.2.1 Forest Area of Khordha Forest Division

RESERVED FORESTS

Sl. No.	Name of Range	Name of RF Block	Notification No. & Date	Area in Ha.
1	2	3	4	5
1.	Balugaon	Aranga	No. 2962 of 3rd Nov., 1903	2651.60
2.		Bankard	No. 2962 of 3rd Nov., 1903	1290.28
3.		Kotwal	No. 2962 of 3rd Nov., 1903	982.40
4.		Tamana	No. Nil dtd. 23rd June, 7th July, 1885 & 13.11.1891 amended vide Notification No.2962 dtd.03.11.1903	3587.20
5.		Rajin	No. 2962 of 3rd Nov., 1903	6472.40
6.	Khordha	Barunei	2962 of 23rd June, 1885	482.80
7.		Jayamangal	No. Nil of 15.11.1886	144.48
8.		Manibandha-A & B	No. 1857-61 dtd 19.10.1991	309.60
9.		Nagapalli	No. Nil of 15.11.1886	551.61
10.		Panchagarh	2962 of 23rd June, 1885	735.00
11.		Pangarsingh	No. 1857/61 dtd. 19.10.1991	264.67
12.	Ranpur	Champagarh	No. 23710- 11F-39/66-CF of 16th Dec. 1966	413.64
13.		Dhani (N)	No. 23710- 11F-39/66-CF of 16th Dec. 1966	1092.28
14.		Mala	No. 23710- 11F-39/66-CF of 16th Dec. 1966	10472.46
15.		Maninag	No. 23710- 11F-39/66-CF of 16th Dec. 1966	1797.67
16.		Nuapada-B	No. 23710- 11F-39/66-CF of 16th Dec. 1966	272.77
17.		Satabhaya	No. 23710- 11F-39/66-CF of 16th Dec. 1966	377.18
18.		Sulia-B	No. 23710- 11F-39/66-CF of 16th Dec. 1966	1394.19
19.	Tangi	Sulia(South & North)	No.2962 of 3rd July, 1885	1609.09
20.		Kuhudi	No.2962 of 3rd July, 1885	641.04
21.		Patia	No. 23710- 11F-39/66-CF of 16th Dec. 1966	3702.18
22.		Dhani (S)	No. 23710- 11F-39/66-CF of 16th Dec. 1966	839.75
			Total	**40084.29**

DEMARCATED PROTECTED FORESTS

Sl. No	Name of the Range	Name of the DPF / Block	Notification No. & date	Corrected area as per letter No.1702, dtd. 09.08.1934 of Dy. Director, Survey, Bihar		Area in Ha.
1	2	3	4	5	6	7
1.	Khordha	Jariput	No. Nil. 09.08.1880	1160.47	-do-	464.19
2.		Kapileswarpur	No. Nil. 09.08.1880	189.00	-do-	75.60
3.		Tartua	No. Nil. 09.08.1880	906.00	-do-	362.40
4.		Kerang	No. Nil. 09.08.1880	304.00	-do-	121.60
5.		Mandalsingh	No. Nil. 09.08.1880	794.00	-do-	317.60
6.		Brahmanidei	No. Nil. 09.08.1880	1827.00	-do-	730.80
7.		Nargang	Forest SRO No.18/71, dt.7.1.1971	Boundary – E.Naragang village limit-3 miles &11 chain W.Nuakua Panikorad-1 mile8 chain N.Kumusar village limit Kiapalle 6mile 53 chains S. -1 Mile 51 chain		
8.		Puinchia	Forest SRO No.18/71, dt.7.1.1971	Boundary – E.Panikorad village limit-0 mile & 50 chains W.Puinchia villag limits-1 mile 50 chains N.Puinchia vill.sheet-Khajuripada 2 mile 30 chain S.Pandalam, Gohirigadia vill. Sheet -2 miles 20 chains		
9.		Duburi	No. Nil. 09.08.1880	1001.00	-do-	400.40
10.	Tangi	Nargoda	No. Nil. 09.08.1880	2550.00	-do-	1020.00
11.		Tangi	No. Nil. 09.08.1880	448.00	-do-	179.20
12.		Rameswar	No. Nil. 09.08.1880	1203.00	-do-	481.20
13.		Jalbhar	No. Nil. 09.08.1880	998.00	-do-	399.20
14.		Kadambajhar	No. Nil. 09.08.1880	1187.00	-do-	474.80
15.		Kandagadia	No. Nil. 09.08.1880	531.00	-do-	212.40
16.		Chakadapathar	No. Nil. 09.08.1880	2485.00	-do-	994.00
17.		Kunjuri	No. Nil. 09.08.1880	1123.00	-do-	449.20
18.		Badapari	No. Nil. 09.08.1880	635.00	-do-	254.00
19.		Bagheiput	No. Nil. 09.08.1880	211.00	-do-	84.40
20.		Nalsingh	No. Nil. 09.08.1880	1387.00	-do-	554.80
21.		Bhusandpur	No. Nil. 09.08.1880	1947.00	-do-	778.80
22.		Kaithpalla	No. Nil. 09.08.1880	682.00	-do-	272.80

Sl. No	Name of the Range	Name of the DPF / Block	Notification No. & date	Area (in acre)	Corrected area as per letter No.1702, dtd. 09.08.1934 of Dy. Director, Survey, Bihar	Area in Ha.
1	**2**	**3**	**4**	**5**	**6**	**7**
23.	Balugaon	Sandhamal	No. Nil. 09.08.1880	3778.00	-do-	1511.20
24.		Solari	No. Nil. 09.08.1880	2928.00	-do-	1171.20
25.		Bhaleri	No. Nil. 09.08.1880	2019.00	-do-	807.60
26.		Jharan	No. Nil 09.08.1880	4813.00	-do-	1925.20
27.		Nathpur, No.40	No. Nil. 09.08.1880	1373.00	-do-	549.20
28.		Champagarh	No. Nil. 09.08.1880	2174.00	-do-	869.60
29.		Bhatpada (Block No.41)	No. Nil. 09.08.1880	1341.00	-do-	536.40
30.		Chulijhinka	No. Nil. 09.08.1880	1341.00	-do-	536.40
31.		Jiripada	No. Nil. 09.08.1880	171.00	-do-	68.40
			Total	**41506.47**		**16602.59**

PROPOSED RESERVED FORESTS

Sl. No.	Name of the Range	Name of the PRF	Name of the Forest Block	Notification No. & Date	Area in Ac.	Area in Ha.
1	**2**	**3**	**4**	**5**	**6**	**7**
1.	Delanga	Beguniapada	Beguniapada	Fs-235/78-74551/ of Rev. Deptt. dtd.13.11.1978	80.00	32.00
2.		Jamunajharapada	Jamunajharapada	Fs-196/78-73206/ of Rev. Deptt. dtd.07.11.1978	180.00	72.00
3.		Kumuka	Kumuka	Fs-217/78-74968/ of Rev. Deptt. dtd.15.11.1978	535.00	214.00
4.		Rengal	Rengal	Fs-209/78-74543/ of Rev. Deptt. dtd.13.11.1978	280.00	112.00
5.	Balipatana	Bhanra	Bhanra	Fs-14/84- 62459/ of Rev. Deptt. dtd.17.09.1984	243.20	97.28
			Total		**1318.20**	**527.28**

VILLAGE FORESTS

Sl. No.	Name of Range	Name of Tahasil	Name of Village	Area in Ha.	Notification No.
1	2	3	4	5	6
1	Khordha	Banki	Malisahi	11.00	AFFN(SIDA) -83/91, 314/F & E dtd.06.01.92
2			Alasua	20.00	-do-
3			Kadamala	8.00	-do-
4			Baideswar	25.00	-do-
5			Kantakai	5.00	-do-
6			Bania	5.00	-do-
7			Kendupalli	5.00	No. 9867 F.F.A.H. dtd. 01.05.89
8			Nuagaon	2.00	-do-
9			Rameswar	2.00	-do-
10			Hatimara	4.00	AFFN(SIDA)-83/91, 22555/F & E dtd.20.12.91
11			Gopalpur	5.00	-do-
12			Gopalpur (Nuagaon Sabarsahi)	5.00	-do-
13			Gopalpur	5.00	-do-
14			Gopalpur	8.00	-do-
15			Chiramaru (Nargang)	4.00	-do-
16			Kumusar	5.00	-do-
17			Palasuni (Nargang)	6.00	-do-
18			Puincha	5.00	-do-
19			Berhampura	3.00	-do-
20			Jayamangal	5.00	-do-
21			Baraput	5.00	-do-
22			Nargang	5.00	-do-
23			Baraput	5.00	-do-
24			Dengamba	5.00	-do-
25			Kiapalla	5.00	-do-
26			Nuagaon	5.00	-do-
27		Khordha	Chotipalanga	10.00	AFFN(SIDA)-13/92, 2108/F & E dtd.30.01.92
28			Jayamangal	3.00	-do-
29			Tartua	20.00	-do-
30			Pubusahi	2.00	-do-
31			Tartua	30.00	AFFN(SIDA)-13/92, 2108/F & E dtd.30.01.92
32			Olasingh	2.00	-do-

Sl. No.	Name of Range	Name of Tahasil	Name of Village	Area (in Ha.)	Notification No.
1	2	3	4	5	6
33	Khordha	Khordha	Garhgudam	8.00	-do-
34			Lekhanpur	3.25	-do-
35			Sialiapatna	6.00	-do-
36			Olasingh	5.00	-do-
37			Olasingh	3.00	-do-
38			Rautapada (Dakhineswar)	8.00	-do-
39			Palla	10.00	-do-
40			Podapatana	1.06	-do-
41			Bengitangi	8.00	-do-
42			Brahmanaput	8.00	-do-
43			Brahmanaput	3.19	-do-
44			Brahmanaput	3.00	-do-
45			Kotalanga	3.00	-do-
46			Masania	10.00	-do-
47			Masania	6.00	-do-
48			Masania	0.80	-do-
49			Karadagadia	5.00	-do-
50			Kapileswarpur	2.00	-do-
51			Kapileswarpur	4.59	-do-
52			Kadalibadi	2.00	-do-
53			Kadalibadi	1.07	-do-
54			Kadalibadi	1.44	-do-
55			Kadalibadi	1.00	-do-
56			Kurum	15.00	-do-
57			Madhapur	1.59	-do-
58			Kokasingh	2.88	-do-
59			Atri	1.00	-do-
60			Atri	8.00	-do-
61			Atri	6.00	-do-
62			Bhuasunu Patna	3.00	-do-
63			Podaput	2.00	-do-
64			Podaput	5.75	-do-
65			Podaput	8.00	-do-
66			Badaberena	14.81	-do-
67			Badaberena	2.00	-do-
68			Badaberena	3.00	-do-
69			Gobindapur Patna	1.87	-do-
70			Gobindapur Patna	3.00	AFFN(SIDA)-13/92, 2108/F & E dtd.30.01.92
71			Karadagadia	14.61	-do-
72			Karadagadia	3.16	-do-
73			Karadagadia	2.00	-do-

Sl. No.	Name of Range	Name of Tahasil	Name of Village	Area (in Ha.)	Notification No.
1	2	3	4	5	6
74			Balibereni	6.00	-do-
75			Gaudaput	5.10	-do-
76			Gaudaput	2.60	-do-
77			Paikatigiria	19.20	-do-
78			Paikatigiria	23.14	-do-
79			Paikatigiria	15.32	-do-
80			Aranga	8.00	-do-
81			Aranga	5.00	-do-
82			Niala	8.00	-do-
83			Niala	8.00	-do-
84			Deulatangi	6.00	-do-
85			Routapada	8.00	-do-
86			Suanla	5.00	-do-
87			Kendupalli	4.50	-do-
88			Sahadapur	4.00	-do-
89			Godipokhari	20.00	-do-
90			Basudevpur	8.00	-do-
91			Basudevpur	6.00	-do-
92	Khordha	Khordha	Routapada	2.02	-do-
93			Ostapur	3.00	-do-
94			Ostapur	1.65	-do-
95			Kusupalla	25.00	AFFN (SIDA)- 13/92, 30230/ F & E dtd. 19.12.1992
96			Gaudaput	6.00	-do-
97			Botalama	6.00	-do-
98			Suanla	5.00	-do-
99			Suanla	4.06	-do-
100			Chhotaraypur	2.13	-do-
101			Raghunathpur	8.00	-do-
102			Basanta	8.00	-do-
103			Botalama	3.00	-do-
104			Routapada (Jharmunda)	15.00	-do-
105			Routapada (Jharmunda)	1.00	-do-
106			Chandapur	3.00	-do-
			Sub Total	**690.79**	
107		Ranpur	Balarampur	4.00	AFFN(SIDA)-24/90/19957/ FFAH, dtd. 21.08.90
108	Tangi	Banpur	Mangaljodi	4.30	AFFN(SIDA)-13/92, 2108/F & E dtd. 30.01.92
109			Mangaljodi	8.00	-do-

Sl. No.	Name of Range	Name of Tahasil	Name of Village	Area (in Ha.)	Notification No.
1	**2**	**3**	**4**	**5**	**6**
110	Tangi	Banpur	Mangaljodi	10.00	-do-
111			Tarapi	10.00	-do-
112			Gainada	8.00	-do-
113			Gainada	4.00	-do-
114			Tarapi	10.00	-do-
115			Kandhaambajhar	5.00	-do-
116			Tarapi	5.05	-do-
117		Khordha	Nalsingh	5.50	-do-
118		Khordha	Malipada	10.00	-do-
			Sub Total	**83.85**	
119	Ranpur	Ranpur	Lodhachua	5.00	AFFN(SIDA)-24/90/19957/ FFAH, dtd. 21.08.98
120			Bagala	8.00	-do-
121			Ektal	5.00	-do-
122			Ektal	5.00	-do-
123			Ektal	5.00	-do-
124			Ektal	7.00	-do-
125			Khandisi	2.00	AFFN(SIDA)-13/92, 2108/F & E dtd. 30.01.92
126			Kerendatangi	1.32	-do-
127			Nagajhar	9.00	-do-
128			Narsinghpur	10.00	AFFN(SIDA) 013/92, 30230/ F & E dtd. 19.12.92
129			Narsinghpur	10.00	-do-
130			Hansara	7.35	-do-
			Sub Total	**74.67**	
131	Balugaon	Banpur	Kanheipur	9.00	AFFN(SIDA)-13/92, 2108/ F & E, dtd.30.01.92
132			Tarasingh	5.77	-do-
133			Samantasingharpur	2.00	-do-
134			Bania sahi	2.70	AFFN(SIDA)-13/92, 2108/ F & E, dtd. 30.01.92
135			Kanheipur	10.71	-do-
136			Kulei	14.25	-do-
137			Boria sahio	7.00	AFFN(SIDA)-13/92, 2108/ F&E, dtd. 30.01.92
138			Dasarathipur	7.98	-do-
139			Champatipur	5.00	AFFN(SIDA)-13/92, 30230/F&E dtd.19.12.92
140			Ostapalli	2.00	-do-
141			Boria sahio	4.00	-do-
142			Jariput	4.90	-do-
			Sub Total	**75.31**	

ABSTRACT

Sl No.	Range	No. of plots in Villages	Area in Ha.
1	**2**	**3**	**4**
1	Khordha	106	690.79
2	Tangi	12	83.85
3	Ranpur	12	74.67
4	Balugaon	12	75.31
Total		**142**	**924.62**

Table 2.2 District-wise Legal Status of Khordha Forest Division

Name of the District	Reserve Forest (in Ha.)	D.P.F. (in Ha.)	P.R.F (in Ha.)	Village Forest (in Ha.)	Total (in Ha.)
1	**2**	**3**	**4**	**5**	**6**
Khordha	21815.26	16602.59	97.28	677.95	33962.42
Nayagarh	18269.03	0.00	0.00	78.67	22900.55
Puri	0.00	0.00	430.00	0.00	430.00
Cuttack	0.00	0.00	0.00	168.00	168.00
Total	**40084.29**	**16602.59**	**527.28**	**924.62**	**58138.78**

- Forest area diverted is 22.0089 ha under Forest Conservation Act, 1980.
- Forest area over which title rights issued against Forest Right Act, 2006 is 433.39 Ha.
- DLC area is 3039.042 Ha.

Table 2.3: Rangewise area of Khordha Forest Division

Name of the Range	Reserve Forest (in Ha.)		D.P.F. (in Ha.)		P.R.F. (in Ha.)		Village Forest (in Ha.)		Total (in Ha.)	Unclassed Forests in Ha.
	2007-08 to 2016-17	2021-22 to 2030-31	2007-08 to 2016-17	2021-22 to 2030-31	2007-08 to 2016-17	2021-22 to 2030-31	2007-08 to 2016-17	2021-22 to 2030-31		
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Khordha	2430.26	2488.16	2370.86	2472.59	0	0	690.79	690.79	5651.54	5.53
Ranpur	15988.39	15820.19	0	0	0	0	74.672	74.672	15894.9	3.8158
Balugaon	15060.53	14983.88	7442.33	7975.2	0	0	75.305	75.305	23034.4	28.229
Tangi	6783.69	6792.06	6138.77	6154.8	0	0	83.85	83.85	13030.7	3.9744
Delang	0	0	0	0	628.31	430	0	0	430	2.2012
Balipatna	0	0	0	0	90.29	97.28	0	0	97.28	0.09913
Total	**40262.87**	**40084.29**	**15951.96**	**16602.59**	**718.6**	**527.28**	**924.617**	**924.617**	**58139**	**43.84953**

2.2. FOREST AREA UNDER DIFFERENT WORKING CIRCLE:

The outgoing revised Working Plan of Khordha Forest Division prepared by Sri Abhiram Das, IFS is valid till 2016-17. The Rangewise area under different Working Circle in the outgoing plan is as follows:

Table 2.4 Name of Working Circle and Area (Ha.)

Name of the Range	Selection-cum-Improvement WC	Rehab-ilitation WC	Bamboo (Over-lapping) WC	NTFP (Over-lapping WC	Car Timber (Over-lapping) WC	Wildlife (Over-lapping) WC	Plant-ation (Over-lapping) WC	Forest Protection (Over-lapping) WC	JFM (Over-Lapping) WC
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Balipatna	--	--	--	93.01	--	93.01	--	93.01	50
Balugaon	15651.33	6742.22	13828.3	22393.54	8983.98	22393.54	1242	22393.54	2478
Delanga	--	328.86	--	440.88	--	440.88	210.674	440.88	266.511
Khordha	704.59	3428.91	--	5312.60	--	5312.60	509	5312.60	2318.57
Ranpur	12647.79	3293.13	10347.15	16286.35	5187.24	16286.35	1500	16286.35	5765
Tangi	4739.21	8450.92	5004.88	13366.15	2187.59	13366.15	2330	13366.15	3968
Total	**33742.92**	**22244.04**	**29180.33**	**57892.53**	**16358.81**	**57892.53**	**5791.674**	**57892.53**	**14846.08**

In this Revise Working Plan the following area have been proposed to be included in different Working Circle.

2.5 Tentative allotment of area to different Working Circles.

Selection-cum-Improve-ment WC	Rehabili-tation WC	Plantation WC	Car Timber (OL) WC	Bamboo (OL) WC	NTFP & BCD (OL) WC	JFM & VSS (OL) WC	Catchment Treatment (OL) WC	Wildlife Mgmt (OL) WC
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
33466.14	**18087.8985**	**6977.875**	**16358.81**	**29378.51**	**58531.92**	**16467.11**	**58531.92**	**58531.92**

2.3. PERCENTAGE OF FOREST WITH SECURED BOUNDARIES:

Boundary lines are required to be cleared and maintained properly. Details of block boundaries, e.g., length of forest boundary, number of pillars, pillar to pillar bearings and distances (along with GPS readings), and a record of maintenance of boundaries need to be maintained in the Divisional Office. The

boundaries of different forest blocks of Khordha Forest Division were poorly maintained due to a variety of reasons including paucity of funds. Non-maintenance of boundaries in the past has resulted immovability along the boundary line for verification of boundary pillars and recording of geo-reference i.e. latitude and longitude of boundary pillars. During field verification, many of the boundary lines of different forest blocks, it is noticed that boundary lines, boundary pillars of about all the Reserve Forest are intact and no encroachment are found. During recent survey, it is observed that the boundary of forest blocks vary with respect to field position when compared with the Survey of India Topo sheets and Cadastral maps prepared in the Division. This need to be streamlined with respect to the cadastral sheets since the work is now focused with minute survey in Cadastral map preparation. But the geo reference of the pillars does not tally with the latitude and longitude provided in the digitized maps prepared in the Khordha Division with geo reference points. The geo reference points are falling either about 20 mtrs inside the Reserved Forests or about 20 mtrs in the recorded Revenue land adjoining to Reserved Forests. Similar is the case in case of all the Demarcated Protected Forests as regard to geo reference points provided in the digitized maps prepared in Khordha Forest Division. Mainly the forests under the category of Reserved Forest are with secured boundaries. But in the DPFs most of the boundary pillars are missing and boundary lines are not maintained at all which has given a scope for encroachment in the DPFs. Worst encroachments are noticed in Kadambajhar DPF of Tangi Range. In Tangi DPF forest area has been encroached since long and one college has been established in forest area without diversion of forest land. It is not possible for the field staff of office of the CCF and WPO Bhubaneswar to measure all the encroached area in absence of boundary line and different attitude of encroachers. The Divisional forest officer, Khordha Forest Division should clear the boundary line of all the forest blocks and take DGPS survey of most of the forest blocks to find out the exact geo reference location of boundary pillars and fix up the boundary pillars properly with numbering as per available records in the Division. Boundary pillars of RFs are required to be periodically repaired, painted and numbered. However the

details of available boundary pillars of RFs & DPFs are indicated in the **Appendix-XIII.**

2.4. LANDUSE, LAND USE CHANGE AND FORESTRY (LULUCF):

The status of forest cover in the forest blocks has improved during the outgoing plan period including the trees outside forest. While analyzing the change in forest cover during the year 2015 to 2017 for the Khordha Forest Division it is seen that there has been decrease of 13.58 Ha of Very Dense Forest and the forest cover of the Division has increased in the category of Moderately Dense Forest to the extent of 26.38 Ha and Open Forest to the extent of 163.91 Ha. The resultant increase in forest cover during the last two years is 176.71 Ha in forest cover. Further there has been increase in scrub forest to the extent of 194.51 Ha. While analyzing the change of forest cover during 2015 to 2017 in Balugaon Range, Ranpur Range, Tangi, Khordha Range, Delanga Range and Balipatna Range, the following forest cover changes are noticed.

In Balugaon Range there has been increase in Very Dense Forest to the extent of 8.59 Ha, Moderately Dense Forest 72.79 Ha, open forest 112.63 Ha and scrub forest 11.08 Ha.

In Ranpur Range it is seen that there has been decrease in the category of Very Dense Forest, Moderately Dense Forest, open forest to the extent of 22.46 Ha, 23.95 Ha, and 90.03 Ha respectively. Of course there has been increase of 97.29 Ha in respect of Scrub Forest.

In Tangi Range it is seen that there has been increase of 0.28 Ha of Very Dense Forest and 46.10 Ha. of open forest but the forest cover has decreased to the extent of 22.21 Ha. in the category of Moderately Dense Forest. Further, the Scrub Forest has increased to the extent of 16.23 Ha In Khordha Range it is seen that there has been increase in the category of Moderately Dense Forest, Open Forest, and Scrub Forest to the extent of 0.26 Ha, 73.43 ha and 68.89 Ha respectively. In Delang Range it is seen that the Moderately Dense Forest has decreased 0.18 Ha but the Open Forest and Scrub Forest area has increased to the extent of 6.09 Ha and 0.92 Ha respectively. In Balipatna Range it is seen that the Moderately Dense Forest has decreased 0.33 Ha but the Scrub Forest area has increased to the extent of 15.69 Ha.

The details of forest cover changes during 2015 to 2017 in Divisional level, Range level and beat level are shown in **Table No.2.6, 2.7and 2.8.**

TABLE NO.2.6- FOREST COVER CHANGE IN KHORDHA FOREST DIVISION

Type of Forest cover	Forest cover in 2015 (in Ha)	Forest cover in 2017 (in Ha)	Forest cover change between 2015 and 2017
1	2	3	4
Very dense forest	4614.06	4600.47	-13.58
Moderately dense forest	29277.88	35304.26	26.38
Open forest	24923.28	25087.19	163.91
Scrub forest	12505.43	12699.94	194.51

TABLE NO.2.7- FOREST COVER CHANGE IN DIFFERENT RANGES OF KHORDHA FOREST DIVISION

Forest Range	Type of Forest cover	Forest cover in 2015 (in Ha)	Forest cover in 2017 (in Ha)	Forest cover change between 2015 and 2017
1	2	3	4	5
Balugaon	Very dense forest	2169.05	2177.64	8.59
	Moderately dense forest	15149.01	15221.80	72.79
	Open forest	5348.61	5461.24	112.63
	Scrub forest	2885.20	2896.28	11.08
Ranpur	Very dense forest	2435.17	2412.72	-22.46
	Moderately dense forest	9488.13	9464.17	-23.95
	Open forest	4260.78	4170.74	-90.03
	Scrub forest	3650.13	3747.42	97.29
Tangi	Very dense forest	9.83	10.12	0.28
	Moderately dense forest	3831.23	3809.02	-22.21
	Open forest	6126.99	6173.09	46.10
	Scrub forest	3960.92	3977.24	16.32
Khordha	Very dense forest	0.00	0.00	0.00
	Moderately dense forest	767.87	768.13	0.26
	Open forest	5528.59	5602.02	73.43
	Scrub forest	1939.10	2008.00	68.89
Delanga	Very dense forest	0.00	0.00	0.00
	Moderately dense forest	24.82	24.65	-0.18
	Open forest	1096.42	1102.50	6.09
	Scrub forest	70.08	71.00	0.92
Balipatna	Very dense forest	0.00	0.00	0.00
	Moderately dense forest	16.83	16.49	-0.33
	Open forest	2561.90	2577.60	15.69
	Scrub forest	0.00	0.00	0.00

Source-FSI,Dehradun.
2018-2021Datanotavailable.

TABLE NO.2.8 FOREST COVER CHANGE IN DIFFERENT BEATS OF KHORDHA FOREST DIVISION

NAME OF BEAT	VDF (Area in Ha.)			MDF (Area in Ha.)			OF (Area in Ha.)			Scrub (Area in Ha.)		
	2015	2017	Change	2015	2017	Change	2015	2017	Change	2015	2017	Change
1	2	3	4	5	6	7	8	9	10	11	12	13
Forest Cover Change for Balugaon Range												
Pratap (S)	0.00	0.00	0.00	500.19	500.21	0.01	153.83	154.16	0.33	12.15	11.50	-0.66
Balugaon	0.00	0.00	0.00	6.39	6.27	-0.12	21.31	38.21	16.90	26.41	33.22	6.81
Chhatragarh	0.00	0.00	0.00	239.44	239.18	-0.26	45.26	44.61	-0.65	502.27	503.18	0.91
Ankula	0.00	0.00	0.00	0.52	0.56	0.04	28.31	29.10	0.79	252.09	250.91	-1.17
Pratap (N)	0.00	0.00	0.00	590.31	590.34	0.03	1101.27	1102.75	1.49	0.00	0.00	0.00
Bhatapada	123.91	123.62	-0.29	686.62	687.12	0.50	63.52	64.30	0.78	130.53	131.11	0.57
Khariapalli	17.88	16.61	-1.27	377.10	378.45	1.35	53.56	53.41	-0.15	102.28	102.98	0.70
Berbera (S)	563.64	559.10	-4.53	790.19	784.45	-5.75	206.38	207.05	0.67	0.00	0.00	0.00
Berbera (N)	187.83	187.71	-0.12	806.37	804.26	-2.11	101.23	103.45	2.22	0.00	0.00	0.00
Jiripada	165.43	165.02	-0.40	442.65	442.88	0.24	56.65	56.46	-0.19	0.00	0.00	0.00
Baguda (N)	92.42	97.67	5.26	227.26	250.68	23.42	98.32	116.36	18.04	0.00	0.00	0.00
Dhuanali (S)	0.00	0.00	0.00	735.10	734.82	-0.28	103.06	102.78	-0.27	0.00	0.00	0.00
Niladriprasad (E)	0.00	0.00	0.00	359.61	359.18	-0.42	20.30	20.92	0.62	0.00	0.00	0.00
Niladriprasad W)	0.00	0.00	0.00	884.80	882.80	-2.00	66.22	67.30	1.08	0.00	0.00	0.00
Dhuanali (N)	95.61	94.34	-1.27	864.80	866.97	2.18	169.96	170.18	0.22	0.00	0.00	0.00
Silingpada (W)	182.20	183.27	1.08	1043.95	1043.42	-0.53	222.81	222.17	-0.64	0.00	0.00	0.00
Silingpada (E)	31.22	31.37	0.15	1302.38	1301.22	-1.15	96.46	97.45	0.98	0.00	0.00	0.00
Dhuanali Central	0.00	0.00	0.00	570.01	569.55	-0.47	216.74	216.60	-0.14	169.28	169.00	-0.28
Mahulia (E)	93.95	94.04	0.09	628.45	626.68	-1.77	77.08	78.24	1.16	0.00	0.00	0.00
Kriamba	310.25	310.70	0.45	806.33	804.29	-2.04	39.54	40.37	0.83	0.00	0.00	0.00
Mahulia (W)	105.38	105.02	-0.36	602.76	629.63	26.88	63.79	83.48	19.69	0.00	0.00	0.00
Ayatpur	0.00	0.00	0.00	197.92	197.40	-0.52	510.96	511.98	1.02	512.28	511.31	-0.97
Padmapur (N)	0.00	0.00	0.00	727.91	729.13	1.22	206.57	204.93	-1.64	387.24	387.94	0.70
Padmapur (S)	0.00	0.00	0.00	0.00	0.00	0.00	297.42	296.26	-1.16	784.53	788.35	3.82
Beruhanbadi (W)	0.00	0.00	0.00	82.06	82.26	0.20	444.60	445.21	0.62	0.00	0.00	0.00
Beruhanbadi (E)	0.00	0.00	0.00	2.48	2.36	-0.12	0.00	0.00	0.00	6.14	6.79	0.65
Nilapali	0.00	0.00	0.00	459.89	460.01	0.13	492.15	516.72	24.56	0.00	0.00	0.00

NAME OF BEAT	VDF (Area in Ha.)			MDF (Area in Ha.)			OF (Area in Ha.)			Scrub (Area in Ha.)		
	2015	2017	Change	2015	2017	Change	2015	2017	Change	2015	2017	Change
1	2	3	4	5	6	7	8	9	10	11	12	13
Forest Cover Change for Ranpur Range												
Raipada (N)	113.78	113.21	-0.57	203.84	196.99	-6.84	10.92	13.96	3.04	0.00	0.00	0.00
Raipada (S)	241.53	239.04	-2.49	242.02	242.05	0.03	9.52	9.53	0.01	0.00	0.00	0.00
Betuli (S)	305.14	302.06	-3.08	806.26	798.65	-7.61	127.92	130.14	2.21	0.00	0.00	0.00
Betuli (N)	420.55	419.29	-1.26	593.98	591.56	-2.42	115.18	116.13	0.95	0.00	0.00	0.00
Raipada	0.00	0.00	0.00	0.00	0.00	0.00	20.54	20.98	0.43	103.24	102.80	-0.45
Champagarh	0.00	0.00	0.00	0.00	0.00	0.00	128.06	128.10	0.04	365.41	365.80	0.39
Nakithana	0.00	0.00	0.00	224.14	224.69	0.55	385.31	385.31	0.00	490.33	188.23	-2.10
Gopalpur	0.00	0.00	0.00	205.51	205.95	0.44	147.05	146.55	-0.51	0.00	0.00	0.00
Chakundajhar	34.76	35.13	0.37	494.68	495.85	1.17	190.24	189.47	-0.77	0.00	0.00	0.00
Kardapalla	0.00	0.00	0.00	876.83	877.72	0.90	154.50	153.88	-0.61	0.00	0.00	0.00
Bankanalia	0.00	0.00	0.00	696.34	691.23	-5.11	268.70	270.29	1.58	0.07	0.16	0.09
Bhetabar	0.00	0.00	0.00	1151.42	1150.95	-0.48	536.64	535.99	-0.65	365.40	365.05	-0.35
Bherupada	0.00	0.00	0.00	380.32	381.25	0.93	169.82	168.42	-1.39	478.48	479.72	1.24
Gadabanikilo	0.00	0.00	0.00	121.87	121.45	-0.42	422.66	428.90	6.24	71.37	71.31	-0.06
Kotagarh	0.00	0.00	0.00	7.43	7.51	0.08	271.86	271.81	-0.05	545.60	544.28	-1.32
Surukabadi	0.00	0.00	0.00	305.02	303.33	-1.70	890.86	784.56	-106.30	487.53	587.19	99.66
Chatipur	0.00	0.00	0.00	26.87	26.22	-0.65	44.68	44.42	-0.26	249.09	249.71	0.61
Ranpursadar	0.00	0.00	0.00	21.21	20.59	-0.62	196.41	197.47	1.06	493.60	493.17	-0.43
Sakatasal	38.57	38.01	-0.56	739.13	739.91	0.78	30.70	30.53	-0.17	0.00	0.00	0.00
Sankhajodi (S)	157.56	143.05	-14.51	297.98	298.64	0.65	4.72	4.54	-0.19	0.00	0.00	0.00
Sankhajodi Central	160.39	160.85	0.46	403.50	402.27	-1.23	39.05	39.13	0.09	0.00	0.00	0.00
Sankhajodi (N)	767.78	766.39	-1.40	745.75	748.43	2.68	16.35	16.93	0.58	0.00	0.00	0.00

NAME OF BEAT	VDF (Area in Ha.)			MDF (Area in Ha.)			OF (Area in Ha.)			Scrub (Area in Ha.)		
	2015	2017	Change	2015	2017	Change	2015	2017	Change	2015	2017	Change
1	2	3	4	5	6	7	8	9	10	11	12	13
Forest Cover Change for Tangi Range												
Randa (S)	0.00	0.00	0.00	567.60	548.24	-19.37	88.93	88.81	-0.11	136.03	135.91	-0.13
Gachhapatar	2.21	2.39	0.18	898.28	898.00	-0.28	199.87	200.77	0.90	0.00	0.00	0.00
Randa (N)	7.63	7.73	0.10	559.27	557.33	-1.94	235.49	236.88	1.39	0.00	0.00	0.00
Barapalli	0.00	0.00	0.00	176.13	176.48	0.35	518.64	552.36	33.72	424.83	390.68	-34.15
Bhusandpur	0.00	0.00	0.00	3.40	2.92	-0.48	343.25	383.40	40.15	197.52	250.88	53.36
Rameswar	0.00	0.00	0.00	28.63	29.12	0.48	521.45	525.59	4.13	18.38	17.57	-0.81
Nalasingh	0.00	0.00	0.00	204.16	204.60	0.44	755.61	759.41	3.80	381.70	380.39	-1.31
Sikko	0.00	0.00	0.00	51.78	50.48	-1.30	703.84	706.19	2.34	600.85	601.44	0.59
Nachuni	0.00	0.00	0.00	520.14	520.82	0.67	315.90	315.79	-0.11	521.50	521.55	0.05
Haripur	0.00	0.00	0.00	0.00	0.00	0.00	254.47	211.87	-42.60	12.10	11.51	-0.59
Salapadiha	0.00	0.00	0.00	31.54	31.04	-0.51	326.97	327.53	0.56	512.61	511.82	-0.79
Patia (S)	0.00	0.00	0.00	336.36	336.31	-0.05	120.38	120.51	0.13	8.78	8.52	-0.26
Patia (N)	0.00	0.00	0.00	450.93	450.71	-0.22	498.17	498.32	0.15	246.59	245.95	-0.64
Dikhitapada	0.00	0.00	0.00	3.00	2.98	-0.01	1033.62	1035.87	2.25	752.00	752.58	0.58
Tangi	0.00	0.00	0.00	0.00	0.00	0.00	19.62	19.10	-0.52	6.11	6.33	0.23
Badapari	0.00	0.00	0.00	0.00	0.00	0.00	190.78	190.69	-0.09	141.92	142.12	0.20
Forest Cover Change for Balipatna Range												
Balakati	0.00	0.00	0.00	11.18	11.47	0.29	903.81	906.31	2.50	0.00	0.00	0.00
Bhanra	0.00	0.00	0.00	1.44	1.18	-0.26	503.89	515.51	11.62	0.00	0.00	0.00
Dandamukundapur	0.00	0.00	0.00	2.42	2.17	-0.25	669.67	671.02	1.35	0.00	0.00	0.00
Pipili	0.00	0.00	0.00	1.79	1.67	-0.11	484.53	484.75	0.23	0.00	0.00	0.00

NAME OF BEAT	VDF (Area in Ha.)			MDF (Area in Ha.)			OF (Area in Ha.)			Scrub (Area in Ha.)		
	2015	2017	Change	2015	2017	Change	2015	2017	Change	2015	2017	Change
1	2	3	4	5	6	7	8	9	10	11	12	13
Forest Cover Change for Khordha Range												
Kalapathar	0.00	0.00	0.00	0.00	0.00	0.00	41.85	43.06	1.21	0.00	0.00	0.00
Gahirgadia	0.00	0.00	0.00	24.54	24.84	0.30	265.60	266.15	0.55	31.91	32.29	0.37
Baideswar	0.00	0.00	0.00	0.00	0.00	0.00	15.04	15.16	0.12	0.00	0.00	0.00
Kumusar	0.00	0.00	0.00	0.00	0.00	0.00	269.65	321.75	52.10	16.45	16.63	0.17
Mahaparbata	0.00	0.00	0.00	0.00	0.00	0.00	142.58	141.15	-1.43	20.94	20.50	-0.44
Sisua	0.00	0.00	0.00	0.00	0.00	0.00	196.23	196.67	0.44	47.46	47.35	0.11
Begunia	0.00	0.00	0.00	42.95	42.39	-0.56	414.75	413.02	-1.73	125.36	127.22	1.86
Gediapalli	0.00	0.00	0.00	126.22	124.91	-1.31	364.92	413.94	49.02	66.19	67.21	1.01
Gaudaput	0.00	0.00	0.00	7.78	7.26	-0.51	263.30	261.71	-1.58	41.85	41.99	0.14
Pangarsingh	0.00	0.00	0.00	0.00	0.00	0.00	53.18	66.74	13.57	2.02	2.05	0.03
Bolagarh	0.00	0.00	0.00	0.00	0.00	0.00	102.39	102.81	0.42	47.51	47.03	-0.48
Sampur	0.00	0.00	0.00	0.00	0.00	0.00	29.86	30.07	0.21	34.23	33.97	-0.25
Patabandha	0.00	0.00	0.00	0.00	0.00	0.00	105.01	105.66	0.65	669.51	670.07	0.55
Arikima	0.00	0.00	0.00	0.00	0.00	0.00	17.89	17.77	-0.13	25.39	25.42	0.03
Manibandha	0.00	0.00	0.00	91.36	91.66	0.30	332.59	339.19	6.59	0.13	0.10	-0.03
Kusapalla	0.00	0.00	0.00	329.72	330.00	0.28	628.90	576.73	-52.17	80.73	131.14	50.41
Jariput	0.00	0.00	0.00	32.72	33.53	0.81	1413.28	1416.52	3.25	447.01	441.60	-5.42
Gadakhordha	0.00	0.00	0.00	104.40	105.13	0.73	573.42	575.63	2.21	278.82	278.36	-0.47
Khordha	0.00	0.00	0.00	2.71	2.76	0.05	277.20	277.01	-0.19	3.55	24.23	20.68
Tartua	0.00	0.00	0.00	5.47	5.65	0.18	20.96	21.27	0.31	0.03	0.03	0.00
Forest Cover Change for Delanga Range												
Rengal	0.00	0.00	0.00	23.59	23.54	-0.05	516.19	520.99	4.80	70.08	71.00	0.92
Delanga/Kumuka	0.00	0.00	0.00	0.14	0.11	0.03	404.26	404.13	-0.14	0.00	0.00	0.00
Chupuring	0.00	0.00	0.00	0.00	0.00	0.00	5.51	5.45	-0.05	0.00	0.00	0.00
Kanas	0.00	0.00	0.00	1.09	0.99	-0.10	170.46	171.93	1.48	0.00	0.00	0.00

The total forest area *i.e.* 22.0089 Ha. has been diverted for non-forestry activities under Forest Conservation Act, 1980 & title rights settled under Forest Rights Act, 2006 over 433.39 Ha. of forest land.

2.5. THREATS TO THE FOREST:

The major threat to the forests and wildlife is classified under the following categories as below.

1. Illegal collection of firewood and fodder.
2. Encroachment of forest.
3. Grazing of cattle in forest.
4. Forest fire.
5. Insects.
6. Weeds
7. Drought, Flood and Cyclone.
8. Climbers.

The major threat is caused due to the illegal collection of firewood and fodder by the local people by felling the young regeneration and logging the established plant species. This practice is to be discouraged by making awareness among the villagers.

At places near the habitation, the forest is encroached for cultivation purpose and even for illegal settlement. As the boundary lines are not clear the detection of encroachment in forest area become difficult. The demarcation of boundary line has been started recently to locate the encroachment.

Huge number of cattle depends on the forest for grazing. There is no rotational grazing in the forest for which growth of forest is affected.

Fire hazards causes major setback to the growth of forest. The regenerations, herbs, shrubs and even fallen seeds are completely burnt due to forest fire which occurs during the month of March-April. The forest fire was maximum in 2009-10 to 2014-15 due to the gregarious bamboo flowering in previous years and non clearance of bamboo & leaf litter from forest floor.

Insects attack is common, wood borers in Teak, Sal. The damage, deformed, injured, crooked, diseased and dead trees are to be removed at the time of Silvicultural operation.

Weed growth of *Eupatorium spp.* and *Lantan spp.* is heavy in open space, invading the undergrowth. Efforts have been made to remove by uprooting the weeds during monsoon and post-monsoon.

Forest has been affected by the recent Cyclone, Phaillin, Hudhud etc. Climbers such as Cuscutaspp. is a menace to the forest.

2.6. DISTRIBUTION OF DIFFERENT FOREST TYPES:

As per the Champion and Seth's classification of the general forests of India, the following types and sub-types are found in Khordha Forest Division.

Sub-group 2.B.	Northern tropical semi ever green forests.
2.B/C3	Orissa semi ever green forests.
Sub-group 3.C.	North Indian tropical moist deciduous forests.
3.C/C1(d)	Peninsular (coastal) Sal forests.
3.C/2S1	Northern secondary moist deciduous forests.
Sub-group 5.B.	Northern tropical dry deciduous forests.
5.B/C1(c)	Dry peninsular Sal forests.
5.B/DS1	Dry deciduous scrub forests.

Sub-group 2.6.1.Northern tropical semi ever green forests.

2.B/C3 Orissa semi ever green forests.

This forest type is found in the moderately heavy to very heavy rainfall areas of the Division. Top storey consists of deciduous tree species, which remain leafless for short time only but not simultaneously, and the 2nd storey mostly remains ever green. These types of forests are widely located in the valleys of the hills upto 800 meters or so of Rajin, Tamana and Mala blocks. The occurrence is mostly noticed on fertile fresh soils in the areas having rainfall around 1500 mm. or more and high humidity under oceanic influence. The flora consists of Sal (*Shorea robusta*), Champa (*Michelia Champaca*), Lambura (B*ursera Sereta*), Asan (*Terminalia alata*), Asoka (*Saraca indica*), Mango (*Mangifera indica*), Dhamana (*Grewia tiliaefolia*), *Celtisterandr*, *Brideliato mentosa, Dillenia pentagyna, Ficus* Spps, *Firmiana Colarate, Aphanamixis, Polystachya, Mesua ferrea, Phoebe lanceolata, Polyalthia Spps., Macaranga Peltata, Glochidion Spp., Litseanitida etc.* and may small ever-green shrubs and perennials, *Circumaaro matica, Lecacripsa,*

Bambusaarundinacea occurs in patches throughout, notably in Aranga and Tamna blocks. Canes (*Calamus Latifolius*, *Calamusvi minalis* and *Calamus guruba*) are found in the form of over exploited bushes. *Bauhinia Vahilii* and *Combretum decandrum* are found in abundance.

Sub- Group 3 (C) North Indian Tropical Moist Deciduous Forests

This forest type occupies extensive areas in this division and contains important flora and fauna. Two main sub-types of the above group, which are found in this division, are described below.

(i) 3C/C1 (d) Penensular (Coastal) SalForest

This type of forest is found in plains of Rajin, Tamna, Mala Bankar R.Fs. Here sal is found in abundance in almost pure even agedstands and common associates of Sal (*Shorea robusta*) are Asan (*Terminalia alata*), Halanda (*Adina Cordifolia*), Bija (*Pterocarpus marsupium*), Mundi (*Mitraygyna parviflora*), Kasi (*Bridelia retusa*), Kusuma (*Schleiche ratrijuga*), Dhaura (*Anogeissus latifolia*), Mai (*Lannea grandis*) and Sidha (*Lagerstroemia parviflora*) in the top storey. Quality of Sal is II/III-. The average crown density is 0.5. The second storey consists of Rai (*Dillenia Pentagyna*), Kanchana (*Bauhinia Purpurea*), Kumbhi (*Careya arborea*), Chara (*Buchanania lanzan*). While ground flora consists of Dantakathi (*Smilax macrophylla*), Khumbhatua, Sidha (*Lagerstoemia parviflora*), Sugandhi (*Hemides musincicus*), and Autundi (*Combretrm decandrum*), Gaja (*Nyctanthes arbortristis*), Ketaki (*Pandanus fascicularis*), Dantari (*Acacia Pinnata*) are common climbers. Common grasses that occur locally in this type of forests are Sinkila (*Heteropogon Contoous*), Dhanatari (*Cymbopongon martini*), and Fulachanchuni (*Thysanolaena maxima*) etc. The natural regeneration of Sal is found in abundance. The forests are presently subjected to biotic interference, which may bring about retrogression very fast. If biotic interference is minimized and adequate fire protection measures are ensured progression may rapidly commence with the establishment of dense evergreen undergrowth including tree species.

ii) 3C/2Sl Northern Secondary Moist Mixed Deciduous Forest

These are the patches of the forests where Sal is not found in abundance but other secondary species are more prevalent. The climate of the area is mostly that of semi evergreen type. The original forest has been destroyed either by over-felling or repeated fire and smuggling of principal species. This type of distribution is notice in the hills of Patia, Mala, Rajin, Tamna, Bankar, Katwal R.Fs. and Chulijhinka, Nathpur, Bhatapada, Jiripada D.P.Fs.

Here upper canopy consists of Mango (*Mangifera indica*) Kadamba (*Anthocephalus cadaamba*), Chhatiana (*Alstonia Scholaris*), Rai (*Dillenia Pentagyna*), Jamun (*Sayzigium Cuminii*), Asan (*Terminalia alata*), Melia, R Kasi (*Bridelia retusa*), Kusuma (*Schleichera trijuga*), *Schleichera Oleosa*, *Prolium serratum*, while middle canopy consists of *Miliusavel utina, Glochidionlan ceolarium, Careya arborea, Zizyphus glaerrima, Polyathia Cerasoides, Strychonus Potatorum, Malalotus Philippensis, Bambusa aruyndinacea* and lower storey consists of *Gltcosmis pentaphylla, Psychotriaa denophylla, Phyllochiamys spinosa, Mababuxi folia, Strobilanthes scaber and Combretum decandrum* and *Bauhinia vahlii*.

These areas were successfully brought under Teak Plantation, which are now being frequently attacked by smugglers. In these areas if the protection from fire and smuggling is assured then semi green species will come up fast.

Sub-group 5B Northern Tropical Dry Deciduous Forests

(i) C1(c) Dry Peninsular Sal Forests.

This type occurs in the parts of Manibandha, Panchagarh, Sulia 'B' Jayamangal, Satabhaya, R.Fs, on flat terrain with shallow laterite soils. In these areas soil moisture conditions are un-favourable for the development of moist even in the areas with high rainfall. The soil often rests on hard impervious laterite. The site quality is III/IV and regeneration is quite fair but establishment is rather poor. Some of these patches appear to have been good Sal forests in the past but due to over exploitation, frequent fires, over-grazing and consistent biotic interference from neighbouring populous villages, conditions have become more congenial and xerophytic, as a result Sal grows only on favourable sites but stagnates there. On

some places frequent coppicing and stunted shoots were noticed. No canopy as such is established, but Sal constitutes nearly 60% of the crop, with poor quality and most of the trees are unsound and hollow. The common associates are Dhaura(*Anogeissis latifolia*), Chara (*Buchanania lanzan*), Dheu (*Dalbergia Paniculata*), Kasi (*Bridelia retusa*),Anla (*Embicaoffi cinalis*), Bahada (*Terminalia belarica*) Kendu (*Diospyrasmel anoxylon*), Salia Bamboo (*Dendrocal amusstrictus*). The undergrowth consists of Keruan (*Malalorrhena antidysentrica*), Kuchila (*Strychnos nuxvomica*), Kantaikuli (*Zizyphus oenoplia*), Banakhajuri (*Phoenix acaulis*) and Asan bushes (*Terminalia alata*) are also found in abundance.

(ii) 5B/DS1-Dry Deciduous Scrub Forests.

A number of blocks like Dhani, Maninag, Satabhaya, Sulia, Barunie R.Fs. and SandhaMala, Champagarh, Jharana and Bhogaiput D.P.Fs. are more deficient in their vegetation. Here natural vegetation has been virtually reduced to scrub over extensive areas under the impact of biotic factors like illicit fellings, over-grazing and fire. In the erstwhile plan, most of these blocks were included in the Coppice Working Circle, where the crop either did not coppice or the coppice shoots could not withstand the biotic pressure. The plantations of Teak, mixed species and Cashewnut were undertaken by various agencies, over the same areas repeatedly but primary species are coming up more vigorously than the plantations and in the period of 4-5 years both the planted stock as well as primary species disappear. The species, generally met in such forests rarely attend a height of more than 5m and consists of shrubs like Kasi (*Bridelia retusa*), Keruan (*Holarrhena antidysenterica*), Kendu(*Diospyras melanoxylon*), Veru (*Chloroxylon Swietenia*), Asana (*Terminalia alata*), and clumps of Salia bamboos (*Dendrocalamus strictus*). The soil is shallow, compact and hard lying over lime stone and lateriate rocks. These areas are dry, eroded full of rills and ravines. Continued biotic exploitations had fostered secondary successions and further retrogression of the plant community. These areas required immediate

2.7. TREE COVER OUTSIDE FOREST AREA:

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). Due to non availability of remote sensing map plot description and enumeration for areas outside forests, have not been taken up during field work for assessment of 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 area is on production forestry, revitalization of rural economy and expanding economic opportunities through innovations. In Khordha Division, the local people have a raised cashew nut plantations, Acacia plantations, Eucalyptus plantations and Teak plantations in the area outside the forest as cash crop. Seedlings are raised in different decentralized nurseries every year in the Division and distributed among the people for raising of forest on their own land. Vanamohastavas are celebrated in Range level and Division level during the 1st week of July. During the celebrations the people are motivated to raise forest species in their own land and help in the mitigation of climate change. The seedlings distributed are creation of forests outside the forest area by the people. Govt. of Odisha in F&E deptt. have fixed time bound action in respect of removal of tree species raised in recorded land so that the people can be interested to raise forestry in their own land. The outside forest can be assessed by super imposing the recent Forest Cover Map on the digitized toposheet. The area & density of this outside forest may also be assessed.

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CHAPTER –3

MAINTENANCE, CONSERVATION AND ENHANCEMENT OF BIODIVERSITY

3. MAINTENANCE, CONSERVATION AND ENHANCEMENT OF BIODIVERSITY:

3.1. FOREST COMPOSITION AND DISTRIBUTION:

Orissa semi ever green forest type is found in the moderately heavy to very heavy rainfall areas of the Division. Top storey consists of deciduous tree species, which remain leafless for short time only but not simultaneously, and the 2nd storey mostly remains ever green. These types of forests are widely located in the valleys of the hills upto 800 meters or so of Rajin, Tamana and Mala blocks. The vegetation is supported by fertile fresh soils in the areas having rainfall around 1500 mm. or more and high humidity under oceanic influence. The flora consists of Sal (*Shorea robusta*), Champa (*Michelia Champaca*), Lambura (B*ursera Serreta*), Asan (*Terminalia alata*), Asoka (*Saraca indica*), Mango (*Mangifera indica*), Dhamana (*Grewia tiliaefolia*), *Celtis terandr*, *Bridelia retusa*, *Dillenia pentagyna*, *Ficus Spps*, *Aphanamixis polystachya*, *Mesua ferrea*, *Phoebe lanceolata*, *Polyalthia spp*, *Macaranga peltata*, *Glochidion spp*, *Litsea nitida* etc. and many small ever-green shrubs and *Circuma aromatica*, *Leea crispa*, *Bambusa arundinacea* occurs in patches throughout in Aranga and Tamna forest blocks. Canes (*Calamus latifolius, Calamus viminalis* and *Calamus guruba*) are found in the form of over exploited bushes. *Bauhinia vahilii* and *Combretum decandrum* are found in abundance.

North Indian Tropical Moist Deciduous Forests type occupies extensive areas in this Division and contains important flora and fauna. Two main sub-types of the above group, which are found in this Division, are described below.

Peninsular (Coastal) Sal Forest type of forest is found in plains of Rajin, Tamana, Mala, Bankard RFs. Sal (*Shorea robusta*) is the dominant species found in abundance in almost (pure) even aged stand conditions and common associates are Asan (*Terminalia alata*), Halanda (*Adina cordifolia*), Bija (*Pterocarpus marsupium*), Mundi (*Mitraygyna parviflora*), Kasi (*Bridelia retusa*), Kusuma (*Schleichera trijuga*), Dhaura (*Anogeissus latifolia*), Mai (*Lannea grandis*) and Sidha (*Lagerstroemia parviflora*) in the top storey. Quality of Sal is II/III. Quality –I patches are rare but found in Mala, Tamna and Rajin. The average crown density is 0.5. The second storey consists of Rai (*Dillenia pentagyna*), Kanchana (*Bauhinia purpurea*), Kumbhi (*Careya arborea*), Chara (*Buchanania lanzan*). While ground flora consists of Ramdatani (*Smilax macrophylla*), Sidha (*Lagerstoemia parviflora*), Sugandhi (*Hemidesmus indicus*), and Atundi (*Combretum decandrum*), Gaja (*Nyctanthes arbortristis*), Ketaki (*Pandanus fascicularis*), Dantari (*Acacia pinnata*) are common climbers. Common grasses that occur locally in this type of forests are Sinkulia (*Heteropogon contortus*), Magarlata (*Cymbopogon martinii*), and Fulachanchuni (*Thysanolaena maxima*) etc. The natural regeneration of Sal is found in abundance. The forests are presently subjected to heavy biotic interference which is the cause of retrogression. Biotic interference needs to be minimized and adequate fire protection measures are ensured, progression of regeneration and the establishment of dense evergreen undergrowth including tree species is expected.

Northern Secondary Moist Mixed Deciduous Forests are the patches of the forests where Sal is not found in abundance but other secondary species are more prevalent. The forest type of the area is mostly that of semi evergreen type. The original forest has been destroyed either by over-felling or repeated fire and smuggling of principal species. This type of distribution is notice in the hills of Patia, Mala, Rajin, Tamna, Bankard, Katwal R.Fs. and Chulijhinka, Nathpur, Bhatapada, Jiripada DPFs. In these forest blocks upper canopy consists of Mango (*Mangifera indica*) Kadamba (*Anthocephalus cadamba*), Chhatian (*Alstonia scholaris*), Rai (*Dillenia pentagyna*), Jamun (*Sayzigium cuminii*), Asan (*Terminalia alata*), Kasi (*Bridelia retusa*), Kusuma (*Schleichera oleosa*), Lembura moi (*Bursera serrata*)

while middle canopy consists of Gandha palas (*Miliusa velutina*), *Glochidion lanceolarium*, *Careya arborea*, *Zizyphus glaerrima*, Potamosu (*Polyathia cerasoides*), Katakala (*Strychnos potatorum*), Kamala gundi (*Malalotus philipinensis*) and lower storey consists of Dubduba (*Glycosmis pentaphylla*), Chhelianthua (*Psychotria adenophylla*), Jhumpuri (*Phyllochiamys spinosa*), Guakoli (*Maba buxifolia*), Khakusa (*Strobilanthes scaber*) and *Combretum decandrum* and *Bauhinia vahlii*. These areas were successfully brought under Teak Plantation, which are now being frequently attacked by smugglers. In these areas if the protection from fire and smuggling is assured then semi green species will come up fast. Teak plantations have grown well under conducive climatic condition. These plantations are matured and at havestable stage. On one hand it seems desirable to remove, on the other hand these old plantations are thrieving as living arboretums. The teak stands are source of seeds having many plus trees. Protection is a serious issue vigilance of 24 hours is required.

Dry Peninsular Sal Forests type occurs in the parts of Manibandha, Panchagarh, Sulia 'B' Jayamangal, Satabhaya, R.Fs, on flat terrain with shallow laterite soils. In these areas soil moisture conditions are un-favourable for the development of moist Sal forest even in the areas with high rainfall. The soil often rests on hard impervious laterite. The site quality is III/IV and regeneration is quite fair but establishment is rather poor. Some of these patches appear to have been good Sal forests in the past but due to over exploitation, frequent fires, over-grazing and consistent biotic interference from neighbouring populous villages, conditions have become more congenial and xerophytic, as a result Sal grows only on favourable sites. On some places frequent coppicing and stunted shoots were noticed. No canopy as such is established, but Sal constitutes nearly 60% of the crop, with poor quality and most of the trees are unsound and hollow. The common associates of Sal are Dhaura (*Anogeissis latifolia*), Chara (*Buchanania lanzan*), Barabakulia (*Dalbergia Paniculata*), Kasi (*Bridelia retusa*), Anla (*Embica officinalis*), Bahada (*Terminalia belarica*) Kendu (*Diospyras melanoxylon*), Salia Bamboo (*Dendrocalamus strictus*). The undergrowth consists of Keruan (*Malalorrhena antidysentrica*), Kuchila (*Strychnos nuxvomica*), Kantaikuli (Flacourtia Ramontchi),

Banakhajuri (*Phoenix acaulis*) and Asan bushes (*Terminalia alata*) are also found in abundance.

Dry Deciduous Scrub Forests occur in Forest Blocks like Dhani, Maninag, Satabhaya, Sulia, Barunie R.Fs. and SandhaMala, Champagarh, Jharana and Bhogaiput D.P.Fs. which are more deficient in their vegetation. The natural vegetation has been practically reduced to scrub over extensive areas under the impact of biotic factors like illicit fellings, over-grazing and fire. In the earlier plan, most of these blocks were included in the Coppice Working Circle, where the crop either did not coppice or the coppice shoots could not withstand the biotic pressure. The plantations of Teak, mixed species and Cashewnut were undertaken by various agencies, over the same areas repeatedly but primary species are coming up more vigorously than the plantations and in the period of 4-5 years both the planted stock as well as primary species disappear. The species, generally met in such forests rarely attend a height of more than 5m and consists of shrubs like Kasi (*Bridelia retusa*), Keruan (*Hollarrhena antidysenterica*), Kendu (*Diospyras melanoxylon*), Veru (*Chloroxylon Swietenia*), Asana (*Terminalia alata*), and clumps of Salia bamboos (*Dendrocalamus strictus*). The soil is shallow, compact and hard lying over lime stone and lateriate rocks. These areas are dry, eroded full of rills and ravines. Continued biotic exploitations had fostered secondary successions and further retrogression of the plant community. These areas required immediate rehabilitation and extensive soil conservation measures.

3.2. PLANT SPECIES DIVERSITY:

Plant Species diversity is variety in number and richness of the species of a region. Species richness is the number of species per unit area & species evenness is the number of individual of the different species. It is the product of both species richness & evenness. During this outgoing plan period the Working Plan Division, Bhubaneswar has taken up the inventory of plants species diversity while studying the NTFP in Khordha Forest Division. Random sample point survey has been carried out for all the species selecting the sample points on different type of forest vegetation. The details of plant species diversity is given in **Chapter-II** of Executive Summary of this Revised Working Plan.

3.3. STATUS OF BIODIVERSITY CONSERVATION IN FOREST:

Forests provide habitat for many plant and faunal species. The contribution of individual species to the overall diversity within a community or ecosystem varies to a great extent. The coexistence of organism that differs widely from each other contributes more to overall diversity than the co-existence of very similar species. Functional diversity is considered to be one of the main factors determining the long term stability of an ecosystem and its ability to recover from major disturbances. Assessment of status of plant and faunal species and their periodic monitoring can be helpful in formulating strategies for conservation, maintenance and enhancement of overall biodiversity through sustainable management and use practices.

The biodiversity speaks the number of species in particular area & number of individual species on that area in diverse manner. The more the diversity in character the forest is more stable. Hence, survey of biodibversity is required to study the species diversity of the forests of Khordha Forest Division. The National Working Plan Code 2014 has given more emphasis for the survey of biodiversity. As per the new code, detail enumeration is to be carried out on the sample plots over 0.1 Ha The data collected during the enumeration of growing stock such as the number of individual of each species and the DBH of each tree are utilized to derive secondary attributes like basal area (BA, m2/ha), density (D, trees per ha) and frequency (F, number of quadrates where are present in relation to total plots observed). Relative value of BA, D and F will be calculated. The Importance Value Index (IVI) is calculated by adding up Relative Dominance (RBAF), Relative Density (RD) and Relative Frequency (RF). However, in case of shrubs, herbs, saplings and for regeneration, the IVI is calculated on the basis of relative values, i.e. relative frequency and relative density. It is assumed that the dominance of the species increases with an increasing important value and that the species with lowest importance value is the least important one. The maximum IVI value is 300 (100 each for RBA, RD and RF). Basal area and density of the tree species should be converted to ha basis. To estimate the stand structure, all tree species should be

grouped under different DBH classes. The total number of individuals belonging to each DBH class should be calculated for each species for each site.

$$D_s = \frac{\text{Total number of individuals of a species}}{\text{Total area of quadrats studied}}$$

$$F_s(\%) = \frac{\text{Number of quadrats in which a species occurs}}{\text{Total area of quadrats studied}} \times 100$$

$$RF_s(\%) = \frac{\text{Density } (D_s) \text{ of a species}}{\text{Total density of all species}} \times 100$$

$$RBAF_s(\%) = \frac{\text{Total basal area of a species}}{\text{Total basal area of all species}} \times 100$$

$$IVI_s = RD_s + RF_s + RBAF_s$$

(where 's' denotes a particular species for which these variables are calculated)

Species diversity is an expression of community structure and is unique to the community. The number of species in a community is referred to as species richness when topography of the compartment is homogenious. The relative abundance of all species is called evenness. Species diversity includes both species richness and evenness. A community demonstrates a high species diversity if equally or nearly equally abundant species are present. Communities with a large number of species that are evenly distributed/populated are the most diverse and communities with few species, or if only a few species are abundant, then the species diversity is low). Species diversity indices like Shannon-Wiener Index (H') and Simpson's Index (λ) are calculated separately for trees, shrubs and herbs and their individuals differ in size and are sampled differently. Similarly index (community co-efficient) is calculated for determining the number of species which are shared among the sites to assess the extent of variation in the species composition.

Odisha Biodiversity Board is authorised to implement the legal provisions of Biological Diversity Act 2002 in the state. To conserve the biological resources of the state Odisha Biological Diversity Rules were made by the state government in 2012. As per Section 41 of the Act, the local bodies shall constitute a Biodiversity management committee at GP, Block, districts, urban areas like Municipal Corporation and district level. As per rules 21 of the OBD Rules, 2012 BMCs shall prepare People's Biodiversity Registers at all the local bodies' level. BMCs have the power and responsibilities to protect and conserve the native biodiversity in their respective jurisdiction and they can levy charges on any

companies, traders and manufacturers against the commercial collection of bio-resources under Access and Benefit Sharing Agreement (ABS) fees which is 3 to 5% of the ex-factory grass sale of the total value of the bio-resources. This ABS fees shall be utilized for protection conservation and restoration of native biodiversity and the money shall be kept in a joint account named Local Biodiversity Fund. The PBRs shall consist of detailed information on local biological resources and its associated traditional knowledge including flora fauna and agricultural diversity of the local areas for monitoring and evaluation.

Accordingly 206 Bio-Diversity Management Committees (BMCs) have been constituted in all local level of the Khordha district. The base line dynamics of People's Biodiversity Register (PBRs) have also been prepared. The enrichment of base line PBRs are under progress at all level (GP, Block, Urban and District) which is expected to be completed within a period of 05 years with technical guidance of Odisha Biodiversity Board and Technical Support Group (TSGs) by the BMCs coming under Khordha Forest Division in Khordha district.

Source – Odisha Biodiversity Board.

3.4. STATUS OF SPECIES PRONE TO OVER EXPLOITATION:

The status of species prone to over exploitation has not been assessed in the outgoing Working Plan. The timber & bamboo coupe working is being operated by the Orissa Forest Development Corporation as per prescription of the Working Plan and no over exploitation is found in the working of timber & bamboo coupes. However, due to illicit removal of trees from the forest over exploitation in respect of Sal, Teak, Asan, etc may be attributed. Further, bamboo both salia & daba are also illicitly removed by the smugglers. The analysis can be assessed by making a survey on illicit removal and included in draft plan.

3.5. CONSERVATION OF GENETIC RESOURCES:

Variation in the genes of a species increase in size and environmental parameter of the habitat. Ecological balance depends upon it. Genetic diversity is useful in adaptation to changes in environmental conditions. Lower genetic diversity

within a species may be useful for uniformity in the yield as well as higher yield. However, it is liable to undergo degradation and prone to mass scale destruction. Hence, conservation of genetic resources is most vital. Genetic conservation of teak is being done in the Silvicultural plots, preservation plots in Balugaon Range under silvicultural Division, Bhubaneswar.

3.6. FAUNA AND THEIR HABITATS:

The rich varied Fauna of this Division are due to existence of large stretch of forests in different density available in Berbera & Mala areas with different type of natural habitat in plain and hilly region. The climatic condition, compactness of area and composition of forests are extremely favourable for their growth and multiplication of variety of wild animals of mammalian species, Birds, Reptiles and Fishes and other insects arthropods and micro-organisms as well. Fauna of this Division are broadly classified into following categories found in varied profiles. They are (a) Mammals, (b) Birds, (c) Reptiles, (d) Fishes. The Faunal species found in Khordha Forest Division has been shown in Chapter. III of Executive Summary of this Revised Working Plan

3.7. THREATS AND CHALLENGES TO WILDLIFE:

Due to construction of roads for the development of the forest as well as forest dwellers inside the forests during the plan period, threats have been posed to the wildlife like Wild bisons, Wild bear, spotted deers, Barking deers, Mouse deers and other Wild lives. Further, due to biotic interference the wild animals like Elephant, Wild boar, Wild bison are moving towards the human habitats in search of food and water. Human kills are reported almost every year by Wild elephant, Wild bison and Wild bear. A detail status on the human death, injury and crop damage as well as the death of wild animals during the outgoing plan period is furnished in **Table No.3.1 and Table No.3.2**

Table No. 3.1

Information regarding Human Casualty/ Death for the Period from 2007-08 to 2020-21 in respect of Khordha Forest Division.							
Year	**Range**	**District**	**Name of the deceased**	**Gender**	**Date of death**	**Name of wild animal**	**Payment Made towards compassionate grant (in lakh)**
2007-08	Tangi	Khordha	Bhimasen Chhottaray	Male	17.12.2007	Wild Elephant	1.00
	Tangi	Khordha	Shikar Das	Male	17.12.2007	Wild Elephant	1.00
	Balugaon	Khordha	Harihar Pradhan	Male	11.10.2007	Wild Boar	1.00
2008-09	Ranpur	Nayagarh	Harsa Barad	Male	16.04.2008	Wild Elephant	1.00
	Balugaon	Khordha	Bijay Sabar	Male	11.05.2008	Wild Elephant	1.00
	Balugaon	Khordha	Ekadasi Sabar	Male	11.05.2008	Wild Elephant	1.00
	Balugaon	Khordha	Bharati Jani	Female	11.05.2008	Wild Elephant	1.00
	Ranpur	Nayagarh	Bamadeb Samantasinghar, S/o Uchhab Samaantsinghar, At/P.O- Kasanda, P.S- Ranpur, Dist- Nayagarh	Male	13.12.2008	Wild Bear	1.00
2009-10	Balugaon	Khordha	Budhiram Behera, age about 65 yrs., Sex- male, S/o- Late Purna Ch. Behera, At- Banlei, Po- Bheteswar, PS- Banpur, Dist- Khordha.	Male	15.10.2009	Wild Bear	1.00
	Ranpur	Nayagarh	T. Prakash Ku. Subudhi, At- Kandhanayagarh, Po- Chandapur PS- Ranpur, Dist.- Nayagarh.	Male	01.12.2009	Wild Elephant	1.00
2010-11	Nil						
2011-12	Nil						
2012-13	Khordha	Khordha	Sri Joginath Mallik, Age- about 70 years, S/o- Arakhit Mallik of village Bagheitangi, PS/Dist- Khordha.	Male	22.04.2012	Wild Elephant	2.00
	Khordha	Khordha	Smt. Asha Lata Naik, aged about 48 yrs., W/o- Laxmidhar Naik of village Jariput, Po- Gudum, PS/Dist- Khordha.	Female	04.05.2012	Wild Elephant	2.00
2013-14	Tangi	Khordha	Sri Manguli Patra, Age- 70 years, Sex- Male, S/o- Pankaj Patra, Vill- Belapada Po- Siko, PS/ Dist- Khordha.	Male	27.05.2013	Wild Elephant	2.00
	Tangi	Khordha	Kokila Pradhan, age about 45 yrs., Sex- Female, W/o- Kulamani Pradhan, At/Po- Naramanabi, PS- Tangi, Dist- Khordha.	Female	26.10.2013	Wild Bison	2.00
	Khordha	Khordha	Sri Baikunthanath Subudhi, Age- about 72 years, S/o- Late Arakhita Subudhi of village Kaipadar, PS/Dist- Khordha.	Male	18.05.2013	Wild Elephant	2.00
2014-15	Ranpur	Nayagarh	Pradeep Ku. Samantaray, age about 48 yrs., Sex- Male, S/o- Dasarathi Jena, At- Andharua, Po-Mahatpalla, Via- Gopalpur, PS- Ranpur, Dist- Nayagarh.	Male	03.10.2014	Wild Elephant	3.00
2015-16	Nil						
2016-17	Nil						
2017-18	Khordha	Khordha	Sri Jambeswar Champati, S/o- Late Bira Champati, At/Po- Goda, PS- Begunia, Dist- Khordha.	Male	15.12.2017	Wild elephant	4.00
	Balugaon	Khordha	Sambaria Sabar, S/o-late Irani Sabar of Vill/- Mudulidiha, Po- Niladriprasad,Ps/- Banpur , Dist- Khordha	Male	20.05.2019	Wild Elephant	4.00
	Tangi	Nayagarha	Surendra Behera, age about 42 yrs., Sex- Male, S/o- Khali Behera, At- Jhinkijhari, Po-Champagarh, PS- Ranpur, Dist- Nayagarh.	Male	09.01.2017	Wild Elephant	3.00
2018-19	Delang	Puri	Sri Sanjaya Kumar Das of Badas, Kanas , Puri	Male	16.12.2018	Wild Elephant	4.00
2019-20	Tangi	Khordha	Sri Dasarathi Majhi , S/o- Kelu Majjhi of Badangara, P.o/- Badapokharia, Ps/- Jankia Dist/- Khordha	Male	18.11.2019	Wild Elephant	4.00
	Tangi	Khordha	Bansidhara Chhualsingh, S/o Chintamani , Vill- Haja, P.S- Jankia, Dist- Khordha	Male	18.01.2020	Wild Elephant	4.00

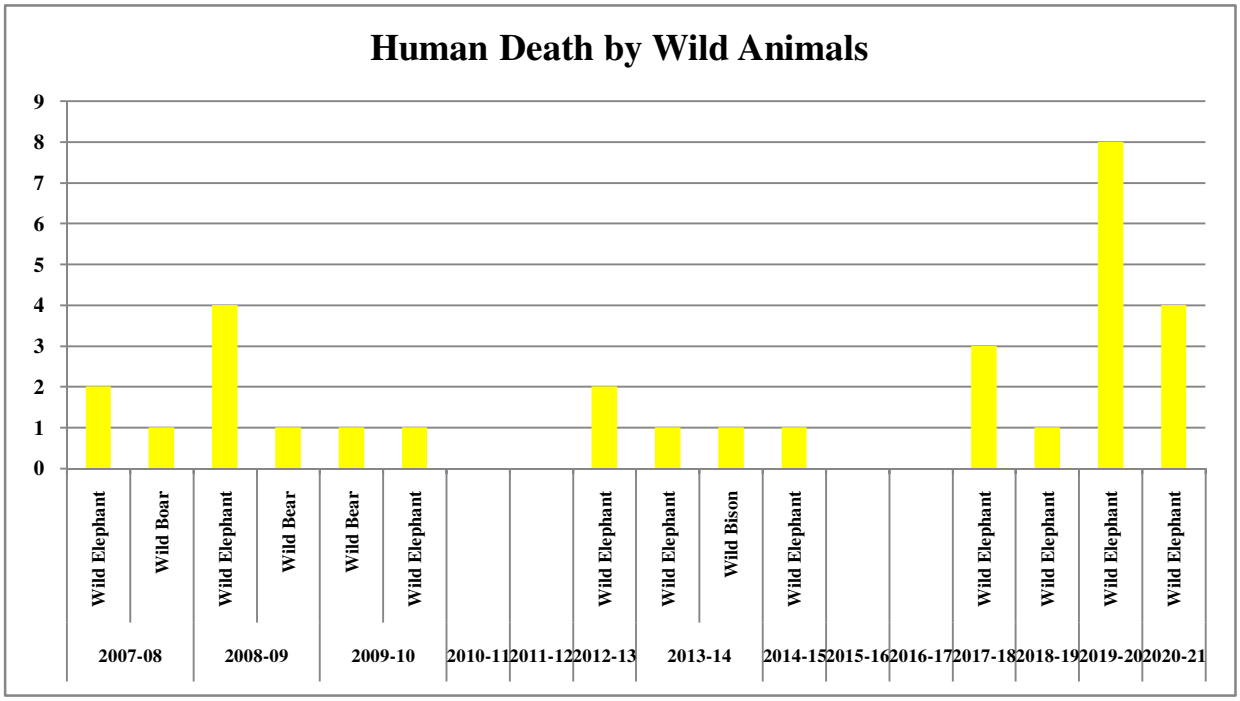
Year	Range	District	Name of the deceased	Gender	Date of death	Name of wild animal	Payment Made towards compassionate grant (in lakh)
2019-20	Tangi	Khordha	Sanatan Pradhan, S/o-late Kamala Pradhanof Vill- Kalarajhara, Po- Haja, Ps/- Jankia, Dist- Khordha	Male	18.01.2020	Wild Elephant	4.00
	Tangi	Khordha	Bira Rout, S/o-Banambara Rout of Vill-Kunia samntarapur, Po/ Ps-Nirakarpur,Dist- Khordha	Male	21.02.2020	Wild Elephant	4.00
	Ranpur	Nayagarh	Smt Moti Bewa, of Bhajagarh, Mangalajodi, Tangi, Khordha	Female	26.11.2019	Wild Elephant	4.00
	Balipatana	Puri	Makara Palei, S/o Arjuna Palei, Vill - Chndradeipur, P.O- Kamakantia, P.S-Balanga, Dist- Puri	Male	23.02.2020	Wild Elephant	4.00
	Balipatana	Puri	Ajay Kumar Nayak, At-Jamalapur, PS-Pipil, Dist-Puri.	Male	23.02.2020	Wild Elephant	4.00
	Balipatana	Puri	Chaitany Sahoo, S/o Dukhisyam Sahoo, Vill- Sompur, P.O- Chandradeipur, P.S-Pipili, Dist- Puri	Male	23.02.2020	Wild Elephant	4.00
2020-21	Tangi	Khordha	Kedar Subudhi, S/o Bairagi Subudhi, Vill- Gayabandha, P.o- Damanbhuin, P.S- Jankia, Dist- Khordha	Male	22.08.2020	Wild Elephant	4.00
	Tangi	Khordha	Sairun Bibi, W/o Saikh Ena, Vill-Khajuripada, P.O/P.S- Nirakarpur, Dist-Khordha	Female	17.01.2021	Wild Elephant	4.00
	Tangi	Khordha	Bauribandhu Swain, S/o- Rama Chandra Swain of Hemantapur, P.O/- Tankol, P.s/- Jankia, Dist/- Khordha	Male	31.01.2021	Wild Elephant	4.00
	Tangi	Khordha	Sudarsan Bhola, S/o- Bira Bhola, Vill-Damanbhuin (Bhandarijhar) ,Po/Ps-Jankia, Dist- Khordha	Male	03.02.2021	Wild Elephant	4.00

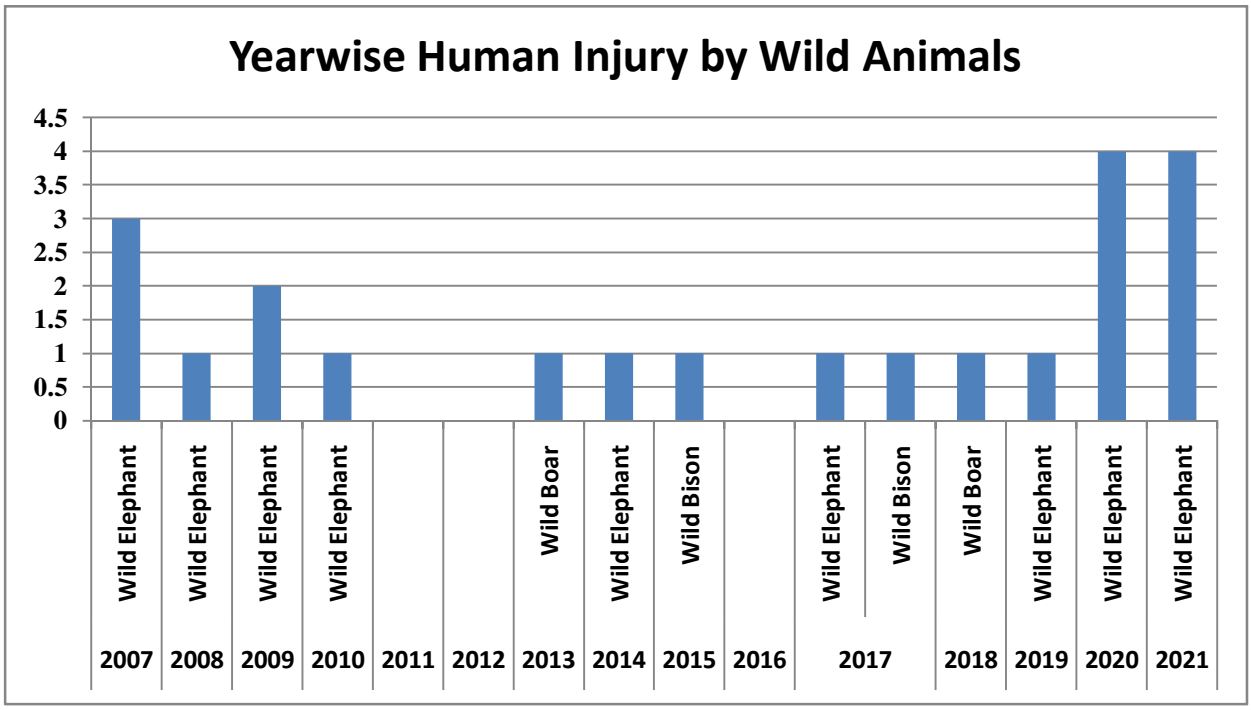
Year					Type of depredation (Human Injury)			Compassionate amount sanctioned/paid in Rs	Reference Sanction Order	
	Name of Range	Name of Person with address	Date /Period of occurrence	Wild animal involved (Specify separately)	No. of victims/Cases				SO No.	Date
					Temp.	Permanent	Total			
1	2	3	4	5	6	7	8	9	10	11
2007	Tangi	Dhuli Mahatray of Jajpur, Nirakarpur	17.12.07	Wild elephant		Permanent	1	33330	278	27.09.08
	Tangi	Uchhaba Martha of Bindipur	17.12.07	Wild elephant		Permanent	1	33330	159	23.05.08
	Tangi	Lakina Das of Aredi	17.12.07	Wild elephant		Permanent	1	33330	254	23.09.09
2008	Balugaon	Goutam Pradhan of Manikpur	20.04.08	Wild elephant		Permanent	1	31330	298	28.12.10
2009	Khordha	Banamali Bhujabala of Sialiapatna	21.10.09	Wild elephant	Temporary		1	2000	32	05.02.10
	Tangi	Sangram Keshari Pattanaik of Urumukhi, Bhusandpur	01.12.09	Wild elephant	-do-		1	2000	212	16.08.10
2010	Tangi	Surendra Jena of Arisal	28.04.10	Wild elephant	-do-		1	2000	270	11.11.10
2011	NIL									
2012	NIL									
2013	-do-	Sushanta Ku Chhualsingh. S/o- Dibyasingh Chhualsingh of Chhatrapada	04.12.13	Wild Boar			1	5000	33	25.02.14
2014	-do-	Manjulata Routray, W/o-Trinath Routray of Parichala	02.03.14	Wild elephant			1	5000	7070	08.10.14
2015	Ranpur	Nilakantha Swain, S/o-Harihar Swain of Laxminarayanpur	01.04.15	Wild bison		Permanent	1	100000	7264	31.12.15
2016	NIL									

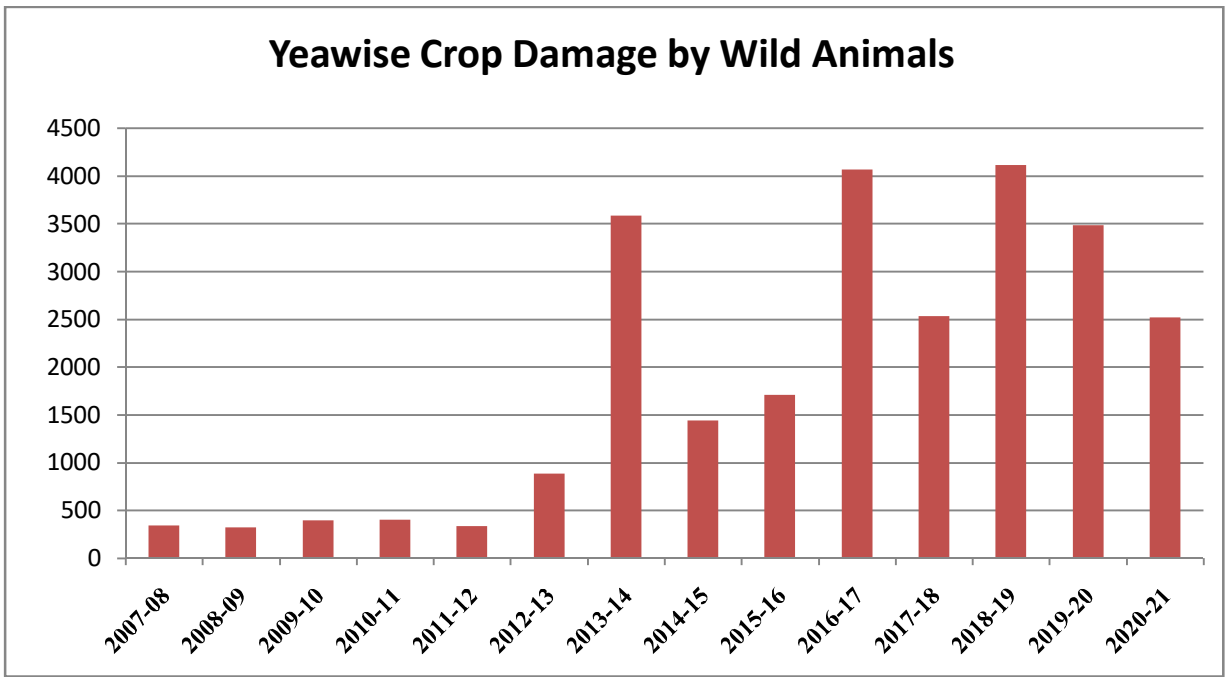
2017	Ranpur	Trinath Pradhan, S/o Late Aintha Pradhan, Vill- Oupada,P.O- Bandhamunda, P.S- Ranpur, Dist- Narayan.	08.05.2017	Wild elephant		Permanent	1	100000	7822	16.09.17
2017	Khordha	Hema Palei, W/o Keshab Palei, At/P.O- Salapadiha, Dist- Khordha	13.01.2017	Wild Bison		Permanent	1	100000	4083	26.05.18
2018	Khordha	Subash Chandra Maharana, S/o Netrananda Maharana, Vill- Gopalpur, P.O/P.S- Banki, Dist- Cuttack	13.07.2018	Wild Boar		Permanent	1	100000	179	02.07.19
2019	Tangi	Basanti Balabantaray, W/o Kelu Balabantaray, At- Brundabanpur, P.O- Kusumi, P.S- Nirakarpur, Dist- Khordha	11.01.2019	Wild elephant		Permanent	1	100000	273	24.10.19
2020	Balipatna	Balabhadra Behera, S/o Dukhisyam Behera, Vill- Rajatei, P.S- Pipili, Dist- Puri	23.02.2020	Wild elephant	Temporary		1	5000	83	11.03.20
	Balipatna	Kalandi Behera, S/o Jangyaprakash Behera, Vill- Chandradeipur, P.S- Bolanga, Dist- Puri	23.02.2020	Wild elephant	Temporary		1	5000	83	11.03.20
	Balipatna	Laximidhar Mati, S/o Ghanasyam Mati, Vill- Chandradeipur, P.O- Kamakantia, Dist- Puri	23.02.2020	Wild elephant	Temporary		1	5000	83	11.03.20
	Balipatna	Sk.Samaser, S/o Sk.Mejar, Vill- Bhabanipur, P.O/P.S- Pipili, Dist- Puri	23.02.2020	Wild elephant	Temporary		1	5000	83	11.03.20
2021	Khordha	Rabindra Jena, S/o Krushna Chandra Jena, Vill- Kaipadar, P.S- Khordha Sadar, Dist- Khordha	29.05.2020	Wild elephant	Temporary		1	5000	16	22.01.21
	Tangi	Dillip Kumar Behera, S/o Fakira Behera, Vill- Chandanpur, P.O- Golabai, P.S- Nirakarpur, Dist- Khordha	22.12.2020	Wild elephant		Permanent	1	100000	102	16.03.21
	Tangi	Debendra Pradhan, S/o Hajari Pradhan, Vill- Gopinathpur, P.S- Banpur, Dist- Khordha	14.03.2020	Wild elephant		Permanent	1	100000	117	26.03.21
	Tangi	Bisika Pradhan, W/o debendra Pradhan, Vill- Gopinathpur, P.S- Banpur, Dist- Khordha	14.03.2020	Wild elephant		Permanent	1	100000	118	26.03.21

Table No.3.2

CROP DAMAGE FOR THE YEAR 2007-08 to 2020-21				
Sl. No.	**Year**	**No. of Cases**	**Area in Ha.**	**Amount**
1	**2**	**3**	**4**	**5**
1	2007-08	345	193.686	193686
2	2008-09	320	363.086	363086
3	2009-10	396	416.862	416862
4	2010-11	402	395.832	395832
5	2011-12	338	385.421	385679
6	2012-13	886	303.397	2444946
7	2013-14	3589	722.75	7283687
8	2014-15	1445	310.345	3189630
9	2015-16	1708	772.37	4601394
10	2016-17	4069	807.752	8268784
11	2017-18	2533	558.008	5818468
12	2018-19	4118	942.8608	9625952
13	2019-20	3487	687.339	5208328
14	2020-21	2522	627.8693	6421332
		26158	**7487.5781**	**54617666**


Human Death by Wild Animals
9
8
7
6
5
4
3
2
1
0
Wild Elephant
Wild Boar
Wild Elephant
Wild Bear
Wild Bear
Wild Elephant
Wild Elephant
Wild Elephant
Wild Bison
Wild Elephant
Wild Elephant
Wild Elephant
Wild Elephant
Wild Elephant
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
2016-17
2017-18
2018-19
2019-20
2020-21


Yearwise Human Injury by Wild Animals
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Wild Elephant
Wild Elephant
Wild Elephant
Wild Elephant
Wild Boar
Wild Elephant
Wild Bison
Wild Elephant
Wild Bison
Wild Boar
Wild Elephant
Wild Elephant
Wild Elephant
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021



3.8. PROTECTION AND MANAGEMENT OF FAUNA:

Anti depredation Squads have been formed in this Division to watch the movement of the wild animals particularly elephant into the human habitats and drive them in side the forest. Further, the anti smuggling squad have been formed to protect the wild animals from poaching and illegal trading.

It is suggested to create different protection units to achieve the special objectives. The routine forestry operations like maintenance of block boundaries to prevent encroachment, annual repair of forest roads to ensure un-interrupted patrolling, deployment of anti smuggling squads to check illegal activities will be given top priority. The areas included in this Working Circle are in immediate need of complete protection measures coupled with improvement of vegetative cover, the special objectives of management are as follows:

i) To keep the delicate and eco-fragile areas intact by maintaining adequate vegetative cover.

ii) To curb over-degradation and augmentation of natural regeneration by strong protection measures and minimizing biotic interferences like illicit felling, encroachment, shifting cultivation, grazing and other biotic factors.

iii) To protect these forests from fire and provide strict vigil against the same.

iv) To arrest the drivers of degradation of forests.

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CHAPTER - 4

MAINTENANCE AND ENHANCEMENT OF FOREST HEALTH AND VITALITY

4. MAINTENANCE AND ENHANCEMENT OF FOREST HEALTH AND VITALITY:

4.1. STATUS OF REGENERATION:

Young plants of tree species up to 10 cm diameter are taken into consideration for assessment of regeneration status of a particular species as prescribed in the Manual of National Forest Inventory of India. Data collected from the square plot of 3 x 3 m for saplings (2 cm to 10 cm collar diameter) and the square plot of 1 x 1 m for seedlings will be generally used to assess the regeneration status of species in the management unit (compartment) and Forest Block. Based on the photo sociological data from plot enumeration, the regeneration status of the tree species may be assessed in the following categories:

a. Good generation, if seedlings are more in numbers than the saplings and likewise saplings are more that of adults.
b. Fair generation, if seedlings are more in numbers than the saplings but the saplings are equal or less than that of adults.
c. Poor generation, of a species survives in only sapling stage, but not as seedlings (though sapling may be less, more or equal to adults).
d. No generation, if a species is absent both in sapling stage, but present as adult.
e. New regeneration, if a species has no adults but only sapling and/or seedlings.

In case, above classifications are absent or insufficient to indicate regeneration status, the lower categories of regeneration such as established, un-

established (whippy and sub-whippy), recruits, etc are assessed by giving value to each category and calculating total regenerative percentage . The numeric value given to established seedling, woody, whippy and recruit enumerated in the sample plots are 5, 4, 2, and 0.5 respectively. When the score comes 201 to 250 and above, the regeneration status is excellent, 151to 200 it is good, 101 to 150 it is moderate, 51 to 100 it is fair and when the score comes 0 to 50 the status of regeneration is deficient. The regeneration status of tree species of different Forest Blocks is produced in **Annexure-IV.**

4.2. AREA AFFECTED BY FOREST FIRE:

Forest fires are as old as the forest themselves. They sometime pose serious threat to the biodiversity and ecology. Forest fires have environmental impact in terms of tropical biomass burning, which produce large amount of trace gases, aerosol particles and play a pivotal role in troposphere chemistry and climate aberrations. There is need to carry out fire frequency and burnt area mapping for fire vulnerability on one hand and operational fire monitoring in real time / near real time for effective response on the other. Real time monitoring of forest fires is being carried out by FSI using MODIS (Moderate-resolution Imaging Spectro-radiometer) Sensor fire alerts on board two of the satellites - Terra and Aqua. The processed signals on forest hot-spots are being transmitted from Forest Survey of India to State Forest Department on regular basis during fire season.

Hence real time monitoring of forest fires is a process now in operation to curtail fire severity and sensitize State Forest Department at operational level to prevent normal fires in getting converted into Wild Fires. The online feed backs on forest fires which are a part of this system could help estimate the actual loss of forest strata as well as the loss caused to top-soil.

Forest blocks vulnerable to fire based on satellite imageries received in a regular manner are to be protected from forest fire. Protection against fire requires continuous effort of the field staffs and the forest fringe dwellers during the period from February to May.

- Fire continues to be the major threat to forest regeneration and establishment. Fire Watcher system needs to be strengthened in the identified vulnerable areas, depending upon requirement and availability of funds fire watchers need to be provided at least from February to May every year. A Standard Operation Procedure (SOP) has been prepared by the department. However, VSS members would be involved in the whole process.
- There is a need to adopt modern fire fighting methods.

Fire occurrence in Khordha Forest Division From 2007-08 To 2020-21 is furnished in **Appendix-VII.**

4.3. AREA DAMAGED BY NATURAL CALAMITIES:

4.3.1. Floods, Drought, and Storms:

This Division is not free from the ravages of natural calamities like floods, droughts and storms. Almost every year the area is affected by cyclonic storms of varying intensity. The area also gets affected regularly by floods in the River Mahanadi, Kuakhai, Kusabhardra and Bhargabi and their branch rivers. The area was severely affected by the Cyclone Phallin during October 2013 & Hudhud Cyclone during Octomber 2014, which devastated the Forest growth and plantation of Division and also resulted in large scale uprooting of trees. During the cyclone a large number of birds and wild animals died whose numbers could not be assessed. Every year the Salia River in Banapur gets flooded with rain water, as a result of which near by villages are submerged which damage life and property of that area. To check and control the flood situation in Salia river one irrigation dam has been constructed across the river Salia since long.

Flash floods are seen annually during the rainy season in the riverine tracts especially in Salia river in Balugaon Range. Droughts also occur in certain parts of the Division due to want of rains for agriculture during the rainy season. In the peak summer months when there is a period of scarcity of water in the forests due to the drying up of streams of hill, the Wild life become easy prey for the poachers near the small water holes. Heat waves accompanied with sunstroke death and injuries have also become serious problem in this area since 1998.Cyclones in this

area are not a regular phenomenon, but the super cyclone on 30.10.1999 left a major impact by damaging the forest growth especially in Balugaon, Ranpur & Tangi Ranges. Further, in the recent Phailin cyclone during October 2013, a number of trees have been uprooted and top branches broken throughout the Division. During the super cyclone a large number of birds and wild animals died, the numbers could not be accounted. During April and May sudden occasional whirl winds occur damaging human life, birds and animals and forest vegetation.

4.4. AREA PROTECTED FROM GRAZING:

The Forest blocks of Khordha Forest Division are vulnerable to grazing in view of nearer to human habitations. There is heavy biotic pressure, in respect of grazing by the domesticated cattle population on the nearby forest area. The regeneration of Principal tree species are damaged due to browsing and tramping by cattle population. The plantation areas, bamboo coupe areas and timber coupe areas should be closed for grazing in the year following the year of felling. In Khordha Forest Division practically no area is protected from grazing. The VSS members of the fringe villages are to be motivated to follow rotational grazing in the fringe forests. Further Prophylactic immunization of cattle should be ensured in coordination with veterinary officials to prevent contamination of disease from the cattle to the wild animals. The status of grazing in different forest block of Khordha Forest Division are shown in the **Table No.4.1**

Regulating Mechanism:

- Plantation area will be closed for grazing by employment of plantation watchers or fencing.
- Grazing will be allowed strictly basing on the carrying capacity of the forest area.
- Goats and sheep should not be allowed inside the forest area.
- The VSS people are motivated to follow alternate sources like stall feeding and collection of forages outside the felling and regeneration & plantation areas.

- Immunization of cattle must be ensured in forest fringe villages in consultation with veterinary department to prevent transmission diseases to the wild animals.
- Fodder and pasture cultivation/plantation may be encouraged in ToF area to meet the grazing requirements through VSS.

Table No.4.1 Status of Grazing

Name of Forest Block	Status of Grazing			Grazing prone area in Ha.
	Heavy	Moderate	Light	
1	2	3	4	5
Aranga RF			Light	260
Bankad RF			Light	132
Katuwal RF			Light	100
Rajin RF			Light	670
Tamana RF			Light	358
Champagarh RF		Moderate		60
Dhani (N) RF			Light	104
Maninag RF		Moderate		260
Mal RF		Moderate		1100
Nuapada (B) RF		Moderate		20
Satabhaya RF			Light	30
Sulia (B) RF			Light	180
Dhani (S) RF			Light	80
Kuhudi RF		Moderate		90
Patia RF		Moderate		520
Sulia RF		Moderate		220
Barunei RF	Heavy			80
Jayamangal RF		Moderate		20
Manibandha RF		Moderate		40
Nagapalli RF		Moderate		60
Panchagarh RF		Moderate		100
Pangarsingh RF		Moderate		30
Bhatapada DPF		Moderate		40
Champagarh DPF			Light	40
Chulijhinka DPF			Light	55
Jharan DPF			Light	200
Jiripara DPF			Light	10
Nathapur DPF			Light	40
Sandhamal DPF			Light	150
Solari DPF		Moderate		160

1	2	3	4	5
Bhaleri DPF		Moderate		130
Bramhnadei DPF		Moderate		110
Duburi DPF		Moderate		50
Jariput DPF	Heavy			80
Kapileswar DPF		Moderate		12
Kerang DPF		Moderate		15
Mandalsingh DPF		Moderate		40
Tartua DPF	Heavy			70
Bagheiput DPF		Moderate		10
Badapari DPF		Moderate		40
Bhusandpur DPF		Moderate		120
Chakadapathar DPF		Moderate		150
Jalbhar DPF		Moderate		120
Kaithapala DPF		Moderate		40
Kadamjhar DPF	Heavy			80
Kandagadia DPF	Heavy			40
Kunjuri DPF	Heavy			76
Nargoda DPF		Moderate		90
Nalsingh DPF		Moderate		90
Rameswar DPF		Moderate		100
Tangi DPF		Moderate		25
Jamuna Jharapada PRF			Light	6
Kumuka PRF			Light	20
Rengal PRF			Light	11
Beguniapada PRF		Moderate		10
Bhanra PRF			Light	10

4.5. LOPPING PRACTICES:

It is found that, the forest dwellers while collecting NTFP generally lop the trees to get more products. As a result NTFP yielding trees are damaged and their number decreases. Further, the people while grazing their animals inside the forest lop the trees to feed the cattle population. Such practices are detrimental to the forest growth which damages the young forest growth and the regeneration status of forest becomes poor. Awareness among the NTFP collectors as well as the illegal grazers are to be taken up through VSS members of the locality to check this practice.

4.6. AREA INFESTED BY INVASIVE WEED SPECIES IN FOREST:

The forest of Khordha Divisionare mainly moist deciduous forest. Most of the forest areas are infested with invasive weeds like *Lantana camara*, *Eupatorium spp* which are most common. Due to this invasion of weeds the regeneration of tree species in the forest area is severely affected. The growth of young planted species is unable to come up by these invasive weeds in different plantation areas of Khordha Forest Division. In the weed affected forest area the growth of tree species are not so good. The movability in the forest area in different forestry operations becomes difficult due to abundance of weed growth. Regular removal of these weeds at interval of 2 to 3 years in such patches is required for healthy growth of forest. Removal of these invasive weeds should be taken up by uprooting whole plant before flowering stage is attended. Uprooting of invasive weeds should be taken up during rainy season so that the weeds can be fully uprooted. During field verifications the status of invasive weeds in the forest of Khordha Forest Division has been assessed and shown in the **Table No.4.2.**

Table No.4.2

Status of area infested in different Forest Blocks

Name of Forest Block	Status of Weeding				Area infested with weeds in Ha.
	Heavy	Moderate	Light	None	
1	2	3	4	5	6
Aranga RF	Heavy				260
Bankad RF	Heavy				130
Katwal RF		Moderate			50
Rajin RF		Moderate			330
Tamana RF		Moderate			170
Champagarh RF		Moderate			20
Dhani (N) RF			Light		20
Maninag RF		Moderate			85
Mal RF		Moderate			520
Nuapada (B) RF		Moderate			10
Satabhaya RF			Light		10
Sulia (B) RF		Moderate			90
Dhani (S) RF		Moderate			40
Kuhudi RF		Moderate			35
Patia RF		Moderate			200
Sulia RF			Light		40

1	2	3	4	5	6
Barunei RF		Moderate			35
Jayamangal RF		Moderate			10
Manibandha RF	Heavy				35
Nagapalli RF		Moderate			15
Panchagarh RF		Moderate			35
Pangarsingh RF		Moderate			15
Bhatapada DPF		Moderate			15
Champagarh DPF		Moderate			25
Chulijhinka DPF		Moderate			30
Jharan DPF			Light		50
Jiripada DPF		Moderate			15
Nathapur DPF	Heavy				45
Sandhamal DPF		Moderate			75
Solari DPF	Heavy				120
Bhaleri DPF	Heavy				90
Bramhnadei DPF		Moderate			40
Duburi DPF			Light		15
Jariput DPF			Light		15
Kapileswar DPF			Light		5
Kerang DPF		Moderate			6
Mandalsingh DPF		Moderate			16
Tartua DPF		Moderate			25
Bagheiput DPF	Heavy				15
Badapari DPF		Moderate			15
Bhusandpur DPF		Moderate			45
Chakadapathar DPF		Moderate			35
Jalbhar DPF	Heavy				130
Kaithapala DPF		Moderate			15
Kadamjhar DPF		Moderate			25
Kandagadia DPF		Moderate			15
Kunjuri DPF	Heavy				40
Nargoda DPF	Heavy				60
Nalsingh DPF	Heavy				65
Rameswar DPF		Moderate			35
Tangi DPF		Moderate			10
Jamuna Jharapada PRF	Heavy				5
Kumuka PRF		Moderate			10
Rengal PRF		Moderate			6
Beguniapada PRF		Moderate			5
Bhanra PRF			Light		4

Plantation areas are freed from weeds

Name of Range	Year	Name of the Scheme	Name of Site	Area of AR/ANR freed from weeds in Ha.	
				AR in Ha.	ANR in Ha.
1	2	3	4	5	6
Tangi	2010-11	CAMPA APO 2009-10 (CA)	Nalsingh DPF		19
Khordha	2015-16	CAMPA APO 2014-15 (CA)	Jariput DPF	52	
		CAMPA APO 2014-15	Manibandha RF		150
Balugaon			Aranga RF, C/7		75
			Tamana RF, C/13		75
			Rajin RF, C/12		50
			Katual RF, C/1		50
Tangi			Patia RF		50
			Kandagadia DPF		50
			Jalvar DPF		50
			Bhusandpur DPF		50
Ranpur	2015-16	CAMPA APO 2014-15	Sulia 'B' RF (Kotagarh)		50
			Mal RF, C/47 (Bhetabar)		50
			Mal RF, C/26 & 36		50
			Mal RF, C/17 (Betuli)		50
Tangi		CAMPA APO 2015-16 (Bald Hill)	Nalsingh DPF	20	
Khordha	2016-17	CAMPA APO 2015-16	Nagapalli RF		150
			Brahmanidevi DPF		100
Tangi			Jalvar DPF		100
			Kuhudi RF		50
			Patia RF		100
Ranpur			Sulia B RF		50
			Dhani (N) RF (S.S.pur)		50
			Mal RF (Bhetabar)		50
			Mal RF, C/17 (Nelipada)		50
			Mal RF (Sankhajodi)		50
Balugaon			Rajin RF, C/18		100
			Tamana RF C/13		50
			Rajin RF, C/13		50
			Jharan DPF		50
Tangi		CAMPA APO 2015-16 (CA)	Tangi DPF	12	

1	2	3	4	5	6
Khordha	2018-19	CAMPA APO 2017-18(CA)	Barunei RF		47.816
Tangi			Kuhudi RF	10	
Ranpur			Maninag RF (Sanagarh)	10	
Delanga		CAMPA APO 2017-18	Kumuka PRF	10	
Balugaon		CAMPA APO 2017-18	Aranga RF	50	50
			Bankard RF	50	50
			Rajin RF, C/11	50	50
			Rajin RF, C/26	50	50
Khordha			Barunei RF	100	100
			Naraganga PF	100	100
Tangi			Rameswsar DPF	50	50
			Naragoda DPF	50	50
			Sulia RF (Pandabasuni)	50	50
			Badapari DPF	50	50
			Sulia RF	50	50
			Dhani (S) RF	50	50
Ranpur	2018-19	CAMPA APO 2017-18	Maninag RF	50	50
			Sulia 'B' RF	50	50
			Champagarh RF	50	50
			Mal RF, C/9	50	50
			Mal RF, C/17	50	50
			Mal RF, C/32	50	50
Tangi	2019-20	CAMPA APO 19-20	Nalsingh DPF		50
			Bhusandpur DPF		50
			Kandagadia DPF		50
			Kadamjhara DPF		50
Ranpur			Mal RF, C/14		50
			Mal RF, C/28		50
Khordha			Nagapalli RF		100
Balugaon			Arang RF		100
			Jharan DPF	20	
Tangi			Kadamabajhar DPF	20	
		CAMPA APO 19-20	Badapari DPF	10	
			Kandagadia DPF	10	
Balugaon	2020-21	CAMPA	Solari DPF	25	
Khordha			Duburi DPF	25	
Tangi			Bhusandpur DPF	25	
			Chakadapathar DPF	25	
Delanga			Rengal PRF		50
Khordha			Mandalsingh DPF		100
Ranpur			Mal RF, C/19		50
Tangi			Bhusandpur DPF		50
			Kunjuri DPF		50
Khordha		CAMPA (CA)	Barunei RF		24.282
Tangi			Kandambajhar DPF	10	

4.7. INCIDENTS OF PEST AND DISEASES:

The disease like dry rot is a fungal disease causing damage to the heart wood of Sal and other trees, defoliators damage to the leaves of the trees by eating away the chlorophyll pigments in Teak and other trees, loranthus which is a parasite causing diseases in different trees. Many fungi and parasitic plants have been found to affect the forest crop adversely. Loranthus attacks Sal, Piasal, Kusum etc, and causes unsoundness of host tree. Different types of fungi attack the forest species. Damages occur due to stem borers, defoliators, skeletonizers and termite attack in the forest. Defoliators, skeletonizers are commonly found in Teak plantation and stem borers are found inferior Quality Sal Forest.

4.8. FOREST DEGRADATION AND ITS DRIVERS:

Forest degradation can be noticed when the forest cover of the area is analysed with respect to the forest cover of previous years. When a particular forest patch moves from moderately dense forest then it can be said that forest degradation has occurred. Similarly when a particular patch of forest moves from moderately dense forest to open forest then also it can be said that forest degradation has occurred. The main drivers of degradation are illicit felling, encroachment, mining, and over grazing activity of forest. Due to this drivers degradation the growth of forest is affected. The forest of Balugaon Range, Ranpur Range are mostly affected by illicit felling. The timber smugglers engage the local poor people for illicit felling of sal, teak and other valuable species from these Ranges and smuggle to town and city areas by four wheelers thereby causing severe degradation forest. The stone mafias in Tangi Range, Khordha Range, and Delang Range illegally make quarry in the forest area for smuggling of laterite stones, murroms and granite stones from the forests. The stone mafias engage poor people for encroaching the forest land and making illegal quarry in forest area and engage four wheelers for illegal transporting the same to meet the demand in town and city areas.

4.9. POLLUTION CONTROL AND PROTECTION OF ENVIRONMENT:

Soil erosion takes place in forest areas are mainly due to illicit felling of trees and illegal removal of stones, murroms. Due to heavy soil erosion the water is being polluted leading to forest degradation. A number of stone crusher units have been installed by the individuals for commercial supply of chips and boulders to towns and city. There is a heavy pollution of dust in an around of these crusher units. These pollutions are detrimental to the growth of forest. To check the soil erosion soil and moisture conservation measures are being taken up in the forest areas. Steps have also been taken in the Khordha Forest Division by engaging retired Army persons in Balugaon Range and protection squad in Ranpur Range to check the illicity felling. A numbers of four wheelers including Tractors, Mini Trucks have been seized while transporting the illegal stones, murroms from forest area in Delang Range & Tangi Range areas.

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CHAPTER – 5

CONSERVATION AND MAINTENANCE OF SOIL AND WATER RESOURCE

5. CONSERVATION AND MAINTENANCE OF SOIL AND WATER RESOURCE:

5.1. AREA TREATED UNDER SOIL AND WATER CONSERVATION MEASURE:

In Khordha Forest Division the annual rain fall is limited from 1400 mm to 1600 mm annually and precipitation period is hardly four months. The rain water flows as surface run off, forming, gullies, streams, and nalas and drains rain fall water to rivers and lake. Due to deforestation and degradation of forests in the most of the forest areas in the Division are prone to soil erosion is taking place. Soil erosion results in poor water retaining capacity of the forest areas. As a result surface run off takes place. For conservation of water, soil and moisture conservation measures have been taken in the forest area. Contour trenches, loose boulder structures, check dams and water bodies have been constructed during the plan period under the funding by Chillika Development Authority and State CAMPA for soil and moisture conservations of water resource in the Division. The details of soil and moisture conservation activities taken during the plan period are furnished below in **Table No.5.1. and Table No.5.2**

Table No.5.1 SOIL AND MOISTURE CONSERVATION MEASURE TAKEN UP IN DIFFERENT RANGES FROM 2009-10 to 2020-21

Item of works	Range	APO –wise Physical & Financial achievement											
		2009-10		2010-11		2011-12		2012-13		2013-14		2014-15	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Soil & moisture conservation	Balugaon	225	380434	200	357161	-	-	-	-	-	-	-	-
	Khordha	705	1268800	600	1080000	-	180000	-	-	-	-	-	-
	Tangi	670	1205800	500	900000	-	722600	-	-	-	-	-	-
	Ranpur	1086	1943280	700	1262839	-	162000	-	-	-	-	-	-
	Delanga	50	90000	-	-	-	-	-	-	-	-	-	-
	Total	**2736**	**4888314**	**2000**	**3600000**	**0**	**1064600**	-	-	-	-	-	-

Item of works	Range	APO –wise Physical & Financial achievement											
		2015-16		2016-17		2017-18		2018-19		2019-20		2020-21	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Soil & moisture conservation	Balugaon	-	-	-	-	-	-	-	-	-	-	100	31
	Khordha	-	-	-	-	-	-	-	-	-	-	75	23.25
	Tangi	-	-	-	-	-	-	-	-	-	-	100	31
	Ranpur	-	-	-	-	-	-	-	-	-	-	75	23.25
	Delanga	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	**350**	**108.5**

Information of SMC under MGNREGS for the period from 2016-17 to 2020-21 of Khordha Division						
Sl No	**Year**	**Name of Circle**	**Name of Division**	**Name of Range**	**Physical Achivement**	**Financial Achivement**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2016-17	Bhubaneswar	Khordha		0	0
2	2017-18				0	0
3	2018-19				0	0
4	2019-20				0	0
5	2020-21			Tangi	100	579186
				Khordha	40	640044
				Balugaon	87	1476738
Total					**227**	**2695968**

Table No.5.2 LIST OF WATER BODIES CREATED IN KHORDHA FOREST DIVISION FROM 2008-09 to 2020-21

Sl No.	Year	Scheme	Range	C.D Block	Name of Site	No. of water body	
						Renovated	New
1	2	3	4	5	6	7	8
1	2008-09	CBNRM	Balugaon	Banpur	Niladriprasad	0	1
2	2009-10	CAMPA APO 2009-10 (Wildlife)	Khordha	Khordha	Jariput DPF (Ketakijhar)	1	
3	2010-11	CAMPA APO 2010-11 (Wildlife)	Tangi	Tangi	Tangi DPF	1	
4				Tangi	Kaithapalla DPF		1
5	2011-12	CAMPA APO 2011-12 (General)	Khordha	Khordha	Jariput DPF		1
6		CAMPA APO 2011-12 (Wildlife)	Tangi	Tangi	Tangi DPF		1
7			Balugaon	Banpur	Tamana RF		1
8	2012-13	Elephant Management scheme (State Plan)	Balugaon	Banpur	Mahulia		1
9	2013-14	CAMPA APO 2012-13 (General)	Balugaon	Banpur	Tamana RF		1
10				Banpur	Rajin RF		1
11			Tangi	Tangi	Tangi DPF		1

1	2	3	4	5	6	7	8
12	2013-14	CAMPA APO 2012-13 (General)	Ranpur	Ranpur	Dhani (S) RF		2
13				Ranpur	Patia RF		1
14				Ranpur	Dhani (N) RF (Mahatpalla		1
15				Ranpur	Mal RF (Sankhajodi)		1
16			Khordha	Bolagarh	Duburi DPF		1
17				Khordha	Jariput DPF		1
18	2013-14	CAMPA APO 2012-13 (Wildlife)	Tangi	Ranpur	Patia RF		2
19			Balugaon	Banpur	Tamana RF (Sakara road)		1
20			Ranpur	Ranpur	Mal RF (Jaripada)		1
21				Ranpur	Mal RF (Khilamunda)		1
22			Khordha	Khordha	Jariput DPF		1
23		Elephant Management scheme (State plan)	Khordha	Khordha	Jariput DPF		1
24			Balugaon	Banpur	Maisigotha		1
25	2014-15	CAMPA APO 2013-14 (General)	Tangi	Tangi	Jalvar DPF		1
26				Tangi	Bhusandpur DPF		2
27				Tangi	TangiDPF		1
28			Balugaon	Banpur	Rajin RF		3
29				Banpur	Tamana RF		4
30			Ranpur	Ranpur	Mal RF		5
31				Ranpur	Dhani (N) RF		2
32			Khordha	Khordha	Jariput DPF		2
33				Banki	Mohaparbat PF		1
34	2014-15	CAMPA APO 2013-14 (General)	Khordha	Bolagarh	Panchagarh RF		1
35				Begunia	Pangarasingh RF		1
36				Bolagarh	Duburi DPF		1
37			Delanga	Delanga	Rengal PRF		2
38				Delanga	Jamuna Jharapada PRF		2
39	2015-16	CAMPA APO 2013-14 (General)	Tangi	Ranpur	Patia RF (Kusupalla)		1
40				Tangi	Bhusandpur DPF		1
41				Tangi	Jalvar DPF		1
42			Delanga	Delanga	Rengal PRF		1
43			Balipatna	Balipatna	Bhanra PRF		2
44		Elephant Management scheme (State plan)	Balugaon	Banpur	Tamana RF		2
45	2016-17	CAMPA(WL)	Ranpur	Ranpur	Betuli	1	-
46			Balugaon	Balugaon	Tamana	1	
47			Balugaon	Balugaon	Rajin RF	1	1
48			Balugaon	Balugaon	Solari DPF	0	1
49			Balugaon	Balugaon	Sakara	2	
50			Balipatna	Balipatna	Bhanra PRF	1	
51			Tangi	Tangi	Patharabandha	1	
52			Tangi	Chilika	Jalvar DPF	1	
53		Elephant Coridor(State Plan)	Khordha	Khordha	Tartua DPF		1
54	2017-18	CAMPA (GEN)	Ranpur	Ranpur	Bhetabara		1
55		CAMPA (WL)	Tangi	Tangi	Bhusandpur DPF	1	
56	2018-19	-	-	-	-	-	-
57	2019-20	Elephant Coridor(State Plan)	Ranpur	Ranpur	Mala RF		1
58	2020-21	CAMPA (WL)	Tangi	Ranpur	Patia C/3		1
59			Ranpur	Ranpur	Mal,C/22		1
60			Delang	Delanga	Rengal PRF	1	
61			Delanga	Delanga	Jamuna Jharapada PRF	1	
					Total	**12**	**67**

5.2. DURATION OF WATER FLOW IN THE SELECTED SEASONAL STREAMS:

Water is an important factor for Forest vegetation. Khordha Forest Division receives average rainfall from 1300 mm to 1500 mm. Many perennial and seasonal streams are flowing in the forest areas of the Division. Maximum rainfall is received during rainy season from July to October. During this period the rain water flows down the forest in the seasonal streams. In Khordha Forest Division so many rivers, nallas, streams passes through forest which are given in **Table No. 5.3**

Table: 5.3 Important Rivers/Tributaries in Khordha Forest Division

1	2	3	4	5
Name of Range	**River/Tributary**	**Origin from**	**Passes through**	**Drains at**
Tangi Wildlife	Nil	Nil	Nil	Nil
Balugaon	Tanku Nalla	Ghumusar South Division to Rajin RF Comptt. No. 10,11, and 16	Rajin Comptt. No.-16	Salia Dam
	Pathuria Nalla	Rajin Comptt. No. 3, 4 5 and 8	Rajin Comptt. No.- 3,4,5, and 10	-do-
	Sipisipa Nalla	Rajin RF Comptt. No. 17,18,6 and7	Rajin RF Comptt. No.-6 and 7	Budha Bhdhiani Dam, under Nayagarh Division
	Purunapanda Nalla	Bankard Comptt. No. 2	Bankard Comptt.No. 3	Chilika lake Via Bauns Nai and Kansari Nai.
	Bankard Nalla	Bandkard RFComptt. No. 3 and Jharana D.P.F.	Bankard RF Comptt. No. 3	-do-
	Andhari Bibhutia Nalla	Bankard RF Comptt. No. - 2	Arang R.F. Comptt. No. 5 and6	Chilika lake via Kansari
	Ketiki Nalla	ArangR.F. Comptt. No. 4	Arang R.F Comptt. No. 5 and6	-do-
	Salia River (Main Stream perineal)	Sakalusal Area of Mala R.F. Comptt. No. 17	ArangaRF Comptt. No. 1, 2 and Taman R.F. Comptt. No.1 and2	Salia Dam
	Arang Nal	Tamana R.F. Comptt. No. 13	NathpurDPF	Salia stream and Salia Dam
	Thekuapadar Nalla	Tamana RF Comptt No. 12 and13	Tamana RF Comptt. No. 12 and13	-do-
	Khuntupalli Nalla	Rajin R.F. Comptt. No. 1 and 2	Tamana R.F. Comptt. No. 10 and11	Salia Dam via Pathuria Nalla.
	Kriamba Nalla	Rajin R.F Comptt. No. 21 and 28	Rajin RF Comptt. No. of 24, 25 and26.	Baghua Dam Ghumsar South Divn
	Andhari-Bibhutia Nalla	Bankard RF Comptt. No. 2	Arang RF Comptt. No. 5 and 6	Chilika lake via Kangari
	Sandha Nalla	Arang RF Comptt. No. 3 and Sandha DPF	Sandhamala DPF	Sandha Dam
	Salia Nadi (Main stream perineal)	Salia Dam	Banapur Balugaon	Chilika lake
	Kansari Nai	-do-	Banapur and Panchupalli	-do-

Name of Range	River/Tributary	Origin from	Passes Through	Drains At
1	2	3	4	5
Khordha	Nil	Nil	Nil	Nil
Ranpur Range	Salia Nandi	Gochha RF. of Nayagarh Division	Mala RF Compt. No. 16, 18, Arang R.F. Compt. No. 02	Salia Dam.
	Ketakijhar	Salia Nandi	Mala R.F. Compt. No. 23,37 and 38.	Randa Dam
	Chakundajhar	Mala R.F.	Sanchakundajhar	Bhetbar Dam
	Dodari Sahi Nalla	Mala R.F.	Mala R.F. Compt. – 18, 19, 26	Bhetbar Dam
	Daluajhar Nalla	Mala R.F.	Bankanalia Mahatpalla	Malaaguni
	Badjhari Nalla	Mala R.F.	Khandis, Tavadili, Sirikuli	Randa Dam
	Ashok Kumari Jhar	Maninag R.F. Compt. No.-01	Bajrakote Dam	Asurakumari Dam
	Malaaguni (Mandakini)	Patnargarda R.F.Nayagarh Divn.	Gourhia parhi, Gourangpur, Purunabasant	Chilika
	Kordapalli section	Satbhaya R.F., Sulia R.F.	Kordapalli, Hatibari, Thanapalli, Tamasahi	Hadunali Kumari Dam
Tangi	Kusumi Nadi	Patia R.F. Compt. No. 1	Nazamani Singrama to chilika lake	Chilika
	Badajhasa Nadi	-do- Compt. No. 4	Girinda mixed with Kusumi Nadi	-do-
	Kumbhi Nadi	-do -	Kendua then mixed with Kusumi Nadi	-do-
	Betanali	-do- Compt. No. 7	Kusupalla mixed with Kunbi Nadi.	-do-
	Kurumi Nadi	Sulia R.F. Compt. No. 1	Kurumi Nadi, Malaakadia, Akaspalli	-do-
	Ashok Nalla	-do- Compt No. 3	Gamei, Gambharimunda	-do-
	Parasankha	-do- Compt. No. 10	Chakadapathar, Kadambajhar mixed at sulpdihi	-do-
	Kadamjhalan	Dhani (S) Compt. No.6	Godisahi, Singarama mixed with Kusumi	-do-
	Podasahi	-do- Compt. No. 6	Padasahi, Kendua mixed with Kusumi	-do-
	Mandakini Nadi	Tankola	Siko, Rameswar	-do-
Balipatna	Daya River	Kathajodi River	Balkati and Jagannathpur	Bay of Bengal
	Bhargabi	-do-	Hanspal and Balakati	-do-
	Kusabhadra	-do-	Hanspal, Banmalaipur, Nimapara	-do-
Delanga	Nil	Nil	Nil	Nil

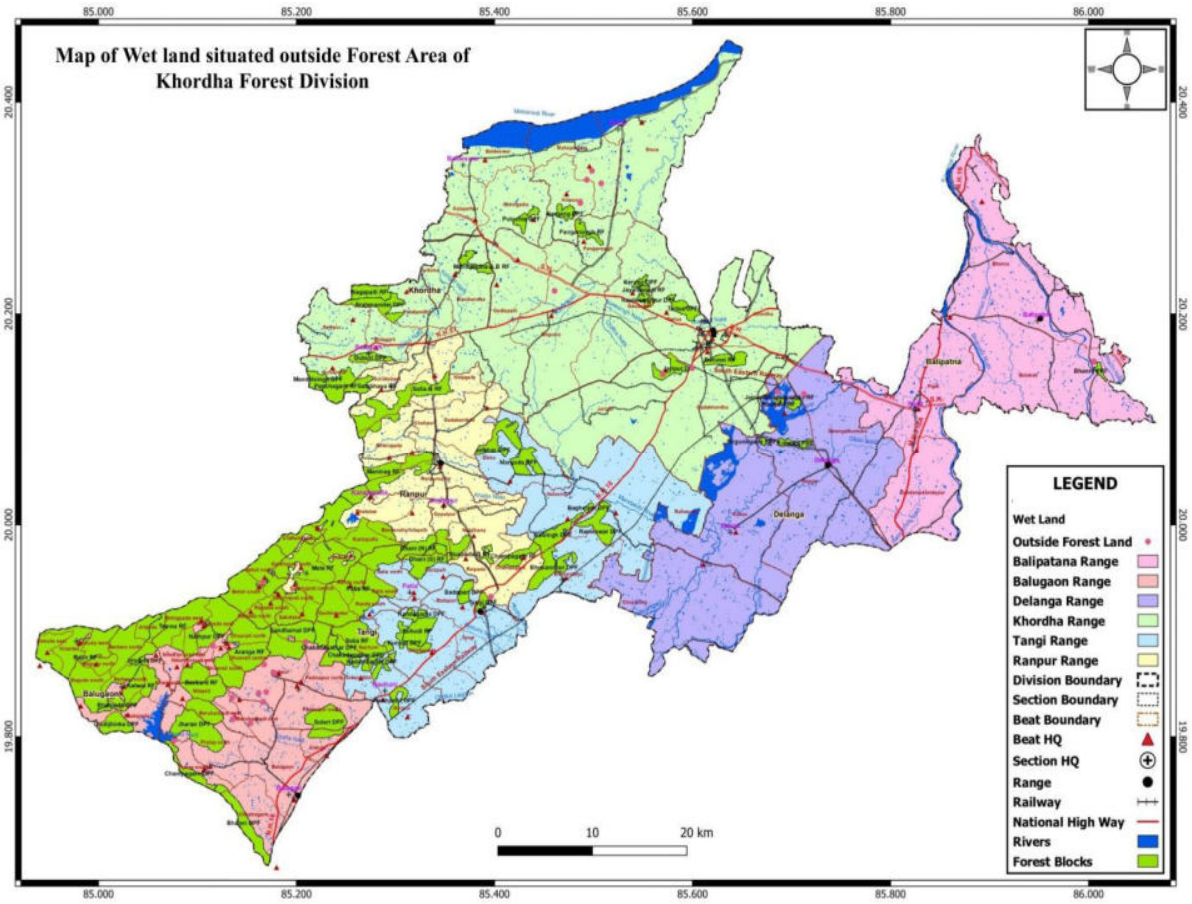
5.3. WETLANDS IN FOREST AREAS:

Wetlands are distinct ecosystems that are flooded by water either permanently or seasonally which are considered among the most biologically diverse of all ecosystems. They serve as a home to wide range of plants and animals species. It contributes various ecosystem services that include water purification, ground water recharge and stream flow maintenance, water storage, flood protection, carbon sequestration and provide nutrients to plants and animals.

Various streams and rivers have been originated from different forest blocks of Khordha Forest Divsion prominent being are Berbera landscape of Balugaon Range, Mal RF of Ranpur Range, Patia RF, Sulia RF and Dhani RF of Tangi Range. The water flows in streams and nallahs originated from Berbera landscape drains into Salia river. Salia reservoir has been constructed on the foot hill bordering Ganjam and Khordha district. Another important nallah called Sandha nallah originated from Aranga RF and Sandhamal DPF drains into Sandha Dam. The water from Salia dam passes through Banpur and Balogaon and drains into Chilika Lake which is a major brackish water wetland system in the Odisha coast. The streams and nallah originated from Mal RF drains into Bhetabar Dam. The water from Patia RF, Dhani RF and Sulia RF drains also into Chilika Lake. Chilika Development Authority (CDA) is working on wetland conservation with particular reference Chilika lagoon.

The major wetlands situated outside the forest area important for aquifers in Khordha Forest Division limit are described in the **Table No. 5.4**,

Table: 5.4 List of Wetlands outside Forest area of Khordha Forest Division					
Sl No	**Name of Range**	**Name of the Site**	**GPS location**		**Area in Ha. / Km**
1	**2**	**3**	**4**	**5**	**6**
1	Balugaon	Salia MIP	N 19° 48' 01"	E 85° 04' 39"	800 Ha.
		Chilika Lake	N 19°. 463037	E 85°. 225485	
2	Ranpur	Bhetabar MIP	N 20° 0' 34.43"	E 85° 15'44.13"	24.7Ha.
3	Tangi	Randa MIP	N 19° 54' 47"	E 85° 16' 15"	10 Ha.
		Pankal Dam	N 19° .887664	E 85° .209118	
4	Khordha	Mahanadi River, Baideswar	N 20° 21' 29.3"	E 85° 22' 53.3"	200 Ha.
		Archandi Badapata/ Jatamundia, Banki	N 20° 24' 19"	E 85° 36' 52"	15 Ha.
		Kumudal,Basantapur, Begunia	N 19° 44' 02.0"	E 85° 43' 22.2"	7 Ha.
			N 20° .109144	E 85° .71624	
			N 20° .078975	E 85° .675136	
		Kusupangi pata	N 20° 24' 15"	E 85° 15'44.13"	
5	Delanga	Daya river, Narankheta, Kanti	N 20° 140' 908"	N 85° 765' 577"	12 Ha.
		Daya river(Kanas, Gadisagada, Jamalagada, Gadasahi)	N 19° .999707	E 85° .642611	30 Km
			N 19° .921261	E 85° .591829	
			N 19°. 954504	E 85° .649303	
			N 19° .972197	E 85° .623339	
			N 20° 08'18.16"	E 85° 46' 7.83"	



5.3.1. RESTORATION AND MANAGEMENT OF WETLANDS:

Wetlands are indispensible for the host of ecosystems services that they provide to humanity raising from fresh water supply, biodiversity, ground water recharge, flood control, climate charge mitigation. Odisha Wetland Development Authority (OWDA) has been set up in accordance with the provision of the Wetland Conservation and Management Rules, 2017 which is designing comprehensive management plan for conservation and sustainable management of the wetlands of the state. The Govt. of Odisha is committed for providing funds and policy support to OWDA for this purpose. The restoration of Chilika lagoon is an example of how the restoration of the wetlands could be possible with most appropriate strategies since all streams, rivers & tributaries are ultimately drain into Chilika lagoon.

The Ministry of Environment, Forest and Climate Change (MoEF & CC) has drafted guidelines to support state government in implementation of the rules. The documents aim to guide state in following ways,

- Preparing list of wetlands to be notified under Wetland Conservation and Management Rules, 2017.
- Delineating wetlands, complexes, and zone of influence.
- Developing a list of activities to be regulated and permitted.
- Determining wise use and ecological character.
- Developing an integrated plan for wetlands, which are rich reservoirs of biodiversity.

A good numbers of wetlands are available in outside and inside forest area of Khordha Forest Division. The catchment areas of wetlands, rivers and streams have to be protected and restored for restoration and rejuvenation of aquifers. Following the guidelines of Wetland Conservation and Management Rules, 2017 following activities need to be taken up during this plan period.

1. Delineation of wetlands and its zones of influence.
2. Preparation of brief document on protection of wetlands
3. Identification of emergent environment issues.
4. Water supply.
5. Water purification and detoxification of waste.
6. Catchment area treatment with holistic watershed management and Afforestation programme.
7. Flood control in coordination with department of Water Resources.
8. Eradication of unwanted weeds like water hyacinths.
9. Public awareness through celebration of Wetland Day and other campaigns.

5.4. WATER LEVEL IN THE WELLS IN THE VICINITY (UPTO 5 KM) OF FOREST AREA:

Due to degradation of forest, the water level in the vicinity of the forest is going down. The water level can be brought upwards by protecting the forest, controlling the soil erosion and moisture loss by taking up plantation in the barren land and erecting check dams loose boulder structure in the nala flowing in the forest. Periodic monitoring of water level in the wells in the vicinity of the forest area is required to assess the availability of ground water in the adjoining forest. The availability of ground water in the fringe villages have been recorded during the preparation of this plan which is shown in the **Table No.5.5.** From the availability of ground water in the fringe villages the water table of the forest area adjoining to fringe villages can be assessed.

Table No.5.5 Ground water Status in fringe villages adjoining to Forest area

Sl No.	Name of the fringe village	Adjoining Forest Block	Water level in the well from the surface(Meter)			Sl No.	Name of the fringe village	Adjoining Forest Block	Water level in the well from the surface(Meter)		
1	2	3	4			1	2	3	4		
			Jan	May	Sept				Jan	May	Sept
1	Andharua	Dhani	3	5	1	30	Haripur	Kaithapalla	3	5	1
2	Arada	Maninag R.F	3	5	1	31	Maa baithakurani VSS Belapada	Nalsingh	3	5	1
3	Bajrakote	Maninag R.F	5	1	8	32	Jogamaya VSS Bhusandpur	Bhusandpur	3	5	1
4	Egaramouza	Mala	3	5	1	33	Rameswar	Rameswar	5	7	2
5	Bandhamunda	Mala	3	5	1	34	Tangi	Sulia	3	5	1
6	Karadapalla	Maninag & Mala	3	5	1	35	Tangi	Tangi	3	5	1
7	Kolathapangi	Sulia-B	5	1	8	36	Gamei	Sulia	5	7	2
8	Nakithana	Dhani-N	3	5	1	37	Manijhar Raoutrapur	Bhusandpur	3	5	1
9	Mahatpalla	Dhani-N	5	1	8	38	Mundala	Sulia	3	5	1
10	Ostapada	Champagarh R.F	5	7	2	39	Manapur	Ranpur	3	5	1
11	Paikarapur	Sulia-B	3	5	1	40	Sakulei VSS Sundarpur	Bhusandpur DPF	3	5	1
12	Sanachakundajhar	Mala	3	5	1	41	Salapadi	Sulia	3	5	1
13	Samantsinghapur	Dani-N	5	7	2	42	Kaithapalla	Brahmanidei	3	5	1
14	Gadabanikilo	Gadabanikilo	5	7	2	43	Banadurga VSS	Kuhuri	3	5	1
15	Sankhamula	Maninag	3	5	1	44	Khajuriapada	Rameswar	3	5	1
16	Sikharpur	`Mal	3	5		45	Jalbhar	Jalbhar	3	5	1
17	Sankhajodi	Mal	5	7	2	46	Kandagadia	Kandagadia	3	5	1
18	Sanakilo	Sanakilo	5	7	2	47	Kadambajhara	Dhani-S	3	5	1
19	Telipatna	Mala	5	7	2	48	Jatipada	Dhani	3	5	1
20	Sanagada	Maninag	5	7	2	49	Dikhitipada	Kuhuri	3	5	1
21	Ranala	Mala	3	5	1	50	Bagheiput	Bagheiput	3	5	1
22	Raipada	Mala	3	5	1	51	Badapari	Badapari	3	5	1
23	Padmpur	Chakadapathar	5	7	2	52	Panchamaouza	Dhani-S	3	5	1
24	Odapalla	Mal	3	5	1	53	Ugratara VSS	Bhusandpur	3	5	1
25	Nelipada	Mal	5	7	2	54	Sialiapatna	Barunei	5	7	2
26	Laxminarayanpur	Dhani-N	5	1	8	55	Syamsundarpur	Panchagarh	5	7	2
27	Khaman	Mala	3	5	1	56	Pandalam	Punichia	5	7	2
28	Kalamatia	Maninag	5	1	8	57	Nandapalli	Duburi	5	8	2
29	Jaripada	Mala	3	5	1	58	Mandalsingh	Mandalsingh	5	7	2
30	Jamusahi	Satabhaya	3	5	1	84	Maamangala	Baideswar	5	7	2
31	Gaon Banikilo	Maninag	5	1	8	85	Kusupalla	Panchagarh	5	7	2
32	Dimiria	Dhani	3	5	1	86	Kuradilo	Pancgarisngh	3	5	1
33	Chamapagarh	Champagarh R.F	3	5	1	87	Kmusara	Jayamangala	5	7	2
34	Bhetabara	Mala	3	5	1	88	Kotapalla	Mandalsingh	5	7	2
35	Arikama	Manibandha	3	5	1	89	Kapileswarpur	Kapileswar	3	5	1
36	Sibida	Rajin	3	5	1	90	Janibhuin	Nagapalli	3	5	1
37	Pratap	Chamagarh DPF	5	7	2	91	Goudaputu	Jayamangala	3	5	1

Sl No.	Name of the fringe village	Adjoining Forest Block	Water level in the well from the surface (Meter)			Sl No.	Name of the fringe village	Adjoining Forest Block	Water level in the well from the surface(Meter)		
1	2	3	4			1	2	3	4		
			Jan	May	Sept				Jan	May	Sept
38	Badasula	Chulijhinka	3	5	1	92	Godipokhari	Pangarsingh	3	5	1
39	Muktadeipur	Jharan DPF	5	7	2	93	Govindapur	Nagapalli			
40	Mahulia	Rajin RF	3	5	1	94	Bhanaragar	Punichia	3	5	1
41	Banchhanidhipur	Solari	3	5	1	95	Gahiragadia	Punichia	3	5	1
42	Nuagarh	Bhaleri	3	5	1	96	Dadarakanta	Manibandha	5	7	2
43	Pankala (Khilamunda)	Sandhamula	3	5	1	97	Chiramaru	Pangarsingh	3	5	1
44	Jibandeipur	Jibandeipur	3	5	1	98	Belapada	Barunei	3	5	1
45	Jiripada	Jiripada DPF	3	5	1	99	Rengal	Rengal	3	5	1
46	Banalei	Bankad/Jharan	3	5	1	100	Motori	Delanga DPF	3	5	1
47	Bhuskapada	Jharan	3	5	1	101	Kumandal	Kumuka	3	5	1
48	Bharapada	Solari	3	5	1	102	Kuapada	Kumuka	3	5	1
49	Bhatapada	Chulijhinka	3	5	1	103	Garhmotori	Kumuka	3	5	1
50	Bhagabatipur	Solari	3	5	1	104	Chotijori	Kanas	3	5	1
51	Jhintikapalli	Bhaleri	3	5	1	105	Batola	Kumuka	3	5	1
52	Kalamatia	Krushnapalli	3	5	1	106	Bhanaragarh	Bhanara	3	5	1
53	Ramachandi VSS Patia	Patia	3	5	1	107	Chhatipur	Maninag	3	5	1
54	Nachuni (Mahujhara)	Kunjuri	3	5	1	108	Jiripada	Dhani-N	3	5	1

5.5. STATUS OF AQUIFERS:

Plant cover is essential for retention of rain water, its percolation and storage in aquifers. Aquifers are the water source available under the ground level and under porous rocky surface. The storage of ground water in aquifer can be improved by improving the forest cover. The flowing water can be recharged by constructing check dams in different places of the nala flowing inside the forest. The status of the aquifers in Khordha Division is shown in the following hydrogeology map.

HYDROGEOLOGY MAP OF KHORDHA FOREST DIVISION
N
E
W
S
10 Kilometers
10 5 0
(SCALE: 1:1,00,000)
GROUND WATER POTENTIAL
(Yeild Litres/sec)
1 – 5
Aquifers with Secondary Intergrannular Porosity and Fractures
10 - 25
Aquifers with Primary Intergrannular Porosity
25 – 40
do
> 40
do
BAY OF BENGAL
Area in '000 00 Hectare
4
3
2
1
0
Area Irrigated
Area unirrigated
Designed & Printed by KUSUM GRAPHICS, BBSR.

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CHAPTER – 6

MAINTENANCE AND ENHANCEMENT OF FOREST RESOURCE PRODUCTIVITY

6. MAINTENANCE AND ENHANCEMENT OF FOREST RESOURCE PRODUCTIVITY:

6.1. GROWING STOCK OF WOOD:

The Growing stock of forest with respect to the fully stocked forest has gradually started degrading since1931-32, when Dr. Mooney revised the Working Plan of Derry and prescribed Selection Working Circle in place of Conversion Working Circle. The prescription of Selection Working Circle continued till the beginning of Sharma's Plan (1988-89 to 1999-2000), when Improvement Working Circle was Prescribed. The Growing Stock of forest improved after the imposition of moratorium on green tree felling in 1990 till 2005 when it was lifted. But due to increase in biotic interference in the form of illicit felling, forest fire and grazing, the growing Stock of forest could not improve to such extent which would have improved if biotic interference would have minimized. After lifting of moratorium on green tree felling the Revised Working Plan of Puri Forest Division was prepared for the period from 2007-08 to 2016-17 when the Improvement Working Circle was brought under Selection-cum-Improvement Working Circle. To check the degradation of Growing stock Rehabilitation Working Circle was prescribed in Sri Sharma's Plan. The same Rehabilitation has also been prescribed in the Revised Working Plan of Sri A Das. The main thrust has been focused in regeneration cleaning and soil and moisture conservation to improve the growing stock of degraded forest. Teak Plantation Working Circle had been prescribed during Sharma's Plan and Plantations (Over lapping) Working Circle has been prescribed in the expired Working Plan of Sri A Das. As a result the very dense forest in the division has been decreased and moderately dense forest, open forest has been increased.

6.2. GROWING STOCK OF BAMBOO:

The Growing Stock of bamboo indicating the number of clumps and clump size in respect of base year has not been assessed in the past and in the expired Plan. In the Moist Deciduous forest, the clumps of Bambusa aurundenesia have become more and more congested resulting in difficulty in working of bamboo coupes. Though most of the forests are well stocked with bamboos, its scientific exploitation have not been due to heavy congestion, for which the Bamboo clumps in part of Balugaon, Ranpur & Tangi Range have not been properly worked. Further gregarious flowering of bamboo has during 2008. In view of the gregarious flowering the flowered clumps died resulting in severe decrease in the growing stock of bamboo. Of course profuse bamboo regenerations have come in these areas. The growing stock of bamboos in bamboo bearing areas has been assessed basing on the enumeration of bamboos in sample plots.

6.3. INCREMENT IN VOLUME OF IDENTIFIED TIMBER SPECIES:

The Mean Annual Increment of different timber species have not been calculated in this Division neither in the past nor in the expired Revised Working Plan. During this plan the grid method of enumeration in 0.1Ha. Sample plots Permanent Sample Plots (PSP) have selected with geo-coordinates. So, this year will be the base year and the Mean Annual Increment will be calculated by estimating the volume of different species during the year of preparation of Revised Working Plan and after interval of one year, two years, and four years or as per availability of fund and man power.

6.4. EFFORTS TOWARDS ENHANCEMENT OF FOREST PRODUCTIVITY THROUGH QUALITY PLANTATION ACTIVITIES:

In Monteath's Plan (1905-06 to 1919-20) teak plantation was introduced in this Division as the site condition was favourable. In Derry's Plan (1926) and in Mooney's Plan (1931-32 to 1954-55) Teak Plantation Working Circle was constituted. Since, then till the Working Plan of Shri J.D. Sharma, IFS (1989-90 to 1998-99) in all the Working Plan's, Teak Plantation Working Circle's has been

constituted. In the outgoing plan Plantation (Over Lapping) Working Circle have been constituted. Plantation activities in the Division has been taken up within and outside the Plantation (Over Lapping) Working Circle, where ever plantable area has been found. Further plantation of teak and miscellaneous species have been taken up under different schemes like b-economic, 13th F C grant, MGNREGS, CAMPA, FDA, GMM, UTP etc.

6.4.1. RAISING OF GENETICALLY IMPROVED SEEDLINGS THROUGH TISSUE CULTURE/ CLONALLY PROPAGATION:

The deforestation and depletion of genetic stocks due to variety of anthropogenic pressure warrants production of genetically improved seedlings for use in quality Afforestation /Plantation programme. The concentrated efforts therefore are made to evolve various scientifically proved techniques like tissue culture/clonal propagation for mass propagation and production of trees with highly genetic viability, high yielding variety, resistance to paste and diseases with increase photo synthetic efficiency. This required genetic manipulation to evolve vigorous and genetic viable trees which can be massively propagated for its establishment in forestry sector to meet evolving challenges.

The tissue culture techniques have already revolutionized the mass scale propagation of many horticultural crops for mass production of elite cloned plant materials. However its exploitation for forestry crops has started recently which have technological potential not only from the basic fundamental research but also for directly application for the immediate improvement if trees and increase biomass production.

The conventional methods for asexual production (vegetative propagation) like grafting, budding, layering etc for many plants and trees are often too slow or failed completely. Micro vegetative propagation using tissue culture allows much better control and manipulation of the impletion of tissues within the culture tube then conventional method. In normal cuttings, in each cutting resulting only one plant whereas by micro propagation thousands of plants can be produced from a single piece of plant explants under controlled laboratory conditions. Methods

of tissue culture are now available for rapid multiplication elite trees like Teak, Eucalyptus, Bamboo, Sisoo, Siris, Tamarind, Gambhari, Cashew, Sandal, Banana, Orchid etc.

The Regional Plant Resource Centre (RPRC), Bhubaneswar is undertaking trial in this angle for production of quality planting materials on Ashoka, Banana and Orchids and other RET species through improved vegetative technique. The Silviculture Division, Bhubaneswar has established Clonal Seed Orchads of Tectona grandis (Teak) in Chulijhinka Reasearch Station and Tartua Hitech Nursery within the territorial limit of the Khordha Forest Division. Collecting improved teaks from outside states like Maharastra, Tamilnadu, Andhara Pradesh etc and other species like Arjuna, Gambhar, Sunari, Chatian, Rakta Chandan, Neem, Karanja, Mahula, Bahada, Harida etc of local collection from Berbera and other forests of Odisha state. The list of species trialed in above Research Stations is presented in **Appendix –XX.**

6.5. CARBON STOCK.

Trees species absorb Carbon dioxide (CO_2) from the atmosphere through chlorophyll of leaves for preparation of food for their growth. The more the growth of tree species, the more is the absorption of Carbon dioxide (CO_2) from the atmosphere and also the more is the storages Carbon inside the trunks of the trees. The Carbon content of a tree is approximately the half of dry weight of the tree. In the National Working Plan Code-2014, it has been provided to calculate the Carbon stock of forest by laying grid based sample plot of 0.1ha. area where trees species are enumerated above 30cm. girth at breast height (GBH) in the main sample plot and shrubs, regenerations, herbs, and grasses are enumerated on the square plots of 1m x 1m,3m x 3m are laid at 30mtr distance from the centre of the main plot of 0.1ha. on North-East, South-East, South-West and North-West direction at 45 degree, 135 degree, 225 degree and 315 degree respectively. It has been provided to lay square plots of 5m x 5m on North-East and South-West direction over the square plots of 1m x 1m and 3m x 3m for estimation of dry wood biomass from dead woods, branches, twigs, humus etc.

From the enumeration data of trees above 30cm girth, the volume of individual species is calculated from the volume table for the species. The bole mass of the species can be calculated by multiplying the specific gravity of that species with the volume of the species. Similarly the biomass of species below 30cm girth can be calculated from the square plots of 1m x 1m and 3m x 3m in all four directions laid at 30 mtr distance from the centre of the main sample plot. The total bole mass of all species above 30 cm girth are calculated. The Above Ground Biomass (AGB) of the species of 30 cm girth and above are found out by multiplying the total bole mass of the species with the Bio mass Expansion factor (BEF) of that species. From the data of AGB, the Below Ground Biomass (BGB) i.e bio mass of roots of the species can be calculated by multiplying a default value with the Above Ground Biomass (AGB). The Dead Wood Biomass can be calculated by weighing the dry fallen wood, branches, twigs and humus. The total Bio mass of 0.1Ha.area is calculated by summing up the Above Ground Biomass (AGB), Below Ground Biomass (BGB) and Dead Wood Biomass (DWB).

The carbon stock of total Biomass is calculated by multiplying a constant factor with the value of total Biomass. The soil Carbon stock can be calculated by analyzing the Carbon content of 200 gms of soil collected from pits of 30cm x 30cm x 30cm on South-East and North-West corners of main plot. The Soil Carbon stock is added to the Carbon stock derived from the total Bio mass (AGB+BGB+DWB).

In this manner the Carbon stock of 0.1Ha. area is calculated and Carbon stock per ha is estimated. The Carbon stock of a Forest Block can be calculated by taking the average Carbon stock of the sample plots of that Forest Block and then multiplying the average Carbon stock of 1Ha. area with the area of that Forest Block.

The Carbon stock of a Forest Range can be estimated by adding the carbon stock of all the forest blocks under the jurisdiction of the Range as because the forest blocks may be coming under different forest types. Similarly the Carbon stock of a Forest Division can be estimated by adding Carbon stocks of all the Forest Ranges blocks under the jurisdiction of the Division. The estimation of carbon stock of a Forest Division should be as accurate as possible and it should be transparent. As

per guidelines of Intergovernmental Panel on Climate Change (IPCC) there should be mechanism for measurement, reporting and verification of Carbon stock at national and sub-national level. For this propose permanent sample plots (PSP) are to be laid in the Division in different strata of forest.

Efforts are to be made to estimate the Carbon stock of Forest Division, Forest Ranges, Forest Sections, and Forest Beats. The in charge of Division, Range, Section, and Beat are to be well acquainted with the carbon stock under their jurisdictions. Decrease of carbon stock will indicate the degradation of forest and the reasons of drivers of forest degradations are to be found out.

The estimation of Carbon stock of different compartment, forest blocks, and whole of Khordha Forest Division has been dealt in **Chapter 12 of Part-I.**

6.6. CARBON SEQUESTRATION AND MITIGATION:

Forests are linked to climate change in three ways:-

(i) They are source of green house gas (GHG) emissions.
(ii) They offer mitigation opportunity to stabilize GHG concentrations.
(iii) They are impacted by climate change.

Impacts of climate change on forest eco system are getting manifested as species range shifts, changing bio diversity, physiological changes in plant live cycles, forest growth pattern of species changing boundaries of eco systems and other biotic and abiotic responses / stresses. There are evidences of increase in frequency and severity of forest fire changing water regains and expanding forest insects infestation. Long observational studies are necessary it identify the key changes for which grid based sample point enumeration has been designed.

The IPCC 3rd assessment report (AR-3) issued in the year 2001 noted that emission from deforestation and forest degradation in developing countries has a large impact on global carbon cycle. The IPCC 4th assessment report (AR-4) issued in the year 2007 reported that 80% of carbon dioxide was being emitted by combustion of fossil fuel and 20% of carbon dioxide was being emitted due to deforestation and forest degradation.

Growing trees absorbs carbon dioxide (CO_2) from the atmosphere and store the carbon on their trunks with so efficiently that half of the dry weight of a tree is carbon ©. This carbon remains lot of in the form of wood and wood products. The more the growth of the tree, the more is the store of the carbon in its trunk. This absorption of carbon dioxide from the atmosphere and storage of carbon on the trunk of the tree is carbon sequestration.

At the time of Forest Resource / Carbon Inventory, sample plots of 0.1 Ha. have been laid in different strata of forest. During inventory of trees of 30 cm and above in GBH have been enumerated, shrubs, herbs, climbers, grasses, bamboos, and dead wood mass have been measured. Out of the total 422 nos of sample plots provided by ORSAC 410 nos of sample plots of 0.1 Ha. have been laid the forests of Khordha Forest Division. From those sample plots laid in the forest 40 nos of sample plots (PSP) have been identified in the different strata of forest. The carbon stock of the permanent sample plots have been estimated by the methods of multiplying the biomass expansion factor (BEF) to the biomass. The AGB, BGB, and DWB have been estimated and the carbon stock has been assessed by multiplying the constant factor of 0.47 to the total biomass.

The permanent sample plots (PSP) will be visited after 1 year or 2 year or 4 year and the carbon stock of the permanent sample plots will be estimated as per the methodology described in the previous paras. If the carbon stock of the sample plots will increase then it can be ascertained that carbon have been sequestrated. The amount of carbon sequestration can be found out from the following equation.

$$\Delta C = \frac{Ct_2 - Ct_1}{t_2 - t_1}$$

Where ΔC = Amount of carbon sequestration, Ct_1 = Carbon stock of the current year, Ct_2 = Carbon stock after the time period‘t’.

When the value of Δ C is positive carbon have been sequestrated and forest growths have improved but when ΔC is negative the forest growths have degraded.

Carbon sequestration can be enhanced in the forest by adopting suitable Silvicultural practices, like regeneration cleaning, climber cutting,

eradicating weeds, and by improving the soil health and fertility and by taking up Soil and moisture conservation in the degraded forest. Carbon sequestration can be enhanced by checking the biotic interference on the forest making awareness among the members of the VSS and safeguarding the forest from illicit felling.

6.7. REDD+:

REDD+ (Reducing Emission from Deforestation and Forest Degradation) is a frame work / mechanism developed by the UNFCCC Conference of the Parties (CoP) to guide activities in the forest sector that reduces emission from the deforestation. The + activities includes sustainable management of forests, forests protection and conservation and enhancement of carbon stocks both in forest and outside forests. REDD+ had emerged the most prominent global mechanism to integrate the role of forests in climate change. It is a climate change mitigation measure aiming at reducing anthropogenic pressure on forests that result in green house emissions.

Although extensive researches for estimation of carbon stock in Khordha Forest Division has not been earlier carried out, the assessment of carbon stock and its implication for sustainable management of forests has been done in neighbouring division i.e Chandaka Wild Life Sanctuary by the Environmental and Sustainability Department, CSIR- Institute of Minerals & Materials Technology, Bhubaneswar. The study indicates some more carbon accumulating species in following order Bamboo, Teak, Kaganda, Sal, Mahula, Kochila, Jamu, Sidha, Kendu, Kumbhi, Keruan and total annual above ground carbon gain in context of forests of Odisha which is presented below,

Forest Type	Carbon Stock (Mt)
Tropical Semi Evergreen	0.042
Tropical Moist Deciduous	2.23
Tropical Dry Deciduous	1.8
Littoral and Swamp	0.042
Plantations	0.045
Mangrove	0.98

The carbon stock, carbon sequestration, and mitigation have been described in Chapter -6. The following REDD^{+} activities contribute significantly to mitigation action in the forest sector and globally recognized are

- Reducing emission from deforestation.
- Reducing emission from forest degradation.
- Conservation of forest carbon stocks.
- Enhancement of forest carbon stocks.
- Sustainable management of forests.

➢ **Reducing emission from deforestation:**

Some of the activities suggested in this plan for checking deforestation are Intensification of patrolling system by constant vigilance, foot patrolling, collection of information from public through incentivisation and awards, awareness programme, holistic fire mitigation strategies, emphasis on JFM, conservative approach of harvesting etc.

➢ **Reducing emission from forest degradation:**

Some of the commonly adopted approaches to check forest degradation are watershed management (SMC), Afforestation measures in open and degraded forest lands, Silvicultural operations, alternative livelihood supports to the people of forest fringe villages, labour employment in different forestry activities, weeds eradication, grazing control etc.

➢ **Conservation of forest carbon stocks:**

The activities which reduce pressure on forests are rehabilitation of Saw mill in industrial cluster and authorized timber & firewood depots to meet timber and firewood requirements of local people, popularization JFM, discouraging dependency on forests etc.

- **Enhancement of forest carbon stocks:**

Afforestation measures in forests and outside forest land (ToF), popularization of farm and agro forestry, effective management of fire, holistic approach of soil and moisture conservation measures to encourage the fertility of lands and regeneration of forest growth, etc.

- **Sustainable management of forests:**

The scientific management of forests through well defined working plan prescriptions will play a vital role in sustainable production and mitigation of climate change.

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CHAPTER- 7

OPTIMIZATION OF FOREST RESOURCE UTILIZATION

7. OPTIMIZATION OF FOREST RESOURCE UTILIZATION:

7.1. RECORDED REMOVAL OF TIMBER:

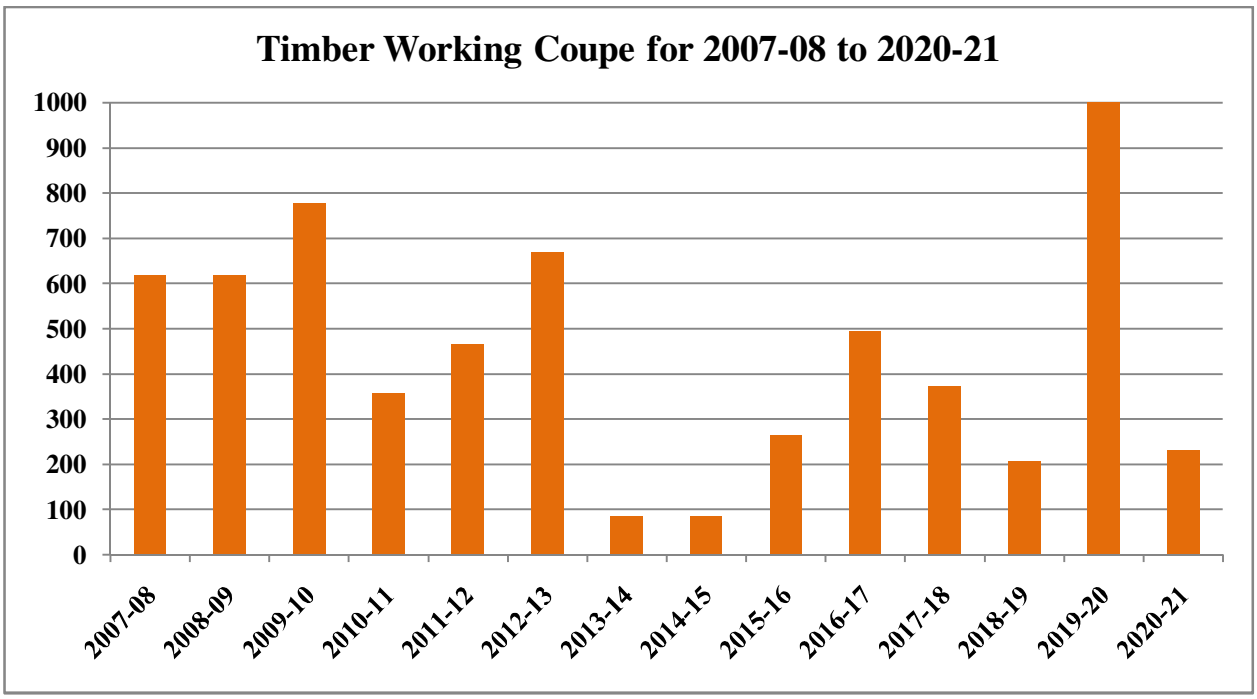
The timber and fire wood have been harvested from the timber coupes of Selection–cum-Improvement Working Circle during the outgoing plan period by the Odisha Forest Development Corporation, Ltd. The details of Timber working from 2007-08 to 2020-21 are given in **Table No.7.1** Further the salvaged and seized materials have also been delivered to OFDC Ltd. The Car Timbers have been produced from the coupes of Car Timber (Over Lapping) Working Circle and have been supplied to the Temple Authority of Lord Shree Jagannath, Puri. The removal of timber and fire wood salvaged and seized in different Ranges and delivered to the Odisha Forest Development Corporation, Ltd. The details of delivery of salvage and seized timbers to the OFDC Ltd. and the production and delivery of Car timber for the chariot of Lord Shree Jagannath during the plan period are given in **Table No.7.2 and Table No.7.3** respectively. The main objective of the management of the forest is that the mean annual increment is harvested. In no case the harvest should not exceed the quantity of mean annual increment and there should not be any decrease in the growing stock. While prescribing removal from the timber coupe the timber removed by illicit felling should be taken into account and safeguard must be provided for future yield. Yield is prescribed for the timber coupe in accordance with Smithi's Safeguard formulas.

Table No.7.1

TIMBER WORKING FROM 2007-08 to 2020-21 AS PER APPROVED PLAN/ WORKING SCHEME

Year	Name of Range	No of Coupe as per working plan	Felling series worked by OFDC ltd.	Coupe No.	No. of trees marked & felled	Unit	Timber in Cum.	Fire wood	Pole	Value
1	2	3	4	5	6	7	8	9	10	11
2007-08	Balugaon	9 (4088.18 Ha.)	Tamana FS	I (P)	144	344	132.007	102	11	357760
	Balugaon		Tamana FS	I(P)	13	78				81120
	Balugaon			**Total**	**157**	**422**	**132.007**	**102**	**11**	**438880**
	Balugaon		Berberra FS	I (P)	15	18.5	23.483	12.5	-	19240
	Balugaon		Berberra FS	I (P)	33	162	58.821	26.5	15	168480
	Balugaon		Ralin FS	I	362	1445.3	404.527	119	25	1503060
	Sub.Total	**9(4088.18)**			**567**	**2047.8**	**618.838**	**260**	**51**	**2129660**
2008-09	Balugaon	9 (3180.40 Ha.)	Berberra FS	II	370	1486.5	471.946	209	-	1545960
	Balugaon		Tamana FS	II	24	21	14.387	2	-	21840
	Ranpur		Sirikuti FS	II	134	178.47	88.446	42	18	185609
	Tangi		Patia FS	II	29	3.19	-	0.5	30	3318
	Total	**9 (3180.40)**			**567**	**2047.8**	**618.838**	**253.5**	**48**	**1756727**
2009-10	Balugaon	9 (4073.42 Ha.)	Berberra FS	III	40	214	51.251	12	1	231120
	Balugaon		Rajin FS	III	551	2075.2	652.848	349	20	2241249
	Ranpur		Sirikuti FS	III	72	70	31.806	7	-	75600
	Ranpur		Mal FS	III	35	45.5	14.616	21	-	49140
	Ranpur		Sankhajodi FS	III	46	46.99	26.282	21	-	50749
	Total	**9 (4073.42)**			**744**	**2451.7**	**776.803**	**410**	**21**	**1756727**
2010-11	Balugaon	9 (2341.16 Ha.)	Berberra FS	IV	149	359				387720
	Balugaon		Rajin FS	IV	268	575.25	180.048	240	10	621270
	Balugaon		Tamana FS	IV	55	115.5	45.513	62	8	124740
	Ranpur		Sirikuti FS	IV	155	164.75	78.561	70	-	177930
	Ranpur		Sankhajodi FS	IV	98	118.25	53.276	62	-	127710
	Total	**9(2341.16)**			**725**	**1332.8**	**357.398**	**434**	**18**	**1439370**
2011-12	Balugaon	9 (2475.95 Ha.)	Mahulia FS	V	230	668.25	283.93	142	-	801900
	Balugaon		Rajin FS	V	120	218	70.468	102	-	261600
	Balugaon		Berberra FS	V	108	301.5	99.228	198	15	361800
	Ranpur		Sirikuti FS	V	19	16.24	8.011	35	-	19488
	Ranpur		Sankhajodi FS	V	16	17	3.807	10	-	20400
	Total	**9 (2475.95)**			**493**	**1221**	**465.444**	**487**	**15**	**1465188**
2012-13	Balugaon	9 (2848.13 Ha.)	Rajin FS	VI	171	334.5	128.558	66	-	433512
	Balugaon		Berberra FS	VI	345	1058.8	518.138	216	-	1372140
	Ranpur		Sirikuti FS	VI	31	34	7.017	24	-	44064
	Ranpur		Sankhajodi FS	VI	28	34.25	14.842	24	-	44388
	Total	**9 (2848.13)**			**575**	**1461.5**	**668.555**	**330**	**-**	**1894104**
2013-14	Balugaon	9 (3347.71 Ha.)	Mahulia FS	VII	5	13.5	7	6	-	18725
	Balugaon		Berberra FS	VII	79	133	62.771	30	-	184471
	Balugaon		Tamana FS	VII	23	48	14.569	30	-	66576
	Ranpur		Sankhajodi FS	VII	8	10.25	0.846	16	-	14217
	Total	**9 (3347.71)**			**115**	**204.75**	**85.19**	**82**	**-**	**283989**
2014-15	Balugaon	**9 (4003.84 Ha.)**	Berberra FS	VIII	**127**	**127.5**	**86.255**	**60**	**-**	**185640**
2015-16	Balugaon	**9(3433.42 Ha.)**	Dhuanali FS	IX	40	219	38.426	6	-	331566
			Tamana FS	IX	242	715	225.534	240	-	1082510
	Total	**9(3433.42 Ha.)**			**282**	**934**	**263.96**	**246**	**-**	**1414076**
2016-17	Blaugaon	**9(3634.59)**	Dhuanali FS	X	115	797	195.659	30	-	1279185
			Tamana FS	X	445	1476.3	298.356	100	-	2369381
	Total	**9(3634.59)**			**560**	**2273.3**	**494.015**	**130**	**10**	**3648566**

1	2	3	4	5	6	7	8	9	10	11
2017-18	Blaugaon	**9(4088.18)**	Berbera FS	I	10	71	30.429	30	-	121907
			Berbera FS	I	59	124	37.065		-	212908
			Rajin FS	I	208	499	134.834	24	-	856783
			Tamana FS	I	125	413.5	144.929	36	-	709980
	Tangi		Patia FS	I	86	113.36	18.007	1.5	-	194021
			Patia FS	I	42	65.25	5.956	1	-	112034
	Total	**9(4088.18)**			**530**	**1286.1**	**371.22**	**92.5**	**-**	**2207633**
2018-19	Balugaon	**9(3180.40)**	Berbera FS	II	110	207.5	56.732	6		374123
			Rajin FS	II	250	520.5	150.119	66		938462
	Total	**9(3180.40)**			**360**	**728**	**206.851**	**27**		**1312585**
2019-20	Balugaon	**9(4073.42)**	Berbera FS	III	125	789	178.027	12		1521981
			Rajin FS	III	326	577.75	184.916	66		1114480
	Total	**9(4073.42)**			**451**	**1366.8**	**362943**	**78**		**2636461**
2020-21	Balugaon	**9(2339.16)**	Berbera FS	IV	240	1235	61.099	4		2477410
			Rajin FS	IV	331	358.75	122.559	54	5	719653
			Tamana FS	IV	17	19.25	10.551	2		38616
			Dhuanali FS	IV	13	35.62	8.894	2		71454
			Mahulia FS	IV	46	149	29.212	4		298894
	Total	**9(2339.16)**			**647**	**1797.6**	**232.315**	**66**	**5**	**3606027**



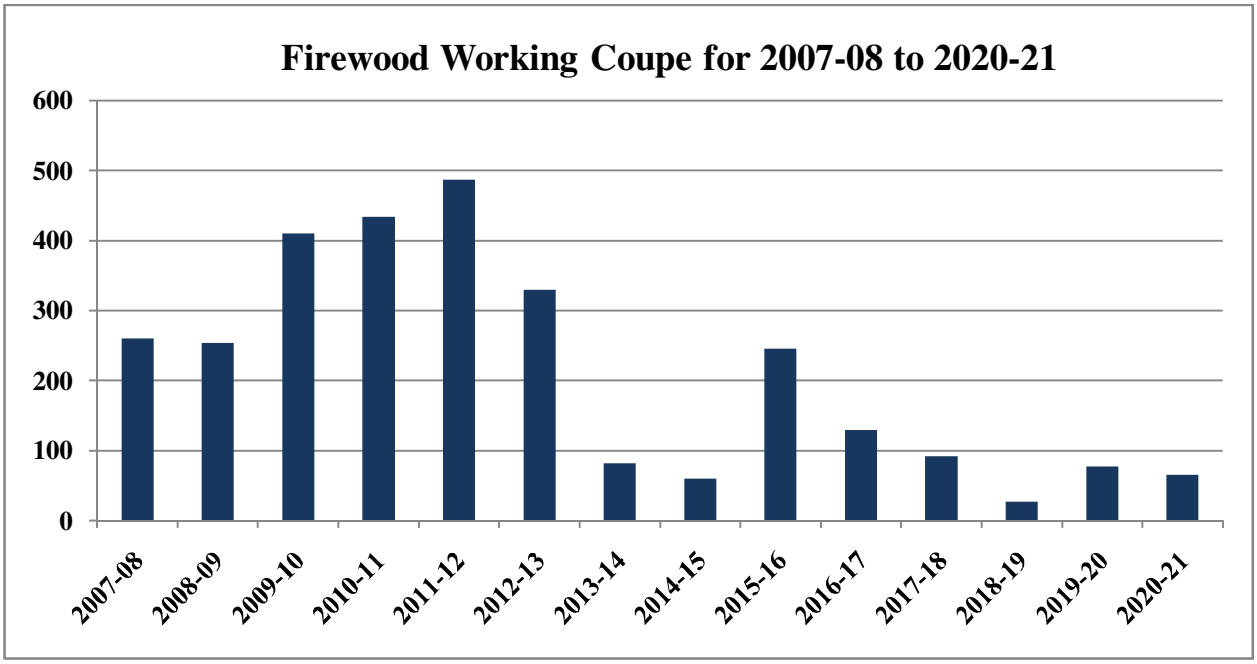


Table No 7.2

SUPPLY OF CAR TIMBER TO SHREE JAGANNATH TEMPLE PURI						
Sl. No.	**Year**	**T.T. Permit No.**	**Species**	**No. of Logs**	**No. of bullies**	**Volume in cft.**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2007	21/579/1458	Kansa,Mai, Simul & Mahalimba	23	20	156.42
		13/579/1458	-do-	10		189.51
		14/579/1458	-do-	14		208.72
		15/579/1458	-do-	8		156.83
		16/579/1458	-do-	6		157.8
		17/579/1458	-do-	8		186.84
			Total	**69**	**20**	**1056.12**
2	2008	22/574/1453	Mai, Simul, Simili & Mahaneem	20	20	182.47
		23/574/1453	-do-	10		170.14
		24/574/1453	-do-	17		258.19
		25/574/1453	-do-	11		152.17
		26/574/1453	-do-	10		159.45
			Total	**68**	**20**	**922.42**
3	2009	29/574/1453	Mai & Simili	20	20	177.92
		30/574/1453	-do-	19		212.75
		31/574/1453	-do-	18		190.14
		32/574/1453	-do-	13		132.49
			Total	**70**	**20**	**713.3**
4	2010	1/1475	Mai,Sal, Rai,Simili,Mahaneem	20	20	160.43
		7/1475	-do-	9		158.26
		10/1475	-do-	8		124.98
		13/1475	-do-	11		195.08
		14/1475	-do-	10		160.33
		18/1475	-do-	6		206.92
		19/1475	-do-	10		220.72
		21/1475	-do-	6		107.87
			Total	**80**	**20**	**1334.59**

1	2	3	4	5	6	7
5	2011	022153/1479	Mai, Rai,Simili & Kumbhi	20	20	140.62
		022152/1479	-do-	4		181.59
		022154/1479	-do-	16		248.51
		022155/1479	-do-	5		303.92
			Total	**45**	**20**	**874.64**
6	2012	022524/1486/894	Mai & Simili	20	20	155.6
		022525/1486/894	-do-	5		173.04
		022526/1486/894	-do-	9		181.84
		022527/1486/894	-do-	10		239.97
			Total	**44**	**20**	**750.45**
7	2013	022161/ 19.06.13	Mai	20	20	147.67
		022162/ 19.06.13	Mahala	9		215.45
		176002/1498	Mahala	3		198.85
		176003/1498	Mahala	4		191.08
			Total	**36**	**20**	**753.05**
8	2014	175131/ 916/1508 dtd.02.06.14	Simili & Mahaneem	8		191.36
		175132/ 916/1508 dtd.04.06.14	Simili	6		136.97
		175136/ 916/1508 dtd.06.06.14	Simili & Mai	10		193.06
		175135/ 916/1508 dtd.06.06.14	Simili & Mai	8		196.03
		176476 dtd.04.06.14	Mai	10		95.55
			Kaluchua ballies		10	
		176477 dtd.04.06.14	Mai	10		75.37
			Kaluchua ballies		10	
			Total	**52**	**20**	**888.34**
9	2015	T.T. Permit No.	Mai	26		451.85
			Rai	16		225.49
			Simili	11		233.32
			Kumbhi	4		57.86
			Neem	18		249.422
			Teak	1		5.891
			Khaira	1		0.574
			Gambhar	1		1.797
			Kalchua ballies		10	
			Total	**78**		**1226.204**
10	2016	287640/1558/966 dt.16.06.16	Mai	20	20	160.33
		287909/972/1564 dt.14.06.16	Simili,Rai,Mai & Kumbhi	20		250.03
		287910/972/1564 dt.20.06.16	Rai,Mai & Kumbhi	20		259.92
		287911/972/1564 dt.20.06.16	Simili,Kumbhi,Rai	13		206.91
		287913/972/1564 dt.23.06.16	Simili,Kumbhi,Rai	6		78.4
			Total	**79**		**955.589**
11	2017	0220080/263/1577 dt.26.05.17	Rai,Mai & Kumbhi	16		197.99
		022084/263/1577 dt.28.05.17	Mai,Rai, Simili	16		224.09
		0220085/263/1577 dt.29.05.17	Rai,Mai & Kumbhi	16		199.75
		94/4420/1576 dt.26.05.17	Mai	14		117.12
		98/4420/1576 dt.31.05.17	Mai	6		56.483
			Kalchua ballies		20	
			Non sal ballah		10	
			Total	**68**	**30**	**795.433**
12	2018	Passing done on 29.05.18	Rai	20		8.021
		Passing done on 29.05.18	Rai	62		28.786
		Passing done on 05.06.18	Mai	20		5.509

1	2	3	4	5	6	7
	2018	Passing done on 14.06.18	Mai	20		5.656
			Kalchua Ballah		20	
			Total	**122**	**20**	**47.972**
13	2019	Ranpur/0221916/1624/545 dt.08.06.19	Rai & Mai	17		6.423
		Ranpur/0221917/1624/545 dt.09.06.19	Rai & Kumbhi	16		6.454
		Ranpur/0221918/1624/545 dt.09.06.19	Mai & Kalchaua ballah	20	20	3.926
		Ranpur/0221921/1624/545 dt.14.06.19	Rai, Mai & kumbhi	20		6.09
		Ranpur/0221922/1624/545 dt.14.06.19	Rai & Kumbhi	21		7.218
		Tangi/59/4414dt.06.06.19	Mai	6		1.293
		Tangi/59/4414dt.19.06.19	Mai & SImili	10		2.433
		Tangi/59/4414dt.19.06.19	Simili & Rai	20		5.874
		Balugaon	Mai ,Rai & Simili	26		10.072
		Balugaon	Simili & Rai	25		9.437
			Total	**181**	**20**	**59.22**
14	2020	Ranpur/0199078 dt.23.05.20	Rai	20		7.793
			Total	**20**		**7.793**

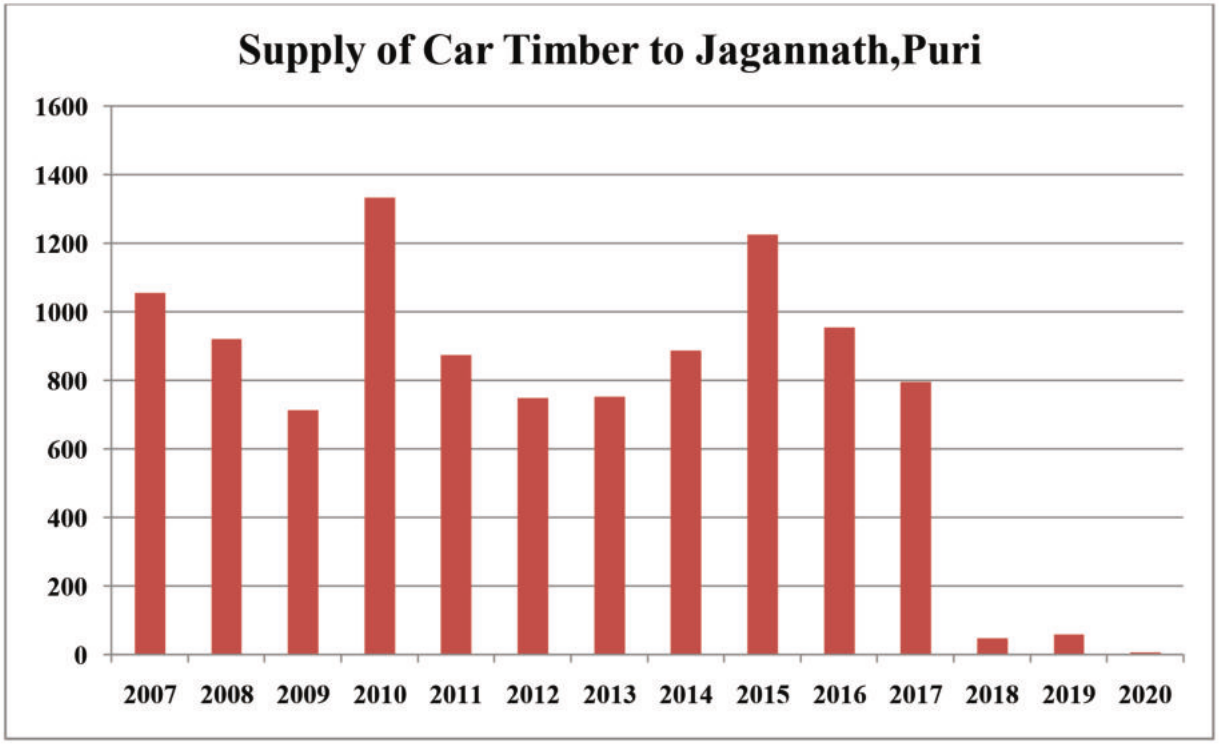


Table No.7.3 REMOVAL OF TIMBER, POLES, AND FIRE WOOD

Year	Range	Timber salvaged			Timber seized			Amount
		Timber (in cum)	Poles (in no)	F.W (in stacks)	Timber (in cum)	Poles (in no)	F.W (in stacks)	
1	2	3	4	5	6	7	8	9
2007-08	Ranpur	-	-	-	14.387	145	-	131653
	Balugaon	-	-	6	89.674	60	-	1392784
	Tangi	-	-	-	2.621	155	2.59	23592
	Khordha	-	-	-	27.73	26	-	189831
	Total	**-**	**-**	**6**	**134.412**	**386**	**2.59**	**1737860**
2008-09	Ranpur	-	-	-	16.577	60	-	92840
	Balugaon	9.054	-	-	147.219	141	0.1	852184
	Tangi	-	-	-	7.432	56	-	43914
	Khordha	-	-	-	9.812	131	5.31	41293
	Total	**9.054**	**-**	**-**	**181.04**	**388**	**5.41**	**1030231**
2009-10	Ranpur	-	-	-	-	-	-	-
	Balugaon	19.947	-	29	84.662	9	-	569551
	Tangi	2.625	-	-	11.951	10	0.3	78628
	Khordha	-	-	-	-	-	-	-
	Total	**22.572**	**-**	**29**	**96.613**	**19**	**0.3**	**648179**
2010-11	Ranpur	-	-	-	31.163	57	0.141	194451
	Balugaon	18.298	-	58.5	222.412	17	40.11	1401589
	Tangi	-	-	3	19.058	99	0.65	125113
	Khordha	-	-	-	37.996	11	17.252	250510
	Total	**18.298**	**-**	**61.5**	**310.629**	**184**	**58.153**	**1971663**
2011-12	Ranpur	-	-	96	10.624	-	-	98662
	Balugaon	2	-	58.5	125.342	4	-	773908
	Tangi	-	-	-	5.441	2	0.05	35319
	Khordha	-	-	-	11.221	6	10.25	80.769
	Balipatna	-	-	-	0.2	-	-	73
	Total	**2**	**-**	**154.5**	**152.828**	**12**	**10.3**	**988731**
2012-13	Ranpur	-	14	169.5	38.254	158	-	357004
	Balugaon	16.085	180	127	105.887	12	-	888713
	Tangi	-	-	-	2.136	10	-	15621
	Khordha	-	-	-	6.521	15	1.34	15621
	Total	**16.085**	**194**	**296.5**	**152.798**	**995**	**1.34**	**1310345**
2013-14	Ranpur	40.463	26	59.5	22.201	6	0.05	535440
	Balugaon	996.16	-	127	98.208	-	1	8211097
	Tangi	18.681	3000	332.5	3.217	54	0.16	376339
	Khordha	-	-	-	9.782	-	8.87 Casurina-14.65 qntl	92061
	Total	**1055.3**	**3026**	**519**	**133.408**	**60**	**10.08**	**9214937**
2014-15	Ranpur	20.744	13	18	-	-	-	162760
	Balugaon	782.67	0	68	54.192	0	0.075	6460132
	Tangi	25.687	72	74	1.344	2	0	242836
	Khordha	179.556	-	5.5	-	-	-	
	Total	**1008.66**	**85**	**215.2**	**55.536**	**2**	**0.075**	**8009625**
2015-16	Ranpur	-	-	102	22.756	-	-	27064
	Balugaon	202.101	-	67.5	140.297	1	6.07	2847513
	Tangi	98.171	-	12	-	-	-	844651
	Khordha	-	-	-	14.978	-	1.8	41126
	Total	**300.272**	**-**	**181.5**	**177.971**	**1**	**7.87**	**3760352**
2016-17	Khordha	5.399	32	0	8.435	0	2693	45184
	Tangi	43.954	0	0	13.854	174	3962	362399
	Balugaon	215.463	36	0	66.344	13	1554	1471089
	Ranpur	24.059	39	143	7.536	67	695	253976

1	2	3	4	5	6	7	8	9
2016-17	Balipatna	0	0	0	0.3528	0	4800	0
	Delang	0	0	0	3.994	0	130	0
	Total	**288.875**	**107**	**143**	**100.516**	**254**	**13834**	**2132648**
2017-18	Khordha	0	0	0	2.692	1	205	0
	Tangi	25.32	0	0	8.746	38	6130	218182
	Balugaon	90.27	0	0	69.414	11	760	821054
	Ranpur	16.423	7	373	9.023	31	755	281250
	Balipatna	0	0	0	0.8812	0	710	0
	Delang	0	0	0	2.915	0	245	0
	Total	**132.013**	**7**	**373**	**93.6712**	**81**	**8805**	**1320486**
2018-19	Khordha	0	0	0	9.15	16	575	0
	Tangi	0	0	0	8.923	121	1010	0
	Balugaon	0	0	0	90.226	0	2694	0
	Ranpur	6.864	77	0	34.122	15	470	93934
	Balipatna	0	0	0	2.5358	0	685	0
	Delang	0	0	0	0	0	340	0
	Total	**6.864**	**77**	**0**	**144.957**	**152**	**5774**	**93934**
2019-20	Khordha	0	0	0	6.679	0	250	0
	Tangi	0	0	0	6.554	10	3641	0
	Balugaon	0	0	0	46.417	0	345	0
	Ranpur	0	0	0	10.106	0	30	0
	Balipatna	0	0	0	2.4584	0	0	0
	Delang	0	0	0	2.115	0	20	0
	Total	**0**	**0**	**0**	**74.3294**	**10**	**4286**	**0**
2020-21	Khordha	302.621	331	0	4.322	300	485	2848822
	Tangi	31.286	0	0	4.587	117	520	321278
	Balugaon	213.011	0	0	65.732	39	200	2154052
	Ranpur	6.574	0	0	5.584	0	0	68022
	Balipatna	1.08	0	20	7.0876	6	0	11254
	Delang	0	0	0	0.67	0	0	0
	Total	**554.572**	**331**	**20**	**87.9826**	**462**	**1205**	**5403428**

7.2. RECORDED REMOVAL OF FUEL WOOD:

The recorded removal of fire wood from 2007-08 to 2020-21 has been shown in **Table No.7.2and 7.3** Besides the recorded removal of firewood the local people of fringe villages have also removed fire wood for their domestic consumption and for commercial sale also to earn their livelihood. This un-recorded removal of firewood have been assessed through socio economic survey conducted in the fringe villages.

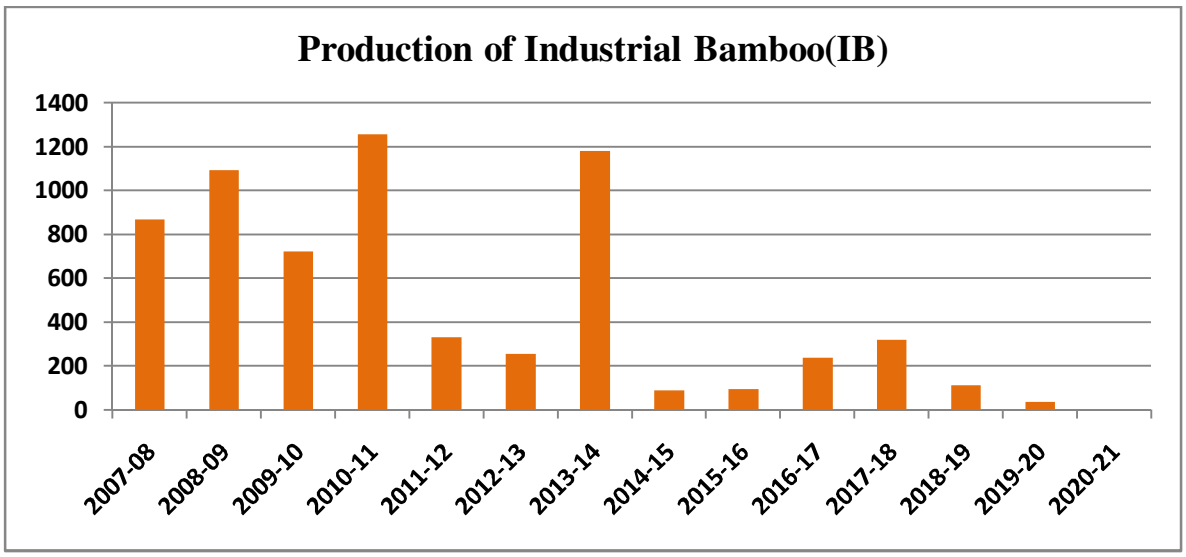
7.3. RECORDED REMOVAL OF BAMBOO:

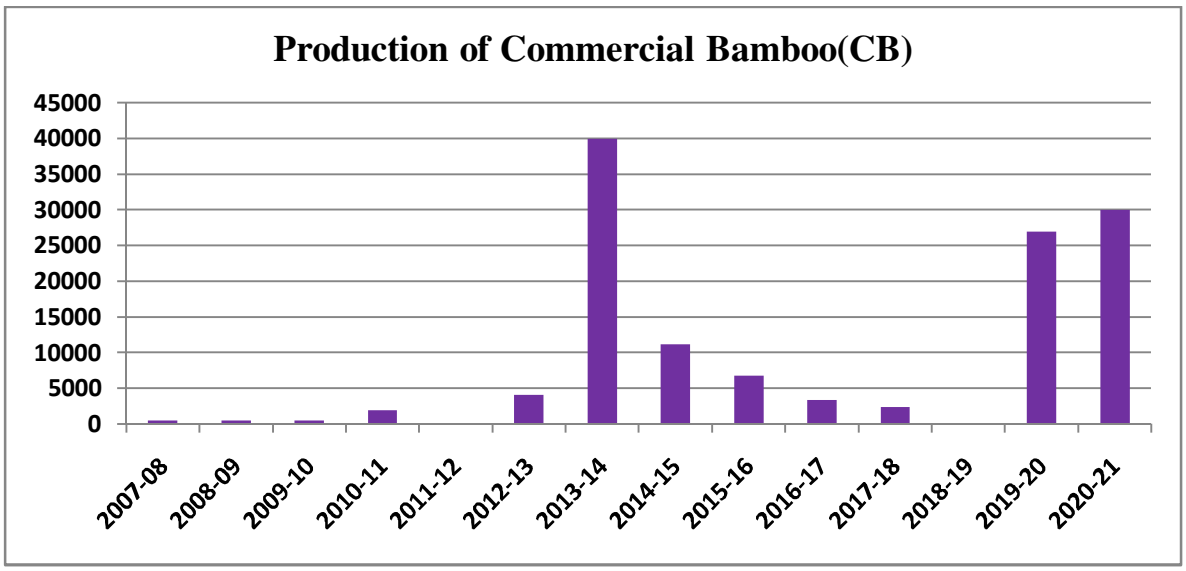
Bamboos have been harvested from the bamboo coupes of Bamboo (Over Lapping) Working Circle by the Orissa Forest Development Corporation, Ltd during the outgoing plan period. Further bamboos have also been illicitly removed by the smugglers for use in fishing the prawn in Chilika Lake. Besides this the rural masses have also collected bamboo from the forest for their domestic construction. The details of removal of bamboo by the OFDC, Ltd during the plan period is furnished **Table No.7.4**

Table No.7.4

BAMBOO WORKING OF KHORDHA DIVISION FOR THE YEAR FROM 2007-08 to 2020-21

Year	Name of the RMP	Name of the OFDC Divn.	Name of the Forest Divn.	Quantity production of IB in SU/CB in nos.	Quantity transported from forest floor sto depdot in SU	Final weighment in MT	Royalty (in Rs.)@ 500/-(upto 2009-10 & @Rs.750/-	Royalty paid	Balance
1	2	3	4	5	6	7	8	9	10
2007-08	do	do	do	IB- 867.294SU	IB- 867.294SU	IB-634.27	317135	317135	
				CB-500 nos.	CB-500 nos.	CB-500	500	500	
2008-09	do	do	do	IB-1093.559SU	IB-1093.559SU	IB-805.72	402860	402860	
				CB-500 nos.	CB-500 nos.	CB-500	500	500	
2009-10	do	do	do	IB-724.082SU	IB-724.082	IB-294.550	362041	362041	
				CB-500 nos.	CB-500 nos.	CB- 565 nos.	500	500	
2010-11	do	do	do	IB-1257.227SU	IB-1257.227SU	IB-945.25	942920	942920	
				CB-2000 nos	CB-2000 nos	CB-2000	2000	2000	
2011-12	do	do	do	IB-332.06SU	IB-332.06SU	250.962	249045	249045	
2012-13	do	do	do	IB-258.04SU	IB-258.04SU	Nil	193530	193530	
				CDB-4100 nos	CDB-4100 nos	Nil	10250	10250	
2013-14	OFDC Ltd,BBSR	do	do	IB-1181.11	IB-1181.12	Nil	590560	590560	
				CSB-5000 nos	CSB-5000 nos	Nil	5000	0	5000
	do	do	do	CDB-39950 nos	CDB-39950 nos	Nil	99875	0	99875
2014-15	do	do	do	IB-90.97SU	IB-90.97SU	Nil	45485	0	45485
	do	do	do	CSB-6000 nos	CSB-6000 nos	Nil	6000	0	6000
	do	do	do	CDB-5165 nos	CDB-5165 nos	Nil	12913	0	12913
2015-16	M/s Rohini cemical & Packaging, Cuttack	do	do	IB - 95.99SU	IB - 33.53SU	In progress	--	--	--
		do	do	CDB - 6834 nos.	CDB - 6310 nos.	In progress	--	--	--
2016-17	-do-	do	do	IB-238.369 CB – 3410	IB-238.369 CB-3410	--	--	--	--
2017-18	-do-	Do	-do-	IB – 319.588 CB-2400	IB – 319.588 CB- 2400	--	--	--	--
2018-19	-do-	-do-	-do-	IB-114.88 CB-200	IB-114.88 CB – 200	--	--	--	--
2019-20	-do-	-do-	-do-	IB- 36.79 CB – 27000	IB – 36.79 CB – 27000	--	--	--	--
2020-21	-do-	-do-	-do-	CB - 30000		--	--	--	--





7.4. RECORDED REMOVAL OF LOCALLY IMPORTANT NTFPS INCLUDING MAPS:

Among the important Non Timber Forest Produce collection of cashew nut is done from the forest area as cashew nut tree have been planted in some of the DPFs and RFs in the past in Khordha Forest Division mainly in Tangi Range. Cane is collected illegally from the forest area of Balugaon and Ranpur but there is no record of collection of cane in the last plan period. There is no record of collection of other NTFPs as the Govt. of Odisha has formulated the policy on procurement of trade of NTFPs during March, 2000 and enactment of Grama Panchayats (Minor Forest Produce) Rules, 2002 empowering the Grama Panchayats to be absolute owner of NTFPs occurring in the forest area under their jurisdictions. Though there is a provision that the traders should registers themselves in the concerned Panchayat and submit the progress report to the concerned Range Officer but no trader is submitting any such progressive report at Range level. The cashew nut lots are auctioned in the Divisional office. From the record of auction sale the recorder removal of cashew nut can be accessed from the auction amount from the lots of different forest blocks. The cashew nut auction from 2007-08 to 2020-21 is shown in **Table No.7.5**

Table No.7.5 CASHEW NUTS LOTS OF KHORDHA FOREST DIVISION AUCTIONED DURING 2007-08 TO 2015-16

Name of the Range	Name of the Lot.	Lot No.	Area in Ha.	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13		2013-14		2014-15		2015-16		Total Auctioned Amount
				Auctioned amount	Auctioned amount	Auctioned amount	Auctioned amount	Auctioned amount	Auctioned amount	Deptl. Collection	Auctioned amount	Deptl. Collection	Auctioned amount	Deptl. Collection	Auctioned amount	Deptl. Collection	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Khordha	Baideswar DPF	1	40	19500	20000	22000	24500	25000	28100	0	0	0	29000	0	25500	0	193600
	Manibandha R.F	2	46	27600	29000	28100	67100	52000	56000	0	0	9190	57500	0	55000	0	381490
	Kapileswar DPF	3	13.7	35000	25000	32500	65000	56000	58000	0	0	7800	47200	0	55000	0	381500
	Bania D.P.F.	4	80	1250	1200	1200	1300	1350	1500	0	0	1500	2100	0	2250	0	13650
	Total	4	179.7	83350	75200	83800	157900	134350	143600	0	0	18490	135800	0	137750	0	970240
Balugaon	Bhaleri DPF	5	100	54000	26418	22000	35000	35100	35600	0	1500	0	0	0	0	Progress	209618
	Solary DPF	6	100	3000	2500	2800	0	3500	1950	0	0	0	0	0	2000	0	15750
	Chulijhinka DPF	7	12	600	600	500	650	750	1800	0	0	600	2100	0	4000	0	11600
	Total	3	212	57600	29518	25300	35650	39350	39350	0	1500	600	2100	0	6000	0	236968
Tangi	Kandagadia DPF (A)	8	12	65000	65000	99100	86000	87000	100100	0	0	27090	111000	0	101000	0	741290
	Kandagadia DPF (B)	9	6.4	25300	25300	25000	26500	28000	32100	0	0	9632	34000	0	31000	0	236832
	Jalvar DPF	10	16	32000	38500	35000	38500	0	0	2107	0	3010	0	1700	0	Progress	150817
	Nalsingh DPF (A)	11	10	80500	70000	57000	110000	116000	127500	0	150000	0	0	35000	0	Progress	746000
	Nalsingh DPF (B)	12	21	75000	50000	45000	60500	76500	0	10234	0	20468	12100	0	25000	0	374802
	Nalsingh DPF (C)	13	22	40500	40000	40000	42200	42000	46000	0	55000	0	43300	0	58000	0	407000

Name of the Range	Name of the Lot.	Lot No.	Area in Ha.	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13		2013-14		2014-15		2015-16		Total Auctioned Amount
				Auctioned amount	Auctioned amount	Auctioned amount	Auctioned amount	Auctioned amount	Auctioned amount	Deptl. Collection	Auctioned amount	Deptl. Collection	Auctioned amount	Deptl. Collection	Auctioned amount	Deptl. Collection	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Tangi	Bhusandapur DPF (A)	14	30	45000	44000	43000	45500	49000	51000	0	0	10234	52500	0	61000	0	401234
	Bhusandapur DPF (B)	15	28	13000	10000	13000	10000	13100	14100	0	0	3010	16100	0	0	Progress	92310
	Bhusandapur DPF(C)	16	18	7200	6000	5700	6500	6500	7100	0	0	0	9500	0	0	Progress	48500
	Chakadapathar DPF	17	10	800	600	400	600	0	550	0	0	0	0	0	0	Progress	2950
	Kuhudi R.F.	18	24	30000	43500	41100	39500	44000	50000	0	0	10234	99000	0	90000	0	447334
	Rameswar DPF (A)	19	6	5000	4000	3700	5000	0	6200	0	0	3010	5000	0	0	Progress	31910
	Rameswar DPF (B)	20	7.2	8000	7000	6200	6200	7500	8000	0	0	0	9100	0	730000	0	782000
	Tangi DPF	21	14	22000	22500	18500	20000	21000	22100	0	0	7224	0	11800	0	Progress	145124
	Badapari DPF	22	8	4200	4200	4200	4200	4600	5100	0	0	0	0	0	0	Progress	26500
	Dhani (S)	23	6	28000	27000	29000	29000	0	31100	0	0	9632	0	12200	0	Progress	165932
	Total	16	238.6	481500	457600	465900	530200	495200	500950	12341	205000	103544	391600	60700	1108000	0	4812535
Ranpur	Champagarh R.F.	24	12.15	15000	14000	16000	16500	18200	18500	0	0	9200	0	20000	0	Progress	127400
	Total	1	12.15	15000	14000	16000	16500	18200	18500	0	0	9200	0	20000	0	Progress	127400
Delanga	Kumuka Block Lot I, II, III	25	12	2100	2000	2100	2200	2350	3300	0	0	1500	0	2000	0	Progress	17550
	Total	1	12	2100	2000	2100	2200	2350	3300	0	0	1500	0	2000	0	0	17550
	Grand Total	25	654.5	639550	578318	593100	742450	689450	705700	12341	206500	133334	529500	82700	1251750	0	6164693

CASHEW NUTS LOTS OF KHORDHA FOREST DIVISION AUCTIONED DURING 2016-17 to 2020-21

Year	Name of the Range	Name of the Lot	Lot No.	Area in Ha.	Auctioned amount	Departmental collection
1	2	3	4	5	6	7
2016-17	Tangi	Tangi DPF	61	14	8000	0
		Kuhudi RF	58	24	60000	0
		Badapari DPF	62	8	2000	0
		Dhani (S) RF	63	6	12000	0
		Rameswar DPF(B)	60	7.2	13000	0
		Rameswar DPF (A)	59	6	4100	0
		Bhusandapur DPF (C)	56	18	5000	0
		Bhusandapur DPF (B)	55	28	8000	0
		Bhusandapur DPF (A)	54	30	46000	0
		Nalsingh DPF (C)	53	22	47000	0
		Nalsingh DPF (B)	52	21	25000	0
		Nalsingh DPF (A)	51	10	75000	0
		Jalvar DPF	50	16	5000	0
		Kandagadia DPF (B)	49	6.4	66000	0
		Kandagadia DPF A)	48	12	205000	0
	Balugaon	Solari DPF	46	100	2600	0
		Bhaleri DPF	45	100	3000	0
	Delanga	Kumuka	55	10	2000	0
	Ranpur	Champagarh RF	64	12.2	21000	0
	Khordha	Bania VF	44	80	2100	0
		Kapileswar DPF	43	13.7	80000	0
		Maniabandha RF	42	46	42000	0
		Baideswar PRF	41	40	23000	0
2017-18	Khordha	Bania VF	51	80	2400	0
		Kapileswar DPF	50	13.7	75000	0
		Maniabandha RF	49	46	10000	0
	Balugaon	Solary DPF	53	100	2500	0
	Tangi	Rameswar DPF (B)	67	7.2	10000	0
		Dhani (S)	70	6	12000	0
		Badapari DPF	69	8	3200	0
		Tangi DPF	68	14	7300	0
		BhusandapurDPF(C)	63	18	5000	0
		Bhusandapur DPF (B)	62	28	7500	0
		Bhusandapur DPF (A)	61	30	48000	0
		Nalsingh DPF (A)	58	10	63000	0
		Nalsingh DPF (B)	59	21	24000	0
		Nalsingh DPF (C)	60	22	45000	0
		Kuhudi RF	65	24	72000	0
		Kandagadia DPF (A)	55	12	182000	0
		Kandagadia DPF (B)	56	6.4	55000	0
		Jalvar DPF	57	56	5500	0
	Ranpur	Champagarh RF	71	12.15	21500	0
2018-19	Tangi	Badapari DPF	40	8	1000	0
		Kuhudi RF	36	24	72000	0
		Tangi DPF	39	14	75000	0
		Rameswar DPF (B)	38	7.2	120000	0
		Rameswar DPF (A)	37	6	5000	0
		BhusandapurDPF(C)	34	18	6000	0
		BhusandapurDPF(B)	33	28	9500	0
		BhusandapurDPF(A)	32	30	50000	0
		Nalsingh DPF (C)	31	22	42000	0

1	2	3	4	5	6	7
2018-19	Tangi	Nalsingh DPF (B)	30	21	36000	0
		Nalsingh DPF (A)	29	10	55000	0
		Kandagadia DPF B)	27	6.4	50000	0
		Kandagadia DPF (A)	26	12	170000	0
		Jalvar DPF	28	16`	5000	0
	Khordha	Maniabandha RF	20	46	53000	0
		Kapileswar DPF	21	13.7	70000	0
		Bania VF	22	80	2500	0
	Ranpur	Champagarh RF	42	12.15	22000	0
	Balugaon	Solary DPF	24	100	3000	0
2019-20	Khordha	Maniabandha RF	20	9	46000	0
	Tangi	Kandagadia DPF (B)	27	16	55000	0
		Jalvar DPF	57	17	5000	0
		Nalsingh DPF (B)	30	19	24000	0
		BhusandapurDPF(C)	34	23	4000	0
		Kuhudi RF	36	25	71000	0
		Tangi DPF	39	28	6500	0
	Ranpur	Champagarh RF	42	31	18100	0
2020-21	Khordha	Kapileswar DPF	21	23	36500	0
		Maniabandja RF	20	22	54000	0
	Ranpur	Champagarh RF	42	44	20000	0
	Tangi	Nalsingh DPF (A)	31	10	36000	0
		Nalsingh DPF (B)	32	21	22500	0
		Nalsingh DPF (C)	33	22	23000	0
		Kandagadia DPF (A)	28	12	51000	0
		Kandagadia DPF (B)	29	6.4	58000	0
		Dhani RF	43	6	3300	0
		Bhusandapur (A)	34	12	18000	0
		Bhusandapur (B)	35	28	3000	0
		Bhusandapur (C)	36	23	2000	0
		Rameswar DPF (A)	39	6	2000	0
		Rameswar DPF (B)	40	7.2	20000	0
		Solari DPF	26	100	1500	0
		Kuhudi RF	38	25	28500	0
		Grand Total	**85**	**2139**	**2863600**	**0**

7.5. DEMAND AND SUPPLY OF TIMBER AND IMPORTANT NON-TIMBER FOREST PRODUCE:

There is demand of timbers for construction of house building materials and furniture which is mainly managed by the local people by collecting timbers from Mango,Bada Chakunda, Panas, Acacia and Bamboo species available in their country yards and also collecting these materials from licensed timber depots and OFDC depots. 13 Nos. of licensed saw mills have been

established in Khordha (11 Nos.), Sarua (01 No) Industrial Estates and 01 No. in Urban area i.e Jatni to manage the sawing and timber demands of local people. Due to availability of improved alternate materials made of cement concrete, steel and plywood, the demand on timber products has shown decline.

The list of licensed timber depots and saw mills are provided in the **Table No.7.6**,

Table No.7.6 Name of the Licensed Saw Mills of Khordha Forest Division.

Sl No.	Name of the Licensed Saw Mill	License No.
1	Trinatha Saw Mill, Sarua Industrial Estate, Sarua, Khordha	01/13
2	Maa Tarini Timbers Traders, Jemadei Industrial Estate, Jemadei, Khordha	07/13
3	M/S Sieloo Brothers, Khordha Industraial Estate, Khordha	02/13
4	M/S Kalinga Timber Co, Khordha Industraial Estate, Khordha	4/13
5	Shree Bhagawati Saw Mill, Khordha Industraial Estate, Khordha	03/13
6	M/S Bhagabati Saw Mill, Khordha Industraial Estate, Khordha	10/15
7	M/S Laxmi Saw Mill, Khordha Industraial Estate, Khordha	09/14
8	M/S Shree Jagannath Saw Mill, Khordha Industraial Estate, Khordha	06/13
9	M/S Umiya Saw Mill, Khordha Industraial Estate, Khordha	11/17
10	M/S Neelachal Saw Mill, Khordha Industraial Estate, Khordha	08/14
11	Arjuna Saw Mill, Khordha Industraial Estate, Khordha	05/13
12	M/S Maa Saw Mill, Khordha Industraial Estate, Khordha	12/20
13	Ramachandrapur Saw Mill-cum-Oil Expeller Co-Operative Society Ltd., At/Po-Jatni	51/89-Old 01/98-New

The list of authorised Timber Depots operated in Khordha Forest Division

Sl No.	Name of the Range	Name of the Depot Owner	Name of the Depot	Date of registration	Quantity of timbers to be stored at depot per Annum (In Cft.)	Average quantity of timber/sizes sold in depot per annum	SD amount. Deposit in (Rs.)
1	Khordha	Prabin Patel, Mz- Ramachandrapur	BSM Depot	21.06.2017	2200	2700	2000+129000
2		Dinesh Patel,Mz- Ramachandrapur	SSM Depot	21.06.2017	1400	2300	10000+52000
3		Ritarani Das, Mz- Harirajpur	MRTF Depot	01.06.2015	650	700	22000
4		Kalu Charan Biswal, Mz- Ogalpur	MBT Depot	21.06.2016	720	650	28000
5		Sk.Siraj Udin Kalapahad, Mz- Kalapathar	KP Timb. Depot	20.06.2016	820	533	32000
6		Laxmidhar Panda, Mz- Thanapalli	MMT Depot	14.11.2018	650	530	27000
7		Smt. Jayanti Swain, Mz- Pubusahi	IL Depot	20.02.2018	650	320	34404
8		Pratap Ch. Mahapatra,Mz- Charchika	LPT Depot	18.08.2015	720	0	12500
9		Nisarangi Global, Mz-Jemadei	NGT Depot	28.12.2017	850	850	43000
10		Dibakar Samantaray, Mz-Ramachandrapur	KTD	29.03.2017	650	0	24000
11		Manoranjan Mallik, Mz- Jajarsingh	STC Depot	15.02.2018	720	935	31000
12		Umakanta Champati, Mz- Beguniamula	MTD Depot	24.06.2015	750	0	10000
13		Uttarabali Mangaraj, Mz-Bhogada	DTD Depot	05.05.2016	650	680	25000
14		Amarendra Narendra Singh Samanta, Mz- Gurujanga	SRT	21.08.2018	620	700	32400
15		Sunil Kumar Mahakuda, Mz- Tikatal	SS Timber depot	18.07.2018	650	700	30000
16		Pramod Ku Sahoo, Mz-Jagira	TTD Depot	24.09.2012	720	0	10000
17		Biswanath Panda, Mz-Baghamari	ST Depot	11.11.2009	850	920	50000+10000
18		Satyanarayan Sahoo, Mz- Charchika	MBT Depot	09.02.2009	650	0	10000
19		Prasanna Ku Paikaray, Mz- Jajarsingh	OMT Depot	15.02.2011	720	720	14000+10000
20		Manoj Mangual, Mz- Srichandanpur	NCT Depot	28.07.2011	750	800	10000
21		Kanduri Ch Sahoo, Mz- Kendupalli	KCS Depot	29.01.2013	650	650	25000

22	Khordha	Brajabandhu Sahoo, Mz- Sanabankoipatna	MJT Depot	8.07.2014	650	580	10000
23		Rabindra Khandual, Mz- Godadharmasagar	Sri Ram Agency (SSA)	21.06.2017	720	1720	10000+52000
24		Srikant Pattanaik, Mz- Pallatatapada	PGT Depot		650	0	10000+8000 (applied for withdwal SD)
1	Balugaon	Shikhar Sahoo, Mz- Badahantuad	MT Depot	01.12.2017	620	580	20000
2		Sukanta Satrusalya, Mz-Galua	SKS	17.03.2017	650	950	10000
3		Chandan Barik, Mz- Bhagabatipur	MBT Depot	22.04.2018	720	780	10000
4		Jayakrushna Palei, Mz- Balugaon, Mz- (Patana Sahi)	SST Depot	05.02.2016	850	850	10000
5		Balaram Parida, Mz- Dasarathipur	MT Depot	23.02.2017	650	650	40000
6		Abhimanyu Barik, Mz- kapileswarpur	ABT Depot	13.01.2011	720	800	10000
7		Gandharba Lenka, Mz- Govindapur	GLT Depot	17.01.2012	750	800	10000
8		Pradeep Kumar Sahoo, Mz- Jadupur	Omm Timb. Depot	03.07.2017	650	650	30000
9		Basudev Muduli, Mz- Galua	MST Depot	0	650	0	28000
1	Tangi	Maguni Ranjit, Mz- Mundamba	MTT Depot	19.06.2014	720	650	35000
2		Santilata Sahoo, Mz- Jhatinuagaon	SST Depot	12.07.2017	650	720	10000
3		Sitakanta Samant, Mz- Sanakusumi	KB Depot	14.12.2017	820	1300	25000
4		Braja Kishore Pradhan, Mz- Panaspurpatana	RT Depot	22.04.2016	720	850	20000
5		Prafulla Das, Mz- Chandrapur	PD Depot	10.09.2014	800	650	15000
6		Smt. Babita Rout ,Mz- Siko	BCT depot	15.09.2021	720	720	48000
1	Delang	Bansidhar Jagdev, Mz- Baku	STT Depot	19.10.2018	620	750	10000
2		Sanatan Patalasingh, Mz- Nandapur	GCT Depot	15.10.2009	620	650	10000
3		Bamana Mangaraj, Mz-Balipada	MTS Depot	20.06.2017	650	650	13000
4		Pradeep Ku Dash, Mz-Karimula	ATD	04.04.2018	720	720	30000
5		Dinabandhu Maharana,Mz-Dimiri	M.K.Timber Depot	30.07.2021	1300	720	
1	Balipatna	Sushant Ku Sahoo, Mz- Madhiali	SS Depot	05.01.2004	850	750	10000+20000
2		Brahmananda Pradhan, Mz- Madhiali	G T Depot	30.06.2004	650	650	10000
3		Chaitanya Mandal, Mz- Bhapur	K.T. Depot	13.06.2008	720	650	10000
4		Rajkishore Moharana, Mz- Amarakudaa	B.T. Depot	17.07.2014	750	720	10000

5	Balipatna	Tribikram Jena, Mz- Saripur	A.T. Depot	15.11.2017	650	700	28000
6		Gopal Charan Sahoo, Mz- Naharakanta	M.T. Depot	20.02. 2018	650	920	35000
7		Narendra Malik, Mz- Allarpur	J.G.T. Depot	08.03.2016	720	0	33000
8		Sukant Kumar Dash, Mz- Nakhara	S.M.T Depot	27.04.2016	650	580	20000+83000
9		Prasant Kumar Pradhan, Mz- Bhakarsahi	RT Depot	23.03.2020	650	2700	35500
10		Bikash Ku. Maharana, Mz- Rudrapur	TNT Depot	2020	720	580	65000
1	Ranpur	Pintu Jena, Mz- Pampada	JJT Depot	18.10.2017	850	1800	31000
2		Ranjubala Dei, Mz- Kandhanayagarh	B.T. Depot	02.06.2016	650	450	23000
3		Santosh KumarJena, Mz- Gopalpur	SKJ Depot	20.07.2015	720	1700	25000
4		Motilal Mohanty, Mz- Balarampur	MTDepot	10.07.2017	750	820	61000
5		Suryakant Moharana, Mz- Kandhanayagarh	Sriram T Depot	12.06.2016	650	650	33000
6		Ghanashyam Moharana, Mz- Raj Sunakhala	JM Depot	10.09.2014	650	700	10000
7		Iswar Chandra Parida, Mz- Raj Sunakhala	BT Depot	15.04.2013	720	1120	10000+20000
8		Bijay Ku. Samantray, Mz- Haripur	BPT Depot		650	700	
9		Bikash kumar mohapatra of Gopalpur	Raghunath Timber Depot	30.07.2021	1000	1100	76000
N.B.	Demand of timbers by depots 1339.657 Cum **or** 47310 Cft.per annum				**47310**	**48718**	
	& the supply of timbers by depots 48718 Cft. or 1379.527 Cum in locally per annum.						

ABSTRACT

Sl.No	Name of the Range	No of Depot
1	Khordha	24
2	Balugaon	9
3	Delanga	4
4	Tangi	6
5	Balipatna	10
6	Ranpur	9
Total		**62**

Receipt and Local Sale of Timbers and Firewood in Gangadharpur Depot of OFDC Ltd.

Sl No	Year	Receipts		Retail Sale		Remarks
		Round Timber	Firewood	Round Timber	Firewood	
1	2016-17	1007.858	419st	97.148	171st	
2	2017-18	664.649	532st	34.603	228st	
3	2018-19	378.562	122st	12.304	90st	
4	2019-20	163.326	73st	0.991	53st	
5	2020-21	803.808	108st	55.155	53st	

Source: OFDC Ltd.

So far as important Non forest produce is concerned the Khordha Forest Division hosts a good nos. of NTFP species which yield a variety of non timber forest produces in shape of fruit, seeds, tubers, barks, resins, leaf, root and gum etc. The villagers of forest fringe villages depend upon NTFPs for their own requirements and excess of this sale in local markets and to the registered agencies under the provision Gram Panchayat (Minor Forest Produce) Rules, 2002.

The demand and supply of NTFPs and socio economic survey have been accessed by the NGO-HELP (Health, Environment & Literacy of People), Bhubaneswar in 108 Nos. of VSS in the Khordha Division. Though cane is one of the popular NTFP being used in the furniture making mostly in Banpur area of Balugaon Range, there is no record of collection of cane in last plan period. Mostly the traders depend on canes procured from North Eastern states and very rarely collected it from the forest areas of Balugaon, Ranpur and Tangi Range. The cashew nut is collected from forest area which has been planted in some DPFs and RFs of Khordha Forest Division mainly in Tangi Range and sold in public auction by the Divisional Forest Officer, Khordha.

7.6. IMPORT AND EXPORT OF WOOD AND WOOD PRODUCTS:

Practically there is no data of import and export of wood and wood products in the Khordha Forest Division. The furniture units hardly import any timber from the outside divisions and states and mostly make furniture using exempted species like Accacia, Chakunda. The furniture units running in the division need regularly be checked to restrict illicit collection of timbers of non exempted species. The

documentation of forest products in different forms being exported to outside state/ division is to be done at range level during this plan period for sustainable management of forests. However timbers from Gangadharpur depot of OFDC ltd in the jurisdiction of Tangi Range of this division are sold to outside state, the data of which is given in the **Table No.7.7**,

Table No.7.7 **Species wise sale of timbers to out of state from 2009-10 to 2021-22 Gangadharpur Depot of OFDC Ltd.**

Year	Quantity of various species in cum.									Total (in cum.)
	Teak	Sal	Kuruma	Mitikinia	Asan	L.mai	Sirisa	Kusuma	Acacia	
2009-10	0	124.573	0	0	0	0	0	0	0	124.573
2010-11	0	0	0	0	0	0	0	0	0	0
2011-12	0	33.833	0.777	2.646	11.334	3.247	0	2.415	0	54.252
2012-13	0	81.318	9.777	0	20.199	3.547	0	0	0	114.841
2013-14	44.104	22.329	0	7.739	37.855	0	0	0	0	112.027
2014-15	344.061	38.666	0	0	0	26.205	3.038	0	0	411.97
2015-16	144.596	96.187	0.51	1.153	0	0	0	1.884	0	244.33
2016-17	112.195	40.432	0	0	0	7.904	1.224	0	3.298	165.053
2017-18	82.582	0	0	0	0	0	0	0	0	82.582
2018-19	0	0	0	0	0	0	0	0	0	0
2019-20	0	16.288	0	0	0	0	0	0	0	16.288
2020-21	5.065	31.632	0	0	0	0	0	0	0	36.697
2021-22	0	0	0	0	0	0	0	0	0	0
Total	**732.603**	**485.258**	**11.064**	**11.538**	**69.388**	**40.903**	**4.262**	**4.299**	**3.298**	**1362.613**

Source: OFDC Ltd.

7.7. IMPORT AND EXPORT OF NTFPS:

In Khordha Forest Division there are so many cane artists who can make beautiful furniture out of canes imported from North Eastern States like Assam, Manipur etc and also out of the illegally collected canes from the forest of Balugaon Range. Growing stock of canes is found in the moist deciduous forest of Balugaon Range. The qualities of indigenous canes are detorioting gradually unauthorised and unscientific collection from the forest. There is no record of import and export of NTFPs in the Division. Steps are to be taken to list out the number of units making furniture from cane and assess their requirement from outside of the State and from the forest of the Division. The data of import and export are to be maintained at Range level

and Division level. Other NTFPs like Amla, Harida, Bahada, seeds of cane, fruits of Strictnus nuxvomica are collected from the forest and exported. There must be a documentation of collection of NTFPs from the forest of the Division.

7.8. REMOVAL OF FODDER:

The removal of fodder from forest has been assessed by socio-economic survey conducted over fringe villages in 108 nos of VSS. The data of removal of fodder has been reflected in socio economic data submitted by the NGO (HELP) entrusted to undertake socio economic survey. The cattle population of the fringe villages and total removal of fodder there in have been calculated Range wise and shown in **Table No.7.8**

Requirement of fodder in forest fringe villages

Table No.7.8

Name of the Range	Requirement of fodder for the cattle population	Removal of Fodder from forest through cattle	Remarks
1	**2**	**3**	**4**
Balugaon	71.0	13.5	
Ranpur	155.0	34.5	
Tangi	98.0	18.0	
Khordha	76.0	20.0	
Delanga	28.0	5.25	
Balipatna	4.0	0.75	

7.9. VALUATION OF THE PRODUCTS:

The valuation of the forest product has not been calculated in the last plan. The valuation of product has been assessed for timber, fire wood and bamboo from the royalty realized from the OFDC, Ltd. The valuation of the cashew nuts has been assessed from the Auction Sale Registers at Divisional Office. Further the VSS in the Division should be empowered financially so that they can make value addition to the Non Timber Forest Produce collected from the forest and sell them at a reasonable price at the market place. The details of royalty realized from the timber, firewood, bamboo and sale of cashew nut by the Division is shown in **Table No.7.1, Table No.7.3, Table No.7.4 and Table No.7.5.**

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CHAPTER – 8

MAINTENANCE AND ENHANCEMENT OF SOCIAL, ECONOMIC, CULTURAL AND SPIRITUAL BENEFITS

8. MAINTENANCE AND ENHANCEMENT OF SOCIAL, ECONOMIC, CULTURAL AND SPIRITUAL BENEFITS:

8.1. NUMBER OF JFM COMMITTEES AND AREAS PROTECTED BY THEM:

The National Forest Policy, 1988 envisaged co-operation of the people in conservation and development of forests. In keeping with this policy Government of Orissa adopted the Joint Forest Management (JFM) approach and sought community participation and issued Resolution No.16700/F&E dtd.03.07.1993. Under this resolution Joint Forest Management Committees have been formed allotting degraded forest area up to 200 Ha. adjoining to the village for protections, management of forest jointly sharing responsibilities authority and usufruct between the VSS member and Forest Department and a memorandum of understanding is signed between the VSS members and Forest Department. In the resolution the section Forester was acting as member-secretary of the VSS. Later on in the year 2008 Govt. of Odisha brought Resolution No.17454 dtd.22.10.2008 where the role of Forester in the VSS was not as member-secretary, only the local Forest Guard was Ex-officio member. Again in the year 2015 Govt. of Odisha brought a Resolution No. 9182/F.& E dtd.01.06.2015 where local Forester / Forest Guard have been made secretary of the VSS. In Khordha Forest Division 108 nos of Vana Samrakhyan Samities (VSS) have been formed upto the year 2016 and they have been allotted 15542.49 Ha. forest area adjoining to their villages for protection and management of the forest. The list of 108 nos of Vana Samrakhyan Samities with the area allot to them in the forest blocks is furnished in **Appendix-VI.** Micro plan for each VSS is to be prepared through participatory rural appraisal (PRA) basis with technical help from forest officials. The micro plan should be in conformity with the overall Working Plan Prescription of the working circle in which the allotted

area is coming. Any deviation in the allotted forest area from the prescription of the Working Plan prior improves of Govt. of India MoEF and CC Eastern Regional Office is required. The allotted area should be clearly delineated in the field with latitude and longitude at different corners of the allotted forest area.

8.2. STATUS OF EMPOWERMENT OF JFMCs:

Out of the 108 nos of VSS constituted 70 nos of VSS have been brought under Khordha Forest Development Agency. They have been allotted fund from Govt. of India through the forest Department and Khordha Forest Division under the State Forest Development Agency (FDA) for taking up different developmental activities in their VSS. Every year the General Body Meeting of all the FDA's is conducted in the Khordha Forest Division at different places. The members of Joint Forest Management Committees are being empowered with the objectives of forests management and they have participated in the election of the executive committee. During the socio economic survey in those 70 nos of VSS which are coming under Khordha Forest Development Agency, it is revealed that in most of the villages the villagers or the VSS members do not know that a VSS has been formed in the village and the VSS is funded under Forest Development Agency for taking of different Developmental activities. In some villages though the villagers know that a VSS has been formed and some fund is being received but they do not know what developmental activities are going on the village. Further it is also revealed that no regular Executive meetings and General Body meeting s of the VSS are being convened in the village. The concerned Range officers should monitor at regular basis the activities of the VSS i.e. convening the meeting of Executive Body and General body meeting and all the activities are explained to the villagers.

8.3. LABOUR WELFARE:

The VSS are provided with incentives in lieu of their efforts towards fire protection and involvement in the protection of forest. Regular health camps are organized on the fringe villages affected by diseases mainly Malaria by the forest department as well as by the different NGO's. The VSS members are engaged in carrying out different forest activity in the fringe forest area and they are paid with

wages as per minimum wage act which is furnished in **Appendix-XVIII**. The local youths are engaged in anti- smuggling squad, anti-depredation squad and fire fighting squad.

8.4. USE OF INDIGENOUS KNOWLEDGE:

The local people collect Non Timber forest Produce and dry them in their backyards. They collect some leaves, flowers, and roots to be used as medicine and they take some tuberous roots as their foods. All the indigenous knowledge is to be documented by the concerned field staffs which may be very much useful for treatment of various diseases thereby attention may be drawn for the conservation of those plants and forest produces. All the indigenous traditional knowledge of the local people should be incorporated in the Micro-plan prepared for the concerned VSS in consonance with the prescription of the Working Plan.

8.5. EXTENT OF CULTURAL/SACRED GROVES:

The cultural and sacred groves found in the fringe villages have been identified during the socio economic survey conducted at the time of preparation of Working Plan. Those cultural and sacred groves are given in **Table No.8.1** and interventions will be made to manage and conserve those groves in the Division.

Table No.8.1 List of sacred groves existing adjoining to the fringe villages.

Sl No.	Name of the fringe vilage	No. of Cultural and Sacred groves adjoining the village	Approximate area	Type of forestry species on the sacred groves
1	**2**	**3**	**4**	**5**
1	Bhusandapur	Maa Ugratara Peetha	5 Ha.	Misc. with Mango
2	Ukutu Kumbhi	Maa Khilamunda	4Ha.	Sal Forest
3	Gada Khordha	Maa Barunei	4Ha.	Misc. with Mango
4	Dhuannali	Maa Tarini	2Ha.	Misc. with Teak
5	Berbera	Maa Birajai	2Ha.	Misc. with Teak
6	Arikama	Maa Kosalasuni	20Ha.	Sal Forest
7	Bajrakote	Asurakumari	5Ha.	Misc. Sal Forest
8	Salap dihi	Pandabasuni	3Ha.	Mix Forest

8.6. ECOTOURISM AREAS AND ACTIVITIES:

Development of Eco-tourism near the forest area has a great bearing in the conservation of forest and wild life. In the present time people love to visit forests. The Govt. of Odisha has also given more emphasis for the development eco tourism near the forests. Beautiful cottages are being constructed, local youths are being engaged for maintenance of the eco tourism cottages and for providing delicious foods to the tourist. As a result people are visiting the eco tourism places and loving the forests and wildlife. Employments of rural youths are generated for the eco tourism. The following Eco-tourism areas are identified in this Division adjoining to the forest area.

(1) Sankhajodi in Mala RF of Ranpur Range,

(2) Berbera in Rajin RF of Balugaon Range, and

(3) Mahisagotha in Tamna RF of Balugaon Range.

8.7. SOCIAL CUSTOMS:

The local people in the fringe villages worship different places in the forest and out side the forest as the places of different goddess and worship on different seasons. They come to the worship places in large numbers and celebrate there by protecting the adjoining area from any biotic interference.

8.8. STATUS OF COMPLIANCE OF FOREST RIGHT ACT, 2006 (FRA):

On FRA, 2006 464 individual rights involving 230.97 Ha. of forest land and 02 community forest titles with area involved 202.42 Ha. has been settled in favour of eligible individuals and communities respectively. Although titles have been issued for implementation of FRA in this division enclosing the trace map of each individual titles extracting from village sheets in case of revenue forest lands and copy of trace map from corresponding forest block maps. But the physical demarcation in the field for each title holders in true sense has not been done in the field by GPS survey. The state government is emphasizing on providing physical possession surveyed by GPS by the joint involvement of revenue and forest officials. The steps in this respect should be done during this plan period and physical demarcation with respect to latitude and

longitude of each station points both of individual and community titles should be recorded. A register should be maintained with Geo reference map of each individual and community title at Range and Divisional level.

The village wise data on settlement of Forest Rights in favour of eligible Scheduled Tribes and other traditional forest dwellers under Scheduled Tribes & Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 is given below. This data has also been mentioned in **Appendix-II (B)** of working plan.

8.9. OTHER RIGHTS AND CONCESSIONS:

No rights were admitted in the R.Fs. of the Ex-Puri Forest Division. After reorganization of the Forest Department the position remains the same. Certain rights were granted by the Govt. for sanction of relief in distress conditions vides letter no. 71057 dt. 2.12.1972 of Revenue Department, Govt. of Orissa in the protected Forests (Khesra Forest or un-Reserved Forests). Concessions were also granted by the Govt. of Orissa, Forest Fisheries and Animal Husbandry Department No. 10F (M) / 14 / 90-10488 / FFAH dated 11th May 1990 for supply of fuel wood, bamboos, house building materials etc. to public, particularly to nistar-cess paying tenants from B-class and Khesra forests. The concessions were given for supply of,

a) Fuel wood @ 2 cart loads / annum with a nominal cost of Rs.16.00 / bullock cart and Rs.24.00 / buffalo cart.
b) Bamboos @ 50 nos. / annum with a cost of Rs.1.50 / piece (long and thick bamboos) and Re.1.00 / piece (thin bamboos) subject to supply from OFDC depots.
c) Bamboos and small timbers etc. to be supplied by the OFDC Ltd. and SFDC at the scale prescribed under OFD code.
d) House building materials to be supplied from the OFDC depots at the rate fixed from time to time.

All such supplies / sales were subject to first come and first serve basis. These concessions were further allowed by the Govt. vide notification no. 1696

dt.22.1.1991, Forest and Environment Department, Govt. of Orissa. The village wood lots in VFs which have been transferred from Social Forestry Projects to the Territorial Divisions, usufruct rights are admitted under J.F.M. rules. Forest areas are also being allotted to VSS for its protection and management by allowing certain usufruct rights and concessions to the Samities over the forest land they protect vide Govt. of Orissa Forest and Environment Department resolution no. 16700 dated 3rd July 1993.

8.10. DEPENDENCY OF LOCAL PEOPLE ON NTFPs:

The people of fringe villages live on eating the fruits, leaves, flowers and roots of different forest trees. In remote villages, they make brooms from broom grass, collect honey & sale to the middle men. They also collect the seeds of cane species and sell to the middle men. The people of fringe villages in Balugaon Range collect cane from forest and prepare various decorative items and sell to the middle men who further sell it in the nearest towns and city. Other NTFPs like Sal seeds, Kusum seeds, Harida, Aonla, Bahada, roots of Rauwolfia Serpantina, Mohua flower, Mohua seeds, Honey, Tamarind are collected by the local people and sell them to the middle men at very less price. The collection of NTFP has not been regulated till now. The dependency of local people on NTFPs has been assessed during the socio economic survey conducted over 108 nos of VSS.

8.11. OTHER ASPECTS:

In most of the part of this Division coming under moist deciduous forest the growth of cane species has not been managed properly. Banpur is famous for different furniture prepared out of cane. They import cane from Assam and other area, illegally collect cane from the forest of Khordha Forest Division and make beautiful furniture from the canes. The management and scientific working of cane can uplift the livelihood of the local cane artisans and also provide value addition to the locally available canes. In the Working Plan prepared by Sri J.D. Sharma, IFS for the period 1989-90 to 1998-99, working of cane had been prescribed in the Minor Forest Produce (Overlapping) Working Circle by making four felling series namely Berbera, Dhuanali, Sankhajodi and Patia felling series spreading over Reserved Forests of Balugaon,

Ranpur and Tangi Range. But the cane coupes were not worked either by Orissa Forest Development Ltd. or by any Co-operative Society. In the Working Plan prepared by Sri A. Das, IFS for the period from 2007-08 to 2016-17 cane working had not been prescribed. But illegal collections of cane were made by the local people un-scientifically. As a result the cane species are not growing properly. Steps may be taken to identify the canes species and Silvicultural operations suitable for the growth may be taken up for improving the growing stock.

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CHAPTER - 9

ADEQUACY OF POLICY, LEGAL AND INSTITUTIONAL FRAME WORK

9. ADEQUACY OF POLICY, LEGAL AND INSTITUTIONAL FRAME WORK:

9.1. EXISTING POLICY AND LEGAL FRAME WORK AND THEIR COMPLIANCE:

The forest of this Division was being managed under the prescriptions of Revised Working plan of the erstwhile Puri Forest Division. In the timber coupes, subsidiary Silvicultural operations are being implemented in the year following the main felling to commensurate the regeneration with felling. Similarly simultaneous Silvicultural operations of bamboo are being implemented in the year of cutting of bamboo and even at times in the year following the cutting. ANR, SMC activities are being taken up in the coupes of Rehabilitation Working Circle. Plantation of trees have been taken up within and outside the Plantation (Over Lapping) Working Circle areas. Besides, VSS have been formed on the fringe villages allotting a portion of forest land up to 200 ha. for joint forest management preparing micro plan commensurating with the prescription of the Working Plan of the forest.

9.2. STATUS OF APPROVED WORKING PLAN AND COMPLIANCE:

The summery of prescription of the approved Working Plan is furnished in Chapter -26. For the deviations made in the working of Timber & Bamboo coupes and implementation of plantation activity in the forest area outside the prescribed area, the Divisional Forest Officer is requested to submit the proposal to the Principal Chief Conservator of Forest through Regional Chief Conservator of Forest for approval.

9.3. NUMBER OF FOREST OFFENCES:

A total number of 2912 offence cases have been booked and 759 numbers of prosecution cases have been submitted before the court of law during the outgoing plan period *i.e.* from 2007-08 to 2016-17. The details of the forest offence cases are furnished in **Appendix-VIII**.

9.4. STATUS OF RESEARCH AND DEVELOPMENT:

The Silviculturist Bhubaneswar has established one Research Garden in the Rajin RF. Further, Preservation Plots and Seed Production Plots have been established in the old teak plantation area to study the growth of teak. In the research garden the genetic study of teak is being conducted by Silviculturist Bhubaneswar.

9.5. HUMAN RESOURCES CAPACITY BUILDING EFFORTS:

The field staff and also ministerial staff of this Division are deputed to forestry Schools and Colleges to be imparted with up-to-date management technology for the management of Forest and Wildife. Besides this various workshops are organized among the field staff to build up their capacities in the forest management. In the last year budgetary provision has been made from State CAMPA for capacity building of the staff of the Division the capacity building programme has been organized circle level at Wetland Research Centre (WRTC) Chilika Development Authority, Chandraput, Balugaon and farmers hostels OUAT Bhubaneswar. Foresters and Forest guards of different Divisions of the Bhubaneswar Circle are imparted training on Forest Protection Management, Nursery Technique, different Acts like Forest Right Act, Right To Information Act and Rules etc. This capacity building programme should be continued and Human resource and capacity building *i.e.*to train atleast two-third of the staff, of Khordha Division will be planned out in the plan period depending upon the availability of fund.

9.6. FOREST RESOURCE ACCOUNTING:

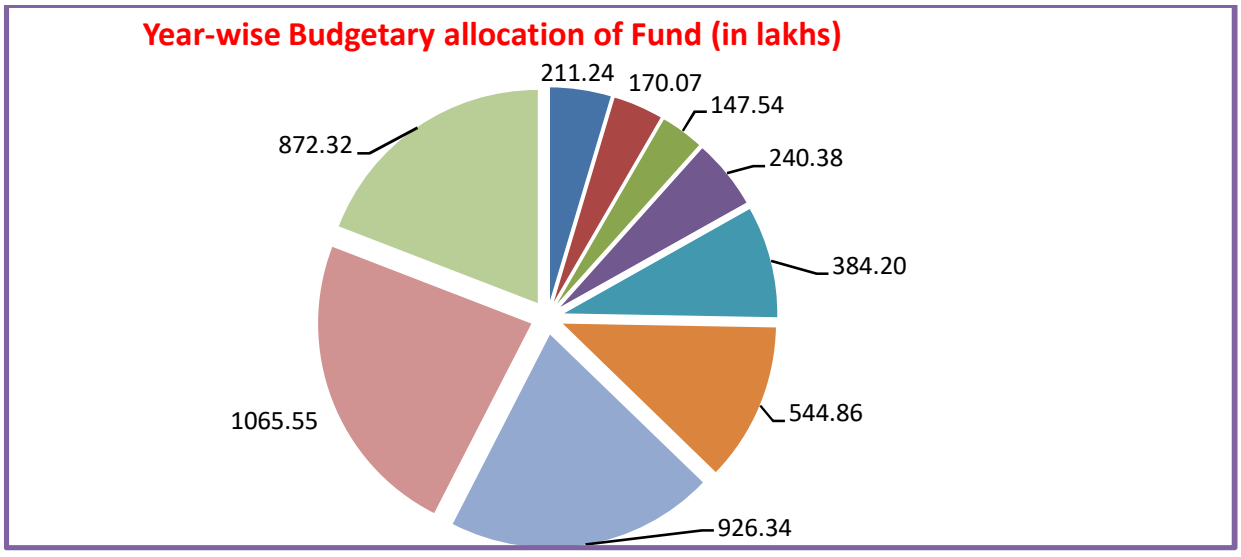
Timber production from the coupes of Selection-cum-Improvement Working Circle and, Car Timber Working Circle and Bamboo (OL) Working Circle have increasing trend. The details of production of timber, poles, firewood, and bamboo

for bonafied use of people and commercial use through Odisha Forest Development Corporation has already been shown in Chapter.7. Further the production of cashew nut has also been discussed in the same chapter. The production of Non Timber Forest Produces has been assessed through socio economic survey. The domestic use of timber, poles, firewood, bamboo, and fodder have also been assessed through socio economic survey.

The area of forest under Forest type 3.C/2S1Northern Secondary Moist Deciduous Forests has also in increasing trend as per ground truthing. The nalla, streams etc. flowing inside the forest has a tendency from seasonal towards perennial. The intangible benefits of reducing the effect of Green House Gas emission through enhanced carbon sequestration is also a contribution of forest resource. For quantifying the intangible benefits the permanent sample plots have been laid in different strata of forest and the carbon sequestration i.e reduction of carbon dioxide from the atmosphere will be measure after a particular period i.e one year, two years or four years etc.

9.7. BUDGETARY ALLOCATION TO THE FORESTRY SECTOR:

The budgetary allocation of funds and expenditure for the development of forest and wildlife is shown in **Appendix-IX.** From the budgetary allocation of found, it is noticed that the budgetary allocation is in increasing trend. The dependency of the people for their livelihood has increased in the past. For sustainable management of forest, improvement in growing stock through scientific management implementing different Silvicultural operation is required.



9.8. EXISTENCE OF MONITORING ASSESSMENT OF REPORTING MECHANISM:

For monitoring the growing stock of the forest in Khordha Forest Division 35 nos of Permanent Sample Points have been laid in different strata of forest. In these Permanent Sample Plots the growing stock of the forest will be measured periodically. The production of timbers, poles, firewood, Bamboo, etc are to be assessed forest block wise , compartment wise, so that increase or decrease in the production at compartment level can be monitored. For monitoring of prescriptions of different working circles Control Forms have been prescribed. The production of compartment can be accessed from the production of coupe by multiplying the per unit area of production with the compartment area which will be monitored periodically. Parameters of monitoring and evaluation of the prescriptions of the Working Plan is provided as Control Forms. The removal of forest produce, the regeneration activities including the plantations in the compartment shall be maintained in the compartment history.

9.9. PUBLIC AWARENESS AND EDUCATION:

Public awareness campaigns are to be organized at Divisional level, Range level, Section level and at Beat level. The people must be made aware that due to climate change the temperature is rising every year and the mercury level is reaching 45^0 to 46^0 Celsius during peak summer season. The temperature is going down below 10^0 during winter season. Irregular rainfalls are occurring during rainy season resulting in flood, storms, and drought. To mitigate the affected climate change forest is the only natural source available for our mankind. Forest at the source of reduction of Green House Gas in the atmosphere. Hence forests are to be protected, conserved and maintained sustainably. Government of Odisha and Goverenment of India have instituted various awards and prizes along with cash reward of upto two lakhs for protections, conservations of forest by individuals and organizations. Celebrations like Vana Mahostava in the 1^{st} week of July, Wildlife week in the 1^{st} week of October, and other celebrations are to be celebrated with pump and ceremony involving the local people Eco-clubs have already been formed in about all the schools of the Division. The

students are being motivated to organize rally, meetings and planting of species in their school premises. The Forest and Environment Department is providing financial grant to the Eco-Clubs of the Division.

9.10. ADEQUATE MANPOWER IN FOREST DIVISION:

Adequate staffs as per sanctioned strength are not in position as there has been long gap in recruitment. Besides the permanent, Temporary and Contractual staffs, a number of daily wage staff in anti smuggling squads, anti depredation squads, critically endangered squads and as nursery watchers have been engaged. The daily wage staffs are getting wages as prescribed under minimum wage Act which is being revised at different years.

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CHAPTER – 10

FIVE YEAR PLANS

10.1. GENERAL TRENDS IN FORESTRY INVESTMENT:

The investments in forestry sector require long gestation period and most of the time these inputs are linked with the livelihood needs of the people. It is also difficult to explain the tangible benefits always in monetary terms. Since the commencement of the First Five Year Plan (FYP) in 1951, Rs 85 billion has been spent by the end of the Eighth FYP in 1996-97 on forestry development activities in the whole country. In this period, Afforestation activities of about 26.9 million Ha. have been carried out. Financial allocation to the forestry sector has been increased from Rs 76 million in the First FYP to Rs 40, 818 million in the Eighth FYP, but it has always been less than 1% of the total plan outlay of the country. This is one of the main reasons for the continuous deterioration of forest resources. The priorities in different plan periods and the achievements are discussed in the paragraphs below.

10.2. FIRST FIVE-YEAR PLAN (1951-56):

The two world wars drew heavily on the forest resources. Major river valley projects, development of industries and communications and other projects so vital to the developing economy of the country also leaned heavily on the utilization of the forests and forest areas. While the fundamental concepts underlying the forest policy laid down in 1894 remained the same, the National Forest Policy enunciated in 1952 emphasized that the forests should be managed on the principle of progressively increasing, and eventually getting the highest sustained yield to meet the requirements of defence, industries and the people, ensuring at the same time that the production of both wood and fodder is maintained. Therefore attention was focused on rehabilitating the forest that had been over-exploited during the wars, and consolidation and settlement of private forests taken over by the government. A modest beginning was also made to raise plantations of matchwoods and other economic species.

10.3. SECOND FIVE-YEAR PLAN (1956-61):

Most of the schemes of the previous plan were continued. Some of the important new schemes initiated related to the creation of plantations of economically valuable species, conservation of wildlife and preparation of working plans. A number of wildlife sanctuaries were established, some degraded forests were rehabilitated and many new forest roads constructed.

10.4. THIRD FIVE-YEAR PLAN (1961-66):

While the first two plan centered around rehabilitation and consolidation of forests, in the third plan a beginning was made to lift forests from purely conservative and biological management to increasing production from them by creating man-made forests of quick-growing and valuable species in place of the existing ones. Special emphasis was laid on measures to meet the long-term requirements and more economic and efficient utilization of valuable forest products, and to increase the outturn from the existing depleted forests through better technique of timber extraction, improvement of communication and popularizing the use of secondary timbers after proper seasoning and preservative treatment.

Full assistance from the Centre was given in order to encourage State governments to undertake large scale plantations of quick-growing species, mainly to meet the requirements of the paper and pulp industry.

A new scheme undertaken was "Pre-Investment Survey (PIS) of Forest Resources" implemented in collaboration with the United Nation Special Funds and Food & Agriculture Organization (FAO). This project was designed to investigate by stages the economic availability of surplus forest resources for feeding the wood-based industries. The PIS was the forerunner of the Forest Survey of India of today.

Another project related to the establishment of "Logging Training Centres" also with the assistance of the United Nation Special Funds. The object was to train forest officers and field executives of State government and forest lessees and contractors in basic logging cableways, planning and efficiency studies etc., with a view to obtain higher timber yields from forests by minimizing wastage.

10.5. POST-THIRD PLAN PERIOD (1966-69):

The progress of departmental activities in forestry during this period was remarkable. Specific emphasis was laid on plantations of quick-growing species and the modernizing of harvesting and plantation techniques. Training of officers and Forest Rangers as Resource mangers was undertaken to embark upon the next five-year plan.

10.6. FOURTH FIVE-YEAR PLAN (1969-74):

While adhering to the objectives and principles of the third plan, greater emphasis was placed on increased plantation activities and intensive management of forests to attain self-sufficiency. The basic considerations and the guiding principles were: –

(i) Adequate forest covers to prevent floods, conserve soil and moisture, and protect water reservoirs.

(ii) Adequate supplies of forest raw materials for wood based industries and of construction timber for which there was a growing demand.

(iii) Adequate supplies of fuel wood.

(iv) Preserving natural environment for scenic beauty, sport, recreation and scientific study.

Based on these considerations the specific obligations considered were: scientific management of hitherto unorganized forests, stricter protective measures against pilfering, excessive grazing, fire, encroachments etc., formation of manageable units and appointment of adequate staff, replacement of slow-growing and less valuable species by those which are quick growing and valuable, afforestation of barren lands, introduction of improved methods of harvesting, extension of communication, better housing facilities for the staff, wildlife and nature conservation, intensive research and training provision of statistical cells, etc.

10.7. FIFTH FIVE-YEAR PLAN (1974-79):

This plan introduced an important element of change in the country's strategy in forestry, conservation-oriented forestry was to give way to dynamic progress of production forestry, to increase production of industrial wood and other forest products of economic importance. Extensive man-made forests were to be created, with institutional financing, to feed the existing and prospected industries utilizing forest

products. Lands along roads, canal banks, railway lines and flood embankments, mixed plantation for commercial use was to receive greater attention. Farm Forestry and communication were to form an important part of the forestry programme.

10.8. SIXTH FIVE-YEAR PLAN (1980-85):

The Sixth Five-Year Plan continued the momentum gathered during the previous plan period. However the thrust was on social and community forestry and development without destruction. The following broad strategy was adopted –

(i) The environment was improved by producing man made forests and undertaking massive Afforestation on degraded lands,

(ii) Strict protection was afforded to wildlife and its habitat,

(iii) A massive social and farm forestry and village fuel wood plantation programme was taken up to meet the ever growing energy needs of the rural people,

(iv) Employment was provided to the ever increasing rural population with special attention to the weaker sections of the society, and

(v) The following four programmes of thrusts were introduced during this plan period –

(a) tree for every child programme

(b) eco-development force of ex-servicemen

(c) eco-development camps for students

(d) Agro-forestry programme.

10.9. SEVENTH FIVE-YEAR PLAN (1985-90):

The role and importance of forests in the general economic development of the country in terms of protection of the eco-system and supply of forest products was better appreciated. The main objectives, approaches and strategies of this plan were:-

(i) Conservation of ecologically fragile eco-systems and preservation of biological diversity in terms of fauna and flora,

(ii) Increasing substantially the vegetative cover by massive Afforestation through social forestry, farm forestry and other plantation programmes,

(iii) Meeting the basic needs of the people in respect of fuel wood, fodder, minor forest produce and small timber,

(iv) Ensuring close linkages between Forestry programmes and welfare of the tribal and other communities traditionally dependent upon forests,

(v) Special emphasis on forestry research, education, training and extension

(vi) Implementing the national wildlife action plan for wildlife conservation, and

(vii) Creating a massive people's movement for achieving the above objectives.

The main achievements during this plan period were:–

(a) Massive social and farm forestry programmes were taken up,

(b) More emphasis was laid on the Afforestation of degraded lands and wastelands. The national wastelands development board (NWDB) was set up.

(c) research and training were strengthened by the creation of the ICFRE and IGNFA.

(d) More stress was laid on preserving the eco-system and wildlife.

10.10. EIGHTH FIVE-YEAR PLAN (1992-97):

The eighth five year plan aims at for restoration of ecosystem and taking of massive plantation programmes. In other words its objectives are to increase Afforestation programmes, preserve the eco-system and wildlife and to strengthen forestry research, education and training.

The major objectives for this Plan are:

1. To protect the natural environment,
2. To regenerate and restore degraded ecosystems and increase their productivity and to generate employment through these activities,
3. To decentralise control over nature and natural resources,
4. To develop and share an understanding of nature and natural process,
5. To formulate a national policy for environment and an appropriate institutional and legal framework in support of the policy,
6. To ensure co-ordinate and integrated Governmental action aimed at conserving nature and sustainable use of natural resources,

7. To make individuals and institutions more accountable to the people for their actions impinging on environment and ecosystem, and
8. To monitor the state of environment.

10.11. NINETH FIVE-YEAR PLAN (1997-2002):

The main objectives of this plan are:

- Empowering the people through information generation, dissemination and access
- Involving the Industry in both the private and the public sector.
- Integrating environment with decision making through valuation of environmental impacts, evolving market based economic instruments as an alternative to the command and control form of environmental regulation, appropriate pricing of natural resources based on their long-term marginal cost of supply, appropriate fiscal reforms and natural resource accounting.
- Evolving the rights for common property resources.
- Inter-sectoral coordination and cooperation.
- Ensuring scientific and technological inputs.
- Participation of people (particularly women) in the management and sharing of usufruct through Joint Forest Management.
- Involvement of NGOs for awareness building and as an interface between forest department and the people would be encouraged during the Ninth Plan.

10.12. TENTH FIVE-YEAR PLAN (2002-07):

India is privileged to host the Eighth Conference of the Parties (COP8) to the UNFCCC in Oct-Nov, 2002. The Hon'ble Prime Minister Shri Atal Behari Vajpayee in his speech at the High Level Segment of the COP8 asserted the high priority given to the forests. In his own words *"India accords high priority to conservation of forests and wildlife for long-term ecological and environmental security. The participation of local communities is ensured through the 'Joint Forest Management' programme. I am happy to say that this has helped to increase our forest cover significantly".*

The tenth five year plan is measure landmark in the history of development in India. It is the first five year plan of the new century. It aims at

achieving GDP growth of 8% average annual during tenth plan. A.B. Vajpayee the then Prime Minister had given opening remarks at the 50th meeting of the National Development Council, New Delhi, 21 December, 2002 while Approach Paper to the tenth plan was unanimously approved by NDC. He made specific suggestions for the consideration of that meeting.

1. The Governance reforms, with Special Reference to e-governance
2. Barriers to Internal Trade
3. Creating an investor friendly climate
4. Financial and Administrative Empowerment of Panchayat Raj Institutions.

The scheme titled National Afforestation Programme (NAP) was formulated by merger of four centrally sponsored Afforestation schemes of the Ministry of Environment and Forests namely, Integrated Afforestation and Eco-Development Projects Scheme (IAEP), Area Oriented Fuel wood and Fodder Projects Scheme (AOFFPS), Conservation and Development of Non-Timber Forest Produce Including Medicinal Plants Scheme (NTFP) and Association of Scheduled Tribes and Rural Poor in Regeneration, of Degraded Forest (ASTRP) with a view to reducing multiplicity of schemes with similar objectives, ensuring uniformity in funding pattern and implementation mechanism, avoiding delays in availability of funds to the field level and institutionalising peoples participation in project formulation and implementation. The Scheme will be operated by the National Afforestation and Eco-Development Board, Minister of Environment and Forest as a 100% Control Sector/ Centrally Sponsored scheme.

The main objectives of this plan are:-

- Bringing one third geographical area under the forest cover.
- Adopting watershed approach to develop and maintain the forest cover.
- The livelihood needs of the people living adjoining to the forests would be addressed.
- JFM would be given more thrust for the regeneration of the degraded forests.

- Efforts would be taken to reduce the import of the timber and the timber requirement would be met from the community lands, private farm lands and degraded lands.
- Food for work programme would be extensively implemented in the forest pockets to ensure food security and productive employment.
- Efforts would be taken on protecting the natural forests to have a better carbon trading potential to increase the market avenues for forest protection and management.
- The conservation and protection of the medicinal plants is given priority.
- The bio-diesels coming from plants like Jatropa, pongamia etc., would be promoted to encourage the livelihood opportunities of the rural masses.
- It is also decided to merge all Afforestation programmes under National Afforestation and Eco-development Board (NAEB) into one scheme called 'National Afforestation Programme' and it would be implemented through Forest Development Agency (FDA)

10.13. ELEVENTH FIVE YEAR PLAN (2007-12):

Ministry of Environment & Forests had an approved outlay of 10,000 crore for the Eleventh Five Year Plan, 2007-12. Annual Plan 2007-08 had an approved outlay of 1,351.00 crore against which the actual utilization amounted to 1,349.73 crore. In 2008-09, it was allocated an outlay of 1,500.00 crore, against which the actual utilization amounted to 1,483.02 crore. Annual Plan 2009-10 had an approved outlay of 1,880.00 crore, reduced at RE stage to 1,650.00 crore under economy instructions, against which the actual utilization amounted to 1,630.69 crore. Annual Plan 2010-11 had an approved outlay of 2,200.00 crore, against which the actual utilization amounted to 2,181.58 crore. In the last year of the Eleventh Plan, the Annual Plan 2011-12 had an approved outlay of 2,300.00 crore, against which the actual expenditure amounted to 1825.44 crore.

Forests not only provide livelihood to the rural poor and create opportunities for wage employment but also plays a key role in maintaining ecological stability and helps in reducing the impact of natural calamities. As per the Eleventh FYP approach paper, the Forestry Sector Development would adopt an approach

combining elements of asset creation, institutional development and social development to promote sustainable forest management practices. It would focus on conservation, protection and development of dense forests, regeneration of open forests, Afforestation, capacity building of the forest department and promotion of eco-tourism.

India is a party to the United Nations Framework Conventions on Climate Change, the objective of which is stabilization of the greenhouse gas concentrations in the atmosphere at levels that would prevent dangerous anthropogenic interference with the climate system. In consonance with the Govt. of India strategy, the Orissa Climate Change Action Plan Orissa has formulated the State Climate Change Action Plan. The scoping study was undertaken to understand the range of issues. An ambitious undertaking, it covered several sectors including agriculture, fisheries, animal husbandry, energy, forestry, health, industry, mining, transport, urban planning and others. During the Eleventh Five Year Plan the expenditure on forestry sector in Khordha Forest Division for the period from 2007-08 to 2015-16 is given in **Appendix IX.**

10.14. TWELFTH FIVE YEAR PLAN (2012-17):

Conservation and development of forests for land and water development in the country is key component of management of natural resources for meeting the demands of rising population. Forests have assumed greater significance due to its emerging role in the field of climate change, ecological security, biodiversity conservation, international commitment for sustainable growth and livelihood issues especially the food and water security of the country besides its traditional importance through supply of timber, fuel wood, fodder, medicinal plants and range of NTFPs. Therefore, for sound management of the natural resources, it is essential to accord sufficient importance in planning process to the conservation & development of forest resources.

In recognition of these aspects of the forests, the main thrust areas for intervention during 12th Five Year Plan are-

- Conserving forests for bio-diversity and enhancement of ecological services.
- Development of forests for enhancing livelihood options of forest dependent communities.

- Optimizing productivity of the under-utilized/ degraded lands and forest lands by growing multi-storey vegetation/ plantations/ forests through judicious combination of grasses, creepers, herbs, shrubs and trees in different storey for density improvement etc.
- Sustainable development of NTFPs including its value addition and marketing linkages.
- Soil and moisture conservation to ensure water security and better productivity of agricultural land.
- Agro-forestry and silvi-pasture development in range lands, energy plantation, and fodder farms at appropriate distances to reduce the drudgery of women, in areas adjoining forests.
- Greening the urban and peri-urban spaces.
- Institution building for promoting enhanced participation of people in forest management and for better governance.
- Technology based monitoring and evaluation to know the performance of interventions made and its outcome for mid-course corrections / changes if required.
- Capacity building of local communities and forestry officials to sustainably manage the forest resources and augmentation of livelihood of local people including women.
- Develop negotiation potential for attracting international funds like REDD^{+}, CDM, ITTO etc.

Proposed scheme under 12th Five year Plan

Ongoing scheme

1. National Afforestation Programme (NAP) Scheme
2. Intensification of Forest Management Scheme

10.14.1 National **Afforestation Programme (NAP) Scheme**

NAP scheme provides support both in physical and capacity building terms to the Forests Development Agencies (FDAs) which in turn are the main organs to move forward institutionalization of Joint Forest Management. The FDA has been conceived and established as a federation of Joint Forest Management Committees

(JMMCs) at the Forest Division level to undertake holistic development in the forestry sector with peoples participation including women as well as local institutions. From the year 2010-11, State Forest Development agency (SFDA) has been constituted at the State level to smoothen the fund flow to the FDAs. This decentralized three-tier institutional structure (SFDA, FDA, and JFMC) allows greater participation of the community, both in planning and implementation, to improve forests and livelihood of the people living in and around forest areas. The village is reckoned as a unit of planning and implementation and all activities under the programme are conceptualized at the village level. The three-tier approach, apart from building capacities at the grassroots level, significantly empowers the local people to participate in the decision making process. Under Entry Point Activities, community assets are created with a 'care and share' concept. The objectives of the schemes are as follows.

- Protection and conservation of natural resources through active involvement of the people, especially women.
- Checking land degradation, deforestation and lose of biodiversity.
- Ecological restoration and environmental conservation and eco-development.
- Involving village level people's organization including women groups and local institutions which can manage the natural resources in and around village in a sustainable manner.
- Fulfilment of broader objectives of productivity, equity, and sustainability for the general well being of the people.
- Improve quality of life and self-sustenance aspect of people living in and around forest areas.
- Capability endowment and skill enhancement for improving employability of the rural people.

During the Twelfth Five Year Plan the expenditure on forestry sector in Khordha Forest Division for the period from 2012-13 to 2016-17 is given in **Appendix IX.**

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CHAPTER – 11

PAST SYSTEM OF MANAGEMENT

11. PAST SYSTEM OF MANAGEMENT:

11.1. GENERAL HISTORY OF FOREST:

Right from Pre-British period to Post-Independence period covering 1st five year plan period to the 12th five year plan period, the forest have undergone various changes. Normally, forests are scientifically managed as per the prescriptions made in the Working Plan. The impact of a Working Plan is evaluated usually at an interval of 10 years. During the past 150 years the main focus has been on sustaining and augmenting natural regeneration through manipulation of overhead light, regulation of felling intensity of trees in different canopies. The following factors had greatly influenced the forest crop in the past years:

1. Introduction of scientific forest management by the British around 1850.
2. Two World Wars.
3. Independence in 1947.
4. Acquisition of private forests – 1956.
5. Recommendations of National Commission on Agriculture – 1976.
6. Environmental Awakening – 1985.
7. Ban on green fellig introduced in the State in 1988
8. Lifting of Green felling in the State in 2005

For a rational and intelligible ecological impact assessment, the entire history of forest management is divided into six distinct periods:

1. Pre-British Period
2. Early British Period (1750-1900)
3. Late British Period (1900–1947)
4. Post-Independence Period (1947-1975)
5. Post-Independence Period (1975-1985)
6. Post-Independence Period (1985- 2005)
7. Post-Independence Period (2005 - 2017)

The changes witnessed by forest managers during the last 150 years can be represented as follows:

1. Conservation (upto 1900)
2. Production (1900-1985)
3. Total ban on production (1988 to 2005)
4. Lifting on ban on production (2005 to till date)

Orissa was ruled by Hindu Kings for centuries until 1568 when the Afghans conquered the country and ruled till 1592. In 1592, Orissa came under Mughal Rule and remained under them till 1751, when the State was passed to Marathas, who made a way for the British Rule, In Pre-British period, the forest was being managed in an un-scientific manner. It appears that the people were allowed to cut and clear the forest whenever they required. Certain stretches of jungles were reserved in the neighbourhood of forest for security point of view and games were preserved by the Kings. The historian Mr. Sterling in 1592 mentioned that there were 31 Zamindars under the Ruler of Khordha and one of them was in charge of Ranpur Ex-state. The then Acting Magistrate of Cuttack Mr. G. Heartwell reported in 1809, that Ranpur was an independent state during 1803. Thus Ranpur had acquired independent identity from Khordha between 1592 and 1803 and continued as feudal state till 1948, when it merged in the state of Orissa.

King of Khordha rebelled in 1804 and his estate was forfeited and brought under British Rule directly. Subsequently either at the time of quinquennial settlement of 1823-24 or 1836, the Settlement Officer Mr. Wilkinsion liberally encouraged Rayats for doing cultivation by clearing forests. Forest Conservation had never been thought of. That detrimental practice continued till 1870. It was in 1870 that, Mr. W.C. Taylor, who was appointed as Deputy Collector thought of putting some checks on unrestricted felling and taila cultivation. The system of permits and passes was first time introduced by him and some regulations were framed. Extract of the letter of Mr. Taylor to Collector, Puri No. 49 dated the 4th June 1872, will explain the condition of forests of Khordha at that time, which is quoted below: "When I came to Khordha I found the question of jungle and forest conservancy had been entirely neglected ever since the estate came into the hands of Government in the beginning of the present century, i.e. 1805"

The consequence is that forests of valuable Sal, Piasal, Kongra and other good trees have been entirely cut down and the timber carried away to supply the districts of Cuttack, Puri and Ganjam. When I came to Khordha five or six hundred carts from the adjoining zillas came daily to our jungles and were laden with wood and bamboos in defiance of the sarbarakars and Khordha raiyats. In former year's timber, bamboos, fire wood, and minerals were sometimes allowed by the Sarbarakars to be taken on receiving some trifling royalty to which they had no right whatsoever.

Later on the Sarbarakars got alarmed at the massive destruction of the jungles and endeavored to prevent outsiders from cutting it, but without success, as until Mr. Manson's (Deputy Conservator of Forests) time the government officers appeared to consider that Government had no interest in forests and that the Sarbarakars should be allowed to fight their own battles both as regards the preservation of forests and integrity of boundaries between Khordha and the adjoining Zamindaries, Peshkahs and Tributary Mahals. The consequence of this neglect has been, as said before most disastrous to the Government and the people of Khordha".

Subsequently the Government of India Vide letter No. 402-T dated. 9.6.1879 appointed Mr. E.E. Wylly as Forest Officer @ Rs. 100/- per month under the Collector "with provision that forest be visited by and reported on by Conservator or some other Forest Officer". Following further representations made by Mr. Taylor, the Local Government issued a notification dated 9-8-1880 declaring all the unsettled lands in the Khordha estate to be Protected Forests under the Chapter IV of the Indian Forest Act this was a land mark development in the history of Forest legislation.

During 1881 Mr. Taylor proposed that about one quarters of these Protected Forests should be closed for felling and grazing for 10 years. Subsequently these areas were visited by Mr. Gamble in January 1881 who gave full account of Khordha Forests in his report and forwarded the proposal of reserving some of them. He suggested the closing of 39 blocks, vide Notifications dated 23.6.1885, 3.7.1885, 15.11.1886 and 13.11.1891 declaring (1) Churang, Chandaka, Darapita, Tarkei, Barunei, (2) Arang, Tamna, Katwal, Bankarm Kuhuri, Sulia, Panchagrh, (3) Haripur, Majna, Jaimangal Nayuapalli, Ranpur, Bharatpur, Mendhasal (4) Rajin, as Reserved

Forests under section 19 of Indian Forest Act. Subsequently by Notification date 15.5.1892 some of these blocks were relegated to the status of Protected Forests.

In 1883, the forest areas of Khordha Estate were placed under the control of forest department through the administrative unit known as Khordha Forest Sub-Division with headquarters at Khordha under Orissa Forest Division with headquarters at Cuttack. Another sub-Division was at Angul. This arrangement continued till 1891 when Puri Forest Division was constituted. Most of the buildings were erected and roads were constructed and survey and demarcation of the forest areas was undertaken during 1833 to 1895. There being no mature stock, main object of Forest Officers had been to preserve and improve left over stock and consequently no considerable felling were undertaken. The Forests were carefully protected from fire, important experimental thinning was taken up in Class II forests and plantations in classes I and II were raised. Teak was introduced for the first time in the Division during 884-85 and plantations inside Barunei Block over 68 acres was raised through direct sowing or dribbling of seeds in patches. The first ever regular Plan was prepared by Mr. C.C. Hatt based on the lines indicated in the unofficial note prepared by Mr. Ribbentrop, the then Inspector of General of Forests and the forests were worked under the said Plan from 1896-97. Most of the Forests of Puri Division except those, Balukhand and Ranpur Ranges were notified Reserved between 1885 to 1911.

11.2. PAST SYSTEM OF MANAGEMENT AND THEIR RESULTS:

11.2.1. HATT'S PLAN 1896-97 to 1905-06:

Basing on the policy draft by Mr. Ribbebtrop, the then Inspector General of Forests, Mr. C.C. Hatt prepared the First Working Plan of Puri Forest Division. Prescriptions of this plan were conservation oriented. Most of the scrub forests of Chandaka and Khordha Ranges (17304 Acres) were closed to all fellings. It is significant to note that even in 1896, forests of Puri Division were classified into five classes were defined as:

I. Thorny bush and bamboo forests (*Bambusa arundinacea*)

II. Mixed forest of Bamboos, coppice poles and seedlings of tree species with under growth of thorny bushes varying in density.

III. Sal Coppice Forests.

IV. Bamboo (*Bambusa arundinacea*) Forest with standards.

V. Mixed high forest in which Sal predominates.

Those days management was not Revenue Oriented as Revenue was limited to 30% of Expenditure incurred on development of Forests. The felling were very light and limited to removal of diseased and badly grown trees. The Plan also prescribed for experimental planting of Teak in strips. Teak was raised for the first time in Southern (Balugaon) Range inside Rajin Reserved Forest, Compartment No. 12 during 1903-04 over 2 acres. 15' wide strips were to be constituted and cleared alternating and in this cleared stripe 2 rows of teak were planted 71/2' apart and rows were 5' apart. Prescriptions of these plans were fully carried out and had not affected the forests adversely as those were very conservative.

11.2.2. MONTEATH'S PLAN 1905-06 to 1919-20:

Owing to the improvement of the demand of the forest produces, a revised method of working was introduced from 1905-06 by this Plan. Under this Plan 3 Working Circles coinciding with the 3 existing ranges, Chandaka, Khordha and Banpur were constituted and the Plan was prepared for 15 years. The treatment prescribed for Banpur Working Circle comprising of all Sal forests of Balugaon Range was Selection felling, the annual yield was based on complete enumeration of all Sal and Piasal trees over 12" diameter. The plan provided for the removal of all the trees of and above 24 inches diameter together with the half of the trees between 18" to 24" diameter within a period of 30 years. Subsidiary operations included cleanings and thinning, which were largely neglected. This Plan prescribed introduction of Teak in Balugaon Range after the same was found to be successful during the first Plan period in Chandaka Range and Barunei Block. Here the prescription was to plant Teak in 15 feet wide strips cleared through forest one chain apart 5' X 7' spacement. Chandaka and Khordha Ranges were kept under systems known as 'Simple Coppice' and Coppice with Standards' respectively.

In 1911 Pongarsingh, Manibandha, Bhola and Daspur blocks were reserved and managed under the coppice system prescribed for concerned range for the remaining years of the Plan.

The results of second Plan were satisfactory and value of the crop improved. On expiry of second Working Plan 1919-20, the Preliminary Report was drawn for the forests of Balugaon Range by R.C.A. Hannah, Extra Deputy Conservator of Forests, Puri Division, and concept of periodic block was introduced. Here the proposals were for removal of the entire over hood in the first periodic block I single regeneration felling. This did not meet with approval for want of sufficient certainty of obtaining regeneration. Subsequently a second Preliminary Report for these forests was prepared by Mr. O.A. Dodsworth, which was approved and the forests were worked on the lines indicated therein for 5 years when the proposals were finally incorporated in the 3rd Working Plan prepared by Mr. R.L. Derry in 19.6 Observations of Mr. O.A. Dodsworth are very important at that point of time and to quote him,

On the one hand the Silvicultural requirements of Sal in this tropical climate have been lamentably misunderstood in the past. What was considered suitable treatment in a dry climate was applied with equal vigor in the Sal forests of this region. The Sal seedling, which thrives and even delights under moderate shade in a hot dry atmosphere, is absolutely intolerant of any over head cover from its earliest infancy in these forests. The evergreens which could have been kept in hand by judicious application of fire in the early stages have not become of too large a size for ordinary leaf first to affect them."

Till 1926, forests of Chandaka and Khordha Ranges were continued to be worked as per prescriptions of Monteath's Plan. The prescriptions met with the complete success except that nothing was suggested for obtaining regeneration of Sal (except in burning in the forests) which was observed to be lacking during 1916.

11.2.3. DERRY'S WORKING PLAN (1926):

The third Plan brought up radical change in the management of high forests of Balugaon Range. Under this Plan conversion to uniform system was for the

first time introduced for forests in Rajin and Tamna blocks of Balugaon Range, where regeneration felling by group method was prescribed. For Coppice areas of previous Plan, old prescriptions were continued with slight modification in rotation. The Plan provided following Working Circles,

1) Sal Conversion Working Circle.
2) Hill Working Circle
3) Miscellaneous Working Circle.
4) Teak Plantation Working Circle,
5) Coppice with the Standards Working Circle,
6) Simple Coppice Working Circle.

Sal Conversion Working Circle:

The Sal Conversion Working Circle was extending over areas of quality I and II and better parts of quality III Sal forest of Rajin and Tamna Blocks. This Working Circle covered 5798 acre area and was divided into four Periodic Blocks called PB-I, II, III and IV. In PB-I, the felling were prescribed by Group method with 4 periods of 20 years each, rotation being 80 years.

In the meantime, it was proposed to go over PB-II areas in 10 years o Selection- Cum-Improvement basis felling all sound trees over 51/2' in girth together with the dead and diseased trees and trees interfering with the promising first class trees, Fellings were to be followed by the cleanings and burnings.

Most of the balance forest areas of interior quality III and IV were allotted to PB-III and IV. These areas were divided into 10 coupes and worked over twice in the first period on the lines similar to PB-II areas and fellings were to be followed by the cleaning. Annual yield in the PB-I areas was based on complete enumeration of Sal and Piasal trees down upto 12" diameters and was fixed at 2798 units treating a tree of 3'-4' girth as 1 unit, 4'-5' as 2 units and 3 units for trees above 5'. No systematic scheme of thinning was prescribed in view of the limited and scattered pole crops.

Hill Working Circle:

Hill Working Circle was created with the objects of improvements of crops on the hills and for protection of the streams in Tamna and Rajin blocks. The system was Selection-cum-Improvement with exploitable girth of 4'.For initial 15

years, it was proposed to work in hilly portions of the compartments allotted to PB-I of Sal Conversion Working Circle, where crop was mainly of quality III and IV to be worked along with the adjacent coupes of the PB-I, the area of this Working Circle was 1291 acres.

Miscellaneous Working Circle:

This Working Circle was constituted out of the miscellaneous forests over 12105 acres of area in Balugaon Range. The objects were to increase the portion of valuable species and to protect the hill sides. The felling cycle was fixed at thirty years and various exploitable girths were laid down for different species. No work was carried out in this Working Circle.

Teak Plantation Working Circle:

This Working Circle was extending over 1500 acres of fertile localities bearing miscellaneous forest growth in Balugaon Range. The aim was to replace miscellaneous growth with the valuable Teak crop. Teak was raised by transplanting of seedlings from nursery in lines at 6'x6' spacement, departmental plantation was preferred over Taungya. Thinning of Teak Plantations on a cycle of 5 years were also prescribed.

Coppice with standards working circle:

This Working Circle covered the better forests included in Monteath's Coppice Working Circle with rotation of 40 years with a stipulation of retention of 20 to 25 of Kongra trees per acre in Kongra bearing areas Rigid fire protection and mechanical thinning of coppice shoots were prescribed.

Simple coppice working circle:

This Working Circle extended over the poorer forests of Chandaka and Khordha Ranges having rotation of 20 years with the objects of meeting the requirement of fuel wood and small timbers. Thinning in tenth years and rigid fire protection measures were prescribed.

Results:

Most of the prescriptions of the Plan were carried out properly. Felling in Sal Working Circle was up-to-date and operations in the Hill Working Circle had been well maintained and no coppice coupes were in arrear. Miscellaneous Working Circle was not operated perhaps due to lack of demand and Teak Plantation Programme was behind schedule, may be because of shortage of labour. The prescriptions of Coppice Working Circle were fairly successful as an increase of rotation from 30-40 years yielded better results, but reduction in rotation from 30 to 20 years in poor class forests was not a sound proposition, planting at the spacement of 6' x 6' was not adjudged to be correct as growth rate is faster in Banpur Mala. Introduction of Uniform System did not work well, Forest blocks under PB-I system suffered maximum and even in PB-II, III, and IV, heavy fellings were executed. The canopies were opened drastically and regeneration did not keep pace with. After application of prescriptions of the Plan in PB-I areas for 4 to 5 years, it was realized that fellings were too heavy and lighter fellings were resorted to. Had the prescription been continued as such, irreparable loss would have been caused. However this has already resulted in invasion of forests by evergreen species and Sal has lagged behind.

11.2.4. MOONEY'S PLAN OF 1931-32 to 1954-55:

In 1931, Mr. Derry's Plan was revised due to its failure in respect of Sal Conversion Working Circle and 4th revised Plan was made by Dr. Mooney which came into force from 1st April 1931. This Plan constituted six Working Circles, namely:

1) Selection Working Circle,
2) Coppice Working Circle,
3) Teak Plantation Working Circle,
4) Casuarina Working Circle,
5) Miscellaneous Working Circle,
6) Bamboo Working Circle.

Selection Working Circle:

This Working Circle extended over an area of 22.907 acres of Sal and Miscellaneous Forests of Balugaon Range and also some of the overlapping areas of

Teak Plantation Working Circle of erstwhile Plan. The felling cycle was fixed at 24 years without assigning any reason for the same. Old PB-I areas of Mr. Derry's Plan were also included 12 years felling cycle for Fungus affected trees was prescribed and variable exploitable diameters were fixed for the species in different quality classes. Burnings were prescribed inside Selection Coupes atleast 5 years in advance of felling and complete fire-protection was enforced only in the current year coupes and those worked in the preceding two years instead of complete fire protection in perpetuity for keeping a control over evergreen species. This Plan recognized the part played by miscellaneous species in ensuring Sal regenerating.

Coppice Working Circle:

It was extending over the areas of 19 blocks and a portion of Panchagarh block covering forests over 35, 580 acres. Rotation was kept at 24 years and no standards were originally prescribed for retention. First thinning was mechanical, reducing the number of shoots to one per stool and the second thinning aimed at increment in valuable species. Till 1940 thinning were carried out in haphazard manner for revenue rather than Silvicultural considerations. It was also prescribed to fell the sporadic Teak patches at the time of main felling leaving a few standards. Felling of sporadic patches of Teak during Coppice felling was not a proper prescription as none of the Teak Plantations were mature. The annual plantation of Teak @ 5 acres per year was prescribed in Barunei 'B' Felling Series. Original plantations were seriously damaged by cyclones in 1926, 1938, and 1942. Complete fire protection measures were prescribed but not followed.

Teak Plantation Working Circle:

This Working Circle covered an area of 8196 acres in Rajin, Tamna, Arang, Bankar and Katwal blocks out of which 1503 acres had already been planted since 1905-06, leaving a balance of 6693 acres to be completed during the period of 24 years. The first thinning was prescribed at 10^{th} year and further thinning to follow at the interval of 10 years upto 70 years. No thinning table was prepared. Subsequently a thinning scheme was prepared in 1933-34 and followed till completion of Plan.

Perhaps due to high cost and poor technique, the plating programme was not properly implemented in the beginning. The experiments were made with different spacing with strips of jungle growth between and spacing of 8 x 8' was favoured.

Bamboo Working Circle:

This Working Circle extended over an area of 42,656 acres overlapping the Selection, Miscellaneous and Teak Working Circles of all blocks in Balugaon Range. Four felling series were formed having similar cutting rules for *Dendrocalamus strictus* (Salia) and *Bambussa arundinacea* (Daba). Initially the bamboo areas were not worked properly as Salia Bamboo Forests were all remotely located and Daba Bamboos found in Selection Working Circle were also left unworked due to long lead. In Coppice Working Circle, were the quality was poor, they had been badly exploited. In 1938 the prescriptions for Daba bamboos were amended and clear felling in current and future Selection coupes was prescribed. Due to lack of demand, a few Bamboo clumps were felled. In Coppice Working Circle also where clear felling was prescribed, Bamboos were not exploited by the Contractors.

Casuarina Working Circle:

Whole of the Balukhand block of erstwhile Puri Division covering 3.355 acres was divided into 12 compartments, and was allocated to Casuarina Working Circle. This Working Circle was first time introduced in the Working Plan. Casuarina Plantation was raised for the first time during 1916-17 around Puri near Balukhand to check and control shifting of sand and minimise the damage due to cyclone. This was started by Mr. J.P. Haslett, extra Deputy Conservator of Forest Two felling series, namely Northern Felling Series and Southern Felling Series were constituted. Existing crop in the Northern Felling Series was to be clear felled within a period of 12 years keeping in view rotation of 15 years. Intermediate thinning were prescribed in the 9^{th} year in better quality areas wherein $1/5^{th}$ no. of stands were to be removed. In Southern Felling Series low lying areas, river beds and sand dunes were included and felling of dead, dying trees was prescribed. Healthy casuarina trees were to be pruned in 6^{th} year upto 6'- height and crop to be thinned in 9^{th} and 10^{th} years. The prescriptions for

Southern Felling Series were amended in 1936, when removal of dead, dying trees along with the trees of and above 10" diameter was prescribed on 3 year cycle. It was observed by subsequent Working Plans Officers that deepening of Surlake Cut in 1940-41, caused extensive dying off owing to lowering of water table. As the demand was less, instead of working over whole area, clear felling and planting on small scale, leaving 3 chain width of wind belt o seaward side was experimented. The plantations raised in 1941 came up successfully.

11.2.5. DASH'S PLAN OF 1944-45 to 1953-54:

Mr. G.C. Dash revised the Plan prepared by Dr. Mooney. This plan came into effect from 1st July, 1944 for 10 years. Under this plan following 8 Working Circle were formed :- i) Sal Regeneration Working Circle ii) Selection Working Circle iii) Sal Coppice Working Circle iv) Mixed Coppice Working Circle v) Teak Working Circle, vi) Bamboo Working Circle, vii) Casuarina Working Circle, viii) Miscellaneous Working Circle.

Sal Regeneration Working Circle:

1,094 acres area of Tamana Block, Compartment Nos. 4,5 and 6 (Part) was included in this Working Circle with the object to obtain regeneration of Sal by creating favourable conditions. However, the author was not successful in getting of these areas by Teak as Sal regeneration was expected. He prescribed for removal of all dead, dying diseased and malformed Sal trees and late burning was recommended. Evergreen species were to be felled or girdled and shrubs to be cut for 2 successive years. As was observed by Working Pans Officers later, it did not achieve success.

Selection Working Circle:

This Working Circle extended over an area of 21,479.8 acres in Tamana, Rajin, Katwal blocks consisting of Sal and Miscellaneous forest. Marking rules as prescribed in Mooney's Plan were normally accepted, except that retention of sound trees of principal species having dbh higher than exploitable dbh was suggested. Whole of the area except the current year's coupes and coupes worked in the preceding 2 years

were to be burnt annually. The burning was to be affected in late months in damp areas and early months in drier localities. Burning of vast area such as 17 coupes out of 20 coupes was later criticized for being too impractical.

Sal Coppice Working Circle:

This Working Circle covered an area of 3, 46,064 acres and comprised of Sal bearing areas of Khordha Ranges. It was to be worked on the lines suggested in the previous Plan. Artificial plantation of Sal was suggested which was never carried out. The areas were over exploited without assessing the assessing potentiality.

Mixed Coppice Working Circle:

This Working Circle covered an area of 34,386 acres and comprised of Mixed forests of Khordha Ranges and Aranga Compartment No. 5 and 8. The plan prescribed for plantation in 1/3rd area of annual coupe with Teak which was not followed. The coupes were to be clear-felled leaving a few standards and rotation was kept at 40 years. Besides other prescriptions, thinning regime for Teak Plantations occurring within this working Circle was also prescribed.

Teak Working Circle:

This Working Circle extended over an area of 3,617.2 acres of old plantations was intended to cover any new areas likely to be taken out from Selection Working Circle and Miscellaneous Working Circle for raising Teak Plantations. An annual plantation target of 100 acres was fixed. Now new Teak Plantation areas were specifically prescribed and it was all left to the discretion of concerned Division Forest Officer.

Miscellaneous Working Circle:

This Working Circle covered Aranga Compartment 1a, 2a, 3a, 6a, 7, Tamana Compartment No. 1a, 2a, Bankard Compartment No. 1a, 2a, 3a, 4a, Katwal Compartment No. 1a, 2,3,4, Rajin Compartment No. 12, 15b,16b,17b,18b,28b and Balukhanda Compartment No. 1,2b,2c,8b, and 12b and no treatment except ban on any

type of felling, was prescribed. Forests were opened for grazing and measures for protection from fire were not to be enforced.

Bamboo Working Circle:

Bamboo Working Circle was overlapping all Working Circles except Casuarina Working Circle and some portions of Sal Coppice Working Circle and Teak Working Circle for which separate prescriptions were indicated. Daba bamboos were to be clear felled on 10 years cycle whereas Salia bamboos were to be felled at 4 years cycle. This posed difficulty in working in the areas having concentration of Salia and Daba both.

Casuarina Working Circle:

Casuarina Working Circle covered an area of 3,235.6 acres extending over Balukhand block of erstwhile Puri Division. 222 acres of Cauarina forests of Balukhand block lying along the sea coast was taken to miscellaneous Working Circle as the area was likely to be extended by gradual shifting of the sea coast. Two felling series 'A' and 'B' were constituted corresponding to North and South Felling Series' of Mooney's Plan with a difference that only 'A' felling series was to be worked and 'B' felling series (which was comprising of the mortality zone) was prescribed for tending and plantation operations only. Thinning at 6^{th} and 12^{th}, year was prescribed. Rotation was fixed at 20 years. In 1958, sudden mortality over 2280 acres of plantation occurred and a separate scheme for felling with 15 years rotation was prepared in 1962 after planting up of the mortality areas.

11.2.6. MATHUR'S PLAN FOR RANPUR FORESTS, 1947-48 to 1956-57:

During the concurrency of Mr. Dash's Plan India attained Independence and ex-state of Ranpur got merged in Orissa in 1948. For Ranpur Ex-state, Mr. G.N. Mathur, Forest Adviser of Orissa State prepared a Plan which came into force from 1^{st} October, 1947. The Plan prescribed for 5 Working Circles, namely:

i) Selection Working Circle,
ii) Coppice Working Circle,
iii) Bamboo Working Circle,

iv) Unregulated Working Circle
v) Plantation Working Circle.

Selection Working Circle:

This Working Circle extended over 10,000 acres of forests Mala and Patia blocks were to be worked on 20 years felling cycle by removing 700 Sal trees of and above 5' girth annually. No specific coupes were laid down and those were let to the discretion of field staff to get 700 trees over any extent of area which resulted in devastation of accessible forests.

Coppice Working Circle:

This Working Circle extended over an area of 12,873 acres of Champagarh, Dhani. Patia, Maninag, Stabhaya and Sulia 'B' blocks. Rotation was kept at 40 years for all forest blocks except Satabhaya and Champagarh, which were to be worked under 30 years rotation. The Silvicultural System was coppice with the standards.

Bamboo Working Circle:

This Working Circle was overlapping all Working Circles and four Felling Series were formed i.e. Mala, Patia, Dhani, Sulia 'B' with a rotation of 12 years and a felling cycle of 4 years. 1/3rd of the number of Daba bamboo clumps, which were mostly found, were to be clear felled in one cycle. The Bamboos of Sulia 'B' block were meant for local tenants.

Plantation Working Circle:

No. specific area was allotted to this Working Circle. Only prescription was to plant Teak in one planting series in continuation of Old Teak Plantations existing in Mala block. No specific rotation was worked out and no definite thinning was prescribed.

Control Forest Department after Independence:

At the time of independence, Ranpur forests continued to be worked as per the plan prepared by Sri G.N. Mathur and rest of the forests subjected to the plan

prepared by Sri G.C. Dash. It was only in 1959 that Mr. C.L. Mohapatra, prepared a scheme for exploitation of Teak trees of Old Teak Plantation of Puri Division.

11.2.7. MOHAPATRA'S SCHEME OF 1959:

Under this scheme, 2031.0 acres of Old Teak Plantations raised by 1931 were included and 2 felling series viz. Barunei and Berbera were constituted. The scheme provided for removal of 80 matured trees pf 20" dbh and above in Barunei felling series and 160 sound trees of 28" dbh and above in Berbera Felling Serices over a felling cycle of 15 years. The scheme envisaged inter-planting of gaps with Teak in the felled areas. A rotation of 80 years for the plantations of Barunei Zone and 75 years for the plantations of Berbera Zone was taken, assuming the quality of Barunei Zone as quality III and Berbera zone as quality II.

11.2.8. MITRA'S PLAN 1965-66 to 1984-85:

After expiry of Sri G.C. Dash's plan for the parent Puri Division in 1954 and Sri G.N. Mathur's Plan for Ranpur ex-state, in 1955, no further Plan was written by anybody except one Working Scheme prepared by C.L. Mohapatra (1959) for exploitation of Old Teak Plantations of Puri District (though it covered only Puri Division areas) covering an area of 031.20 acres planted upto 1931, which was succeeded by Working Plan prepared by Mr. M.N. Mitra for the period from 1965-66 to 1984-85. The general objects of the management under this Plan remained more or less, the same as any other Working Plan in the country i.e. conservation of soil and water resources by maintaining vegetative cover on hill slopes and eroded land, meeting the growing needs of the local population, maintenance and improvement of the growing stock by proper scientific management and consistent with the above, to obtain maximum financial return on a sustained basis. To attain the above objectives 10 Working Circles were constituted as follows:

1) Sal Section Working Circle,
2) Improvement Working Circle,
3) Coppice Working Circle,
4) Miscellaneous Selection Working Circle,
5) Teak Working Circle,
6) Casuarina Working Circle,

7) Bamboo (Overlapping Working Circle,
8) Cane (Overlapping) Working Circle,
9) Minor Forest Produce (Overlapping) Working Circle,
10) Game Preservation (Overlapping) Working Circle.

Sal Selection Working Circle:

This Working Circle was consisting of Compartment Nos. 3,6,7a,9a, 13a,14a,15a,18,19,20,21,a, 23, 25a,27a,28a of Rajin block and Compartment Nos. 7a, 8a, 13a, 14a, of Tamana Block and Compartment Nos. 11, 18, 19, 20, 21, 24, 25, 26, 27, 28, 36, 48, 49 of Mala Block, and Compartment No. 1 of Patia Block (excluding Teak Plantations or areas having less percentage of Sal). This Working Circle, extending over 14,640 areas, was consisting of 2 Felling Series to be managed under Selection System. Special object was to tend and increase the proportion of Sal in the crop and to induce regeneration of Sal in the crop. Exploitable diameter for all the species except. Teak, Piasal and Semal at 60 cm. Yield was regulated by area and felling cycle was fixed at 20 years. Felling were to be controlled according to Smythie's Safeguarding Formulae. Coupes were to be demarcated by pollarding inferior tree species over 8" diameters along the coupe line. Mr. Mitra observed even at that point of time that the enumerations revealed deficiency of trees of and above 20" (50cm) dbh and 16"-18" (40-45cm) and 18"-20" (45-50cm) dbh in both the Felling Series. The marking rules prescribed were however too ambiguous to be followed by subordinate field.

Improvement Working Circle:

This Working Circle was extended over the pure Sal Forests in Compartment No. 4,5 and 6 Tamana Blocks covering an area of 943 acres which was allotted to Sal Regeneration Working Circle in Mr.G.C. Dash's Plan with the objective of obtaining Sal regeneration de novo. A Felling Cycle of 20 years was prescribed. Exploitable size for Bandhan, Dhaman was kept at 12" dbh, for Teak, Piasal, and Semal at 24" dbh and Forest of the species the exploitable diameter was 20" dbh. Removal of all dead dying diseased and over mature trees, which other with would not have remained sound for another 20 years was prescribed. Improvement Fellings were to be executed departmentally. No yield was prescribed and subsidiary silvicultural operations consisting of plantation of Sal in staggered trenches, weeding thinning of Sal

plantation at 11th and 26th years were prescribed. The system mainly aimed on getting Sal regeneration by plantation which was never tried.

Coppice Working Circle:

The Coppice Working Circle consisted of 21 complete forest blocks and Compartment Nos 5 and 8 of Aranga block. the Working Circle was distributed in 23 Felling Series viz, 1) Jayamangal 2) Pongarsingh 3) Manibandh 4) Kuhuri 5) Sulia 6) Panchagarh 7) Nagapalli 8) Bhola – Daspur 9) Bharatpur 10) Chandaka (N) 11) Chandaka (S) 12) Baripta 13) Tarkei 14) Mendhasal 15) Aranga 16) Maninag (N) 17) Maninag (S) 18) Dhani (N) 19) Dhani (S) 20) Sulia 'B' 21) Satabhaya 22) Nuapara 'B' 23) Campagarh.

Rotation was fixed at 40 years for the first 20 Felling Series and 30 years for the last 3 Felling Series Viz: Satabhaya, Nuapara 'B' and Champagarh Felling Series. The Silvivultural System was "Coppice with Standards", Standards of 4" to 8" dbh in case of Gamhar, Bandhan not exceeding 15 trees per acre were to be kept. The subsidiary silvicultural operations included along with others, sowing, and planting of Sal in Jayamangal, Pongarasingh and Manibandha Felling Series and plantation of Teak in Non-sal felling series along with Semal, Bamboos and Gambhar. Rab-sowing of Khaira, Bheru and Sabai was prescribed for Aranga Block and Teak Plantations occurring inside the Working Circle were to be thinned in 5th, 11th, 17th and 26th years. No thinning were prescribed for felling series having 30 years rotation.

Miscellaneous Selection Working Circle:

The Working Circle covered moist evergreen and miscellaneous deciduous forests covering an area of 22,344 acres in Rajin, Tamana, Mala and Patia blocks 3 Felling Series were constituted viz Rajin, Mala and Patia, keeping in view the special object of increasing the proportion of valuable species like Piasal, Sissoo, Bandhan, and Gamhar etc. Silvicutural System known as "Selection –cum-Improvement" was prescribed. Exploitable diameter for Teak, Piasal and Semal was fixed at 24" dbh, for Bandhan and Dhaman at 2" dbh, and rest of the species at 20" dbh, Sal, Teak, Piasal, Bandhan, Sissoo, Gamhar, Mango, Tentra and Toon were classified

and treated as principal species and Asan, Jamu, Kurum, Mitikinia, Kusum, Kansa and Semal as secondary species and others were taken as interior species. The felling cycle was fixed at 20 years and yield was regulated by area. The marking rules were prescribed for 'Improvement Marking'down upto 8" dbh., without creating a permanent gap and thinning as in the Sal Selection Working Circle. Sowing and planting of Teak, Toon, Champa in clear of 45 meters width at 20 meters spacement were prescribed while Gamhar, Kasi and Tentra were to be planted in suitable localities I Banpur Mala. Planting of Sal in staggered contour trenches was also suggested. Prescription for fire protection and grazing were also specified for all practical purposes, it was a Selection Working Circle.

Teak Working Circle:

The Teak Working Circle covered an area of 34,906 acres excluding sporadic small Teak patched occurring in Coppice Working Circle, and Improvement Working Circle. Sal Selection Working Circle and Miscellaneous Selection Working Circle which could not be separated and allotted to this Working Circle. The main prescription was tending and exploitation of existing plantation and raising of new plantation by clear felling the miscellaneous forests 13 Planting series were constituted out of which 2 Felling Series namely Rajin and Barunei contained old Teak trees over 70 years of age fit for exploitation.

The Silvicultural System prescribed was clearfelling of miscellaneous growth with provision to retain promising Sal poles and trees up to 12" dbh. and Teak tree up to 8" dbh. Teak plantations were to be raised through standard technique at spacement of 2.5mx2.5m mainly through stumps. Thinning were prescribed in the 5^{th} 11^{th}, 17^{th}, 30^{th} and 45^{th} years. The first thinning was to be mechanical and the rest were to be of D-grade. Plantation Journals were to be maintained under the prescriptions for the Working Circle, Teak Plantation existing over 3,188.96 ha. (7,972.40 acre) were to be tended and exploited and new areas for raising the Teak were specifically identified and coupes were laid down for 40 years. The extent of size of 50 acres. Annual plantation target was around 700 acres against which achievement was around 400 acres. Due to large scale illicit felling in old Teak Plantation areas, the Chief

Conservator of Forests, Orissa vide his letter No.15126(3) date 10-8-84 stopped clear felling of teak inside mature plantation areas till revision the plan. So subsequently plantation by clear felling of old Teak trees was not undertaken after 1984. During 1985-86, old Teak plantation, in Barunei Reserve Forest though not due for felling was clear felled presumable because the protection of old Teak trees against smuggling could not be ensured by the Divisional Forest Officer.

It is seen that old Teak plantations all over the division have been extensively attacked by smugglers and reduced to coppice shoots only. Most of the new plantations in Mala, Patia, Bankard blocks ended in failure.

Casuarina Working Circle:

This Working Circle covered an area of 3.870 acres of Balukhanda Reserved Forest of erstwhile Puri Division and included old Casuarina plantation and areas fit for raising its new plantations. 2 Felling Series were originally constituted namely: Northern Felling Series and Southern Felling Series. Subsequently Government vide their letter No. 10F (N)-158/77-29752 dated 3-11-1977, reconstituted Southern Felling Series into 3 felling series namely, Indradyumna Felling Series, Phulpatna Felling Series and Beldal Felling Series. The Silvicultural System prescribed was clear felling followed by artificial regeneration through planting of potted seedlings of Casuarina at the spacement of 2.5m x2.5m except the sea-shore sides where the spacement was prescribed to be 4'x4'. Regular Watering of plantations for initial 2 years and pruning up to 6' height in the fourth year and thinning in the 7tth year was prescribed. Casualty replacement was suggested to be done by Cashew and Eucalyptus seedlings and subsidiary Silvicultural operations prescribed for protection from, grazing and stoppage of latter removal. For Southern Felling Series i.e. Indrayumna, Beldal and Phulpatna Felling Series retention of all trees except dead, dying diseased and wind-broken which were unlikely to survive for 7 years more was prescribed. It was also suggested that no tree form wind belt area should be removed unless it is dead. It was left to the discretion of the Divisional Forest Officer to decide whether an area is inside the wind belt or not.

Bamboo Working Circle:

This Working Circle overlapped all other Working Circles except Casuarina Working Circle and covered total area of about 1,22,815 acres. 18 Felling Series were formed, out of which 4 felling series namely Rajin 'A', Mala 'A1',Ranpur-1, Sulia 'B1' Felling Series were for Salia Bamboo, while 14 Felling Series for Daba Bamboo, namely, 1) Tamana Felling Series 2) Rajin 'A' Felling Series 3) Rajin 'B' Felling Series 4) Ankula Felling Series 5) Aranga Felling Series 6) Mala 'A' Felling Series 7) Mala 'B' Felling Series 8) Sankhajodi 'A' Felling Series 9) Sankhjodi 'B' Felling Series 10) Ranpur Felling Series 11) Sulia 'B' (12) Patia Felling Series 13) Khordha Felling Series 14) Chandaka Felling Series. Rajin 'A1' Mala 'A1, Ranpur-1 and Sulia 'B1' were overlapping Rajin 'A', Mala 'A', Ranpur and Sulia 'B' Felling Series for Daba Bamboos.

The method of exploitation for Salia bamboo envisaged cutting of clumps of 4 years cycle and all bamboos in clumps wee to be felled except a) all clumps under 13 months age b) 6(six) older greed clumps evenly distributed over the whole of the clump c) Bamboos in flower until the seeds are ripened. The clumps were to be cut with in 6"-12" of the ground and the clumps to be cleared of debris after felling. Regarding Daba bamboos. rotation was fixed at 12 years and clear felling of the clumps close to the ground was prescribed. However, in Patia Felling Series, Daba bamboos were to be worked on clum selection basis in a cycle of 3(three) years on the lines similar to Salia Bamboo Working principles. Till 1987-88 bamboos were worked by M/s T.P. Mills, after which it was nationalized and is being worked by Orissa Forest Corporation Limited.

Cane Overlapping Working Circle:

Like bamboos this working circle also extended over all working circles except Casuarina Working Circle covering an area of 1,22816 acres and 5 (five) Felling Series were formed which were to be worked on a felling cycle of 5 years. All the 3 species of the canes i.e. *Calamus guruba, Calamus latifolius and Calamus viminalis* were treated at par. The exploitable length was kept at 6(six) meters and yield was

regulated by area. Each felling series was divided into 5 annual coupes and 1 coupe was to be worked annually Culms were to be cut at 1' above ground level.

Subsidiary operation included plantations of *Calamus guruba, Calamus latifolius and Calamus viminalis* in deficit areas. Annual Plantation of cane is suitable localities around 25 acres area and loosening of soil around the clumps worked out was prescribed.

Minor Forest Produce Working Circle:

Minor Forest Produce Working Circle covered all other working circles for exploitation of Minor Forest Produce like Kochila, Sunari bark, Broom grass, Myrobolans, Patalgaruda. The collection cycle for all items except sunari bark was one year. For Sunari bark, the collection cycle was kept at 10 years and the division was divided into 10 coupes and yield was regulated by area only. Root of Patalgaruda were to be collected from *Rauwolfia serpantina* plants by uprooting them in such a way that a portion of root remains inside the earth for further propagation and it was suggested that no root should be collected from plantation areas Minor Forest Produce items were to be collected in such a way that no injury is caused to other trees.

Game Preservation Working Circle:

This Working Circle covered whole of the division over an area of 1.2,685 acres. Two wildlife Sanctuaries one n Balukhanda block and another in Chandaka block and two shooting blocks namely Mala Shooting block and Patia shooting blocks were existing at the time of writing of previous plan. Mr. Mitra suggested that the games in these blocks should be rigidly protected. Subsequently after inception of Wild Life Act, 1972 shooting and games have been strictly prohibited and all the Wild animals have been given adequate legal protection.

Past Management of D.P.Fs:

Like the Reserved Forests, the D.P.Fs. as well as U.D.P.Fs of Khordha Estate ad their unsatisfactory condition first time attracted the attention of British Rulers in 1870, when Mr. W.C. Taylor was appointed Deputy Collector who reported to the

Collector that most valuable trees of forests and bamboos had been almost obliterated and brought under permanent cultivation.

Between the years 1870-1880, a mild form of forest conservancy prevailed and felling, removal of certain type of forest produce and taila cultivation were restricted. As mentioned in Para 78 of the working Scheme for the D.P.Fs. prepared by Mr. J.P. Hoslett (1919), by Notification dated 9th August 1880, all the unsettled lands in the Khordha Govt. Estate were declared to be Protected Forests under chapter IV of the Indian Forest Act. Subsequently, some of these areas were constituted as Reserved Forests but bulk of them still remained as protected Forests, being looked after without any continuous working Scheme/ Plan and continued to be administered under a set of Protected Forest Rules.

Boundaries of the Protected Forests were surveyed and laid down by the Forest Department in 1916-17 and 1917-18. In Central and Northern Rages (Now Bhubaneswar, Khordha, Tangi Ranges) the lines were demarcated with laterite pillar and in Southern Range (Now Balugaon Range) by rubble masonry pillars at salient angles and glazed stone were placed at intermediate points.

A cleared line 20' wide around each Protected Forest block used to be cut. Where these blocks bordered the Feudatory states the lines were widened to 30' width. Presently the boundaries are badly neglected and in most of the places, D.P.Fs. have been encroached upon.

No considerable work for improving the crop had been undertaken till 1919-20 beyond the restrictions imposed by the Protected Forest Rules. It was only in 1919-20 Mr. J.P. Haslett, Extra Deputy Conservator of Forests prepared a scheme (1919-20 to 1938-39) for the D.P.Fs. of Puri Forest Division with the object of "ensuring a continuous supply of somewhat better poles and firewood to meet the domestic and agricultural requirements of the local cultivators." Simple coppice system with 20 years rotation for good forests was adopted. Grazing was first time regulated and concept of closure of the area was introduced, which was much resented by people and Revenue authorities. 18 Felling Series were formed for an area of 55,933

acres covering 38 blocks while 5 BarMala Blocks i.e. Chulijhinka, Nathpur, Bhatpara, Krishnapalli and Jiripara covering 4,174 acre were excluded as such.

The scheme aimed at regulating the grazing over different blocks and 1/5th area of the Protected Forests was prescribed to be closed to grazing for the first 5 years and in the second subsequent quinquennial periods 2/5th of area was to be closed for grazing. These some-what radical changes resulted in discontentment among the tenants who were once enjoying every right unrestricted and free, now chained with regulations and a committee under chairmanship of Divisional Commissioner was formed to discuss questions relating to management and regulation of privileges enjoyed by tenants and number of meetings were held by the Committee for framing the liberal regulations. The nature and method the Haslett' scheme of felling were practically without any serious restriction as may be seen from para 24 and 26 of Scheme. The coupes will be open only to cess-paying residents of the Government Estate in which these forests are situated.

Nature and Method of Execution of Felling:

Such residents will cut their own firewood and poles from the coupe. They will be required to start cutting at one end of the coupe and proceed across as directed. Stumps will have to be cut within 12 inches of the ground. No permits will be required.

The whole area of the Working Circle will be open for the extraction of dry and fallen trees, dry sticks, bamboos, edible fruits and roots, thorns and Baigoba (Jatropha) for fencing, dry fallen leaves for manure, fiber of climbers and creepers for house construction, and clay, limestone and stone for building purposes."

Subsequent scheme was prepared b Mr. F.A.A. Hart for 20 years period with effect from July 1929. Under this scheme, all the areas were prescribed for working under 'Coppice with Standard' system and 42 felling series were formed. Pressure of the Tenants has its say and liberal prescriptions were adopted. Rotation under coppice system was reduced to 20 years for getting more produce and satisfying more villages at a tie, resulting speedier denudation of forests and accelerated erosion of

surface sol. Larger areas opened for grazing added to pace up devastation as too many felling series were created to cover more villages simultaneously. No regulation for cutting of bamboo was made. However, for distribution of forest produce arrangements, better than the previous scheme were stipulated in para "70 to 77 of the scheme.

Nothing is know about the subsequent revisions till 1966-67 when the scheme prepared by Sri P.C. Das, A.I.F.C., came into existence. In para 40, Mr. Das has mentioned about the scheme for the D.P.Fs., by Mr. Dodsworth, which came into force form 1929-30. But this appears to be a clear mistake and he might be referring the scheme prepared by Mr. F.A.A. Hart for the period 1929-30 to 1948-49.

This scheme was subsequently revised by Mr. P.C. Das, A.I.F.C., Assistant Conservator of Forests for a period from 1966-67 till 20 years. Neither it is known as to when the scheme was approved by competent authorities not the control forms and deviation statement are available, Under this scheme, all the 43 blocks were covered and 3 working circle, namely 1) Afforestation Working Circle, 2) Rehabilitation Working Circle, 3) Coppice Working Circle were constituted with the object of ensuring continuous, more abundant and better supply of fuel-wood, timber and bamboos for right holders and to improve grazing facilities.

The Afforestation Working Circle consisted of 20 D.P.F. blocks covering an area of 21962 acres, devoid of any tree growth. The scattered plantations of Teak and Eucalyptus in certain patches are raised. Tending of existing plantations of suitable species particularly Teak, Eucalyputs, Casuarina, Cashewnut, Neem, Swietenia, Mahagoni, Bocakin were prescribed. 16 Planting Series were formed and each was divided into 20 annual coupes felled materials in the annual coupes. If any, was to be disposed as per prevailing rules and practices. Grazing were prohibited for initial 5 years inside the plantation coupes.

The Rehabilitation Working Circle consisted of 9 D.P.F blocks covering 16.285 acres and 12 Felling Series were constituted for being worked under "Coppice with Standard" system. Natural regeneration was to be supplemented with artificial regeneration Annual coupes were to be closed for grazing for 5 years after main felling.

Under Coppice Working Circle 10 D.P.F. blocks namely: Bhatpara. Jiripara, Nathpur, Chulijhinka, Jharan, Chakadapathar, Kodumunda, Bantal Dalua, and Bhola extending over 16,844 acre forests in Balugaon and Chandaka Ranges were included. These forests were containing some pole crop of Sal of quality IV and V in Balugaon Range and miscellaneous crop full of climbers in Chandaka Range. The blocks were divided into 11 Felling Series consisting of 20 coupes each with 20 years rotation period. Objects of management were to provide local people with fire wood and smalls poles, enrichment of existing forests and restocking of deficit Sal areas by artificial regeneration. Silvicultural system "Coppice with Standard" was adopted. Coppice regeneration of Sal was to be supplemented by artificial regeneration of species like Teak, Gambhar etc. Rules for retaining the tree and marking of standards provided for felling of all the trees except:

1. 20 well grown Sal and other principal species of 4"-12"dia.per acre.
2. All Teak plantations.
3. All crop in eroded areas.
4. Trees standing on Nala Banks.

The materials obtained from the coupes were to be distributed among local people as per practice prevailing. Subsidiary Silviculture Operations prescribed for plantation of Teak and sowing of mature Sal seeds in staggered trenches 12' apart, trench size being 12'x1'x1'. Cleaning, climber cutting removal of damaged standards, coppice shoots and unfilled trees were recommended. Even the light thinning at 11th year was prescribed.

It was mentioned in Chapter–V that, forests of Krishnapali, and Nayapalli were to be cleared for Salia project and construction of News Capital at Bhubaneswar. The working plan did not mention anything about Santrapur D.P.F. probably this D.P.F. had already vanished by this time.

11.2.9. J.D. SHARMA PLAN 1985-86 to 2005-06:

The present revised Working Plan for the R.F. and D.P.F Blocks of Puri Division has been prepared by Sri J.D. Sharma, I.F.S., Working Plan Officer, Bhanjanagar for the period from 1989-90 to 1998-99. Keeping in view the principles contained in the National Forest Policy, 1988 with due emphasis enduring of

environmental stability and maintenance of ecological balance including atomopheric equalize rather than commercial exploitations. The Working Plan was approved by Government of Orissa, Forest, Fisheries and Animal Husbandry Department vide memo No. 10F(Cons.)43/90-FFAH., Department dated 13.7.1990. The Working Plan has also got approval of Chief Conservator of Forests (Central) Regional Officer, Bhubaneswar on behalf of the Central Government Ministry of Environment and Forests vide memo No. S/FCAP/05-Puri date. 30.5.1990.

While this plan was being prepared it was theorized that the total output from the Forests of the State was grossly inadequate to meet the minimum requirement of the people and unless there is a total ban on felling and timber was substituted by other materials the forests cannot be saved from total depletion. As a first step Railways the largest consumer of timber (as sleepers) was asked to use concrete and iron in place of wood. Govt. encouraged use of steel doorframes, shutters etc. It was also professed that large scale plantation of fast growing species would be able to meet the small timber and firewood requirement of the people. Therefore, Social Forestry Project was undertaken to reduce the pressure on the natural forests. Unfortunately these expectations could not be realized, rather it caused immense damage to the forests as the ban on felling resulted in heavy illicit removal of timber as the demand for timber kept on rising. Even the fruit bearing trees in community land and wastelands fell prey to the axe.

Wildlife Division constituted vide Government Notification No. 8F(N)49/85-221 36/FFAH., date 30.12.1985 have been excluded from this plan inconformity with the memo No.23751 date. 14.12.88. of the Principal Chief Conservator of Forests, Orissa.

This Working Plan covered 23 R.F. and 32 D.P.F Blocks extending over 42,224,86 Ha. and 17,813.27 Ha. respectively. For the first time hither to neglected D.P.F. blocks were included in regular Working Plan for their scientific management consistent with the D.P.F. rules. Some silent features of this plan are summarized below:-

1. All the maps e.g. Index maps, Working Plan maps and Management maps were prepared on the metric scale.

I. The Working rules were given in Oriya in the respective Working Circles.

II. Conservative working rather than commercial working was provided in the Improvement Working Circle. While suggesting areas for teak plantation, clear felling of well wooded areas was required to be avoided and shoots of important indigenous species were prescribed to be retained while preparing the sites for Plantation.

III. Eco-sensitive area requiring immediate treatment and reforestation were included in the Rehabilitation Working Circel.

IV. Prescriptions under Casuarina Working Circles were laid down keeping in view the Sanctuary regulations and clearfelling of Casuarina trees along the sea coast was not recommended.

V. To counter the threat to the regenerations of Daba Bamboo, a new systm of cutting of one third clumps on four year cycle was introduced.

VI. A set of simplified cutting rules for working of Salia Bamboo were prescribed in line with the uniform Bamboo cutting rules adopted throughout the State.

VII. Survey of the available Minor Forest Produce in the Division was made and emphasis was given on their adequate exploitation preferably through Village Forest Committee/C-operative Societies etc. for generating maximum employment for backward communities staying inside the forest areas.

VIII. Adequate emphasis was laid on proper maintenance of boundaries of the Forest Blocks by raising agave species along the boundary lines.

IX. Keeping in view the guidelines contained in the preliminary working plan report, the Car Timber (Overlapping) Working Circle was constituted covering all the D.P.F. Blocks in conformity with D.P.F. Rules.

X. The Wildlife (Overlapping) Working Circle was constituted as per guidelines issued by Govt. of India.

XI. For effecting adequate protection and taking up remedial measures to the severely eroded areas, highly ecofregile areas were identified and specific Soil Conservation treatment was prescribed.

XII. Due to increase in human and cattle population demand for forest produce of the local people had increased. The pressure of deemed on forests is increasing. Many dense forests have been reduced to 'Open forests'. That a lot of ecological changes have also taken place throughout the Division was taken into consideration

XIII. The concept of Joint Forest Management had come up during period of Mr.'s Working Plan. The Government during December, 1990 vide resolution No.10F(Pron)4/90 29525/FFAH., dated 11.12.1990, here decided to include the Demarcated Protected Forest under the Joint Forest Management system and again vide resolution No.16700-10F(Pron)-20/93-FandE., date. 3.7.1993 has included the Reserve Forests under J.F.M. systems. Under this system Vana Sarankhyan Samittee are formed in village for protection and management of the nearby D.P.F. and R.F. jointly with forest Department.

In the Working Plan of erstwhile Puri Division written by Mr. J.D. Sharma , the following Working Circles were constituted.

Table No: 11.1

Name of the Working Circle.	Area in Ha.
1	**2**
Improvement	21,661.70
Teak Plantation	10,479.68
Rehabilitation	26,330.56
Casuarina Improvement	1,566.19
Bamboo Overlapping	27,912.56
Minor Forest Produce Overlapping	60,038.13
Car Timber Overlapping	17,813.27
Wild Life Management Overlapping	60,038.13
Soil Conservation Overlapping	60,038.13

In Working Plan there were major changes in the criteria for formation of Working Circles in comparison to Mr. Mitra's Working Plan. The Sal Selection Working Circle, Improvement Working Circle, Coppice Working Circle, Miscellaneous

Working Circle were combined together and designated as Improvement Working Circle. Teak Working Circle was redesigned as Teak Plantation Working Circle. Similarly Casuarinas Working Circle as Casuarina Improvement Working Circle, Game Preservation (Overlapping) Working Circle as Wild Life Management (Overlapping) Working Circle and Cane (Overlapping) Working Circle. Three new Working Circles viz: Rehabilitation Working Circle, Car Timber (Overlapping) Working Circle and Soil Conservation (Overlapping) Working Circle were constituted in Mr.'s Working Plan.

The salient features of the Working Circles in Mr's were as follows:

Improvement Working Circle:

This Working Circle extended over the Reserved Forest Blocks allotted to Sal Selection Working Circle, Miscellaneous Selection Working Circle, Improvement Working Circle and well wooded areas containing good miscellaneous tree growth were kept under Teak Working Circle of the outgoing Plan. Forest areas allotted to this Working Circle were mainly confined to Balugaon, Ranpur and Tangi Ranges. The area of this Working Circles was 21,661.70 Ha.

These forests confirm to Champion and Seth's Sub-group 28- Northern Tropical Semi evergreen forests and 30- North India Tropical moist deciduous forests. Sal species is dominant in Rajin Block compartment Nos.3,6,7,9,14,27,28, Tamana block compartment Nos.4,5,6,7,8(a), Mala block compartment No. 18, 19, 20, 21, 24, 25, 26,27, 28, 36, 48, 49 and Patia block compartment No.1 while miscellaneous species like Tentera, Asan, Mitikinia, Haland, Semal are more in composition in rest of the areas.

Special objects of management:

- ☞ To conserve and improve the indigenous forest cover in the interest of soil, water and Wild Life Conservation.
- ☞ To enrich the growing stock and improve stand structures by suitable cultural operations.

- ☞ To obtain and encourage natural regeneration of Sal wherever it occurs and to establish and tend the same along with other principal species with a view to prepare the forests to be cut under a recognized Silvicultural system in future.
- ☞ To increase the productivity of forests for meeting the demands of people for timber, firewood, and poles etc., commiserating with the paramount importance of ecological balance.

Result Observed:

The natural regeneration in the forests allotted to this working circle could not be protected from fire and grazing. Subsidiary Silvicultural operations were also not carried out as prescribed due to budgetary constraints. No gap plantations were taken up due to budgetary constraints. The Government imposed moratorium of felling of green trees since 1990 and thus coupe work was stopped. The blocks were badly affected due to organized smuggling. The Sal and its main associates were the target of the smuggler, which led to over exploitation. After deployment of C.R.P.F. as per the G.O.No.27265 dated.15.12.93 of Government of Orissa for protection of the forest of Balugaon Range, the illicit felling of the trees is also now under complete control. The Rajin, Tamana, Katuwal, Bankad, Aranga, forest blocks of this Working Circle are now free from organized smuggling. In addition to the protection of the forest block of the Balugaon Range, the adjoining Blocks of Tangi and Ranpur Range are also protected due to salutary effect of the C.R.P.F. Because of the strict protection by C.R.P.F. in Balugaon Range the pole crop which used to be damaged by the villagers are now completely under control. As proposed in the previous Working Plan, proposal for converting the three forest villages namely Mahulia, Sibida and Nanduru as Revenue Village was submitted to Government. The annual production of timber and firewood from coupes during the Plan Period is given below.

Teak Plantation Working Circle:

This Working Circle comprises of the following categories of the areas:-

- Old existing teak plantation up to 1 year in age.

- Plantation areas not otherwise covered with good miscellaneous trees growth and suitable for raising teak plantation. The total area covered by this Working Circle is 10,479.68 Ha. out of which existing plantation area is 5,717,07 Ha. and area to be planted is 4,762.61 Ha.

  The special objective of this areas are:-

- To ensure programme of Teak Plantation in future.
- To raise Teak plantation in suitable localities not otherwise covered with good miscellaneous/ Sal forests and thereby to replace less valuable scanty trees growth by valuable teak.
- To ensure and tend the existing as well as
- To increase productivity of the forests.

Method of treatment:

New Plantations were required to be be raised by clear felling the areas followed by artificial regeneration and subsequent tending operation. To counter the hazards of monoculture it is prescribed that between two contiguous planting coupes, a strip of 2 chain width shall be planted up with indigenous species. Old existing plantations have been prescribed for thinning.

Rotation:

Teak in Barunei, Khordha and Tangi area is in III/IV, while in Banpur and Ranpur it is II/III. At the age of 70 years the crop diameters for these quality classes are around 50 cm and 40 cm respectively which are best suited for present day market and Industry. So rotation was kept at 70 years.

Result Observed:

- ☞ Although it was expected that each year about 615 Ha. of natural forests with inferior growth would be clear felled and planted up with species mainly teak and other indigenous species like Neem, Phasi, Dhaura, Sisoo, Piasal and Bamboo etc. Only 1218.50 Ha. were covered during last 9 years of plan period. The objectives of this Working Plan could not be achieved due to various

reasons most important one being the budgetary constraints. Most of the plantations have got mixed with natural forests and at many places especially near human habitations there had been large scale illicit felling.

- ☞ Further as per the provisions of the Forest Conservation Act, 1980, no forest cover should be clear felled without prior approval of the Central Government even for raising plantations. So this also restricted taking up Teak plantation during the plan period. Also due to non availability of fund the prescription of the Working Plan could not be followed.
- ☞ The tending operations like thinning and cleaning were not carried out due to budgetary constraint.

Rehabilitation Working Circle:

This working Circle consists of over-exploited scrubby forests of Pangarsingh, Panchgarh, Nagapalli, Maniabandha, Jayamangal, Mendhasal, Sulia "B", Satabhaya, Nuapara, Maninag, Champagarh, Kuhudi, Sulia and degraded areas of Aranga, Dhani, Maninag, Mala R.F. and all the D.P.Fs. Most of the block allotted to this Working Circles are situated in populous tracts and had been repeatedly hacked by public for meeting their needs of small timber, firewood and fodder etc. Total area of the Working Circle is 29,330.56 Ha.

Silvicultural System:

The measures prescribed are Rehabilitation of degraded forests by artificial regeneration, tending of existing stock and protection of the same along with soil conservation measures and digging of cattle proof peripheral trenches as a measure of protection.

Rehabilitation Series/Annual Rehabilitation areas:

There are 29 No. of Rehabilitation series in this Working Plan. The R.S. Chulijhinka, Bhatapara and Nathpur have been divided in to 20 annual rehabilitation areas while rest of the rehabilitation series have been divided into 10 annual rehabilitation areas. These areas have been shown on 1:25,000 topo sheets. General treatment and rehabilitation operation have been prescribed in details.

Result Observed:

Due to paucity of funds and pressure of the local people for small timber and firewood, the objects of management of these forests could not be achieved**.** The existing crop could be well protected after deployment of in A.P.R.Force. After deployment of C.R.P.F. since 10.2.1994 in Balugaon Range forests of Balugaon Range, Ranapur Range and Tangi Range are getting adequate protection. Some such forest areas are also being protected by villagers and improvement of density of crop has been noticed. The Nathpur D.P.F., Jiripada D.P.F. should be excluded from this working Circle as the crop composition has changed, these should be included in improvement working Circle. Plantations and R.D.F. work taken up under different scheme during Plan period and in between intermittent period upto 2004-05 will be appended to the plan.

Bamboo (Overlapping) Working Circle:

General Constitution of the Working Circle and Vegetation:

This Working Circle overlaps Bamboo bearing areas in Improvement Working Circle and Teak Plantation Working Circle and contains all commercially exploitable Bamboo areas of the Division. The gross area covered by this Working Circle is 27,219.56 Ha. This Working Circle extends over Tamna, Rajin, Katwal and Arang Reserved Forest Blocks of Balugaon Range, Mala R.F. Block of Ranpur Range and Patia R.F. block of Tangi Range.

Two species of bamboos namely *Dendracalamus strictus* (Salia) *and Bambosa arundinacea* (Daba) are mainly found in this Division. Of these, Daba bamboo occurs over extensive areas in moist plains, foot-hills, saddles, and valleys and more abundantly along the banks of nalas and streams. Salia bamboo is mostly found in higher reaches and drier localities, hill slopes and abundantly noticed in Mala compartment numbers 1,3,4,5,6,7,8 and Rajin compartment numbers 1, 2, 6, 7, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, and 28.

Result Observed:

No Silvicultural Operation was taken up till 1994 due to paucity of funds. During the year 1995 and 1996 silvicultural operation was taken in some areas of Working Circle. The details of clumps worked in different felling series will be appended. But proper protection from fire could not be provided due to constraints of budgetary provision. No plantation of bamboo was taken up in this Division as per prescription of the plan.

Minor Forest Produce (Overlapping) Working Circle:

This Working Circle overlaps all other Working Circle and extends over an area of 60,038.13 Ha.

For exploitation of Cane 4 felling series namely Berbera Felling series, Dhuanali Felling series, Sankhajodi Felling series and Patia Felling series.

Species Yielding Minor Forest Produce:

Details of different Minor Forest Produce collected in this Division will be given in appendix in the Plan. The Minor Forest Produce is collected by the O.F.D.C. Ltd., O.T.D.C., and M/S Utkal Forest Products.

Subsidiary Silvicultural operation:

(1) Plantation of *Rauwolfia Serpentina* may be taken up annually over 5 Ha. at 1m x 1m preferably inside Mala R.F. Block.

(2) Plantation of indigenous canes i.e. calamus viminalia and calamus latifolius may be undertaken experimental basis inside Teak plantation Working Circle in Balugaon Range over an overage area of 10 Ha. per year.

Result Observed:

The subsidiary Silvicultural operation could not be taken due to paucity of funds. It has not been possible to collect figures of the different NTFP items amount collectd from the field.

Car Timber (Overlapping) Working Circle:

General Constitution:

This Working Circle overlaps all the Demarcated Protected Forest Blocks covered under this Working Plan and extends over 17,813.27 Ha. area. This Working Circle has been added for the first time as per guidelines contained in the preliminary Working Plan Report.

Result Observed:

The species required for the Ratha are not available in Demarcated Protected Forest areas. So this Working Circle may extend to Reserved Forest area of Ranpur and Balugaon Range. Prescriptions of plantation of required species could not be taken up due to paucity of funds. During the year 1995, 25 Ha. of Phasi plantation has been taken up in Dhani R.F.

Wildlife Management (Overlapping) Working Circle:

General Constitution:

The Working Circle overlaps all other Working Circles and covers whole of the Division.

Result Observed:

Due to paucity of funds no management prescription was followed during the Working Plan period. After induction of the C.R.P.F. from 10.2.1994 in Balugaon Range poaching of Wild animals has been reduced to a great extent in Balugaon, Ranpur and Tangi Range.

Soil Conservation (Overlapping) Working Circle:

General Constitution:

This Working Circle overlaps all other Working Circle, Teak plantation Working Circle, Rehabilitation Working Circle and Casuarina Improvement Working Circle and extends over 42,224.86 ha. R.F. and 17,813.27 ha. D.P.F. Blocks. The ecofragile areas highly susptible to erosion and badly interspersed with qullie and rilla

have been specifically identified and classified as category "A" areas while rest of the areas have been classified as category "B" areas.

Result Observed:

Due to budgetary constrains the prescriptions laid in this Working Circle could not be followed. During 1994 under Compensatory R.D.F. Programme 100 Ha. in Maninaga Reserved Forest and 50 Ha. in Panchagarh Reserved Forests was taken up with soil conservation measures as a major component (Gully plugging and staggered counter.

There are 3 Forest Villages namely: Mahulia, Sibida and Nandru inside Rajin R.F. of Balugaon Range under Banpur Tahasil, P.S.: Banpur. Out of these Mahulia is the oldest and was reconstituted in 1910-11. In 1924-25, a hamlet within 1 K.M. i.e. Sibida was formed in a Forest Village. Village Nandru was formed in 1954 with an area of 48 acres.

11.2.10. PAST SYSTEM OF MANAGEMENT IN THE LAST PLAN OF SHRI ABHIRAM DAS FOR THE PERIOD FROM 2007-08 to 2016-17:

The objectives of management of the outgoing plan of Shree Abhiram Das, IFS for the period from 2007-08 to 2016-17 are as follows:-

1. To conserve and improve the existing vegetative-cover for soil and water conservation with a view to ensure ecological and environmental stability.
2. To endeavor to meet the requirements of people for agricultural small timbers, firewood, bamboos and other forest produces.
3. To enhance the production of raw materials required for forest based industries consistent with ecological requirement.
4. To protect, manage and enrich the flora and fauna of the Division.
5. To generate and uphold public interest and awareness on Protection of Forests and Wildlife.
6. To promote development of sustainable and non-destructive livelihood opportunities for local communities and eco-tourism.

7. To supply timbers for making chariots for the annual Car Festival of Lord Jagannath at Puri, as specified in the Puri Car Festival Code 1983.

DISCUSSION ON WORKING CIRCLES:

To achieve the above objectives the following Working Circles have been constituted.

i) Selection-cum-Improvement Working Circle.
ii) Rehabilitation Working Circle.
iii) The Bamboo (Over lapping) Working Circle.
iv) The NTFP (Over lapping) Working Circle.
v) The Car Timber (Over lapping) Working Circle
vi) The Wild life (Over lapping) Working Circle.
vii) Plantation (Over lapping) Working Circle.
viii) Forest Protection (Over lapping) Working Circle
ix) Joint Forest Management (Over lapping) Working Circle.

Table 11.2 Rangewise Forest Area under different Working Circles in the Last working Plan

Name of the Range	Name of Working Circle and Area (in Ha)								
	Selection-cum-Improvement WC	Rehab-ilitation WC	Bamboo (Over-lapping) WC	NTFP (Over-lapping WC	Car Timber (Over-lapping) WC	Wildlife WC	Plant-ation (Over-lapping) WC	Forest WC	JFM (Over-Lapping WC
1	2	3	4	5	6	7	8	9	10
Balipatna	--	90.29	--	90.29	--	90.29	90.29	90.29	90.29
Balugaon	15527.66	6975.20	13753.30	22567.50	8983.98	22567.50	22567.50	22567.50	22567.50
Delang	--	628.31	--	628.31	--	628.31	628.31	628.31	628.31
Khordha	728.58	4072.54	--	5479.64	--	5479.64	5479.64	5479.64	5479.64
Ranpur	12243.15	3745.24	10237.10	16063.10	5187.24	16063.10	16063.10	16063.10	16063.10
Tangi	5051.42	7871.05	4879.75	13006.80	2187.59	13006.80	13006.80	13006.80	13006.80
Total	**33550.81**	**23292.34**	**28870.20**	**57745.20**	**16358.80**	**57745.20**	**57745.20**	**57745.20**	**57745.20**

Selection-cum-Improvement Working Circle:

This Working Circle extended over the areas allotted to Sal Selection Working Circle, Miscellaneous Selection Working Circle, Improvement Working Circle in the last plan which containing good miscellaneous forests. It also included areas kept under Teak Working Circle of the previous Working Plan prepared by Shri M.N. Mitra, IFS. This Working Circle covers parts of Rajin, Tamna, Bankad, Katwal, Arang, Mal, Dhani and Patia Reserved Forest Blocks.

These areas were highly susceptible to illicit felling. The forests of Tangi, Ranpur and neighbouring areas of Balugaon Ranges were most vulnerable to smuggling. These areas were suggested for Improvement Working rather than commercial exploitation.

Result Observed:

- In the year 2007-08, out of 09 coupes only 03 have been worked out and in 01 coupe production is < 50%.
- In the year 2008-09, out of 09 coupes only 03 have been worked out and in 02 coupes production is 2.67% & 18.26% where as in 01 coupe there is excess production of 375% of the prescribed yield.
- In the year 2009-10, out of 09 coupes only 05 have been worked out and in 02 coupes production is < 7% and in other 02 coupes it is just 20% & 25%.
- In the year 2010-11, out of 09 coupes only 04 have been worked out and in 01 coupe production is < 5%. In other 02 coupes it is just 28% & 36%.
- In the year 2011-12, out of 09 coupes only 05 have been worked out and in 02 coupes production is < 4%. In another coupe it is < 12%.
- In the year 2012-13, out of 09 coupes only 04 have been worked out. In 02 coupes production is < 2% & in other 02 coupes it is < 9%. Whereas in 01 coupe production is > 45%.
- In the year 2013-14, out of 09 coupes only 04 have been worked out. In 03 coupes production is < 2% & in another 01 coupe it is < 9%.
- In the year 2014-15, out of 09 coupes only 01 have been worked out and the production is just 30%.
- In the year 2015-16, out of 09 coupes only 02 have been worked out.

Rehabilitation Working Circle:

This Working Circle included the Reserved Forest areas which were previously worked under Coppice Working Circle and all the Demarcated Protected Forest blocks. These areas had become degraded necessitating rehabilitation for its restoration. Digging of cattle-proof trenches in plain areas along with singling of multiple shoots of existing tree growth, supplemented with enrichment plantation and gap filling was proposed to be taken up. Except Chulijhinka, Bhatpara, Nathpur, Jiripara D.P.F. blocks and Aranga, Nuapara and parts of Maninaga RF blocks, most of the areas contain poor un-economic tree growth.

Result Observed:

At places, mostly in D.P.F. blocks, sporadic irregular plantation of Cashew nut and firewood species were present. Also the forest blocks were assigned to VSS which were managed under different micro plans approved under National Afforestation programme. Thus the active VSS have made few blocks rehabilitated and few without any effective changes.

- In this Working Circle 12 treatment series in different ranges have been prescribed for taking up rehabilitation activities.
- Each Working Circle having area from 1490 Ha to 2738 Ha with a toral area of 23758 Ha to be covered within a period of 10 years.
- With the receipt of CAMPA fund and 13th FC Grant only Silvicultural treatment along with Soil & Moisture conservation over an area of 4736 Ha, ANR over an area of 1700 Ha have been covered. Beside this some area under VSS have been covered under FDA through NAP.
- It is cleared that there is huge difference in the between the prescription and implementation of the Rehabilitation Working Circle.
- It is also seen that sequence of treatment series has not been followed at the time of implementations.

The Bamboo (Over lapping) Working Circle:

The Bamboo (Overlapping) Working Circle consists of bamboo bearing areas mostly occurring in R.F. blocks of Balugaon Range and part of Mala and Patia R.F. blocks of Ranpur and Tangi Ranges. Bulk of the bamboo crop consists of Daba bamboo for which revised felling regime has been adopted and one third portion of every clump has been suggested for felling on 4 year cycle.

Result Observed:

Due to gregarious flowering in 2008-09, the bamboo clumps were dried up with creation of large vacant land and due to non removal of Bamboo, the fire occurrence increased in subsequent years. The intervention of subsidiary Silvicultural operation for removal of dry bamboo with control burning and soil working to facilitate the young bamboo regeneration has changed the crop composition in these areas. This resulted in non working of Bamboo coupes prescribed in the plan with cutting rules.

The NTFP (Over lapping) Working Circle:

This Working Circle overlaps all other Working Circles and separate cutting rules for Cane have been provided. Emphasis was laid on maximum generation of employment for backward communities residing inside forest areas.

Result Observed:

The NTFP which were handed over to Panchayats as per new regulations of Government could not be documented properly due to lack of awareness in Panchayats. The collection was made as per previous practices of the people causing legal hassles in some cases. This need to be addressed systematically through VSS or continuous interaction with the PRI members.

The Car Timber (Over lapping) Working Circle:

This Working Circle, as per recommendation of Working Plan Committee has been added for the first time to the regular Working Plan of this Division and overlaps all the D.P.F. blocks. Provisions for supply of Car Timber as per the guide lines enshrined in Ratha Jatra Code 1983 have been formulated.

Result Observed:

This Working Circle did not make any significant changes during execution of the Plan. The requirement of timber for car festival is very limited with only class III species are provided from this Division. These are available from the annual coupes taken up for marking and removed before being delivered to OFDC Ltd. The species required for Lord Jagannath is already covered under different Plantation programme like Jagannath Ban Prakalpa, Economic Plantation and VSS plantation area and thus serrate Working Circles may not be taken up.

The Wild life Management (Over lapping) Working Circle:

This Working Circle aimed at preserving the flora and fauna to provide suitable habitat for them. The prescription was based on the latest guidelines formulated by Govt. of India. Special emphasis was made in this Overlapping Working Circle for the management of fauna outside the protected area.

Result Observed:

It is observed that herds of elephants are moving inside the Division throughout the year causing heavy damages to the paddy crop concentrating in Tangi, Balugaon, Ranpur & Khordha range. Other significant animals like Indian Gaur, Sambar and Black Buck in fringes towards south need to be addressed in the new plan for a better prey base to facilitate the carnivore management.

Plantation (Over lapping) Working Circle:

This Working Circle over laps an area of 63417.57 Ha which includes all the RFs, DPFs & PRFs. During the plan period 3815 Ha area have been prescribed for plantation in 09 planting series. Harvesting of matured teak trees in the teak plantations have not been prescribed for which the GoI while approving has given a stipulation for preparation of scheme for the same.

Result observed:

Plantation has not been taken up as per the sequence of planting series & in annual coupes, rather in the suitable area outside the prescribed area. The plantation was taken up in the area available in different forest blocks. A separate plan proposal for harvest of teak could not be materialized during the plan period. The teak trees available in the annual coupes and dead dying trees have only been removed. Plantation have been taken up under different schemes like Jagannath Bana Prakalpa (JBP), B-economic, Baldhill, 13th FC grant, Bamboo State Plan, National Bamboo Mission (NBM), Revenue plantation, FDA through NAP, CDA-Catchment treatment of Chilika lagoon, State CAMPA, Compensatory Afforestation etc. during the period from 2007-08 to 2015-16.

Forest Protection (Over lapping) Working Circle:

This overlapping Working Circle covered all the forest blocks which need immediate protection from biotic interferences including the blocks and compartments exist in ecologically fragile areas *i.e.* the area having 30% or more slopes and susceptible to environment degradation. Due to intense biotic pressure of human and cattle large number of forest blocks of the Division is under threat and various stages of degradation. These forests required strict protection from illicit felling, grazing and fires. Protection measures coupled with soil and moisture conservation measures were required to be taken up in respect of the forests included in this Working Circle.

Result Observed:

During the plan period, the protection activities in the Division have been strengthening with the receipt of funds under CAMPA and 13th FC Grant. Anti-smuggling squad, Critical endangered area squad, Anti-depredation squad have been formed in the Division. VSS activities have been strengthening. Adequate measures have been taken for fire protection with incentives to VSS. In spite of this arrangement illicit felling has not been substantially checked.

Joint Forest Management (Over lapping) Working Circle:

This Working Circle overlaps mostly the degraded forest areas in different RF, PRF, DPF and VFs. It covers the degraded forest areas allotted to the VSS for joint protection and management. All the plantations raised by the erstwhile Social Forestry Project, Khordha Division and declared as Village Forest are included in the purview of the management under this overlapping circle.

Result Observed:

The new resolution 2011 for approval of Palli Sabha and exclusion of local forest officials have resulted communication gap and difficulties in implementation of schemes. Also the village forest developed by SFP was not monitored in absence of annual action plan and was managed by the Village Committee itself. It is required to form the VSS for all such forests and to include under the ambit of the proposed plan with a year wise micro plan as per site specific work.

11.3. SPECIAL WORKS OF IMPROVEMENT UNDERTAKEN:

Fire fighting squads have been formed with provision of vehicles to control the forest fire. All the forest roads have been repaired, wooden culverts have been replaced with concrete culverts and bridges. Rest houses, Nursery sheds have been renovated nicely. Range Offices, Baraks have been constructed, conference hall have been modernized, Watch towers have been constructed in the remote forest areas. Railway Control Rooms have been set up to monitor the movement of Elephants and other wild lives in the railway tracks, so that casualty of Wild lives has been checked. VHF sets, walk talkies, cell phones, motor cycles have been provided to the field staff for the hearty protection of the forest. Forest Kalyan Samiti has been formed with the construction of Kalyan Mandap and Halls.

11.4. PAST YIELD REVENUE AND EXPENDITURE:

The details of production of timber, firewood and bamboo during the Plan Period has already been described in **Chapter 7** in **Table No.7.1, 7.2, 7.3 and 7.4** The details of Revenue Collected and Expenditure incurred during the Plan Period is also furnished in **Appendix–IX**. The critical analysis of the production in Timber Coupes is furnished below.

Table No. 11.3 Critical Analysis of the production in Timber Coupes

Year	Name of the Range	Name of the Felling Series	Coupe No.	Yield prescribed	Production of Timber in Cum			% of Production
					Timber in Cum	Fire wood in Stack	Pole in No.	
1	2	3	4	5	6	7	8	9
2007-08	Balugaon	Mahulia	I	525.2	0	0	0	0
		Berbera	I	170.41	82	39	15	48.3
		Rajin	I	507.92	405	119	25	79.64
		Tamana	I	166.61	132	102	11	79.23
		Dhuanali	I	94.94	0	0	0	0
	Tangi	Patia	I	340.77	0	0	0	0
	Ranapur	Mala	I	473.39	0	0	0	0
		Sankhajodi	I	137.97	0	0	0	0
		Sirikuti	I	277.25	0	0	0	0
2008-09	Balugaon	Mahulia	II	965.08	0	0	0	0
		Berbera	II	99.34	472	209	0	475.08
		Rajin	II	498.15	0	0	0	0
		Tamana	II	539.24	14	2	0	2.67
		Dhuanali	II	103.85	0	0	0	0
	Tangi	Patia	II	379.87	0	1	30	0
	Ranapur	Mala	II	503.1	0	0	0	0
		Sankhajodi	II	97.81	0	0	0	0
		Sirikuti	II	484.33	88	42	18	18.26
2009-10	Balugaon	Mahulia	III	770.21	0	0	0	0
		Berbera	III	261.39	51	12	1	19.61
		Rajin	III	645.41	653	349	20	101.15
		Tamana	III	628.75	0	0	0	0
		Dhuanali	III	109.61	0	0	0	0
	Tangi	Patia	III	518.35	0	0	0	0
	Ranapur	Mala	III	459.43	15	21	0	3.18
		Sankhajodi	III	105.16	26	21	0	24.99
		Sirikuti	III	465.97	32	7	0	6.83
2010-11	Balugaon	Mahulia	IV	436.21	0	0	0	0
		Berbera	IV	251.72	0	0	0	0
		Rajin	IV	651.2	180	240	10	27.65
		Tamana	IV	979.42	46	62	8	4.65
		Dhuanali	IV	123.1	0	0	0	0
	Tangi	Patia	IV	461.62	0	0	0	0
	Ranapur	Mala	IV	321.06	0	0	0	0
		Sankhajodi	IV	78.9	53	62	0	67.52
		Sirikuti	IV	216.96	79	70	0	36.21
2011-12	Balugaon	Mahulia	V	518.71	284	142	0	54.74
		Berbera	V	240.2	99	198	15	41.31
		Rajin	V	605.63	70	102	0	11.64
		Tamana	V	1307.46	0	0	0	0
		Dhuanali	V	127.32	0	0	0	0
	Tangi	Patia	V	557.87	0	0	0	0
	Ranapur	Mala	V	461.61	0	0	0	0
		Sankhajodi	V	106.35	4	10	0	3.58
		Sirikuti	V	370.36	8	35	0	2.16
2012-13	Balugaon	Mahulia	VI	412.28				0
		Berbera	VI	356.39	518	216	0	145.39
		Rajin	VI	348.87	129	66	0	36.85
		Tamana	VI	909.63	0	0	0	0
		Dhuanali	VI	128.8	0	0	0	0
	Tangi	Patia	VI	753.6	0	0	0	0

1	2	3	4	5	6	7	8	9
2012-13	Ranapur	Mala	VI	313.84	0	0	0	0
		Sankhajodi	VI	171.32	15	24	0	8.66
		Sirikuti	VI	394.38	7	24	0	1.78
2013-14	Balugaon	Mahulia	VII	425.03	7	6		1.65
		Berbera	VII	717.15	63	30	0	8.75
		Rajin	VII	475.51	0	0	0	0
		Tamana	VII	717.15	15	30	0	2.03
		Dhuanali	VII	101.39	0	0	0	0
	Tangi	Patia	VII	555.74	0	0	0	0
	Ranapur	Mala	VII	111.3	0	0	0	0
		Sankhajodi	VII	371.92	1	16	0	0.23
		Sirikuti	VII	328.72	0	0	0	0
2014-15	Balugaon	Mahulia	VIII	603.49	0	0	0	0
		Berbera	VIII	286.31	86	60	0	30.13
		Rajin	VIII	368.95	0	0	0	0
		Tamana	VIII	352.94	0	0	0	0
		Dhuanali	VIII	116.44	0	0	0	0
	Tangi	Patia	VIII	451.5	0	0	0	0
	Ranapur	Mala	VIII	142.58	0	0	0	0
		Sankhajodi	VIII	371.92	0	0	0	0
		Sirikuti	VIII	430.57	0	0	0	0
2015-16	Balugaon	Mahulia	IX	351.57	0	0	0	0
		Berbera	IX	379.08	0	0	0	0
		Rajin	IX	201.69	0	0	0	0
		Tamana	IX	277.28	226	240	0	81.34
		Dhuanali	IX	33.15	39	0	0	117.12
	Tangi	Patia	IX	478.61	0	0	0	0
	Ranapur	Mala	IX	310.59	0	0	0	0
		Sankhajodi	IX	270.95	0	0	0	0
		Sirikuti	IX	254.81	0	0	0	0
2016-17	Balugaon	Dhuanali FS	X		195.659	30	0	
		Tamana FS	X		298.356	100	0	
	Total			207.21	494.015	130	0	238.412
2017-18	Balugaon	Berbara FS	I		30.429	30	0	
		Berbara FS	I		37.065			
		Rajin FS	I		134.834	24	0	
		Tamana FS	I		144.929	36	0	
	Total				347.257	90		
	Tangi	Patia FS	I		18.007	1.5		
		Patia FS	I		5.956	1	0	
	Total				23.963	2.5	0	
2018-19	Balugaon	Berbara FS	II		56.732	36	0	
		Rajin FS	II		150.119	66	0	
	Total			412.351	206.851	102		50.16%
2019-20	Balugaon	Berbara FS	III		178.027	12	0	
		Rajin FS	III		184.916	66	0	
	Total			428.262	362.943	78	0	84.75%
2020-21	Balugaon	Berbara FS	IV		61.099	4	0	
		Rajin FS	IV		122.559	54	5	
		Tamana FS	IV		10.551	2	0	
		Dhuanali FS	IV		8.894	2	0	
		Mahulia FS	IV		29.212	4	0	
	Total				232.315	66	5	

From the analysis, it seems that the assessment of the growing stock at the preparation of the Working Plan was not proper for which there is wide difference in the prescription of yield and actual production. Deviation proposals are to be submitted to the Principal Chief Conservator of Forests through the Regional Chief Conservator of Forests for approval.

11.5. MANAGEMENT UNDER ANNUAL SCHEMES:

After expired of the approved plan (2007-08 to 2016-17) the annual working schemes from 2017-18 to 2020-21 has been approved to undertake various activities in the forest.The yearwise target and achievement in the said period is furnished below in **Table 11.4**

Table No. 11.4 Target & Achievement under approve Annual Working Scheme (Area in Ha.)

Working Circle	Year 2017-18		Year 2018-19		Year 2019-20		Year 2020-21	
	Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
SIWC	4088.18	3027.17	3180.4	1339.74	4073.42	1570.40	2371.26	
RWC	2178.59	0	2004.43	460 RDF & (965 Ha. Outside WP Area)	2433.64	350 RDF & (200 Ha. Outside WP Area)	2475.57	
Pl WC	265	65	410	30 & (140 Ha. Outside WP Area)	458	204 Ha. Outside WP Area	2925	
BAMBOO(OL) WC	6327.81	2957.08	7004.49	3338.74	7671.08	3467.16	6327.81	
BAMBOO PLANTATION	20	20 Ha. Outside WP Area	20	20 Ha. Outside WP Area	Nil	Nil	Nil	

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CHAPTER - 12

STATISTICS OF GROWTH AND YIELD

12. STATISTICS OF GROWTH AND YIELD:

The growing stocks of forest depend upon different parameters like Geology, rock, climatic factor, position of ground water table, mineral content of soil and biomass of the locality changing climatic factors like temperature, rainfall, humidity, wind, light etc exert considerable impact upon the growth of forest. The yield of the growing stock also gets affected by this parameters. So for the assessment of growth of yield of growing stock research plots should be established in the division to study the effect climatic and adaphic factors on the growth rate of growing the stock of the forest. At present, for yield calculation no research work has been taken up in the Khordha Forest Division to know the influence of the climatic and adaphic factors on the growth of the forest nor are any local volume table and yield table available to assess the growth and yield. In the previous Working Plan the assessment of growing stock have been carried out on the basis of random sampling with the aim of mostly collecting information on forest timber production as per National Working Plan Code 2004. In the present changing scenario it is necessary to collect information on forest timber production as well as on the forest bio-diversity, carbon sequestration in the forest. The Govt. of India, Ministry of Forest, Environment and climate change has brought National Working Plan Code 2014 in place of the earlier National Working Plan Code 2004. As per the new code, the assessment of growing stock of the forest is made on grid based systematic sampling where in the distribution of sample plot within the surveyed population is homogeneous. Grid based systematic sampling offers best opportunity to revisit the area for change detections and its attribution to climate change. Some suitable sample plots can be made permanent sample plots for study of regeneration, growth, and carbon sequestration will be assessed by taking up sample point enumeration based on grid sampling as per National Working Plan Code 2014. After completion of the enumeration, the yield of the growing stock will be calculated.

At present, for yield calculation no research work has been taken up in the Khordha Forest Division to know the influence of the climatic and adaphic factors on the growth of the forest nor are any local volume table and yield table available to assess the yield. During this grid based sample point enumeration, ideal plots may be selected to assess the growth of forest. Because, during this method the sample point are fixed as per Latt. & Lang. The statistics of growth and yield will be calculated after completion of enumeration of all the sample plots in different Working Circle.

METHODOLOGY ADOPTED:

For assessment of growing stock of the forest following methodology have been adopted,

1. The ORSAC and NRSA have supplied stratified sample points of 422 nos over the forest blocks of Khordha Forest Division with identity no and Latitude and Longitude the details of which is furnished in Annexure-III. The sample points have been entered in the GPS PDA with the help of IT GIS Cell of O/o the PCCF, Odisha, Bhubaneswar.
2. The specified sample points are approached through navigation. While approaching the Sample Point, stock assessment and mapping (Ear marking the stocked area on the map), ground data are recorded by traversing the forests (Compartment / Management. Unit) so as to cover the entire area making assessment of site quality, tree species composition and its health, density, crop age, etc. and Plot Approach Form (Form-I) is filled up. Changes at all locations are described in this Form. Grassy patches, scattered trees, plantations raised, etc are described in Form-I. Regeneration status of main species is observed. Information on undergrowth, climbers, important herbs, grasses, shrubs, MAPs, bamboos, NTFP yielding species, flagship faunal species and their traces, eco-tourism potential areas, special wildlife habitats and their interface with humans, biotic factors are recorded. On arrival of the sample point, the general information around the Sample point over an area of 2ha. *i.e.* at a radius of 80mtrs from the centre of the Sample Point and are recorded and Form II- Plot description Form is filled up.

3. Nested quadrates of size 3m x 3m and 1m x 1m are laid at a distance of 30mtrs from the central point along the four diagonals.

4. All trees having girth 30 cm and above are enumerated, species wise and girth class wise and recorded. and **Plot Enumeration Form-A-1** is filled up Trees/bamboo clumps touching north and west border lines of the plot are enumerated and trees/bamboo clumps touching the east and south border lines are not enumerated. Enumeration of trees/bamboos are started from NE corner of the plot and proceeded in clock wise direction and recorded. Hight of all the trees in North-quadrant are measured and recorded. The data of all the bamboo clumbs occurring in the plot are recorded in **Bamboo Clumb Enumeration Form A-2** shrub, climbers and regeneration status from all four quadrates of 3m x 3m are collected and recorded and **Plot Enumeration Form B** is filled up. The data of herbs from all nested quadrates of 1m x1m laid within each quadrate of 3mx3m are collected, recorded and **Plot Enumeration Form C** is filled up.

ANALYSIS OF ENUMERATION:

The tree species recorded in the sample plots are classified girth class wise and species wise. The compartmentwise and forest Block wise enumeration data are calculated and furnished in **Annexure-II.** The diameter corresponding to the mid girth class have been taken as representative of that girth class. Accordingly the value of diameter (D) for different girth classes are calculated. The volume of the different species are calculated applying the volume equation developed by Forest Survey of India.

ESTIMATION OF GROWING STOCK:

The Forest Survey of India has developed local volume equation for different forest species both principal and secondary species taking the forest of Phulbani, Sambalpur and Koraput district as per their sampling for Orissa state. The 'Report on Resources Survey of Phulbani Forest Catchment (Orissa) prepared by Forest Survey of India, Dehradun, 1982 has been referred to for relevant local volume equation for determination of volume and yield in the Working Plan. The local volume equations of

different species have been used in this Working Plan as well the growing stock of the forest has been assessed based on volume equation developed by FSI as given in the following **Table.12.1**

Local volume equation of different species Adopted in Khordha Forest Division

Table No: 12.1

Sl. No.	Name of the Species		Local value regression equation to be adopted
	Local	Botanical	
1	**2**	**3**	**4**
1	Sal	*Shorea robusta*	$V = 0.109884 – 1.804754 D + 10.297714 D^2$
2	Piasal	*Pterocarpus marsupium*	$V = 0.058424 – 1.233468 D + 9.433633 D^2$
3	Sisoo	*Dalbergia latifolia*	$V = 0.00965 + 0.58546 D – 2.5605 D^2 + 24.34215 D^2$
4	Simuli	*Bombax ceiba*	$V = 0.136196 – 2.076740 D + 10.156600 D^2$
5	L.Moi	*Lanea grandis*	$V = 0.057424 – 1.153088 D + 8.542648 D^2$
6	Mundi	*Mitragyna parviflora*	$V = 0.08444 – 1.26801 D + 8.75274 D^2$
7	Kasi	*Bridelia retusa*	$V = 0.035142 – 0.839708 D + 8.157614 D^2$
8	Dhaura	*Anogeissus latifolia*	$V = 0.015731 – 1.020606 D + 9.656667 D^2$
9	Asan	*Terminalia tomentosa*	$V = 0.103171 – 1.684599 D + 10.107586 D^2$
10	Bandhan	*Ougeinia oojenensis*	$V = 0.057424 – 1.153088 D + 8.542648 D^2$
11	Jamu	*Syjigum Cuminii*	$V = 0.08444- 1.26801 D + 8.75274 D^2$
12	Kuruma	*Adina cardifolia*	$V = 0.08507 – 0.19669 D + 7.16812 D^2$
13	Sidha	*Lagerstroemia parviflora*	$V = 0.07199 – 1.25923 D + 9.28416 D^2$
14	Mahul	*Madhuka latifolia*	$V = 0.030925 – 0.567067 D + 5.709471 D^2$
15	Salai	*Boswellia serrata*	$V = 0.188655 + 3.021335 D$
16	Bahada	*Terminalia belerica*	$V = 0.035142 – 0.839708 D + 10.107586 D^2$
17	Kendu	*Dyospyrous melanoxylon*	$V = 0.06728 + 4.06351 D – 0.99816 D^2$
18	Teak	*Tectona grandis*	$V = 0.1657 – 1.1235D+10.107586D^2$
19	Misc.	Other species like, Kusuma, Gambhar,etc.	$V = 0.088074 – 1.449236 D + 8.760534 D^2$

The volume of different girth class of all the tree species of Khordh Forest Division have been calculated and furnished in the following **Table No: 12.2**

Table No:12.2

Table 12.2 Stock Table Summary Estimated Volume of Trees

			(Volume in Cu. m)					
			GIRTH CLASS (cm)					Total
RANGE	COUPE TYPE	MAJOR SPECIES	30-60	60-90	90-120	120-150	> 150	
		All Trees	238	277	515	285	731	2,045
	RWC		238	277	515	285	731	2,045
BALIPATNA	(all)	(all)	238	277	515	285	731	2,045
		All Trees	113,558	224,223	275,660	240,659	316,164	1,170,263
	RWC		113,558	224,223	275,660	240,659	316,164	1,170,263
BALUGAON	(all)	(all)	113,558	224,223	275,660	240,659	316,164	1,170,263
		All Trees	1,065	1,414	2,262	1,659	2,814	9,214
	RWC		1,065	1,414	2,262	1,659	2,814	9,214
DELANGA	(all)	(all)	1,065	1,414	2,262	1,659	2,814	9,214
		All Trees	17,516	24,574	34,798	26,397	44,647	147,931
	RWC		17,516	24,574	34,798	26,397	44,647	147,931
KHORDHA	(all)	(all)	17,516	24,574	34,798	26,397	44,647	147,931
		All Trees	72,898	104,790	125,925	122,833	212,628	639,074
	RWC		72,898	104,790	125,925	122,833	212,628	639,074
RANPUR	(all)	(all)	72,898	104,790	125,925	122,833	212,628	639,074
		All Trees	67,314	73,781	96,634	59,858	142,596	440,183
	RWC		67,314	73,781	96,634	59,858	142,596	440,183
TANGI			67,314	73,781	96,634	59,858	142,596	440,183
(all)	(all)	(all)	272,588	429,058	535,794	451,690	719,579	2,408,710

Source NRSC

dtd.08.07.2020.Forest Block wise Stock table is annexed in

Appendix XV.

12.1 YIELD CALCULATION:

The yield will be regulated by area with a percentage check on the removal of exploitable trees as calculated by Smythies' safeguarding formula. This formula is also known as U. P. safeguarding formula. Smythies evolved it for the Sal forests of Uttar Pradesh for sustainable yield. The formula is based on the following assumptions, which holds true for the forest blocks allotted to Selection-cum-Improvement Working circle.

i. The exploitable (Selection) trees already exist and are being recruited almost throughout the area (and not in any particular compartments) and that felling pass regularly through the forests in consecutive annual coupes in a felling cycle of 10 years.

ii. The basic objective 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, in any area, the number that may be felled is limited to the number that will pass up from the approach class by the time felling is due again in the next cycle.

v. According to the **Smythies' safeguarding formula** the number of trees in approach Class - II (A)trees (out of which) per hectare that pass into Class - I i.e. within the felling cycle is determined by following tree formula.

$$X = \frac{F \ (II - Z\ \%\ of\ II)}{T} \quad \text{----------} \quad (1)$$

Where

X = Number of trees in approach class that passes into the exploitable class within period of felling cycle.

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. i.e. taken as 45% for Puri Forest Division considering the local biotic pressure on the forest.

The percentage of the trees available for exploitation (Y) is calculated as follows.

$$Y = \frac{X}{(I + X/2)} \times 100 \pm A \text{ ---------- (2)}$$

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.

$$Y = \frac{2 F II (100 - Z)}{200 I T + F II (100 - Z)} \times 100 \pm A \text{ ---------- (3)}$$

The details of calculation of yield felling series wise is given in the Chapter II - Selection -cum- Improvement Working circle of Part II.

12.2. STATISTICS OF FOREST CARBON STOCK:

The carbon stock of the forest has been estimated after completion of the enumeration of all the sample plots.

Along with nested quadrates of 3m x 3m and 1mx1m, one more quadrate of size 5m x 5m at NE and SW direction may be laid out for the estimation of carbon stock. In 5m x 5m, all the dead wood above 5cm diameter (15cm girth) are to be collected, weighed and recorded. In 3m x 3m, all the woody litter *i.e.* branches below 5cm diameter (15cm girth), are to be collected, weighed and recorded. In 3mx3m, all shrubs and climbers are to be up-rooted, weighed, and recorded. In 1mx1m plot, all herbs/grasses including leaf litter are to be collected, weighed, and recorded. In 1mx1m plot, forest floor are to be swept, collected, recorded and a portion will be kept for carbon analysis. After that a pit of 30cmx30cmx30cm are to be dug at the centre of these1mx1m plots and a composite sample of soil weighing 200gm are to be kept for organic carbon analysis. But the shrubs, climbers, herbs, grasses in all the quadrates of 3mx3m and 1mx1m have not been uprooted. For estimation of the carbon stock a default value may be multiplied to the total bio mass of shrubs, climbers, herbs, grasses.

From the enumeration data of trees above 30cm girth, the volume of individual species is calculated from the volume table for the species. The bole mass of the species can be calculated by multiplying the specific gravity of that species with the volume of the species. The Above Ground Biomass (AGB) of the species of 30 cm girth and above are found out by multiplying the total bole mass of the species with the Bio mass Expansion factor (BEF) of that species. For Sal and its associates the BEF (IPCC 2006) is 1.74. From the data of AGB, the Below Ground Biomass (BGB) i.e bio mass of roots of the species can be calculated by multiplying a default value of 0.26(IPCC 2006) with the Above Ground Biomass (AGB). The Dead Wood Biomass are calculated by weighing the dry fallen wood, branches, twigs and humus. The total Bio mass of 0.1ha.area is calculated by summing up the Above Ground Biomass (AGB), Below Ground Biomass (BGB), and Dead Wood Biomass (DWB). The carbon stock of total Biomass is calculated

by multiplying a constant factor 0.47. (IPCC 2006) with the value of total Biomass.

The soil Carbon stock can be calculated by analyzing the Carbon content of 200 gms of soil collected from pits of 30cm x 30cm x 30cm on South-East and North-West corners of main plot. The Soil Carbon stock of 0.1 Ha. area is estimated and is added to the Carbon stock derived from the total Bio mass (AGB+BGB+DWB).

In this manner the Carbon stock of 0.1Ha. area is calculated and Carbon stock per Ha is estimated. The Carbon stock of a Forest Block is calculated by taking the average Carbon stock of the sample plots of that Forest Block and then multiplying the average Carbon stock of 1Ha. area with the area of that Forest Block.

The Carbon stock of a Forest Division is estimated by adding Carbon stocks of all the Forest blocks under the jurisdiction of the Division. The estimation of carbon stock of a Forest Division should be as accurate as possible and it should be transparent. As per guidelines of Intergovernmental Panel on Climate Change (IPCC) there should be mechanism for measurement, reporting and verification of Carbon stock at national and sub-national level. For this purpose Permanent Sample Plots (PSP) are to be laid in the Division in different strata of forest.

The estimation of Carbon stock of different, Forest blocks, and whole of Khordha Forest Division is furnished in **Table No 12.3**.

Table No: 12.3 Forest Compatmentwise Estimation of Carbon Stock

Sl No	Name of the Range	Name of the Forest Block	Compartment No.	Volume of trees (Cum)	Total Growing stock including underground biomass in Cum(5 X 1.2)	Wood density (T/Cum)	Growing stock (Biomass)10^3 T/Cum(6X7/ 1000)	Carbon Equivalent in 10^3 T /Cum(8/2.5)	CO2 Equivalent in Thousand T /Cum(9X3.663)
1	2	3	4	5	6	7	8	9	10
1	Balipatna	BHANRA	BHANRA	2,045	2,454	0.8	1.9632	0.78528	2.87648064
2	Balugaon	ARANGA	A-1	27,649	33,179	0.8	26.54304	10.617216	38.89086221
			A-2	23,615	28,338	0.8	22.6704	9.06816	33.21667008
			A-3	26,166	31,399	0.8	25.11936	10.047744	36.80488627
			A-4	23,099	27,719	0.8	22.17504	8.870016	32.49086861
			A-5	13,086	15,703	0.8	12.56256	5.025024	18.40666291
			A-6	16,172	19,406	0.8	15.52512	6.210048	22.74740582
			A-7	15,678	18,814	0.8	15.05088	6.020352	22.05254938
			A-8	8,658	10,390	0.8	8.31168	3.324672	12.17827354
3	Balugaon	BANKARD	B-1	21,661	25,993	0.8	20.79456	8.317824	30.46818931
			B-2	13,871	16,645	0.8	13.31616	5.326464	19.51083763
			B-3	17,733	21,280	0.8	17.02368	6.809472	24.94309594
			B-4	17,949	21,539	0.8	17.23104	6.892416	25.24691981
4	Balugaon	BHALERI	BHALERI	45,388	54,466	0.8	43.57248	17.428992	63.8423977
5	Balugaon	BHATPADA	BHATPADA	14,066	16,879	0.8	13.50336	5.401344	19.78512307
6	Balugaon	CHAMPAGARH DPF	CHAMPAGARH	23,117	27,740	0.8	22.19232	8.876928	32.51618726
7	Balugaon	CHULIJHINKA	CHULIJHINKA	31,220	37,464	0.8	29.9712	11.98848	43.91380224
8	Balugaon	JHARAN	JHARAN	95,143	1,14,172	0.8	91.33728	36.534912	133.8273827
9	Balugaon	JIRIPADA	JIRIPADA	3,948	4,738	0.8	3.79008	1.516032	5.553225216
10	Balugaon	KOTWAL	K-1	10,581	12,697	0.8	10.15776	4.063104	14.88314995
			K-2	8,842	10,610	0.8	8.48832	3.395328	12.43708646
			K-3	10,714	12,857	0.8	10.28544	4.114176	15.07022669
			K-4	8,282	9,938	0.8	7.95072	3.180288	11.64939494
			K-5	12,951	15,541	0.8	12.43296	4.973184	18.21677299
11	Balugaon	NATHPUR	NATHPUR	27,232	32,678	0.8	26.14272	10.457088	38.30431334

Sl No	Name of the Range	Name of the Forest Block	Compartment No.	Volume of trees (Cum)	Total Growing stock including underground biomass in Cum(5 X 1.2)	Wood density (T/Cum)	Growing stock (Biomass)10^3 T/Cum(6X7/ 1000)	Carbon Equivalent in 10^3 T /Cum(8/2.5)	CO2 Equivalent in Thousand T /Cum(9X3.663)
1	2	3	4	5	6	7	8	9	10
12	Balugaon	RAJIN	R-1	26,219	31,463	0.8	25.17024	10.068096	36.87943565
			R-2	10,275	12,330	0.8	9.864	3.9456	14.4527328
			R-3	6,779	8,135	0.8	6.50784	2.603136	9.535287168
			R-4	14,520	17,424	0.8	13.9392	5.57568	20.42371584
			R-5	11,605	13,926	0.8	11.1408	4.45632	16.32350016
			R-6	7,937	9,524	0.8	7.61952	3.047808	11.1641207
			R-7	6,082	7,298	0.8	5.83872	2.335488	8.554892544
			R-8	15,053	18,064	0.8	14.45088	5.780352	21.17342938
			R-9	14,319	17,183	0.8	13.74624	5.498496	20.14099085
			R-10	11,888	14,266	0.8	11.41248	4.564992	16.7215657
			R-11	10,812	12,974	0.8	10.37952	4.151808	15.2080727
			R-12	12,999	15,599	0.8	12.47904	4.991616	18.28428941
			R-13	10,905	13,086	0.8	10.4688	4.18752	15.33888576
			R-14	15,105	18,126	0.8	14.5008	5.80032	21.24657216
			R-15	23,607	28,328	0.8	22.66272	9.065088	33.20541734
			R-16	13,059	15,671	0.8	12.53664	5.014656	18.36868493
			R-17	9,595	11,514	0.8	9.2112	3.68448	13.49625024
			R-18	10,976	13,171	0.8	10.53696	4.214784	15.43875379
			R-19	3,611	4,333	0.8	3.46656	1.386624	5.079203712
			R-20	11,291	13,549	0.8	10.83936	4.335744	15.88183027
			R-21	20,735	24,882	0.8	19.9056	7.96224	29.16568512
			R-22	9,772	11,726	0.8	9.38112	3.752448	13.74521702
			R-23	7,016	8,419	0.8	6.73536	2.694144	9.868649472
			R-24	8,358	10,030	0.8	8.02368	3.209472	11.75629594
			R-25	14,712	17,654	0.8	14.12352	5.649408	20.6937815
			R-26	12,051	14,461	0.8	11.56896	4.627584	16.95084019
			R-27	11,572	13,886	0.8	11.10912	4.443648	16.27708262

Sl No	Name of the Range	Name of the Forest Block	Compartment No.	Volume of trees (Cum)	Total Growing stock including underground biomass in Cum(5 X 1.2)	Wood density (T/Cum)	Growing stock (Biomass)10^3 T/Cum(6X7/ 1000)	Carbon Equivalent in 10^3 T /Cum(8/2.5)	CO2 Equivalent in Thousand T /Cum(9X3.663)
1	2	3	4	5	6	7	8	9	10
			R-28	12,659	15,191	0.8	12.15264	4.861056	17.80604813
13	Balugaon	SANDHAMAL	SANDHAMAL	42,127	50,552	0.8	40.44192	16.176768	59.25550118
14	Balugaon	SOLARI	SOLARI	61,158	73,390	0.8	58.71168	23.484672	86.02435354
15	Balugaon	TAMNA	T-1	21,308	25,570	0.8	20.45568	8.182272	29.97166234
			T-2	14,609	17,531	0.8	14.02464	5.609856	20.54890253
			T-3	27,932	33,518	0.8	26.81472	10.725888	39.28892774
			T-4	4,329	5,195	0.8	4.15584	1.662336	6.089136768
			T-5	12,087	14,504	0.8	11.60352	4.641408	17.0014775
			T-6	5,619	6,743	0.8	5.39424	2.157696	7.903640448
			T-7	24,103	28,924	0.8	23.13888	9.255552	33.90308698
			T-8	10,228	12,274	0.8	9.81888	3.927552	14.38662298
			T-9	16,468	19,762	0.8	15.80928	6.323712	23.16375706
			T-10	17,211	20,653	0.8	16.52256	6.609024	24.20885491
			T-11	12,777	15,332	0.8	12.26592	4.906368	17.97202598
			T-12	14,448	17,338	0.8	13.87008	5.548032	20.32244122
			T-13	25,527	30,632	0.8	24.50592	9.802368	35.90607398
16	Delang	BEGUNIAPARA	BEGUNIAPARA	1,253	1,504	0.8	1.20288	0.481152	1.762459776
17	Delang	JAMUNAJHARHA (PalAl)RHA	JAMUNAJHARHA (PalAl)RHA	999	1,199	0.8	0.95904	0.383616	1.405185408
18	Delang	KUMUKA	KUMUKA	4,920	5,904	0.8	4.7232	1.88928	6.92043264
19	Delang	RENGAL	RENGAL	2,041	2,449	0.8	1.95936	0.783744	2.870854272
20	Khordha	BARUNEI	BARUNEI	18,107	21,728	0.8	17.38272	6.953088	25.46916134
21	Khordha	BRAHMANIDEI (all)	BRAHMANIDEI (all)	20,359	24,431	0.8	19.54464	7.817856	28.63680653
22	Khordha	DUBURI	DUBURI	245	294	0.8	0.2352	0.09408	0.34461504
23	Khordha	JARIPUT	JARIPUT	6,912	8,294	0.8	6.63552	2.654208	9.722363904

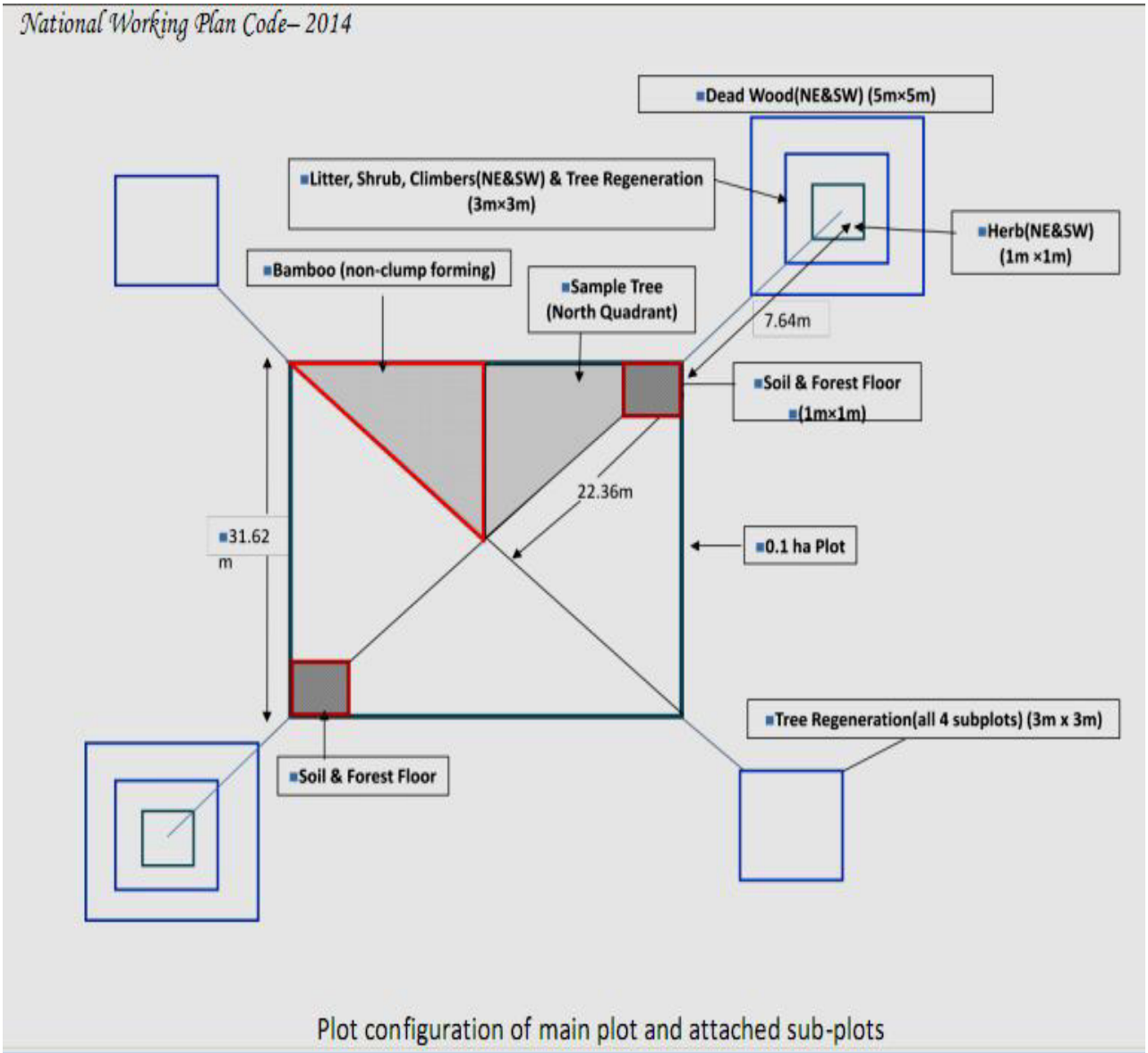
Sl No	Name of the Range	Name of the Forest Block	Compartment No.	Volume of trees (Cum)	Total Growing stock including underground biomass in Cum(5 X 1.2)	Wood density (T/Cum)	Growing stock (Biomass)10^3 T/Cum(6X7/ 1000)	Carbon Equivalent in 10^3 T /Cum(8/2.5)	CO2 Equivalent in Thousand T /Cum(9X3.663)
1	2	3	4	5	6	7	8	9	10
24	Khordha	JAYAMANGAL	JAYAMANGAL	5,231	6,277	0.8	5.02176	2.008704	7.357882752
25	Khordha	KAPILESWARPUR	KAPILESWARPUR	1,627	1,952	0.8	1.56192	0.624768	2.288525184
26	Khordha	KERANG (all)	KERANG (all)	3,397	4,076	0.8	3.26112	1.304448	4.778193024
27	Khordha	MANDALSINGH (all)	MANDALSINGH (all)	7,301	8,761	0.8	7.00896	2.803584	10.26952819
28	Khordha	MANIBANDHA	MANIBANDHA	10,590	12,708	0.8	10.1664	4.06656	14.89580928
29	Khordha	NAGAPALLI	NAGAPALLI	22,871	27,445	0.8	21.95616	8.782464	32.17016563
30	Khordha	NARGANG	NARGANG	9,287	11,144	0.8	8.91552	3.566208	13.0630199
31	Khordha	PANCHAGARH	PANCHAGARH	24,375	29,250	0.8	23.4	9.36	34.28568
32	Khordha	PANGARSINGH	PANGARSINGH	2,351	2,821	0.8	2.25696	0.902784	3.306897792
33	Khordha	PUINCHIA	PUINCHIA	10,619	12,743	0.8	10.19424	4.077696	14.93660045
34	Khordha	TARTUA	TARTUA	4,660	5,592	0.8	4.4736	1.78944	6.55471872
35	Ranpur	CHAMPAGARH RF	CHAMPAGARH	15,612	18,734	0.8	14.98752	5.995008	21.9597143
36	Ranpur	DHANI (N)	D-1	12,648	15,178	0.8	12.14208	4.856832	17.79057562
			D-2	17,399	20,879	0.8	16.70304	6.681216	24.47329421
			D-3	5,412	6,494	0.8	5.19552	2.078208	7.612475904
			D-4	11,749	14,099	0.8	11.27904	4.511616	16.52604941
37	Ranpur	MAINAG	M-1	9,795	11,754	0.8	9.4032	3.76128	13.77756864
			M-2	8,513	10,216	0.8	8.17248	3.268992	11.9743177
			M-3	5,450	6,540	0.8	5.232	2.0928	7.6659264
			M-4	7,275	8,730	0.8	6.984	2.7936	10.2329568
			M-5	9,380	11,256	0.8	9.0048	3.60192	13.19383296
			M-6	10,874	13,049	0.8	10.43904	4.175616	15.29528141
			M-7	14,235	17,082	0.8	13.6656	5.46624	20.02283712
38	Ranpur	MALA	ML-1	5,971	7,165	0.8	5.73216	2.292864	8.398760832
			ML-2	8,312	9,974	0.8	7.97952	3.191808	11.6915927
			ML-3	8,278	9,934	0.8	7.94688	3.178752	11.64376858
			ML-4	6,663	7,996	0.8	6.39648	2.558592	9.372122496

Sl No	Name of the Range	Name of the Forest Block	Compartment No.	Volume of trees (Cum)	Total Growing stock including underground biomass in Cum(5 X 1.2)	Wood density (T/Cum)	Growing stock (Biomass)10^3 T/Cum(6X7/ 1000)	Carbon Equivalent in 10^3 T /Cum(8/2.5)	CO2 Equivalent in Thousand T /Cum(9X3.663)
1	2	3	4	5	6	7	8	9	10
			ML-5	7,464	8,957	0.8	7.16544	2.866176	10.49880269
			ML-6	5,511	6,613	0.8	5.29056	2.116224	7.751728512
			ML-7	2,947	3,536	0.8	2.82912	1.131648	4.145226624
			ML-8	13,049	15,659	0.8	12.52704	5.010816	18.35461901
			ML-9	3,352	4,022	0.8	3.21792	1.287168	4.714896384
			ML-10	4,677	5,612	0.8	4.48992	1.795968	6.578630784
			ML-11	6,675	8,010	0.8	6.408	2.5632	9.3890016
			ML-12	10,020	12,024	0.8	9.6192	3.84768	14.09405184
			ML-13	8,785	10,542	0.8	8.4336	3.37344	12.35691072
			ML-14	7,404	8,885	0.8	7.10784	2.843136	10.41440717
			ML-15	3,043	3,652	0.8	2.92128	1.168512	4.280259456
			ML-16	12,860	15,432	0.8	12.3456	4.93824	18.08877312
			ML-17	15,029	18,035	0.8	14.42784	5.771136	21.13967117
			ML-18	16,006	19,207	0.8	15.36576	6.146304	22.51391155
			ML-19	13,583	16,300	0.8	13.03968	5.215872	19.10573914
			ML-20	7,471	8,965	0.8	7.17216	2.868864	10.50864883
			ML-21	8,323	9,988	0.8	7.99008	3.196032	11.70706522
			ML-22	3,611	4,333	0.8	3.46656	1.386624	5.079203712
			ML-23	10,827	12,992	0.8	10.39392	4.157568	15.22917158
			ML-24	4,529	5,435	0.8	4.34784	1.739136	6.370455168
			ML-25	12,027	14,432	0.8	11.54592	4.618368	16.91708198
			ML-26	36,547	43,856	0.8	35.08512	14.034048	51.40671782
			ML-27	6,719	8,063	0.8	6.45024	2.580096	9.450891648
			ML-28	6,103	7,324	0.8	5.85888	2.343552	8.584430976
			ML-29	11,447	13,736	0.8	10.98912	4.395648	16.10125862
			ML-30	6,426	7,711	0.8	6.16896	2.467584	9.038760192
			ML-31	7,172	8,606	0.8	6.88512	2.754048	10.08807782

Sl No	Name of the Range	Name of the Forest Block	Compartment No.	Volume of trees (Cum)	Total Growing stock including underground biomass in Cum(5 X 1.2)	Wood density (T/Cum)	Growing stock (Biomass)10^3 T/Cum(6X7/ 1000)	Carbon Equivalent in 10^3 T /Cum(8/2.5)	CO2 Equivalent in Thousand T /Cum(9X3.663)
1	2	3	4	5	6	7	8	9	10
			ML-32	15,568	18,682	0.8	14.94528	5.978112	21.89782426
			ML-33	5,184	6,221	0.8	4.97664	1.990656	7.291772928
			ML-34	14,152	16,982	0.8	13.58592	5.434368	19.90608998
			ML-35	5,108	6,130	0.8	4.90368	1.961472	7.184871936
			ML-36	3,908	4,690	0.8	3.75168	1.500672	5.496961536
			ML-37 (P)	576	691	0.8	0.55296	0.221184	0.810196992
			ML-37	17,131	20,557	0.8	16.44576	6.578304	24.09632755
			ML-38	16,630	19,956	0.8	15.9648	6.38592	23.39162496
			ML-39	7,265	8,718	0.8	6.9744	2.78976	10.21889088
			ML-40	5,530	6,636	0.8	5.3088	2.12352	7.77845376
			ML-41	2,383	2,860	0.8	2.28768	0.915072	3.351908736
			ML-42	5,684	6,821	0.8	5.45664	2.182656	7.995068928
			ML-43	7,723	9,268	0.8	7.41408	2.965632	10.86311002
			ML-44	3,599	4,319	0.8	3.45504	1.382016	5.062324608
			ML-45	7,991	9,589	0.8	7.67136	3.068544	11.24007667
			ML-46	4,620	5,544	0.8	4.4352	1.77408	6.49845504
			ML-47 (P)	335	402	0.8	0.3216	0.12864	0.47120832
			ML-47	12,813	15,376	0.8	12.30048	4.920192	18.0226633
			ML-48	9,041	10,849	0.8	8.67936	3.471744	12.71699827
			ML-49	4,950	5,940	0.8	4.752	1.9008	6.9626304
			ML-50	7,756	9,307	0.8	7.44576	2.978304	10.90952755
			ML-51	5,286	6,343	0.8	5.07456	2.029824	7.435245312
39	Ranpur	NUAPADA-B	NUAPADA-B	1,706	2,047	0.8	1.63776	0.655104	2.399645952
40	Ranpur	SATABHAYA	SATABHAYA	8,556	10,267	0.8	8.21376	3.285504	12.03480115
41	Ranpur	SULIA-B	SULIA-B	47,755	57,306	0.8	45.8448	18.33792	67.17180096
42	TANGI	BADAPARI	BADAPARI	10,971	13,165	0.8	10.53216	4.212864	15.43172083

Sl No	Name of the Range	Name of the Forest Block	Compartment No.	Volume of trees (Cum)	Total Growing stock including underground biomass in Cum(5 X 1.2)	Wood density (T/Cum)	Growing stock (Biomass)10^3 T/Cum(6X7/ 1000)	Carbon Equivalent in 10^3 T /Cum(8/2.5)	CO2 Equivalent in Thousand T /Cum(9X3.663)
1	2	3	4	5	6	7	8	9	10
43	TANGI	BAGHEIPUT	BAGHEIPUT	1,961	2,353	0.8	1.88256	0.753024	2.758326912
44	TANGI	BHUSANDPUR	BHUSANDPUR	17,178	20,614	0.8	16.49088	6.596352	24.16243738
45	TANGI	CHAKADAPATHA	CHAKADAPATHA	89,418	1,07,302	0.8	85.84128	34.336512	125.7746435
46	TANGI	DHANI (S)	D-5	13,915	16,698	0.8	13.3584	5.34336	19.57272768
			D-6	15,560	18,672	0.8	14.9376	5.97504	21.88657152
47	TANGI	JALBHAR	JALBHAR	23,810	28,572	0.8	22.8576	9.14304	33.49095552
48	TANGI	KADAMBAJHAR	KADAMBAJHAR	6,193	7,432	0.8	5.94528	2.378112	8.711024256
49	TANGI	KAITHPALLA	KAITHPALLA	4,308	5,170	0.8	4.13568	1.654272	6.059598336
50	TANGI	KANDAGADIA	KANDAGADIA	7,409	8,891	0.8	7.11264	2.845056	10.42144013
51	TANGI	KUHUDI	KUHUDI	23,751	28,501	0.8	22.80096	9.120384	33.40796659
52	TANGI	KUNJURI	KUNJURI	10,077	12,092	0.8	9.67392	3.869568	14.17422758
53	TANGI	NALSINGH	NALSINGH	22,548	27,058	0.8	21.64608	8.658432	31.71583642
54	TANGI	NARGODA	NARGODA	16,686	20,023	0.8	16.01856	6.407424	23.47039411
55	TANGI	PATIA	P-1	11,117	13,340	0.8	10.67232	4.268928	15.63708326
			P-2	23,892	28,670	0.8	22.93632	9.174528	33.60629606
			P-3	7,277	8,732	0.8	6.98592	2.794368	10.23576998
			P-4	22,553	27,064	0.8	21.65088	8.660352	31.72286938
			P-5	4,826	5,791	0.8	4.63296	1.853184	6.788212992
			P-6	11,412	13,694	0.8	10.95552	4.382208	16.0520279
			P-7	6,441	7,729	0.8	6.18336	2.473344	9.059859072
			P-8	10,317	12,380	0.8	9.90432	3.961728	14.51180966
			P-9	8,723	10,468	0.8	8.37408	3.349632	12.26970202
			P-10	12,434	14,921	0.8	11.93664	4.774656	17.48956493
			P-11	14,642	17,570	0.8	14.05632	5.622528	20.59532006
			P-12	22,332	26,798	0.8	21.43872	8.575488	31.41201254
56	TANGI	RAMESWAR	RAMESWAR	16,262	19,514	0.8	15.61152	6.244608	22.8739991
Total				**23,95,890**	**28,75,068**	**146**	**2,300**	**920**	**3,370**

The diagram of laying of Sample Plot for inventory of forest resource and carbon stock is given below as per National Working Plan -2014.



Plot configuration of main plot and attached sub-plots

12.2 CARBON STOCK OF FOREST AREA:

Forest carbon stock is the amount of carbon that has been sequestered from the atmosphere and is now stored within the forest ecosystem, mainly within living biomass and soil, and to a lesser extent also in dead wood and litters. To estimate the stocks of live tree carbon in the area of interest, the biomass of all sampled trees is first estimated and then a plot-level estimate is calculated. A mean carbon stock is then calculated and on the basis of area proportionately carbon stock of forest area.

12.3 CARBON STOCK OF TREES OUTSIDE FOREST AREA:

Trees available in outside forest block i.e in agriculture land, along the road, railways, canals, ponds, orchards, parks, gardens and homestead are treated as T.O.F. Out of which data in plantation activities raised by Forest Department in outside forest blocks is available. These plantations are raised in form of Block Plantation, Avenue / linear mode. All these plantation are categorised to a single format i.e in area basis (Ha.) by dividing 1600 plants to that of no.of trees. The details of yearwise plantation raised outside forest block is enclosed in **Appendix XIV.**

To know the survival percentage and growth of the plantation it was enumerated on sample plot basis. One sample plot of 0.1 Ha. taken in 5 Ha. of plantation. Site wise sample plot of field data on plant species of T.O.F were taken on plot basis. The phytomass of individual tree was added to find out the total T.O.F phytomass for each plot. Phytomass has a direct relationship with the amount of carbon present in that plant biomass. It has been considered that 47.5 % of carbon present in woody biomass. For conversion into carbon contents the woody biomass should be multiplied by coefficient 0.475.

Sl No.	T.O.F Class	Area in Ha.	Total Phytomass 10^3 per Ha.	Carbon 10^3 tons/ Ha. * 0.475
1	Block Plantation	1110.01563	81.99	43.22984
2	Avenue Plantation	188.03875	81.99	43.22984
3	Urban plantation	121.875	81.99	43.22984
Grand Total in Ha.		**1419.92938**	**245.97**	**129.68952**

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PART-II

CHAPTER-13

FUTURE MANAGEMENT

13. BASIS OF PROPOSAL:

In recent years there has been paradigm shift in the national forest policy & approach to the forest sector both nationally & internationally. The focus is shifted from timber/NTFP harvesting to environmental stability, biodiversity conservation, restoration of ecological balance of the disturbed areas, protection of forest management to cater the need of the present generation keeping the need of future generation and other socio-economic benefits based on non wood forest products (NWFP). In the present scenario climate change has greater impact on forest eco-system. The actual state of forest largely depends on process & practices of the past. Impact on climate change in forest eco-system are getting manifested as species range shifts, changing biodiversity, physiological changes in plant life cycle, forest growth pattern of the species. United Nations Framework Convention on Climate Change (UNFCCC) has adopted forest conservation, sustainable management of forest and enhancement of carbon stocks to reduce the emission from deforestation and forest degradation, REDD+(plus). Implementation of REDD+ requires efforts to measure forest carbon, and alternative activities such as efficient cooking energy devices etc.

Therefore, provision has been made to integrate the aspects of forest management which are considered important for assessing the sustainability, accompanied by a set of related quantitative, qualitative and descriptive attributes which when measured or assessed periodically indicate the direction of change for each aspect of sustainable management of forests.

13.1 OBJECTIVE OF MANAGEMENT:

The management of the forest will be focused on Conservation of bio-diversity as well as enhancement of socio-economic development of forest fringe villages & maintenance of ecological factors, control of soil erosion and many more as follows aiming to achieve sustained yield and minimizing the adverse effect of climate change.

The working plan sets up the following general objectives of management:-

13.1.1 Dynamics of forest and stands:

Forest is a living dynamic entity and due to climatic & other locality factors it changes its species composition, growth pattern, bio diversity, & faunal behaviour in passage of time. This plan aims:-

- To retain the species diversity in respect of flora & fauna of that locality.
- To ensure sustainable & dependable production of timber / fuel wood and other available forest produces.
- To ensure for meeting the requirements of people for agricultural, small timbers, fire wood, bamboos and other forest produces.
- To enhance species composition towards a climatic climax species of more important and of valuable species.
- To maintain soil moisture regime by protecting the existing vegetative cover and for soil & perennial source of water with a view to ecological & environmental stability.
- To enhance the production of minor forest produce required for forest based industries consistent with ecological requirements.
- Enrichment of forest to attract the surrounding villagers and use it for recreation purpose.
- To maintain the regular supply of timbers for making chariots for the annual Car Festival of Lord Jagannath at Puri as specified in the Puri Car Festival Code-1983.
- To prevent further degradation of environment by regulating tree felling and giving more emphasis on conservation & protection of flora & fauna and micro organisms.
- To ensure Annual Biomass Production is sustainable throughout the plan period so as to ensure a specific quantum of carbon sequestration.
- To enhance Bio Diversity of Forest through various management practices & proper documentation.

13.1.2 Forests and Soils:

(a) The configuration of land of Khordha Forest Division from forest vegetation point of view can be classified into two groups.

(b) The South-Western portion locally known as the Banpur Forests comprising of the Rajin, Tamana, Katwal, Bankard, Aranga, Mala, Patia, Dhani and Maninag Blocks etc.

(c) The scattered isolated patches forming the remainder of the Forest Blocks locally known under various names comprising of Jayamangal, Panchagarh, Barunei, Kuhudi and Sulia Blocks.

But according to distribution of types of forest as per the Champion and Seth's classification of the general forests of India, the following types and sub-types are found in Khordha Forest Division. 59

(i) Sub-group	2.B.	Northern tropical semi ever green forests.
(ii)	2.B/C3	Orissa semi ever green forests.
(iii) Sub-group	3.C.	North Indian tropical moist deciduous forests.
(iv)	3.C/C1(d)	Peninsular (coastal) Sal forests.
(v)	3.C/2S1	Northern secondary moist deciduous forests.
(vi) Sub-group	5.B.	Northern tropical dry deciduous forests.
(vii)	5.B/C1(c)	Dry peninsular Sal forests.
(viii)	5.B/DS1	Dry deciduous scrub forests.

13.1.3 Soils:

Regarding soil composition of forest of this Division a large portion of Mala forest contains deep alluvium loamy soil around Sulia Nala. In some parts of Aranga Block, the soil is calcareous and clayey. The poorest soil in the southern Range is met with in the extreme west in Rajin Block between Mahulia village and Kriamba village in Ganjam border. *Dendrocalamus strictus* and dry miscellaneous vegetation are noticed due to the presence of ferric oxides in the soil.

The relationship between geology, soil and minerals on the distribution of forest types is complex and depends on several factors. The physical conditions of the soil, moisture supply, soil aeration, and availability of chemical nutrients influence the distribution of species and forest types. Depth and soil moisture are more important than the nature of rock. Lateritic soils exercise a marked effect on the vegetation. Generally Teak avoids lateritic soils but Sal is tolerant to it. The associated species of Sal are Xylia and Cleistanthus. Most of the forests are found to occur on the hill slopes, many of them being steep having shallow soil and sometimes extremely rocky. Consequently, the hill

slopes carry a poor quality Sal forest and at places dry miscellaneous forest. The soil derived from the Khondalite rock supports miscellaneous forests generally rich with Bamboos. This is probably the main reason for concentration of bamboo forests in Khordha Forest Division.

13.1.4 Red Gravelly Soils:

Red Gravelly Soil is a type of soil that develops in a warm, temperate, moist climate under deciduous or mixed forest, having thin organic and organic-mineral layers over laying a yellowish-brown leached layer resting on an alluvial red layer. Red soils are generally derived from crystalline rock. They are usually poor growing soils, low in nutrients and humus and difficult to cultivate because of its low water holding capacity. The main features are light texture, single grained to weakly granular structured surface soil, highly porous with low available water holding capacity. Lime kankar and free carbonates are absent and soils are non saline. The red colour is due to presence of iron oxides. These soils do not contain lateritic mass within the control section of the soil profile, are moderately acidic and are generally deficient in Nitrogen, organic matter and Calcium. The clay fraction is rich in Kaolinite type clay mineral with varying proportion of elite. Phosphate fixation is a problem in these soils due to presence of free Iron and Aluminium Oxides.

13.1.5 Calcareous Alluvial Soils:

Calcareous alluvial soils are found in most of the compartments of Khordha Forest Division. These soils are found on the lower topographic situation, due to enrichment of Calcium in thin exchange complex and fine texture dcolluvium and alluvium. The alluvial soils are rich in Potash and Calcium but are deficient in organic matter, nitrogen and phosphours. The favourable structure of the pore space is suggested to be stipulated by the active of the numerous and diverse representatives of soil biota. The composition of this phylum is dominated by the elevated number of both higher and lower action bacteria. The high biodiversity of bacteria against the background of their great total number and the developed tropics interactions in the microbial community promote the well-balanced production of specific metabolites including gaseous ones (CO2, H2). This circumstance allows this clayey soil to function rather actively while protecting the pore space against compaction and maintaining the optimal density, porosity and hydrological properties.

13.1.6 Skeletal Soils:

Skeletal soils are found indifferent compartments of Khordha Forest Division. Lateritic soil share also found in these areas. The soil contains lateritic mass within control section of the profile. The lateritic mass is characterized by compact to vesicular, sometimes honey combed structure composed essentially of a mixture of hydrated oxides of iron and Aluminium with small amounts of Manganese and Titanium oxides and quatz as a necessary low fertility status being proper inorganic matter, nitrogen, available phosphorous, potash and calcium. Soil is acidic. The clay fraction constitutes predominantly lantonite type of clay mineral. The soil of Khordha Forest Division is shown in the soil map of Khordha Forest Division.

- In order to check the soil erosion and enhance the soil fertility and ensuing stability of forest eco system following measures needs to be carried out.
- To undertake Afforestation programme such as AR, ANR as per the prescription of the Working Plan in the open forest or no forest areas of forest block and also in the revenue forest areas less vegetation or nil vegetation.
- To protect forests against drivers of forest degradation with special importance to Soil conservation.
- To check soil erosion in forest floor – Sheet erosion, Rill erosion, Splash erosion, Gully and ravine formation.
- To maintain Soil cover of any form – mostly of vegetative / grass cover in forests i.e. enriched undergrowth.
- To maintain adequate humus layer on forest floor.
- To reduce the grazing pressure on forest.

13.1.7 Forest and Water:

The forests are the store house of water. All the rivulets / springs are originating from forests. The flow of water in springs and rivulets depends upon water holding capacity of Forest floor. Recharge of ground water table mostly depends upon runoff time, conditions for percolation of surface water. Reduced time of collection of runoff water enhances the flood menace in rivers. Availability of surface water also decides the carrying capacity of wildlife of any forest. The composition of forests mostly depends on water regime of forest floor. The objectives set out for this plan are

- To protect and maintain thick vegetation at the origin of rivers, springs and rivulets.

- To treat the catchment area of water body within the forest block or outside to enhance water holding capacity and enhance flow of water in Rivers, springs and rivulets.
- To create new water body within the forest blocks and preserve the existing wet land inside the forests.

13.1.8 Forest Biodiversity:

The natural forest of this Division is scattered all over the division except Balipatna & Delanga Range and Banki section of the Khordha Range. These forest are mainly to protect and conserve wildlife resources (Fauna) along with all the vegetation (Flora) in their full scope in the division with a view to conserve and enrich biodiversity. The natural biological diversity should be maintained and developed through sustainable management practices in wild life and various plant species.

- To preserve bio diversity of natural forests,
- To take timely measures and prepare Bio- Diversity Register of each locality.
- To prevent mono culture practices in plantations only on economic consideration.
- To encourage natural regeneration in forest blocks.

13.1.9 Climate and Forests:

To reduce Green House gas emissions, enhance mitigation/carbon sequestration capacity of forest and find ways for adoption with change in climate. Forests are a stabilising force for the climate. They regulate eco-systems, protect biodiversity, play an integral part in the carbon cycle, support livelihoods, and supply goods and services that can drive sustainable growth. Forest's role in climate change is two–fold. Enhanced carbon sequestration through recognised and innovative Silvicultural practices, eco restoration of degraded forest land, improved bio mass productivity will help forest health and vitality, implementation of REDD+, mechanisms to measure forest carbon, interventions and payments to local people in addition to alternative activities such as fodder development to avoid lopping of tree branches, efficient cooking energy devices, etc. In order to combat climate change following objectives has been out lined in this plan these are

- To improve the crop density of forest vegetations.
- To increase tree cover outside the conventional forest land i.e. TOF.
- To reduce emission of Green House Gases at source through public cooperation and create new carbon sink through Farm Forestry.

- To bring all plantations & forest cover in Revenue Land to the management fold and enhance forest cover & carbon sequestration.
- To reduce fuel wood dependency by introducing alternate / renewable source of energy through VSS / EDC constituted under JFM Resolution.

13.1.10 Socio Economic consideration and generation of forest based employment opportunities and livelihood options:

Forest Management is not confined to departmental personals only. It has encompassed community participatory management practices since 1985 and more effectively thereafter. JFM resolution - 1993 has brought revolutionary changes in **Participatory Forest Management** which has been further fortified in JFM Resolution 2011. This resolution (2011) provided a wider scope for participatory forest management, encompassing the Revenue Forests for joint management with villagers. The Committee is designated as Vana Surakshya Samiti (VSS) for forests and Eco-Development Committee (EDC) for Sanctuary, National Park and other Protected Areas. VSS are actively protecting Forest Block to enhance forest cover similarly EDC are actively involved in management of Eco- Tourism, Nature Camps and Tourist Rest barracks/ Complexes. The Panchyat Raj Institutions (PRI) are also involved in the process of Joint Forest Management in accordance with the JFM Resolution 2011. The objectives intended to be fulfilled / achieved in this plan are as follows.

- To involve VSS in forest management for assigned **Forest Fringe Areas**.
- To enhance / support various forests based livelihood and employment opportunity.
- To strengthen usufruct sharing mechanism for interim / final harvested forest produce from the assigned area.
- To arrange Skill Development Training camps for VSS on Value addition to NTFP and other Forest Produce.
- To support the VSS to change from traditional fuel wood use to renewable energy resources.
- To protect traditional knowledge / cultural practices and help in documentation of traditional knowledge related to Forest, NTFP and Forest based medicinal practices.

13.1.11 Tools for integrated development:

For overall development of Forest resources / TOF in the division dovetailing of various developmental schemes, make use of modern technology in forest management, Nursery raising, tissue culture etc are required to be implemented / use by Forest personnel. The department is to work hand in hand with the District Administration. Development in Veterinary & Animal Husbandry Sector, Soil Conservation and Water Resource Department are to be integrated with forest activities to make it more scientific, effective and more acceptable for the developing situation. This plan aims to

- To develop Forest Resources through various Schemes like MGNREGA.
- To improve Planting stock through Tissue Culture, other vegetative propagation.
- To identify and protect plus trees and create improve genetic pool,
- To imbibe knowledge on first growing technology in Agriculture / Soil Conservation to improve forest growing stock.
- To use Satellite related output for forest management with the help of ORSAC, National Institutes of Remote Sensing & Space Application Centre / Forest Research Institute etc for fire management, elephant tracking and patrolling around the forest.

13.1.12 Performance Indicators for different objectives of management (PI):

In order to assess the performance on above outlined broad objectives, a set of performance indicators (PI) has been indicated below. It is required to evaluate / assess the performance in a periodical basis. First year of the Plan (2020-21) may be taken as base value and subsequent results may be compared to evaluate the achievements. The measurable / assessable parameters / attributes are furnished in **Table No 13.1** below

Table No 13.1: Performance Indicators for different objectives of management.				
Sl No	**Objectives**	**Parameters to be assessed.**	**Frequency**	**Remark**
1	**2**	**3**	**4**	**5**
1	**Dynamics of Forests and Stands.**	Species Composition	1st Yr, 6th Yr & 10 Yr	Sample Survey Method.
		Annual Biomass Production		Basal area Method. (M^2 / Ha)
		Bio Diversity of a Forest		Bio Diversity Index – Sample Survey
		Sustainable & Dependable Production of timber / fuel wood		Annual Production Cum Per annum / MT PA
		Area under plantation programme		Interpretation of Satellite Imagery.
2	**Forests and Soil:**	Eroded areas.	1st Yr, 6th Yr & 10 Yr	Interpretation of Satellite Imagery / Local Observation.
		Create & maintenance of Soil Conservation Measures works such as Loose boulder check dam, sunken pit, staggered stenches, control bond cause way etc.		
		Gully and Ravine formation / Silt in Run Off		Analysis of Runoff Water & Local observation.
		Humus Layer on forest floor		Study of Soil Profile.
		Grazing Pressure on forest.		Random assessment in a particular Forest Block in Nov- Dec.
3	**Forests and Water.**	Thick vegetation at the origin of rivers, springs and rivulets	1st Yr, 6th Yr & 10 Yr	Interpretation of Satellite Imagery / Local Observation
		Flow of water in Rivers, springs and rivulets.		Observation – Recording the quantum of flow of water and Period of Flow.
		Creation of water body, percolation tank, water harvesting structure, Check dam, diversion weir.		Local observation, Period of tidal submersion in Mangrove area.
4	**Forest Biodiversity**	Bio- Diversity Register.	1st Yr, 6th Yr & 10 Yr	At least one Bio- Diversity Register to be prepared in each Range & compare.
		Natural regeneration in all types of forest seen in Khordha Forest Division.		Regeneration Survey.

Sl No	Objectives	Parameters to be assessed.	Frequency	Remark
1	2	3	4	5
5	**Climate and Forests**	Crop density of forest vegetations.	1st Yr, 6th Yr & 10 Yr	FSI Report on Forest cover.
		Tree Outside the Forest.		
		Timber/Small timber/ Fuel wood/MFP dependency and changing over to alternate / renewable source of energy & others.		Participatory Rural Appraisal. Economic survey Report
6	**Socioeconomic Considerations and generation of forest based employment opportunities and livelihood options**	Forests based livelihood and employment opportunity.	1st Yr, 6th Yr & 10 Yr	Survey on Self employment on Forest Produce/ Value addition.
		Usufruct sharing mechanism for interim / final harvested forest produce.	Annual	Records of Forest produce harvest in JFM area & distribution- Manner / Conflict if any.
		Skill Development Training camps for VSS on Value addition to NTFP.	Annual	Survey on Self employment on Forest Produce/ Value addition.
		Documentation of traditional knowledge related to Forest.	1st Yr, 6th Yr & 10 Yr	Documentation and analysis.
7	**Tool for integrated development**:	To develop Forest resources through various Schemes like MANREGA	Annual	Funds flow from other agencies.
		To improve Planting stock through Tissue Culture, other vegetative propagation.		Plantation / Nursery through modern techniques.
		Identify and Protect plus trees and create improved genetic pool,		Creation of Genetic Pool.
		First growing technology in Agriculture / Soil Conservation to improve forest growing stock.	Annual	Application of Modern technology & Result evaluation.
		Use Satellite related output for forest management		Self assessment.

13.2 METHOD OF TREATMENT TO BE ADOPTED:

Considering the local field realities, analysis of forest crop by enumeration, regeneration, biodiversity survey, NTFP survey, detailed stock mapping and other locality factor of different forest blocks of this division method of treatment has been prescribed to different compartments. Demarcation of boundary line of different forest block and its properly maintenance and implementation of various activities timely as prescribed will definitely be enhance the health condition of the forest. Besides that adequate timely legal action should be taken against the offenders who are encroaching the forest blocks. A special drive will have to be taken up to make the forest encroachment free.

Adequate attention is to be provided for the management of NTFPs. After the shifting of rights of collection and disposal of most of the NTFP items to the local bodies (Panchyatas), there is necessity to increase the productivity of all such NTFP items and to monitor its collection and disposal in the interest of the forest and the collectors. These measures will help in gaining the confidence and cooperation of the local people so that they become willing partners to assist in the process of protection and management of the forests. Besides the above wild lives of this division also need special attention for their management and to prevent them from coming out of the forests into villages and towns. Thus efforts will have to be taken up to reduce animal depredation and animal anti depredation squad to the minimum. A separate squad at Range & Division level and “Prani Mitra” at village level may be constituted to keep a close watch on the movement of Wild animals specially elephants, wild boars, monkeys, wolf, migratory & residential birds.

13.3 CONSTITUTION OF WORKING CIRCLES:

In order to sustain management on Silviculture point of view of different forest blocks of Khordha Forest Division 09 Working Circles has been prescribed which are as follows.

- Selection–cum–Improvement Working Circle.
- Rehabilitation Working Circle.
- Plantation Working Circle.
- Car Timber (Over Lapping) Working Circle.
- Bamboo (Over Lapping) Working Circle.
- NTFP including Biodiversity Conservation & Development (Over Lapping) Working Circle.
- Joint Forest Management (Over Lapping) Working Circle.
- Catchment Treatment (Over Lapping) Working circle.
- WildlifeManagement(OverLapping)WorkingCircle

Table No:13.2

Sl no	Name of the Forest Block	Area in Ha. As per Notification	GIS 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 Act.		SWC-cum-IWC	RWC	Plantation WC	Car Timber (O) WC	Bamboo (O) WC	NTFP & BCD(O)WC	JFM & VSS (O) WC	Catchment Treatment (O)WC	Wildlife (O) WC
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Aranga RF	2651.6	2608.14	0.923		2607.217	2607.217			1272.46	2607.217	2607.217		2607.217	2607.217
2	Bankard RF	1290.28	1323.214			1323.214	1323.214			1007.59		1323.214	100	1323.214	1323.214
3	Kotwal RF	982.4	979.65			979.65	979.65			370.12	979.649	979.65		979.65	979.65
4	Tamana RF	3587.2	3573.05			3573.05	3573.05			2017.28	3573.05	3573.05		3573.05	3573.05
5	Rajin RF	6472.4	6667.455	35.109		6632.346	6632.346			4316.53	6632.346	6632.346	250	6632.346	6632.346

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	**Barunei RF**	482.8	444.373		0.5125	443.8605		350.8605	93.0			443.8605	150	443.8605	443.8605
7	**Jayamangal RF**	144.48	139.078			139.078		139.078				139.078	144.48	139.078	139.078
8	**Manibandha- A & B RF**	309.6	312.659			312.659		292.659	20.0			312.659	250	312.659	312.659
9	**Nagapalli RF**	551.61	559.68			559.68		559.68				559.68	400	559.68	559.68
10	**Panchagarh RF**	735.00	704.588			704.588	704.588					704.588	335	704.588	704.588
11	**Pangarsingh RF**	264.67	266.149			266.149			266.149			266.149	255	266.149	266.149
12	**Champagarh RF**	413.64	413.913			413.913		323.504	90.409			413.913	275	413.913	413.913
13	**Dhani (N) RF**	1092.28	1048.957			1048.957		379.937	669.02			1048.957	1430	1048.957	1048.957
14	**Mala RF**	10472.46	10863.10	237.33		10625.77	10625.77			5187.24	10583.8	10625.77	2610	10625.77	10625.77
15	**Maninag RF**	1797.67	1735.576	2.797		1732.779		1392.779	340.0			1732.779	1050	1732.779	1732.779

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
16	Nuapada-B RF	272.77	121.448			121.448		121.448				121.448		121.448	121.448
17	Satabhaya RF	377.18	318.668			318.668		318.668				318.668	150	318.668	318.668
18	Sulia-B RF	1394.19	1784.685			1784.685	1784.685					1784.685	250	1784.685	1784.685
19	Sulia (South & North)RF	1609.09	1608.007			1608.007		1397.007	211.0			1608.007	600	1608.007	1608.007
20	Kuhudi RF	641.04	656.617			656.617		611.617	45.0			656.617	641	656.617	656.617
21	Patia RF	3702.18	3888.975	2.446		3886.529	3886.529			2187.59	3886.529	3886.529	150	3886.529	3886.529
22	Dhani (S) RF	839.75	850.238			850.238	850.238				850.238	850.238	310	850.238	850.238
	Sub Total	**40084.29**	**40868.22**	**278.605**	**0.5125**	**40589.1025**	**32967.287**	**5887.2375**	**1734.578**	**16358.81**	**29112.833**	**40589.1025**	**9350.48**	**40589.1025**	**40589.1025**
23	Jariput DPF	464.19	421.622			421.622		195.622	226.0			421.622		421.622	421.622
24	Kapileswarpur DPF	75.6	81.846			81.846			81.846			81.846	76.49	81.846	81.846

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
25	Tartua DPF	362.4	388.961			388.961			388.961			388.961		388.961	388.961
26	Kerang DPF	121.6	100.895			100.895		100.895				100.895		100.895	100.895
27	Mandalsingh DPF	317.6	313.12			313.12		313.12				313.12	297.6	313.12	313.12
28	Brahmanidei DPF	730.8	753.666			753.666		633.666	120.0			753.666		753.666	753.666
29	Narganga DPF		235.449			235.449			235.449			235.449		235.449	235.449
30	Puinchia DPF		251.121			251.121		201.121	50.0			251.121	260	251.121	251.121
31	Duburi DPF	400.4	339.397			339.397		132.692	206.705			339.397	150	339.397	339.397
32	Nargoda DPF	1020	599.724			599.724		539.724	60.0			599.724		599.724	599.724
33	Tangi DPF	179.2	176.017			176.017			176.017			176.017	100	176.017	176.017
34	Rameswar DPF	481.2	687.484			687.484		427.484	260.0			687.484	350	687.484	687.484

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
35	Jalbhar DPF	399.2	799.708			799.708		719.708	80.0			799.708	200	799.708	799.708
36	Kadambajhar DPF	474.8	436.354			436.354		386.354	50.0			436.354		436.354	436.354
37	Kandagadia DPF	212.4	208.243			208.243		138.243	70.0			208.243	150	208.243	208.243
38	Chakadapathar DPF	994	1005.536			1005.536		744.536	261.0			1005.536	300	1005.536	1005.536
39	Kunjuri DPF	449.2	384.889			384.889		299.889	85.0			384.889	100	384.889	384.889
40	Badapari DPF	254	265.677			265.677		170.677	95.0		265.677	265.677	200	265.677	265.677
41	Bagheiput DPF	84.4	63.345			63.345		63.345				63.345	67	63.345	63.345
42	Nalsingh DPF	554.8	619.138			619.138		594.138	25.0			619.138	100	619.138	619.138
43	Bhusandpur DPF	778.8	821.628			821.628		431.628	390.0			821.628	420	821.628	821.628
44	Kaithapalla DPF	272.8	294.569	0.923		293.646		138.646	155.0			293.646	280	293.646	293.646

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
45	**Sandhamal DPF**	1511.2	1495.097			1495.097		1410.097	85.0			1495.097	200	1495.097	1495.097
46	**Solari DPF**	1171.2	1114.705			1114.705		974.705	140.0			1114.705	600	1114.705	1114.705
47	**Bhaleri DPF**	807.6	907.221		0.875	906.346		741.346	165.0			906.346	400	906.346	906.346
48	**Jharana DPF**	1925.2	1957.402			1957.402		1727.402	230.0			1957.402	400	1957.402	1957.402
49	**Nathapur, No.40 DPF**	549.2	428.354	0.965		427.389	427.389					427.389		427.389	427.389
50	**Champagarh DPF**	869.6	433.493			433.493		323.493	110.0			433.493	200	433.493	433.493
51	**Bhatapada (Block No.41) DPF**	536.4	280.025	1.325		278.70		183.70	95.0			278.70		278.70	278.70
52	**Chulijhinka DPF**	536.4	554.273			554.273		492.273	62.0			554.273	250	554.273	554.273
53	**Jiripada DPF**	68.4	71.466			71.466	71.466					71.466	78	71.466	71.466
	Sub Total	**16602.59**	**16490.425**	**3.213**	**0.875**	**16486.337**	**498.855**	**12084.504**	**3902.978**		**265.677**	**16486.337**	**5179.09**	**16486.337**	**16486.337**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
54	**Beguniapada PRF**	32	58.236			58.236		58.236				58.236		58.236	58.236
55	**Jamunajharapada PRF**	72	59.674			59.674			59.674			59.674		59.674	59.674
56	**Kumuka PRF**	214	210.951		2.03	208.921		57.921	151.0			208.921	208.921	208.921	208.921
57	**Rengal PRF**	112	112.016			112.016			112.016			112.016	50	112.016	112.016
58	**Bhanra PRF**	97.28	93.009			93.009			93.009			93.009	50	93.009	93.009
	Sub Total	**527.28**	**533.886**		**2.03**	**531.856**		**116.157**	**415.699**			**531.856**	**308.921**	**531.856**	**531.856**
59	**142 VFs**	924.62	924.62			924.62			924.62			924.62	924.62	924.62	924.62
	Total	**58138.78**	**58817.151**	**281.818**	**3.4175**	**58531.92**	**33466.14**	**18087.8985**	**6977.875**	**16358.81**	**29378.51**	**58531.92**	**15763.11 +704 Ha. (Rev. F) =16467.11**	**58531.92**	**58531.92**

13.4 PERIOD OF WORKING PLAN AND NECESSITY FOR INTERMEDIATE REVISION:

The outgoing Revised Working plan of Khordha Forest Division was prepared by Sri Abhiram Das, IFS which was valid till 2016-17. After expiry of said plan four working schemes for the year 2017-18, 2018-19 , 2019-20 & 2020-21 prepared by D.F.O, Khordha and duly approved by the competent authority (Addl. PCCF & MoEF & CC, Bhubaneswar, Odisha).

The period of this Working Plan from 2021-22 to 2030-31. The implementation and probable impact of various prescriptions may be reviewed after five years of working, if it is so required then it can be implemented by according approval from competent Authority.

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CHAPTER –14

SELECTION-CUM-IMPROVEMENT WORKING CIRCLE

14.1 GENERAL CONSTITUTION OF WORKING CIRCLE:

The forest blocks having matured tree and adequate natural regeneration are included in this Working Circle. 10 Nos of Reserve Forest Blocks and 2 Nos of Demarcated Protected forest have been allotted to this working circle. The total area allotted to this Working Circle comes to 33466.14Ha. which includes RF 32967.29 Ha and DPF 498.85 Ha. It constitutes 57.18 % of the total Working Plan area .All these Blocks having density of forestry vary from 0.3 to 0.7 with an average density of 0.4.

In this Working Circle Sal, Teak, Rai, Dhaura, Kurum, Kasi Phasi, Kendu, Asan and other miscellaneous species which have attended the exploitable girth for exploitation needs to be selected for harvesting besides that there is considerable variation in the crop composition of the forest area included in this circle. All the approach girth classes trees also to be assessed for future harvesting with considerable time gap. The forest crop is invariably of mixed crop representing of all age classes. Allotment of forest area to this circle is based on reconnaissance survey followed by confirmation through sample point inventory and crop analysis by NRSA Hyderabad.

Table -14.1

Constitution of Working Circle:

Sl No	Name of the Range	Name of the Forest Block	Area in Ha.	GIS Area in Ha.	Area Diverted (in Ha.)		Area under this Plan (in Ha.)	Area allotted to SWC-cum IWC
					Under FRA	Under FC Act.		
1	2	3	4	5	6	7	8	9
1	Balugaon	Aranga RF	2651.6	2608.14	0.923		2607.217	2607.217
2	-do-	Bankard RF	1290.28	1323.214	-	-	1323.214	1323.214
3	-do-	Kotwal RF	982.4	979.65	-	-	979.65	979.65
4	-do-	Tamana RF	3587.2	3573.05	-	-	3573.05	3573.05
5	-do-	Rajin RF	6472.4	6667.455	35.109	-	6632.346	6632.346
6	Khordha	Panchagarh RF	735.0	704.588	-	-	704.588	704.588
7	Ranpur	Mala RF	10472.46	10863.10	237.33	-	10625.77	10625.77
8	-do-	Sulia-B RF	1394.19	1784.685	-	-	1784.685	1784.685
9	Tangi	Patia RF	3702.18	3888.975	2.446	-	3886.529	3886.529
10	-do-	Dhani (S) RF	839.75	850.238	-	-	850.238	850.238
11	Balugaon	Nathapur DPF	549.20	428.354	0.965		427.389	427.389
12	-do-	Jiripada DPF	68.40	71.466	-	-	71.466	71.466
		Total	**32745.06**	**33742.915**	**276.773**	**-**	**33466.14**	**33466.14**

14.1.1 AREA OF WORKING CIRCLE:

This Working circle constitutes 2 improvement series and 7 felling series covering 10 nos of RF of **32967.29** Ha. of area and 2 nos of DPF covering **498.85** Ha. of area. The details of compartment wise area as per GIS data are shown in the **Table No.14.2.**

Table No.14.2 Area allotted to Selection Working Circle cum Improvement Working Circle:

Sl No	Range	Felling /Improvement Series	Name of Block	Compartment		Block wise area in Ha.
				Number	Area in Ha.	
1	2	3	4	5	6	7
1	Balugaon	Mahulia	Rajin RF	1	508.68	**2399.5**
				2	177.41	
				3	165.56	
				4	255.87	
				5	206.89	
				6	192.74	
				7	175.67	
				8	259.33	
				9	232.18	
				10	225.17	
2	Balugaon	Barbera	Rajin RF	11	228.21	**2867.18**
				12	221.46	
				13	179.59	
				14	246.92	
				15	399.33	
				16	254.71	
				17	169.3	
				19	116.54	
			Katwal RF	1	210.79	
				2	157.1	
				3	208.49	
				4	149.34	
				5	253.93	
			Jiripada DPF	---	71.47	
3	Balugaon	Rajin RF	Rajin RF	18	371.40	**2416.80**
				20	292.23	
				21	347.89	
				22	171.8	
				23	115.7	
				24	155.74	
				25	281.54	
				26	242.32	
				27	218.23	
				28	219.95	

Sl No	Range	Felling /Improvement Series	Name of Block	Compartment		Block wise area in Ha.
				Number	Area in Ha.	
1	2	3	4	5	6	7
4	Balugaon	Tamana	Nathapur DPF	---	427.38	**4000.43**
			Tamana RF	1	343.69	
				2	233.61	
				3	498.85	
				4	93.99	
				5	226.16	
				6	88.95	
				7	445.24	
				8	207.74	
				9	270.54	
				10	301.05	
				11	210.36	
				12	240.68	
				13	412.19	
5	Balugaon	Dhuanali	Aranga RF	1	442.80	**3930.42**
				2	409.37	
				3	426.5	
				4	393.04	
				5	232.01	
				6	283.46	
				7	269.64	
				8	150.38	
			Bankard RF	1	387.83	
				2	261.47	
				3	361.57	
				4	312.35	
6	Tangi	Patia	Patia RF	1	224.89	**7226.05**
				2	644.21	
				3	172.3	
				4	503.4	
				5	111.34	
				6	265.91	
				7	160.48	
				8	245.48	
				9	250.24	
				10	338.1	
				11	404.46	
				12	565.72	
			Dhani (S) RF	5	423.9	
			-do-	6	426.34	
	Ranpur		Sulia(B) RF	---	1784.69	
	Khurda		Panchagarh RF		704.59	

Sl No	Range	Felling /Improvement Series	Name of Block	Compartment		Block wise area in Ha.
				Number	Area in Ha.	
1	2	3	4	5	6	7
7	Ranpur	Mala	Mala RF	1	193.43	**3599.33**
				2	221.35	
				3	219.32	
				4	175.99	
				5	186.66	
				6	140.67	
				7	83.74	
				8	332.69	
				9	72.77	
				10	99.78	
				11	156.35	
				12	218.22	
				13	216.18	
				14	186.52	
				15	75.68	
				16	329.91	
				17	426.73	
				22	90.77	
				40	172.57	
8	Ranpur	Sankhajodi	Mala RF	18	399.68	**3289.93**
				19	313.24	
				20	281.4	
				23	271.87	
				24	108.4	
				25	265.72	
				33	115.81	
				34	310.85	
				35	115.7	
				36	95.52	
				37	426.14	
				38	397.16	
				39	188.44	
9	Ranpur	Sirikuti	Mala RF	26	578.2	**3736.50**
				27	140.78	
				28	141.76	
				29	276.26	
				30	157.43	
				31	183.74	
				32	355.9	
				41	56.52	
				42	150.98	
				43	187.02	
				44	95.89	
				45	209.43	
				46	121.68	
				47	282.48	
				48	220.83	
				49	116.66	
				50	159.07	
				51	120.23	
				21	181.64	
					Total	**33466.14**

14.2 GENERAL CHARACTERISTIC OF VEGETATION:

The forests under these working circles are uneven aged and have fairly good natural regeneration. The major types included in this circle are detail below.

(i) Sub-group	3.C.	North Indian tropical moist deciduous forests.
(ii)	3.C/C1 (d)	peninsular (coastal) Sal forests.
(iii)	3.C/2S1	Northern secondary moist deciduous forests.
(iv) Sub-group	5.B.	Northern tropical dry deciduous forests.
(v)	5.B/C1(c)	Dry peninsular Sal forests.
(vi)	5.B/DS1	Dry deciduous scrub forests.

The vegetation consists mainly of Sal, Teak and associated species like Piasal, Asan, Dhaura, Kurum, Kasi, Bandhana, Lembor Mai. Bamboo is present in pure brakes as well as varying densities with other tree species. The forests allotted to this circle are subject to various biotic pressures like grazing, fires, some illicit felling and smuggling. Steps will have to be taken during implementation of this plan to ensure that pressure is minimizing in this forest blocks. In general the problem of fire generally during the period of collection of NTFP is prevalent from February to Mid of June.

14.3 MODE OF FELLING AND TREATMENT:

All the Forest blocks having potential of harvestable girth classes are included in this Working Circle which are constituted in to seven felling Series and two improvement series are as follows:-

14.3.1 Felling Series:

It has been proposed to divide the entire working circle into 7 (seven) felling series namely, Mahulia, Tamana, Aranga, Patia, Mala, Sankhajodi, Sirikuti and 2 (two) improvement series namely Berbera and Rajin. All the seven felling series are subdivided into 10(Ten) annual coupes based on concept of equi-productive area and to get sustained yield which has been calculated on the basis of the enumeration data and estimation of growing stock by NRSA, Hyderabad.

14.3.2 Treatment Section:

The Selection cum Improvement system will be adopted with emphasis on sustainable production and stability of the ecosystem. The crop and soil condition will be improved by selective opening up of the canopy. Conservative felling or no felling has been prescribed in eroded and steep hill slopes, blank areas and along nallah banks. Marking is a very important exercise, requiring judicious application of mind and skill. It should therefore, be carried out by a trained Forester or Range Officer under proper supervision of the Assistant Conservator of Forests.

14.4 CHOICE OF SPECIES:

Species attaining exploitable diameter fixed and Silviculturally available are to be marked no species will be preferred at the cost of any other species. All species are of equal importance for conservation of species biodiversity and development of the forest. The emphasis of management is on conservation of biodiversity and development of balanced forest in which the natural selection of the species will be encouraged. The fruit bearing and important NTFP species such as Mahula, Amla, Chara, Kendu, Bahada, Harida and Bela will not be felled.

14.5 JFM AREAs:

The portion of the forest blocks/revenue forests allotted to various VSS to undertake Joint Forest management activity are as follows. The harvestable forest produce in the JFM areas will be equi-sharable in-between VSS and forest department. As per the guide lines framed by the Govt. of odisha vide Resolution No. 16524-IF-Affn.17/2011/F.& E. Forest & Environment Department on the 9th September, 2011. The VSS is subject to provide protection and ancillary forest works in the allotted forest blocks/revenue areas in their jurisdiction. The areas under VSS are as follows. In this selection cum improvement working circle out of twelve forest blocks. VSS formed in Eight Forest Blocks which are, Rajin RF, Patia RF, Dhani(S) RF, Sulia (B) RF, Panchagarh RF, Mala RF, Bankard RF and Jiripada DPF No report has been received from the division regarding formation of VSS in respect of Katwal RF, Tamana RF, Aranga RF and Nathapur DPF, However details of VSS list of Khordha Division is enclosed for reference.

Table No.14.3 Forest Blockwise Area Allotted Under Joint Forest Management

Sl No	Name of the Range	Name Of The Forest Block		Name Of VSS	Area Allotted in Ha.	Total Area In Forest Block
1	2	3	4	5	6	7
1	Khordha/ Bolagarh	Mandalsingh	DPF	Gopinathdev V.S.S., Kotapalla	100	297.6
				Mandalsingh VSS., Mandalsingh	197.6	
2	-do-	Panchagarh	RF	Shyamsundarpur V.S.S.	135	335
				Kusupalla V.S.S.	200	
3	-do-	Manibandha	RF	Dadarakantha V.S.S., Dadarakanta(Samantarapur).	100	250
				Maa Kosalasuni VSS, Arikama, Sankarpur, Bhabanipur	150	
4	Khordha/ Baideswar	Puincha	PRF	Gahirgadia patna V.S.S.	28	260
				Gahirgadiapatna Adivasisahi VSS	77	
				Pandalam V.S.S.	155	
5	Khordha/ Begunia	Pangarsingh	RF	Sri Jagannath V.S.S., Pangarsingh	128	255
				Kuradhilo VSS, Kuradhilo	47	
				Chiramaru VSS, Chiramaru	40	
				Balunkeswardev VSS, Godipokhari	40	

Sl No	Name of the Range	Name of The Forest Block		Name of VSS	Area Allotted in Ha.	Total Area In Forest Block
1	2	3	4	5	6	7
6	Khordha/ Khordha	Barunei	RF	Sialiapatna V.S.S.	50	150
7	Khordha/ Belapada			Maa Mangala VSS, Kholadwar, Belapada	100	
8	Khordha/ Bolagarh	Nagapalli	RF	Balmiki VSS, Sampur, Harirajpur, Sikharpara, Chandrasekharpur, Chhotraypurpatna, Nayapatna, Bauripatna, Gobindapur, Gopalpur, Nagapalli.	200	400
				Patabandha VSS, Patabandha, Krunshapur & Jaripada.	200	
9	-do-	Duburi	DPF	Nandapalli VSS, Nandapalli	150	150
10	Khordha/ Begunia	Jayamangal	RF	Mahavir VSS, Goudput	144.48	144.48
11	Khordha/ Banki		PRF	Maa Bauti V.S.S, Kumusar	100	100
12	Khordha/ Baideswar	Baideswar	PRF	Maa Mangala V.SS, Baideswar	45	45
13	Khordha/ Begunia	Kapileswar	DPF	Bije Kapileswar VSS, Pubusahi Kapileswarpur	76.49	76.49
14	Balugaon/ Balugaon	Bhaleri	DPF	Sri Sri Trinath Dev V.S.S., Jhintikapalli	200	200
15	Balugaon/ Padmapur	Chakadapathar	DPF	Brahmanidevi V.S.S., Karadapalli	200	200
16	-do-	Sandhamul	DPF	Khilamunda V.S.S, Pankala	200	200
17	Balugaon/ Balugaon	Jharana	DPF	Brundaban Ch. V.S.S., Bhuskapada	200	400
				Maa Mangala Devi VSS, Muktadeipur	100	
				Brahmanidevi VSS baneli	100	
18	Balugaon/ Padmapur	Solari	DPF	Sidheswar Sidheswari V.S.S., Bhatapada	200	200
19	-do-	Jivandeipur	UDPF	Sarbamangala V.SS., Jivandeipur	50	50
20	Balugaon/ Mohulia	Rajin	RF	Maa Jemadei VSS, Mohulia	150	250
				Maa Banadurga VSS, Sibida	100	

Sl No	Name of the Range	Name of The Forest Block		Name of VSS	Area Allotted in Ha.	Total Area In Forest Block
1	2	3	4	5	6	7
21	Balugaon/ Balugaon	Champagarh	DPF	Sulia Devi VSS, Pratap	200	200
22	Balugaon/ Padmapur	Solari	DPF	Bhagabatipur VSS, Bhagabatipur	200	400
				Maa Dhulia Devi VSS, Banchhanidhipur.	200	
23	Balugaon/ Berbera	Krushnapalli	PF	Khilamunda V.S.S, Kalamatia	70	70
24	Balugaon/ Sanasireipur	Bankada	RF	Brahmani Devi VSS, Banlei	100	100
25	Balugaon/ Balugaon	Bhaleri	DPF	Maa Chandi Devi VSS, Nuagarh	200	200
26	Balugaon/ Berbera	Chulijhinka	DPF	Kanchan Bauti VSS, Bhatapada	100	100
27	Tangi/ Tangi	Kaithapalla	DPF	Haripur V.S.S.	200	280
				Maa Brahmani Devi VSS, Kaithapalla	80	
28	Tangi/ Bhusandapur	Rameswar	DPF	Rameswar V.SS. *	200	200
29	-do-	Bagheiput	DPF	Bagheiput V.S.S.	67	67
30	Tangi/ Tangi	Kuhudi	(part RF)	Ram Rahim V.S.S., Dixitpara	200	641
				Maa Banadurga V.S.S, Adibasi sahi, Chandeswar	441	
31	Tangi/ Nachuni	Sulia	(Part RF)	Raghunathdev V.SS.., Gamei	200	900
				Maa Pandabasuni V.S.S., Salpadi	200	
				Maa Dholarai VSS, Kunjuri, Akasapalli, Ostapalli, Malkadiha.	100	
				Janibhuin VSS, Mundala	200	
				Paikarapur VSS	200	
32	Tangi/ Patia	Dhani south	RF	Dhani South, Panchamouza, Barapalli	200	260
				Dhanitri Mahila VSS, Kandambajola, Gadapalla	60	
33	Tangi/ Tangi	Kandagadia	DPF	Boitiani VSS, Kandagadia(Kambhua)	150	150

Sl No	Name of the Range	Name of The Forest Block		Name of VSS	Area Allotted in Ha.	Total Area In Forest Block
1	2	3	4	5	6	7
34	Tangi/ Patia	Dhani	RF	Maa Duarasuni VSS, Jiripada, Godisahi	50	350
35	Ranpur/ Gopalpur			Maa Mangala VSS, Andharua	200	
				Budha Kamaleswar VSS, Manpur	100	
36	Tangi/ Bhusandapur	Bhusandapur	DPF	Maa Ugratara VSS, Mulijhar, Routarapur	120	420
				Maa Jogamaya VSS	100	
				Ugratara VSS	100	
				Maa Sakulrei VSS	100	
37	-do-	Jalvar	DPF	Kapileswar VSS, Jalvar	200	200
38	Tangi/ Tangi	Badapari	DPF	Girigobardhan VSS, Badapari, Bhobara, Nuagaon	200	200
39	Ranapur/ Gopalpur	Dhani North	RF	Ranabijuli V.S.S., Samantasingharpur	100	1130
				Nakithana V.S.S., Nakithana	200	
				Maa Khilamunda V.S.S , Raipada	500	
				Nilakantheswar VSS, Mahatapalla, Niladripur.	120	
				Maa Budhidei VSS, Laxminarayanpur.	110	
				Dimiria VSS, Dimiria.	100	
40	Ranpur/ Ranpur	Sanakillo	UDPF	Sanakillo V.S.S., Sanakillo	200	200
41	Ranpur/ Ranpur	Maninag	RF	Maa Maninag V .S.S., Gaonbanikilo	200	200
42	Ranpur/ Karadapala	Maninag & Mal	RF	Banabihari VS.S, Nathapur, Karadapalla	200	950
				Maa Asura Kumari V.S.S., Bajrakota	200	
				Mahavir VSS, Kalamatia, Dhamada	200	
				Maa Kalimai VSS, Chhatipur	50	
				Maa Sulia Devi VSS, Sankhamula	100	
				Baidanka VSS, Arada	100	
				Shree Balunkeswar Dev VSS, Sanagarh.	100	

Sl No	Name of the Range	Name of The Forest Block		Name of VSS	Area Allotted in Ha.	Total Area In Forest Block
1	2	3	4	5	6	7
43	Ranpur/ Ranpur	Gadabanikilo	UDPF	Gadabanikilo V.S.S.,	200	200
44	Ranpur/ Karadapala	Mal	RF	Maa Brahmani Devi V.S.S, 11 nos. Mouza.	1000	1000
45	Ranpur/ Sankhajodi	Mal	RF	Om Maa Bauti VSS, Jaripada	50	1510
				Raghunathdev VSS, Sankhajodi	100	
				Maa Khilamunda V.S.S, Dimiribadi, Ranla, Bada Chakundajhar, Nuagaon	50	
				Maa Kalimai VSS, Bhetabar, Raipada.	200	
				Maa Mangala VSS, Sanachakundajhar (Nuagaon).	180	
				Maa Dakhinachandi VSS, Sikharpur, Madhupur, Nuasukala, Jaripatna, Nuasahi.	130	
				Baba Kamaleswar Dev VSS, Sinduria, Malisahi, Telipatna, Majhiakhanda.	100	
				Maa Jhanjhiri Mangala VSS, Bandhamunda, Waupada, Sririkuti, Tabhadihi.	200	
				Maa Ramachandi VSS, Betuli, Nelipada	200	
				Maa Khora Khai VSS, Khamana, Lakhamundali, Suanga, Raipada.	200	
				Bhagabatidev VSS, Odapalla	100	
46	Ranpur/ Ranpur	Satabhaya	RF	Satabhaya VSS, Jamusahi	150	150
47	Ranpur/ Gopalpur	Champagarh	RF	Baba Swopneswar VSS, Champagarh	125	275
				Maa Mandia Jena VSS, Ostapada	150	
48	Delanga/ Delanga	Kumuka	PRF	Maa Barunei V.S.S., Kuapada	50.276	208.92
				Sri Balunkeswar V.SS., Kumundal	36.29	
				Maa Khetramani VSS, Batola	70.5	
				Sri Satyanarayan VSS, Garhmotori	51.855	

Sl No	Name of the Range	Name of The Forest Block		Name of VSS	Area Allotted in Ha.	Total Area In Forest Block
1	2	3	4	5	6	7
49	Balipatna/ Balakati	Bhanra	PRF	Bhanra Nijigarh VSS, Bhanragarh, Srirampur, Bhaliadanda, Maukasahi, Paidapatna	50	50
50	Balugaon/ Balugaon	Chulijhinka	DPF	Poteisuni VSS, Badasula.	150	150
51	Balugaon/ Berbera	Jiripada	DPF	Maa Thanguni Bauti VSS, Jiripada.	78	78
52	Tangi/ Bhusandapur	Rameswar	DPF	Khajuripada VSS, Khajuripada.	150	150
53	Ranpur/ Ranpur	Sulia (B)	RF	Maa Banadurga VSS, Kolathapangi	50	50
54	Delanga/ Delanga	Kanas	R F	Balunkeswar VSS, Chhotijodi	25	25
55	Delanga/ Delanga	Rengal	PRF	Maa Barahi VSS, Rengal	50	50
56	Delanga/ Delanga	Delang	PRF	Motari VSS	14	14
57	Tangi/ Tangi	Tangi	DPF	Maa Ratnamati VSS	100	100
58	Tangi/Tangi	Kunjuri	DPF	Mahujhar VSS	100	100
59	Tangi/ Bhusandapur	Nalsingh	DPF	Maa Baithakurani VSS	100	100
60	Tangi/Patia	Patia	RF	Ramchandi VSS	150	150
					15542.49	**15542.49**

14.6 OBJECTIVES OUTLINED FOR THIS WORKING CIRCLE:

The objectives of management of selection cum improvement working circle are mainly as follows:

i) To conserve and improve the indigenous forest species for the purpose of Soil, water and Wildlife conservation.

ii) To enrich the growing stock and improve its quality by adoption of suitable Silvicultural and scientific management practices.

iii) To improve the forest cover by improvement of soil, moisture, ground water conservation and regeneration status.

iv) To encourage natural regeneration of Sal wherever it occurs and to establish and tend those with a view to prepare the forests to be managed scientifically according to the prescriptions of established Silvicultural systems and practices.

v) To remove dead, diseased, defective, uprooted and mature trees which are Silviculturally available with a view to manage the growing stock scientifically.

vi) To increase the productivity of forests for meeting the requirements of people for timber, firewood, small timber, poles, etc. consistent with the needs for maintaining ecological balance.

vii) To harvest teak species exclusively in order to meet the growing demand of the people due to rapid urbanization with focusing attention towards environmental value and maintenance of ecological balance.

viii) To harvest exploitable girth species in order to the meet the demand and cater the need of local people also earn more revenue prior to further deterioration of its quality and revenue.

14.7 ANALYSIS OF THE CROP:

The entire working circle has been stock mapped and analysed by the NRSA, Hyderabad .The sampling unit of Forest Blocks have been allocated by NRSC Hyderabad on the basis of the spatial information on Forest type (derived from sentinel classification at 10 m). and forest canopy density(derived from vistial interpretation of WV 2 to data at 1:25000scale) The type and density layer were combined in a GIS operation, The 42 resultant strata(7 type and 6 density classes were simplified in to 10 type and density classes. For calculation of sample point to be allotted at division level the density classes were stratified in to two classes> 40 and <40).

The sample points intensities were fixed as below (as decided by OFD, no separate pre-inventory was carried out to estimate the coefficient of variation, inventory data for 12 forest divisions carried out in 2006-08 was used instead) by the NRSA Hyderabad.

Category	>40	<40
RWC	0.08	0.03
SWC	0.15	0.125

The calculated number of points was then distributed on the basis of forest cover and type on an area weighted basis at the compartment level. So it was decided on consultative meeting held on 04.07.2018 in the Mini conference hall of PCCF Odisha, BBSR which has been communicated vide memo no-15869 dtd.21.07.2018 to undertake **stratified random sampling method** rather than grid based

systematic homogenous sampling method which has been prescribed in National Working Plan Code 2014 . In para 65(iii)/P-24 of NWPC 2014 allows the state Govt. to take appropriate decision regarding sampling point. So **stratified random sampling method** will be used in working plan in 34 forest division including Khordha Forest Division. It also emphasized to revisit the area for changes detection and its attribution to climate change . It can be used for species distribution models and also offers opportunity to validate dynamic vegetation model's. Some of the sample plots also can be used to study regeneration growth and carbon sequestration studies.

In view of improvement of Forest land vide use of harvestable materials detailed survey of forest resources and scientific lines required to be conducted regularly collection and publication of reliable data an various aspects need to be published .Sampling intensity varied from 0.25 to 0.4% in the blocks depending on the crop composition and density. The field inventory data were analyzed by segregating the areas into Sal dominated (75%) and mixed Sal strata (25%) and based on the result stand density, basal areas and volumes in respect of blocks and compartments were computed.

Stand and stock tables have been computed based on the inventory data giving number of trees in different girth classes varying from 30 cm to 60cm, 60 cm to 90cm, above so on and so forth up to 150cms and above. The principal species seen in the selection forest are Sal though Teak raised in plantation also forms the major species in some blocks. The number of trees available in different girth classes and the computation of volumes and growing stock estimates have been accessed and also annexed to the plan. In the entire division it is generally observed that the numbers of trees are more in the interior compartments than the compartments adjoining to the villages. That is why in the enumeration, in some compartments number of trees per ha are found to be more than that of other compartments.

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 Part – I of Chapter-II. The enumeration results reveal that the there are fairly good number of trees in the exploitable and above exploitable girth classes. These trees need to be felled, otherwise there is an increased tendency of getting unsound with over maturity. Moreover these large sized trees when removed will yield growing space

for new regeneration and will yield timber which is badly required to meet demands of the people.

14.8 SILVICULTURAL SYSTEM:

The Selection cum Improvement system will be adopted with emphasis on sustainable production and stability of the ecosystem. The crop and soil condition will be improved by selective opening up of the canopy. Conservative felling or no felling has been prescribed in eroded and steep hill slopes, blank areas and along nallah banks. Marking is a very important exercise, requiring judicious application of mind and skill. It should therefore, be carried out by a trained Forester or Range Officer under proper supervision of the Assistant Conservator of Forests.

14.9 ROTATION PERIOD:

The Period which a Forest crop takes between its formation and final felling is known as rotation period. Generally rotation is expressed as an average age to harvest the forest crops. In this working circle in all the felling series it has been analyzed by taking in to consideration of exploitable girth classes and approach girth classes.

14.10 HARVESTABLE DIAMETER:

The exploitable girth class fixed for various species is based on the Silvicultural rotation. The other factors such as site quality, production capacity, growth, yield and market demand etc. has also been taken into account. The exploitable girth of different species is furnished below,

Table No. 14.4 HARVESTABLE GIRTH AT BREAST HEIGHT:

Sl No	Name of the Species	Harvestable girth at breast height in CM	GBH Class of Approach Class	
			Lower Limit	Upper Limit
1	2	3	4	5
1	Sal	120CM	90CM	119CM
2	Teak	120CM	90CM	119CM
3	Piasal, Sissoo, Gambhar, Kasi, Asan, Mundi, Kusum, Lembormai (Bursera serrata)	120CM	90CM	119CM
4	Miscellaneous	150CM	120CM	149CM

14.11 REDUCING FACTOR AND REDUCED AREA:

Reducing factor on growth on forestry in this working circle are as follows a. Forest Fire b. Biotech Interference c. Insect Attack d. Erratic rain.

14.12 FELLING CYCLE:

The felling cycle has been fixed at 10 years, which synchronizes with the Plan period. In case of a longer felling cycle, the crop will remain unattended for over a long period of time. With a shorter felling cycle Silvicultural operations can be taken up at shorter intervals to maintain the forests in a healthy condition.

14.13 CALCULATION OF THE YIELD:

The yield of trees except teak will be regulated by equi-productive area with a percentage check on the removal of exploitable trees as calculated by Smythies' safeguarding formula. This formula is also known as U. P. safeguarding formula. Smythies evolved it for the Sal forests of Uttar Pradesh for sustainable yield. The formula is based on the following assumptions, which holds true for the forest blocks allotted to this Working circle.

i) In case of Teak, the yield of teak will be calculated on the basis of actual volume of teak trees subject to Silviculturally available for felling in the exploitable girth of 120 cm or more.

ii) The exploitable (Selection) trees already exist and are being recruited everywhere (and not in any particular compartments only) and that felling pass regularly through the forests in consecutive annual coupes in a felling cycle of 10 years.

iii) 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.

iv) 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.

v) 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 the Smythies' safeguarding formula the number of approach Class - II trees (x) per hectare that pass into Class - I within the felling cycle is determined by following formula.

$$X = \frac{F}{T} (II - Z\ \%\ \text{of}\ II) \quad \text{----------} \quad (1)$$

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. i.e. taken as 45% for Khordha Forest Division considering the local biotic interference on the forest.

The percentage of the trees available for exploitation (Y) is calculated as follows.

$$Y = \frac{X}{(I + X / 2)} \times 100 \pm A \quad \text{----------} \quad (2)$$

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

$$Y = \frac{2 F II (100 - Z)}{200 I T + F II (100 - Z)} \times 100 \pm A \quad \text{----------} \quad (3)$$

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 hill forests, 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

$$Y = \frac{1100 II}{8000 I + 550 II} \times 100 \pm A$$

$$\text{Or,} \qquad Y = \frac{22\ II}{160\ I + 11\ II} \times 100 \pm A$$

Keeping in view of the Smythies' safeguarding formula, the FSI has developed a set of formula for calculation of yield of certain species according to different zones. Here the yield of coupe is fixed on equi-productive calculation. The value of trees of sal,teak and other species for all the Felling series and consequent yield is calculated and given in the table Then the final yield will be regulated as per given in table .The average number of trees per Ha. available for removal out of which 50% trees would be retained as a safeguard measure against biotic pressure and for conservation purpose. After retaining 50%, the total number of trees actually to be removed is limited to **1.4** tree per Ha.(for Sal it is **0.23** trees per Ha. or 1 tree per 4.3 Ha. Teak **0.16** trees per Ha. or 1 tree per 6.25 Ha. and **1** trees per Ha. for others). The no. of trees in respect of approach class (II) and exploitable class (I) has been calculated from sample point data which is shown in Yield Table is annexed below:



Table No-14.5 Berbera Improvement Series (BBR) SIWC

Name of Range	Coupe No.	Comptt. No.	Area of Coupe in Ha	No of Sample Point	Sal				Teak				Others				Yield %			Tree limit per Ha		
					No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	Sal	Teak	Others	Sal	Teak	Others
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Balugaon	I	Rajin 11	228.21	0.00	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
		Jiripada DPF	71.47	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	0.00	1429.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Katwal RF 2 (P)	48.73	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	243.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		0.00	0.00	0.00
	II	Katwal RF2 (B)	108.37	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	541.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Katwal RF 3	208.49	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		0.00	0.00	0.00
	III	Katwal RF 4	149.34	2.00	0.00	0.00	0.00	0.00	45.00	25.00	6720.30	3733.50	0.00	0.00	0.00	0.00	0.00	7.36	0.00	0.00	3.31	0.00
		Katwal RF 5(P)	191.97	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		0.00	1.66	0.00
	IV	Katwal RF 5(B)	61.96	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Katwal RF 1	210.79	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		0.00	0.00	0.00
	V	Rajin 12	221.46	2.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	1107.30	0.00	5.00	0.00	1107.30	0.00	200.00	0.00	0.00	0.00	0.00
	VI	Rajin 13	179.59	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Rajin 14 (P)	40.64	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		0.00	0.00	0.00
	VII	Rajin 14(B)	206.28	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Rajin RF 15 (P)	70.62	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		0.00	0.00	0.00
	VIII	Rajin RF 15(B)	328.71	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	IX	Rajin RF 17	169.30	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Rajin RF 16 (P)	100.07	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		0.00	0.00	0.00
	X	Rajin 16(B)	154.64	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Rajin RF 19	116.54	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	1165.40	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		0.00	0.00	0.00
		Total	2867.18				0.00	0.00			6720.30	4840.80			2214.90	2272.70	0.00	9.44	13.18	0.00	1.66	0.00
							0.00	0.00			2.34	1.69			0.77	0.79	**Total average**			0.00	0.17	0.00

Table No-14.6 Rajin Improvement Series (RJN) SIWC

Name of Range	Coupe No.	Comptt. No.	Area of Coupe in Ha	No of Sample Point	Sal				Teak				Others				Yield %			Tree limit per Ha		
					No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	Sal	Teak	others	Sal	Teak	Others
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Balugaon	I	Rajin 18(P)	182.69	4.00	5.00	5.00	913.45	913.45	0.00	0.00	0.00	0.00	7.50	2.50	1370.18	456.73	12.87	0.00	4.48	0.64	0.00	0.34
	II	Rajin 18(B)	188.72		5.00	5.00	1119.15	1119.15	0.00	0.00	0.00	0.00	7.50	2.50	1678.73	559.58	12.87	0.00	0.00	0.64	0.00	0.00
	III	Rajin 27	218.23	3.00	3.33	0.00	726.71	0.00	0.00	0.00	0.00	0.00	3.33	16.67	726.71	3637.24	0.00	0.00	51.20	0.00	0.00	1.71
		Rajin 28 (P)	94.36	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	471.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		**0.00**	**0.00**	**0.85**
	IV	Rajin 28(B)	125.59	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	627.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	V	Rajin 26	242.32	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	1211.60	0.00	0.00	200.00	0.00	0.00	0.00
	VI	Rajin 24	155.74	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	20.00	778.70	3114.80	0.00	0.00	0.00	0.00	0.00	0.00
		Rajin 25	281.54	3.00	3.33	10.00	937.53	2815.40	0.00	0.00	0.00	0.00	10.00	10.00	2815.40	2815.40	34.23	0.00	12.87	1.14	0.00	1.29
		Avg.																		**0.57**	**0.00**	**0.64**
	VII	Rajin 20(P)	161.47	3.00	0.00	10.00	0.00	1614.70	0.00	0.00	0.00	0.00	0.00	10.00	0.00	1614.70	200.00	0.00	200.00	0.00	0.00	0.00
	VIII	Rajin 20(B)	130.76		0.00	10.00	0.00	1307.60	0.00	0.00	0.00	0.00	0.00	10.00	0.00	1307.60	200.00	0.00	0.00	0.00	0.00	0.00
		Rajin 22	171.80	2.00	5.00	0.00	859.00	0.00	0.00	0.00	0.00	0.00	10.00	10.00	1718.00	1718.00	0.00	0.00	12.87	0.00	0.00	1.29
		Avg.																		**0.00**	**0.00**	**0.64**
	IX	Rajin 21(P)	232.13	3.00	33.33	0.00	7736.89	0.00	0.00	0.00	0.00	0.00	26.67	6.67	6190.91	1547.61	0.00	0.00	3.38	0.00	0.00	0.90
	X	Rajin 21(B)	115.76		33.33	0.00	3858.28	0.00	0.00	0.00	0.00	0.00	26.67	6.67	3087.32	771.77	0.00	0.00	0.00	0.00	0.00	0.00
		Rajin 23	115.70	2.00	0.00	5.00	0.00	578.50	0.00	0.00	0.00	0.00	10.00	0.00	1157.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		0.00	0.00	0.00
		Total	**2416.81**				**16151.01**	**8348.80**			**0.00**	**0.00**			**20622.68**	**18755.02**	**6.86**	**0.00**	**11.77**	**1.86**	**0.00**	**3.38**
							4.32	**2.23**			**0.00**	**0.00**			**5.52**	**5.02**	**Total average**			**0.19**	**0.00**	**0.34**

Table No-14.7 Mahulia Felling Series (MHL) SIWC

Name of Range	Coupe No.	Comptt. No.	Area of Coupe in Ha	No of Sample Point	Sal				Teak				Others				Yield %			Tree limit per Ha		
					No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	Sal	Teak	others	Sal	Teak	Others
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Balugaon	I	Rajin 1(P)	123.69	5	2	2	247.38	247.38	14	14	1731.66	1731.66	42	24	5194.98	2968.56	12.87	12.87	7.56	0.26	1.8	3.18
	II	Rajin 1(P)	250.57		2	2	501.14	501.14	14	14	3507.98	3507.98	42	24	10523.94	6013.68	12.87	12.87	7.56	0.26	1.8	3.18
	III	Rajin 1(B)	134.42		2	2	268.84	268.84	14	14	1881.88	1881.88	42	24	5645.64	3226.08	12.87	12.87	7.56	0.26	1.8	3.18
	IV	Rajin (2)	177.41	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Rajin 5(P)	86.98	3	3.33	0	289.9	0	0	0	0	0	30	50	2609.4	4349	0	0	20.56	0	0	6.17
		Avg.																		**0**	**0**	**3.08**
	V	Rajin 5(B)	119.91	3	3.33	0	399.66	0	0	0	0	0	30	50	3597.3	5995.5	0	0	20.56	0	0	6.17
		Rajin (4)	255.87	3	0	0	0	0	0	0	0	0	0	10	0	2558.7	0	0	200	0	0	0
		Rajin 3(P)	36.16	3	10	6.67	361.6	241.19	0	0	0	0	86.67	43.33	3133.99	1566.81	8.77	0	6.65	0.88	0	5.76
		Avg.																		**0.29**	**0**	**3.98**
	VI	Rajin 3(B)	129.4	3	10	6.67	1294	863.1	0	0	0	0	0	10	0	1294	8.77	0	200	**0.88**	**0**	**0**
	VII	Rajin 6(P)	167.49	2	0	0	0	0	0	0	0	0	30	0	5024.7	0	0	0	0	0	0	0
		Rajin 6(B)	25.25		0	0	0	0	0	0	0	0	30	0	757.5	0	0	0	0	0	0	0
	VIII	Rajin 7(P)	142.56	2	0	0	0	0	0	0	0	0	30	0	4276.8	0	0	0	0	0	0	0
		Avg.																		**0**	**0**	**0**
	IX	Rajin7(B)	33.11	2	0	0	0	0	0	0	0	0	5	5	165.55	165.55	0	0	12.87	0	0	0.64
		Rajin(8)	259.33	3	0	3.33	0	864.35	0	0	0	0	33.33	20	8644.25	5186.6	200	0	7.92	0	0	2.64
		Rajin(9)	232.18	3	56.67	16.7	13157.64	3877.41	0	0	0	0	76.67	26.67	17801.24	6191.54	3.97	0	4.67	2.25	0	3.58
		Avg.																		**0.75**	**0**	**2.29**
	X	Rajin 10	225.17	2	0	0	0	0	0	0	0	0	25	45	5629.25	10132.65	0	0	22.02	**0**	**0**	**5.51**
	Total		**2399.5**				**16520.16**	**6863.4**			**7121.52**	**7121.52**			**73004.53**	**49648.68**	**5.55**	**12.9**	**8.93**	**2.69**	**5.4**	**24.38**
							5.37	**2.23**			**2.32**	**2.32**			**23.73**	**16.14**	**Total average**			**0.27**	**0.54**	**2.44**

Table No-14.8 Tamana Felling Series (TMN) SIWC

Name of Range	Coupe No.	Comptt. No.	Area of Coupe in Ha	No of Sample Point	Sal				Teak				Others				Yield %			Tree limit per Ha		
					No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	Sal	Teak	others	Sal	Teak	Others
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Balugaon	I	Nathapur DPF	427.389	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.33	23.33	5711.33	9994.83	0.00	0.00	21.48	0.00	0.00	2.86
		Tamana RF 1(P)	234.18	3.00	0.00	0.00	0.00	0.00	13.33	6.67	3122.40	1561.20	60.00	20.00	14050.80	4683.60	0.00	6.65	4.48	0.00	0.89	2.69
		Avg.																		**0.00**	**0.44**	**2.78**
	II	Tamana RF 1(B)	109.51	3.00	0.00	0.00	0.00	0.00	13.33	6.67	0.00	0.00	60.00	20.00	6570.60	2190.20	0.00	6.65	4.48	0.00	0.00	2.69
		Tamana RF 2	233.61	2.00	0.00	0.00	0.00	0.00	45.00	10.00	10512.45	2336.10	105.00	45.00	24529.05	10512.45	0.00	3.01	5.72	0.00	1.35	6.01
		Tamana RF 3(P)	94.53	3.00	0.00	0.00	0.00	0.00	3.33	0.00	315.10	0.00	0.00	3.33	0.00	315.10	0.00	0.00	200.00	0.00	0.00	0.00
		Avg.																		**0.00**	**0.45**	**2.90**
	III	Tamana RF 3(P)	305.20	3.00	0.00	0.00	0.00	0.00	3.33	0.00	0.00	0.00	0.00	3.33	0.00	1017.33	0.00	0.00	200.00	0.00	0.00	0.00
	IV	Tamana RF 3 (B)	99.12	3.00	0.00	0.00	0.00	0.00	3.33	0.00	0.00	0.00	0.00	3.33	0.00	330.40	0.00	0.00	200.00	0.00	0.00	0.00
		Tamana RF 4	93.99	2.00	0.00	5.00	0.00	469.95	0.00	0.00	0.00	0.00	15.00	25.00	1409.85	2349.75	200.00	0.00	20.56	0.00	0.00	3.08
		Tamana RF 5(P)	71.30	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	10.00	356.50	713.00	0.00	0.00	24.18	0.00	0.00	1.21
		Avg.																		**0.00**	**0.00**	**1.43**
	V	Tamana RF 5(B)	154.86	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	10.00	774.30	1548.60	0.00	0.00	24.18	0.00	0.00	1.21
	VI	Tamana RF 6	88.95	2.00	25.00	45.00	2223.75	4002.75	0.00	0.00	0.00	0.00	5.00	5.00	444.75	444.75	22.02	0.00	12.87	5.51	0.00	0.64
		Tamana RF 9	270.54	3.00	0.00	16.67	0.00	4509.00	0.00	0.00	0.00	0.00	40.00	23.33	10821.60	6312.60	200.00	0.00	7.71	0.00	0.00	3.08
		Tamana RF8(P)	67.25	2.00	15.00	0.00	1008.75	0.00	0.00	0.00	0.00	0.00	195.00	45.00	13113.75	3026.25	0.00	0.00	3.12	0.00	0.00	6.09
		Avg.																		**1.84**	**0.00**	**3.27**
	VII	Tamana RF 8 (B)	140.49	2.00	15.00	0.00	2107.35	0.00	0.00	0.00	0.00	0.00	195.00	45.00	27395.55	6322.05	0.00	0.00	3.12	0.00	0.00	6.09
		Tamana RF 7(P)	283.77	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		0.00	0.00	3.05
	VIII	Tamana RF 7(B)	161.47	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Taman RF13(P)	171.85	3.00	3.33	6.67	572.83	1145.67	13.33	6.67	0.00	0.00	30.00	23.33	5155.50	4009.83	24.18	6.65	10.15	0.81	0.00	3.05
		Avg.																		**0.41**	**0.00**	**1.53**
	IX	Tamana RF 13 (B)	240.34	3.00	3.33	6.67	801.13	1602.27	13.33	6.67	0.00	0.00	30.00	23.33	7210.20	5607.93	24.18	6.65	10.15	0.81	0.00	3.05
		Tamana RF 12(P)	188.89	2.00	5.00	0.00	944.45	0.00	80.00	5.00	0.00	0.00	25.00	5.00	4722.25	944.45	0.00	0.86	2.71	0.00	0.00	0.68
		Avg.																		**0.40**	**0.00**	**1.86**
	X	Tamana RF 12(B)	51.79	2.00	5.00	0.00	258.95	0.00	80.00	5.00	0.00	0.00	25.00	5.00	1294.75	258.95	0.00	0.86	2.71	0.00	0.00	0.68
		Tamana RF 11	210.36	3.00	0.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00	160.00	30.00	33657.60	6310.80	0.00	0.00	2.55	0.00	0.00	4.07
		Tamana RF 10	301.05	3.00	56.67	0.00	17059.50	0.00	13.33	6.67	0.00	0.00	60.00	13.33	18063.00	4014.00	0.00	6.65	3.01	0.00	0.00	1.81
		Avg.																		**0.00**	**0.00**	**2.19**
		Total	**4000.43**				**24976.72**	**11729.63**			**13949.95**	**3897.30**			**175281.38**	**70906.88**	**6.26**	**6.26**	**3.77**	**2.64**	**0.89**	**20.21**
							6.24	**2.93**			**3.49**	**0.97**			**43.81**	**17.72**	**Total average**			**0.26**	**0.09**	**2.02**

Table No-14.9 Dhuanali Felling Series (DNL) SIWC

Name of Range	Coupe No.	Comptt. No.	Area of Coupe in Ha	No of Sample Point	Sal				Teak				Others				Yield %			Tree limit per Ha		
					No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	Sal	Teak	others	Sal	Teak	Others
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Balugaon	I	Aranga RF 1(P)	88.32	3.00	0.00	0.00	0.00	0.00	3.33	6.67	294.40	588.80	36.67	20.00	3238.40	1766.40	0.00	24.18	7.23	0.00	0.81	2.65
	II	Aranga RF 1(P)	98.72		0.00	0.00	0.00	0.00	3.33	6.67	329.07	658.13	36.67	20.00	3619.73	1974.40	0.00	24.18	7.23	0.00	0.81	2.65
	III	Aranga RF 1(P)	125.40		0.00	0.00	0.00	0.00	3.33	6.67	418.00	836.00	36.67	20.00	4598.00	2508.00	0.00	24.18	7.23	0.00	0.81	2.65
	IV	Aranga RF 1(B)	130.36		0.00	0.00	0.00	0.00	3.33	6.67	437.63	875.27	36.67	20.00	4813.97	2625.80	0.00	24.18	7.23	0.00	0.81	2.65
	V	Aranga RF 2 (P)	186.50	3.00	0.00	0.00	0.00	0.00	0.00	3.33	0.00	621.67	20.00	13.33	3730.00	2486.05	0.00	200.00	8.76	0.00	0.00	1.75
	VI	Aranga RF 2(B)	222.87		0.00	0.00	0.00	0.00	0.00	3.33	0.00	742.90	20.00	13.33	4457.40	2970.86	0.00	200.00	8.76	0.00	0.00	1.75
	VII	Aranga RF 3(P)	327.77	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	15.00	819.43	4916.55	0.00	0.00	58.41	0.00	0.00	1.46
	VIII	Aranga RF3(B)	98.73		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	15.00	246.83	1480.95	0.00	0.00	58.41	0.00	0.00	1.46
		Aranga RF4	393.04	3.00	0.00	0.00	0.00	0.00	6.67	16.67	2620.27	6550.67	3.33	16.67	1310.00	6550.80	0.00	29.33	51.17	0.00	1.96	1.71
		Aranga RF5	232.01	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	1160.05	0.00	0.00	200.00	0.00	0.00	0.00
		Aranga RF6	283.46	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.33	0.00	944.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Aranga RF7	269.64	3.00	0.00	0.00	0.00	0.00	0.00	3.33	0.00	898.80	0.00	0.00	0.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00
		Aranga RF8	150.38	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	10.00	1503.80	1503.80	0.00	0.00	12.87	0.00	0.00	1.29
		Avg.																		**0.00**	**0.33**	**0.74**
	IX	Bankard RF 1	387.83	3.00	0.00	0.00	0.00	0.00	33.33	10.00	12927.67	3878.30	6.67	16.67	2585.66	6463.96	0.00	4.04	29.33	0.00	1.35	1.96
	X	Bankard RF2	261.47	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	13.33	13073.50	3486.18	0.00	0.00	3.60	0.00	0.00	1.80
		Bankard RF3	361.57	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Bankard RF4	312.35	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.33	23.33	7287.13	7288.06	0.00	0.00	12.87	0.00	0.00	3.00
		Avg.																		**0.00**	**0.00**	**1.60**
		Total	**3930.42**				**0.00**	**0.00**			**17027.03**	**15650.53**			**52228.61**	**47181.85**	**0.00**	**11.89**	**11.70**	**0.00**	**4.90**	**19.87**
							0.00	**0.00**			**4.33**	**3.98**			**13.29**	**12.00**	**Total Average**			**0.00**	**0.49**	**1.99**
Trees to be marked for felling																	**0.00**	**2024.05**	**6108.15**			

Table No-14.10 Patia Felling Series (PAT) SIWC

Name of Range	Coupe No.	Comptt. No.	Area of Coupe in Ha	No of Sample Point	Sal				Teak				Others				Yield %			Tree limit per Ha		
					No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	Sal	Teak	others	Sal	Teak	Others
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Tangi	I	Dhani-S RF5	423.90	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.33	6.67	1412.86	2826.01	0.00	0.00	24.18	0.00	0.00	0.81
		Dhani-S RF 6	426.34	3.00	0.00	0.00	0.00	0.00	13.33	0.00	5683.11	0.00	46.67	53.33	19897.29	22737.99	0.00	0.00	14.57	0.00	0.00	6.80
		Patia RF 6	265.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Patia RF 7	160.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Patia RF 8	245.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		**0.00**	**0.00**	**1.52**
	II	Patia RF 3	172.30	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Patia RF4	503.40	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.00	0.00	20136.00	0.00	0.00	200.00	0.00	0.00	0.00
		Patia RF 5	111.34	1.00	0.00	0.00	0.00	0.00	90.00	40.00	10020.60	4453.60	10.00	20.00	1113.40	2226.80	0.00	5.93	24.18	0.00	5.34	2.42
		Patia RF 9	250.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		**0.00**	**1.33**	**0.60**
	III	Patia RF 1	224.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Patia RF 2	644.21	1.00	0.00	0.00	0.00	0.00	40.00	20.00	25866.40	12933.20	20.00	0.00	12933.20	0.00	0.00	6.65	0.00	0.00	2.66	0.00
		Patia RF 10	338.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Patia RF 11	404.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Patia RF 12	565.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		**0.00**	**0.53**	**0.00**
Ranpur	IV	Sulia B RF (P)	315.19	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	5.00	787.98	1575.95	0.00	0.00	24.18	0.00	0.00	0.60
	V	Sulia B RF (P)	489.34		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	5.00	1223.35	2446.70	0.00	0.00	24.18	0.00	0.00	0.60
	VI	Sulia B RF (P)	487.77		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	5.00	1219.43	2438.85	0.00	0.00	24.18	0.00	0.00	0.60
	VII	Sulia B RF (B)	492.39		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	5.00	1230.98	2461.95	0.00	0.00	24.18	0.00	0.00	0.60
Khordha	VIII	Panchagarh RF (P)	212.90	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	IX	Panchagarh RF (P)	295.27		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	X	Panchagarh RF (B)	196.42		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total		**7226.05**				**0.00**	**0.00**			**41570.11**	**17386.80**			**39818.47**	**56850.26**	**0.00**	**5.59**	**17.88**	**0.00**	**1.87**	**4.54**
							0.00	**0.00**			**5.75**	**2.41**			**5.51**	**7.86**	**Total Average**			**0.00**	**0.19**	**0.45**

Table No-14.11 Sankhajodi Felling Series (SJD) SIWC

Name of Range	Coupe No.	Comptt. No.	Area of Coupe in Ha	No of Sample Point	Sal				Teak				Others				Yield %			Tree limit per Ha		
					No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	Sal	Teak	others	Sal	Teak	Others
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
Ranpur	I	MalaRF18(P)	286.16	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.00	0.00	11446.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	II	MalRF18(B)	113.52		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.00	0.00	4540.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		MalaRF19(P)	147.93	3.00	100.00	10.00	14793.00	1479.30	0.00	0.00	0.00	0.00	43.33	60.00	6410.30	8875.80	1.37	0.00	17.38	1.37	0.00	7.53
		Avg.																		**0.68**	**0.00**	**3.77**
	III	MalaRF19(B)	165.31	3.00	100.00	10.00	16531.00	1653.10	0.00	0.00	0.00	0.00	43.33	60.00	7162.88	9918.60	1.37	0.00	17.38	1.37	0.00	7.53
		MalaRF20(P)	87.28	4.00	32.50	2.50	2836.60	218.20	0.00	0.00	0.00	0.00	32.50	2.50	2836.60	218.20	1.05	0.00	1.05	0.34	0.00	0.34
		Avg.																		**0.86**	**0.00**	**3.94**
	IV	MalaRF20(B)	194.12	4.00	32.50	2.50	6308.90	485.30	0.00	0.00	0.00	0.00	32.50	2.50	6308.90	485.30	1.05	0.00	1.05	0.34	0.00	0.34
	V	Mala RF24	108.40	2.00	0.00	5.00	0.00	542.00	0.00	0.00	0.00	0.00	5.00	0.00	542.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00
		MalaRF23(P)	145.34	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	0.00	2180.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		0.00	0.00	0.00
	VI	MalaRF23(B)	126.53	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	0.00	1897.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Mala RF 39	188.44	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.00	0.00	8479.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		**0.00**	**0.00**	**0.00**
	VII	Mala RF 25	265.72	3.00	3.33	0.00	885.64	0.00	13.33	3.33	3542.05	885.64	16.67	23.33	4429.55	6200.04	0.00	3.38	17.56	0.00	0.45	2.93
		Mala RF38	397.16	4.00	7.50	5.00	2978.70	1985.80	30.00	10.00	11914.80	3971.60	22.50	5.00	8936.10	1985.80	8.76	4.48	3.01	0.01	0.07	0.07
		MalaRF37(P)	84.37	4.00	10.00	0.00	843.70	0.00	0.00	0.00	0.00	0.00	65.00	17.50	5484.05	1476.48	0.00	0.00	3.63	0.00	0.00	2.36
		Avg.																		**0.00**	**0.17**	**1.79**
	VIII	MalaRF37(B)	341.77	4.00	10.00	0.00	3417.70	0.00	0.00	0.00	0.00	0.00	65.00	17.50	22215.05	5980.98	0.00	0.00	3.63	0.00	0.00	2.36
	IX	Mala RF 36	95.52	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.00	0.00	2865.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Mala RF 35	115.70	2.00	5.00	0.00	578.50	0.00	0.00	0.00	0.00	0.00	20.00	5.00	2314.00	578.50	0.00	0.00	3.38	0.00	0.00	0.68
		MalaRF34(P)	142.20	3.00	6.67	13.30	948.05	1891.26	0.00	0.00	0.00	0.00	43.33	40.00	6161.53	5688.00	24.12	0.00	11.94	1.61	0.00	5.17
		Avg.																		**0.54**	**0.00**	**1.95**
	X	MalaRF34(B)	168.65	3.00	6.67	13.30	1124.39	2243.05	0.00	0.00	0.00	0.00	43.33	40.00	7307.60	6746.00	24.12	0.00	11.94	1.61	0.00	5.17
		Mala RF 33	115.81	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	1158.10	0.00	0.00	200.00	0.00	0.00	0.00
		Total	**3289.93**				**51246.18**	**10498.01**			**15456.85**	**4857.24**			**111519.22**	**49311.79**	**2.78**	**4.23**	**5.90**	**0.81**	**0.00**	**2.59**
							15.58	**3.19**			**4.70**	**1.48**			**33.90**	**14.99**				**3.22**	**0.17**	**16.73**
																			Total Average	**0.32**	**0.02**	**1.67**

Table No-14.12 Mala Felling Series (MAL) SIWC

Name of Range	Coupe No.	Comptt. No.	Area of Coupe in Ha	No of Sample Point	Sal				Teak				Others				Yield %			Tree limit per Ha		
					No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	Sal	Teak	others	Sal	Teak	Others
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Ranpur	I	Mala RF 1	193.43	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	5.00	3868.60	967.15	0.00	0.00	3.38	0.00	0.00	0.68
		Mala RF 2(P)	46.75	1.00	20.00	0.00	935.00	0.00	0.00	0.00	0.00	0.00	0.00	30.00	0.00	1402.50	0.00	0.00	200.00	0.00	0.00	0.00
		Avg.																		**0.00**	**0.00**	**0.34**
	II	Mala RF 2(B)	174.60	1.00	20.00	0.00	3492.00	0.00	0.00	0.00	0.00	0.00	0.00	30.00	0.00	5238.00	0.00	0.00	200.00	0.00	0.00	0.00
		Mala RF 3 (P)	95.86	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	30.00	1917.20	2875.80	0.00	0.00	18.70	0.00	0.00	3.74
		Avg.																		**0.00**	**0.00**	**1.87**
	III	Mala RF 3(B)	123.46	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	30.00	2469.20	3703.80	0.00	0.00	18.70	0.00	0.00	3.74
		Mala RF 4	175.99	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	10.00	3519.80	1759.90	0.00	0.00	6.65	0.00	0.00	1.33
		Avg																		**0.00**	**0.00**	**2.54**
	IV	Mala RF 5	186.66	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.00	30.00	14932.80	5599.80	0.00	0.00	5.03	0.00	0.00	4.02
		Mala RF 6	140.67	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Mala RF 7	83.74	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.00	15.00	5024.40	1256.10	0.00	0.00	3.38	0.00	0.00	2.03
		Avg.																		**0.00**	**0.00**	**2.02**
	V	Mala RF 8(P)	198.46	2.00	20.00	0.00	3969.20	0.00	0.00	0.00	0.00	0.00	35.00	15.00	6946.10	2976.90	0.00	0.00	5.72	**0.00**	**0.00**	**2.00**
	VI	Mala RF 8 (B)	134.23	2.00	20.00	0.00	2684.60	0.00	0.00	0.00	0.00	0.00	35.00	15.00	4698.05	2013.45	0.00	0.00	5.72	0.00	0.00	2.00
		Mala RF 9	72.77	2.00	15.00	0.00	1091.55	0.00	0.00	0.00	0.00	0.00	45.00	20.00	3274.65	1455.40	0.00	0.00	5.93	0.00	0.00	2.67
		Mala RF 10	99.78	2.00	60.00	0.00	5986.80	0.00	5.00	35.00	498.90	3492.30	60.00	65.00	5986.80	6485.70	0.00	64.98	13.86	0.00	3.25	8.32
		Avg.																		**0.00**	**1.08**	**4.33**
	VII	Mala RF 11	156.35	2.00	5.00	5.00	781.75	781.75	0.00	0.00	0.00	0.00	25.00	25.00	3908.75	3908.75	12.87	0.00	12.87	0.64	0.00	3.22
		Mala RF 12	218.22	3.00	26.67	0.00	5819.20	0.00	0.00	0.00	0.00	0.00	63.33	6.67	13820.60	1454.80	0.00	0.00	1.44	0.00	0.00	0.91
		Mala RF 13(P)	70.65	1.00	40.00	0.00	2826.00	0.00	0.00	0.00	0.00	0.00	70.00	50.00	4945.50	3532.50	0.00	0.00	9.36	0.00	0.00	6.55
		Avg.																		**0.21**	**0.00**	**3.56**
	VIII	Mala RF13(B)	145.53	1.00	40.00	0.00	5821.20	0.00	0.00	0.00	0.00	0.00	70.00	50.00	10187.10	7276.50	0.00	0.00	9.36	0.00	0.00	6.55
		Mala RF 14	186.52	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.00	5.00	6528.20	932.60	0.00	0.00	1.95	0.00	0.00	0.68
		Avg.																		**0.00**	**0.00**	**3.62**
	IX	Mala RF 15	75.68	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	5.00	1135.20	378.40	0.00	0.00	4.48	0.00	0.00	0.67
		Mala RF16 (P)	196.72	3.00	3.33	0.00	655.73	0.00	0.00	10.00	0.00	1967.20	23.33	3.33	4590.13	655.73	0.00	200.00	1.95	0.00	0.00	0.45
		Mala RF16(B)	133.19	3.00	3.33	0.00	443.97	0.00	0.00	10.00	0.00	1331.90	23.33	3.33	3107.77	443.97	0.00	200.00	1.95	0.00	0.00	0.45
		Avg.																		**0.00**	**0.00**	**0.53**
	X	Mala RF17	426.73	4.00	2.50	0.00	1066.83	0.00	2.50	0.00	1066.83	0.00	22.50	12.50	9601.43	5334.13	0.00	0.00	7.36	0.00	0.00	1.66
		Mala RF 22	90.77	2.00	5.00	0.00	453.85	0.00	0.00	0.00	0.00	0.00	5.00	5.00	453.85	453.85	0.00	0.00	12.87	0.00	0.00	0.64
		Mala RF 40	172.57	2.00	5.00	0.00	862.85	0.00	0.00	0.00	0.00	0.00	35.00	45.00	6039.95	7765.65	0.00	0.00	16.24	0.00	0.00	5.68
		Avg.																		**0.00**	**0.00**	**2.66**
Total			**3599.33**				**36890.53**	**781.75**			**1565.73**	**6791.40**			**116956.08**	**67871.38**	**0.29**	**45.94**	**7.67**	**0.21**	**1.08**	**23.46**
							10.25	**0.22**			**0.44**	**1.89**			**32.49**	**18.86**	**Total Average**			**0.02**	**0.11**	**2.35**

Table No-14.13 Sirikuti Felling Series (SKT) SIWC

Name of Range	Coupe No.	Comptt. No.	Area of Coupe in Ha	No of Sample Point	Sal				Teak				Others				Yield %			Tree limit per Ha		
					No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	No of trees per Ha(I)	No of trees per Ha (II)	No. of trees in Exploitable Class in Coupe (I)	No. of trees in Approach Class in Coupe(II)	Sal	Teak	others	Sal	Teak	Others
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
Ranpur	I	Mala RF 32	355.9	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.00	40.00	21394.20	14262.80	0.00	0.00	8.76	**0.00**	**0.00**	**5.26**
	II	MalaRF26(P)	277.03	5.00	136.00	62.00	37676.08	17175.86	0.00	0.00	0.00	0.00	102.00	38.00	28257.06	10527.14	6.08	0.00	4.99	**8.27**	**0.00**	**5.09**
	III	MalaRF26(P)	195.52	5.00	136.00	62.00	26590.72	12122.24	0.00	0.00	0.00	0.00	102.00	38.00	19943.04	7429.76	6.08	0.00	4.99	**8.27**	**0.00**	**5.09**
	IV	MalaRF26(B)	105.65	5.00	136.00	62.00	14368.40	6550.30	0.00	0.00	0.00	0.00	102.00	38.00	10776.30	4014.70	6.08	0.00	4.99	8.27	0.00	5.09
		Mala RF 27	140.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		**4.14**	**0.00**	**2.55**
	V	Mala RF 28	141.76	1.00	0.00	0.00	0.00	0.00	60.00	10.00	8505.60	1417.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		MalaRF29(P)	227.48	3.00	66.67	16.67	15165.33	3791.33	6.67	0.00	1516.53	0.00	133.33	53.33	30330.67	12132.27	3.38	137.50	5.35	2.25	9.17	7.14
		Avg.																		**1.13**	**4.58**	**3.57**
	VI	MalaRF29(B)	48.78	3.00	66.67	16.67	3252.00	813.00	6.67	0.00	325.20	0.00	133.33	53.33	6504.00	2601.60	3.38	137.50	5.35	2.25	9.17	7.14
		Mala RF 30	157.43	2.00	0.00	10.00	0.00	1574.30	0.00	0.00	0.00	0.00	25.00	120.00	3935.75	18891.60	200.00	0.00	49.62	0.00	0.00	12.41
		Mala RF 31	183.74	2.00	0.00	0.00	0.00	0.00	35.00	5.00	6430.90	918.70	85.00	20.00	15617.90	3674.80	0.00	0.00	3.18	0.00	0.00	2.71
		Avg.																		**0.75**	**3.06**	**7.42**
	VII	Mala RF 41	56.52	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.00	65.00	4521.60	3673.80	0.00	0.00	10.58	0.00	0.00	8.46
		Mala RF 42	150.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Mala 43	187.02	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85.00	5.00	15896.70	935.10	0.00	0.00	0.81	0.00	0.00	0.68
		Mala RF 46	121.68	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.00	15.00	6692.40	1825.20	0.00	0.00	3.68	0.00	0.00	2.02
		Avg.																		**0.00**	**0.00**	**2.79**
	VIII	Mala RF 44	95.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Mala RF 45	209.43	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.00	5.00	18848.70	1047.15	0.00	0.00	0.76	0.00	0.00	0.68
		Mala RF 50	159.07	1.00	0.00	0.00	0.00	0.00	40.00	0.00	6362.80	0.00	50.00	0.00	7953.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Mala RF 51	120.23	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	20.00	601.15	2404.60	0.00	0.00	43.14	0.00	0.00	2.16
		Avg.																		**0.00**	**0.00**	**0.71**
	IX	Mala RF 21	181.64	2.00	45.00	15.00	8173.80	2724.60	0.00	0.00	0.00	0.00	10.00	15.00	1816.40	2724.60	4.48	0.00	18.70	2.02	0.00	1.87
		MalaRF47(P)	156.61	3.00	23.33	0.00	3654.23	0.00	0.00	0.00	0.00	0.00	76.67	13.33	12006.77	2088.13	0.00	0.00	2.36	0.00	0.00	1.81
		Avg.																		**1.01**	**0.00**	**1.84**
	X	MalaRF47(B)	125.87	3.00	23.33	0.00	2936.97	0.00	0.00	0.00	0.00	0.00	76.67	13.33	9650.03	1678.27	0.00	0.00	2.36	0.00	0.00	1.81
		Mala RF 48	220.83	3.00	40.00	6.67	8833.20	1472.20	0.00	0.00	0.00	0.00	30.00	26.67	6624.90	5888.80	2.27	0.00	11.52	0.91	0.00	3.46
		Mala RF 49	116.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Avg.																		**0.30**	**0.00**	**1.76**
Total			**3736.5**				**120650.73**	**46223.83**			**23141.03**	**2336.30**			**221371.07**	**95800.32**	**5.13**	**1.38**	**5.78**	**23.86**	**7.64**	**33.53**
							32.28	**12.37**			**6.19**	**0.63**			**59.23**	**25.63**			**Total Average**	**2.39**	**0.76**	**3.35**

Table No. 14.14 ABSTRACT OF YIELD CALCULATION								
Sl No	**Name of the Felling Series**	**Average Yield %**			**Average trees Limit /Ha.**			
		Sal	**Teak**	**Others**	**Sal**	**Teak**	**Others**	**Total**
1	Mahulia	5.55	12.87	8.93	0.27	0.54	2.44	3.25
2	Tamana	6.26	6.26	3.77	0.26	0.09	2.02	2.37
3	Dhuanali	0.00	11.89	11.70	0.00	0.49	1.99	2.48
4	Patia	0.00	5.59	17.88	0.00	0.19	0.45	0.64
5	Sankhajodi	2.78	4.23	5.90	0.32	0.02	1.67	2.01
6	Mala	0.29	45.94	7.67	0.02	0.11	2.35	2.48
7	Sirikuti	5.13	1.38	5.78	2.39	0.76	3.35	6.50
Average		2.99	10.84	9.62	0.46	0.32	2.0	2.28
Reduction by 50% to compensate biotic pressure and for conservation measures					0.23	0.16	1.0	1.4
Trees Available for Marking per Ha.					0.23	0.16	1.0	1.4

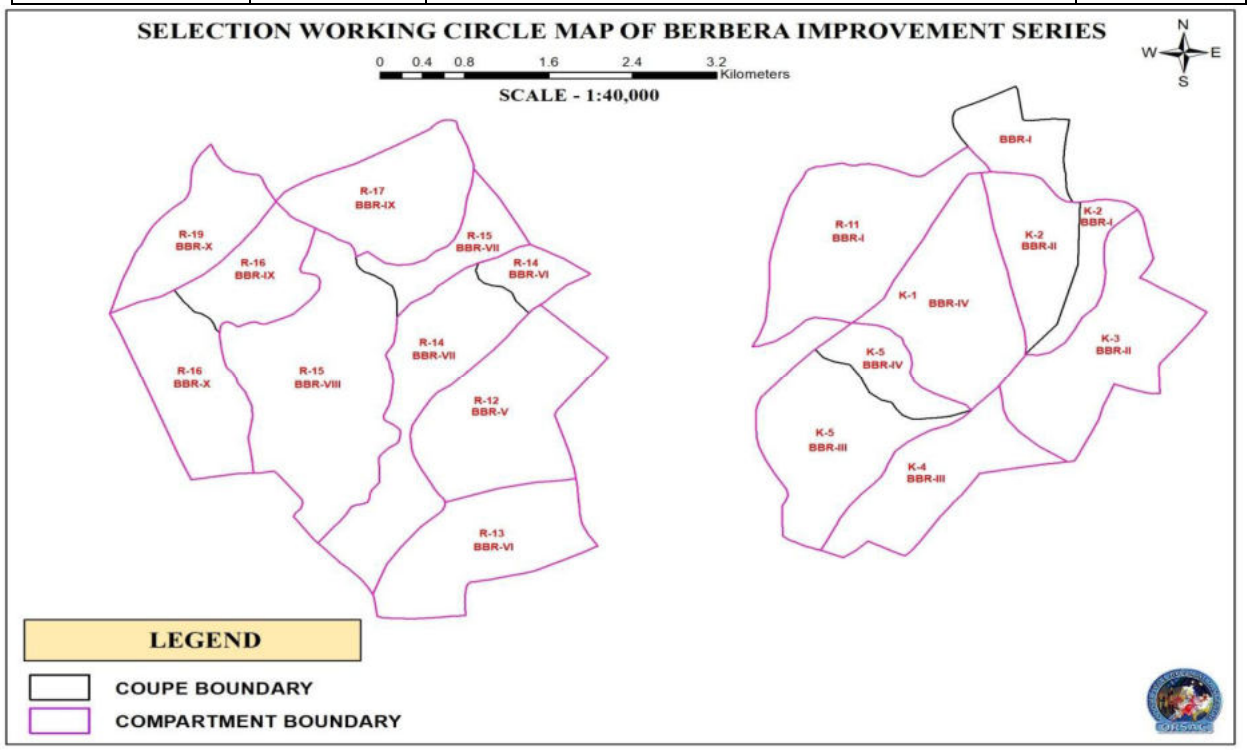
14.14 TABLE OF FELLING:

YEAR WISE SEQUENCE OF FELLING IN DIFFERENT FELLING SERIES:

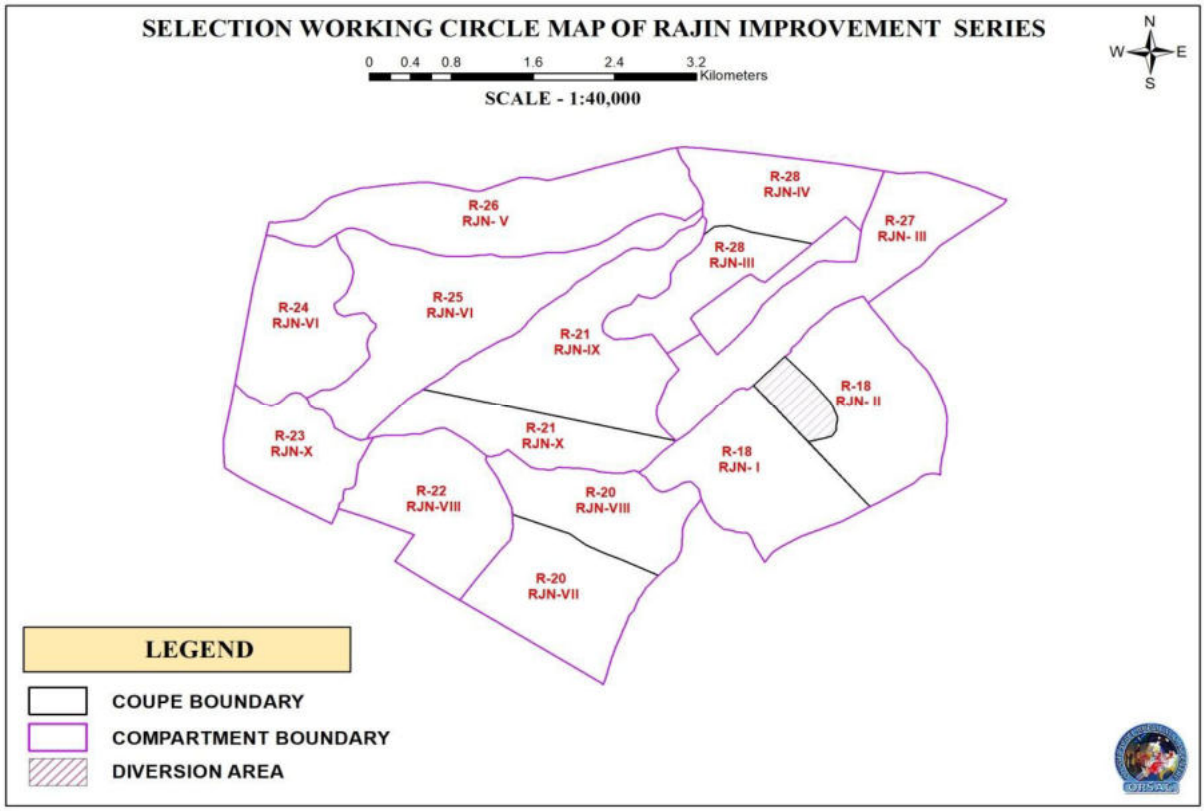
The forest area allotted to the Selection working circle has been distributed into 9 different felling series. While constituting the felling series, care has been taken to restrict the area to about 10,000 ha within the jurisdiction of a Range. This would facilitate better implementation of the prescriptions, administrative convenience and would ensure that the annual coupes are of manageable size, which could be worked during one working season. The annual coupes in each felling series have been demarcated by taking the natural features, compartment boundaries, administrative boundaries of different ranges and the crop condition. Each Felling Series is divided into 10 annual coupes so that the entire area of the Felling Series is covered in the Plan period. The coupe working would commence from 2021-22 subject to approval of the plan by the State and Central Governments. The sequence of felling in different years is given in tables below,

Table No.14. 15

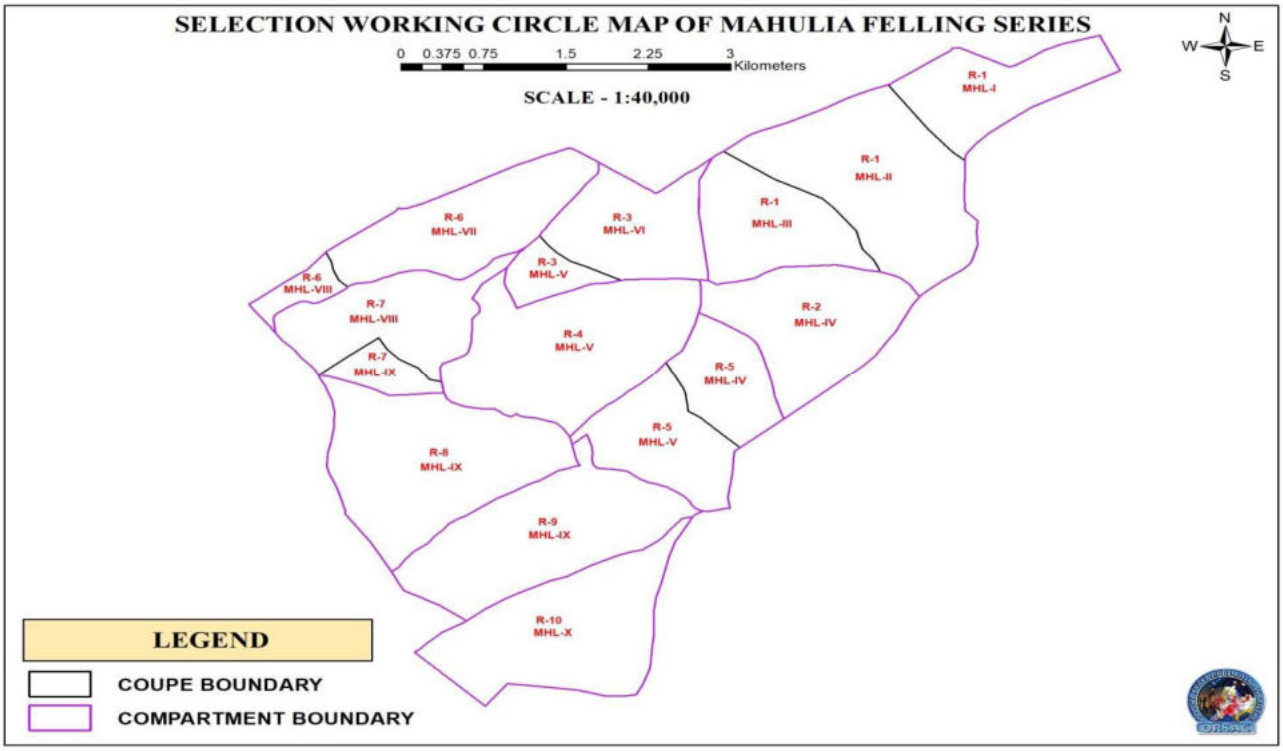
Berbera Improvement Series (BBR)					
Name of the Improvement Series	**Year of Improvement work**	**Coupe No**	**Comptt. No.**	**Area in Ha**	**Total Area in Ha**
1	**2**	**3**	**4**	**5**	**6**
Berbara Improvement Series	2027-28	I	Rajin (11)	228.21	348.41
			Jiripada DPF	71.47	
			Katwal RF (2) Part	48.73	
	2028-29	II	Katwal RF (2) Bal	108.37	316.86
			Katwal RF (3)	208.49	
	2029-30	III	Katwal RF (4)	149.34	341.31
			Katwal RF (5) Part	191.97	
	2030-31	IV	Katwal RF (5) Bal	61.96	272.75
			Katwal RF (1)	210.79	
	2021-22	V	Rajin RF (12)	221.46	221.46
	2022-23	VI	Rajin RF (13)	179.59	220.23
			Rajin RF (14) Part	40.64	
	2023-24	VII	Rajin RF (14) Bal	206.28	276.90
			Rajin RF (15) Part	70.62	
	2024-25	VIII	Rajin RF (15) Bal	328.71	328.71
	2025-26	IX	Rajin RF (17)	169.30	269.37
			Rajin RF (16) Part	100.07	
	2026-27	X	Rajin RF (16) Bal	154.64	271.18
			Rajin RF (19)	116.54	
		Total Area of the Felling Series			**2867.18**



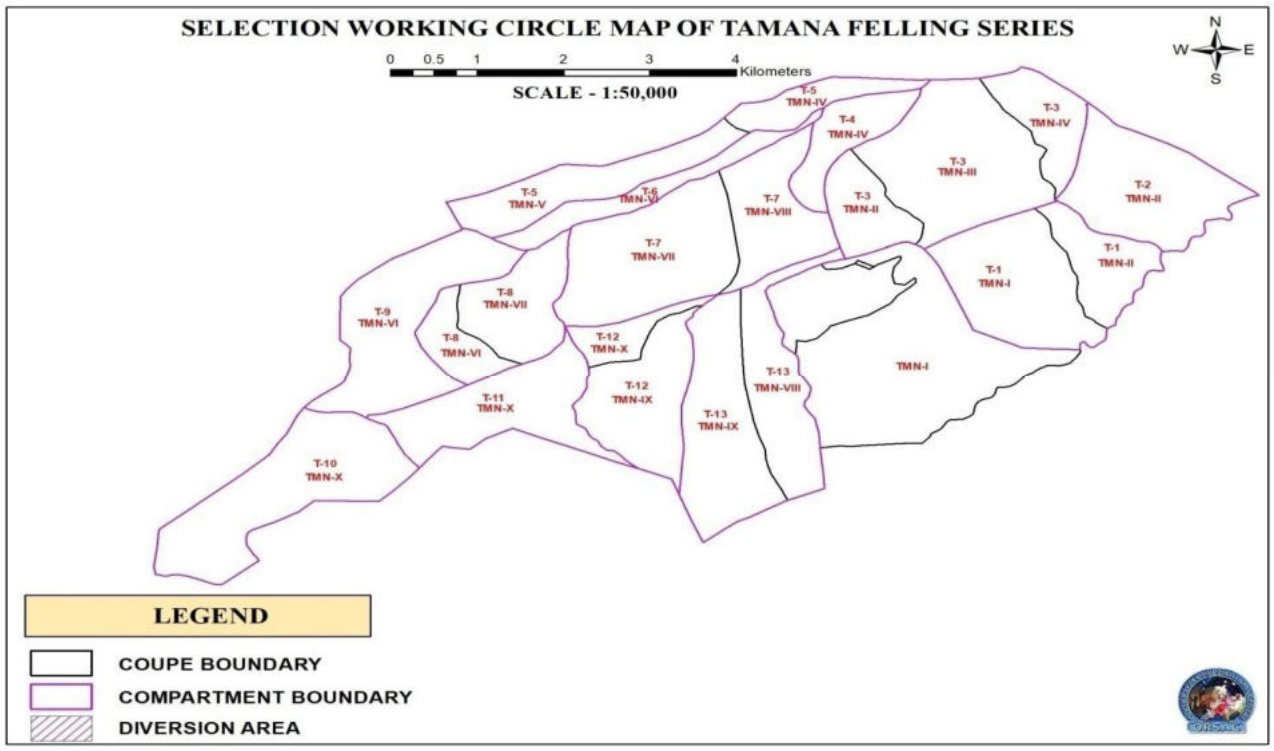
Rajin Improvement Series (RJN)					
Name of the Improvement Series	**Year of Improvement work**	**Coupe No**	**Comptt. No.**	**Area in Ha**	**Total Area in Ha**
1	**2**	**3**	**4**	**5**	**6**
Rajin Improvement Series	2027-28	I	Rajin (18) Part	182.69	182.69
	2028-29	II	Rajin (18) Bal	188.72	188.72
	2029-30	III	Rajin (27)	218.23	312.59
			Rajin (28) Part	94.36	
	2030-31	IV	Rajin (28) Bal	125.59	125.59
	2021-22	V	Rajin (26)	242.32	242.32
	2022-23	VI	Rajin (24)	155.74	437.28
			Rajin (25)	281.54	
	2023-24	VII	Rajin (20) Part	161.47	161.47
	2024-25	VIII	Rajin (20) Bal	130.76	302.56
			Rajin (22)	171.80	
	2025-26	IX	Rajin (21) Part	232.13	232.13
	2026-27	X	Rajin (21) Bal	115.76	231.46
			Rajin (23)	115.70	
		Total Area of the Felling Series			**2416.81**



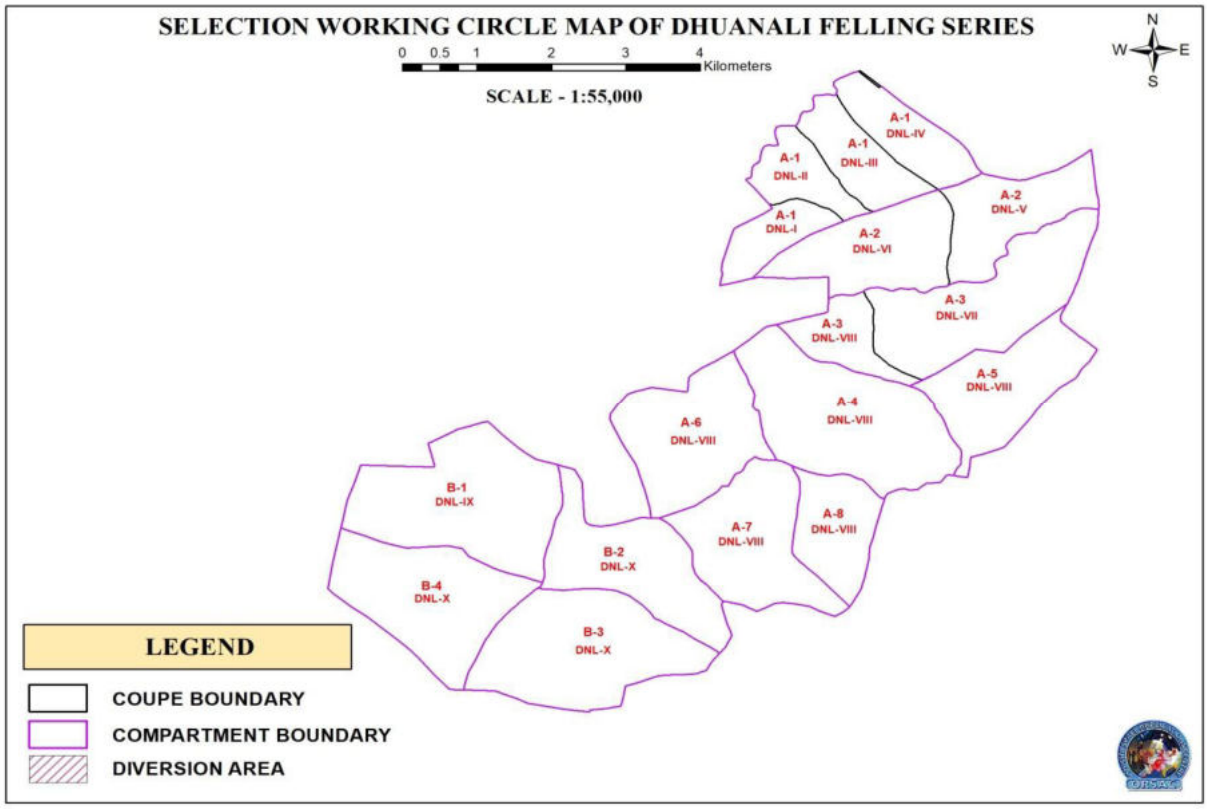
Mahulia Felling Series (MHL)					
Name of the Felling Series	**Year of Felling**	**Coupe No**	**Comptt. No.**	**Area in Ha**	**Total Area in Ha**
1	**2**	**3**	**4**	**5**	**6**
Mahulia Felling Series	2027-28	I	Rajin (1) Part	123.69	123.69
	2028-29	II	Rajin (1) Part	250.57	250.57
	2029-30	III	Rajin (1) Bal	134.42	134.42
	2030-31	IV	Rajin(2)	177.41	264.39
			Rajin (5) Part	86.98	
	2021-22	V	Rajin (5) Bal	119.91	411.93
			Rajin (4)	255.87	
			Rajin (3) Part	36.16	
	2022-23	VI	Rajin (3) Bal	129.40	129.40
	2023-24	VII	Rajin (6) Part	167.49	167.49
	2024-25	VIII	Rajin (6) Bal	25.25	167.81
			Rajin (7) Part	142.56	
	2025-26	IX	Rajin (7) Bal	33.11	524.62
			Rajin (8)	259.33	
			Rajin (9)	232.18	
	2026-27	X	Rajin (10)	225.17	225.17
		Total Area of the Felling Series			**2399.5**



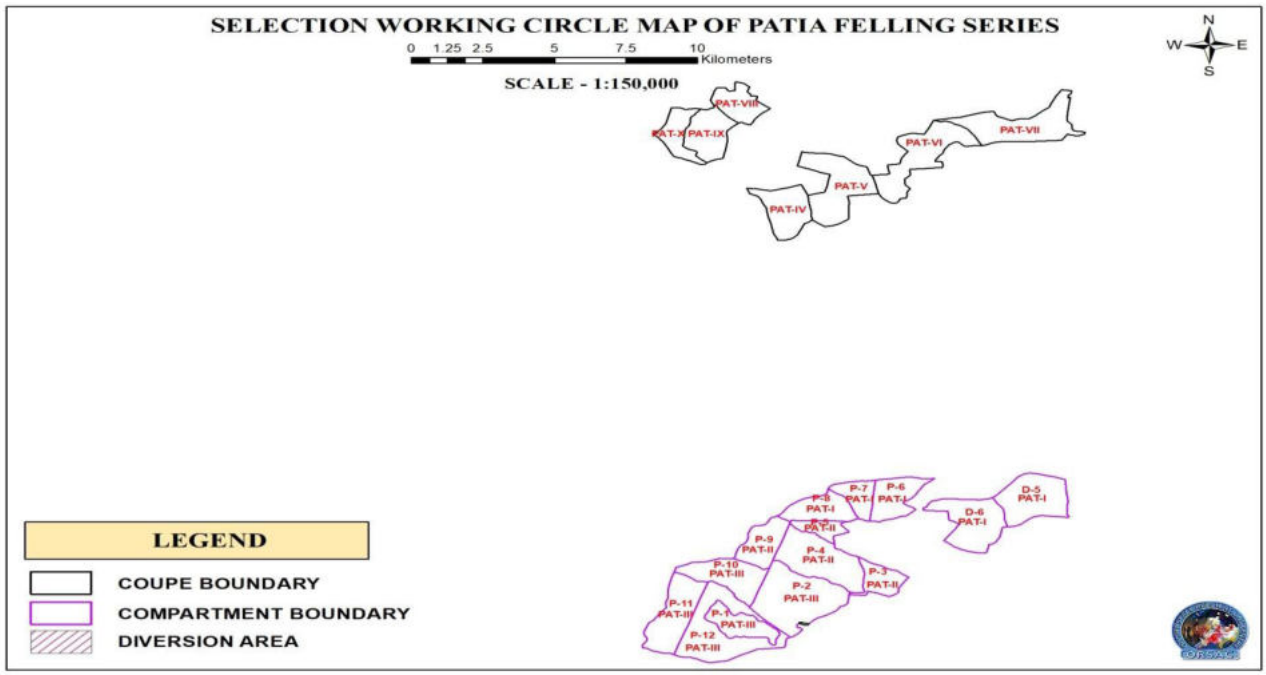
Tamana Felling Series (TMN)					
Name of the Felling Series	**Year of Felling**	**Coupe No**	**Comptt. No.**	**Area in Ha**	**Total Area in Ha**
1	**2**	**3**	**5**	**6**	**7**
Tamana Felling Series	2027-28	I	Nathpur DPF	427.38	661.56
			Tamana RF (1) Part	234.18	
	2028-29	II	Tamana RF (1) Bal	109.51	437.65
			Tamana RF (2)	233.61	
			Tamana RF (3) Part	94.53	
	2029-30	III	Tamana RF (3) Part	305.2	305.2
	2030-31	IV	Tamana RF (3) Bal	99.12	264.4
			Tamana RF (4)	93.99	
			Tamana RF (5) Part	71.3	
	2021-22	V	Tamana RF (5) Bal	154.86	154.86
	2022-23	VI	Tamana RF (6)	88.95	426.74
			Tamana RF (9)	270.54	
			Tamana RF (8) Part	67.25	
	2023-24	VII	Tamana RF (8) Bal	140.49	424.26
			Tamana RF (7) Part	283.77	
	2024-25	VIII	Tamana RF (7) Bal	161.47	333.2
			Tamana RF (13) Part	171.85	
	2025-26	IX	Tamana RF (13) Bal	240.34	429.23
			Tamana RF (12) Part	188.89	
	2026-27	X	Tamana RF (12) Bal	51.79	563.20
			Tamana RF (11)	210.36	
			Tamana RF (10)	301.05	
		Total Area of the Felling Series			**4000.43**



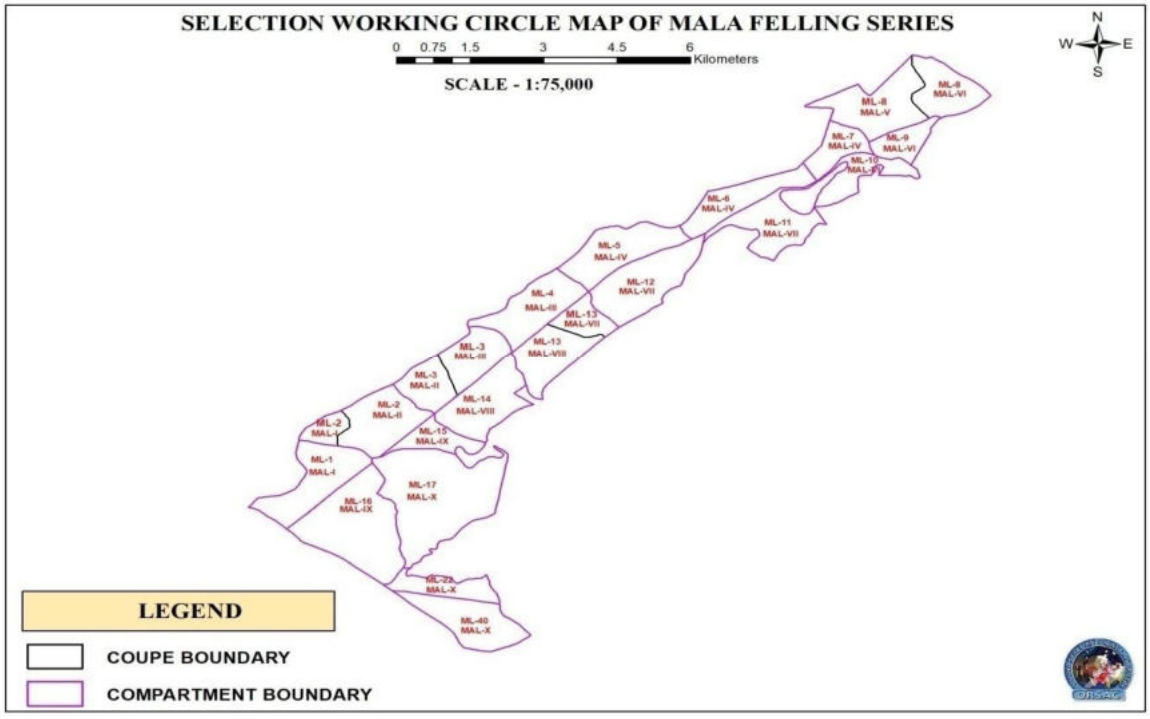
Dhuanali Felling Series (DNL)					
Name of the Felling Series	**Year of Felling**	**Coupe No**	**Comptt. No.**	**Area in Ha**	**Total Area in Ha**
1	**2**	**3**	**4**	**5**	**6**
Dhuanali Felling Series	2027-28	I	Aranga RF (1) Part	88.32	88.32
	2028-29	II	Aranga RF (1) Part	98.72	98.72
	2029-30	III	Aranga RF (1) Part	125.4	125.4
	2030-31	IV	Aranga RF (1) Bal	130.36	130.36
	2021-22	V	Aranga RF (2) Part	186.5	186.5
	2022-23	VI	Aranga RF (2) Bal	222.87	222.87
	2023-24	VII	Aranga RF (3) Part	327.77	327.77
	2024-25	VIII	Aranga RF (3) Bal	98.73	1427.26
			Aranga RF (4)	393.04	
			Aranga RF (5)	232.01	
			Aranga RF (6)	283.46	
			Aranga RF (7)	269.64	
			Aranga RF (8)	150.38	
	2025-26	IX	Bankard RF (1)	387.83	387.83
	2026-27	X	Bankard RF (2)	261.47	935.39
			Bankard RF (3)	361.57	
			Bankard RF (4)	312.35	
		Total Area of the Felling Series			**3930.42**



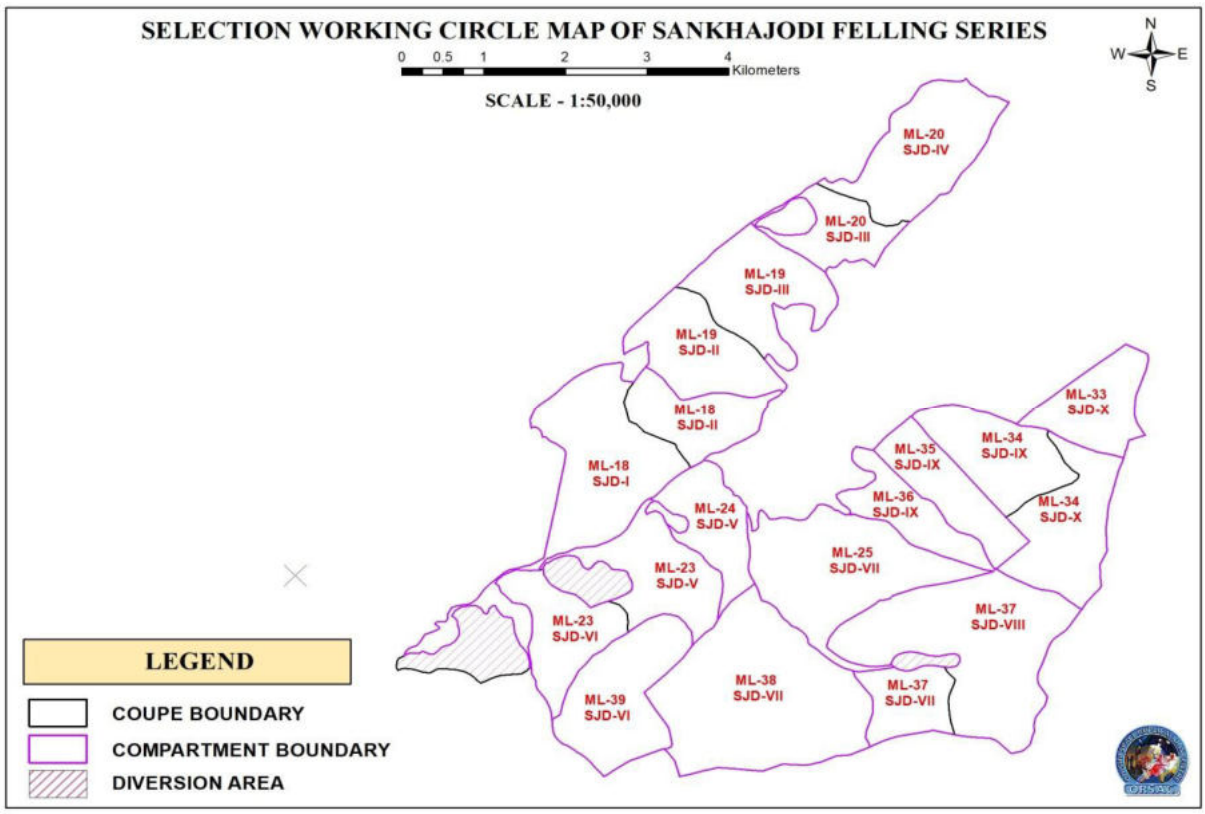
Patia Felling Series (PAT)					
Name of the Felling Series	**Year of Felling**	**Coupe No**	**Comptt. No.**	**Area in Ha**	**Total Area in Ha**
1	**2**	**3**	**4**	**5**	**6**
Patia Felling Series	2027-28	I	Dhani-S RF (5)	423.90	1522.11
			Dhani-S RF (6)	426.34	
			Patia RF (6)	265.91	
			Patia RF (7)	160.48	
			Patia RF (8)	245.48	
	2028-29	II	Patia RF (5)	111.34	1037.28
			Patia RF (4)	503.40	
			Patia RF (3)	172.30	
			Patia RF (9)	250.24	
	2029-30	III	Patia RF (1)	224.89	2177.38
			Patia RF (2)	644.21	
			Patia RF (10)	338.10	
			Patia RF (11)	404.46	
			Patia RF (12)	565.72	
	2030-31	IV	Sulia-B RF Part	315.19	315.19
	2021-22	V	Sulia-B RF Part	489.34	489.34
	2022-23	VI	Sulia-B RF Part	487.77	487.77
	2023-24	VII	Sulia-B RF Bal	492.39	492.39
	2024-25	VIII	Panchagarh RF Part	212.9	212.9
	2025-26	IX	Panchagarh RF Part	295.27	295.27
	2026-27	X	Panchagarh RF Bal	196.42	196.42
		Total Area of the Felling Series			**7226.05**



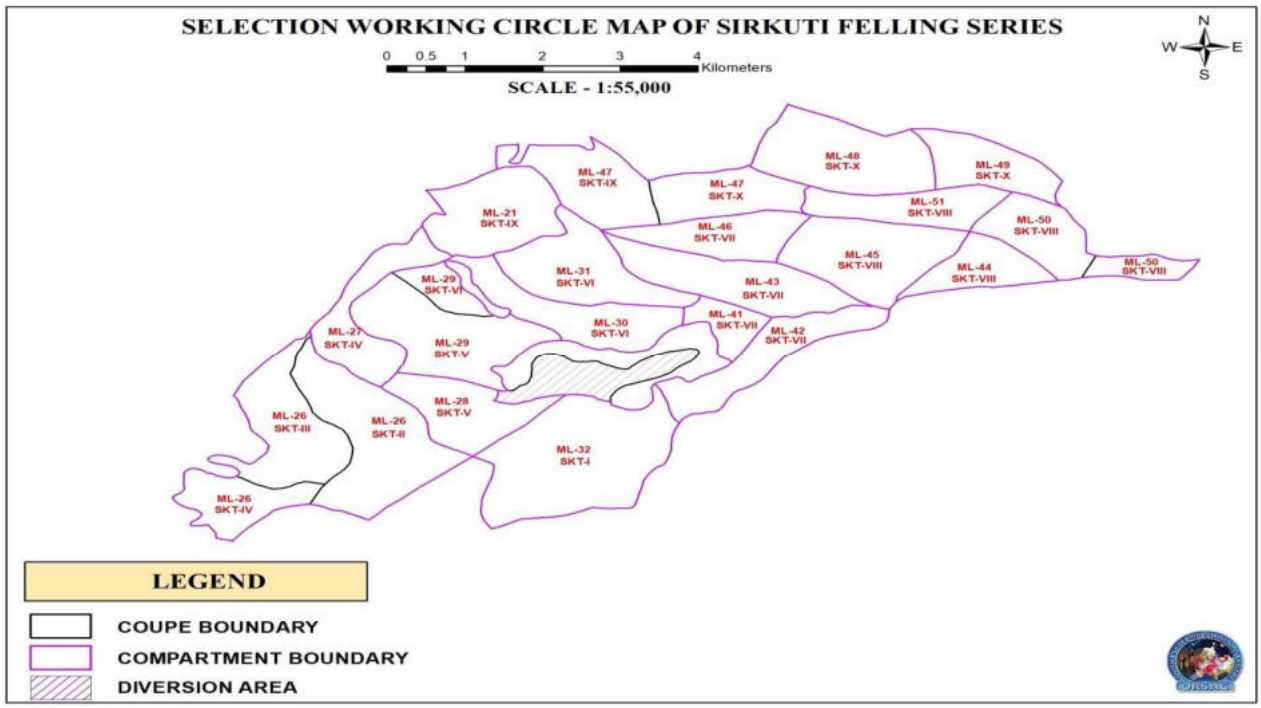
Mala Felling Series (MAL)					
Name of the Felling Series	**Year of Felling**	**Coupe No**	**Comptt. No.**	**Area in Ha**	**Total Area in Ha**
1	**2**	**3**	**4**	**5**	**6**
Mala Felling Series .	2027-28	I	Mala RF (1)	193.43	240.18
			Mala RF (2) Part	46.75	
	2028-29	II	Mala RF (2) Bal	174.6	270.46
			Mala RF (3) Part	95.86	
	2029-30	III	Mala RF (3) Bal	123.46	299.45
			Mala RF (4)	175.99	
	2030-31	IV	Mala RF (5)	186.66	411.07
			Mala RF (6)	140.67	
			Mala RF (7)	83.74	
	2021-22	V	Mala RF (8) Part	198.46	198.46
	2022-23	VI	Mala RF (8) Bal	134.23	306.78
			Mala RF (9)	72.77	
			Mala RF (10)	99.78	
	2023-24	VII	Mala RF (11)	156.35	445.22
			Mala RF (12)	218.22	
			Mala RF (13) Part	70.65	
	2024-25	VIII	Mala RF (13) Bal	145.53	332.05
			Mala RF (14)	186.52	
	2025-26	IX	Mala RF (15)	75.68	405.59
			Mala RF (16)	329.91	
	2026-27	X	Mala RF (17)	426.73	690.07
			Mala RF (22)	90.77	
			Mala RF (40)	172.57	
		Total Area of the Felling Series			**3599.33**



Sankhajodi Felling Series (SJD)					
Name of the Felling Series	**Year of Felling**	**Coupe No**	**Comptt. No.**	**Area in Ha**	**Total Area in Ha**
1	**2**	**3**	**4**	**5**	**6**
Sankhajodi Felling Series	2027-28	I	Mala RF (18) Part	286.16	286.16
	2028-29	II	Mala RF (18) Bal	113.52	261.45
			Mala RF (19) Part	147.93	
	2029-30	III	Mala RF (19) Bal	165.31	252.59
			Mala RF (20) Part	87.28	
	2030-31	IV	Mala RF (20) Bal	194.12	194.12
	2021-22	V	Mala RF (24)	108.40	253.74
			Mala RF (23) Part	145.34	
	2022-23	VI	Mala RF (23) Bal	126.53	314.97
			Mala RF (39)	188.44	
	2023-24	VII	Mala RF (25)	265.72	747.25
			Mala RF (38)	397.16	
			Mala RF (37) Part	84.37	
	2024-25	VIII	Mala RF (37) Bal	341.77	341.77
	2025-26	IX	Mala RF (36)	95.52	353.42
			Mala RF (35)	115.70	
			Mala RF (34) Part	142.2	
	2026-27	X	Mala RF (34) Bal	168.65	284.46
			Mala RF (33)	115.81	
		Total Area of the Felling Series			**3289.93**



Sirikuti Felling Series (SKT)					
Name of the Felling Series	**Year of Felling**	**Coupe No**	**Comptt. No.**	**Area in Ha**	**Total Area in Ha**
1	**2**	**3**	**4**	**5**	**6**
Sirikuti Felling Series	2027-28	I	Mala RF (32)	356.57	356.57
	2028-29	II	Mala RF (26) Part	277.03	277.03
	2029-30	III	Mala RF (26) Part	195.52	195.52
	2030-31	IV	Mala RF (26) Bal	105.65	246.43
			Mala RF (27)	140.78	
	2021-22	V	Mala RF (28)	141.76	369.24
			Mala RF (29) Part	227.48	
	2022-23	VI	Mala RF (29) Bal	48.78	389.95
			Mala RF (30)	157.43	
			Mala RF (31)	183.74	
	2023-24	VII	Mala RF (41)	56.52	516.20
			Mala RF (42)	150.98	
			Mala RF (43)	187.02	
			Mala RF (46)	121.68	
	2024-25	VIII	Mala RF (44)	95.89	584.62
			Mala RF (45)	209.43	
			Mala RF (50)	159.07	
			Mala RF (51)	120.23	
	2025-26	IX	Mala RF (21)	181.64	338.25
			Mala RF (47) Part	156.61	
	2026-27	X	Mala RF (47) Bal	125.20	462.69
			Mala RF (48)	220.83	
			Mala RF (49)	116.66	
			Total Area of the Felling Series		**3736.50**



14.15 METHOD OF FELLING:

The detail of procedures of felling is described as follows:

14.15.1 Demarcation of Annual Coupes:

1) The annual coupes shall be demarcated in the winter season (October to December) in the year preceding the year of working.
2) If any portion of the coupe line coincides with compartment line, it need not be laid on the ground. In majority of the cases the coupes are divided on the basis of compartments. Hence, it is essential to maintain the compartment line and sub-compartment line by putting double white paint rings.
3) The other portions of coupe line shall be laid down by clearance of 1.5 mt. of width along with stone Cairns (white painted) at visible distance. Clearance shall be restricted for the purpose of identification and visibility. No felling of any kind shall be done on the strip. Double coal tar rings shall be given on the trees standing on the strip.
4) 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 plot line should be demarcated with single coal tar ring along the compartment / sub-compartment line.
5) Coupes shall be indicated by signboards at corners or at points of intersection with roads, inspection paths, and 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.
6) Coupes shall be demarcated by a Forest Officer not below the rank of a Forest Ranger and demarcation shall be checked by an Officer not below the rank of Assistant Conservator of Forests before the marking is taken up.

14.15.2 Marking Rules:

1. The Marking Officer shall make assessment the illicit felling inside the annual coupe prior to marking. The quantum of marking of trees shall be reduced by the extent of trees illicitly felled during the period between last felling of the coupe and the time of marking. The net trees to be marked should be the difference between the permissible number of trees due for marking as per plan and the number of tree illicitly felled in the coupe area. In case the difference is negative then no marking shall be done.

2. All dead, dying, seriously diseased, uprooted and fallen trees shall be marked for felling. A tree whose top one third ($1/3^{rd}$) is already dead shall be treated as a dying tree. Marking of unsound trees shall be preferred over sound trees in annual coupes.
3. All trees above the exploitable girth class shall be marked. Out of the exploitable girth trees available, **0.23** trees per hector in respect of Sal and **0.16** for teak trees per hector and **1** for others per hector in respect of non-Sal trees shall be marked for felling on an average. The individual coupe wise yield is given elaborately in the tables above. All teak trees Silvicultural available in the coupe attaining GBH of 120 cm above is to be felled.
4. The trees retained should be sound, dominant and growing vigorously. The reserved trees shall be painted with single white paint ring at 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.
5. If a tree is forked below breast height, it shall be taken as two trees and if it's forked above the breast height then it will taken as one tree.
6. All trees to be marked for felling shall be given two blazes approximately of size 15 cm x 15 cm, one at the breast height and the others at close to the ground as possible and marked with an impression of departmental hammer and numbered serially.
7. Marking shall not be done within 20 meters of roadside and either side of nallah banks. Marking shall not be done within 50 meters radius around the key habitat of wild animals such as den, saltlick, wallows, game tank and water holes.
8. Marking should not be done in areas where the slope of terrain is more than 30º except for dead and uprooted trees.
9. Marking should be done only for those trees whose removal will not create a permanent gap in the canopy and will not affect regeneration and population of existing fauna.
10. Fruit bearing trees such as Mahula, Mango, Amla, Chara, Kendu, Bahada, Harida and Bela etc. shall not be marked for felling.
11. All climbers shall be cut prior to marking and it is mandatory.
12. Trees standing on the blank patch having no established regeneration of any species underneath shall not be marked.
13. Trees standing on the bank of nallahs, streams, rivers and 20 meters from their banks shall not be marked for felling.

14.15.3 Improvement Marking:

This marking is mainly intended for improvement of the crop without paying much importance for the purpose of yield. However, the following rules are prescribed.

i. Marking of all dead, diseased and hollow trees irrespective of girth class and inclusive of even fallen and up rooted trees as well. However, some such standing trees shall be retained if required for wildlife purpose.
ii. Marking of unsound or malformed trees irrespective of girth class which are unlikely to survive or which will further deteriorate before the next felling unless they are required for seed or soil or moisture conservation. Such marking and removal shall be subject to the following additional conditions:
    a. Such removal will not adversely affect the growth of the existing crop.
    b. The marked tree forms part of the congested crop adhering to principle of thinning which necessitates its removal
    c. There shall be sufficient exist saplings, poles or established regeneration to take its place
    d. No marking of fruit bearing trees such as Mahula, Mango, Tamarind, Amla, Chara, Harida, Bahada, Bela, Kusum etc. shall be done for felling
    e. Marking shall be done in a very conservative manner so that it does not result in fall of revenue
    f. Such marking of trees shall be 100% checked by the Assistant Conservator of Forests followed by at least 25% test check by the DFO as it requires greater technical skills.

14.15.4 Execution of Marking and Felling:

(i) The marking shall be done by an officer not below the rank of Range Officer and shall be checked as per provisions of the Orissa Forest Department Code, 1979, as modified by Government from time to time.

(ii) The method of disposal of trees marked for felling shall be as per Chapter - XIV of the Orissa Forest Department Code, 1979 as modified by Government from time to time.

(iii) Felling and extraction in any annual coupe 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. The competent authority shall consider any proposal for extension of time only after the physical verification of stock inside the annual coupe by the DFO and his report.

(iv) Trees shall be lopped before felling to avoid damage to the regeneration and the standing crop. The trees should be felled towards upper hill slope in hilly coupes.

(v) Works undertaken, number of lots formed, detailed passing list, deviations if any must be mentioned in the compartment history and control forms.

14.16 SUBSIDIARY SILVICULTURAL OPERATION FOR IMPROVEMENT OF COUPE BY CLEANING, THINNING & PRUNNING OF THIS WORKING CIRCLE:

Improvement felling will be specifically undertaken in Berbara improvement series and Rajin improvement series where harvest of forest crop is very low. So thrust will be given for improvement works in the coupe area by following works. Subsidiary Silvicultural operation shall be done in phased manner. This includes the operations to improve the crop condition after main felling and consists of the followings in order to take up subsidiary Silvicultural operation systematically an annual action plan shall be prepared in advance along with treatment plan and treatment map.

(i) All marked trees left standing by the OFDC Ltd/lessee shall be felled and removed from the annual coupe.

(ii) All the trees damaged in the main felling and which do not have any scope of survival shall be felled and removed from the annual coupe.

(iii) All high stumps shall be cut flush to the ground.

(iv) All climbers left during marking shall be cut back.

(v) All fallen pieces of branches, lops and tops, small wood left during the main felling which could cause fire hazard shall be removed.

(vi) Soil and moisture conservation measures required shall be assessed. The soil conservation measures such as gully plugging, contour bonding, dry stone packing, construction of check dams etc. shall be carried out in subsequent years.

(vii) The blank areas created due to shifting cultivation or any other reasons (more than half hectare of any blank patch can be considered as blank area) shall be planted by local indigenous species.

(viii) Thinning of advanced growth shall be carried out, if the crop is found still to be too congested after the main felling. of course, it shall be only light to moderate thinning on the lines “A” grade or “B” grade thinning. (‘A’ grade thinning is restricted to removal of only ‘Suppressed’ stems whereas ‘B’ grade thinning even permits removal of ‘Dominated’ stems as well besides occasional removal of ‘Dominant’ stems with defective crown/stems)

(ix) Sowing and planting: The blank areas available (more than half hectare of any blank patch can be considered as blank area) shall be planted with the local indigenous species or if in old Teak plantation area with Teak. The standard techniques of plantation and its after care are to be adopted here as well

14.17 REGENERATION:

The regeneration is found to be moderate to good and in some compartments excellent regeneration is found. The details of the regeneration survey during sample plot enumeration in various forest blocks are indicated. The enumeration results reveal that the there are fairly good number of trees in the exploitable and above exploitable girth classes. These trees need to be felled, otherwise there is an increased tendency of getting unsound with over maturity. Moreover these large sized trees when removed will yield growing space for new regeneration and will yield timber which is badly required to meet demands of the people.

14.18 ASSOCIATED REGULATIONS AND MEASURES:

Associated regulation and measures which includes controlled grazing, lopping of branches, regulated firewood removals, soil and moisture conservation measures, fire protection, forest protection from illicit felling, regulated removal of NTFP. The matured and harvestable plantations of miscellaneous species particularly Acacia, Eucalyptus, Simaruba, Chakunda, Cashew nut exist in tree outside forest (ToF) in Tangi, Ranpur, Balugoan and Khordha Range of this division. The old plantations were raised under Social Forestry Project, OFDC, and Cashew Development Corporation Ltd. The elephant movement mostly takes place in aforesaid ranges during crop harvesting season from Chandaka Damapada Wild Life Sanctuary, bordering Divisions like Ghumsur (S) and Nayagarh Forest Division causing human-elephant interface. The elephant sometimes remain in the old plantations patches during of anti depredation measures which should be protected and not allowed for felling for community use. Instead of felling the villagers can enjoy the usufructs benefits. This strategy will help in protection and conservation of elephants and other wild animals. Besides that restriction on encroachments, illegal mining, restriction on felling along rivers, highways, hill slopes should be strictly imposed properly.

Intermediate revision is necessary after five years jointly by the working plan Officer, and Regional Chief Conservator of Forest, Bhubaneswar to derive conclusion revision of regulations if any there in.

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CHAPTER-15

REHABILITATION WORKING CIRCLE

15.1 GENERAL CONSTITUTION OF WORKING CIRCLE:

In this working circle all the degraded forests of this division have been allotted. By giving proper protection and using suitable Silivicultural methods, the vegetation in these forest blocks can be improved and the forests can be rehabilitated. The degradation of these forests has been occurred due to the continuous biotic interference in the form of illicit felling, repeated fires, grazing and encroachments etc. over the years on the forests of this division. These adverse biotic conditions have led to the top soil being eroded away and in some places even resulting in exposure of rocks. But in most of the places, these degraded forests blocks still contain enough potential of rootstock and natural regeneration, which if tended and protected would be able to regain its lost vegetation. The total area allotted to this Working Circle is **18087.8985 H**a. Attempt is to be made during this plan period to involve the local villagers in rehabilitation and restoration of these forests by the formation of Vana Surakshya Samities (VSS) as per the JFM Resolution of Govt. of Odisha so that the crop condition of the forests can be improved considerably.

Normally the Forest Blocks of this Division allotted in the outgoing plan will be included in this Working Circle. As stated above this Working Cirlce will cover an area of **18087.8985 H**a. consisting of Bhatpada, Chulijhinka, Solari, Champagada, Bhaleri, Sandhamal & Jharana DPFs of Balugaon Range. Sulia RF, Kuhudi RF & all the DPFs of Tangi Range except Tangi DPF, Maninag RF, Nuapada RF, Champagada RF, Satabhaya RF and Dhani(N) RF of Ranpur Range. Manibandha RF, Nagapalli RF, Barunei RF, Jayamangal RF, Mandalsing DPF, Brahmanidei DPF, Duburi DPF, Jariput DPF, Keranga DPF, of Khordha Range. Beguniapara PRF, Kumuka PRF, Jamunajharpada PRF of Delanga Range. The forest area diverted under Forest Conservation Act, 1980 and the forest area over which Title Rights have been issued under Forest Right Act, 2006 will be excluded from the prescription of this Working Circle.

The major forest blocks allotted to this working circle are as given in Table No.15.1. Portion of some of these forest blocks has already been allotted to VSS and during the course of implementation of this plan it is expected that further areas will be allotted to VSS for protection and management of the degraded forests jointly.

Table No-15.1 **Constitution of working Circle:**

Sl No	Name of the Range	Name of the Forest Block	Area in Ha. As per notification	GIS Area given in Ha.	Area Under FRA & FC (in Ha.)		Area under this Plan (in Ha.)	Area allotted to RWC
					Under FRA	Under FC Act.		
1	2	3	4	5	6	7	8	9
1	Khordha	Barunei RF	482.8	444.373		0.5125	443.8605	350.8605
2	-do-	Jayamangal RF	144.48	139.078			139.078	139.078
3	-do-	Manibandha- A & B RF	309.6	312.659			312.659	292.659
4	-do-	Nagapalli RF	551.61	559.68			559.68	559.68
5	Ranapur	Champagarh RF	413.64	413.913			413.913	323.504
6	-do-	Dhani (N) RF	1092.28	1048.957			1048.957	379.937
7	-do-	Maninag RF	1797.67	1735.576	2.797		1732.779	1392.779
8	-do-	Nuapada-B RF	272.77	121.448			121.448	121.448
9	-do-	Satabhaya RF	377.18	318.668			318.668	318.668
10	Tangi	Sulia RF	1609.09	1608.007			1608.007	1397.007
11	-do-	Kuhudi RF	641.04	656.617			656.617	611.617
12	Khordha	Jariput DPF	464.19	421.622			421.622	195.622

1	2	3	4	5	6	7	8	9
13	-do-	Kerang DPF	121.6	100.895			100.895	100.895
14	-do-	Mandalsingh DPF	317.6	313.12			313.12	313.12
15	-do-	Brahmanidei DPF	730.8	753.666			753.666	633.666
16	-do-	Puinchia DPF		251.121			251.121	201.121
17	-do-	Duburi DPF	400.4	339.197			339.197	132.692
18	Tangi	Nargoda DPF	1020	599.724			599.724	539.724
19	-do-	Rameswar DPF	481.2	687.484			687.484	427.484
20	-do-	Jalbhar DPF	399.2	799.708			799.708	719.708
21	-do-	Kadambajhar DPF	474.8	436.354			436.354	386.354
22	-do-	Kandagadia DPF	212.4	208.243			208.243	138.243
23	-do-	Chakadapathar DPF	994	1005.536			1005.536	744.536
24	-do-	Kunjuri DPF	449.2	384.889			384.889	299.889
25	-do-	Badapari DPF	254	265.677			265.677	170.677
26	-do-	Bagheiput DPF	84.4	63.345			63.345	63.345
27	-do-	Nalsingh DPF	554.8	619.138			619.138	594.138
28	-do-	Bhusandpur DPF	778.8	821.628			821.628	431.628
29	-do-	Kaithapalla DPF	272.8	294.569	0.923		293.646	138.646
30	Balugaon	Sandhamal DPF	1511.2	1495.097			1495.097	1410.097

1	2	3	4	5	6	7	8	9
31	-do-	Solari DPF	1171.2	1114.705			1114.705	974.705
32	-do-	Bhaleri DPF	807.6	907.221		0.875	906.346	741.346
33	-do-	Jharana DPF	1925.2	1957.402			1957.402	1727.402
34	-do-	Champagarh DPF	869.6	433.493			433.493	323.493
35	-do-	Bhatapada (Block No.41) DPF	536.4	280.025	1.325		278.70	183.70
36	-do-	Chulijhinka DPF	536.4	554.273			554.273	492.273
37	Delanga	Beguniapada PRF	32	58.236			58.236	58.236
38	-do-	Kumuka PRF	214	210.951		2.03	208.921	57.921
	Total		**23305.95**	**22736.496**	**5.045**	**3.4175**	**22728.036**	**18087.8985**

During this plan period the Divisional Forest Officer should attempt to cover the areas which have less than 40% crown density cover under Joint Forest Management by the formation of Vana Surakshya Samities (VSS) as per the JFM Resolution of the Govt. After that the prescriptions of this working circle will then be applicable to these forest areas.

15.2 GENERAL CHARACTERISTICS OF VEGETATION:

The forest blocks included in this Working Circle are mostly open mixed miscellaneous forests which are in various stages of degradation. The crop density varies from 0.1 to 0.4 and these forest blocks are generally found in close proximity to human habitation. Matured trees may be available in a scattered manner in some pockets of these forest blocks interspersed with pole crop and bushy growth. The young shoots are affected due to frequent fires and grazing over the area.

The detailed description of the vegetation has been dealt in Part-I of this plan. The forest blocks of this working circle are spread over all the ranges. The forests are mainly of two types.

(1) Sub- group 3.C. North Indian tropical moist deciduous forests.

3.C/C1(d) Peninsular (coastal) Sal forests.

3.C/231 Northern secondary moist deciduous forests.

(2) Sub-group 5.B. Northern tropical dry deciduous forests.

5.B/C1(c) Dry peninsular Sal forests.

5.B/D31 Dry deciduous scrub forests.

The main species found in the North Indian tropical moist deciduous forests are *Acacia catechu, Zizyphus xylocarpa, Zizyphus mauritiana, Boswellia serrata, Terminalia tomentosa, Gardenia sps, Holarrhena antidysenterica, Woodfordia fructicosa, Carrisa caranda, Lannea coromandelica, Phoenix sylvestris, Randia malabarica, Cleistanthus collinus*, *Diosporyros melanoxylon, Cassia fistula, Lagerstroemia parviflora,* etc. The lower canopy includes *Ageratum corlyzoides, Alangium salvifolium, Ixora arborea, Gardenia gummifera, and Mimosa pudica.* The important climbers are *Combretum decandrum, Butea superba,* etc. Sal and Bamboo are also present here and there.

The important species Northern tropical dry deciduous forests are *Terminalia tomentosa, Anogeissus latifolia, Pterocarpus marsupium, Bombax ceiba, Dalbergia paniculata, Lannea coromandelica, Terminalia bellirica, Madhuca indica, Boswellia serrata, Adina cordifolia, Ficus sps., Albizia lebbeck, Schleichera oelosa, Stereospermum colais, Mitragyna parviflora,* etc..The vegetation is mostly open with sufficient root stock and some natural regeneration. These blocks are found in close proximity to human inhabitation and hence involvement of the forest fringe dwellers through JFM is of paramount importance in this circle.

15.3 TREATMENT SERIES, TREATMENT SECTIONS AND AREA ALLOTMENT:

The forest is divided into different treatment series after assessment of the growing stock. A site specific treatment plan is prepared. In case of JFM, Micro plans are to be prepared and got approved before taking up the operation.

The area allotted to this WC is **18087.8985** Ha. according to the GIS data given by NRSA, Hyderabad. This Working Circle is covering 11 no. of RFs, 25 no.of DPFs, 02 no. of PRFs which has been shown in Table No. 15.2. To facilitate proper and systematic treatment to the degraded forest 12 Nos. Treatment Series have been constituted. These series have been constituted taking into account the Silvicultural operations to be carried out and the administrative feasibility. Care has been taken to restrict the series as far as possible within the Range jurisdiction to which a particular block belongs. Each Treatment Series is divided into 10 coupes to synchronize with the Plan period of 10 years. These Treatment series with annual treatment coupes have been shown in the management map. The area allotted to each treatment series is furnished in **Table No. 15.6 to 15.17**.

This working Circle covers 11 RFs, 25 DPFs, 02 PRFs. The detailed Range wise abstract of this Working Circle is given in the **Table No.15.2**

Table: 15.2 RANGEWISE ABSTRACT OF REHABILITATION WORKING CIRCLE

Sl. No	Name of Range	Number of Forest Blocks			Area allotted in this Plan (in Ha.)			
		RF	DPF	PRF	RF	DPF	PRF	Total Area in Ha.
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	Balugaon	-	7	-	-	5853.016	-	5853.016
2	Tangi	2	12	-	2008.624	4654.372	-	6662.996
3	Ranpur	5	-	-	2536.336	-	-	2536.336
4	Khordha	4	6	-	1342.2775	1577.116	-	2919.3935
5	Delanga	-	-	2	-	-	116.157	116.157
	Total	**11**	**25**	**2**	**7010.23**	**14898.50**	**116.157**	**18087.8985**

15.4 TREATMENT TYPE:

This Working Circle consists of forest areas degraded and eroded in varying degrees and needing site specific treatment. All areas may, therefore, not require uniform treatments. The areas included in this Working Circle, may be classified into the following two broad types.

Type- I:

This type of area includes the forest which has moderate to good regeneration of the major species and has fairly good rootstock (say 250 and more stumps/ha) present. The terrain here is gentle or with moderate slope. These forest areas were subjected to heavy biotic interference which has led to the degradation of the forest crop. The focus of intervention here is to encourage the establishment of natural regeneration so as to result in quick closure of the canopy. This will by itself improve the erosion status of these forests. But these areas will generally require some other soil and moisture conservation measures, gap plantation and strict protection against illicit felling and forest fires. Controlled grazing may be allowed in some areas where the tree crop has become pole size. If however fodder development operations can also be taken up then the local people should be encouraged to cut/ collect fodder rather than allowing cattle to freely graze. Climbers interfering with the growth of sound trees should be removed. Tree stumps shall be dressed or removed with a view to promote growth of shoots or create space for natural regeneration.. In some areas, singling of coppice shoots may be required to promote the most promising ones at the cost of weak shoots/ stems. In other areas, cleaning operations may be necessary to free regeneration from undesired growth of weeds.

Type II:

Includes those areas where forest growth exists, but the density of forest crop and regeneration status is poor. The extent of plain/flat area is less compared to the extent of steep slopes and hilly area. In many places the hills are exposed and the vegetation is present only on the lower contours. These areas often have large gaps without vegetation. Site degradation is more than that in Type I. Type II areas shall require intensive soil and moisture conservation measures along with some cleaning operations. The soil nutrient status is generally poor in these areas. Artificial regeneration by gap plantation and soil and moisture conservation measures is required.

15.5 SPECIAL OBJECTIVES OF MANAGEMENT:

The following special objectives of management are set for the Working Circle which is within the ambit of the general objectives of management.

(a) to conserve and improve the existing forest cover by suitable cultural operations and afford adequate protection for developing the same into better forest stands for meeting essential national heads.
(b) to rehabilitate the degraded forest by adopting suitable Silvicultural operation like cleaning, climber cutting, singling out of multiple shoots of principal species to obtain quick growth.
(c) to restock the existing forest by gap planting / regeneration.
(d) to conserve the soil and moisture by adopting various measures.
(e) to improve the carbon stock in the forest by adopting different Silvicultural methods.
(f) to ensure strict fire protection and restriction from grazing which will help the seedling, sapling and coppice shoots to establish.
(g) to improve the micro climatic and micro edaphic factors for meeting the growing ecological needs.

(h) to restock barren areas through artificial regeneration with most desirable indigenous species.

(i) to increase the bio-diversity and heterogeneity in the forest crop by encouraging natural regeneration and through artificial regeneration.

(j) to take up Silvicultural thinning wherever required so that villagers involved in protection will get some thinning materials as intermediate yield.

(k) to manage the fringe forest in participatory mode by adopting JFM.

15.6 ANALYSIS AND VALUATION OF CROP:

The vegetation of the forest blocks allotted to this working circle is degraded and the open spaces are covered with weeds like Eupatorium, Lantana etc. In all the forest blocks allotted to this Working Circle, the study on vegetation, crop condition and extent of erosion, degradation has been conducted. Detailed assessment of growing stock, biodiversity and regeneration study has been carried out in all these blocks. As already mentioned, there exists variation in the crop condition in the different blocks included in this circle. These blocks require treatment to promote natural regeneration and also artificial regeneration in areas where there are permanent blanks. Simultaneously appropriate treatment will be required to conserve the soil and moisture. Some rehabilitation work has been taken up in the past but the forest crop in some areas needs further treatment supplemented with Silvicultural cleaning and gap planting.

15.7 SILVICULTURAL SYSTEM:

The prime objective of this Working Circle is to restock these forest blocks and to reduce the biotic pressure due to which these blocks have become degraded. No exploitable trees will be removed except the dead and uprooted trees. No formal Silvicultural system is prescribed. However, to achieve the major objectives, the existing forest will be supplemented by

removing high stumps, cutting of climbers interfering the growth of principal species, gap planting, and intensive soil & moisture conservation measures. In addition steps will have to be taken for block planting along with tending and regeneration cleaning of the existing crop, and also to protect the area from grazing, theft and fire with the active support and involvement of the people.

15.8 ROTATION AND CONVERSION PERIOD:

As timber production is not a consideration in this working circle, no rotation period or conversion period is prescribed. As part of the rehabilitation treatment removal of dead, fallen trees and thinning in very congested pole crop is prescribed as per the prescription of site specific treatment plan. However 10 years of rotation period will be maintained for rehabilitation of the area.

15.9 REHABILITATION TREATMENT:

15.9.1 Treatment plan:

A site specific treatment plan has to be developed before taking up any treatment of the area. Micro plans for VSS allotted areas should be studied in case, the VSS allotted area forms part of the rehabilitation treatment area. These site specific treatment plans will be made in order as to achieve the prime objectives of management of this Working Circle. The concerned Range Officer shall prepare an Annual Treatment Plan in the 0^{th} year aiming the treatment to be taken up at the site in the next 3-4 years. The Annual Treatment Plan shall include all vital information like,

a) Site identification i.e. Forest block/ Compartment. No.
b) Area and Treatment Map,
c) Site category (i.e. Type I, II)
d) Site characteristics (terrain, slope, drainage, soil type and depth),
e) Vegetation and extent of regeneration status
f) Extent of degradation of site/and other item of work,
g) Year of operations (including maintenance, if any),
h) Major operations to be undertaken,
i) Cost norms and a calendar of operations

The Treatment Plan shall also include provisions for monitoring of the execution of operations, e.g. operations actually performed, costs incurred, time schedule followed and the overall results of operations. The ACF of the Division shall check the annual action plan and which will be approved by the DFO. Range-wise abstract of treatment plans will be sent to the Regional Chief Conservator of Forests for information.

15.9.2 Artificial Regeneration:

Depending upon the local factors, particularly soil condition, the species to be artificially raised shall be carefully selected for gap plantation and block plantation. Since the primary objective is to restock these areas and to improve the existing forest growth, preference should be given to local indigenous species that have the best potential to adapt to these sites. At the same due consideration shall be given to raising of bamboo, NTFP species including fruit bearing and medicinal plant species. Generally species like Asan, Arjun, Mahula, Bamboo, Teak, Khair, Babool, Karanja, Amla, etc are suitable for different areas proposed in this Working Circle. Some indigenous species which have faster rate of growth which may be considered are *Cedrela toona, Ailanthus excelsa, Gmelina arborea, Terminalia tomentosa, Trewia nudiflora, Kydia calycina, Albizzia lebbek, Pterocarpus marsupium, Michelia champaca, Emblica officinalis.* In areas close to villages Ficus species and fruit bearing species like Mango, Jack fruit, Tamarind, Mahua, Karnj, Neem Kusum and others shall be tried. On much eroded and degrades sites species like Kahir, Acacia leucophloea, Zizyphus, Aegle marmelos, Babul and Agave shall be tried along bunds and gullies. A list of species that can be grown for treatment of different sites in this working circle is presented in **Table No :15.3** (Source: Handbook of Afforestation technique by Sri R. C. Ghosh)

Table: 15.3 TREE SPECIES SUITABLE FOR PROBLEMATIC SITES

Site	Measure To Be Taken	Species To Be Planted
1	2	3
Ravine	1. Soil and water conservation measures 2. Full protection from grazing and fire 3. Safe disposal of run off 4. Grassland development 5. Afforestation	*Dalbergia Sissoo, Albizzia lebbek, Prosopis juliflora, Accasia Catechu, Acacia niloteca, Azadirachta indica, Agave 280xcels280na, Agave sisalana, Eulaliopsis binata*
Laterite Soil	1. Soil and water conservation measures 2. Full protection from grazing and fire 3. Afforestation	*Dendrocalamus strictus, Madhuca indica, Acacia auriculiformis, Bombax ceiba, Soymida febrifuga, Cleistanthus collinus, Albizzia lebbek, Agave spp, Cassia siamea, Hardwickia binata, Azadirachta indica, Acacia nilotica, Acacia leucophloea, Derris indica, Dalbergia sisoo,Tamarindus indica, Eulaliopsis binata, Ailanthus 280xcels, Acacia catechu.*
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 2. Planting of tall plants 3. Application of anti termite chemicals 4. Early planting 5. Drainage	*Anthocephalus chinensis, Syzygium cumini, Terminalia arjuna, Bombax ceiba, Lagerstroemia speciosa, Dalbergia sisoo, Derris indica, Acacia nilotica.*

15.9.3 Grass and Fodder:

For giving treatment to the barren blank areas and the areas of exposed soils on eroded patch grass planting is preferred. Local and indigenous grasses should be preferred. Several studies have been undertaken for plantation of grasses on eroded sites by the Indian Council of Agricultural Research (ICAR). A list of grasses suitable for control of soil erosion is presented in **Table No: 15.4** (Source: The grass cover of India by P.N. Dabadghao and R.A. Shankar Narayan, ICAR)

Table: 15.4 SUITABLE GRASS SPECIES FOR DIFFERENT SOIL

Species	Type	Habitat Factor
1	2	3
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	Fodder	Grows in semi arid zone and sandy soil, PH 7.5 to 7.7.
Chrysopogon aciculatus	Fodder	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 stabilization 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, PH4.2
Cymbopogon coloratus	Non-fodder	Occurs on a variety of sites of dry areas having gravelly to sandy loam exposed rocks, acidic to neutral soil on hill and plains
Cymbopogon jwarancusa	Non-fodder	Prefers level to hilly topography, sandy and rocky soil, PH6.5 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 land prefers sandy loam to loamy soil moist areas
Dichanthium caricosum	Fodder	A species of level land prefers sandy loam to loamy soil moist areas
Dimeris fuscescens	Fodder	Prefers good drainage and permeability, PH4.2
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

Species	Type	Habitat Factor
1	2	3
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, PH7.1 to 8.5
Ischaemum timorense	Fodder	Damp land
Iseilema spp	Fodder	Low lying area, black soil, PH 6.1 to 7.4
Lasiurus spp	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 spp		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

Basing on the research findings of the ICAR, the list of grasses suitable for soil conservation measures in this Division are presented in **Table No 15.5**

Table No. 15.5 GRASSES SUITABLE FOR THE DIVISION

Habitat Factor	Species	Type
Red Soil	Chrysopogon fulvus	Fodder
Black Cotton Soil	*Chrysopogon fulvus*	Fodder
Heavy Black Soil	*Iseilema spp*	Fodder
Skeletal Soil	*Eremopogonfoveolatus*	Fodder
Deep Soil	*Sehima nervosum*	Fodder
Sandy Soil	*Sporobolus marginatus*	Fodder
Eroded Soil	*Heteropogon contortus*	Non-fodder
Wide range of Soils	*Cymbopogon martini*	Non-fodder
	Cynodon dactylon	Fodder

15.10 HARVESTABLE DIAMETERS:

There is no proposal to harvest tree from the allotted area. No harvestable diameter / Girth are prescribed. Bamboo clumps will be treated during Silvicultural cleaning process. Old bamboo above 4 years will be removed departmentally following the Bamboo Cutting Rules.

15.11 TREATMENT CYCLE / REHABILITATION CYCLE:

The cycle has been fixed at 10 years, which synchronizes with the Plan period.

15.12 CALCULATION OF YIELD:

No yield is prescribed due to Rehabilitation of degraded forests as no harvest is prescribed for this Working Circle. Hence Calculation of Yield / Safety measures and Yield Regulation is not prescribed for this Working Circle / Forest Blocks.

15.13 TABLE OF FELLING/TREATMENT: (DIVISION IN TO ANNUAL TREATMENT AREAS)

The Rehabilitation Treatment Series has been constituted excluding the village forest area of 924.62 Ha. Each Rehabilitation treatment series has been divided in to 10 annual treatment areas or coupes and have been shown in the management maps. The sequence of treatment of the different blocks and compartments has been shown in the following Tables No: 15.6 to 15.17. Care has been taken to treat the rehabilitation area on a micro watershed basis and the blocks and compartment have been selected for treatment based on the micro watershed they occur in. The objective in doing so is to ensure that after treatment of the forest area of one micro-watershed then only the next is taken up. This GIS based selection of annual area has been based on the slope, contour, drainage, forest block and the management & administrative layers. The annual coupes shall be attended as per the sequence prescribed in the plan. The Table gives the annual coupe for each rehabilitation series with its number and the year of treatment along with the name of the forest block.

Table No.15.6		BHATAPADA TREATMENT SERIES (BHP)				
Range	**Year**	**Coupe No**	**Block**	**Compt. No**	**Compt. area in Ha.**	**Coupe area in Ha.**
1	**2**	**3**	**4**	**5**	**6**	**7**
BALUGAON	2021-22	I	Bhatapada DPF	--	278.70	183.70
	2022-23	II	Chulijhinka DPF	--	196.837	180.837
	2023-24	III	-do-	--	83.668	70.668
	2024-25	IV	-do-	--	118.435	105.435
	2025-26	V	-do-	--	155.333	135.333
	2026-27	VI	Solari DPF	--	331.581	303.581
	2027-28	VII	-do-	--	200.361	172.361
	2028-29	VIII	-do-	--	213.271	185.271
	2029-30	IX	-do-	--	242.641	214.641
	2030-31	X	-do-	--	126.851	98.851
Total area of Bhatapada Treatment series.					**1947.678**	**1650.678**

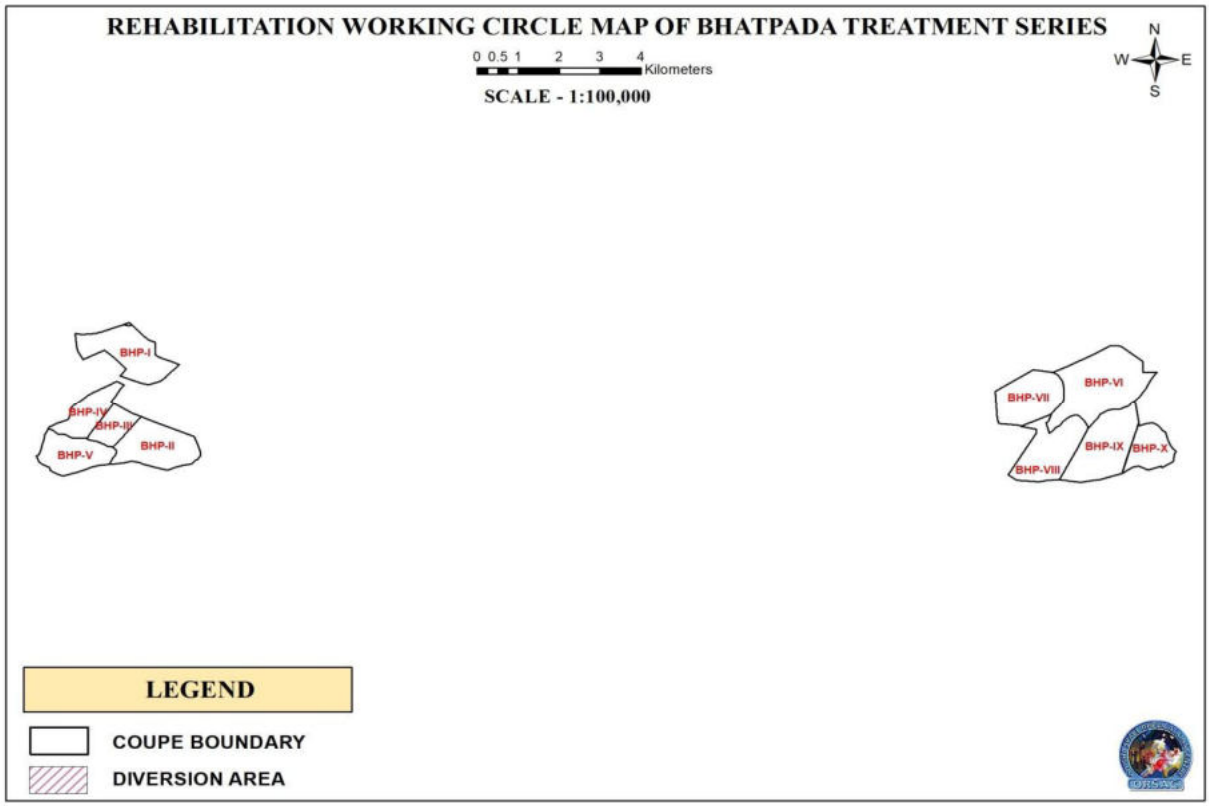


Table No. -15.7		CHAMPAGARH TREATMENT SERIES(CPG)				
1	**2**	**3**	**4**	**5**	**6**	**7**
BALUGAON	2021-22	I	Champagarh DPF	---	53.42	43.423
	2022-23	II	-do-	---	130.54	96.54
	2023-24	III	-do-	---	80.26	58.25
	2024-25	IV	-do-	---	90.79	68.80
	2025-26	V	-do-	---	78.48	56.48
	2026-27	VI	Bhaleri DPF	---	183.843	150.843
	2027-28	VII	-do-	---	146.048	113.048
	2028-29	VIII	-do-	---	178.748	145.748
	2029-30	IX	-do-	---	204.208	171.208
	2030-31	X	-do-	---	193.499	160.499
Total area of Champagarh Treatment series.					**1339.836**	**1064.839**

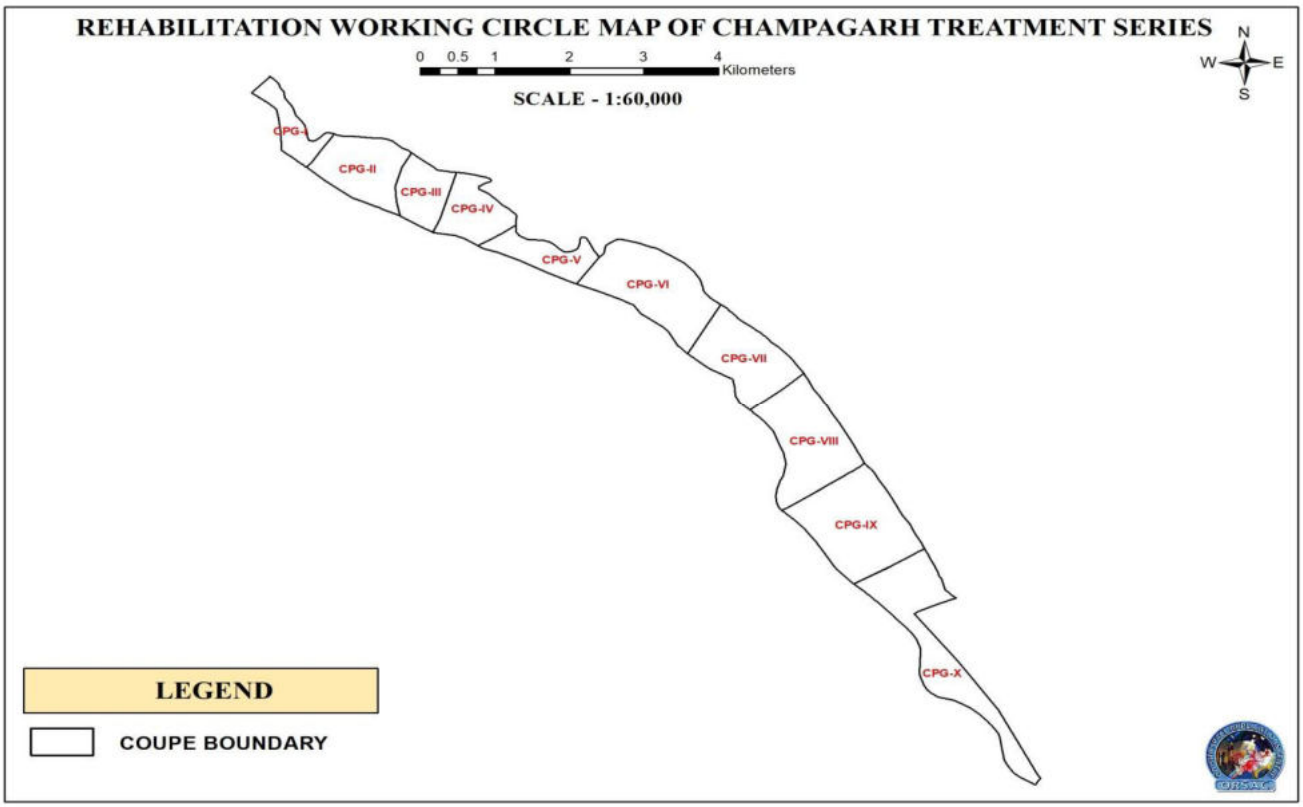


Table: No.15.8			JHARAN TREATMENT SERIES (JHN)			
1	**2**	**3**	**4**	**5**	**6**	**7**
BALUGAON	2021-22	I	Jharan DPF	---	157.265	134.265
	2022-23	II	-do-	---	193.465	170.465
	2023-24	III	-do-	---	142.268	119.268
	2024-25	IV	-do-	---	137.228	114.228
	2025-26	V	-do-	---	239.396	216.396
	2026-27	VI	-do-	---	252.96	229.96
	2027-28	VII	-do-	---	181.219	158.219
	2028-29	VIII	-do-	---	227.285	204.285
	2029-30	IX	-do-	---	158.355	135.355
	2030-31	X	-do-	---	267.961	244.961
Total area of Jharan Treatment series.					**1957.402**	**1727.402**

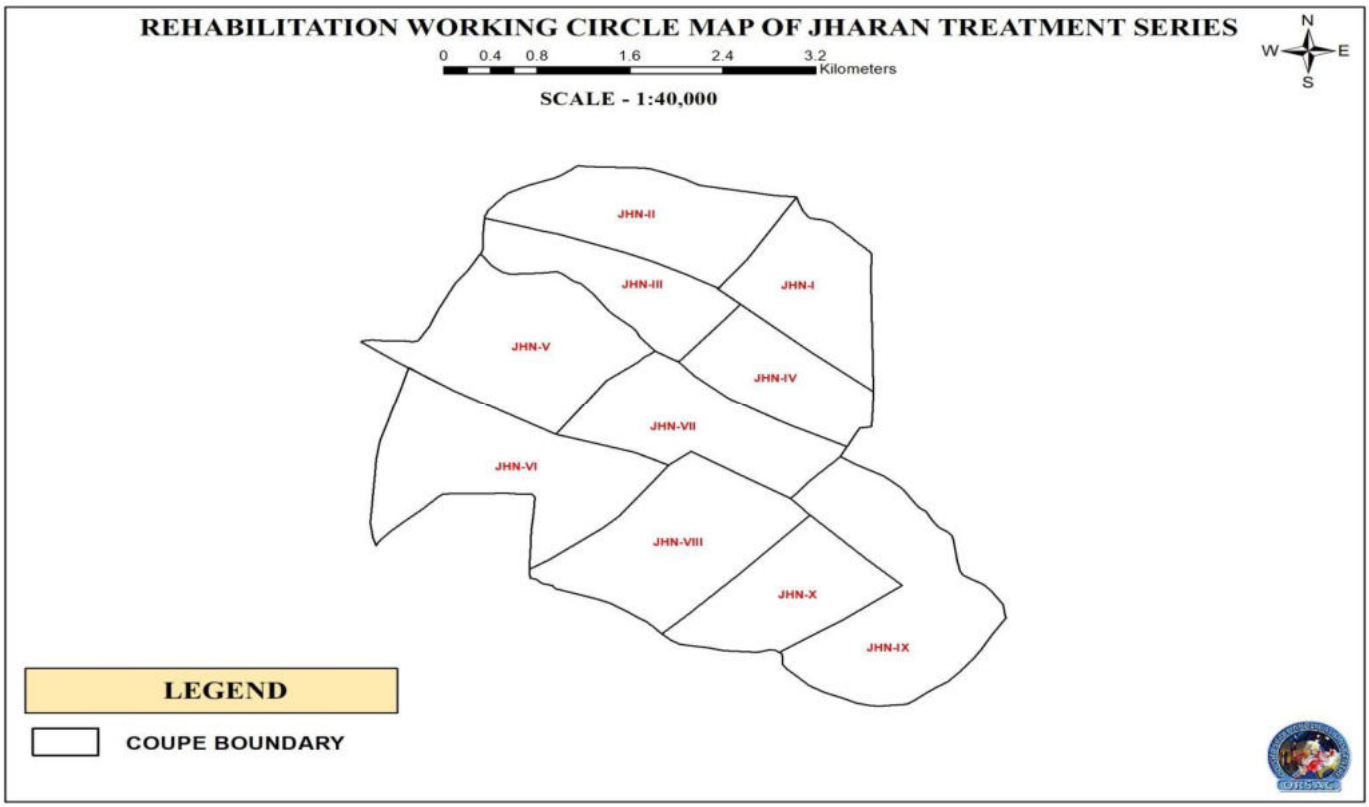


Table No: 15.9			SANDHAMAL TREATMENT SERIES (SDM)			
1	**2**	**3**	**4**	**5**	**6**	**7**
BALUGAON	2021-22	I	Sandhamal DPF	---	174.757	166.257
	2022-23	II	-do-	---	127.68	119.18
	2023-24	III	-do-	---	116.92	108.42
	2024-25	IV	-do-	---	116.83	108.33
	2025-26	V	-do-	---	195.32	186.82
	2026-27	VI	-do-	---	130.04	121.54
	2027-28	VII	-do-	---	182.03	173.53
	2028-29	VIII	-do-	---	143.83	135.33
	2029-30	IX	-do-	---	143.28	134.78
	2030-31	X	-do-	---	164.41	155.91
Total area of Sandhamal Treatment series.					**1495.097**	**1410.097**

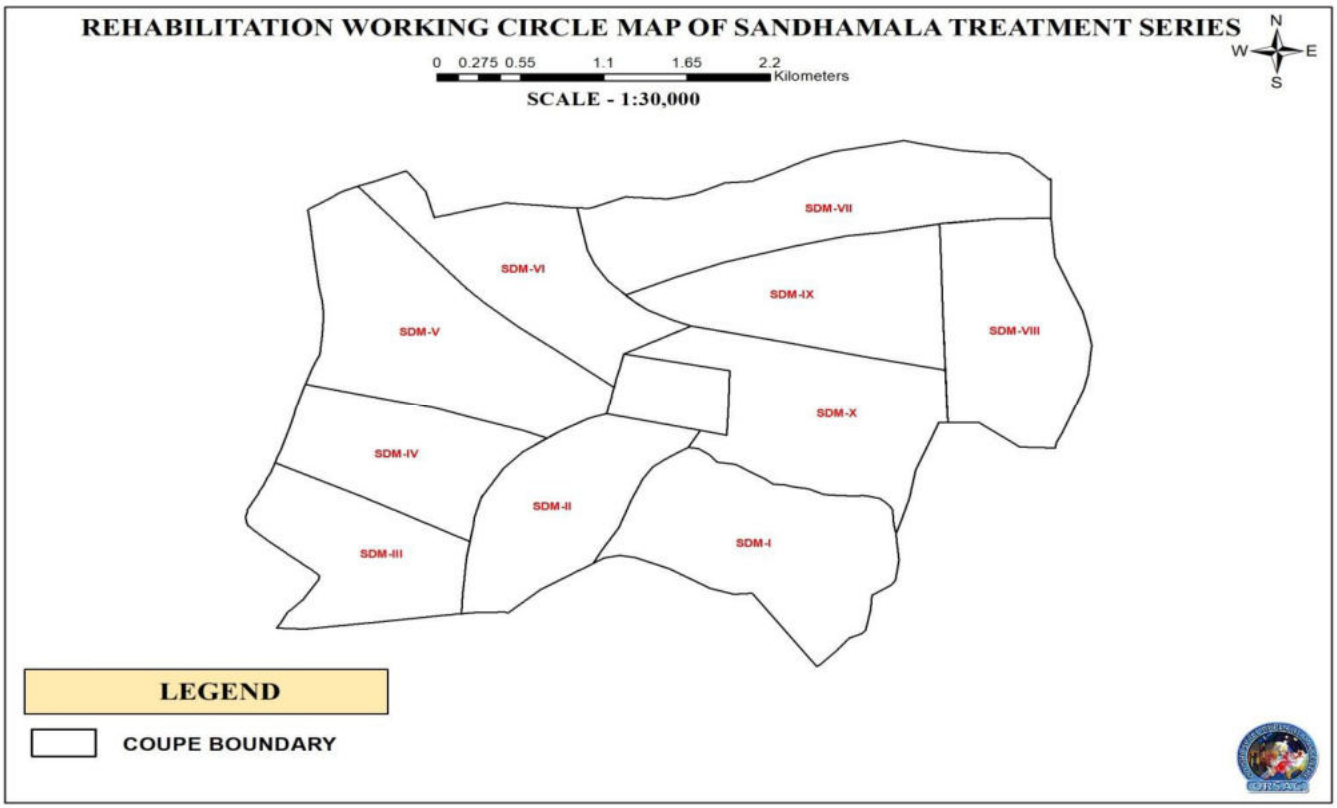


Table No. 15.10		CHAKADAPATHAR TREATMENT SERIES (CKP)				
1	**2**	**3**	**4**	**5**	**6**	**7**
TANGI	2021-22	I	Chakadapathar DPF	---	153.169	100.969
	2022-23	II	-do-	---	147.179	94.979
	2023-24	III	-do-	---	171.949	119.749
	2024-25	IV	-do-	---	255.95	203.75
	2025-26	V	-do-	---	277.289	225.089
	2026-27	VI	Kadamjhar DPF	---	147.458	130.778
	2027-28	VII	-do-	---	132.928	116.248
	2028-29	VIII	-do-	---	155.968	139.308
	2029-30	IX	Kaithapalla DPF	---	146.361	68.861
	2030-31	X	-do-	---	147.285	69.785
Total area of Chakadapathar Treatment series					**1735.536**	**1269.536**

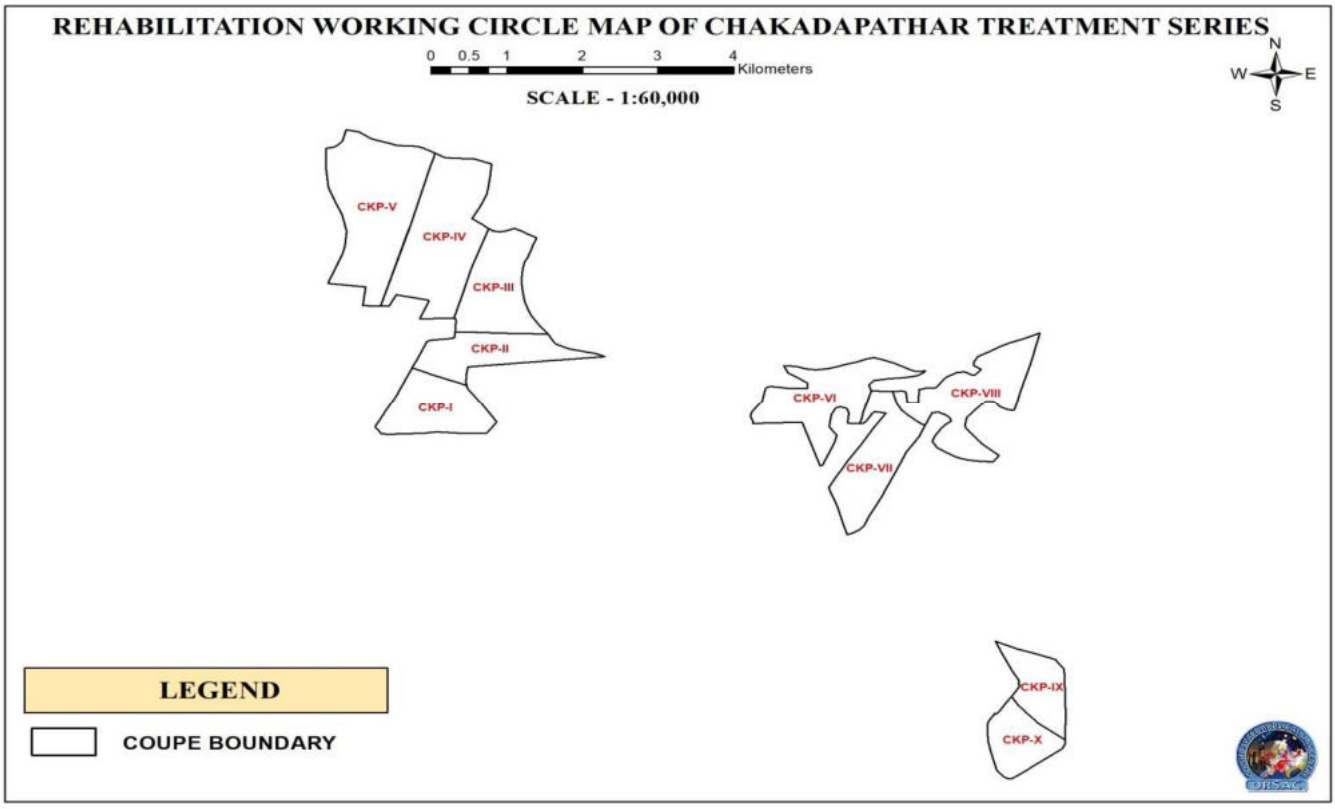


Table No15.11		BHUSANDPUR TREATMENT SERIES (BSP)				
1	**2**	**3**	**4**	**5**	**6**	**7**
TANGI	2021-22	I	Bhusandpur DPF	---	821.628	431.628
	2022-23	II	Kandagadia DPF	---	208.243	138.243
	2023-24	III	Badapari DPF	---	265.677	170.677
	2024-25	IV	Kuhuri RF	---	92.571	83.571
	2025-26	V	-do-	---	142.901	133.901
	2026-27	VI	-do-	---	142.082	133.082
	2027-28	VII	-do-	---	176.507	167.507
	2028-29	VIII	-do-	---	102.556	93.556
	2029-30	IX	Kunjuri DPF	---	192.444	149.944
	2030-31	X	-do-	---	192.445	149.945
Total area of Bhusandpur Treatment series					**2337.054**	**1652.054**

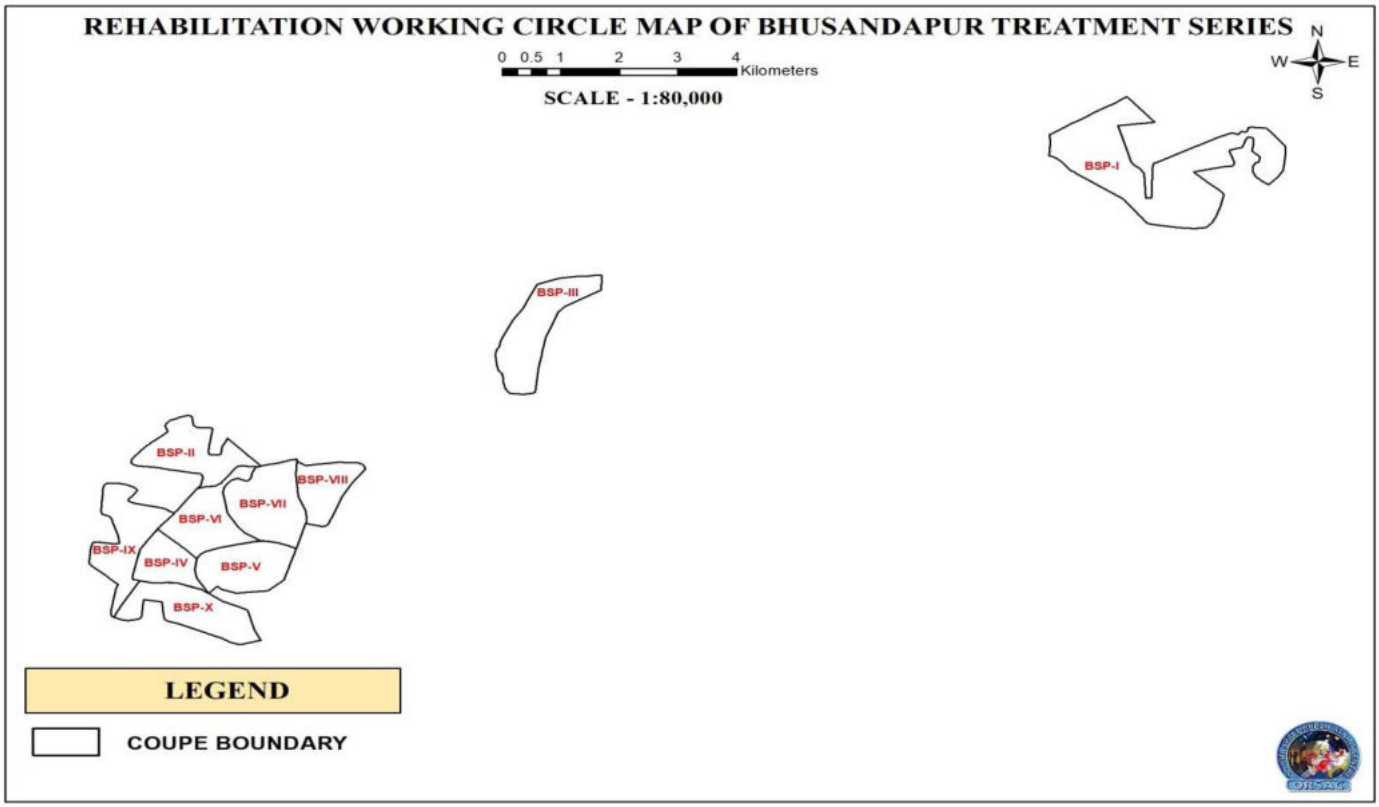


Table No. 15.12		MANINAG TREATMENT SERIES (MNG)				
1	**2**	**3**	**4**	**5**	**6**	**7**
RANPUR	2021-22	I	Maninag RF	1(P)	211.05	60.0
	2022-23	II	-do-	1(B)		66.05
	2023-24	III	-do-	2(P)	191.15	60.0
	2024-25	IV	-do-	2(B)		46.15
	2025-26	V	-do-	7(P)	206.39	206.39
	2026-27	VI	-do-	3	122.14	37.14
				4(P)	198.82	90.0
	2027-28	VII	-do-	4(B)	198.82	108.82
	2028-29	VIII	-do-	5	256.75	256.75
	2029-30	IX	-do-	6	324.27	239.27
	2030-31	X	-do-	7(B)	222.209	222.209
Total area of Maninag Treatment series					**1732.779**	**1392.779**

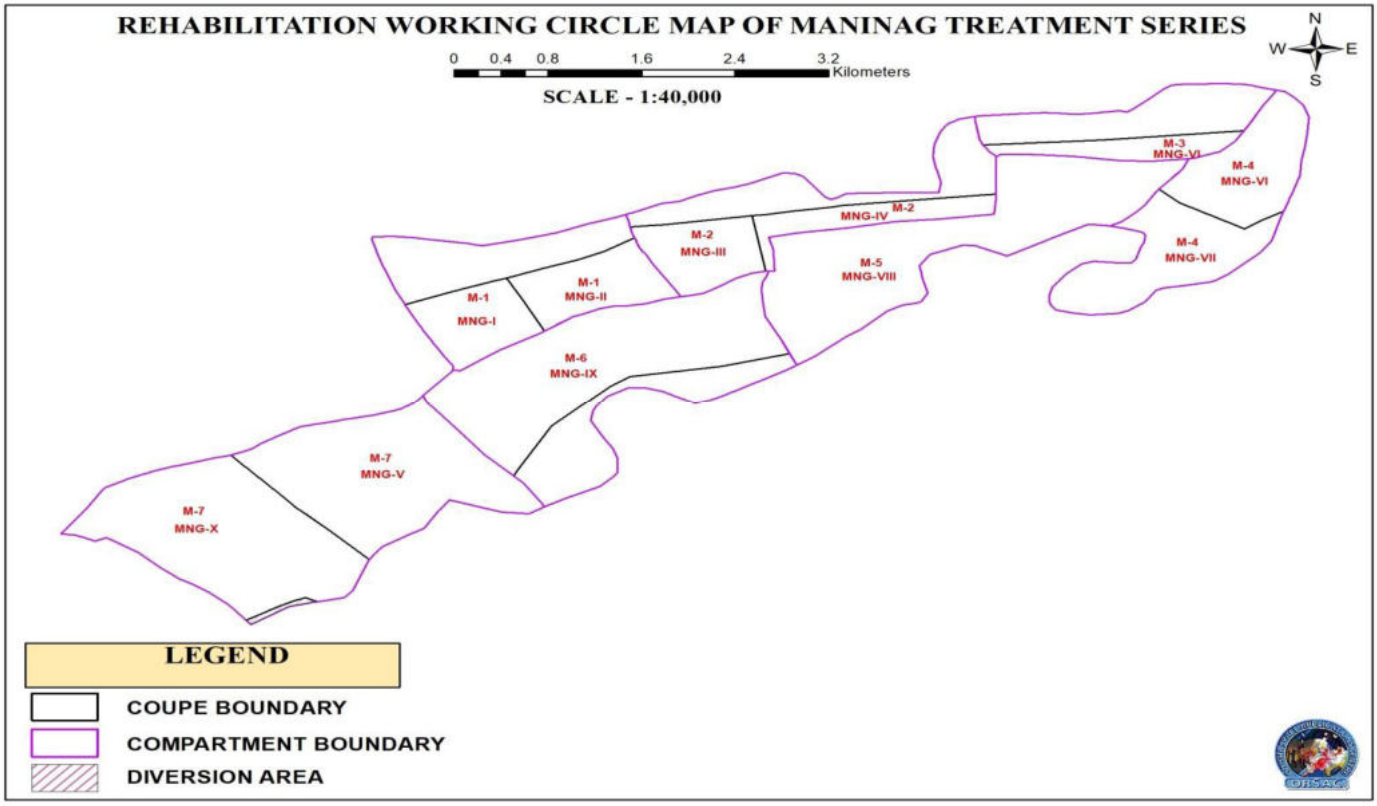


Table No. 15.13		NUAPADA TREATMENT SERIES (NPD)				
1	**2**	**3**	**4**	**5**	**6**	**7**
RANAPUR	2021-22	I	Dhani N RF	1	272.064	100.0
	2022-23	II	-do-	2 (P)	254.454	47.52
	2023-24	III	-do-	3	55.595	55.595
	2024-25	IV	-do-	4	176.824	176.822
	2025-26	V	Nuapada B RF	--	121.448	121.448
	2026-27	VI	Champagarh RF	--	226.79	226.79
	2027-28	VII	-do-	--	131.714	96.714
	2028-29	VIII	Satabhaya RF	--	162.246	162.246
	2029-30	IX	-do-	--	156.422	156.422
KHORDHA	2030-31	X	Mandalsingh DPF	--	313.12	313.12
Total area of Nuapada Treatment series					**1870.677**	**1456.677**

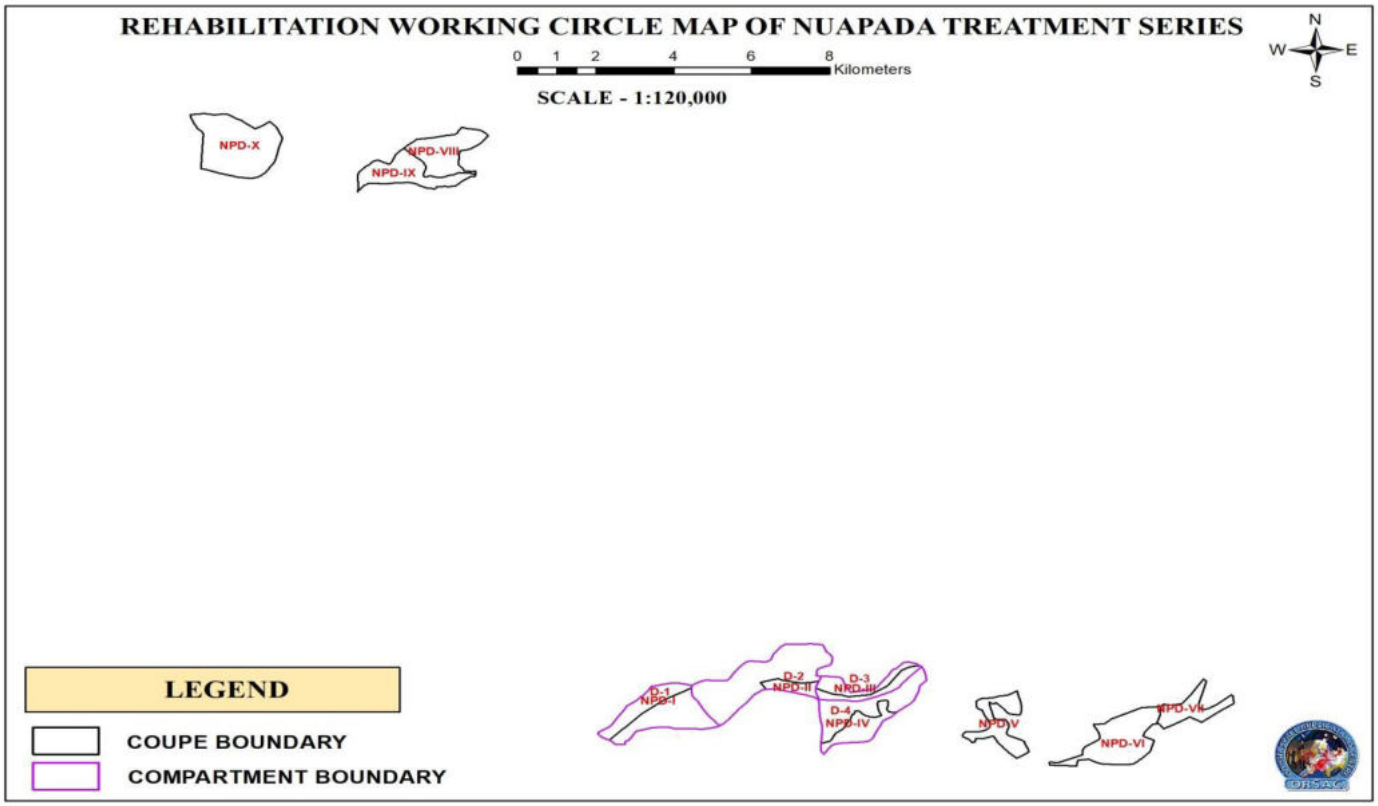


Table No. 15.14		MANIBANDHA TREATMENT SERIES (MND)				
1	**2**	**3**	**4**	**5**	**6**	**7**
KHORDHA	2021-22	I	Manibandha RF	--	76.382	76.382
	2022-23	II	-do-	--	125.018	125.018
	2023-24	III	-do-	--	111.259	91.259
	2024-25	IV	Nagapalli RF	--	305.107	305.107
	2025-26	V	-do-	--	254.573	254.573
	2026-27	VI	Brahmanidei DPF	--	188.00	128.00
	2027-28	VII	-do-	--	188.00	128.00
	2028-29	VIII	-do-	--	188.00	128.00
	2029-30	IX	-do-	--	189.66	116.976
	2030-31	X	-do-	--	132.69	132.69
Total area of Manibandha Treatment series					**1758.689**	**1486.005**

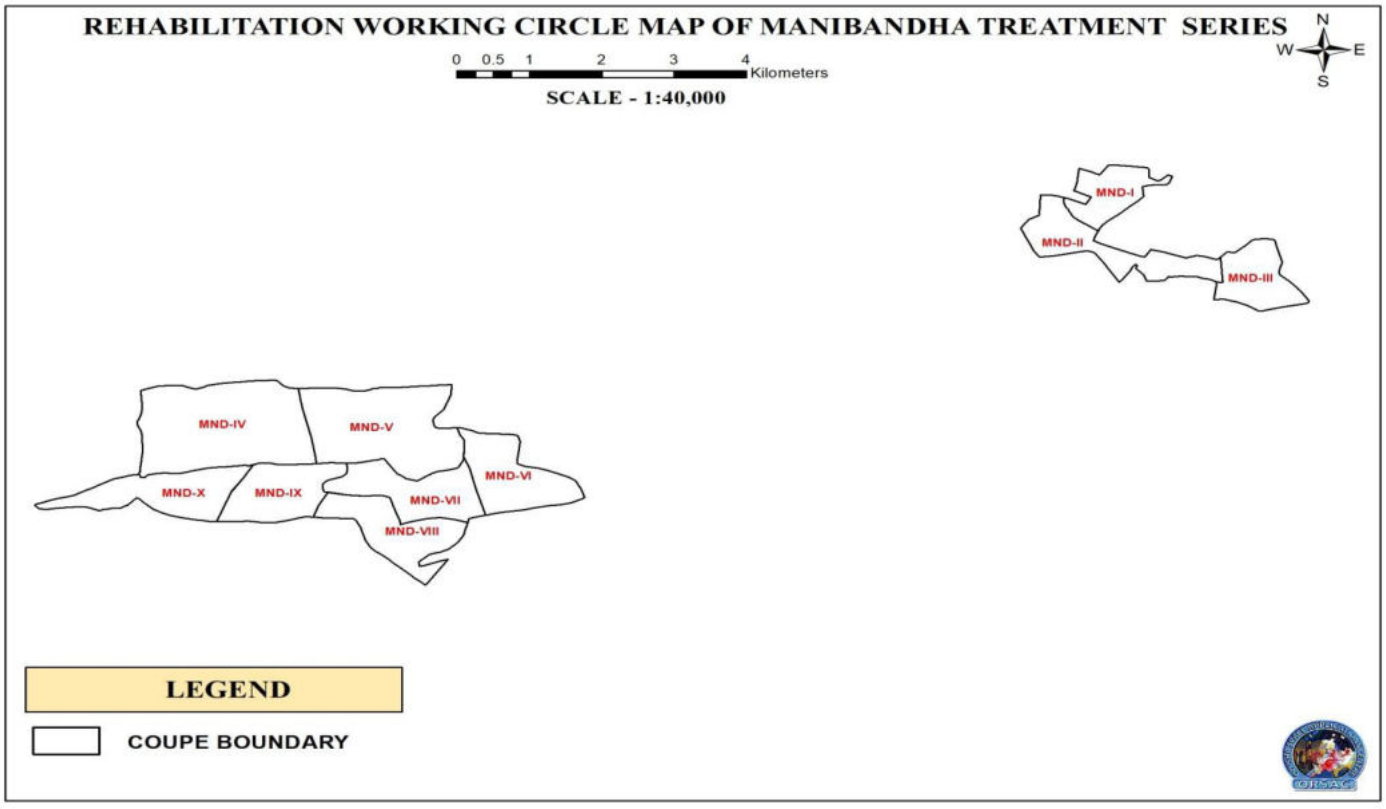


Table No. 15.15			BARUNEI TREATMENT SERIES (BRN)			
1	**2**	**3**	**4**	**5**	**6**	**7**
DELANGA	2021-22	I	Beguniapada PRF	---	58.236	58.236
	2022-23	II	Kumuka PRF	---	102.545	57.921
KHORDHA	2023-24	III	Duburi DPF	---	339.197	132.692
	2024-25	IV	Punichia DPF	---	100.0	100.0
	2025-26	V	Jayamangal RF	---	139.078	139.078
	2026-27	VI	Keranga DPF	---	100.895	100.895
	2027-28	VII	Barunei RF	---	444.373	204.0
	2028-29	VIII	-do-	---		146.8605
	2029-30	IX	Jariput DPF	---	421.622	195.622
	2030-31	X	Punichia DPF	---	251.121	101.121
Total area of Barunei Treatment series					**1957.067**	**1236.4255**

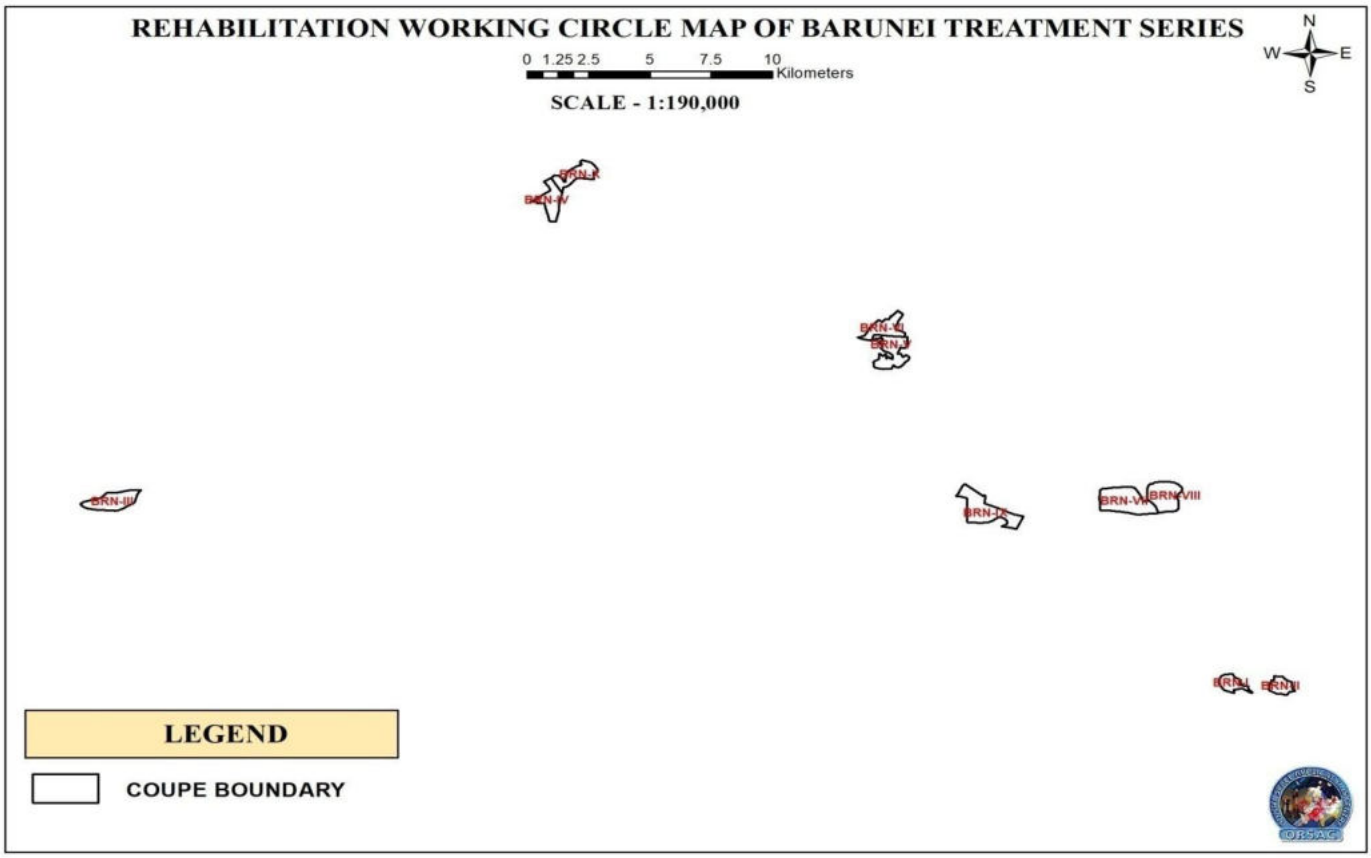


Table No. 15.16		SULIA TREATMENT SERIES (SUL)				
1	**2**	**3**	**4**	**5**	**6**	**7**
TANGI	2021-22	I	Sulia RF	---	96.801	96.801
	2022-23	II	-do-	---	140.174	140.174
	2023-24	III	-do-	---	104.351	104.351
	2024-25	IV	-do-	---	89.81	89.81
	2025-26	V	-do-	---	119.98	119.98
	2026-27	VI	-do-	---	246.817	146.817
	2027-28	VII	-do-	---	239.902	239.902
	2028-29	VIII	-do-	---	118.705	118.705
	2029-30	IX	-do-	---	269.714	158.714
	2030-31	X	-do-	---	181.753	181.753
Total area of Sulia Treatment series					**1608.007**	**1397.007**

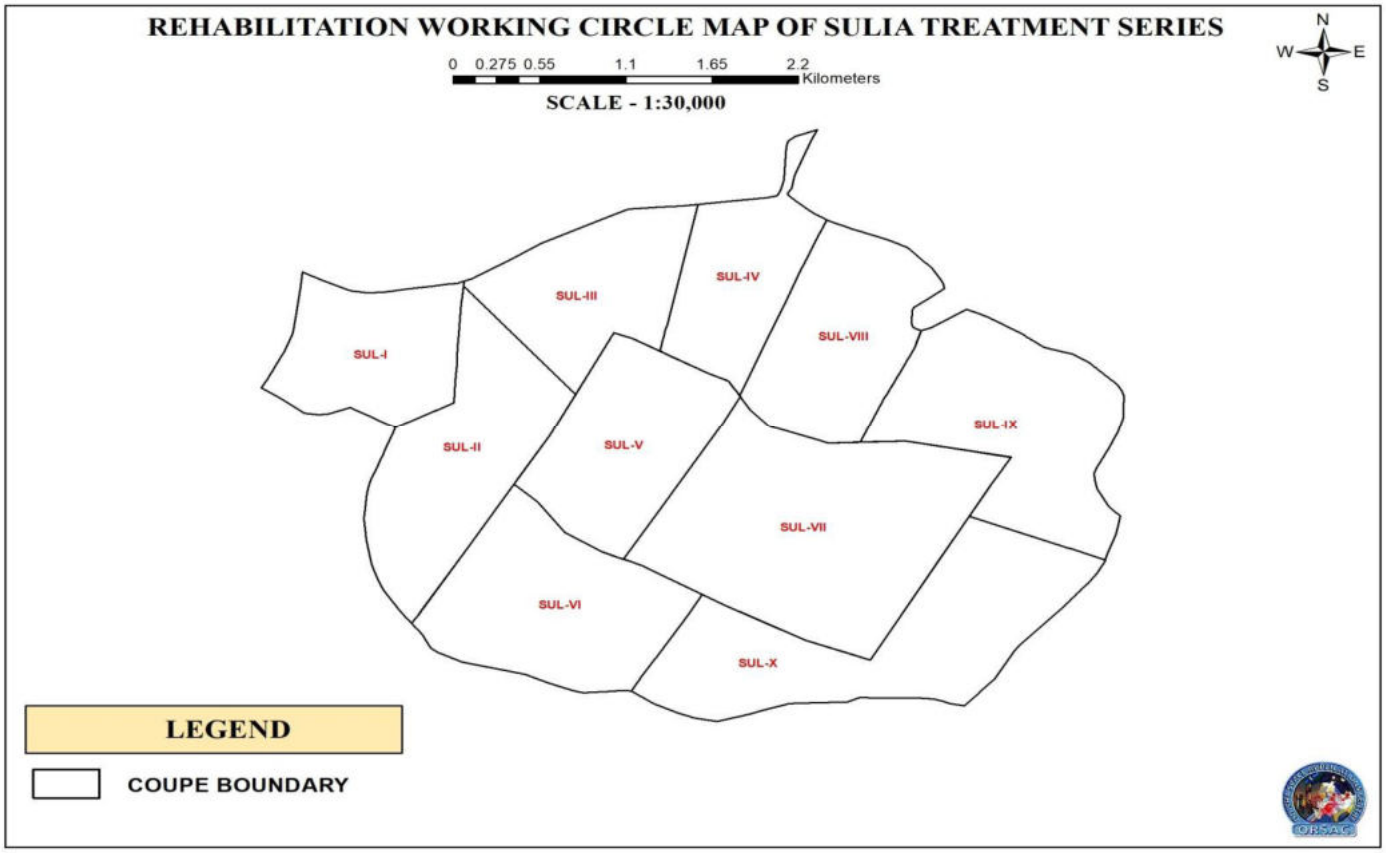
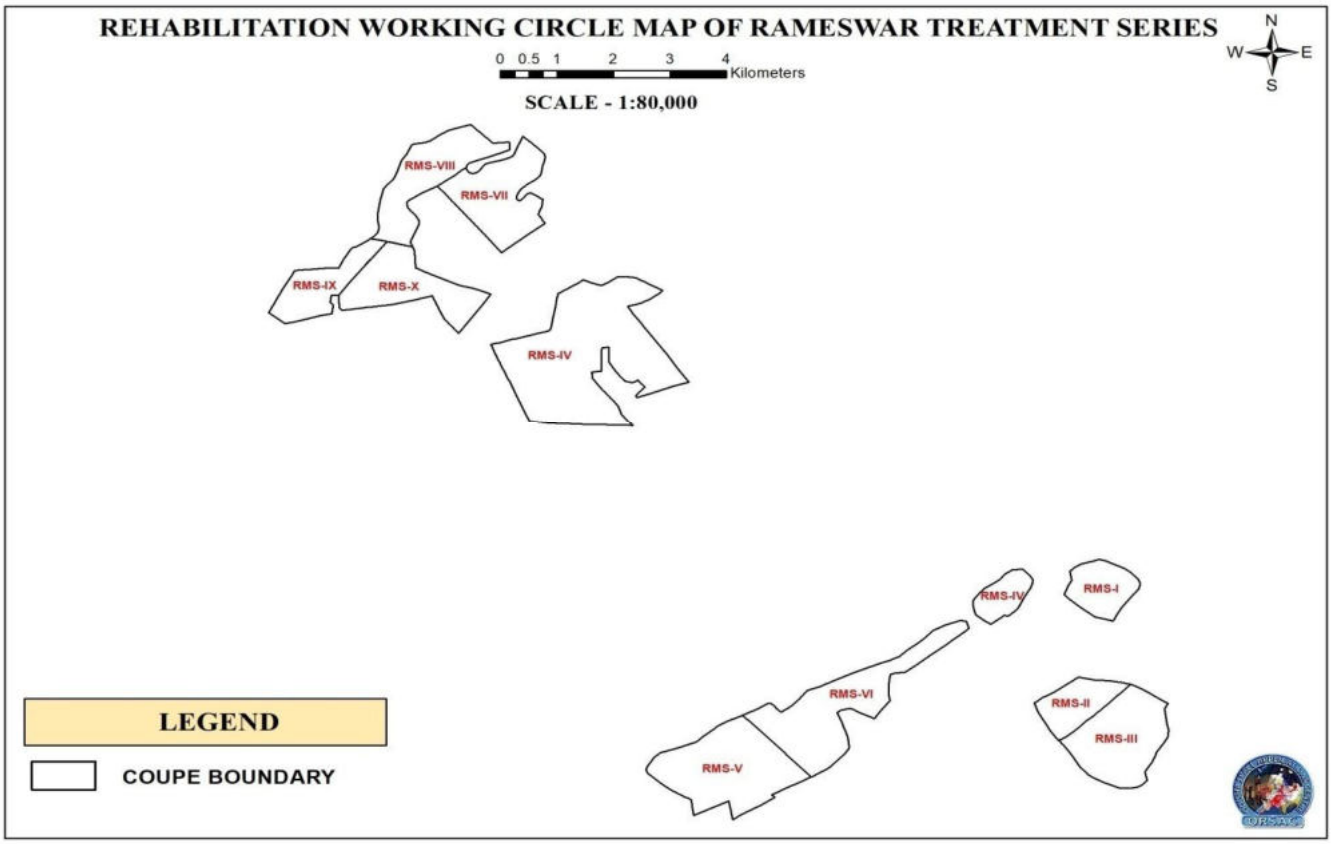


Table No. 15.17		RAMESWAR TREATMENT SERIES (RMS)				
1	**2**	**3**	**4**	**5**	**6**	**7**
TANGI	2021-22	I	Rameswar DPF	---	229.161	100.0
	2022-23	II	-do-	---	229.161	100.0
	2023-24	III	-do-	---	229.161	227.484
	2024-25	IV	Nargoda DPF, Bagheiput DPF	599.724 63.345	663.069	603.069
	2025-26	V	Nalasingh DPF	---	300.569	300.138
	2026-27	VI	-do-	---	318.569	294.0
	2027-28	VII	Jalbhar DPF	---	209.927	209.927
	2028-29	VIII	-do-	---	195.927	195.927
	2029-30	IX	-do-	---	203.927	123.927
	2030-31	X	-do-	---	189.927	189.927
Total area of Rameswar Treatment series					**2769.398**	**2344.399**



Abstract of Annual Rehabilitation Treatment series

Name of the treatment series	Compt. Area in Ha.	Coupe Area in Ha.
Total area of Bhatapada Treatment series.	1947.678	1650.678
Total area of Champagarh Treatment series.	1339.836	1064.839
Total area of Jharan Treatment series.	1957.402	1727.402
Total area of Sandhamal Treatment series.	1495.097	1410.097
Total area of Chakadapathar Treatment series	1735.536	1269.536
Total area of Bhusandpur Treatment series	2337.054	1652.054
Total area of Maninag Treatment series	1732.779	1392.779
Total area of Nuapada Treatment series	1870.677	1456.677
Total area of Manibandha Treatment series	1758.689	1486.005
Total area of Barunei Treatment series	1957.067	1236.4255
Total area of Sulia Treatment series	1608.007	1397.007
Total area of Rameswar Treatment series	2769.398	2344.399
Grand Total	**22509.22**	**18087.8985**

The detail area of different forest blocks of 12 Treatment series namely Bhatapada, Champagarh, Jharan, Sandhamala, Chakadapathar, Bhusandpur Rameswar, Maninag, Nuapada, Manibandha, Barunei, and Sulia are shown in relevant annexed therein maps.If the rehabilitation works could not be taken up due to any reason in one year, those areas will be taken up in the subsequent years in addition to the current year's area. If more funds are available then the area due for working in future should be taken up in the current year.

15.14 METHOD OF EXECUTING FELLING / TREATMENT:

The concerned Range Officer will prepare the site specific treatment plan in the year preceding the year in which the work is to be executed. This eco-restoration work will be done with a watershed approach preferably with the active participation of the local people. The following steps shall be taken for treatment under this working circle.

15.14.1 Demarcation of Annual Rehabilitation Coupe Areas:

(i) The annual treatment areas will be demarcated on the ground in the preceding season of treatment with small stone cairns of the half-meter height erected at visible distance on its periphery in case of blank patches or by the painting Coal tar rings on trees at breast height standing on the coupe line. Hence the clearance of the compartment line needs to be taken up before working of the coupes.

(ii) The rehabilitation coupes shall be indicated by sign boards at corners or at the points of intersection with roads, inspection paths and boundary lines of reserved forests. The signboards should contain the name of the treatment series, coupe number, its area, year of working and compartment number.

15.14.2 Rehabilitation Operations:

(i) Once the treatment plan has been prepared and approved, the works shall be carried out as per the requirements without any deviation. As far as possible, operations will be carried out in the JFM mode.

(ii) Silvicultural operations shall be carried out in the year of creation and preferably before the onset of monsoon. These operations will include singling out of the coppice shoots, retaining the most promising ones, rectification of the high stumps to encourage good coppice shoots and climber cutting retarding growth of desired species. Clearing out of invasive weeds and cleaning out of congestion and some light thinning may be carried subject to restrictions described as on above. In addition dead and fallen trees shall be removed from the annual coupe, if such trees are not required for wildlife purposes.

(ii) Artificial regeneration in the form of gap and block plantation shall be carried out after meticulous planning. Quality seedling shall be raised followed by other operations in accordance with the prescription of the Odisha Plantation Manual.

15.14.3 Silvicultural Treatments:

The following Silvicultural operation will be carried out in the area as per requirements of the site.

(i) Cutting of high stumps flush to the ground without any splitting to encourage coppice shoots.

(ii)Singling out of multiple coppice shoots to retain the most promising ones.

(iii) Removal of congestion by cleaning operations aimed at encouraging the growth of locally desirable species.

(iv) Adoption of few seedlings per Ha. of locally important and desirable species preferably indigenous species from the available natural regeneration by giving these species preferential treatment to others.

(v) Removal of invasive weeds like Parthenium, Lantana etc.

Wherever there is heavy congestion of forest growth, thinning operation shall be undertaken to encourage young and healthy trees. These operations will provide more growing space to the retained crop. These operations shall only be carried out if the condition of the crop warrants it and it will be carried out under the supervision of the Range Officer. The following conditions would apply:

- It should be restricted to the congested pole crop only and limited to the species with girth at breast height less than or equal to 75cms.
- Marking shall be done on the lines of 'C' grade thinning
- No thinning shall be carried out in open area nor any fruit bearing species shall be thinned out
- Thinning markings are to be done very sparingly and will require the prior approval of the DFO.

15.14.4 Treatment of bamboo clumps (Harvesting/De-congestion):

The treatment series containing bamboo bearing areas needs to be treated/ harvested/ de-congested and these should to be marked on map.

The bamboo clumps are very dense and in some areas at a congested stage due to non –working for a long period. The bamboo clumps are to be worked following bamboo cutting rules.

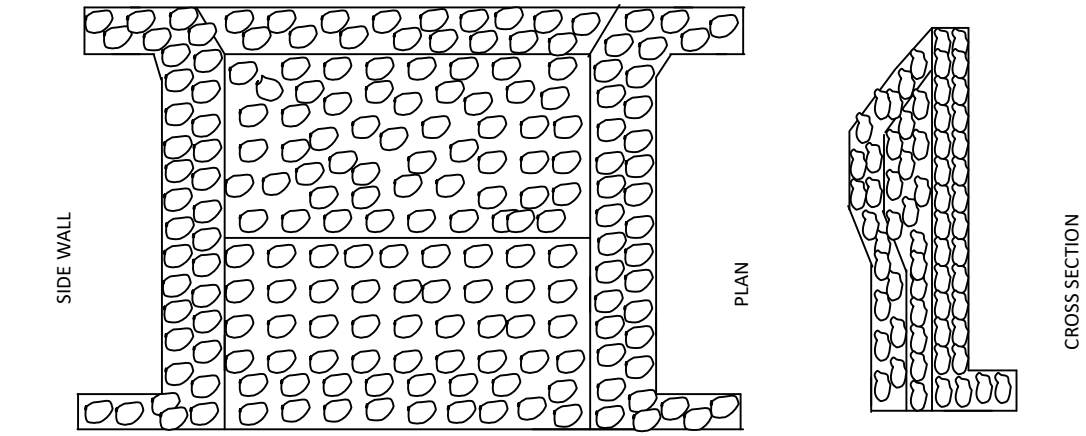
15.14.5 Soil and Moisture Conservation Measures:

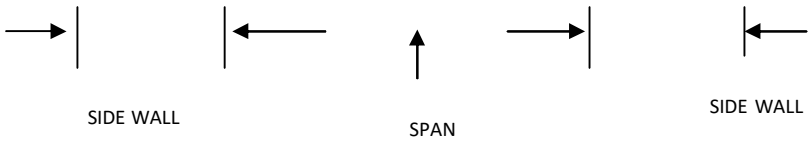
Soil and Moisture conservation measures in case of rehabilitation operations in Type II areas will be vital to the rehabilitation operations since most of these areas have steep slopes and are very much prone to soil erosion. Appropriate soil and water conservation measures shall be taken up to reduce the velocity of the rain water run off and to retain the humus and top soil as well. Measures like gully plugging, check dams, contour bunds, nallah bunding and vegetative bunds are prescribed.

15.14.6 Gully Plugging:

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. Earthen bunds should be provided in both sides of the structure. The estimated cost of check dams varies according to the site, material used, availability of materials and leading distance from construction sites. Height of the check dam should be regulated 1/3rd to1/2 of the gully depth. These check dams should be constructed at regular intervals depending on the gradient. More the steeper the slope more will be the No. of check dams required. More number of check dams will be required in Type II areas since the slopes are steep and the velocity of water runoff is high.

DESIGN OF A LOOSE BOULDER CHECK DAM





15.14.7 Gully plugging with vegetative material:

Gully plugging can also be done with vegetative material like brushwood depending on the availability of material, required for the sites. The gully beds should be planted with soil- binders like Sabai grass, *Vetiver* grass, and *Agave*. Generally for an ideal brushwood check dam, the height of the fall to be taken into consideration is 1 mt., for the maximum width and the depth of gully of 3 mts and 0.6 mts respectively.

15.14.8 Agave Planting, Palisading and Vegetative Bounding:

To counteract the force of water movement palisading with the available vegetative materials is to be done along the contour each at a distance of 10- 20 meters apart depending on the slope. It will be very idea to keep plantations of Avave in between the vegetative bounding with plantations of grass like Khus Khus, Napier grass, Sachrum, etc.

15.14.9 Contour Bunds:

Contour bunds are constructed along the contour to arrest the water velocity of surface flowing water. Grass turfing is given on the side slope and the 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 0.2 mt.

15.14.10 Staggered Trenches:

These trenches would be constructed along the contours. The trench size should be (2mt x 0.5 mt x 0.5 mt), in top, bottom and depth measurements. If it is undersize for any reason, more numbers of trenches should be dug out. The soil dug from the trenches should be dumped at least one foot away from the trench in an inverted trapezium like shaped trench. Seeds of soil binding plants should be dribbled on the compact excavated soil. The trenches should not be resorted to when the slope is more than 30%. In such areas trenches of half the original size (2mt 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 mt along the contour and also 3 mts across the contour.

15.14.11 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 5mt x 5mt x 0.5 mt. T he width and the depth can vary depending on the availability of the flat surface. The earth dug out from the tanks should be placed in a manner of inverted trapezium shape and the soil should be compacted. No inlet and outlet to be provided from the percolation tank. The bunds should be treated with seeds of Dhanicha (*Sesbania aculeala*), Sun hemp or even Horse gram.

15.15 RECORD KEEPING:

The journal and other records will be maintained for each coupe in accordance with the provisions of the 'Orissa Forest Plantation Manual, 1977'. Annual Rehabilitation journal may be maintained at the Divisional level to keep track of the

rehabilitation work taken up in the division. Necessary entries must be made in the compartment histories about all the works undertaken like soil conservation, plantation, etc.

15.16 MISCELLANEOUS REGULATIONS:

The annual treatment areas shall be rigidly protected and closed to grazing up to 5 years. They shall also be protected from fires. The provisions of Rule 283 of the Odisha Forest Department Code and the Orissa Forest Fire (Protection) Rules will be implemented. Attempt is to be made to involve the local people in protection and management of these forests in accordance with the current policy of the Govt. of Odisha on Joint Forest Management (JFM). Wherever VSS have already been established they shall be directly involved in implementation of the Silvicultural operations.

Perimeter barriers to keep off biotic interference in the form of hedge, stone walling or trench fencing should be attempted as far as possible.

The DFO shall make efforts to ensure funds from all possible sources and to see that there should no dearth of funds to implement prescription of this Working Circle. Funds may not stand as a barrier for implementation of various prescriptions of the plan. He shall also include requirement of funds for this purpose in his annual budget and estimates.

15.17 INTERIM REVISION:

No major changes in the prescriptions of this Working Circle are anticipated. However, it may be reviewed if necessary, after five years jointly by the Regional Chief Conservator of Forests, Bhubaneswar and the Chief Conservator of Forests, Working Plan. Any deviations suggested shall be subjected to the sanction of competent authority.

15.18 ASSOCIATED REGULATIONS AND MEASURES:

Besides the above prescriptions, the following associated regulations are prescribed to be followed. These are

- The encroached area is to be recovered through legal / motivation methods.
- No lopping is allowed within 5 years of treatment.
- Boundary maintenance in a cycle of 3 years is to be ensured.
- The concerned VSS are to be strengthened and regular interaction with villagers / VSS members to be maintained.

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CHAPTER-16

PLANTATION WORKING CIRCLE

16.1 GENERAL CONSTITUTION OF WORKING CIRCLE:

The areas coming under this working circle covers all plantation areas taken up for plantation during the period from 2000-01 to 2018-19. The plantation areas include the forest blocks that have permanent blanks and barren land which are devoid of root stock and natural vegetation. The prescription is made for tending operations in old plantation under RF, DPF & PRF and also plantations of areas under village woodlots of social forestry and subsequently declared as Village Forests. Broadly three categories of lands are included in this working circle. The first one is that of blank areas which require complete artificial regeneration and the second one is that of areas which need only protection and tending operations in forest blocks and the third one is the Social Forestry Project plantations (Village Forests) that needs gap plantations and tending operations through VFC. The tentative area of this working circle is **6977.875**Ha.

The total area covered under this working circle is **6977.875** Ha. The other old plantations raised in RF, PRF, DPF and VF etc. are included in this circle for management. As very old plantations are included in this Working circle, it needs to be harvested. For this purpose the total area of Plantation area is categorized under three parts. One is block Plantation over area 1905.581 Ha. and others are old Plantation areas of 4147.674 Ha. and VF area of 924.62 Ha. The old Plantation area and VF areas needs to be harvested, and all other tending operations to be carried out for development of forest growth. Regarding this Plantation working circle, it deals with areas to be taken up for Plantation in the working plan period and protection measures to be taken up for the plantations above three years to five years.

The old plantations existing in the RFs/PRFs/VFs etc are included in this circle. In most of such plantations, proper record of the year in which these were created and other tending operations like thinning etc which were carried out has not been maintained. In absence of such records, it is not possible to identify the exact year of their formation in the field or the exact extent of areas in those existing plantations. However, these information have been assessed approximately basing on the field observations only and reflected in the respective compartment history files.



Table No. 16.1 **AREA ALLOTTED TO PLANTATION WORKING CIRCLE:**

Sl no	Name of the Forest Block	Area in Ha. As per Notification	GIS Area in Ha.	Area Diverted (in Ha.)		Area under this Plan (in Ha.)	Plantation Working Circle
				Under FRA	Under FC Act.		
1	2	3	4	5	6	7	8
1	Aranga RF	2651.60	2608.14	0.923		2607.217	
2	Bankard RF	1290.28	1323.214			1323.214	
3	Kotwal RF	982.40	979.65			979.65	
4	Tamana RF	3587.20	3573.05			3573.05	
5	Rajin RF	6472.40	6667.455	35.109		6632.346	
6	Barunei RF	482.80	444.373		0.5125	443.8605	93.0
7	Manibandha- A & B RF	309.60	312.659			312.659	20.0
8	Pangarsingh RF	264.67	266.149			266.149	266.149
9	Champagarh RF	413.64	413.913			413.913	90.409

1	2	3	4	5	6	7	8
10	Dhani (N) RF	1092.28	1048.957			1048.957	669.02
11	Mala RF	10472.46	10863.10	237.33		10625.77	
12	Maninag RF	1797.67	1735.576	2.797		1732.779	340.0
13	Sulia -B RF	1394.19	1784.685			1784.685	
14	Sulia(South & North) RF	1609.09	1608.007			1608.007	211.0
15	Kuhudi RF	641.04	656.617			656.617	45.0
16	Patia RF	3702.18	3888.975	2.446		3886.529	
17	Dhani (S) RF	839.75	850.238			850.238	
18	Jariput DPF	464.19	421.622			421.622	226.0
19	Kapileswarpur DPF	75.6	81.846			81.846	81.846
20	Tartua DPF	362.4	388.961			388.961	388.961
21	Brahmanidebi DPF	730.8	753.666			753.666	120.0
22	Narganga DPF		235.449			235.449	235.449

1	2	3	4	5	6	7	8
23	Duburi DPF	400.4	339.397			339.397	206.705
24	Puinchia DPF		251.121				50.0
25	Nargoda DPF	1020	599.724			599.724	60.0
26	Tangi DPF	179.2	176.017			176.017	176.017
27	Rameswar DPF	481.2	687.484			687.484	260.0
28	Jalbhar DPF	399.2	799.708			799.708	80.0
29	Kadambajhar DPF	474.8	436.354			436.354	50.0
30	Kandagadia DPF	212.4	208.243			208.243	70.0
31	Chakadapathar DPF	994	1005.536			1005.536	261.0
32	Kunjuri DPF	449.2	384.889			384.889	85.0
33	Badapari DPF	254	265.677			265.677	95.0
34	Nalsingh DPF	554.8	619.138			619.138	25.0
35	Bhusandpur DPF	778.8	821.628			821.628	390.0
36	Kaithapalla DPF	272.8	294.569	0.923		293.646	155.0

1	2	3	4	5	6	7	8
37	Sandhamal DPF	1511.2	1495.097			1495.097	85.0
38	Solari DPF	1171.2	1114.705			1114.705	140.0
39	Bhaleri DPF	807.6	907.221		0.875	906.346	165.0
40	Jharana DPF	1925.2	1957.402			1957.402	230.0
41	Champagarh DPF	869.6	433.493			433.493	110.0
42	Bhatapada (Block No.41) DPF	536.4	280.025	1.325		278.70	95.0
43	Chulijhinka DPF	536.4	554.273			554.273	62.0
44	Jamunajharapada PRF	72	59.674			59.674	59.674
45	Kumuka PRF	214	210.951		2.03	208.921	151.0
46	Rengal PRF	112	112.016			112.016	112.016
47	Bhanra PRF	97.28	93.009			93.009	93.009
48	**142 village Forest**						924.62
	Total	**53959.92**	**55013.653**	**280.853**	**3.4175**	**54478.2615**	**6977.875**

16.2 GENERAL CHARACTERSTICS OF VEGETATION:

The forest areas coming in plantation working circle are generally devoid of vegetation and are blank areas or having existing plantation raised during previous working plan period. The forest blocks are mainly degraded and of deciduous in nature. The blank areas are invaded by weeds and thorny bushes.

A large number of plantations have been raised by different planting agencies in and outside the working circle area during the outgoing plan period. These plantations are subjected to grazing, illicit felling and removal of forest produce. Thus, not only proper planning is must but also strict adherence to the schedule of operations is essential to achieve the objectives of management.

The areas included in this Working Circle have hardly any forest growth except those blocks where plantations have been undertaken and have survived. The major types of forests under this working circle are Dry Deciduous Scrub Forests ($5/DS_1$) though some Southern Dry Mixed Deciduous Forests ($5A/C_3$) and Northern Dry Mixed Deciduous Forests ($5B/C_2$) are also found to be occurring in some blocks. These forests are mostly scrubby having miscellaneous species. Natural forest has been destroyed giving place to scrubby forest.

In most of the forest blocks included in this working circle moderately deep soil is found which is mineralogical a mixed soil. These soils once supported luxuriant forest growth and are therefore, potentially fit for raising plantations. The plantations which will be raised will require application of fertilizers for better growth as erosion and adverse biotic factors will lead to loss of nutrients.

16.3 PLANTING BLOCKS AND JFM AREAS:

The total area allotted to this Working Circle is 6977.875Ha.Which includes RFs, PRFs, DPFs & VFs .It includes both the plantable areas as well as existing plantations. The block wise distribution of areas of existing plantations along with areas allotted for taking up plantations is summarized in Table No: 16.1. The plantable areas depicted in different blocks are based on estimates and not by survey and this has been confirmed by satellite imageries.

The areas coming under village forests are assigned to concerned village forest committees (VFCs) constituted under Rule-3 of the Village Forest Rules,1985 for

management under JFM mode. The provisions of Village Forest Rules, 1985 regarding sharing of forest produce i.e. Rule 9 will be applicable. After passing of resolution in VFC the plantation / harvesting if any will be made. For better management it needs tending operations for restocking the area through VFC. Yearwise planning has been prescribed to demarcate the area wherever available for restocking by providing financial support to the VFC

All the plantable areas included in this working circle shall be planted within 10 years to synchronize to the working plan period.

16.4 SPECIAL OBJECTIVES OF MANAGEMENT:

The special objective of the management of this Working Circle is within the scope of general objectives of the management for the entire plan area. These are as follows: -

- To restock the degraded and barren areas through artificial regeneration.
- To maintain and tend the existing plantations.
- To harvest the exploitable old existing natural plantations and replenish the harvested area with new plantations.
- To take suitable measures for prevention of soil erosion and to conserve soil and moisture particularly in barren hilly tracts and plantation areas.
- To carryout plantations preferably with indigenous, site specific, locally available species with a special emphasis on NTFP yielding species.
- To carryout silvicultural operations on the seed production areas to produce quality seeds.
- To bring plantations raised in different places to a single management fold and scientifically manage to get optimum yield.
- To encourage participatory management of erstwhile social forestry project plantations and activate the VFC.
- To cover up the open lands in RF/PRF/DPF/VF etc with vegetation of fast growing species and to meet the demand of timber.
- To increase the availability of firewood and small timbers in the locality.
- To increase the crop density of forests and improve the carbon sequestration

16.5 ANALYSIS OF THE CROP:

After completion of stratified random sampling and sample point enumeration of the existing plantations, the analysis and valuation of the crop is made. There are different types of plantations found in this division. The total areas included in this working circle are mostly blank patches with no appreciable forest crop. Some plantations have been reduced to coppice growth due to illicit felling by the smugglers. Existing plantations included in the working circle have inadequate stocking and it needs only protection and tending operations. Plantations raised through the Social Forestry Project in Village forests have been harvested and some of them now have some coppice growth. Most of these plantations are found to be in the age group of more than 20 years. Species planted are Eucalyptus, Sana-Chakunda, Sissoo, Cashewnut,Acacia, Karanj, Siris, Semul, Gamhar, Bamboo etc., These plantations are thinly populated and main cause of it is continuous biotic interference. Hence, all these plantations require complete protection along with tending operations to boost their growth. Besides these, plantations have been raised under different schemes like UTP, Jagannath Vana Prakalp, b-economic, Bald hill,13th FC grant, Bamboo state plan, National Bamboo Mission (NBM), FDA through NAP,CDA assistance(catchment area treatment of Chillika lagoon),state CAMPA, compensatory Afforestation etc.

On the whole the crop in this working circle is a mixed crop of planted seedlings of various miscellaneous species. Hence the crop is more or less irregular in nature. The age class depends upon the year of planting.

16.5.1 Seed Production Areas:

The following seed production areas have been maintained in the Division on which suitable Silvicultural measures are to be taken for production of quality seeds.

a) Bankard RF, Compt No.1 over 62.5Ha.
b) Rajini RF, Compt No. 10 over 22Ha.
c) Rajini RF, Compt No 11 over 23.6Ha.
d) Rajini RF, Compt No. 12 over 3.0Ha.
e) Bhatapada DPF over 2.0Ha.

16.6 SILVICULTURAL SYSTEM:

There is no formal Silvicultural system prescribed for this working circle. The plantation will be taken up in the blank and barren areas. Artificial regeneration including tending operations like thinning in old plantation areas are prescribed. Under artificial regeneration barren /blank areas will be restocked with desired species followed by post planting operations as per present Odisha plantation manual. Uses of clones of superior genetic stock and Quality Planting Material (QPM) should be used in all the plantation. Assistance of the local villagers in the JFM mode may be taken wherever possible for post creation care. Strict protection measures from biotic interference as well as soil and moisture conservation measures will also be taken up. For existing plantations tending operations will be taken up which shall comprise of both gap plantation as well as thinning operations.

16.7 PLANTATIONS CYCLE:

All the plantable area included in this working circle shall be planted within 10 years to synchronize to the plan period.

16.8 METHOD OF EXECUTING PLANTING:

As per the Prescriptions given in the Orissa Plantation Manual, 1977 and other executive instructions, the following guidelines shall be followed meticulously. The success of the plantation depends largely on good planting stock /QPM and timely planting operations in the field. However, a tentative work schedule with different operations is indicated below

16.8.1 Consultation with VSS/VFC:

Before taking up plantation operation it is necessary to consult with the concerned VSS/VFC if the area is assigned to them. The resolution is to be passed by making a meeting with the VFC/VSS members and the process of harvesting, restocking and sharing mechanism are to be discussed and decided there.

16.8.2 Demarcation of Plantation area:

If the plantation operations could not be taken up in a particular year because of lack/shortage of funds, staff or other factors, those forest blocks will be taken

for plantation in subsequent years in addition to that year's area. If more funds are available or an emergency situation warrants, the areas due for plantation in future can also be advanced. All these deviations shall be subjected to the formal approval of the competent authority and duly reflected in the respective compartment history files as well.

The plantation areas shall be demarcated in the winter season (October to December) of the year proceeding to the year of plantation. The areas prescribed for the plantations are shown in the management maps. In these areas small stone cairns of half meter height will be erected at inter visible distance after cleaning the survey lines all around the periphery of the plantation area or the coal tar ring should be painted at breast height of trees standing on the borders of the areas of plantation.

In case of PRF, the area is to be demarcated on ground by putting RCC pillars, if the demarcating line coincides with the PRF Boundary. In case of Village Forests, the area / boundary is not demarcated on ground. The Village Forests are demarcated with the help of Revenue personnel in presence of VFC Members. RCC pillars of 20cm x20cm x 120cm may be posted to keep the boundary line visible permanently. For keeping the boundary line naturally demarcated, it is proposed to put Palm Seeds by dibbling on the boundary at an interval of 5 meters which will grow to a tree in future.

Each plantation area shall be indicated by signboards at corners or at point of intersection with roads, inspection paths and boundary lines of reserved forests. The signboards should contain the name of the plantation site, area, year of planting and compartment number and other details. Year of planting is very essential, otherwise after 5-6 years it is very difficult to know the year and the area.

16.8.3 Regeneration:

The proposed planting area has to be restocked by artificial regeneration with proper soil and moisture conservation measures. As per the approved cost norm the planting technique should be followed. For a successful plantation the following planting procedure is prescribed.

16.8.4 Survey, Demarcation, Site Preparation, Alignment, Stacking & Pitting:

After selection of the plantation site it will be properly surveyed and well demarcated by the end of the December. The plantation journal with relevant records as per the Odisha Plantation Manual shall be maintained. Then the site will be properly cleared and the undesired species and debrises shall be burnt with adequate care. All these operation shall be completed by the end of January. After this the operations like alignment, stacking and pitting shall be done with appropriate spacing. In case of block plantation @1600 trees plants per hecter with a spacing of 2.5mtr x 2.5mtr is to be adopted. The standard size of the pit 30cm X 30cm X 30 cm shall be dug in the entire planting area. In case of UTP it may vary as per the norm prescribed. The stacking and pitting shall be completed by March-April. In case of stump planting, crow bar holes shall be done just at the time of planting. The site preparation including pitting should in all cases be over by April so as to provide intervening time for weathering of the opened up soil.

Constitution of Planting Series:

The plantable area of 1905.581 Ha. under this working circle has been divided into planting series (PS) namely Tangi, Rengal, Pangarsingh, Tartua, Nargang, Duburi and Dhani. Each planting series has been divided into 10 annual coupes which are furnished in **Table No 16.2 to 16.8**.

Table No. 16.2		Tangi Planting Series					
Year	**Coupe No**	**Name of Block**	**Status**	**Compt. No.**	**Coverage**	**Area in Ha.**	**Total P.S Area in Ha.**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
2021-22	I	TANGI	DPF			18.734	
2022-23	II	TANGI	DPF			27.6	
2023-24	III	TANGI	DPF			31.742	
2024-25	IV	TANGI	DPF			25.854	
2025-26	V	TANGI	DPF			22.39	**231.426**
2026-27	VI	TANGI	DPF			23.774	
2027-28	VII	TANGI	DPF			15.986	
2028-29	VIII	TANGI	DPF			9.937	
2029-30	IX	CHAMPAGARH	RF			29.271	
2030-31	X	CHAMPAGARH	RF			26.138	

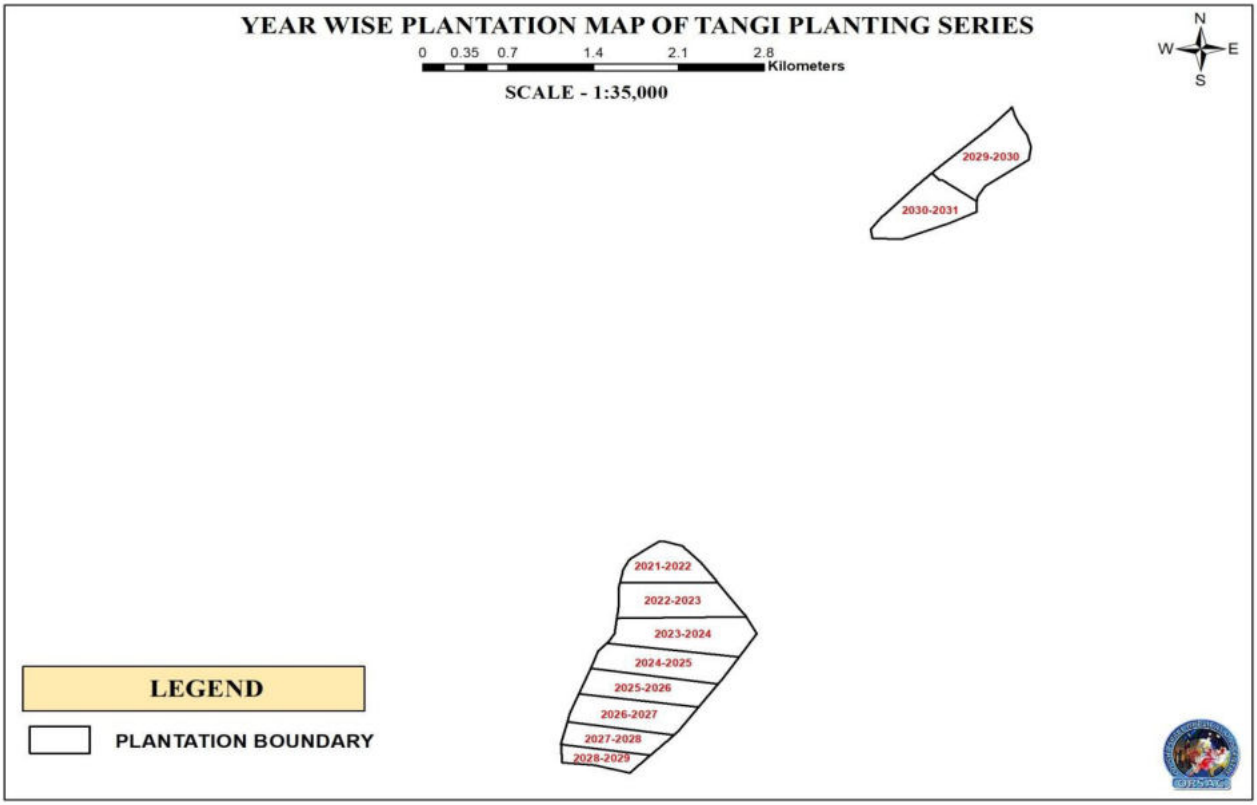


Table No. 16.3		Rengal Planting Series					
Year	**Coupe No**	**Name of Block**	**Status**	**Compt. No.**	**Coverage**	**Area in Ha.**	**Total P.S Area in Ha.**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
2021-22	I	RENGAL	PRF			21.44	
2022-23	II	RENGAL	PRF			20.106	
2023-24	III	BHANRA	PRF			37.722	
2024-25	IV	RENGAL	PRF			23.77	
2025-26	V	RENGAL	PRF			16.1	**205.025**
2026-27	VI	BHANRA	PRF			15.407	
2027-28	VII	RENGAL	PRF			19.393	
2028-29	VIII	BHANRA	PRF			17.09	
2029-30	IX	RENGAL	PRF			11.207	
2030-31	X	BHANRA	PRF			22.79	

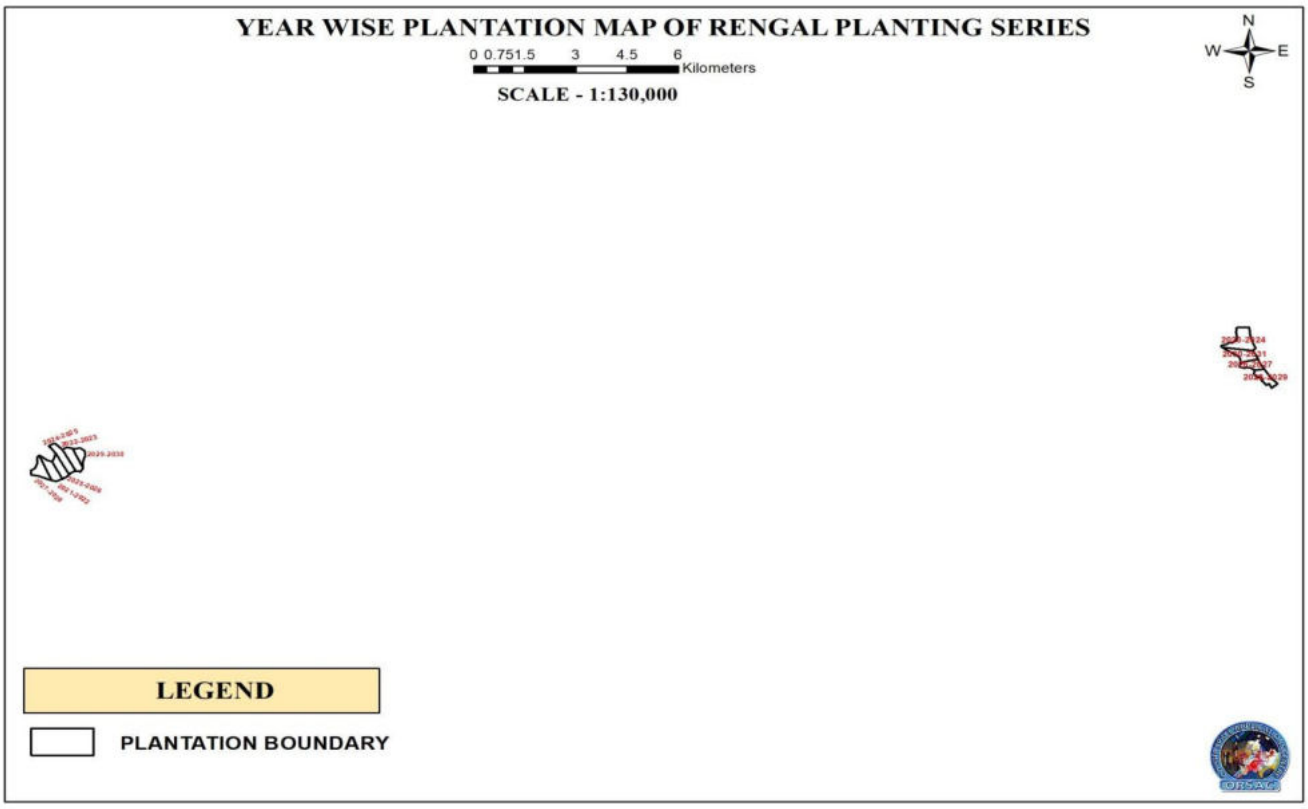


Table No. 16.4		Pangarsingh Planting Series					
Year	**Coupe No**	**Name of Block**	**Status**	**Compt. No.**	**Coverage**	**Area in Ha.**	**Total P.S Area in Ha.**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
2021-22	I	PANGARSINGH	RF			46.399	
2022-23	II	PANGARSINGH	RF			36.647	
2023-24	III	PANGARSINGH	RF			18.454	
2024-25	IV	PANGARSINGH	RF			30.604	
2025-26	V	PANGARSINGH	RF			14.374	**266.149**
2026-27	VI	PANGARSINGH	RF			22.69	
2027-28	VII	PANGARSINGH	RF			27.884	
2028-29	VIII	PANGARSINGH	RF			18.982	
2029-30	IX	PANGARSINGH	RF			28.04	
2030-31	X	PANGARSINGH	RF			22.075	

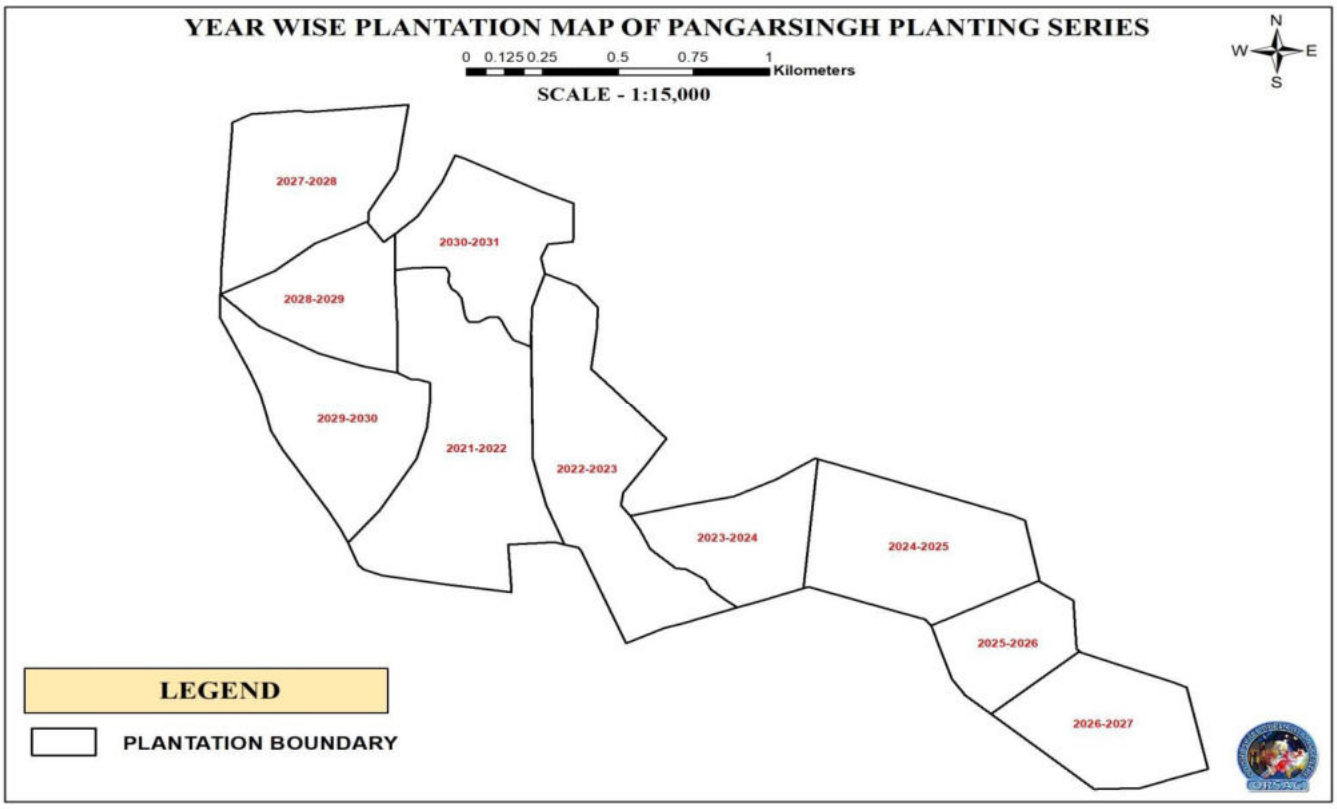


Table No. 16.5		Tartua Planting Series					
Year	**Coupe No**	**Name of Block**	**Status**	**Compt. No.**	**Coverage**	**Area in Ha.**	**Total P.S Area in Ha.**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
2021-22	I	TARTUA	DPF			42.617	
2022-23	II	TARTUA	DPF			24.61	
2023-24	III	TARTUA	DPF			53.574	
2024-25	IV	TARTUA	DPF			62.404	
2025-26	V	TARTUA	DPF			33.187	**470.807**
2026-27	VI	TARTUA	DPF			49.034	
2027-28	VII	TARTUA	DPF			56.298	
2028-29	VIII	TARTUA	DPF			67.237	
2029-30	IX	KAPILESWARPUR	DPF			40.08	
2030-31	X	KAPILESWARPUR	DPF			41.766	

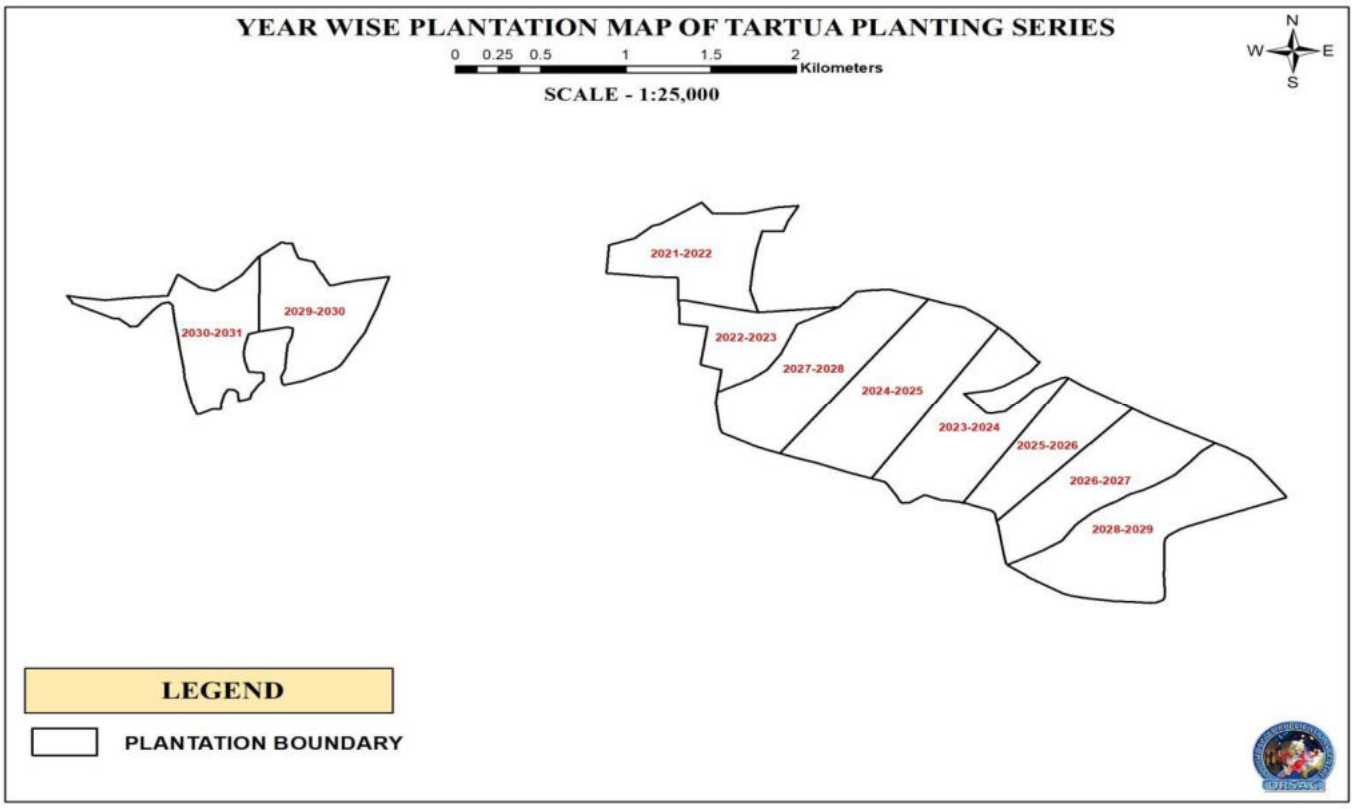


Table No. 16.6		Narganga Planting Series					
Year	**Coupe No**	**Name of Block**	**Status**	**Compt. No.**	**Coverage**	**Area in Ha.**	**Total P.S Area in Ha.**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
2021-22	I	NARGANG	DPF			21.55	
2022-23	II	NARGANG	DPF			24.009	
2023-24	III	NARGANG	DPF			14.958	
2024-25	IV	NARGANG	DPF			20.97	
2025-26	V	NARGANG	DPF			28.508	**235.449**
2026-27	VI	NARGANG	DPF			34.47	
2027-28	VII	NARGANG	DPF			13.875	
2028-29	VIII	NARGANG	DPF			21.797	
2029-30	IX	NARGANG	DPF			23.385	
2030-31	X	NARGANG	DPF			31.927	

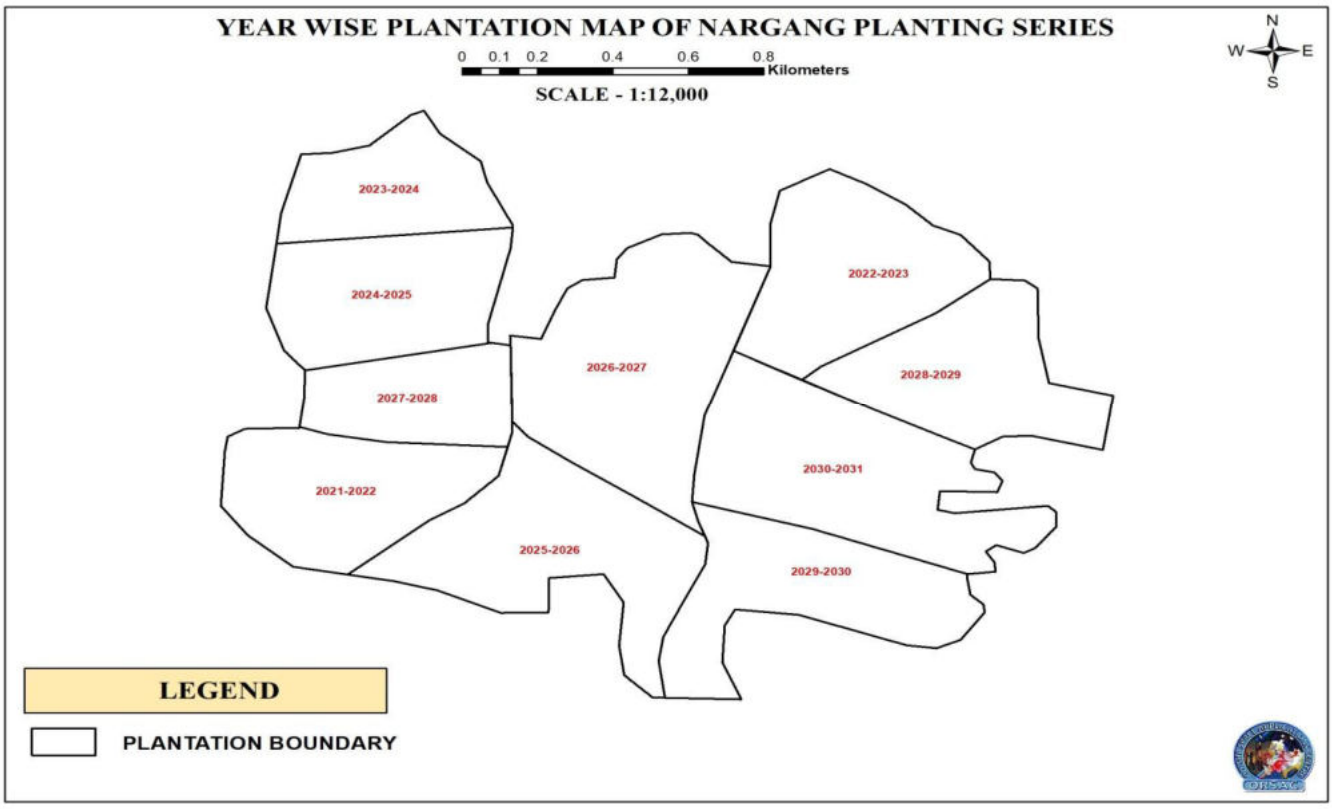


Table No. 16.7		Duburi Planting Series					
Year	**Coupe No**	**Name of Block**	**Status**	**Compt. No.**	**Coverage**	**Area in Ha.**	**Total P.S Area in Ha.**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
2021-22	I	DUBURI	DPF			18.889	
2022-23	II	DUBURI	DPF			15.196	
2023-24	III	DUBURI	DPF			32.817	
2024-25	IV	DUBURI	DPF			15.248	
2025-26	V	DUBURI	DPF			31.645	**206.705**
2026-27	VI	DUBURI	DPF			30.216	
2027-28	VII	DUBURI	DPF			10.455	
2028-29	VIII	DUBURI	DPF			10.925	
2029-30	IX	DUBURI	DPF			32.358	
2030-31	X	DUBURI	DPF			8.956	

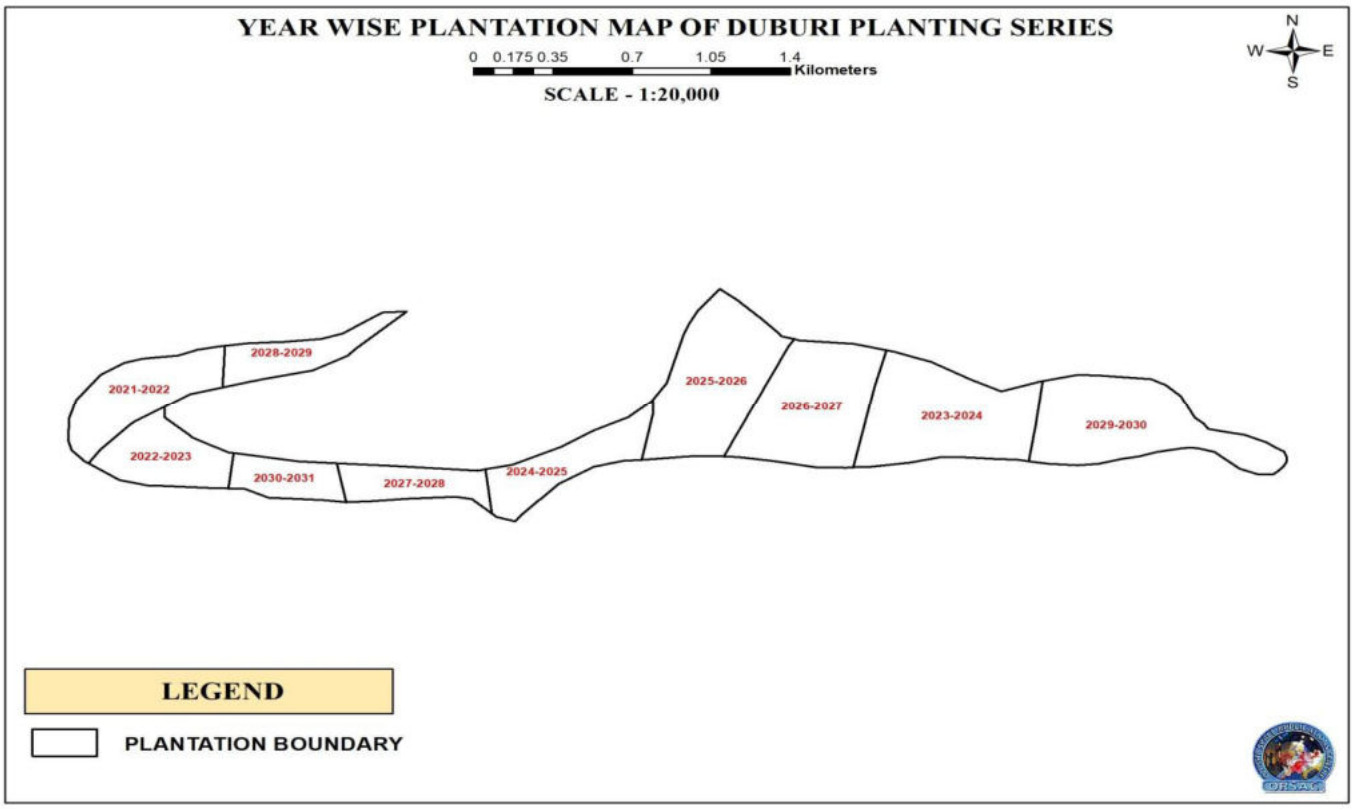
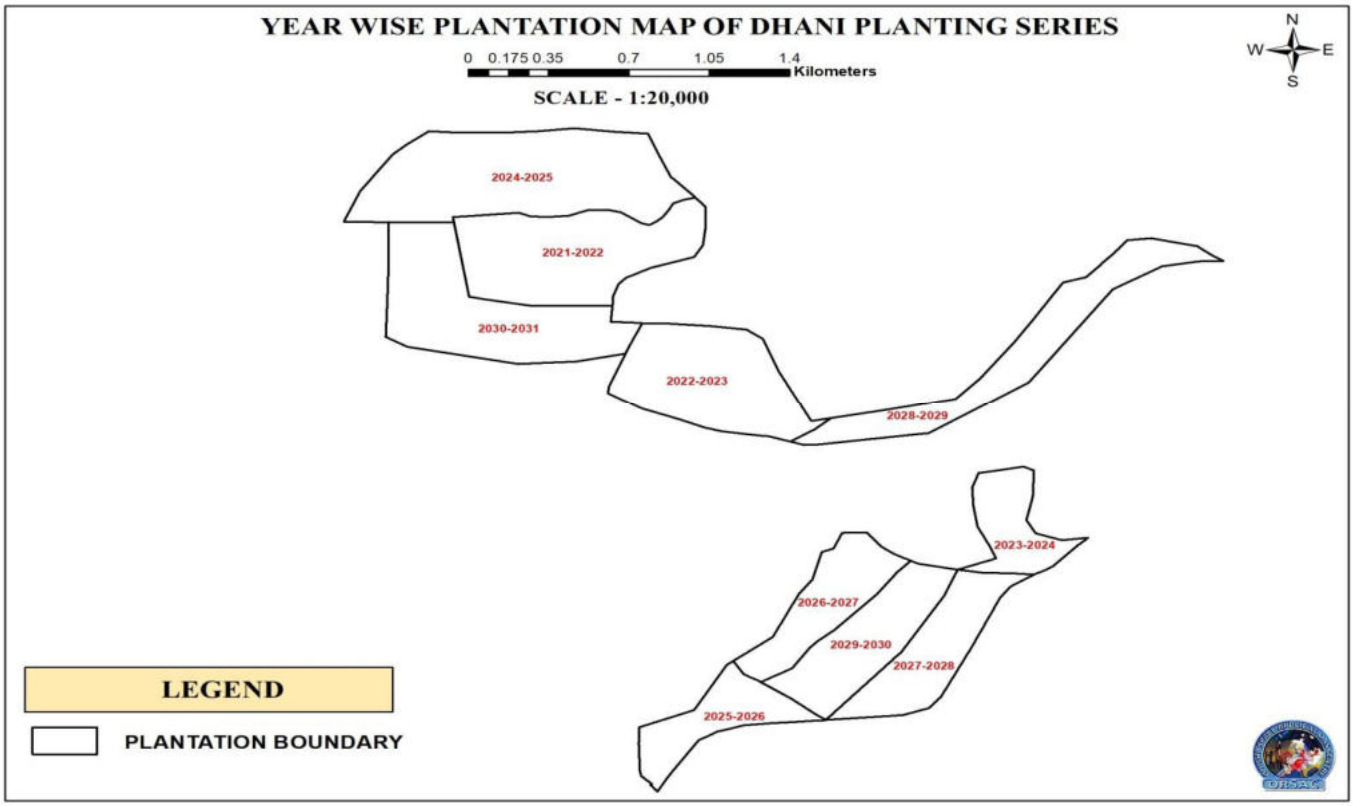


Table No. 16.8		Dhani Planting Series					
Year	**Coupe No**	**Name of Block**	**Status**	**Compt. No.**	**Coverage**	**Area in Ha.**	**Total P.S Area in Ha.**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
2021-22	I	DHANI (N)	RF	D-2		39.429	
2022-23	II	DHANI (N)	RF	D-3		34.449	
2023-24	III	DHANI (N)	RF	D-4		14.126	
2024-25	IV	DHANI (N)	RF	D-2		52.594	
2025-26	V	DHANI (N)	RF	D-4		16.378	**290.02**
2026-27	VI	DHANI (N)	RF	D-4		19.491	
2027-28	VII	DHANI (N)	RF	D-4		21.716	
2028-29	VIII	DHANI (N)	RF	D-3		28.661	
2029-30	IX	DHANI (N)	RF	D-4		23.975	
2030-31	X	DHANI (N)	RF	D-2		39.201	



16.8.5 Choice of Species & Nursery:

So far as the choice of species is concerned the indigenous species shall be given more priority in all the planting series as they are adopted to the local conditions. The species producing, minor forest produce, bamboo, fruit bearing species fuel wood, small timber, fodder etc. should be preferred. Economically important species including Teak, Gambhar, Sissoo, Dhaura, Sahaj, Bandhan and Asan etc may be planted, as far as possible. In areas close to human habitation, fuel-wood and fruit-bearing species such as Acacia species, Siris, Bamboo, Semul, Mango, Jackfruit, Mohua, Amla, Genduli, Kusumi, Harida, Bahada and Neem, etc should be planted. The site requirements of species with regard to soil depth, pH, slope and erosion, soil texture, nutritional requirement, ground water table, regeneration potential and local or commercial demand shall be taken into account while selecting species for plantation.

The seedlings may be raised in temporary, permanent, or central nurseries. The standard nursery technique found in any silviculture text or standard practices may be followed. The seeds may be collected from the plus trees available in the locality or brought from the known source of origin. Care should be taken to raise quality seedlings from certified seeds, superior clonal propagules or from known seed orchards and stands. The recommended height of the seedlings should be 90 cms. before planting.

16.8.6 Planting:

The planting shall commence immediately on the onset of monsoon. At the time of planting, insecticide and fertilizer shall be applied as a basal doze depending on the requirement along with proper application of farm yard manure/ organic fertilizer. Planting will be done departmentally and it should be completed by the second week of July.

16.8.7 Post Planting Operation:

The Post Planting Operations shall include casualty replacement, weeding, soil working etc. The planting and post-planting operations shall be carried out as per the norm approved by the Govt. from time to time and in accordance with the prescriptions given in the Odisha Plantation Manual. All the plantations shall be protected from fire and all sorts of biotic interference. The plantation watchers may be engaged by selecting them from the nearby fringe villages and local villagers should be involved in the protection of the plantations. Formation of VSS as per JFM resolution should be explored. The tending operations in these plantations shall be carried out as per the

prescriptions. A time schedule for operations is shown in **Table No.16.9** as per following for guidance of the field staff.

Table No: 16.9 Tentative Schedule of Planting operations	
1	**2**
Operations	**Tentative time of execution**
0th Year Operations	
Raising of Nursery	September-October
Advance preparation of site	October-December
Alignment and Stacking	February
Soil & Moisture Conservation (Mechanical)(Part)	February-March
Digging of pits (Part Major work)	February-March
Planting And Post Planting Operations in 1st Year	
Digging of pits(Balance left over)	April
Soil & 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
1st soil working, weeding & manuring	August-September
2nd soil working and weeding	December
Mulching	January-February
Fire Tracing	February-March
Post Planting Operations in 2nd Year	
Casualty replacement	Within July
one weeding, soil working & manuring	August-September
Fire Tracing	February-March
Post Planting Operations in 3rd and subsequent Years	
Soil working and casualty replacement	July-August
Pruning and other cleaning operations as required	May-June OR November
Fire Tracing etc	February-March

16.8.8 Casualty Replacement:

During the course of time some of the seedlings may get damaged and die after planting. These seedlings are required to be replaced with new healthy seedlings as soon as possible.

16.8.9 Weeding &Soil Working:

The planted seedlings start bearing new leaves after one month of planting. The soil working around the plants along with application of fertilizer is done as per the

recommendation. Weeding around the plants i.e. patch weeding is carried out. In case of area with heavy weeds / grasses generally strip weeding is carried out. Number of weeding in a year may be decided as per cost norm provisions. Normally during 1st year of plantation there are two weeding carried out.

16.8.10 Watering:

In some of the plantations watering provisions are inbuilt with the cost norm. So watering is to be provided as per the prescription.

16.8.11 Fire Protection/Watch & Ward:

Proper measures shall be taken for fire protection and watch and ward against grazing and adequate supervision shall be taken in this regard particularly in fire prone and biotic pressure regions.

16.9 TREATMENTS FOR EXISTING PLANTATIONS:

There are 4147.674 Ha. of existing plantations in this division. The exact age of these plantations and the authenticated records to this effect are not available. In most of the cases the compartment numbers are not mentioned in which plantations are raised and in the absence of this information it is difficult to trace out the years of formation of the old plantations in the field. But their growth is not uniform. In some cases the part or whole of plantation is felled down, in other cases the plantations are protected by the VSS members. Hence uniform treatment for all the plantations is not possible. Wherever gaps exist in the existing plantations, this should be restocked by gap plantation. The plantations that are bushy and branchy need the tending operations like pruning, thinning, and climber cutting etc. The Range Officer shall prepare the site-specific treatment of the individual plantation sites, supervised by ACF and shall be duly approved by the DFO.

The matured plantations shall be harvested and replanted with suitable species. In order to harvest matured plantations, the DFO shall prepare a scheme indicating all the details of the plantations, financial requirement for harvesting of the plantations and replanting the said area. The scheme shall be operative after its approval. Plantations are taken up under Shri Jagannath Bana Prakalpa(JBP) scheme from the year 2000 onwards in this division.

The old plantations are varying in age therefore appropriate Silvicultural operations shall be carried out to boost their growth. The operation like pruning, thinning, and climber cutting etc. shall be done. Further gap plantation shall be done wherever required.

Yearwise break up of tending operations for which 05 numbers of tending series prescribed which are furnished in following tables (**Table No. 16.10 to 16.14**):

Table No. 16.10 Tending Series of old Plantation over RF/DPF/PRF

Name of Series	Name of the Range	Name of the Forest Block	Year of working	Area of Plantation in Ha.	Total area of Plantation in Ha.
1	2	3	4	5	6
Balugaon Tending Series	Balugaon	Jharan DPF	2021-22	100	100
		Chulijhinka DPF	2022-23	62	62
		Solari DPF	2023-24	40	40
		Sandhamal DPF	2024-25	85	85
		Solari DPF	2025-26	100	100
		Bhaleri DPF	2026-27	100	100
		Bhaleri DPF	2027-28	65	65
		Jharan DPF	2028-29	130	130
		Champagarh DPF	2029-30	110	110
		Bhatapada DPF	2030-31	95	95
				Total	**887**

Table No. 16.11

Name of Series	Name of the Range	Name of the Forest Block	Year of working	Area of Plantation in Ha.	Total area of Plantation in Ha.
1	2	3	4	5	6
Khordha Tending Series	Khordha	Barunei RF	2021-22	60	60
		Barunei RF	2022-23	33	53
		Manibandha 'A' & 'B' RF		20	
		Jariput DPF	2023-24	55	55
		Jariput DPF	2024-25	55	55
		Jariput DPF	2025-26	55	55
		Jariput DPF	2026-27	61	61
		Brahmanidebi DPF	2027-28	40	40
		Brahmanidebi DPF	2028-29	40	40
		Brahmanidebi DPF	2029-30	40	40
		Puincha DPF	2030-31	50	50
				Total	**509**

Table No. 16.12

Name of Series	Name of the Range	Name of the Forest Block	Year of working	Area of Plantation in Ha.	Total area of Plantation in Ha.
1	2	3	4	5	6
Ranpur Tending Series	Ranpur	Champagarh RF	2021-22	35	64
		Dhani 'N' RF		29	
		Dhani 'N' RF	2022-23	70	70
		Dhani 'N' RF	2023-24	70	70
		Dhani 'N' RF	2024-25	70	70
		Dhani 'N' RF	2025-26	70	70
		Dhani 'N' RF	2026-27	70	70
		Maninag RF	2027-28	85	85
		Maninag RF	2028-29	85	85
		Maninag RF	2029-30	85	85
		Maninag RF	2030-31	85	85
				Total	**754**

Table No. 16.13

Name of Series	Name of the Range	Name of the Forest Block	Year of working	Area of Plantation in Ha.	Total area of Plantation in Ha.
1	2	3	4	5	6
Tangi Tending Series	Tangi	Sulia RF (S & N)	2021-22	211	211
		Kuhudi RF	2022-23	45	165
		Bhusundapur DPF		120	
		Rameswar DPF	2023-24	110	110
		Chakadapathar DPF	2024-25	81	141
		Nargoda DPF		60	
		Rameswar DPF	2025-26	150	150
		Jalbhar DPF	2026-27	80	200
		Kadambajhar DPF		50	
		Kandagadia DPF		70	
		Chakadapathar DPF	2027-28	180	180
		Kunjuri DPF	2028-29	85	205
		Badapari DPF		95	
		Nalsingh DPF		25	
		Bhusundapur DPF	2029-30	170	170
		Bhusundapur DPF	2030-31	100	255
		Kaithapalla DPF		155	
				Total	**1787**

Table No. 16.14

Name of Series	Name of the Range	Name of the Forest Block	Year of working	Area of Plantation in Ha.	Total area of Plantation in Ha.
1	**2**	**3**	**4**	**5**	**6**
Delanga Tending Series	Delanga	Jamuna Jharapada PRF	2021-22	30	30
		Jamuna Jharapada PRF	2022-23	29.674	29.674
		Kumuka PRF	2023-24	30	30
		Kumuka PRF	2024-25	30	30
		Kumuka PRF	2025-26	30	30
		Kumuka PRF	2026-27	30	30
		Kumuka PRF	2027-28	31	31
				Total	**210.674**

Where prominent gaps and blank areas are existing, those shall be planted with teak intermixed with Gambhari & Sisoo as per site specific. In case of miscellaneous plantations the following tending operations shall be carried out

- Weeding and regular pruning shall be done
- All climbers shall be cut
- All dead trees shall be removed departmentally
- Thinning shall be done in the congested crop
- Gap plantation shall be done wherever required

16.10 TENDING OPERATIONS IN SHREE JAGANNATH BANA PRAKALPA PLANTATIONS:

The Shree Jagannath Bana Prakalpa scheme was started in this Division from the Year 2000-2001. These plantations need special treatment. The works like weeding and climber cutting once in a year, Silvicultural thinning wherever necessary, protection against grazing and fire etc. shall be done to boost the growth.

In case of existing cashew plantations, the gaps shall be gradually planted with selected species and, once the productivity of these plantations is gone, such areas shall be clear felled and re-planted.

For Social Forestry Plantations declared as VF tending operations are also to be carried out. For this following tending series are prescribed as shown in the **Table 16.15 to 16.18.**

Table No. 16.15 Social Forestry (Village Forest) Treatment Series:

Name of the Treatment Series	Name of Range	Planting Section	Year of working	Village Name	Area in Ha.	Total area in Ha.
1	2	3	4	5	6	7
Banki & Baideswar Village Forest	Khordha	Baideswar	2021-22	Malisahi	11	16
	Khordha	Baideswar		Kantakai	5	
	Khordha	Baideswar	2022-23	Alasua	20	20
	Khordha	Baideswar	2023-24	Baideswar	25	25
	Khordha	Baideswar	2024-25	Bania	5	14
	Khordha	Baideswar		Nuagaon	2	
	Khordha	Baideswar		Rameswar	2	
	Khordha	Baideswar		Kendupalli	5	
	Khordha	Baideswar	2025-26	Puincha	5	15
	Khordha	Baideswar		Baraput	5	
	Khordha	Baideswar		Baraput	5	
	Khordha	Baideswar	2026-27	Dengamba	5	15
	Khordha	Baideswar		Kiapalla	5	
	Khordha	Baideswar		Nuagaon	5	
	Khordha	Baideswar	2027-28	Kurum	15	19.5
	Khordha	Baideswar		Kendupalli	4.5	
	Khordha	Banki	2028-29	Hatimara	4	19
	Khordha	Banki		Gopalpur	5	
	Khordha	Banki		Gopalpur (Nuagaon Sabarsahi)	5	
	Khordha	Banki		Gopalpur	5	
	Khordha	Banki	2029-30	Gopalpur	8	17
	Khordha	Banki		Chiramaru (Nargang)	4	
	Khordha	Banki		Kumusar	5	
	Khordha	Banki	2030-31	Palasuni (Nargang)	6	14
	Khordha	Banki		Berhampura	3	
	Khordha	Banki		Nargang	5	
					Total	**174.5**

Table No. 16.16

Name of the Treatment Series	Name of Range	Planting Section	Year of working	Village Name	Area in Ha.	Total area in Ha.
1	2	3	4	5	6	7
Begunia Village Forest	Khordha	Begunia	2021-22	Kadamala	8	30
	Khordha	Begunia		Jayamangal	5	
	Khordha	Begunia		Chotipalanga	10	
	Khordha	Begunia		Jayamangal	3	
	Khordha	Begunia		Pubusahi	2	
	Khordha	Begunia		Olasingh	2	
	Khordha	Begunia	2022-23	Lekhanpur	3.25	28.31
	Khordha	Begunia		Garhgudam	8	
	Khordha	Begunia		Olasingh	5	
	Khordha	Begunia		Olasingh	3	
	Khordha	Begunia		Rautapada (Dakhineswar)	8	
	Khordha	Begunia		Podapatana	1.06	
	Khordha	Begunia	2023-24	Kotalanga	3	26.8
	Khordha	Begunia		Masania	10	
	Khordha	Begunia		Masania	6	
	Khordha	Begunia		Masania	0.8	
	Khordha	Begunia		Karadagadia	5	
	Khordha	Begunia		Kapileswarpur	2	
	Khordha	Begunia	2024-25	Kapileswarpur	4.59	25.47
	Khordha	Begunia		Kokasingh	2.88	
	Khordha	Begunia		Atri	1	
	Khordha	Begunia		Atri	8	
	Khordha	Begunia		Atri	6	
	Khordha	Begunia		Bhuasunu Patna	3	
	Khordha	Begunia	2025-26	Badaberena	14.81	27.84
	Khordha	Begunia		Badaberena	2	
	Khordha	Begunia		Badaberena	3	
	Khordha	Begunia		Gobindapur Patna	1.87	
	Khordha	Begunia		Gobindapur Patna	3	
	Khordha	Begunia		Karadagadia	3.16	
	Khordha	Begunia	2026-27	Karadagadia	14.61	30.31
	Khordha	Begunia		Karadagadia	2	
	Khordha	Begunia		Balibereni	6	
	Khordha	Begunia		Gaudaput	5.1	
	Khordha	Begunia		Gaudaput	2.6	
	Khordha	Begunia	2027-28	Godipokhari	20	30.02
	Khordha	Begunia		Routapada	8	
	Khordha	Begunia		Routapada	2.02	
	Khordha	Begunia	2028-29	Suanla	5	29.65
	Khordha	Begunia		Basudevpur	8	
	Khordha	Begunia		Basudevpur	6	
	Khordha	Begunia		Ostapur	3	
	Khordha	Begunia		Ostapur	1.65	
	Khordha	Begunia		Gaudaput	6	

Name of the Treatment Series	Name of Range	Planting Section	Year of working	Village Name	Area in Ha.	Total area in Ha.
1	2	3	4	5	6	7
Begunia Village Forest	Khordha	Begunia	2029-30	Kusupalla	25	32.06
	Khordha	Begunia		Suanla	4.06	
	Khordha	Begunia		Botalama	3	
	Khordha	Begunia	2030-31	Botalama	6	30
	Khordha	Begunia		Suanla	5	
	Khordha	Begunia		Routapada (Jharmunda)	15	
	Khordha	Begunia		Routapada (Jharmunda)	1	
	Khordha	Begunia		Chandapur	3	
					Total	**290.46**

Table No. 16.17

Name of the Treatment Series	Name of Range	Planting Section	Year of working	Village Name	Area in Ha.	Total area in Ha.
1	2	3	4	5	6	7
Khordha Village Forest	Khordha	Khordha	2021-22	Tartua	20	20
	Khordha	Khordha	2022-23	Tartua	30	30
	Khordha	Khordha	2023-24	Sialiapatna	6	18
	Khordha	Khordha		Podaput	2	
	Khordha	Khordha		Palla	10	
	Khordha	Khordha	2024-25	Bengitangi	8	20.85
	Khordha	Khordha		Kadalibadi	2	
	Khordha	Khordha		Kadalibadi	1.07	
	Khordha	Khordha		Kadalibadi	1.44	
	Khordha	Khordha		Kadalibadi	1	
	Khordha	Khordha		Madhapur	1.59	
	Khordha	Khordha		Podaput	5.75	
	Khordha	Khordha	2025-26	Paikatigiria	19.2	19.2
	Khordha	Khordha	2026-27	Paikatigiria	23.14	23.14
	Khordha	Khordha	2027-28	Podaput	8	23.32
	Khordha	Khordha		Paikatigiria	15.32	
	Khordha	Khordha	2028-29	Aranga	8	21
	Khordha	Khordha		Aranga	5	
	Khordha	Khordha		Niala	8	
	Khordha	Khordha	2029-30	Niala	8	23.13
	Khordha	Khordha		Deulatangi	6	
	Khordha	Khordha		Chhotaraypur	2.13	
	Khordha	Khordha		Brahmanaput	3	
	Khordha	Khordha		Sahadapur	4	
	Khordha	Khordha	2030-31	Raghunathpur	8	27.19
	Khordha	Khordha		Basanta	8	
	Khordha	Khordha		Brahmanaput	8	
	Khordha	Khordha		Brahmanaput	3.19	
					Total	**225.83**

Table No. 16.18

Name of the Treatment Series	Name of Range	Planting Section	Year of working	Village Name	Area in Ha.	Total area in Ha.
1	2	3	4	5	6	7
Tangi,Ranpur & Balugaon Village Forest	Tangi	Bhusundapur	2021-22	Balarampur	4	20.3
	Tangi	Tangi		Mangaljodi	4.3	
	Tangi	Tangi		Mangaljodi	8	
	Tangi	Nachuni		Gainada	4	
	Tangi	Tangi	2022-23	Mangaljodi	10	25.05
	Tangi	Nachuni		Tarapi	10	
	Tangi	Nachuni		Tarapi	5.05	
	Tangi	Nachuni	2023-24	Gainada	8	23
	Tangi	Nachuni		Tarapi	10	
	Tangi	Nachuni		Kandhaambajhar	5	
	Tangi	Bhusundapur	2024-25	Nalsingh	5.5	23.5
	Tangi	Bhusundapur		Malipada	10	
	Ranpur	Ranpur		Bagala	8	
	Ranpur	Ranpur	2025-26	Lodhachua	5	22
	Ranpur	Gopalpur		Ektal	5	
	Ranpur	Gopalpur		Ektal	5	
	Ranpur	Gopalpur		Ektal	7	
	Ranpur	Gopalpur	2026-27	Ektal	5	24
	Ranpur	Gopalpur		Nagajhar	9	
	Ranpur	Gopalpur		Narsinghpur	10	
	Ranpur	Gopalpur	2027-28	Khandisi	2	24.32
	Ranpur	Gopalpur		Kerendatangi	1.32	
	Ranpur	Gopalpur		Narsinghpur	10	
	Balugaon	Nachuni		Kanheipur	9	
	Balugaon	Balugaon		Ostapalli	2	
	Ranpur	Gopalpur	2028-29	Hansara	7.35	22.82
	Balugaon	Padmapur		Tarasingh	5.77	
	Balugaon	Balugaon		Samantasingharpur	2	
	Balugaon	Balugaon		Bania sahi	2.7	
	Balugaon	Gopalpur		Champatipur	5	
	Balugaon	Nachuni	2029-30	Kanheipur	10.71	24.96
	Balugaon	Padmapur		Kulei	14.25	
	Balugaon	Balugaon	2030-31	Boria sahio	7	23.88
	Balugaon	Balugaon		Dasarathipur	7.98	
	Balugaon	Balugaon		Boria sahio	4	
	Balugaon	Balugaon		Jariput	4.9	
				Total		**233.83**

16.11 ASSOCIATED REGULATIONS AND MEASURES:

For keeping up records the Nursery Journal, the Plantation Journal and other records will be maintained for each plantation separately in accordance with the provisions of 'The Orissa Forest Plantation Manual, 1977' indicating the physical and financial achievements. Necessary entries with regard to plantation activities undertaken shall be entered in the compartment histories. All the plantations done shall invariably be shown on the topo maps of 1: 25,000. Records of up to date Tending operations carried out will be maintained in an appropriate register at the Range level in accordance with the Management Plan Procedure, 1991.

16.12 MISCELLANEOUS REGULATION

In this working circle area the existing plantations were raised by the Territorial DFOs, Deputy Director, Social Forestry Project,the erstwhile Puri Division, Bhubaneswar as well as the then DFO Costal Afforestation Division, Bhubaneswar. After the reorganization, during 2003 the Divisional Forest Officer Khordha has taken up plantation activities.

The annual plantation coupes/treatment areas under different series shall be strictly protected from grazing and fires. Suitable areas adjacent to these coupes should be developed into fodder plantations so as to encourage stall feeding and thereby diverting the grazing pressure from the annual plantation coupes. The people in the adjoining areas of the plantations should be engaged in the plantation works and they should be motivated to prevent the cattle of the adjoining villages entering the plantation area.

PRA exercise shall be undertaken before executing the activities under the planting series to assess felt-needs of people and their willingness vis-à-vis choice of species so as to ensure their continued support in the entire process of regeneration.

16.13 RIGHTS AND CONCESSIONS:

The rights and concessions shall be admitted as have been described in Chapter-VIII of Part-I. Additional usufructuary rights may be allowed in accordance with the provisions of the current policies and programmes of the Govt. with regard to Joint Forest Management. No other rights and concessions shall be admitted in this Working Circle.

16.14 COSTS OF OPERATIONS AND WORKING NORM:

The Plantations will be raised as per the norms approved by the competent authority. The cost norm for the plantation Working Circle is as per the approved prevailing plantation norm i.e. Plantation Cost Norms-2019.

Plantation Cost Norm-2019

COST NORM FOR BLOCK PLANTATION @ 1600 PLANTS PER HECTARE
(6 month old seedling)
WAGE RATE ₹ 280 /- PER DAY

Sl. No	Items of work	Preferable period of Execution	Labour in Mandays	Labour Cost (₹)	Material Cost (₹)	Total Cost in (₹)
1	2	3	4	5	6	7
	0TH YEAR (ADVANCE WORK) PRE-PLANTING OPERATION					
1	Survey, demarcation and pillar posting	Nov/Dec	2	560	0	560
2	Site preparation	Nov/Dec	12	3360	0	3360
3	Allignment and stacking of pits	Jan/Feb	2	560	0	560
4	Digging of pits (30 cm cube)	Feb/Mar	40	11200	0	11200
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 (1600+160)	Jan-Mar	44	12320	2939	15259
	Total		**100**	**28000**	**2939**	**30939**
6	Monitoring & Supervision charge 5% of the total cost					1547
	Grand Total		**100**	**28000**	**2939**	**32486**
	1ST YEAR/PLANTING YEAR					
7	Nursery cost (6 months old seedling) balance @ Rs.3.76 for 1760 seedlings	Apr-June	21.5	6020	593	6613
8	Fencing For an average of 250 meters/ha @ Rs.76.80/- per meter for bamboo twigs and bamboo thorn fencing	May/June	38	10640	8560	19200
9	Carriage & planting, Casualty Replacement and application of insecticides, manure etc.	Jul/Aug	21	5880	0	5880

10	Cost of insecticide and fertilizer					
	(a) NPK @ 50 gms/plant as basal dose =80kg @ Rs.24/- per kg = Rs.1920.00	July/August		0	1920	3232
	(b) Urea @ 70 gms/plant in two subsequent doses @ Rs.6/- per kg = Rs.672.00				672	
	(c) Granular insecticide (Themet, Forate etc.) @ 5 gms/plant @ Rs.80/- per kg = Rs.640.00				640	
11	1st weeding (complete weeding)	Aug/Sep	7	1960	0	1960
12	Manuring Urea 35 gm	Aug/Sep	5	1400	0	1400
13	2nd Weeding (complete weeding)	Sep/Oct	5	1400	0	1400
14	Soil working (50 cms. Radius around plants) & manuring Urea 35 gms per plant	Sep/Oct	7	1960	0	1960
15	Soil conservation measures in the form of straggerd trenches of size 2 m X 0.5 m X 0.5 m @ 30 nos per ha	Sep/Oct	10	2800	0	2800
16	Fire line tracing & inspection path	Feb/Mar	3	840	0	840
17	Watch & Ward	Aug-Mar	7	1960	0	1960
	Total		**124.50**	**34860**	**12385**	**47245**
18	Monitoring & Supervision charge 5% of the total cost					2362
	Grand Total		**124.50**	**34860**	**12385**	**49607**
	2ND YEAR MAINTENANCE					
19	Casualty replacement (10%) with Nursery cost	Jul/Aug	4	1120	1988.80	3108.80
20	Weeding (complete weeding)	Sep/Oct	6	1680	0	1680
21	Cost of fertilizer (NPK @70 gms/plant) (Rs.24/-per kg & Insecticide @5 gms/plant for 160 plants 800 gms @ Rs.80/- per kg)	Sep/Oct		0	2752	2752

22	Repair and maintenance of Bamboo fence including material cost	May/June	20	5600	5080	10680
23	Soil working (50 cms. Radius around plants)	Oct/Nov	7	1960	0	1960
24	Application of fertilizer & insecticide	Sep/Oct	4	1120	0	1120
25	Fire line tracing (2m. wide fire line over 400 m long)	Feb/Mar	3	840	0	840
26	Watch & Ward	Apr-Mar	15	4200	0	4200
	Total		**59**	**16520**	**9821**	**26341**
27	Monitoring & Supervision charge 5% of the total cost					1317
	Grand Total		**59**	**16520**	**9821**	**27658**
	3RD YEAR MAINTENANCE					
28	Weeding and application of fertilizer	Aug/Sep	7	1960	0	1960
29	Cost of fertilizer (NPK @ 50 gms/plant) @ Rs.24/-per kg			0	1920	1920
30	Repair and maintenance of Bamboo fence including material cost	May/June	20	5600	1000	6600
31	Soil working (50 cms. Radius around plants) & applicaton of fertilizer	Oct/Nov	7	1960	0	1960
32	Fire line tracing (2m. wide fire line over 400 m length) & cultural operation	Feb/Mar	3	840	0	840
33	Watch & Ward	Apr-Mar	15	4200	0	4200
	Total		**52**	**14560**	**2920**	**17480**
34	Monitoring & Supervision charge 5% of the total cost					874
	Grand Total		**52**	**14560**	**2920**	**18354**

4TH YEAR MAINTENANCE						
35	Fire line tracing (2m. wide fire line over 400 m length) & cultural operation	Feb/Mar	3	840	0	840
36	Watch & Ward	Apr-Mar	15	4200	0	4200
	Total		**18**	**5040**	**0**	**5040**
37	Monitoring & Supervision charge 5% of the total cost					252
	Grand Total		**18**	**5040**	**0**	**5292**

A B S T R A C T

Sl. No	Year	No. Person Day	Labour cost @ ₹ 280/- per day	Material Cost (₹)	Monitoring & Supervision charge 5% of the total cost	Total cost in (₹)
1	0th year	100	28000	2939	1547	32486
2	1st year	124.5	34860	12385	2362	49607
3	2nd year	59	16520	9821	1317	27658
4	3rd year	52	14560	2920	874	18354
5	4th year	18	5040	0	252	5292
	Total	**353.5**	**98980**	**28065**	**6352**	**133397**

Significantly higher rate of survival is expected due to new provision of fencing.

The survival percentage should not be less than 60% 4th year onwards

COST NORM FOR BLOCK PLANTATION @ 1600 PLANTS PER HECTARE
(18 months old seedling)
Wage rate ₹ 280/Day.

Sl. No	Items of work	Preferable period of Execution	Labour in Mandays	Labour Cost (₹)	Material Cost (₹)	Total Cost in (₹)
1	2	3	4	5	6	7
PREVIOUS YEAR (ADVANCE WORK) NURSERY RAISING						
1	Nursery Cost (18 month Old Seedlings) @Rs.34.84/- part (Rs.8.68 to be released) for 1760 seedlings (1600+160)	Nov-March	44	12320	2956.8	15276.80
	Total		**44**	**12320**	**2956.8**	**15276.8**
2	Monitoring & Supervision charge 5% of the total cost					763.8
	Grand Total		**44**	**12320**	**2957**	**16041**
0TH YEAR (ADVANCE WORK) PRE-PLANTING OPERATION						
3	Survey, demarcation and pillar posting	Nov/Dec	2	560	0	560
4	Site preparation	Nov/Dec	12	3360	0	3360
5	Allignment and stacking of pits	Jan/Feb	2	560	0	560
6	Digging of pits (30 cm cube)	Feb/Mar	40	11200	0	11200
7	Nursery cost (18 months old seedling)@Rs.34.84/- seedling, part Rs.22.14 for 1760 seedlings (1600+160)	April-Mar	111.67	31267.6	7698.8	38966.4
8	**Total**		**167.67**	**46947.6**	**7698.8**	**54646.4**
9	Monitoring & Supervision charge 5% of the total cost					2732.32
	Grand Total		**167.67**	**46948**	**7699**	**57379**

1ST YEAR/PLANTING YEAR						
10	Nursery cost (18 months old seedling) balance @ Rs.4.02 for 1760 seedlings (1600+160)	April-June	22	6160	915.20	7075.20
11	Fencing For an average of 250 meters/ha @ Rs.76.80/- per meter for bamboo twigs and bamboo thorn fencing	May/June	38	10640	8560	19200
12	Carriage & planting, Casualty Replacement and application of insecticides, manure etc.	Jul/Aug	21	5880	0	5880
13	Cost of insecticide and fertilizer					
	(a) NPK @ 50 gms/plant as basal dose =80kg @ Rs.24/- per kg = Rs.1920.00	Jul/Aug		0	1920	3232
	(b) Urea @ 70 gms/plant in two subsequent doses @ Rs.6/- per kg = Rs.672.00				672	
	(c) Granular insecticide(Themet, Forate etc.) @ 5 gms/plant @Rs.80/-per kg = Rs.640.00				640	
14	1st weeding (complete weeding)	Aug/Sep	7	1960	0	1960
15	Manuring Urea 35 gm	Aug/Sep	5	1400	0	1400
16	2nd Weeding (complete weeding)	Sep/Oct	5	1400	0	1400
17	Soil working (50 cms. Radius around plants) & manuring Urea 35gms per plant	Sep/Oct	7	1960	0	1960
18	Soil conservation measures in the form of straggerd trenches of size 2 m X 0.5 m X 0.5 m @ 30 nos per ha	Sep/Oct	10	2800	0	2800
19	Fire line tracing & inspection path	Feb/Mar	3	840	0	840
20	Watch & Ward	Aug-Mar	7	1960	0	1960
	Total		**125**	**35000**	**12707.20**	**47707.20**

21	Monitoring & Supervision charge 5% of the total cost					2385.36
	Grand Total		**125**	**35000**	**12707**	**50093**
	2ND YEAR MAINTENANCE					
22	Repair and maintenance of Bamboo fence including material cost	May/June	20	5600	5080	10680
23	Casualty replacement (10%) with Nursery cost	Jul/Aug	4	1120	5574.40	6694.40
24	Weeding (complete weeding)	Sep/Oct	6	1680	0	1680
25	Cost of fertilizer (NPK @70gms /plant)(Rs.24/-per kg & Insecticide @5 gms/plant for 160 plants 800 gms @ Rs.80/- per kg)			0	2752	2752
26	Soil working (50 cms. Radius around plants)	Oct/Nov	7	1960	0	1960
27	Application of fertilizer & insecticide	Sep/Oct	4	1120	0	1120
28	Fire line tracing (2 m. wide fire line over 400 m long)	Feb/Mar	3	840	0	840
29	Watch & Ward	Apr-Mar	15	4200	0	4200
	Total		**59**	**16520**	**13406.40**	**29926.40**
30	Monitoring & Supervision charge 5% of the total cost					1496.32
	Grand Total		**59**	**16520**	**13406**	**31423**
	3RD YEAR MAINTENANCE					
31	Repair and maintenance of Bamboo fence including material cost	May/June	20	5600	1000	6600
32	Weeding and application of fertilizer	Aug/Sep	7	1960	0	1960
33	Cost of fertilizer (NPK @ 50 gms/plant) @ Rs.24/-per kg			0	1920	1920

34	Soil working (50 cms. Radius around plants) & applicaton of fertilizer	Oct/Nov	7	1960	0	1960
35	Fire line tracing (2 m. wide fire line over 400 m length) & cultural operation	Feb/Mar	3	840	0	840
36	Watch & Ward	Apr-Mar	15	4200	0	4200
	Total		**52**	**14560**	**2920**	**17480**
37	Monitoring & Supervision charge 5% of the total cost					874
	Grand Total		**52**	**14560**	**2920**	**18354**
	4TH YEAR MAINTENANCE					
38	Fire line tracing (2 m. wide fire line over 400 m length) & cultural operation	Feb/Mar	3	840	0	840
39	Watch & Ward	Apr-Mar	15	4200	0	4200
	Total		**18**	**5040**	**0**	**5040**
40	Monitoring & Supervision charge 5% of the total cost					252
	Grand Total		**18**	**5040**	**0**	**5292**

A B S T R A C T

Sl. No	Year	No. Person Day	Labour cost @ ₹ 280/- per day	Material Cost (₹)	Monitoring & Supervision charge 5% of the total cost	Total cost in (₹)
1	Previous Year	44	12320	2957	764	16041
2	0th year	167.67	46948	7699	2732	57379
3	1st year	125	35000	12707	2385	50093
4	2nd year	59	16520	13406	1496	31423
5	3rd year	52	14560	2920	874	18354
6	4th year	18	5040	0	252	5292
	Total	**465.67**	**130388**	**39689**	**8504**	**178581**

Significantly higher rate of survival is expected due to new provision of fencing.
The survival percentage should not be less than 60% 4th year onwards

COST NORM FOR ODISHA BAMBOO DEVELOPMENT AGENCY (NBM)

Per Hectare Cost Norm for Bamboo Plantation@ 333 Plants/Wage rate @ ₹ 280/- per day

Sl. No	Items of work	Period of Activity	Labour in Mandays	Labour Cost (₹)	Material Cost (₹)	Total Cost in (₹)
1	2	3	4	5	6	7
	ADVANCE WORK (PREPLANTING OPERATION- 0TH YEAR)					
1	Cost of raising 366 seedlings (part) @ Rs.12.43 per seedling (Rs.8.67 in 0th year+ Rs.3.76 in 1st year)	Jan-Mar	9.5	2660	513.22	3173.22
2	Survey, Demarcation and Pillar posting	Feb-Mar	2	560	0	560
3	Site Preparation	Feb-Mar	2	560	0	560
4	Alignment and stacking of pits	Feb-Mar	2	560	0	560
5	Digging of pits of size 45cm cube	Feb-Mar	21	5880	0	5880
	TOTAL including cost of 366 seedlings (part)		**36.5**	**10220**	**513**	**10733**
6	Monitoring & Supervision charge 5% of the total cost					537
	Grand Total		**36.5**	**10220**	**513**	**11270**
	FIRST YEAR / PLANTING YEAR					
1	Cost of 366 polypot seedlings (balance) @ Rs.3.76 per seedling	Apr-June	3.5	980	396.16	1376.16
2	Fencing For an avarage of 250 meters/ha @Rs.76.80/- per meter for bamboo twigs and bamboo thorn fencing	May/June	38	10640	8560	19200
3	Carriage, Planting including casualty replacement, manuring (basaldose) and insecticide application	July- Aug	5	1400		1,400
4	Cost of fertilizer & insecticide (a) NPK 50 gms/plant @Rs.24/- per kg=Rs.400.00	July- Aug	0	0	897	897

	(b) Granular Insecticide 5 gms/ plant @80/- per kg=Rs.133.00 (c) Cost of Potash (MOP) @ 65gm/ plant @ Rs.16.80/- per kg= Rs.364.00					
5	1st weeding (around the plant 1 m radius)	Aug- Sept	2	560		560
6	2nd weeding (around the plant 1 m radius)	Oct- Nov	2	560		560
7	Soil working (1m radius around the plant) & manuring using chemical fertilizer (Urea/DAP/NPK etc.)	Oct- Nov	2	560	200	760
8	Soil Conservation measures in form of staggered trenches of 2m L x 50m W x 50m D @ 27 trenches per ha	Jan-Feb	9	2520		2,520
9	Fire tracing and inspection path	Jan-Feb	3	840		840
10	Watch and ward	Oct- Mar	7	1960		1,960
11	Contingency		0	0	200	200
	TOTAL		**71.5**	**20020**	**10,253**	**30,273**
12	Monitoring & Supervision charge 5% of the total cost					1,514
	Grand Total		**71.5**	**20020**	**10,253**	**31,787**
	SECOND YEAR MAINTENANCE					
1	Casualty replacement with nursery cost for 33 polypot seedlings @ Rs.12.43 per seedlings	June- July	1	280	410.19	690.19
2	Application of fertilizer	Aug- Sept	1	280		280
3	Cost of fertilizerCost of Potash (MOP) @ 65gm/plant @ Rs.16.80/- per kg=Rs.364.00	Aug- Sept	0	0	364	364
4	Repair and maintenance of Bamboofence including material cost	May/June	20	5600	5080	10680

5	Weeding (around the plant 1 m radius)	Aug- Sept	2	560		560
6	Soil working(1mt radius around the pit)	Oct- Nov	2	560		560
7	Fire tracing (2m wide fireline over 400 m long	Feb- March	3	840		840
8	Watch and ward	Whole year	15	4200		4,200
9	Contingency		0	0	204	204
	TOTAL		**44**	**12320**	**6,058**	**18,378**
10	Monitoring & Supervision charge 5% of the total cost					919
	Grand Total		**44**	**12320**	**6,058**	**19,297**
	THIRD YEAR MAINTENANCE					
1	Repair and maintenance of Bamboo fence including material cost	May/June	20	5600	1000	6600
2	Weeding and application of fertilizer	Aug- Sept	2	560		560
3	Cost of fertilizerCost of Potash (MOP) @ 65gm/plant @ Rs.16.80/- per kg=Rs.364.00	Aug- Sept	0	0	364	364
4	Soil working(1mt radius around the pit)	Oct- Nov	2	560		560
5	Fire tracing (2m wide fireline over 400 m long	Feb-March	3	840		840
6	Watch and ward	Whole year	15	4200		4,200
7	Contingency		0	0	211	211
	TOTAL		**42**	**11760**	**1575**	**13335**
8	Monitoring & Supervision charge 5% of the total cost					667
	Grand Total		**42**	**11760**	**1,575**	**14,002**

FOURTH YEAR MAINTENANCE						
1	Maintenance including soil mounding around plants	Feb-March	4	1120	4,000	5,120
2	Watch & Ward	Whole year	15	4200	0	4,200
3	Contingency		0	0	500	500
	TOTAL		**19**	**5,320**	**4,500**	**9,820**
4	Monitoring & Supervision charge 5% of the total cost					491
	Grand Total		**19**	**5320**	**4500**	**10311**
FIFTH YEAR MAINTENANCE						
1	Maintenance including soil mounding	Feb-March	4	1120	3,500	4,620
2	Watch & Ward	Whole year	15	4200	0	4,200
3	Contingency		0	0	500	500
	TOTAL		**19**	**5,320**	**4,000**	**9,320**
4	Monitoring & Supervision charge 5% of the total cost					466
	Grand Total		**19**	**5320**	**4000**	**9786**

ABSTRACT

Sl. No	Year	No. Person Day	Labour cost @ ₹ 280/- per day	Material Cost (₹)	Monitoring & Supervision charge 5% of the total cost	Total cost in (₹)
1	0TH YEAR	36.5	10220	513	537	11270
2	FIRST YEAR/PLANTING YEAR	71.5	20020	10253	1514	31787
3	SECOND YEAR MAINTENANCE	44	12320	6058	919	19297
4	THIRD YEAR MAINTENANCE	42	11760	1575	667	14002
5	FOURTH YEAR MAINTENANCE	19	5320	4500	491	10311
6	FIFTH YEAR MAINTENANCE	19	5320	4000	466	9786
	Total	**232**	**64960**	**26900**	**4593**	**96453**

PER HECTARE COST NORM FOR RAISING BAMBOO PLANTATION IN DEGRADED C TYPE BAMBOO AREAS

50 Plants per Ha/Wage rate @ ₹ 280/- per day

Sl. No	Items of work	Period of Activity	Labour in Mandays	Labour Cost (₹)	Material Cost (₹)	Total Cost in (₹)
1	2	3	4	5	6	7
A. ADVANCE WORK (RAISING OF NURSERY AND PREPLANTING OPERATION- 0TH YEAR)						
1	Nursery cost for 6 months Bamboo Seedlings part @ Rs.12.43 (Rs.8.67 in 0th year+ Rs.3.76 in 1st year) for 55 numbers	Jan-Mar	1	280	196.85	476.85
2	GPS Survey of area & marking of points for gap planting	Feb-Mar	1	280	0	280
3	Digging of pits of size 45cm cube	Feb-Mar	3	840	0	840
	TOTAL		**5**	**1400**	**197**	**1597**
4	Monitoring & Supervision charge 5% of the total cost					80
	Grand Total		**5**	**1400**	**197**	**1677**
B. FIRST YEAR / PLANTING YEAR						
1	Nursery cost for 6 months Bamboo Seedlings Balance @ Rs.12.43 (Rs.8.67 in 0th year+ Rs.3.76 in 1st year) for 55 numbers	April-june	0.5	140	66.80	206.80
2	Transportation of seedlings with polypots	June	1	280	0	280
3	Planting including casualties replacement, manuring(basal dose) and insecticide application	July -August	1	280	0	280
4	Cost of manure, (a) FYM @250 gm /plant @ Rs.15.00 per kg=Rs.187.50		0	0	322	322

	(b) Cost of Potash (MOP) @ 65gm /plant @ Rs.16.80/- per kg= Rs.54.60 (c) Cost of chemical fertilizer (Urea/DAP/NPK etc.) (d) Insecticide @5gm per plant @ Rs.80 per kg=Rs.20.00					
8	1st weeding (around the plant 1 m radius)	Sept -Oct	1	280	0	280
6	2nd weeding (around the plant 1 m radius)	Oct -Nov	1	280	0	280
7	Soil working (1 m radius around the plant)	November	1	280	0	280
8	Contingency		0	0	140	140
	TOTAL		**5.5**	**1540**	**529**	**2069**
9	Monitoring & Supervision charge 5% of the total cost					103
	Grand Total		**5.5**	**1540**	**529**	**2172**
	C. SECOND YEAR MAINTENANCE					
1	Casuality replacement with nursery cost	July-August	1	280	62.15	342.15
2	Cost of fertilizer and application. (a) Cost of Potash (MOP) @ 65 gm/plant @ Rs.16.80/- per kg = Rs.54.60 (b) Cost of chemical fertilizer (Urea/DAP/NPK etc.)		1	280	115	395
3	1st weeding (around the plant 1 m radius)	September	1	280	0	280
4	2nd weeding (around the plant 1 m radius)	Oct-Nov	1	280	0	280
5	Soil working (1 m radius around the pit)	November	1	280	0	280
	Subtotal		**5**	**1400**	**177**	**1577**

6	Contingency		0	0	30	30
	TOTAL		**5**	**1400**	**207**	**1607**
7	Monitoring & Supervision charge 5% of the total cost					80
	Grand Total		**5**	**1400**	**207**	**1688**
	D. THIRD YEAR MAINTENANCE					
1	Weeding and application of fertilizer	Sept -Oct	1	280	0	280
2	Cost of fertilizer, (a) Cost of Potash (MOP) @ 65gm/plant @ Rs.16.80/- per kg=Rs.54.60 (b) Cost of chemical fertilizer (Urea/DAP/NPK etc.)		0	0	115	115
3	Soil working (1 m radius around the pit)	November	1	280	0	280
	Sub total		**2**	**560**	**115**	**675**
4	Contingency		0	0	20	20
	TOTAL		**2**	**560**	**135**	**695**
5	Monitoring & Supervision charge 5% of the total cost					35
	Grand Total		**2**	**560**	**135**	**730**

ABSTRACT

Sl. No	Item of Work	No. Person Day	Labour cost @ ₹ 280/- per day	Material Cost (₹)	Monitoring & Supervision charge 5% of the total cost	Total cost in (₹)
A	0TH YEAR	5	1400	197	80	1677
B	PLANTATION- 1ST YEAR	5.5	1540	529	103	2172
C	MAINTENANCE-2ND YEAR	5	1400	207	80	1688
D	MAINTENANCE-3RD YEAR	2	560	135	35	730
	TOTAL	**17.5**	**4900**	**1068**	**298**	**6266**

* One year old polypot raised seedlings (seed origin) shall be planted

16.15 INTERIM REVISION:

These prescriptions may be reviewed after five years jointly by the Regional Conservator of Forests, Bhubaneswar Circle and the Chief Conservator of Forests, Working Plans and the deviation if any suggested shall be subjected to the sanction of the competent authority.

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CHAPTER- 17

CAR TIMBER (OVERLAPPING) WORKING CIRCLE

17.1 GENERAL CONSTITUTION:

The temple of Lord Jagannath is situated in the East coast of Indian peninsula, which stands on the sea shore of Puri. Purushottam Dham or Sreekshetra one amongst Chatrudham has been an important centre of pilgrimage and Hindu worship from the ages. The almighty Lord Jagannath spreads message of Hindu Heritage and brings the people of every walk of life together through socio-cultural bondage.

The Car Festival *(Ratha Yatra)* of Lord Jagannath at Puri, since time immemorial, has been celebrated in the lunar month of *'Asadha' (Bije Dutiya or Shree Gundicha)* each year. Ceremonial construction of holy Chariots starts from the day of *"Shree Panchami"* in the month of February and the regular make of grand car for the Lord Jagannath, Lord Balabhadra & Devi Subhadra starts on the auspicious day of *'Akshsyatrutiya'* generally in the first week of May. Every year new chariots (Ratha) are being constructed by carpenters, for the World famous Ratha Yatra at Puri for which timbers are being supplied by the Khordha Forest Division, Nayagarh Forest Division as well as Boudh Forest Division and some devotees to prepare the chariots.

Similarly, the Car festival of Lord Lingaraj is celebrated at Bhubaneswar on the day of *'Ashokastami'* in the month of *'Chaitra'* the day preceding *'Ramanabami'*.

From time immemorial, specified timbers have been supplied for construction of Grand Cars from the erstwhile Puri Division now named as Khordha Division in arbitrary manner without much regard to regeneration and future availability of such species in perpetuity Sri J. D. Sharma, IFS, the then Working Plan Officer, Bhanjanagar conceptualized for the first time, a "Car Timber (Overlapping) Working Circle" in the revision of Working Plan for 1989-90 to 1998-99 of Puri Forest Division and subsequently the same was revised and took shape of a Working Scheme by Sri R. V. Singh, IFS, the then Conservator of Forests, Working Plans Circle, Cuttack (now defunct) for a period of 10 years i.e. from 1998-99 to 2007-08 in view of expiry of the Working Plan and its non-revision.

As enshrined in Puri Ratha Yatra Code, 1983 the Divisional Forest Officer of erstwhile Puri Division now named as Khordha Division (after reorganization of the Forest Department) is to supply the required quantity of timbers of specified species to the Temple

Administrator, Shree Jagannath Temple, Puri who shall bear the cost of cutting conversion and transportation etc. The relevant extracts from the Puri Ratha Yatra Code are quoted below :-

Extracts of the Puri Ratha Yatra Code, 1983

It is the responsibility of Forest Department, Govt. of Orissa to supply the required timber for construction of the Rathas free of cost each year.

As a matter of practice, the Divisional Forest Officer, Puri Division (erstwhile Puri Division) and now Khordha Division is supplying required timber and he should continue to do so.

It shall be the responsibility of the Divisional Forest Officer, Khordha, Divisional Forest Officer, Nayagarh and Divisional Forest Officer , Boudh to supply 274 nos. of logs of the following species and sizes for construction of the Rathas, so as to reach the Temple Authority, Lord Jagannath Temple, Puri much in advance to Car Festival. **Table No. 17.1** shows the requirements of Car Timber species of Shree Jagannath Temple Authority, Puri from Khordha Forest Division.

Table No.17.1 Requirements of Car Timber Species from Khordha Forest Division

Species	**Dimension (Girth x Length) in feet.**	**Quantity (Nos.)**
1	**2**	**3**
Kansa, Simili, Planks etc.	2.5 x 10’	46 nos.
Paladhua planks etc.	3’ x 10’	85 nos.
Mahalimba planks etc.	3’ x 10’	20 nos.
Gambhari planks etc.	2.5 x 12’	1 no.
Mai planks etc.	3’ x 10’	15 nos.
Kadamba planks etc.	3’ x 10’	4 nos.
Kalachua Bullah.	9” x 7’	60 nos.
Mai or Devdaru or Paldhua Planks.	5’ x 10’	42 nos.
Devadaru for Misc. use.	5’ x 10’	1 no.
TOTAL		**274 nos.**

The Divisional Forest Officer, Nayagarh is required to supply the required quantity of timbers of different species to the Executive Officer, Lord Lingaraj, Bhubaneswar for the Car Festival at Bhubaneswar for which the assessment was to be done by the Divisional Forest Officer, City Forest Division.



The total area covered under this working circle is 16358.81Ha. The details of Forest Blockwise area under this working circle is given in **Table No-17.3**

Table -17.2 Area allotted to Car Timber Overlapping Working Circle:

Constitution of working Circle:

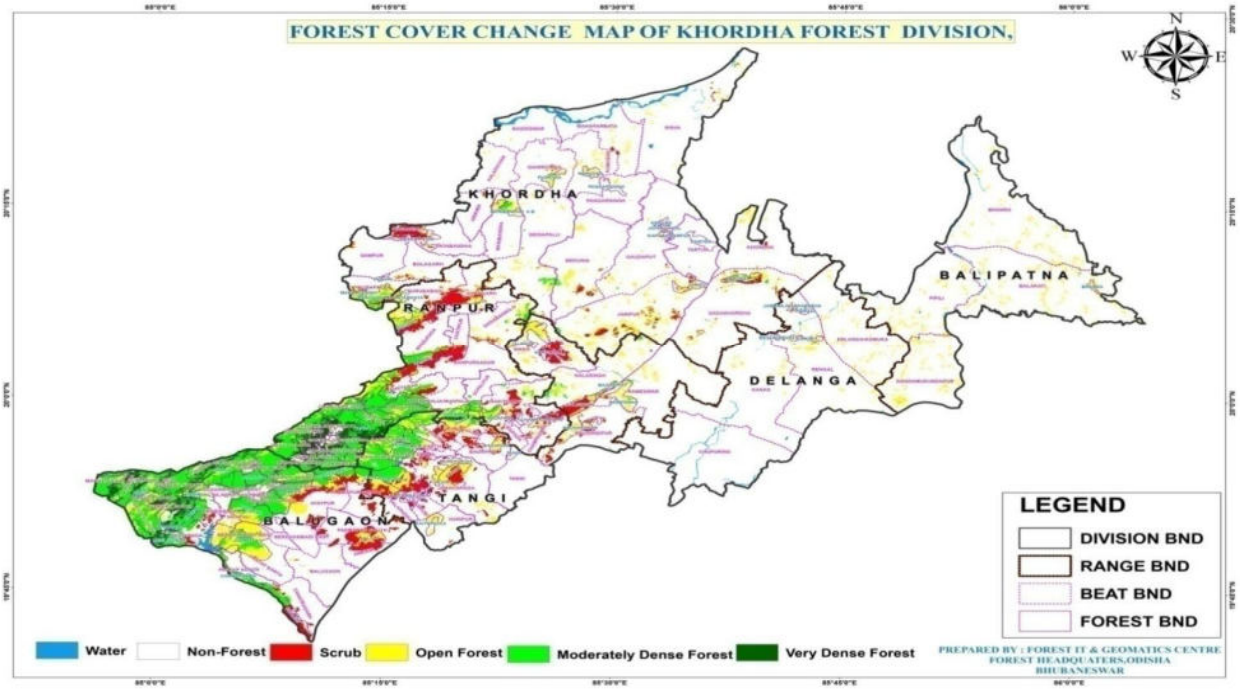
Sl No	Name of the Range	Name of the Forest Block	Area in Ha.	GIS Area in Ha.	Area Diverted (in Ha.)		Area under this Plan (in Ha.)	Area allotted to Car Timber (O) WC
					Under FRA	Under FC Act.		
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	Balugaon	Aranga RF	2651.6	2608.14	0.923		2607.217	1279.60
2	-do-	Bankard RF	1290.28	1323.214			1323.214	1000.45
3	-do-	Kotwal RF	982.4	979.65			979.65	367.89
4	-do-	Tamana RF	3587.2	3573.052			3573.052	2017.28
5	-do-	Rajin RF	6472.4	6667.455	35.109		6632.346	4318.76
6	Ranapur	Mala RF	10472.46	10863.10	237.33		10625.77	5187.24
7	Tangi	Patia RF	3702.18	3888.975	2.446		3886.529	2187.59
		Total	**29158.52**	**29903.59**	**275.808**		**29627.78**	**16358.81**

17.1.1 Blocks and Compartments:

The total area allotted to this Working Circle is coming under seven numbers of Reserve Forests. A statement of allocation of Blocks and Compartments together with area is given in **Table No.17.3** the Blocks have been regrouped into different felling series from the Silvicultural and management point of view, which is shown in Map No. 17.1

Table No. 17.3 Block wise area of Car Timber (O) Working circle of Khordha Division

Sl. No.	Name of Felling Series	Name of Forest Block	Compt No.	Total GIS area in Ha.	Total area of F.S in Ha.
1	2	3	4	5	6
01	Mahulia	Rajin R.F.	1,2,4,5,8,10	1685.69	1685.69
02	Rajin	Rajin R.F.	9,12,14,15,16,19	1468.72	1468.72
03	Berbera	Katwal R.F. Rajin R.F.	1,2 22,23,24,25,26,28	1532.24	1532.24
04	Tamana	Tamana R.F.	1,3,8,9,10,13	2017.28	2017.28
05	Dhuanali	BankardR.F. Aranga R.F.	1,2,3 1,2,3	2280.05	2280.05
06	Patia	Patia R.F.	1,2,6,7,11,12	2187.59	2187.59
07	Mala	MalaR.F.	1,2,3,4,7,8,9,10,22, 23	1700.69	1700.69
08	Sankhajodi	Mala R.F.	18,19,20,24,25,29	1623.58	1623.58
09	Sirikuti	Mala R.F.	30,32,33,34,35,37,4 8,49	1862.97	1862.97
			TOTAL	**16358.81**	**16358.81**



Map No. 17.1 Car Timber (Overlapping) Working Circle of Khordha Forest Division

17.1.2 Requirement of Car Timbers and Supply:

During 2006-07 and 2007-08 only 114 and 90 logs has been supplied by Khordha Forest Division to the Shree Jagannath Temple Authority, Puri instead of 274 logs as per Puri Ratha Yatra Code, 1983 which is shown in **Table No. 17.4**

TABLE NO. 17.4 YEAR WISE SUPPLY OF CAR TIMBERS OF KHORDHA FOREST DIVISION

Sl No.	Year	T.T. Permit No.	Species	No. of Logs	No. of bullies	Volume in cft.
1	**2**	**3**	**4**	**5**	**6**	**7**
1	1998	369243/1344	Sidha, Jamu, Asam & Rai	8		13.01
			Total	**8**		**13.01**
2	1999	369271/1344	Kalucha & Mai	38	20	135.89
		369274/1344	-do-	39		143.43
		369275/1344	-do-	38		158.5
		369276/1344	-do-	38		132.66
		369277/1344	-do-	35		131.96
		369278/1344	-do-	26		93.46
			Total	**214**	**20**	**795.90**
3	2000	284518/1387	Kalucha & Mai	63		183.66
		284519/1387	-do-	35	30	186.97
		284520/1387	-do-	31	30	157.64
		284521/1387	-do-	36		177.37
		284522/1387	-do-	34		151.34
		284523/1387	-do-	15		74.85
			Total	**214**	**60**	**931.83**
4	2001	284532/1387	Rai, Mai	40		172.45
		284533/1387	-do-	41		177.25
		284534/1387	-do-	40		169.02
		284535/1387	Rai, Mai & Simul	40		184.96
		284536/1387	-do-	37		202.63
		284539/1387	Rai, Mai	16		92.14
			Kalucha ballies		60	
			Total	**214**	**60**	**998.45**
5	2002	284577/1387	Simul, Mango, Rai & Mai	19		151.47
		284578/1387	Rai, Mai & Simul	21		165.95
		284579/1387	Rai, Mai	37		152.66
		284580/1387	Mango, Simili, Mahaneem	6		176.34
		284581/1387	Simili	8		175.6
			Kalucha ballies		60	
		284582/1387	Rai, Mai	59		180.03
			Total	**150**	**60**	**1002.05**
6	2003	8/1099	Rai, Mai	41		142.57
		9/1099	Rai, Mai	45		172.53
		10/1099	Simili	3		41.73
			Kalucha ballies		22	
		11/1099	Rai, Mai	43		183.66
		12/1099	Simili, Rai, Mai	42		172.17
		13/1099	Rai, Mai	40		163.82
			Kalucha ballies		38	
			Total	**214**	**60**	**876.48**

Sl No.	Year	T.T. Permit No.	Species	No. of Logs	No. of bullies	Volume in cft.
1	**2**	**3**	**4**	**5**	**6**	**7**
7	2004	52/297/1416	Rai, Mai	25		168.33
		53/297/1416	Rai	29		179.84
		55/297/1416	Rai, Mai	29		185.14
		56/297/1416	Rai, Mai	30		187.38
		57/297/1416	Rai, Mai	29		192.61
		58/297/1416	Rai, Mai	28		184.25
		59/297/1416	Rai, Mai	5		59.31
			Misc ballies		20	
		60/297/1416	Rai, Mai	29		208.29
		61/297/1416	Rai, Mai	10		75.45
			Total	**214**	**20**	**1440.60**
8	2005	88/1416/297	Mai, Simul & Mahalimba	9	20	215.03
		89/1416/297	-do-	8		108.98
		90/1416/297	-do-	11		223.65
		91/1416/297	-do-	10		189.64
	2005	92/1416/297	-do-	18		220.47
		94/1416/297	-do-	15		183.57
		95/1416/297	-do-	20		90.95
			Total	**91**	**20**	**1232.29**
9	2006	3/574/1453	Mai, Simul & Mahalimba	16	20	211.99
		4/574/1453	-do-	12		206.56
		5/574/1453	-do-	20		191.27
		6/574/1453	-do-	16		217.4
		7/574/1453	-do-	16		223.19
		8/574/1453	-do-	14		223.33
			Total	**94**	**20**	**1273.74**
10	2007	21/579/1458	Kansa,Mai, Simul & Mahalimba	23	20	156.42
		13/579/1458	-do-	10		189.51
		14/579/1458	-do-	14		208.72
		15/579/1458	-do-	8		156.83
		16/579/1458	-do-	6		157.8
		17/579/1458	-do-	8		186.84
			Total	**69**	**20**	**1056.12**
11	2008	22/574/1453	Mai, Simul, Simili & Mahaneem	20	20	182.47
		23/574/1453	-do-	10		170.14
		24/574/1453	-do-	17		258.19
		25/574/1453	-do-	11		152.17
		26/574/1453	-do-	10		159.45
			Total	**68**	**20**	**922.42**
12	2009	29/574/1453	Mai & Simili	20	20	177.92
		30/574/1453	-do-	19		212.75
		31/574/1453	-do-	18		190.14
		32/574/1453	-do-	13		132.49
			Total	**70**	**20**	**713.3**

Sl No.	Year	T.T. Permit No.	Species	No. of Logs	No. of bullies	Volume in cft.
1	2	3	4	5	6	7
13	2010	1/1475	Mai,Sal, Rai,Simili,Mahaneem	20	20	160.43
		7/1475	-do-	9		158.26
		10/1475	-do-	8		124.98
		13/1475	-do-	11		195.08
		14/1475	-do-	10		160.33
		18/1475	-do-	6		206.92
		19/1475	-do-	10		220.72
		21/1475	-do-	6		107.87
			Total	**80**	**20**	**1334.59**
14	2011	022153/1479	Mai, Rai,Simili & Kumbhi	20	20	140.62
		022152/1479	-do-	4		181.59
		022154/1479	-do-	16		248.51
		022155/1479	-do-	5		303.92
			Total	**45**	**20**	**874.64**
15	2012	022524/1486/894	Mai & Simili	20	20	155.6
		022525/1486/894	-do-	5		173.04
		022526/1486/894	-do-	9		181.84
		022527/1486/894	-do-	10		239.97
			Total	**44**	**20**	**750.45**
16	2013	022161/ 19.06.13	Mai	20	20	147.67
		022162/ 19.06.13	Mahala	9		215.45
		176002/1498	Mahala	3		198.85
		176003/1498	Mahala	4		191.08
			Total	**36**	**20**	**753.05**
17	2014	175131/ 916/1508 dtd.02.06.14	Simili & Mahaneem	8		191.36
		175132/ 916/1508 dtd.04.06.14	Simili	6		136.97
		175136/ 916/1508 dtd.06.06.14	Simili & Mai	10		193.06
		175135/ 916/1508 dtd.06.06.14	Simili & Mai	8		196.03
		176476 dtd.04.06.14	Mai	10		95.55
			Kaluchua ballies		10	
		176477 dtd.04.06.14	Mai	10		75.37
			Kaluchua ballics		10	
			Total	**52**	**20**	**888.34**
18	2015	T.T. Permit No.	Mai	26		451.85
			Rai	16		225.49
			Simili	11		233.32
			Kumbhi	4		57.86
			Neem	18		249.422
			Teak	1		5.891
			Khaira	1		0.574
			Gambhar	1		1.797
			Kalchua ballics		10	
			Total	**78**	**10**	**1226.204**

Sl No.	Year	T.T. Permit No.	Species	No. of Logs	No. of bullies	Volume in cft.
1	2	3	4	5	6	7
19	2016	287640/1558/966 dt.16.06.16	Mai	20	20	160.352
		287909/972/1564 dt.14.06.16	Simili, Rai, Mai & Kumbhi	20		250.065
		287910/972/1564 dt.20.06.16	Rai, Mai & Kumbhi	20		259.955
		287911/972/1564 dt.20.06.16	Simili, Rai, & Kumbhi	13		206.939
		287913/972/1564 dt.23.06.16	Simili, Rai, & Kumbhi	6		78.410
			Total	**79**	**20**	**955.721**
20	2017		Mai	46		530.754
			Kumbhi	11		130.437
			Rai	11		139.337
			Simili	28		459.725
			Kalachua ballies		20	
			Non sal ballies		10	
			Phasi Tree	3		1878.318
			Palm Tree	15 nos having 25' long		
			Total	**99**	**30**	**3138.571**
21	2018		Simili, Rai, Mai & Kumbhi	122	20	1694.371
22	2019		Simili, Rai, Mai & Kumbhi	181	20	2092.074
23	2020	Ranpur/0199078 dt.23.05.20	Rai	20		7.793

Source: Divisional Forest Officer, Khordha Division

17.1.3 History:

Forests of Khordha received early attention for conservation. Efforts towards conservation were initiated in 1870-80 in the forests which are categorized as the demarcated protected Forests. The D.P.Fs were legally notified as such in 1880 out of unsettled lands. The D.P.Fs have since been managed under the Khordha Protected Forest Rules. Khordha Forest Sub-division was created in 1883. Most of the Reserved Forests were notified, as such, between 1885 & 1911 and have since been managed under Indian Forest Act, 1927 and the Ranapur State Forest Rules. The systematic management of these forests, however, began in 1896-97, when the first Working Plan was drawn by Hatt for the period from 1896-97 to 1905-06. More forests, which were earlier subject to heavy human pressure were closed for felling and were effectively protected against fire. Some forests, particularly Sal dominated forests, were worked under the coppice system. Regeneration efforts were stepped up in Hatt's plan which was revised by Monteath for the period from 1905-06 to 1919-20.

Denry prepared the third plan from 1926 and prescribed the following Working Circle the Sal Conversion Working Circle, the Hill Working Circle, the Miscellaneous Working

Circle, the Teak Plantation Working Circle, the coppice with the standard Working Circle and the Simple Coppice Working Circle. This plan was revised by Mooney for the period 1931-32 to 1954-55 and had the following six working circles, the Selection Working Circle, the Coppice Working Circle, the Teak Plantation Working Circle, The Casuarina working Circle, the Miscellaneous Working Circle and the Bamboo Working Circle. An interim revision of Circle, the Bamboo Working Circle, the Casuarina Working Circle and the Miscellaneous Working Circle.

Mathur (1947-48 to 1956-57) prepared a Working Plan for forests of Ranpur Estate and created five working circles, the Selection Working Circle, the Coppice Working Circle, the Bamboo Working Circle, the Unregulated Working Circle and the Plantation Working Circle in addition, Mohapatra prepared a scheme for exploitation of Teak Plantation. This scheme remained in force from 1959 to 1965.

17.1.4 Management:

The first integrated Working Plan of Khordha and Ranpur forest was created by Sj.Mitra for the period from 1965-66 to 1984-85. This revised plan had ten Working Circles, the Sal selection Working Circle, the Improvement Working Circle, the Coppice Working Circle, the Miscellaneous Working Circle, the selection Working Circle, the Teak Working Circle, the Casuarina Working Circle, the Bamboo (overlapping) Working Circle, the Cane (Overlapping) Working Circle, the Minor Forest Produce (overlapping) Working Circle and the Game Preservation (Overlapping) Working Circle. Though Car Timber continued to be supplied from the forests of Puri Forest Division all these years, no efforts were made in any Working Plan to undertake this activity in a systematic manner. So the Car timber felling generally remained irregular felling.

17.1.5 Car Timber (Overlapping) Working Circle:

Sj. Sharma revised Sj. Mitra's Plan in 1989-90. This plan was in force up to 1998-99. Taking into consideration the degraded condition of these forests Sj. Sharma laid strong emphasis on conservation and improvement of forests. He provided the following nine Working Circles the Improvement Working Circle, the Teak Plantation Working Circle, the Rehabilitation Working Circle, the Casuarina Improvement Working Circle, the Bamboo (overlapping) Working Circle, the Minor Forest Produce (overlapping) Working Circle and the Soil Conservation (overlapping) Working Circle. In pursuance to the recommendation of the Working Plan Committee, Sj. Sharma prescribed a Car timber (Overlapping) Working Circle for the first time and included all the DPFs in it.

In the course of time, Car timbers of desired dimensions, quality and species are not available in these demarcated protected Forest Blocks. Moreover, forests in this Division have become subjected to intense biotic interference (i.e. illicit felling and grazing) due to fast urbanization of the region and other factors.

Therefore, the Divisional Forest Officer, Khordha has faced considerable difficulties in supplying car timber of the desired dimension, quality and species due to continued degradation of these forests. In particular suitable trees of Phasi, which occur at highly localized sites in riverian zones, have considerably reduced. In these circumstances, sustained supply of car timber of desired dimensions, quality and species from these forests has become questionable unless systematic efforts are made to address this problem.

Therefore, a two-pronged strategy has been conceptualized to address this problem. First, an intensive plantation scheme has been proposed to be undertaken for the car timber species to meet the requirement of car timber in a sustainable manner over a long period. However, intensive plantation scheme was not of much help in the immediate future. Second, in view of the circumstances, it was considered desirable to seek interim revision of the current car timber (overlapping) working circle of the expired Working Plan 2007-08 to 2016-17 .This revision is intended to ensure sustained supply of the desired car timber from Khordha Forest Division in accordance with ecological imperatives as enshrined in the National Forest Policy, 1988. Accordingly the revised Car Timber (Overlapping) Working Circle "Scheme was prepared by Sj. R. V. Singh, I.F.S. for a period of 10 years (i.e. from 1998-99 to 2008-09), which included the productive Reserve Forests of Balugaon, Ranpur and Tangi Range covering an area of 21604.43 ha**.** However, after expiry of the Working Plan, the supply of Car timbers for Lord Jagannath is being regulated as per the annual approval of the Govt. of India, Ministry of Environment & Forests with some stipulations. As it appears, it is not possible to get the revision of Working Plan completed to serve the purpose of supply of car timber and hence the revised scheme of Car timber (overlapping) Working Circle of Khordha Division has been resorted to in view of re-organization of Forest Department & annual uninterrupted supply of Car timbers in a scientific manner based on recent enumeration of desired species in the potential areas.

17.2 GENERAL CHARACTERISTICS OF VEGETATION:

The area allotted to this Working Circle is 16358.81 Ha. as per GIS data given by NRSA covering 7 Reserve Forests namely Patia of Tangi Range, Mala of Ranpur Range and Aranga, Bankard, Katwal, Tamana & Rajin of Balugaon Range of Khordha Forest Division and existing Jagannath Bana Prakalpa plantations. The details of which is given in **Table No. 17.2** .In addition, this Working Circle shall also extend to the revenue lands/ debotter lands/ Khesara

forests/ Protected forests where Jagannath Bana Prakalpa plantations are undertaken. All the plantations of 609 hectares under Shree Jagannath Bana Prakalpa (JBP) scheme are also included in this Working Circle.

17.2.1 Crop Composition and Regeneration Status:

According to Champion & Seth the forests, included in this Working Circle, are classified as 2B-Northern Tropical Semi-evergreen Forests 3C-North Indian Tropical Moist Deciduous Forests, and 5B-Northern Tropical Dry Deciduous Forests. The followings are the extracts from the outgoing Working Plan provide a glimpse of these forests:

17.2.2 Northern Tropical Semi-ever green Forests.

C-3- Orissa Semi-ever green Forests

This type is found in the moderately heavy to heavy rainfall areas of the Division. Top story consists of deciduous tree species which are leaf-less for short time only and not simultaneously, and 2nd story mostly remains ever-green. These types of forests are widely located in the valleys of the hills up to 800 meters or so of Rajin, Tamana and Mal blocks. The occurrence is mostly noticed on fertile fresh soils in the areas having rainfall around 1500 mm. Or more and high humidity under oceanic influence. The flora consists of Sal (Shorea robusta), Asan (Terminalia tomentosa), Ashoka (Saraca indica), Mango (Mangifera indica), Dhamana (Grewia tileafolia), Celtis terander, Bridelia retusa, Dillenia pentagyna, Mesua ferrea, Phoeba lanceolata, Polyalthia spps., Macaranga peltata, Glochidion spps., Litsea nitida etc. and many small ever-green shrubs and perennials, Ciruma aromatica, Leca cripsa, Bambusa arundinacea occurs in patches throughout, notbly in Aranga & Tamana blocks. Cances (Calamus latifolius, Calamus viminalis & Calamus guruba) are found in the form of over exploited bushes. Bauhinia vahilii and Combretum decandrum are found in abundance.

17.2.3 3C/c_1 (d) Peninsular (Coastal) Sal Forest:

This type of Forest is found in plains of Rajin, Tamana, Mal, Bankard R.Fs. Here Sal is found in abundance in almost pure even aged stand and common associates of Sal (Shorea robusta) are Asan (Terminalia tomentosa), Halanda (Adina cordifolia), Bija (Pterocarpus marsupium), Mundi (Mitraygyna parviflora), Kasi (Bridelia retusa), Kusuma (Schleichera oleosa), Dhaura (Anogeissus latifolia), Mai (Lannea grandis) and Sidha (Laterstroemia parviflora). In the top story quality of Sal is II/III. Quality-I patches are rare but found in Mal-Tamana and Rajin. The average crown density is 05. The second story consists of Rai(Dillenia pentagyna), Chara (Bachanania lanzan), While ground flora consists of Dantakathi(Smilax macrophylla), Kumbhatua, Sidha(Lagerstoemia parviflora), Sugandhi(Hemidesmus indicus) and

Autundi(Combretrm decandrum), Gaja(Nyctanthes arbortristis), Ketaki(Pandanus fascicularis), Dantari (Acacia pinnata) are common climbers, Common grasses that occur locality in this type of forests are Sinkila(Heteropogon contoous), Dhanwantari(Cymbopongon martini) and Fulachanchuni (Thysanolaena maxima) etc. The natural regeneration of sal is found in abundance. The forests are presently subjected to biotic interference which may bring about retrogression very fast. If biotic interference are minimized and adequate fire protection measures are ensured progression may rapidly commence with the establishment of a dense evergreen undergrowth including tree species.

17.2.4 3C/2S$_1$ Northern Secondary Moist Mixed Deciduous Forest:

These are the patches of the forests where Sal is not found in abundance but other secondary species are more prevalent. The climate of the area is mostly that of semi-evergreen type. The original forest has been destroyed either by over felling or repeated fires and un-interrupted smuggling of principal species. This type of distribution is noticed in the hills of Patia, Mal, Rajin, Tamana, Bankad, Katwal R.Fs and Chulijhinka, Nathpur, Bhatapada & Jiripada D.P.Fs.

Here upper canopy consists of Mango (Mangifera indica), Chhatian (Alstonia scholaris), Melia, Kasi (Bridelia retusa), Kusuma (Schleichera oleosa), Prolium serratum, while middle canopy consists of Meliosa veluntina, Glochidion lanceolarium, Carreya arborea, Zizyphus glaberrima, Polyalthia cerasioides, Strychonus potatorum. Mallotus philippinensis, Bambusa arundinacea and lower storey consists of Glycosmis pentaphylla, Psychotria adenophylla, Phyllochiamys spinosa, Mababuxi folia, Strobilanthes scaber and Combretum decandrum and Bauhinia vahlii.

These areas were successfully brought under Teak Plantations, which are now being frequently attacked by smugglers. In these areas if the protection from fire and smuggling is assured then semi green species will come up fastly.

17.2.5 Northern Tropical Dry Deciduous Forests

Dry Peninsular Sal Forest

This type occurs in the parts of Maniabandha, Panchagarh, Sulia 'B', Jayamangal, Satabhaya R.Fs, on flat terrain with shallow laterite soil. In these areas soil moisture conditions are un-favourable for the development of moist sal even in the areas with high rainfall. The soil often rests on hard impervious laterite. The site quality is III/IV and regeneration is quite fair but establishment is rather poor. Some of these patches appear to have been good Sal forests in the past but due to over exploitation, frequent fires, over grazing and

consistent biotic interference from neighboring populous villages, conditions have become more congenial for growth of xerophytes. Sal grows only on favorable sites and stagnates there. On some places frequent coppicing and stunted shoots were noticed. No canopy as such is established but Sal constitutes nearly 60% of the crop, with poor quality and most of the trees are unsound and hollow. The common associates are Dhaura (Anogeissis latifolia), Chara (Buchnania lanzan), Anla (Emblica officinalis), Bahada (Terminalia belerica), Kendu (Diospyrous melanoxylon), Salia Bamboo (Dendrocalamus strictus). The under growth consists of Keruan (Holarrheina antidysentrica), Kochila (Strychnos nuxvomica). Kantekuli (Zizyphus oenoplia), Banakhajuri (Phoenix acualis) and Asan bushes (Terminalia alata) are also found in abundance.

17.2.6 5B / DSI – Dry Deciduous Scrub Forests

A number of blocks like Dhani, Maninag, Satabhaya, Sulia, Barunei R.Fs and Sandhamal, Champagarh, Jharana and Bagheiput D.P.Fs are more deficient in their vegetation. Here natural vegetation has been virtually reduced to scrubs over extensive area under the impact of biotic factors like un-interrupted illicit fellings, over grazing and fire. In the erstwhile plan, most of these blocks were included in coppice working circle, where the crop either did not coppice or the coppice shoots could not withstand the biotic pressure. Then plantations of Teak, mixed species and Cashewnut were undertaken by various agencies, over the same areas repeatedly but primary species are coming-up more vigorously than the plantations and in the period of 4-5 years both the planted stock as well as primary species disappear. The species, generally met in such forests rarely attend a height of more than 5m. and consists of shrubs like Kasi (Bridelia retusa), Keruan (Hollarrheina antidysenterica), Kendu (Diospyrous melanoxylon), Veru (Chloroxylon swietenia), Asana (Terminalia tomentosa) and clumps of Salia bamboos (Dendrocalamus strictus). The soil is shallow, compact and lying over lime stone and lateritic rocks. These areas are dry, eroded full of rills and ravines. Continued biotic exploitations had fostered secondary successions and further retrogression of the plant community. These areas require immediate rehabilitation and extensive soil conservation measures.

Regeneration of Sal and other important miscellaneous species is adequate but establishment of the same is endangered mainly because of biotic factor. Principal species besides Sal are Terminalia tomentosa, Adina cardifolia, Mitragyna parviflora, Terminalia belerica, Emblica officinalis, Oujeinia oojeinensis, Anogeissus latifolia, Gmelina arborea and Cleistanthus collinus etc. species like Mango, Jamu, Ashok, Jack fruit, Dillenia are commonly noticed in some blocks.

17.3 FELLING SERIES:

This working circle comprises 09 Felling series i.e. Mahulia, Rajini, Berbara, Tamana, Dhuanali, Patia, Mala, Sankhajodi, Sirikuti which are meant for Car Timber extraction.

17.4 SPECIAL OBJECTIVES OF MANAGEMENT:

The special objectives of management set for this Working Circle are mentioned below.

- To maintain and improve the available growing stock with a view to ensure sustained supply of timber for Car Festival.
- To induce conditions which promote and establish regeneration of principal species in these forests.
- To induce conditions which encourage canopy closure and bio-diversity conservation with a view to conserve soil and moisture to enhance ecological stability.
- To cater the needs of fuel wood consumption for 'Swarga Dwar' and for preparation of "Maha Prasad" in "Rosai Ghar" of Lord Sri Jagannath in harvesting of existing exploitable trees in planting areas.
- To promote plantation of species required for car timber in outside forest area i.e. village forest/revenue lands.
- To prepare a list of Range wise devotees who are willing to donate the species for car timber in their own private lands within 31st December of each year and facilitate them to supply the same to temple administration.
- To develop Jagannath Bana Prakalpa plantation out of fund supported by temple administration in forest / revenue lands/ temple administration lands (A proposal need to be submitted by D.F.O by end of 31st December to temple administration).

17.5 ANALYSIS OF THE CROP:

While revising the Working Plan of this Forest Division, Sj. Sharma conducted sample enumerations in these forests included in this Working Circle with a view to have an idea of growing stock of Car Timber species. Besides this Sj. R. V. Singh has also conducted a sample enumeration in 4 Forest Blocks to ascertain the position of growing stock availability while preparing revised Car Timber (overlapping) Working Circle.

In addition to above number of plantations raised under Shree Jagannath Bana Prakalpa(JBP) in Khordha Division for supply of required quantity of Car Timber in future since 2000 is annexed in **Table No.17.5**

Table No. 17.5: Year wise list of plantation raised under Sri Jagannath Bana Prakalpa under Khordha Forest Division

Sl. No.	Name of the District	Name of the Range	Year of plantation	Name of the Site	Area planted (in ha.)	Name of species planted	Seedlings planted (in nos.)
1	2	3	4	5	6	7	8
1	Khordha	Khordha	2000-01	Pangarsingh RF	128	Phasi, Simuli, Gambhari, Kadamba, Neem, Mahaneem, Paldhua	204800
2		Khordha	2001-02	Pangarsingh RF	10	Phasi, Asan, Simuli, Gambhari, Kadamba, Neem, Mahaneem, Paldhua	16000
3		Khordha	2002-03	Manibandha RF	20	Phasi, Neem, Gambhar, Mahaneem	32000
4		Khordha	2003-04	Duburi DPF	20	Phasi, Gambhar, Simuli, Acacia, Neem	32000
5		Tangi	2003-04	Kandambajhar DPF	10	Phasi, Simuli, Karanja, Neem	16000
6		Khordha	2004-05	Taratua DPF	20	Phasi, Simuli, Gambhar, Neem	32000
7		Khordha	2004-05	Kapileswarpur DPF	15	Phasi, Simuli, Gambhar, Neem	24000
8		Balipatna	2004-05	Bhanra PRF	20	Phasi, Arjun, Neem	32000
9		Khordha	2005-06	Chandapur KF (Revenue Land)	19	Phasi, Simuli, Gambhari, Neem, Mahaneem, Paldhua	30400
10		Balugaon	2005-06	Champagarh DPF	20	Phasi, Simuli, Gambhari	32300
11		Tangi	2005-06	Chakadapathar DPF	25	Phasi, Simuli, Gambhari, Karanja, Paldhua, Neem	40000
12		Khordha	2007-08	Kotalanga Revenue land	15	Phasi, Asan, Gambhar, Simuli, Mahaneem, Neem	24000
13		Khordha	2015-16	Tikatal village forest	11	Phasi, Simuli, Gambhari, Neem, Mahaneem, Paldhua	17600
14		Khordha	2015-16	Balunkeswar Temple	4	Phasi, Simuli, Gambhari, Neem, Mahaneem, Paldhua	6400
15		Tangi	2015-16	Chakadapathar	50	Phasi, Asan, Gambhar,	20000
				DPF ANR		Simuli, Mahaneem, Neem	
16	Puri	Balugaon	2015-16	Champagarh DPF ANR	50	Phasi, Asan, Gambhar, Simuli, Mahaneem, Neem	20000
17		Delang	2000-01	Kumuka PRF	72	Phasi, Gambhari, Simuli, Neem, Mahaneem, Kadamba, Acacia, Holosorisia, Debdaru	180000
18	Cuttack	Delang	2004-05	Jamuna Jhadapada PRF	30	Phasi, Arjun, Gambhar, Simuli, Neem, Mahaneem, Acacia	48000
19		Khordha	2003-04	Baideswar DPF	20	Phasi, Acacia, Neem, Simuli, Simaruba	32000
20	Nayagarh	Ranpur	2015-16	Maninag RF ANR	50	Phasi, Asan, Gambhar, Simuli, Mahaneem, Neem	20000
				Total	**609 Ha.**		**859500**

From 2016-17 no plantation has been taken up under Sri Jagannath Bana Prakalapa Scheme in Khordha Forest Division.

17.6 SILVICULTURAL SYSTEM:

"Selection System" will be adopted with emphasis on conservation, sustainable production and stability of the ecosystem with adoption of proper Silvicultural practices in the Forest blocks of Khordha Forest Division.

17.7 HARVESTABLE DIAMETER:

Although the desirable species will be harvested for the purpose of car timber, equal emphasis will be given to all species available in these blocks in view of bio-diversity conservation.

The exploitable girth of various species has been fixed, taking their Silvicultural characteristics into account and the dimensional requirements of timber for construction of Rathas, which is given below. **Table No:17.6**

Table No: 17.6 Exploitable girth of various species

Sl. No.	Species	Exploitable Girth in cm.
1	**2**	**3**
1	Simili, Paldhua	120 cms and above
2	All other Car Timber species	90 cms and above
3	Kalchua poles	30 cms and above

Not withstanding the aforesaid exploitable girth, Car timber species of girths 90 cm and above shall be exploited to meet the requirement of the Rathas Kalchua poles of 1 ft. girth shall also be exploited for the purpose. However, the exception is not applicable for any other purpose.

17.8 FELLING CYCLE:

This working circle comprises 09 felling series namely Mahulia, Rajin, Berbara, Tamana, Dhuanali, Patia, Mala, Sankhajodi & Sirikuti.

Keeping the special objectives of the management in view, the forests included the proposed Working Circle are confined to improvement working circle of the outgoing Working Plan and the felling cycle is kept at ten years, which synchronizes with the plan period. Therefore the felling series has been divided into 10 annual coupes.

17.9 YIELD CALCULATION:

The condition of forest crop has been analyzed and evaluated taking into consideration of the analysis provided in the outgoing Working Plan Sample evaluation and the Sample enumeration was conducted with the assistance of staffs of Working Plan Division, Bhubaneswar. These limited data may not represent the whole population of the growing stock of desired Car timber species. However the limited exercise has provided a basis for sustainable removal trees. For supply of 274 logs of desired species about 165 trees are required to be removed annually subject to Silviculturally availability of selected trees. This comes to approximately one tree from 10 ha. of forest area. Therefore, the conservative step shall be taken in to consideration without any detrimental effect to the existing forest crop.

On analysis of requirement of specified Car Timber species by the Temple Administrator and supply of such species by the respective Divisional Forest Officer during the year 2006 to 2019, it is noticed that Khordha Forest Division has supplied 20 nos of Kalachua ballahs each year instead of 60 as per the code expect 10 nos of during 2015 and 30 nos during 2017. And it is made to understand that actually the Temple Authority does not require 60 nos of Kalachua ballahs as alternative arrangements have been made by replacing with GI or Iron pipes. Similarly so far as balance 214 logs of different species are concerned the use of timbers has been greatly minimized by strict monitor and supervision and use of surplus available stock of the previous years. Thus the requirements of logs from Khordha Forest Division by the temple authority have been gone down considerably to 70 to 181 logs instead of 214 logs.

The requirement of firewood for Puri town, Swarga Dwara, and Rosa Ghara of Sri Lord Jagannath Temple will be supplied by the Odisha Forest Development Corporation, consultation with the Puri Wild Life Division.

17.10 TABLE OF FELLING:

The sequence of felling of Car Timbers is shown in coupes I to X from (2021-22 to 2030-31) in the management map of 1:50,000 scale and is shown in **Table No.17.7**

Table No. 17.7 Felling Series wise Area of Car Timber (O)

Working Circle for Car Timber

Year of felling	Coupe No.	Composition of coupes			Total Area in (ha.)
		Block	Comptt. No.	Area in ha.	
1	2	3	4	5	6
(1) MAHULIA FELLING SERIES (MHL)					
2021-22	I	Rajin	1(part)	123.69	**1685.69**
2022-23	II	-do-	1(part)	250.57	
2023-24	III	-do-	1(balance)	134.42	
2024-25	IV	-do-	2	177.41	
			3 (part)	52.34	
2025-26	V	-do-	4	255.87	
2026-27	VI	-do-	5	206.89	
2027-28	VII	-do-	8(part)	170.06	
2028-29	VIII	-do-	8(balance)	89.27	
2029-30	IX	-do-	10(part)	125.00	
2030-31	X	-do-	10(balance)	100.17	
(2) RAJIN FELLING SERIES(RJN)					
2021-22	I	Rajin	9(part)	229.77	**1468.72**
2022-23	II	-do-	12	221.46	
2023-24	III	-do-	14(part)	128.92	
2024-25	IV	-do-	14(bal)	118.00	
2025-26	V	-do-	15(part)	129.90	
2026-27	VI	-do-	15(part)	125.00	
2027-28	VII	-do-	15(balance)	144.42	
2028-29	VIII	-do-	16(part)	129.11	
2029-30	IX	-do-	16(balance)	125.60	
2030-31	X	-do-	19	116.54	
(3) BERBERA FELLING SERIES(BBR)					
2021-22	I	Rajin	22	171.80	**1532.24**
2022-23	II	-do-	23	115.70	
2023-24	III	-do-	24(part)	144.50	
2024-25	IV	-do-	25(part)	129.40	
2025-26	V	-do-	25(balance)	152.14	
2026-27	VI	-do-	26(part)	140.00	
2027-28	VII	-do-	26(balance)	102.32	
2028-29	VIII	-do-	28(part)	208.49	
2029-30	IX	Katwal	1	210.79	
2030-31	X	-do-	2	157.10	

Year of felling	Coupe No.	Composition of coupes			Total Area in (ha.)
		Block	Comptt. No.	Area in ha.	
1	2	3	4	5	6
(4) TAMANA FELLING SERIES(TMN)					
2021-22	I	Tamana	1	343.69	
2022-23	II	-do-	3(part)	175.00	
2023-24	III	-do-	3(part)	175.00	
2024-25	IV	-do-	3(balance)	148.85	
2025-26	V	-do-	8	207.74	**2017.28**
2026-27	VI	-do-	9	253.76	
2027-28	VII	-do-	10(part)	150.00	
2028-29	VIII	-do-	10(balance)	151.05	
2029-30	IX	-do-	13(part)	200.00	
2030-31	X	-do-	13(balance)	212.19	
(5) DHUANALI FELLING SERIES(DNL)					
2021-22	I	Aranga	1(part)	200.00	
2022-23	II	-do-	1(balance)	243.73	
2023-24	III	-do-	2(part)	225.00	
2024-25	IV	-do-	2(balance)	184.37	
2025-26	V	-do-	3(part)	200.00	
2026-27	VI	-do-	3(balance)	226.50	**2280.05**
2027-28	VII	Bankard	1(part)	200.00	
2028-29	VIII	-do-	1(balance)	187.83	
2029-30	IX	-do-	2	261.47	
2030-31	X	-do-	3	351.15	
(6) PATIA FELLING SERIES(PAT)					
2021-22	I	Patia	1	224.89	
2022-23	II	-do-	2(part)	175.00	
2023-24	III	-do-	2(part)	175.00	
2024-25	IV	-do-	2(balance)	296.66	
2025-26	V	-do-	6	187.38	
2026-27	VI	-do-	7	160.48	**2187.59**
2027-28	VII	-do-	11(part)	200.00	
2028-29	VIII	-do-	11(balance)	202.46	
2029-30	IX	-do-	12(part)	250.00	
2030-31	X	-do-	12(balance)	315.72	
(7) MALA FELLING SERIES(MAL)					
2021-22	I	Mal	1	193.43	
2022-23	II	-do-	2	221.35	
2023-24	III	-do-	3	219.32	
2024-25	IV	-do-	4	175.99	
2025-26	V	-do-	8(part)	172.70	
2026-27	VI	-do-	8(balance)	159.99	**1699.09**
2027-28	VII	-do-	22	90.77	
			29(part)	21.12	
2028-29	VIII	-do-	9	72.77	
2029-30	IX	-do-	10	99.78	
2030-31	X	-do-	23	271.87	

Year of felling	Coupe No.	Composition of coupes			Total Area in (ha.)
		Block	Comptt. No.	Area in ha.	
1	2	3	4	5	6
(8) SANKHAJODI FELLING SERIES(SJD)					
2021-22	I	Mal	18(part)	236.69	**1623.58**
2022-23	II	-do-	18(balance)	162.99	
2023-24	III	-do-	19(part)	130.00	
2024-25	IV	-do-	19(balance)	183.24	
2025-26	V	-do-	20(part)	150.00	
2026-27	VI	-do-	20(balance)	131.40	
2027-28	VII	-do-	24	108.40	
2028-29	VIII	-do-	25(part)	150.00	
2029-30	IX	-do-	25(balance)	115.72	
2030-31	X	-do-	29(part)	255.14	
(9) SIRIKUTI FELLING SERIES(SKT)					
2021-22	I	Mal	30	157.43	**1864.57**
			21 (part)	44.58	
2022-23	II	-do-	32(part)	200.00	
2023-24	III	-do-	32(balance)	156.57	
2024-25	IV	-do-	33	115.81	
2025-26	V	-do-	34(part)	150.00	
2026-27	VI	-do-	34(balance)	160.85	
2027-28	VII	-do-	35	115.70	
2028-29	VIII	-do-	37(part)	226.14	
2029-30	IX	-do-	37(balance)	200.00	
2030-31	X	-do-	48	220.83	
			49	116.66	
				TOTAL	**16358.81**

17.10.1 Demarcation of Annual Coupes:

- Annual coupes have been depicted in 1:25,000 scale management maps.
- Annual coupes will be demarcated before commencement of actual marking.
- Annual coupes will be demarcated during winter season of the year preceding the year of coupe working.
- As far as possible, the coupe boundaries should coincide with compartment lines and prominent natural feature.
- When coupe boundary coincides with the compartment line, the trees marked with white paint double rings earlier on compartment line shall be repainted and compartment line shall be cleared to a width of 5 Mt.
- When coupe lines do not coincide with compartment line, a strip to a width of 3 mtrs shall be cleared along coupe line and stone cairns of size 90Cm x 60Cm x60Cm. shall be

erected at coupe corners and at 300 mtr interval along with a serial number on them. While cleaning the 3 mtr. strip along coupe line all trees below 30 cm. girth shall be felled. Bigger tree appearing along coupe line at a visible distance shall be painted with double coal tar rings at breast height and at the base of tree.

- When a particular coupe covers two compartments, line in between shall be cleared in 5 mtr. width and double ring given earlier shall be repainted which will form lot line. Where lot is formed but lot line coincides with compartment line, bigger unmarked trees on lot line at visible distance shall be marked with single coal tar ring at breast height.
- Coupes shall be demarcated correctly by an officer not below the rank of trained forester and shall be checked by the Range Officer before starting the marking.
- After demarcation of the annual coupe, a sign board shall be fixed in a prominent location of the coupe indicating the Working Circle, name of the Felling series, coupe Number, year of working and area of the coupe.

17.10.2 Marking Rules

- After demarcation of the coupe, marking shall be done in accordance with the following rules.
- Marking of trees for felling shall be done by a Forest Ranger with a marking hammer to be issued by the Divisional Forest Officer and safe return of the said hammer to the Division office is the responsibility of the Divisional Forest Officer and the Range Officer to whom the hammer has been issued.
- All trees to be marked for felling will be given two blazes of size 15 cm x 15 cm on opposite sides to each other, one at Breast Height of the tree and the other at the base close to ground. In case of hilly area the blaze at Breast Height shall be given on the uphill side and the blaze on the base shall be given on the downhill side. The trees shall be marked by the Marking Hammer/ Departmental Hammer and digited serially.
- Trees of the girth less than the exploitable girth and more than the exploitable girth shall not be marked.
- Trees within 50 Mtrs. On either side of nalla banks, 50 Mtr. Radius around any habitat of wild animals such as den, Salt licks, wallows, Game tank and waterholes, shall not be marked.
- No marking shall be done except the dead and the uprooted trees in eroded areas, areas within 50 Mtrs. of the road side and area having more than 30% slope.
- The total no. of trees marked in a coupe shall not exceed 20% of the total harvestable trees recommended for felling.

- All dead and uprooted trees shall be marked for selling in the coupe except the area prescribed in (iv) above.
- A list of trees retained in the annual coupe shall be mentioned in the Coupe register and corresponding compartment history.
- Marking shall be checked by the Divisional Forest Officer or by an Asst. Conservator of Forests duly authorized by the Divisional Forest Officer. Any defects noticed during checking shall be rectified forthwith by the Marking Officer.

17.10.3 Method of execution of Felling:

The Divisional Forest Officer, Khordha Forest Division will regulate the felling of trees in the annual coupes after assessing the actual requirement of car timber for the year. Shortfall, if any, in any particular year shall be met from the surplus trees left in the previous year's coupe but not from advanced coupe.

Marked trees will be felled flush to the ground by saw. The felled trees will be converted into logs. The logs shall be serially numbered tree wise and entered in the conversion register. Impressions of sale hammer shall be put on both ends of logs. Logs will be transported and handed over to the Temple Administration at Puri. Details of marking felling, deviations, if any and subsidiary operation shall be entered in Compartment histories.

17.11 SUBSIDIARY SILVICULTURAL OPERATION (CLEANING AND THINNING):

Subsidiary silvicultural operation prescribed in Selection-cum-Improvement Working Circle should be meticulously followed. Besides that SSO works also to be under taken for Jagannath Bana Prakalpa plantations beyond four years.

The Range Officer concerned shall submit final inspection report in the last week of June, period of subsidiary Silvicultural operation starts from 1st October in the year following the main felling. The following subsidiary silvicultural operations will be carried out.

- Cutting of all climbers, twinners except that of endangered species.
- Cutting back all malformed and defective saplings in group of established regenerations of primary and secondary species with reasonable expectation of coppice development.
- In dry areas shrubs will be kept to create moist conditions, mulching shall be preferred.
- Subsidiary Silvicultural operations should not be taken up in 50 Mts. radius left around the key habitats of wild animals.
- Area shall be fully protected from forest fires, browsing, grazing and illicit fellings. Trenches of size 3M x 2.5 Mt. x 2M shall be dug at vulnerable places to restrict entry of cattle and human being into the coupes.

17.12 REGENERATION:

The status of regeneration has already been mentioned in the Selection-cum-Improvement Working Circle. Since this is over lapping Working Circle, the prescriptions indicated in the Selection-cum-Improvement Working Circle should strictly be followed.

17.12.1 Artificial Regeneration:

For the purpose of re-stocking the forest with required trees, existing blank patches in forests under this working circle shall be identified. Also the blanks created after the felling of trees shall also be taken up for gap planting of the species. Areas included in plantation working circle, (including revenue land/ debottar land) shall be taken up for intensive plantations of principal species. Moreover "Jagannath Bana Prakalpa" has also been carried out in Forest Divisions

An area of 100 Ha. blank patch is available which shall be taken up for gap plantation by the Divisional Forest Officer, Khordha Divn.

17.13 ASSOCIATED REGULATIONS AND MEASURES:

Success of plantation depends on good nursery stock, fertile soil layer, timely planting, timely silvicultural operation, protections and all other silvicultural practices. It includes controlled grazing, lopping of branches, regulated firewood removals, soil and moisture conservation measures, fire protection, forest protection from illicit felling, regulated removal of NTFP. Besides that restriction on encroachments, illegal mining, restriction on felling along rivers, highways, hill slopes should be strictly imposed properly.

17.14 NURSERY FOR JAGANNATH BANA PRAKALPA PLANTATIONS:

Temporary nurseries will be established close to the planting sites in a dispersed manner after selecting the planting sites to limit the cost of transport of samplings over long distances. The location of nursery sites will depend on availability of suitable lands. The minimum unit for a nursery will be twenty thousand saplings. Saplings raised in polypots/root trainer containers will be used for the plantations. It is preferably to raise two year seedling for better success of species required for the car timber.

17.14.1 Planting Technique:

Saplings raised in polythene bags/root trainer containers of 1.0 mt. to 1.20 mt high will be planted after receipt of a couple of heavy showers of monsoon rain. Prior to that pre-planting operations includes site preparation by cleaning of weeds, burning of weeds & digging of pits in proper intervals such as 2.5 mt x 2.5 mt for the species required for car timber should

be adopted. Soil working & manuring, soil moisture conservation work and other operations including post planting operation need to be followed by approved cost norm of Principal Chief Conservator of Forests & HoFF, Bhubaneswar.

17.14.2 Preparation of Site, Treatment Map And Plan:

A site map in the scale of 1:25,000 showing the details of area, direction of slope, nature of erosion, biotic interference, site specific species, aspiration of the public and other factors shall be prepared. This job shall be done by an officer not below the rank of a Forest Ranger and checked by an Assistant Conservator of Forests. This work shall be completed by the end of the December of the year proceeding to the year of plantation. Each plantation coupe shall be taken care for four years including the main year of operation.

17.15 MAINTENANCE OF RECORDS:

Records like compartment history and other records will be maintained for each coupe, compartment and felling series each year. These records will be taken into account during revision of the expired Working Plan.

17.16 MISCELLANEOUS REGULATIONS:

17.16.1 Grazing:

The coupes will be closed to grazing for a period of 5 years after main felling. Provisions of the Orissa Forest (Grazing of Cattle) Rules, 1980 will be followed strictly. However, plantations raised in the proposed working circle shall be strictly protected against fire and grazing at least for a period of 7 (seven) years.

17.16.2 Fire Protection:

Annual coupes will be protected against fire for a period of 5 years. The provision of Rule 283 of the Orissa Forest Department Code, 1979 and the Orissa Forest (Fire Protection) Rules will be followed. Special care will be taken in case of where required Car timber species is available.

17.16.3 Other Regulations:

The Temple Authority shall be impressed to review the use of alternate species and designs. They shall also be impressed to examine the possibility of refuse of timber used for Car wheels as well as the Car itself during the preceding Car Festival in order to conserve the forests for environment amelioration and sustainable supply.

- Sawing of timber shall be done in licensed Government sector Saw Mills in presence of staff of Puri (Wildlife) Division, not below the rank of a trained forester, in order to ensure optimum utilization.
- With regard to supply of timber to other Car Festivals i.e. other than Puri Ratha Yatra, the same will be made as per Govt. orders issued each year and as per the terms and conditions decided by the Principal Chief Conservator of Forests, Orissa.
- The Divisional Forest Officer, Khordha Division will continue to explore such areas in all Reserve Forests/ PRFs/ K.Fs, other forests which contain suitable required quantity trees.
- The Regional Chief Conservator of Forests, Bhubaneswar Circle and the Working Plans Officer Bhubaneswar will review the effects of the prescriptions outlined in this Working Circle during the next revision of the Working Plan of Khordha Forest Division. Forests proposed in this Working Circle shall be included in the revised Working Plan of the Division.
- The Divisional Forest Officer, Khordha shall take up research studies, in consultation with Silviculturist, Bhubaneswar, which will help improved regeneration of desired species. Efforts will also be made to standardize nursery techniques of these species. Steps shall be taken to create a Hi-tech nursery including mist chamber, hardening yard for growing of such seedlings in a scientific manner.
- The Divisional Forest Officer, Khordha will make sincere efforts to seek the co-operation of the people to achieve the objectives of this working circle through implementation of F.D.A. activities in different villages.
- The Regional Chief Conservator of Forests, Bhubaneswar Circle shall review implementation of prescriptions of this overlapping Working Circle annually.

17.17 FINANCIAL FORECAST

Financial forecast for this overlapping Working Circle comprises the following components. The details of cost norm for raising species for car timber plantation over 1 Ha.should be carried out as per the Plantation cost norms-2019. The detail financial outlay for this overlapping working circle for 10 years is shown in Table 17.8 the total area of this working circle is 16358.81 Ha. The following works are to be executed.

- Demarcation of coupe, marking of trees to be felled, felling, logging, dragging, and stacking.

- Loading, transportation and unloading.
- Commensurate Regeneration.

a. Subsidiary Silviculturural operation including protection against grazing, fire etc.

b. Plantation in blank patches with site specific species as per suitability.

Table No. 17.8 Cost of working for Car Timber Overlapping Working Circle.		
1	Demarcation of Annual Coupes @ 1 MD/10 Ha@ Rs.308/-per M.D.	Rs. 503851.00
2	Marking of coupes including climber cutting @ 0.5 MD / 10 Ha.	Rs 251926.00
3	Subsidiary Silvicultural operation @ 1 MD / per Ha. including regeneration cleaning	Rs.5038513.00
4	Watch & ward against illicit felling, fire and grazing from February to May 3 watchers per 200 ha. for 10 years	Rs.90921600.00
5	Extraction and Transportation of Car timber spp.2500cft (L.S) every year @ Rs. 308/- per cft. Rs. 770000/-x 10 Years	Rs.7700000.00
	Total	**Rs.104415890.00 or Rs.105000000.00**

17.18 INTERMEDIATE REVISION:

Intermediate revision is not anticipated. If it will be felt necessary by the Regional Chief Conservator of Forests, Bhubaneswar Circle, Bhubaneswar during his annual review of implementation of prescriptions of this working circle, he will suggest remedial measures and it will be allowed subject to the approval of competent authority.

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CHAPTER – 18

BAMBOO (OVERLAPPING) WORKING CIRCLE

18.1 INTRODUCTION:

Bamboo is multipurpose, fast growing, short rotation species which has wide adaptation to various agro-climatic conditions. Bamboos have large scale and multifarious uses. They are used in agriculture, horticulture, sericulture, construction, packaging, storage, cottage industries fisheries, fodder, fuel etc. Splitting, slivering and weaving of bamboos is a traditional art of many tribal and rural communities all over India. Tender bamboo is used as vegetable. The leaves are used for fodder, beverage and pharmaceuticals. While powdery deposit found in the hollow of some bamboos named 'Tabashir' is used in medicine. Hence, from a poor man's timber bamboo is fast emerging as 'green gold'. It has high social, economic and environmental importance.

In India the present poor state of productivity of bamboo is due to the unscientific management of bamboo growing areas. Annual production of bamboo in India is about 4.5 million tones which work out to be mean annual increment of 0.5 tone per hector per annum. The MAI can be increased in multiples of ten or twenty by adoption of techniques of decongestion of clumps, scientific harvest and with some water conservation measures. The economic potential of bamboos for generation of employment, increase in output of several value added products can become a multi-million business, both for indigenous consumption and also export market. Bamboos constitute one of the most versatile and useful group of plants ever known to mankind which is useful from cradle to coffin.

18.2 GENERAL CONSTITUTION:

The Bamboo Working Circle overlaps Bamboo bearing areas in Selection-cum-Improvement Working Circle and Rehabilitation Working Circle. The gross area covered by this working circle is **29378.51** Ha. as per GIS data given by NRSA, which has been spread over Tamana, Rajin, Katwal and Aranga Forest Blocks of Balugaon Range, Mala R.F. of Ranpur Range and Patia R.F, Dhani (S) R.F and Badapari DPF of Tangi Range.

Table 18.1 Distribution of Bamboo Forest in Khordha Forest Division

Sl. No.	Name of Range	Name of Forest Block	Area in Ha.	GIS area in Ha.
1	**2**	**3**	**4**	**5**
1	Balugaon	Tamana RF	3587.2	3573.05
2		Rajin RF	6472.4	6632.346
3		Katwal RF	982.4	979.649
4		Aranga RF	2651.6	2607.217
5	Ranapur	Mala RF (Except partly in Compt No.50)	10472.46	10583.8
6	Tangi	Patia RF	3702.18	3886.529
7		Dhani (S) RF	839.75	850.238
8		Badapari DPF.	254	265.677
		TOTAL	**28961.99**	**29378.51**

18.3 GENERAL CHARACTERISTICS OF VEGETATION:

A total of approximately 148 species in 29 Genera of bamboos are currently thought to occur in India (both wild and cultivated). The maximum concentration of species is found in the deciduous and semi evergreen regions of North-east and the tropical moist deciduous forests of North and South India. The North-eastern hilly States of India harbour nearly 90 species of bamboos, 41 of which are endemic to that region. There are 3 large genera (Bambusa, Dendrocalamus, and Ochlandra) of bamboos in India with more than 10 species each. Together, these three genera represent about 45% of the total bamboo species found in India. On the other hand, there are some genera which are represented by only one species each e.g. Ampelocalamus, Sarocalamus, Chimonobambusa, Pseudostachyum, and Stapletonia. Bamboos in India show a great diversity in both their habitat and habit of growth. They occur in different forest types, ranging from tropical to sub-alpine zones. Some species are found only in cultivated state in few gardens. The state–wise distribution of bamboos in India is not completely known. Endemism in Indian bamboos is of very high order. More than 50% of the bamboos found naturally occurring in India (71sps) are endemic to the country. This projection is however tentative , since more than a dozen species have been described as new species from India in the recent years and their presence in other geographical regions remains unexplored. None of the wild species of Indian bamboos is known with certainty to have a threatened conservation status. This opinion may be due to the lack of data on exploitation or decline, and lack of systematic studies on distribution and assessment of threat to these plants, compounded by profound taxonomic uncertainties. In India, most of the cultivated bamboos are less vulnerable and are

already conserved in various Gardens or Bambuseta located in different parts of the country. (*Source*- Bamboo diversity in india, Web Portal)

Odisha has 9% of the Countrys total bamboo forest cover and 7% of total growing stock of Bamboo. The bamboo in forest areas of Odisha grows as mixed crop associated with Sal & other species. The mixed bamboo forest area is spread over about 17,795 Sq. Km. and pure bamboo forest (occurring mostly as bamboo brakes) is about 375 Sq.Km. There are about 13 species of bamboo available in Odisha of which most commonly found are Dendrocalamus strictus (80%), and Bambusa bambos (10%). Cultivated species are *Bambusa vulgaris & Bambusa nutans. Bambusa tulda, Dendrocalamus lorgispathus, Schizostachyum pergraicile, Thyrostachys oliveri & Gigantachloa rostrata* are occurring in localized area in different parts of State. Others (*Thirostachys regia, Dendroclamus giganteous, Bambusa striata, Bambusa wamin*) are occurring in Silvicultural & other bambusetum as representative plantation. *(Source-OBDA, Web Portal)*

There are 13 species are available in Odisha. These species are :

- *Bambusa vulgaris* Bambusa vulgaris Var. Vulgaris Schrad ex Wendle Odisha) Sundarkani
- *Bambusa nutans* Bambusa nutans Wall ex Munro(Odisha)Badi
- *Bambusa tulda* Bambusa tulda Roxb (Odisha)Taleda
- *Dendrocalamus strictus* Dendrocalamus strictus Ness
- *Bambusa bamboos* Bambusa bambos voss (Odisha) Kanta / Daba
- *Thyrostachys oliveri* Thyrsostachys oliveri Gamble
- *Thyrostachys regia* Thyrostachys regia(Munro.) Bennet.
- *Dendroclamus longispathus*
- *Scizostachyum pergracile* Schizostachyum pergracile
- *Gigantochloa rostrata* Gigantochloa rostrata Wong. (Gigantochloa maxima var. minor Holttum Oxytenanthera nigrociliata Munro)
- *Dendroclamus giganteous* Dendrocalamus giganteus Munro
- *Bambusa striata* Bambusa striata
- *Bambusa wamin* Bambusa wamin Camus. Bambusa vulgaris var. wamin

18.4 FELLING SERIES, CUTTING SECTION AND JFM AREA:

Delineation of Bamboo Area into Treatment Type and quality classes

The Sample enumeration result furnished above reveals that the bamboo culms existing in these felling series are quite healthy and need to be worked out subject to minimum number of culms to be retained in a clump according to quality class. Although quality II & III Bamboo areas are found predominantly the length of the culms varies between 6 mt to 9mt. Thus it has been categorized under quality class-II. The table furnished below shows compartment wise treatment type.

Table No 18.2 Compartment wise Treatment Type of Bamboo

Sl. No.	Name of the FellingSeries	Name of the Coupe	Forest Block & Compt No.	Area in Ha.	Total Area	Treatment type		
						A	B	C
1	2	3	4	5	6	7	8	9
1.	Mala	Mala 'A'	Mala -6	140.67	**1067.64**	140.67	--	--
			Mala -7	83.74		83.74	--	--
			Mala -8	332.69		332.69	--	--
			Mala -9	72.77		72.77		--
			Mala -10	99.78		99.78		--
			Mala -11	156.35		--	100.00	56.35
			Mala -21	181.64		--	81.64	100.00
			Total			**729.65**	**181.64**	**156.35**
		Mala 'B'	Mala -1	193.43	**1247.10**	73.43	120.00	--
			Mala -2	221.35		31.35	190.00	--
			Mala -15	75.68		--	75.68	--
			Mala -16	329.91		290.00	39.91	--
			Mala -17	426.73		426.73	--	--
			Total			**821.51**	**425.59**	**--**
		Mala 'C'	Mala -3	219.32	**1202.90**	--	119.32	100.00
			Mala -4	175.99		--	75.99	100.00
			Mala -5	186.66		--	86.66	100.00
			Mala -12	218.22		108.22	110.00	--
			Mala -13	216.19		114.19	102.00	--
			Mala -14	186.52		110.32	76.20	--
			Total			**332.73**	**570.17**	**300.00**
		Mala 'D'	Mala -27	140.78	**1493.19**	--	140.78	--
			Mala -28	141.76		90.50	--	51.26
			Mala -29	276.26		--	276.26	--
			Mala 51&50(P)	120.23 &116.42		--	236.65	--
			Mala -30	157.43		--	157.43	--
			Mala -31	183.74		--	120.40	63.34
			Mala -32	356.57		--	130.57	226.00
			Total			**90.50**	**1062.09**	**340.6**
2.	Sankhajodi	Sankhajodi 'A'	Mala -18	399.68	**942.04**	289.68	110.00	--
			Mala -33	115.81		98.00	17.81	--
			Mala -34	310.85		--	160.85	150.00
			Mala -35	115.70		--	56.70	59.00
			Total			**387.68**	**345.36**	**209.00**
		Sankhajodi 'B'	Mala -41	56.52	**1122.2**	30.52	26.00	--
			Mala -19	313.24		260.00	53.24	--
			Mala -20	281.40		125.00	85.00	71.40
			Mala -22	90.77		35.77	55.00	--
			Mala -23	271.87		--	221.00	50.87
			Mala -24	108.40		--	108.40	--
			Total			**451.29**	**548.64**	**122.27**
		Sankhajodi 'C'	Mala -25	265.72	**1650.70**	265.72	--	--
			Mala -42	150.98		150.98	--	--
			Mala -43	187.02		--	--	187.02
			Mala -44	95.89		95.89	--	--
			Mala -45	209.43		140.80	68.63	--
			Mala -46	121.68		--	82.68	39.00
			Mala -47	282.48		282.48	--	--
			Mala -48	220.84		172.84	48.00	--
			Mala -49	116.66		116.66	--	--
			Total			**1225.37**	**199.31**	**226.02**
		Sankhajodi 'D'	Mala -26	578.20	**1858.03**	--	468.2	110
			Mala -36	95.52		--	95.52	--
			Mala -37	426.14		--	218.10	208.04
			Mala -38	397.16		--	240.84	156.32
			Mala -39	188.44		--	188.44	--
			Mala -40	172.57		--	172.57	--
			Total			**--**	**1383.67**	**474.36**
3.	Patia	Patia 'A'	Patia -6	265.91	**1095.77**	63.43	145.14	57.34
			Patia -7	160.48		57.89	102.59	-
			Patia- 8	243.034		-	202.12	40.92
			Dhani(S)-6	426.34		68.85	333.11	24.38
			Total			**190.17**	**782.96**	**122.64**

Sl. No.	Name of the FellingSeries	Name of the Coupe	Forest Block & Compt No.	Area in Ha.	Total Area	Treatment type		
						A	B	C
1	2	3	4	5	6	7	8	9
	Patia	Patia 'B'	Patia -3	172.30	**1052.71**	-	129.54	42.76
			Patia -4	503.40		338.47	164.93	-
			Patia -5	111.34		111.34	-	-
			Badapari	265.67		146.14	73.79	45.74
			Total			**595.95**	**368.26**	**88.5**
		Patia 'C'	Patia -1	224.89	**1861.17**	70.25	154.64	-
			Patia -2	646.66		220.66	380.00	46.00
			Patia -12	565.72		64.12	292.91	208.69
			Dhani(S)-5	423.90		115.13	308.77	-
			Total			**470.16**	**1136.32**	**254.69**
		Patia 'D'	Patia -9	250.24	**1364.20**	57.78	192.46	-
			Patia -10	338.10		65.25	115.50	157.35
			Patia -11	404.46		80.65	94.27	229.54
			Rajin-18	371.40		71.40	200.00	100.00
			Total			**275.08**	**602.23**	**486.89**
4.	Tamana	Tamana 'A'	Tamana -1	343.69	**1104.04**	110.00	233.69	--
			Tamana- 6	88.95		50.00	38.95	--
			Tamana -7	445.24		90.00	203.89	151.35
			Tamana -5	226.16		--	--	226.16
			Total			**250.00**	**476.53**	**377.51**
		Tamana 'B'	Tamana 10	301.05	**1127.50**	176.71	124.34	-
			Tamana -2	233.61		71.66	161.95	-
			Tamana -3	498.85		67.89	210.96	220.00
			Tamana -4	93.99		--	93.99	--
						316.26	**591.24**	**220.00**
		Tamana 'C'	Tamana -8	207.74	**688.64**	140.00	67.74	-
			Tamana -9	270.54		140.54	130.00	--
			Tamana 11	210.36		100.36	70.00	40.00
			Total			**380.9**	**267.74**	**40.00**
		Tamana 'D'	Tamana 12	240.68	**652.87**	--	240.68	--
			Tamana 13	412.19		--	292.96	119.23
			Total			**--**	**533.64**	**119.23**
5.	Kotwal	Kotwal 'A'	Kotwal -2	157.10	**365.59**	--	120.00	37.10
			Kotwal -3	208.49		--	129.46	79.03
			Total			**--**	**229.46**	**116.13**
		Kotwal 'B'	Kotwal -1	210.79	**614.06**	--	110.00	100.79
			Kotwal -4	149.34		--	100.00	49.34
			Kotwal -5	253.93		--	110.93	143.00
			Total			**--**	**320.93**	**293.13**
		Kotwal 'C'	Aranga-5	232.01	**935.49**	160.00	72.01	--
			Aranga-6	283.46		176.00	107.46	--
			Aranga-7	269.64		90.64	179.00	--
			Aranga-8	150.38		70.97	30.00	49.41
			Total			**497.61**	**388.47**	**49.41**
		Kotwal 'D'	Aranga-1	442.80	**1671.71**	330.00	112.80	--
			Aranga-2	409.37		--	409.37	--
			Aranga-3	426.50		180.00	143.02	103.48
			Aranga-4	393.04		222.52	--	170.52
			Total			**732.52**	**665.19**	**274.00**

Sl. No.	Name of the FellingSeries	Name of the Coupe	Forest Block & Compt No.	Area in Ha.	Total Area	Treatment type		
						A	B	C
1	2	3	4	5	6	7	8	9
6.	Ankula	Ankula 'A'	Rajin-15	399.33	**770.58**	--	200.00	199.33
			Rajin-16	254.71		--	154.71	100.00
			Rajin-19	116.54		80.00	36.54	--
			Total			**80.00**	**391.25**	**299.33**
		Ankula 'B'	Rajin-20	292.23	**811.92**	292.23	--	--
			Rajin-21	347.89		347.89	--	--
			Rajin-22	171.80		71.80	100.00	--
			Total			**711.92**	**100.00**	**--**
		Ankula 'C'	Rajin-23	115.70	**552.98**	100.70	15.00	--
			Rajin-24	155.74		155.74	--	--
			Rajin-25	281.54		86.54	95.00	100.00
			Total			**342.98**	**110.00**	**100.00**
		Ankula 'D'	Rajin-26	242.32	**680.50**	52.32	120.00	70.00
			Rajin-27	218.23		--	100.00	118.23
			Rajin-28	219.95		135.00	--	84.95
			Total			**187.32**	**220.00**	**273.18**
7.	Rajin	Rajin 'A'	Rajin-6	192.74	**849.20**	152.00	40.74	--
			Rajin-7	175.67		130.00	45.67	--
			Rajin-8	259.33		--	129.27	130.06
			Rajin-12	221.46		140.41	40.00	41.05
			Total			**422.41**	**255.68**	**171.11**
		Rajin 'B'	Rajin-1	508.68	**1104.49**	188.68	320.00	--
			Rajin-13	179.59		79.59	100.00	--
			Rajin-14	246.92		146.92	100.00	--
			Rajin-17	169.30		40.00	49.30	80.00
			Total			**455.19**	**569.30**	**80.00**
		Rajin 'C'	Rajin-10	225.17	**824.01**	159.81	65.36	--
			Rajin-2	177.41		80.41	97.00	--
			Rajin-3	165.56		80.00	85.56	--
			Rajin-4	255.87		124.67	131.20	--
			Total			**444.89**	**379.12**	
		Rajin 'D'	Rajin-5	206.89	**667.28**	106.89	100.00	--
			Rajin-9	232.18		--	100.00	132.18
			Rajin-11	228.21		228.21	--	--
Total						**335.10**	**200.00**	**132.38**

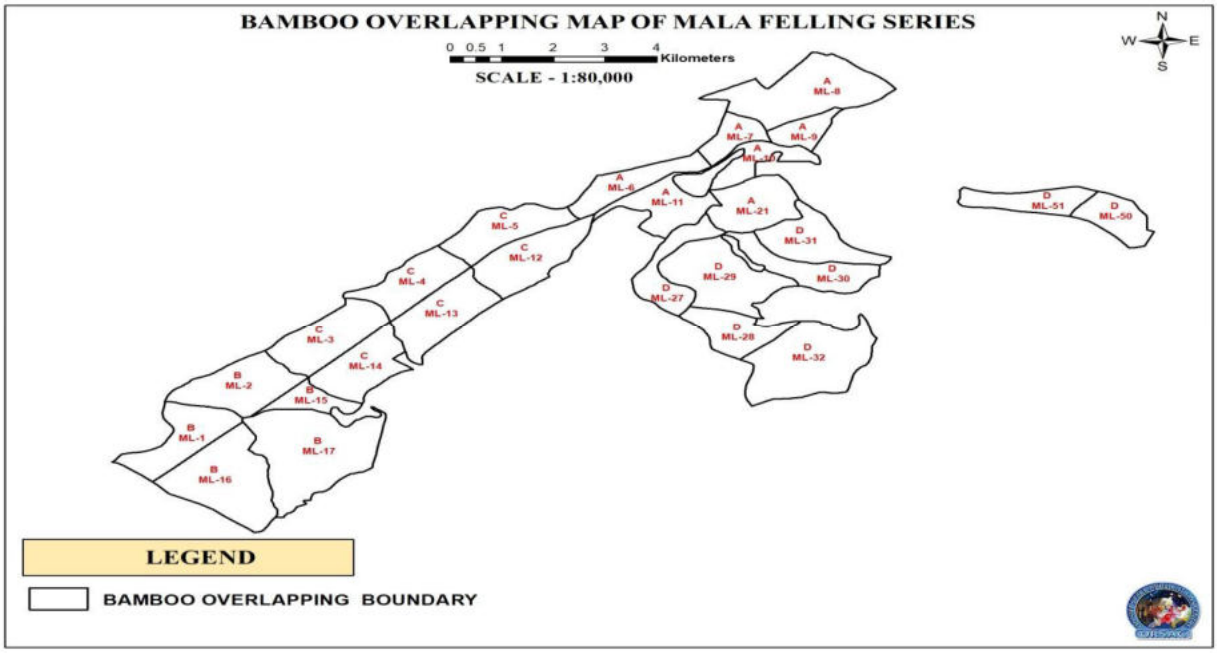
18.5 ALLOTMENT OF AREA OF FELLING SERIES:

Previously seven felling series were formed in the expired working plan. Dhani (S) R.F. and Badapari D.P.F. are included in the Patia Felling Series of this overlapping working circle considering its potentiality, working condition, climatic, edaphic factors and identical nature of crop, the detail of which is given in **Table No.18.3**. Thus the 7 felling series covering an area of 29378.51 Ha. which comprises 7 RFs and 1 DPF as given in Table No. 18.1

Table No. 18.3 Rangewise area allotted to Bamboo (Overlapping) Working Circle

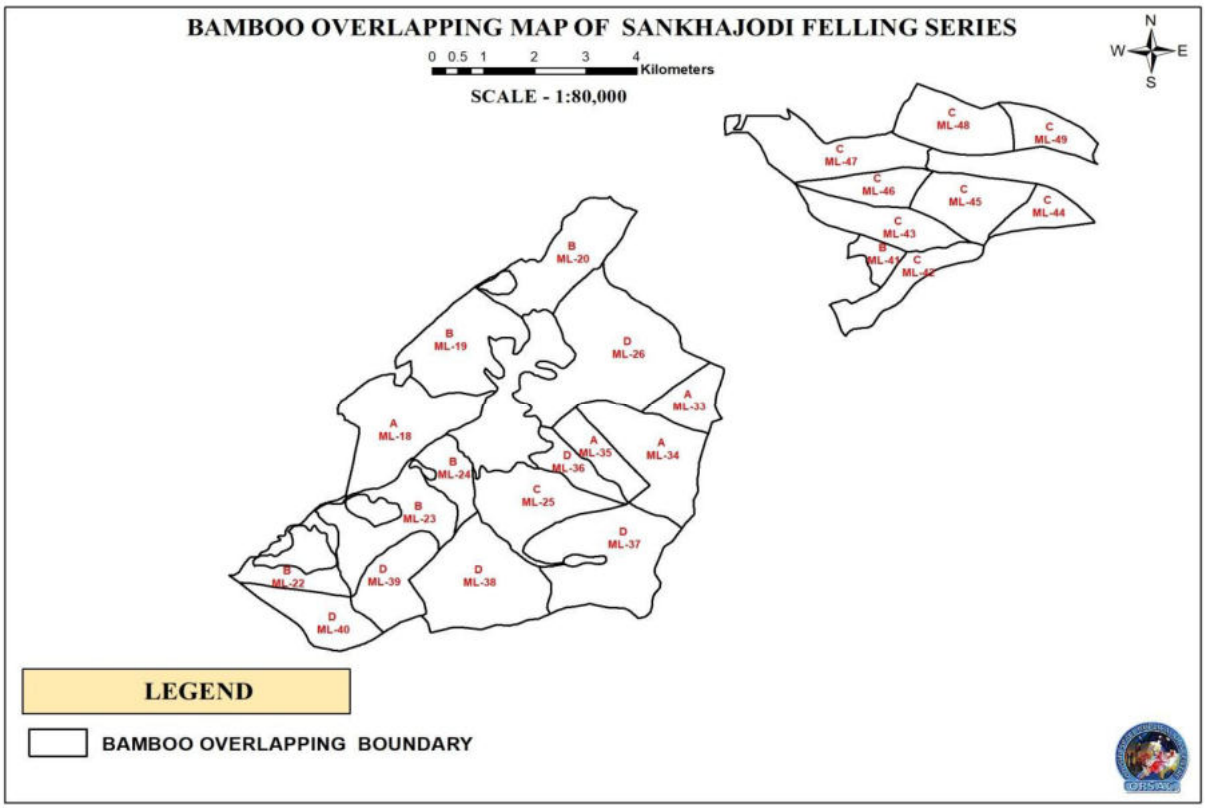
MALA FELLING SERIES

Name of the Range	Name of the Felling Series	Block & Compartment No.	Area in Ha.	Total area of Felling Series in Ha.
1	**2**	**3**	**4**	**5**
Ranpur	Mala Felling Series	Mala R.F.		**5010.83**
		1	193.43	
		2	221.35	
		3	219.32	
		4	175.99	
		5	186.66	
		6	140.67	
		7	83.74	
		8	332.69	
		9	72.77	
		10	99.78	
		11	156.35	
		12	218.22	
		13	216.19	
		14	186.52	
		15	75.68	
		16	329.91	
		17	426.73	
		21	181.64	
		27	140.78	
		28	141.76	
		29	276.26	
		51 & 50(P)	236.65	
		30	157.43	
		31	183.74	
		32	356.57	



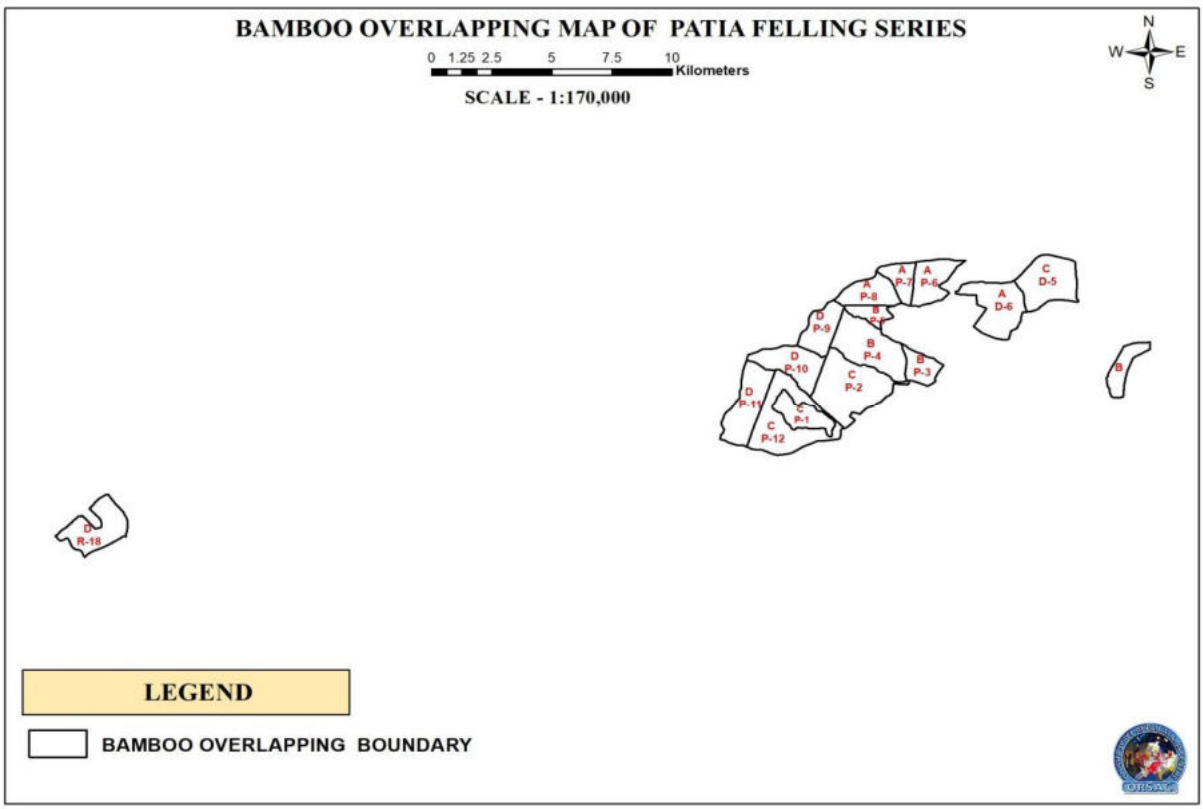
SANKHAJODI FELLING SERIES

Name of the Range	Name of the Felling Series	Block & Compartment No.	Area in Ha.	Total area of Felling Series in Ha.
1	2	3	4	5
Ranpur	Sankhajodi Felling Series	Mala R.F.		**5572.97**
		18	399.68	
		19	313.24	
		20	281.40	
		22	90.77	
		23	271.87	
		24	108.40	
		25	265.72	
		33	115.81	
		34	310.85	
		35	115.70	
		36	95.52	
		37	426.14	
		38	397.16	
		39	188.44	
		40	172.57	
		41	56.52	
		42	150.98	
		43	187.02	
		44	95.89	
		45	209.43	
		46	121.68	
		47	282.48	
		48	220.84	
		49	116.66	
		26	578.20	



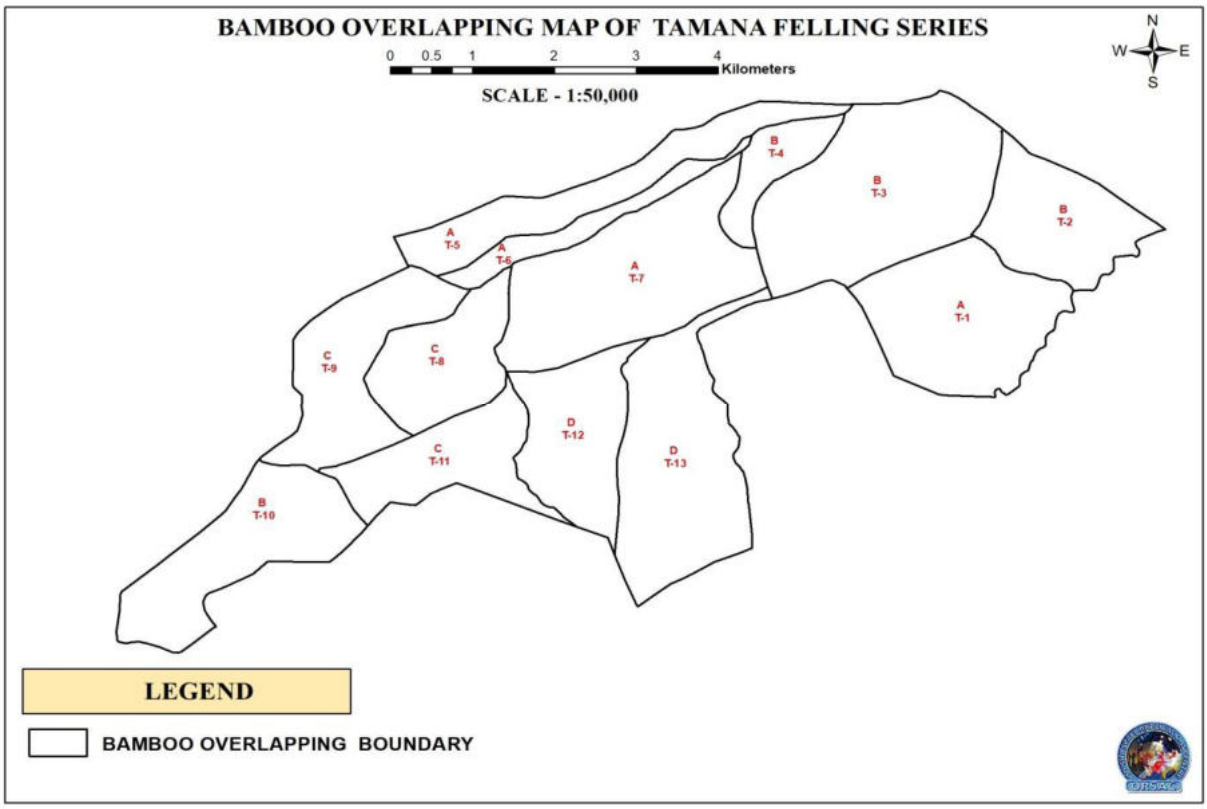
PATIA FELLING SERIES

Name of the Range	Name of the Felling Series	Block & Compartment No.	Area in Ha.	Total area of Felling Series in Ha.
1	2	3	4	5
Tangi	Patia Felling Series	Patia R.F.		**5373.85**
		1	224.89	
		2	646.66	
		3	172.30	
		4	503.40	
		5	111.34	
		6	265.91	
		7	160.48	
		8	243.034	
		9	250.24	
		10	338.10	
		11	404.46	
		12	565.72	
		Dhani (S) RF		
		5	423.90	
		6	426.34	
		Badapari DPF	265.677	
		Rajin RF -18	371.40	



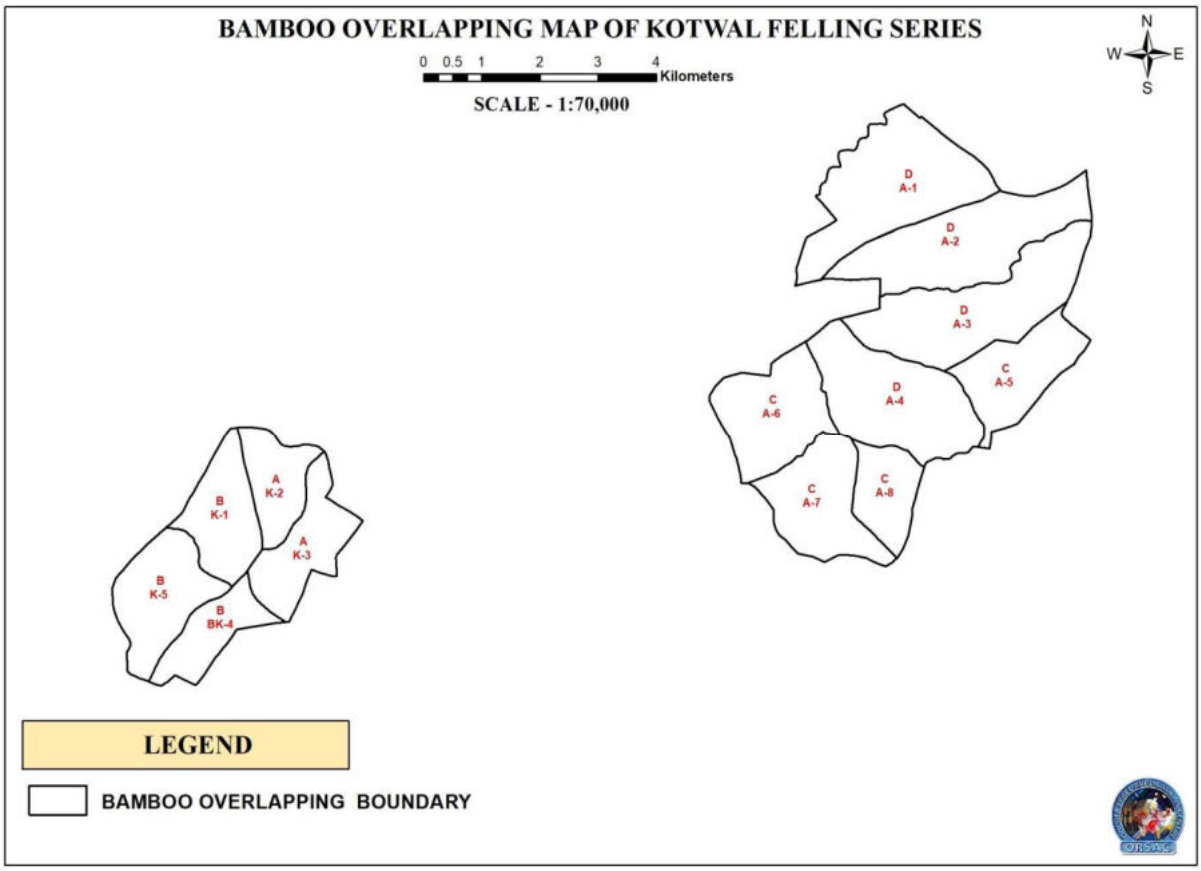
TAMANA FELLING SERIES

Name of the Range	Name of the Felling Series	Block & Compartment No.	Area in Ha.	Total area of Felling Series in Ha.
1	2	3	4	5
Balugaon	Tamana Felling Series	**Tamana R.F.**		**3573.05**
		1	343.69	
		2	233.61	
		3	498.85	
		4	93.99	
		5	226.16	
		6	88.95	
		7	445.24	
		8	207.74	
		9	270.54	
		10	301.05	
		11	210.36	
		12	240.68	
		13	412.19	



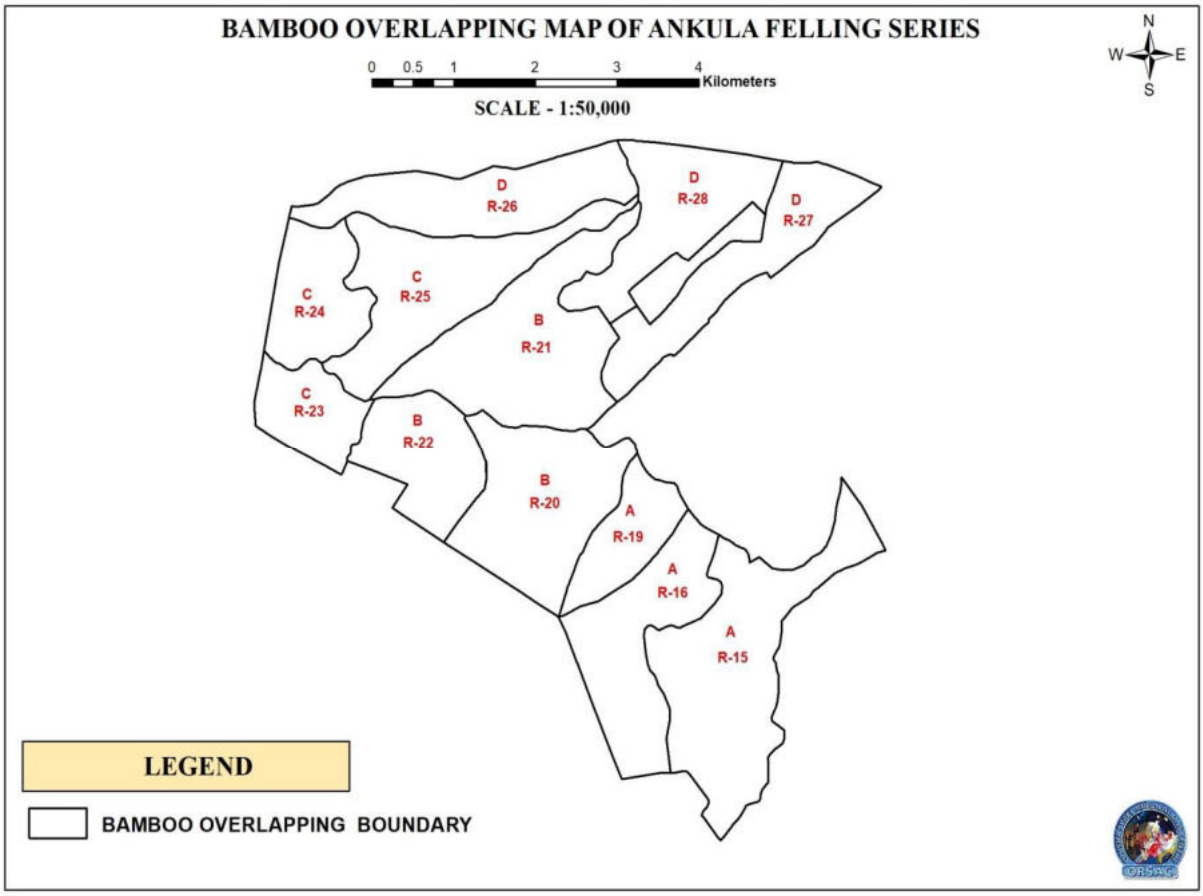
KATWAL FELLING SERIES

Name of the Range	Name of the Felling Series	Block & Compartment No.	Area in Ha.	Total area of Felling Series in Ha.
1	2	3	4	5
Balugaon	Katwal Felling Series	Kotwal R.F.		**3586.85**
		1	210.79	
		2	157.10	
		3	208.49	
		4	149.34	
		5	253.93	
		Aranga R.F.		
		1	442.80	
		2	409.37	
		3	426.50	
		4	393.04	
		5	232.01	
		6	283.46	
		7	269.64	
		8	150.38	



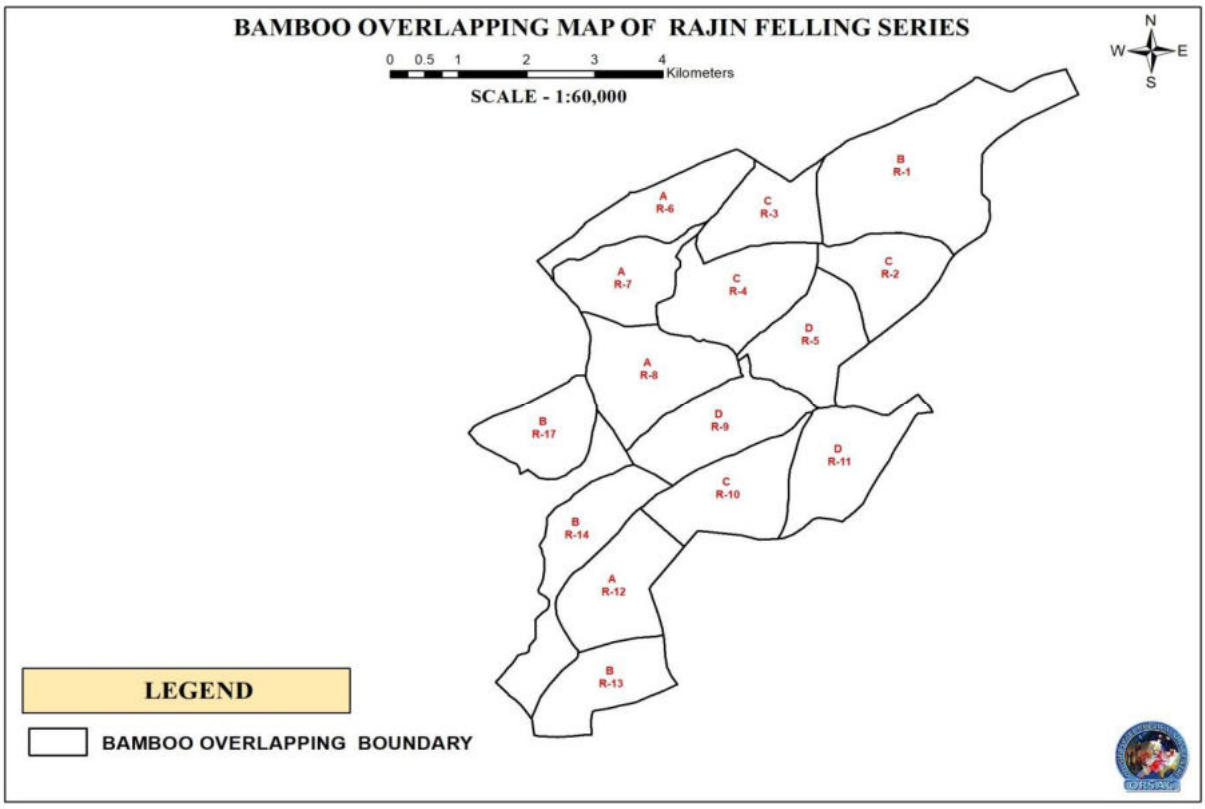
ANKULA FELLING SERIES

Name of the Range	Name of the Felling Series	Block & Compartment No.	Area in Ha.	Total area of Felling Series in Ha.
1	2	3	4	5
Balugaon	Ankul Felling Series	Rajin R.F.		**2815.98**
		15	399.33	
		16	254.71	
		19	116.54	
		20	292.23	
		21	347.89	
		22	171.80	
		23	115.70	
		24	155.74	
		25	281.54	
		26	242.32	
		27	218.23	
		28	219.95	



RAJIN FELLING SERIES

Name of the Range	Name of the Felling Series	Block & Compartment No.	Area in Ha.	Total area of Felling Series in Ha.
1	2	3	4	5
Balugaon	Rajin Felling Series	Rajin R.F.		**3444.98**
		1	508.68	
		2	177.41	
		3	165.56	
		4	255.87	
		5	206.89	
		6	192.74	
		7	175.67	
		8	259.33	
		9	232.18	
		10	225.17	
		11	228.21	
		12	221.46	
		13	179.59	
		14	246.92	
		17	169.30	



18.6 SPECIAL OBJECTIVE OF MANAGEMENT:

The special objectives of management in respect of this working circle are within the scope of general objectives of management. These are as follows

i) To enforce Silvicultural operation to prevent detoriation of the growing stock.
ii) To enforce scientific cutting rules to ensure optimum outturn to satisfy local demand as well as demand of industry.
iii) To rehabilitate exhausted/ degraded bamboo bearing areas through appropriate measures like tending, soil working, soil conservation measures, plantations etc.
iv) To meet the bonafide requirements of Bamboo artisans, local people and Bamboo based cottage industries.
v) To generate employment opportunities for the forest dwellers.
vi) To prevent the area from biotic interference, such as fire, grazing illicit felling etc.
vii) To ear mark 5% of bamboo plantations in the plantations of Working Plan area.

18.7 ANALYSIS OF THE CROP:

18.7.1 Distribution and configuration

A detailed survey of Bamboo Crop was undertaken by the staff of Divisional Forest Officer, Khordha and Working plan staff of Bhubaneswar to ascertain the potentiality of the crop. The distribution of Bamboo Forest in Khordha Forest Division as per the ground reality is given in Table 18.1 which spreads over Balugaon, Ranpur and Tangi Range in 8 Forest blocks.

18.7.2 Enumeration:

As per the National Working Plan Code sample point enumeration of bamboo culms were taken of simultaneously along with timber and regeneration survey as per prescribed format. The area of sample point is 0.1 ha. Basing on the Enumeration survey computation has been made to ascertain the number of culms per ha in bamboo distribution areas of this division. The detail of sample point enumerated and no of clumps available are mentioned follows.

Table No 18.4 Sample Enumeration results of various Bamboo coupes of Khordha Forest Division.

Name of the Range	Name of the forest block	Com No	Kod no having bamboo	Name of the felling series	No of Kod	Area of Coupe	No of Kod	No of Bamboo Culm				No of Culm per Ha			G. Total	Green Damaged/Twisted	Dry Clums		DDDG Total	No of Culms removed	No of culm removed per Ha	Addion of no of Culms removed per Ha
								Current year	1 to 2 year	Over 2 year	G. Total	Current year	1 to 2 year	Over 2 year			Sound	Damaged/twisted				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Balugaon	Rajin RF	R-15	Kod-303	Ankula-A	5	770.58	4	9	35	9	53	22.50	87.50	22.50	132.5	0	8	0	8	38	3.8	33.3
		R-15	Kod-304				4	26	71	31	128	65.00	177.50	77.50	320.0	4	3	5	12	83	8.3	
		R-15	Kod-305				4	35	64	46	145	87.50	160.0	115.0	326.5	7	9	7	23	93	9.3	
		R-16	Kod-307				3	20	36	85	141	66.67	120.0	283.33	470.0	7	11	20	38	134	13.4	
		R-19	Kod-317				1	25	0	0	25	250.0	0	0	250.0	4	6	5	15	-15	-1.5	
				Sub-Total		A-A	16	115	206	171	492	491.67	545.0	498.33	1535.0	22	37	37	96	333	33.3	33.3
Balugaon	Rajin RF	R-20	Kod-322	Ankula-B	7	811.91	3	44	35	102	181	146.67	116.67	340	603.33	4	3	2	9	97	9.7	84.5
		R-20	Kod-323				3	29	16	21	66	96.67	53.33	70	220	4	2	5	11	14	1.4	
		R-21	Kod-324				3	18	26	13	57	60.0	86.67	43.33	190	5	4	16	25	41	4.1	
		R-21	Kod-325				3	65	59	98	222	216.67	196.67	326.67	740	27	33	66	126	213	21.3	
		R-21	Kod-326				3	16	9	21	46	53.33	30	70	153.33	1	4	6	11	20	2	
		R-22	Kod-327				2	12	41	10	63	60.0	205	50	315	5	0	0	5	39	3.9	
		R-22	Kod-328				2	171	345	200	716	855.0	1725	1000	3580	0	48	4	52	421	43.1	
				Sub-Total		A-B	19	355	531	465	1351	1488.33	2413.33	1900	5801.67	46	94	99	239	845	84.5	84.5
Balugaon	Rajin RF	R-23	Kod-329	Ankula-C	3	552.98	2	10	36	35	81	50	180	175	405	15	18	10	43	99	9.9	21.7
		R-24	Kod-332				2	73	67	107	247	365	335	535	1235	3	3	6	12	108	10.8	
		R-25	Kod-333				3	5	6	11	22	16.67	20	36.67	73.33	1	2	0	3	10	1	

				Sub-Total		A-C	7	88	109	153	350	431.67	535	746.67	1713.33	19	23	16	58	217	21.7	21.7
Balugaon	Rajin RF	R-26	kod-336	Ankula-D	6	680.5	2	8	18	13	33	40	60	65	165	4	2	1	7	19	1.9	100
		R-27	Kod-338				3	45	94	147	286	150	313.33	490	953.33	0	0	59	59	250	25	
		R-27	Kod-339				3	7	28	31	66	23.33	93.33	103.33	220	0	0	11	11	58	5.8	
		R-27	Kod-340				3	39	96	113	248	130	320	376.67	826.67	0	55	94	149	314	31.4	
		R-28	Kod-341				2	25	83	87	195	125	415	435	975	0	0	18	18	158	15.8	
		R-28	Kod-342				2	38	74	133	245	190	370	665	1225	9	14	14	37	201	20.1	
				Sub-Total		A-D	15	162	387	524	1083	358.33	1571.67	2135	4365	13	71	197	281	1000	100	100
Balugaon	Kotwal RF	K-2	Kod-111	Kotwal-A	1	365.59	2	10	15	6	31	50	75	30	155	5	4	7	16	22	2.2	2.2
				Sub-Total		K-A	2	10	15	6	31	50	75	30	155	5	4	7	16	22	2.2	2.2
Balugaon	Kotwal RF	K-1	Kod-108	Kotwal-B	2	614.06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				Sub-Total		K-B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Balugaon	Aranga RF	A-5	Kod-14	Kotwal-C	9	935.48	2	21	89	222	332	105	445	1110	1660	255	171	178	604	889	88.9	322.5
		A-6	Kod-16				3	0	16	9	25	0	53.33	30	83.33	35	0	22	57	77	7.7	
		A-6	Kod-17				3	0	243	355	598	0	1215	1775	2990	85	74	117	276	869	86.9	
		A-6	Kod-18				3	26	35	220	281	86.67	116.67	733.33	936.67	83.	85	118	286	510	51	
		A-7	Kod-19				3	13	7	5	25	43.33	23.33	16.67	83.33	4	3	6	13	7	0.7	
		A-7	Kod-20				3	28	42	206	276	93.33	140	886.67	920	57	76	213	346	561	56.1	
		A-7	Kod-21				3	10	32	107	149	33.33	106.67	356.67	496.67	47	46	54	147	271	27.1	
		A-8	Kod-22				2	17	22	14	53	85	110	70	265	6	5	6	17	31	3.1	
		A-8	Kod-23				2	8	9	8	25	40	45	40	125	4	1	1	6	10	1	

				Sub-Total		K-C	24	123	495	1146	1764	486.67	2255	4818.33	7560	576	461	715	1752	3225	322.5	
Balugaon	Aranga RF	A-1	Kod-3	Kotwal-D	9	1672.65	3	0	0	72	72	0	0	240	240	18	17	32	67	134	13.4	322.5
		A-2	Kod-4				3	0	0	34	34	0	0	113.33	113.33	35	9	22	66	95	9.5	
		A-3	Kod-7				4	0	0	0	0	0	0	0	0	0	0	85	85	80	8	
		A-3	Kod-8				4	0	0	0	0	0	0	0	0	40	25	50	115	110	11	
		A-3	Kod-9				4	65	52	82	199	162.50	130	205	497.50	25	20	29	74	138	13.8	
Balugaon	Aranga RF	A-1	Kod-3	Kotwal-D	9	1672.65	4	74	49	8	131	185	122.50	20	327.50	29	17	26	72	50	5	161.3
		A-4	Kod-11				3	75	151	151	377	350	503.33	503.33	1256.67	105	76	59	240	412	46.2	
		A-4	Kod-12				3	21	21	25	67	70	70	83.33	223.33	7	7	5	19	39	3.9	
		A-4	Kod-13				3	29	143	191	363	96.67	476.67	636.67	1210	71	72	62	205	505	50.5	
				Sub-Total		K-D	31	264	416	563	1243	764.17	1302.50	1801.67	3868.33	330	243	370	943	1613	161.3	161.3
Ranpur	Mal RF	ML-10	Kod-143	Mala-A	5	1067.64	2	4	0	8	12	20.0	0	40.0	60.0	0	0	4	4	3	0.3	33.4
		ML-10	Kod-144				2	89	50	52	191	445	250	260	955	96	0	0	96	104	10.4	
		ML-11	Kod-146				2	21	48	32	101	105	240	160	505	8	4	0	12	66	6.6	
		ML-21	Kod-174				2	19	7	31	57	95	35	155	285	8	57	8	73	87	8.7	
		ML-21	Kod-175				2	48	32	45	125	240	160	225	625	22	8	20	50	74	7.4	
				Sub- Total		M-A	10	181	137	168	486	905	685	840	2430	134	69	32	235	334	33.4	33.4
Ranpur	Mal RF	ML-16	Kod-156	Mala-B	3	1247.11	3	3	2	5	10	10	6.67	16.67	33.33	1	2	1	4	3	0.3	10.5
		ML-16	Kod-157				3	14	14	26	54	46.67	46.67	86.67	180	11	10	5	26	47	4.7	
		ML-17	Kod-159				4	43	27	23	93	107.50	67.50	57.50	232.50	28	19	6	53	55	5.5	
				Sub-Total		M-B	10	60	43	54	157	164.17	120.83	160.83	445.83	40	31	12	83	105	10.5	10.5

Ranpur	Mal RF	ML-3	Kod-194	Mala-C	5	1202.9	3	53	36	83	172	176.67	120	276.67	860	14	26	17	57	118	11.8	30.4
		ML-3	Kod-195				3	3	1	1	5	10	3.33	3.33	16.67	1	0	1	2	-4	-0.4	
		ML-4	Kod-222				2	136	64	68	268	680	320	340	1340	22	44	0	66	57	5.7	
		ML-12	Kod-147				3	35	26	44	105	116.67	86.67	146.67	350	17	8	10	35	65	6.5	
		ML-12	Kod-148				3	44	34	50	128	146.67	113.33	166.67	426.67	7	4	18	29	64	6.4	
				Sub- Total		M-C	14	271	161	246	678	1130	643.33	933.33	2993.33	61	82	46	189	300	30	30.4
Ranpur	Mal RF	ML-29	Kod-191	Mala-D	1	1256.54	3	11	4	6	21	36.67	13.33	20	70	10	6	0	16	10	1	1
				Sub- Total		M-D	3	11	4	6	21	36.67	13.33	20	70	10	6	0	16	10	1	1
Tangi	Badapari		Kod-24	Badapari DPF	1	265.68	1	0	0	0	0	0	0	0	0	0	0	0	0	-5	-0.5	-0.5
				Sub- Total		Badapari	1	0	0	0	0	0	0	0	0	0	0	0	0	-5	-0.5	-0.5
Ranpur	Dhani(S)	D-5	Nil	Patia-c	1	1861.17	3	0	0	0	0	0	0	0	0	0	0	0	0	-5	-5	-5
				Sub- Total		P-C	3	0	0	0	0	0	0	0	0	0	0	0	0	-5	-5	-5
Ranpur	Dhani(S)	D-6	Kod-85	Patia-A	1	1098.21	3	0	14	4	18	0	46.67	13.33	60	0	0	0	0	13	1.3	1.3
				Sub- Total		P-A	3	0	14	4	18	0	46.67	13.33	60	0	0	0	0	13	1.3	1.3
Tangi	Patia RF	P-3	Kod-284	Patia-B	1	1052.71	2	0	9	6	15	0	45	30	75	0	6	4	10	20	2	2
				Sub- Total		P-B	2	0	9	6	15	0	45	30	75	0	6	4	10	20	2	2
Balugaon	Rajin RF	R-18	Kod-316	Patia-D	1	1399.32	4	49	45	49	143	122.50	112.50	122.50	357.50	9	0	0	9	49	4.9	4.9
				Sub- Total		P-D	4	49	45	49	143	122.50	112.50	122.50	357.50	9	0	0	9	49	4.9	4.9

Balugaon	Rajin RF	R-6	Kod-352	Rajin-A	6	849.2	2	76	87	157	320	380	435	785	1600	20	29	48	97	260	26	108
		R-7	Kod-354				2	169	143	191	503	845	715	955	2515	23	25	53	101	261	26.1	
		R-8	Kod-356				3	84	180	158	422	280	600	526.67	1406.67	21	19	20	60	309	30.9	
		R-8	Kod-358				3	16	28	13	57	53.33	93.33	43.33	190	0	5	3	8	28	2.8	
		R-12	Kod-297				2	59	72	39	170	295	360	195	850	2	10	8	20	67	6.7	
		R-12	Kod-298				2	46	126	49	221	230	630	245	1105	4	1	26	31	155	15.5	
				Sub- Total		R-A	14	450	636	607	1693	2083.33	2833.33	2750	7666.67	70	89	158	317	1080	108	108
Balugaon	Rajin RF	R-14	Kod-301	Rajin-B	5	1104.49	2	37	48	45	130	185	240	225	650	17	9	21	47	98	9.8	73.7
		R-14	Kod-302				2	82	85	93	260	410	425	465	1300	9	40	47	96	187	18.7	
		R-17	Kod-311				3	3	4	3	10	10	13.33	10	33.33	0	0	6	6	5	0.5	
		R-17	Kod-312				3	74	136	94	304	246.67	453.33	313.33	1013.33	17	32	14	63	214	21.4	
		R-17	Kod-313				3	89	115	118	322	296.67	383.33	393.33	1073.33	41	32	21	94	233.	23.3	
				Sub- Total		R-B	13	285	388	353	1026	1148.33	1515	1406.67	4070	84	113	109	306	737	73.7	73.7
Balugaon	Rajin RF	R-2	Kod-318	Rajin-C	6	824.01	3	59	151	119	329	196.67	503.33	396.67	1096.67	10	17	9	36	242	24.2	146.6
		R-2	Kod-320				3	26	34	50	110	86.67	113.33	166.67	366.67	30	17	9	56	109	10.9	
		R-3	Kod-345				3	71	72	52	195	236.67	240	173.33	650	18	11	15	44	92	9.2	
		R-4	Kod-347				3	15	177	177	369	50	590	590	1230	0	37	34	71	405	40.5	
		R-4	Kod-348				3	38	126	270	434	126.67	420	900	1446.67	0	50	63	113	466	46.6	
		R-10	Kod-295				3	68	101	53	222	340	505	265	1110	6	35	30	71	152	15.2	

				Sub- Total		R-C	17	277	661	721	1659	1036.67	2371.67	2491.67	5900	64	167	160	391	1466	146.6	146.6
Balugaon	Rajin RF	R-5	Kod-349	Rajin-D	5	1245.48	3	9	49	128	186	30	163.33	426.67	620	0	26	37	63	226	22.6	37.1
		R-5	Kod-351				3	13	37	57	107	43.33	123.33	190	356.67	0	8	8	16	92	9.2	
		R-9	Kod-359				3	34	38	14	86	113.33	126.67	46.67	286.67	0	0	16	16	29	2.9	
		R-9	Kod-360				3	13	10	24	47	43.33	33.33	80.00	156.67	3	3	2	8	24	24	
				Sub- Total		R-D	12	69	134	223	426	230	446.67	743.33	1420	3	37	63	103	371	37.1	37.1
Ranpur	Mal RF	ML-18	Kod-162	Sankhajodi-A	5	942.04	2	28	19	40	87	140	95	200	435	6	5	3	14	40	4	10.8
		ML-18	Kod-163				2	36	17	25	78	180	85	125	390	9	5	6	20	21	2.1	
		ML-33	Kod-204				1	0	25	0	25	0	250	0	250	0	0	0	0	20	2	
		Ml-34	Kod-207				3	0	5	8	13	0	16.67	26.67	43.33	3	8	2	13	21	2.1	
		ML-35	Kod-209				2	0	3	4	7	0	15	20	35	1	2	1	4	6	0.6	
				Sub-Total		SA-A	10	64	69	77	210	320	461.67	371.67	1153.33	19	20	12	51	108	10.8	10.8
Ranpur	Mal RF	ML-19	Kod-164	Sankhajodi-B	3	1122.2	2	8	8	6	22	40	40	30	110	12	8	0	20	21	2.1	10.8
		ML-19	Kod-168				3	7	5	8	20	23.33	16.67	26.67	66.67	4	3	2	9	10	1	
		ML-20	Kod-170				4	11	59	9	79	27.50	147.50	22.50	197.50	14	11	0	25	77	7.7	
				Sub- Total		SA-B	9	26	72	23	121	90.83	204.17	79.17	374.17	30	22	2	54	108	10.8	10.8
Ranpur	Mal RF	Ml-37	Kod-213	Sankhajodi-C	4	1650.7	4	9	6	10	25	22.50	15	25	62.50	3	10	10	23	25	2.5	12
		ML-45	Kod-229				2	9	17	28	54	45	85	140	270	30	0	0	30	61	6.1	
		ML-48	Kod-237				3	79	90	21	190	263.33	300	70	633.33	0	0	0	0	27	2.7	
		Kod-252 to 256	Kod-253				5	1	3	6	10	2	6	12	20	3	0	1	4	7	0.7	
				Sub-Total		SA-C	14	98	116	65	279	332.83	406	247	985.83	36	10	11	57	120	12	12

Balugaon	Tamana RF	T-5	Kod-410	Sankhajodi-D	1	1506	2	54	120	109	283	270	600	545	1415	0	36	51	87	257	25.7	262.5
				Sub-Total		SA-D	2	54	120	109	283	270	600	545	1415	0	36	51	87	257	25.7	262.5
Balugaon	Tamana RF	T-1	Kod-390	Tamana-A	5	877.88	3	58	43	49	150	193.33	143.33	163.33	500	18	12	13	43	72	7.2	79.3
		T-6	Kod-411				2	45	42	24	111	225	210	120	555	0	25	28	53	69	6.9	
		T-6	Kod-412				2	27	20	28	75	135	100	140	375	5	0	9	14	30	3	
		T-7	Kod-413				2	0	0	119	119	0	0	595	595	25	37	313	375	489	48.9	
		T-7	Kod-414				2	11	44	23	78	55	220	115	390	31	0	51	82	133	13.3	
				Sub-Total		T-A	11	141	149	243	533	608.33	673.33	1133.33	2415	79	74	414	567	793	79.3	79.3
Balugaon	Tamana RF	T-3	Kod-404	Tamana-B	6	1127.5	3	42	36	11	89	140	120	36.67	296.67	7	6	6	19	19	1.9	110.6
		T-3	Kod-405				3	38	72	195	305	126.67	240	650	1016.67	79	70	150	299	523	52.3	
		T-3	Kod-406				3	32	49	74	155	106.67	163.33	246.67	516.67	33	42	80	155	241	24.1	
		T-4	Kod-407				2	6	7	58	71	30	35	290	355	41	0	21	62	116	11.6	
		t-4	Kod-408				2	65	73	48	186	325	365	240	930	14	13	15	42	93	9.3	
		T-10	Kod-393				2	25	80	50	155	125	400	250	775	4	7	3	14	114	114.	
				Sub-Total		T-B	15	208	317	436	961	853.33	1323.33	1713.33	3890	178	138	275	591	1106	110.6	110.6
Balugaon	Tamana RF	T-8	Kod-415	Tamana _C	6	688.64	2	110	121	81	312	550	605	405	1560	0	12	28	40	127	12.7	75.4
		T-8	Kod-416				2	8	12	11	31	40	60	55	155	4	3	5	12	22	2.2	
		T-9	Kod-417				3	39	45	82	166	130	150	273.33	553.33	0	45	46	91	174	17.4	
		T-9	Kod-418				3	0	62	160	222	0	206.67	533.33	740	50	70	92	212	429	42.9	
		T-11	Kod-394				3	3	5	5	13	10	16.67	16.67	43.33	2	1	1	4	6	0.6	
		T-11	Kod-395				3	4	3	0	7	13.33	10	0	23.33	1	0	1	2	-4	-0.4	
				Sub-Total		T-C	16	164	248	339	751	743.33	1048.33	1283.33	3075	57	131	173	361	754	75.4	75.4
Balugaon	Tamana RF	T-12	Kod-398	Tamana-D	3	652.87	2	43	43	151	237	215	215	755	1185	29	42	80	151	297	29.7	29.8
		T-13	Kod-400				3	2	7	6	15	6.67	23.33	20	50	0	0	2	2	8	0.8	
		T-13	Kod-401				3	8	4	0	12	26.67	13.33	0	40	0	0	2	2	-7	-0.7	
				Sub-Total		T-D	8	53	54	157	264	248.33	251.67	775	1275	29	42	84	155	298	29.8	29.8

Name of the felling series and Coupe	Area of Coupe	Total no of Kod in Coupe	No of Bamboo Culm				No of Clums per Ha				Green	Dry Culms			Total no of Culms removed	No of Culm removed per Ha	Average	Sale Unit
			Current year	1 to 2 year	Over 2 years	G.Total	Current Year	1 to 2 Year	Over 2 Year	G.Total	Damaged/ twisted	Sound	Damaged/ Twisted	G.Total				
1	2	3	4	5	6	7	8	9	10	12	13	14	15	16	17	18	19	20
Ankula-A	770.58	5	115	206	171	492	491.67	545	498.33	1535	22	37	37	96	333	33.6	6.66	16.0377
Ankula-B	811.91	7	355	531	465	1351	1488.33	2413.33	1900	5801.67	46	94	99	239	845	84.5	12.071	30.627
Ankula-C	552.98	3	88	109	153	350	431.67	535	746.67	1713.33	19	23	16	58	217	21.7	7.2333	12.499
Ankula-D	680.5	6	162	387	524	1073	658.33	1571.67	2135	4365	13	71	197	281	1000	100	16.667	35.442
Kotwal-A	365.59	1	10	15	6	31	50	75	30	155	5	4	7	16	22	2.2	27.5	31.417
Kotwal-B	614.06	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kotwal-C	935.48	9	123	495	1146	1764	486.67	2255	4818.33	7560	576	461	715	1752	3225	322.5	35.833	104.754
Kotwal-D	1672.65	9	264	416	563	1243	764.17	1302.50	1801.67	3868.33	330	243	370	943	1613	161.3	17.922	93.680
Mala-A	1067.64	5	181	137	168	486	905	685	840	2430	134	69	32	235	334	33.4	6.68	22.286
Mala-B	1247.11	3	60	43	54	157	164.17	120.83	160.83	445.83	40	31	12	83	105	10.5	3.5	13.640
Mala-C	1202.9	5	271	161	246	678	1130	643.33	933.33	299.33	61	82	46	189	300	30	65.5	246.218
Mala-D	1493.19	1	11	4	6	21	36.67	13.33	20	70	10	6	0	16	10	1	1	3.926
Badapari DPF	265.68	1	0	0	0	0	0	0	0	0	0	0	0	0	-5	-0.5	-0.5	-0.415

1	2	3	4	5	6	7	8	9	10	12	13	14	15	16	17	18	19	20
Patia-C	1861.17	1	0	0	0	0	0	0	0	0	0	0	0	0	-5	-0.5	-0.167	-0.969
Patia-A	1098.21	1	0	14	4	18	0	46.67	13.33	60	0	0	0	0	13	1.3	1.3	1.3
Patia-B	1052.71	1	0	9	6	15	0	45	30	75	0	6	4	10	20	2	2	6.579
Patia-D	1399.32	1	49	45	49	143	122.50	112.50	122.50	357.50	9	0	0	9	49	4.9	4.9	21.427
Rajin-A	849.2	6	450	636	607	1693	2083.33	2833.33	2750	7666.67	70	89	158	317	1080	108	10.8	47.767
Rajin-B	1104.49	5	285	388	353	1026	1148.33	1515	1406.67	4070	84	113	109	306	737	73.7	14.74	50.875
Rajin-C	824.01	6	277	661	721	1659	1036.67	2371.67	2491.67	5900	64	167	160	391	1466	146.6	24.43	62.916
Rajin-D	1245.48	4	69	134	223	426	230	446.67	743.33	1420	3	37	63	103	371	37.1	9.275	36.099
Sankha jodi-A	942.04	5	64	69	77	210	320	461.67	371.67	1153.33	19	20	12	51	108	10.8	2.16	6.358
Sankha jodi-B	1122.2	3	26	72	23	121	90.83	204.17	79.17	374.17	30	22	2	54	108	10.8	3.6	12.624
Sankha jodi-C	1650.7	4	98	116	65	279	332.83	406	247	985.83	36	10	11	57	120	12	3	15.475
Sankha jodi-D	1858.03	1	54	120	108	283	270	600	545	1415	0	36	51	87	257	25.7	262.5	1235.39
Taman a-A	877.88	5	141	149	243	533	608.33	673.33	1133.33	2415	79	74	414	567	793	79.3	15.86	43.509
Taman a-B	1127.5	6	208	317	436	961	853.33	1323.33	1713.33	3890	178	138	275	591	1106	110.6	18.433	64.948
Taman a-C	688.64	6	164	248	339	751	743.33	1048.33	1283.33	3075	57	131	173	361	754	75.4	12.567	27.043
Taman a-D	652.87	3	53	54	157	264	248.33	251.67	775	1275	29	42	84	155	298	29.8	9.9333	20.266

18.8 SILVICULTURAL SYSTEM:

The Silvicultural System prescribed is "Culm Selection-cum-Clump improvement" combined with simultaneous cleaning and cultural operation Salia bamboos and "clump improvement" combined with simultaneous cleaning and cultural operations for Daba Bamboos. Clear felling of all culms in a clump result in the decay of rhizome. It is therefore necessary to retain all current year, 1st old and 2nd year old culms in a clump.

18.8.1 SEQUENCE OF FELLING:

A definite sequence of cutting in bamboo coupes is essential. The compartment in the bamboo coupes should be opened up gradually. The innermost compartment or part of that compartment should be taken up first. Alternatively, the coupe has been 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. The progress of extraction should be watched and as soon as the exploitable bamboos are exhausted, the compartment/ section is closed and next one is opened. The statement of sequence of felling is shown in Table No. 18.7

18.8.2 ROTATION PERIOD AND STOCK MAPPING:

A cutting cycle of 4 years is adopted for both Salia as well as Daba Bamboo. Each felling series has been divided into four annual coupes namely A,B,C & D.

Sample enumeration of 1% has been carried out in different annual coupes of 7 felling series and stock map should be prepared showing different treatment type and quality classes.

18.9 CALCULATION OF YIELD BY ENUMERATION:

Yield will be regulated by area. The coupe in each Felling series will be worked out by rotation.

The forest measurement unit for industrial bamboo has been Sale Unit (SU) equivalent notionally to one MT in weight of 2400 m of running length. Billeted bamboo pieces are tied into bundles and no bamboo piece shall be less than 4 cm girth. A full bundle of Salia bamboo contains 21 pieces each piece of about 2.3m length. Each half bundle of Salia bamboo contains 21 pieces, each piece bamboo between 75 cm to 150 cm length. Thus, 49.689 full bundles of Salia cut industrial bamboo become one sale unit. In case of Daba Bamboo each full bundle contain 7 pieces, each piece of about 2.3 m length and each half bundle will contain 7 pieces with each piece between 75 cm to 150 cm length. Thus 149.07 full bundles of Daba cut industrial bamboo become one sale unit. In salia bamboo terms, one sale unit of Daba Bamboo is equivalent to 2.5 sale units of salia bamboo.

Commercial bamboo extracted in full length is counted in pieces. Notionally, 350 pieces of commercial bamboo is taken as equivalent to one sale unit.

Commercial bamboo is sold at retail price from decentralized depots./ sale centers in forest divisions and in public action. The yield estimation of annual coupes of this division has been derived basing on 1% enumeration, total no. of culm to be removed considering the guidelines of cutting rule prescribed.

[culms of 2><3 year – culm of <1 year (karadi)] +

[culms of >3 years – (5 no of culms to be retained per clump)] +

[Dead, dying, decayed, half broken culms

---------- = No. of culms to be removed per ha.

1% sample area enumerated.

Yield Calculation

The yield calculation has been calculated as per the formula furnished below.

No. of culms /Ha. to be harvested X Average length of the culm X Total area of Annual coupes

---------- = Sale Unit

2400

Coupe wise Yield calculation of different felling series for Khordha Forest Division is given below in **Table No. 18.5.**and **18.6.**

Table No. 18.5 Yield calculation of different felling series

Sl.No.	Name of F.S.	Annual Coupe	Calculation
1	2	3	4
1.	Mala	'A'	6.68x7.5x1067.64 / 2400 = 22.286 S.U.
		'B'	3.5x7.5x1247.11 / 2400 = 13.640 S.U.
		'C'	65.5x7.5x1202.9 / 2400 = 246.218 S.U.
		'D'	1x7.5x1493.19 / 2400 = 4.666 S.U.
2.	Sankhajodi	'A'	2.16x7.5x942.04 / 2400 = 6.358 S.U.
		'B'	3.6x7.5x1122.2 / 2400 = 12.624 S.U.
		'C'	3x7.5x1650.7 / 2400 = 15.475 S.U.
		'D'	262.5x7.5x1858.03 / 2400 = 1524.165 S.U.

Sl.No.	Name of F.S.	Annual Coupe	Calculation
1	2	3	4
3.	Patia	'A'	1.3x7.5x1095.77 / 2400 = 4.451 S.U.
		'B'	2x7.5x1052.71 / 2400 = 6.5794 S.U.
		'C'	0.167x7.5x1861.17 / 2400 = 0.971 S.U.
		'D'	4.9x7.5x1364.20 / 2400 =20.889 S.U.
4.	Tamana	'A'	15.86x7.5x1104.04 / 2400 = 54.718 S.U.
		'B'	18.433x7.5x1127.5 / 2400 = 64.948 S.U.
		'C'	12.567x7.5x688.64 / 2400 = 27.043 S.U.
		'D'	9.9333x7.5x652.87 / 2400 = 20.266 S.U.
5.	Katwal	'A'	27.5x7.5x365.59 / 2400 = 31.417 S.U.
		'B'	0x7.5x614.06 / 2400 = 0 S.U.
		'C'	35.833x7.5x935.49 / 2400 = 104.75 S.U.
		'D'	17.922x7.5x1671.71 / 2400 = 93.626 S.U.
6.	Ankula	'A'	6.66x7.5x770.58 / 2400 = 16.0377 S.U.
		'B'	12.071x7.5x811.92 / 2400 = 30.627S.U.
		'C'	7.2333x7.5x552.98 / 2400 = 12.499 S.U.
		'D'	16.667x7.5x680.5 / 2400 = 35.442 S.U.

Sl.No.	Name of F.S.	Annual Coupe	Calculation
1	2	3	4
7.	Rajin	'A'	$\frac{18 \times 7.5 \times 849.2}{2400}$ = 47.767S.U.
		'B'	$\frac{14.74 \times 7.5 \times 1104.49}{2400}$ = 50.875 S.U.
		'C'	$\frac{24.433 \times 7.5 \times 824.01}{2400}$ = 62.916 S.U.
		'D'	$\frac{9.275 \times 7.5 \times 667.28}{2400}$ = 19.340 S.U.

Table No. 18.6 ESTIMATED YIELD FROM BAMBOO COUPES

Sl.No.	Felling Series	Estimated yield in Sale Unit				
1	2	3				
		Coupe 'A'	Coupe 'B'	Coupe 'C'	Coupe 'D'	Total
1	Mala	22.286	13.640	246.218	4.666	286.81
2	Sankhjodi	6.358	12.624	15.475	1524.165	1558.622
3	Patia	4.451	6.5794	0.971	20.889	32.8904
4	Tamana	54.718	64.948	27.043	20.266	166.975
5	Ankula	16.0377	30.627	12.499	35.442	94.6057
6	Rajin	47.767	50.875	62.916	19.340	180.898
7	Katwal	31.417	0	104.75	93.626	229.793
	TOTAL	**183.0347**	**179.2934**	**469.872**	**1718.394**	**2567.3531**

18.10 BAMBOO CUTTING OPERATION:

The coupes will be opened for working from October to June next. The sequence of Felling series in shown in **Table No. 18.7** Preferably the works should be completed by April. If for some unavoidable reasons, the cutting operation could not be taken up in a particular year, arrear coupes shall be worked out along with current year's coupes.

Table No. 18.7 YEAR WISE SEQUENCE OF FELLING

Sl. No.	Name of the Felling Series	Coupe – A		Coupe – B		Coupe – C		Coupe – D	
		Year of Working 2021-22 & 2025-26 &2029-30		Year of Working 2022-23 & 2026-27&2030-31		Year of Working 2023-24 & 2027-28		Year of Working 2024-25 & 2028-29	
		Compartment No	Area in Ha.	Compartment No	Area in Ha.	Compartment No.	Area in Ha.	Compartment No	Area in Ha.
1	2	3	4	5	6	7	8	9	10
1.	Mala	**Mala R.F.**	.	**Mala R.F.**	.	**Mala R.F.**		**Mala R.F.**	
		6	140.67	1	193.43	3	219.32	27	140.78
		7	83.74	2	221.35	4	175.99	28	141.76
		8	332.69	15	75.68	5	186.66	29	276.26
		9	72.77	16	329.91	12	218.22	30	157.43
		10	99.78	17	426.73	13	216.19	31	183.74
		11	156.35	-	-	14	186.52	32	356.57
		21	181.64	-	-	-	-	51 & 50(P)	236.65
		TOTAL	**1067.64**		**1247.10**		**1202.90**		**1493.19**
2.	Sankhajodi	**Sankhajodi Mala RF**		**Sankhajodi Mala RF**		**Sankhajodi Mala RF**		**Sankhajodi Mala RF**	
		33	115.81	41	56.52	42	150.98	36	95.52
		34	310.85	19	313.24	43	187.02	37	426.14
		35	115.70	20	281.40	44	95.89	38	397.16
		18	399.68	22	90.77	45	209.43	39	188.44
		-	-	23	271.87	46	121.68	40	172.57
		-	-	24	108.40	47	282.48	26	578.20
		-	-	-	-	48	220.84	-	-
		-	-	-	-	49	116.66	-	-
		-	-	-	-	25	265.72	-	-
		TOTAL	**942.04**		**1122.20**		**1650.70**		**1858.03**
3.	Patia	**Patia RF**		**Patia RF**		**Patia RF**		**Patia RF**	
		6	265.91	3	172.30	1	224.89	9	250.24
		7	160.48	4	503.40	2	646.66	10	338.10
		8	243.034	5	111.34	12	565.72	11	404.46
		Dhani (S) R.F. 6	426.34	**Badapari DPF**	265.67	**Dhani (S) RF 5**	423.90	**Rajin RF 18**	371.40
		TOTAL	**1095.77**		**1052.71**		**1861.17**		**1364.20**
4.	Tamana	**Tamana RF**		**Tamana RF**		**Tamana RF**		**Tamana RF**	
		5	226.16	10	301.05	8	207.74	12	240.68
		6	88.95	2	233.61	9	270.54	13	412.19
		7	445.24	3	498.85	11	210.36	-	-
		1	343.69	4	93.99	-	-	-	-
		TOTAL	**1104.04**		**1127.50**		**688.64**		**652.87**
5.	Katwal	**Katwal RF**		**Katwal RF**		**Aranga RF**		**Aranga RF**	
		2	157.10	1	210.79	5	232.01	1	442.80
		3	208.49	4	149.34	6	283.46	2	409.37
		-	-	5	253.93	7	269.64	3	426.50
		-	-	-	-	8	150.38	4	393.04
		TOTAL	**365.59**		**614.06**		**935.49**		**1671.71**

Sl. No.	Name of the Felling Series	Coupe – A		Coupe – B		Coupe – C		Coupe – D	
		Year of Working 2021-22 & 2025-26 &2029-30		Year of Working 2022-23 & 2026-27&2030-31		Year of Working 2023-24 & 2027-28		Year of Working 2024-25 & 2028-29	
		Compartment No	Area in Ha.	Compartment No	Area in Ha.	Compartment No.	Area in Ha.	Compartment No	Area in Ha.
1	2	3	4	5	6	7	8	9	10
6.	Ankula	Rajin R.F.		Rajin R.F.		Rajin R.F.		Rajin R.F.	
		15	399.33	20	292.23	23	115.70	26	242.32
		16	254.71	21	347.89	24	155.74	27	218.23
		19	116.54	22	171.80	25	281.54	28	219.95
		TOTAL	770.58		811.92		552.98		680.50
7.	Rajin	Rajin R.F.		Rajin R.F.		Rajin R.F.		Rajin R.F.	
		6	192.74	1	508.68	10	225.17	5	206.89
		7	175.67	13	179.59	2	177.41	9	232.18
		8	259.33	14	246.92	3	165.56	11	228.21
		12	221.46	17	169.30	4	255.87	-	-
		TOTAL	849.20		1104.49		824.01		667.28

18.11 METHOD OF EXECUTION OF OPERATION:

18.11.1 Demarcation of annual coupes:

Bamboo coupes shall be demarcated by giving double coal-tar rings at the breast height of all the trees standing on the coupe lines, which are distinctly visible from each other. Similarly single coaltar ring will show the section line. Sign boards shall be displayed on compartment lines, road crossings, nallas crossings and other strategic point mentioning the details such as name of the coupe, its area, year of working and compartment number. Bamboo coupes have been shown on 1:25,000/ 1:50000 toposheets. The coupes boundaries are kept co-terminus with compartment lines so that the demarcation of coupes is not difficult

18.11.2 METHOD OF TREATMENT:

Preparation of treatment maps for adhering to specified cutting rules is to be undertaken. Following treatment types have been identified for Salia Bamboo areas. Salia bamboo forest will be categorized for different treatment as described below. **Table No 18.8**

Table No 18.8 Treatment type for Salia Bamboo

Treatment Type	Bamboo culm characteristics
1	2
A	Areas with healthy and well stocked bamboo clumps consisting of good and non-congested culms.
B	Area with well stocked but degraded, damaged congested culms and or burnt clumps.
C	Area where bamboo clumps are sparse and scattered.

18.11.3 Treatment Maps

After demarcation of bamboo coupes and before taking it up for working, a treatment map will be prepared by the agency working bamboo coupe on a copy of the available Management Map in 1:25,000 or 1:50,000 scale, indicating Salia and Daba bamboo areas

separately. 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 type.

The followings are the quality classes of Bamboo depending upon the height of culm.

Quality Class – I - Bamboo with culm height of 9m and up

Quality Class – II – Bamboos with culm height between 6m to 9m.

Quality Class – III – Bamboos with height below 6m.

18.11.4 Cutting Rules for Salia Bamboo *(Dendrocalamus strictus)*

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. Further, culms which are older than 2 years but less than 3 years of age shall be partly retained in the clump and their number should not be less than number of Karadies. 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:

Clump quality – I	20 culms
Clump quality – II	15 culms
Clump quality– III	10 culms

ii. All bamboo culms of three years and more than three years old should be harvested (except 5 mature culms retained).

iii. No culm of 2 years and less than 2 years of age will be cut.

iv. A clump will be distinguished, as an independent clump where its periphery is casily discernible, two clumps within one-meter distance will be regard as one.

v. No clump should be considered fit for harvesting unless it contains more than 10 mature culms (one year as well as two years included).

vi. The retained culms in a clump should be well spaced, preferable at the periphery in the following order of preference.

a) Karadi Bamboos.

b) Kasi bamboos (older than one year but less than 2 years).

c) Pakala bamboos (Yound green bamboos)

d) Older live bamboos.

vii. Following culms shall be removed from all clumps.

a) All dead, decayed and dry bamboo's.

b) Culms whose half or more top part is broken of damaged

c) Twisted or Malformed culms.

viii. The height above which culms are cut shall not be less than15 cm or more than 45 cm from the ground level and in no case below the first prominent node from the ground.

ix. The cut shall be made with a sharp instrument to ensure that the stump remains intact without splitting.

x. Cleaning will be done in all clumps. It consists of following operations.

a) Lops and tops of bamboos will be simultaneously cleared to a distance of at least one meter away from periphery of the worked clumps to avoid fire hazard.
b) Climbers shall be cut from all the bamboo clumps during working of the coupes.
c) The clumps should be cleaned of all debris.
d) Soil should be heaped around smaller clumps or clumps with no culms or clumps with exposed rhizome.
xi. Bamboo strips will not be used in tying bamboo bundles.
xii. Bamboo cutting will not be permitted form 1st June to 30th September.
xiii. In case of sporadic flowering, 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 be come 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 March and extraction from forest by the end of May.
xvii. Bamboo forest should be rigidly protected from 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 which have been worked in the previous season.

Rules applicable to specific treatment types:
Treatment Type – A

1. Commercial felling will be done in those clumps, which have more than the prescribe minimum number of culms in each.
2. 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.

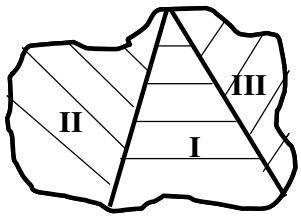
Treatment Type – B

3. There will be no commercial felling in any clump.
4. 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 10 culms to be retained per clumps. As prescribed.

5. 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 ate first working. In subsequent cycles, side segments should be felled. Diagram showing divisions of the clump in these segments is given below:



Treatment Type – C

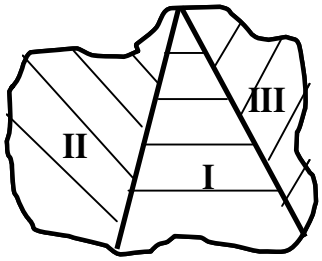
Only cultural operation will be carried out in the existing bamboo clumps.

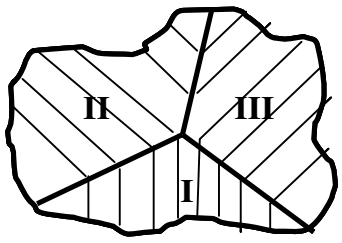
The bamboo potentiality of such forests will be augmented by raising bamboo plantation. The minimum area to be planted annually will be 10 Ha. or one third of the area under this type.

Tending and cultural operations in the area planted with bamboo will be done as per the standard practice.

18.11.5 Cutting Rules for Daba bamboo *(Bambusa aurundinacea)*

- All bamboo culms in a clump, which are more than 3 years old, shall be harvested on culm selection basis provide the number of culms, left uniformly distributed in a clump shall not be less than 10.
- In case of congested clumps where culm selection is not possible, the clump should be carefully felled by forming segments depending on the interlacing of bamboos. With a view to provide support to the remaining segments, under which 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. Where three segments are formed, the middle segment will be in the shape of a triangle. Only the middle segment shall be felled at the first working.





Simultaneous Silvicultural operations:

- All cutting debris shall be removed and the clumps shall be left cleaned. Where possible, the exposed rhizomes shall be covered with soil scrapped from the uphill side of a hilly or undulating terrain. Both these operations shall have to be done along with the main cutting operation. This should be mandatory over all bamboo allotted areas irrespective of its commercial harvesting for developing clump density of at least 50 clumps per ha.
- No. damage shall be caused to rhizomes and rootstock.

Treatment of gregariously flowered areas:

- Bamboo seedlings at a spacement of about 4m x 4m are to be adopted and retained and the rest are to be thinned out.
- Cleaning, soil working and seedling is to be done around the adopted bamboo seedlings up to a radius of 50cm.
- To maintain he continuity, planting up of bamboo rhizomes is also to be resorted to especially in big gaps
- All the flowered clumps are to be worked up following the prescriptions of the working plan.
- The area shall be closed for grazing.
- Elaborate fire protection measures shall be taken.

18.12 SUBSIDIARY SILVICULTURAL OPERATION:

18.12.1 REGENERATION:

Bamboo establishes in its distribution area satisfactorily. The density of bamboo differs from place to place. Bamboo is also natural component of these forest. The absence of bamboo in particular area is the combined result of edaphic and climatic factors on one hand and biotic interference of the past on other hand. If it is kept under proper tending operations, it remains an under storey crop and does not enter into root and crown competition.

The areas with natural regeneration will be fire protected and closed of grazing until they get established. Soil working is to be done to specific clumps needed for maintaining proper density of above 100 clumps per Ha. artificial regeneration of bamboo can be successfully achieved. 1 & ½ to 3 years old rhizome can give very good results. Each bamboo working division shall have rhizome banks, bamboo nursery and take up plantations in such areas where there is no natural growth or bamboo growth is very sparse (Treatment Type C) i.e. less than 100 clumps per Ha. Bamboo should be planted as mixed crop in bamboo bearing areas to develop clump density of at least 100 clumps per Ha.

18.13 ASSOCIATED REGULATIONS AND MEASURES:

18.13.1 Treatment of gregariously flowered areas

The record of gregarious flowering should be maintained in compartment history file. The flowered clumps shall be cut after seeds have been shed irrespective of year for which they are due for working. The area should be strictly protected from fire and grazing till the culms are established.

18.13.2 Miscellaneous regulations

Grazing :Grazing will be regulated in this working circle in accordance with the Orissa Forest (Grazing of Cattle) Rule 1980 and carrying capacity of the forest. The regeneration in bamboo coupes shall be protected from grazing.

Fire protection: Fire lines of 5-meters width on boundaries of each coupe shall be meticulously cleared to prevent spread of fire. The Orissa Forest Fire Protection Rules, 1980 and provisions of Chapter XVII of Orissa Forest Department Code shall be strictly implemented.

18.13.3 Right and concession: They shall be regulated as laid down in Government Policy.

18.13.4 Supply to artisans, co-operative societies, self-help groups:

The Artisans, Self Help Groups, or any Co-Operative Societies having demand on bamboo from forests adjoining their village should be regulated over Demarcated Protected Forests as per "Supply of Bamboos to Artisans including Co-operative Societies (Orissa) Rules, 1980 and with amendment to rule for Reserved Forests. Such societies shall be motivated to have assignment of neighboring Cutting Series in DPF, RF as well as in UDPF for protection regeneration and forest working to receive bamboo locally without resorting to illicit cutting. The scheme of such operation with facilitation for plantations, maintenance of bamboo working as per above cutting rules and skill/ technology transfers shall be introduced. Assignment of Felling Series (in full or part to one or more such agency) shall be finalized by the Conservator of Forests (Territorial) in accordance with Government guidelines on J.F.M. Assignment shall not be made from interior cutting series / compartment.

18.13.5 Working by VSS:

With progressive policies on JFM, it would be regulated accordingly. The assignment of full Felling Series to one or more VSS including bamboo working as per above cutting rules can be allowed by the Conservator of Forests (Territorial) in assigned areas out of full felling series or part thereof. Balance area if any, remaining shall be worked departmentally.

18.14 PLANTATION OF BAMBOO:

It should be taken up in deficient areas specially where the density of bamboos is less than 100 clumps per hectare. The technique for raising bamboo plantation prescribed in Forest Plantation Manual 1977 shall be adopted without felling of trees.

18.15 MORPHOLOGICAL CHARACTER:

The following two types of bamboo mainly available in Khordha Forest Division.

1) *Bambusa arundinacea* (Daba)

2) *Dendrocalamus strictus* (Salia)

The morphological character of both the species has been analysed in detail.

18.15.1 *Bambusa arundinacea* (Daba).

Large densely caespitose thorny bamboo with curving branches from a thick rootstock, culms bright green, shining, up to 5 to 25m high and 15-18 cm branches from the base, the lower joints giving out long horizontal shoots armed at the 073 nodes with 2-3 recurved thorns and with few leaves, culm-sheaths up to 30-38 x 22-30cm striate, somewhat rounded at the top and plaited on the edges, densely yellow-hairy when young otherwise glabrous, blade triangular, up to 10 cm long, sharply pointed, concave with involute margins, greenish yellow when young, glabrous without, densely clothed within with a thick purple or brown or black felt of bristly hairs, the margins decurrent on the sheath, wavy, plaited, long and thickly ciliate, hardly auicled, ligule narrow, entire, or fringed with whitish hairs. Leaves linear – lanceolate or linear, 12-20 x 1.2-1.8 (2.5) cm, rounded at the base into a short, 2.5 mm petiole, glabrous above except fro long hairs near the base, glabrous or puberulous beneath, scabrous on one or both margins and ciliate towards the base, leaf-sheath striate, glabrous or slightly pubescent, ending in a thick, often ciliate callus and a short auricle furnished with a few stiff, curved, white, deciduous bristles, edges ciliate, ligule short. Panicle often occupying the whole plant. Spikelets

1.2-2.5 cm long, sessile in close dense clusters along the twigs or 7.5-18 mm in much laxer clusters (var. spinosa). Glumes 0-2, ovate-lanceolate, acute or mucronate, many-nerved. Lammas 3-7, lower 2-sexual, upper Malae with 2-3 upper most imperfect. Keep of palea ciliate. Anthers yellow obuse, 5 mm long.Fairly common in moist valleys and often forming dense gregarious crops, often planted in the open. It flowers more or less gregariously but sporadic annual flowering is common.

18.15.2 *Dendrocalamus stricutus* (Salia).

More or less caespitose bamboo, culms, 6-15 m high and 2.5-7.5 cm dia., the central cavity usually small, sometimes, 0, lower culm-sheaths oblong, 7.5-30 cm, top rounded or waved, not or only slightly auricled, blade lanceolate, not very distinctly differentiated on the outside, the striae pasing countinuously in to the sheath on the inside with a very narrow ligule. Leaves narrowly oblong, or linear-lanceolate, 2.5-2.5 x 0.5-3 cm, rounded at the base and suddenly contracting into a shourt petiole, gradually narrowed upwards into a twisted subcuspidate top,pubescent beneath, 3-6 nerved on each side of the midrib, transverse nervules reduced to pellucid dashes rather obscure when dry, leaf-sheaths striate, hairy or glabrous. Spikelets 6.2-12.5 mm long, forming globose, spinescent heads at intervals along the branchlets of the panicle, fertile and smaller sterile spikelets intermixed. Empty glumes 2 or more, ovate, spinescent or muticous, may-nerved, flowering glumes ca.2, ovate, spinescent and pubescent at tip. Palea ovate or obovate, emarginated, lower ones 2-keeled, ciliate on the keels and 2-nerved between them, upper most not keeled, often nearly glabrous, 6-8 nerved. Stamens long-exserted, anthers apiculate. Caryopsis brown, avoid to sub-globose, 7.5 mm long, hairy above, beaked.

18.16 COST NORM AND FINANCIAL FORECAST:

The cost norm for implementation of prescription and the total estimated cost for working under this Working Circle over 29180.32 ha is as follows.

Table No. 18.9 The estimated cost of working under Bamboo Working Circle

Sl.No.	Item of Work @ Rs. 308/- per MD	Cost in Rs.
1	**2**	**3**
1	Demarcation of Coupe @ 0.5 M.D./ 10 Ha.	449377.00
2	Silvicultural operation @ 6 M.D. / Ha.	53925194.00
3	Misc. expenditure @ 0.5 M.D / 10 Ha.	449377.00
	TOTAL	**1,25,29,647.00 or 1,25,00000.00**

18.17 INTERIM REVISION:

No major change in the prescriptions of this working circle is anticipated. However, it may be reviewed if necessary, after 5 years jointly by the Regional Chief Conservator of Forests, Bhubaneswar and Chief Conservator of Forests & Working Plan officer, Bhubaneswar. Any deviation suggested shall be subjected to the sanctioned of competent authority.

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CHAPTER-19

NON TIMBER FOREST PRODUCE (NTFP) INCLUDING BIODIVERSITY CONSERVATION & DEVELOPMENT (OVERLAPPING) WORKING CIRCLE

19.1 GENERAL CONSTITUTION:

The forests of Khordha Division contain a large number of species which yield a variety of non-timber forest produces (NTFP), e.g. fruit, seed, tubers, bark, resins, leaf, root, gum. The people living in and around the forests depend upon NTFPs for their income. Majority of them usually collect these products for their own consumption as well as for sale which are major sources of income for forest dwellers as well as adjoining Forest villages.

In the last five decades, there was demand for various of NTFPs as a raw material for many industries like cosmetics, dyes, Ayurvedic drugs, small scale cottage industries of Sal, Siali leaf plate making, Agarbati Factory, Rope industries, Soap Industries, country liquor mainly from Mahua Flower, Canes, Broomsticks, Nuxvomica, and Honey. This huge demand of NTFPs results in gradual dwindling away some of the NTFP resources. If exploitation continues at this rate it will endanger the resource itself.

The non-availability of these NTFPs in required quantities, exploitation of the primary collectors by agents or middle men and the adulteration of the NTFP product result more interest in collection of NTFPs amongst all sections of the society. This has prompted initiations to aim at promoting the use of NTFPs, value addition, commercialization for improving the well being of rural populations. At the same time conservation of the existing forests can be looked after. Keeping this in view, the Government of Odisha have formulated the Policy on procurement, trade of Non Timber Forest Produces during March 2000 and the Gram Panchayat (Minor Forest Produce) Rules'2002 which are at following **APPENDIX - X and XI**.

Under the present scenario, special efforts will be required to maintain balance between the protection of interests of the primary collectors by increasing their incomes & the sustainable use of the natural resources by increasing its productivity.

This Working Circle will overlap all the Forest Blocks of the Khordha Forest Division. The forest area diverted under Forest Conservation Act, 1980 and the forest area over which Title Rights have been issued under Forest Right Act, 2006 will be excluded from the prescription of this Working Circle. The total area of this Working Circle is 58531.92 Ha. which is given in **Table No-19.1.**

The forests of Khordha Forest Division contain a large number of species which yield a variety of non-timber forest produces (NTFP), *e.g.*, fruit, seed, tubers, bark, resins, leaf, Root, gum and medicinal plants. The people living in and around the forests depend upon NTFPs for their income. Majority of them usually collect these products for their own consumption as well as for sale which are major sources of income for forest dwellers as well as adjoining forest villages. Forests provide habitat for many plants and faunal species. The contribution of individual species to the overall diversity within a community or ecosystem varies to a great extent. The coexistence of organisms that differ widely from each other contributes more to overall diversity than the co-existence of very similar species. Functional diversity is considered to be one of the main factors determining the long term stability of an ecosystem and its ability to recover from major disturbances. Assessment of status of plants and faunal species and their periodic monitoring can be helpful in formulating strategies for conservation, development biodiversity through sustainable management and use practices.

TABLE No 19.1 AREA ALLOTTED TO NTFP OVERLAPPING WORKING CIRCLE :

Sl No	Name of the Range	Name of the Forest Block	Area in Ha.	GIS Area in Ha.	Area under FRA & FC (in Ha.)		Area under this Plan (in Ha.)	Area allotted to NTFP (O) WC
					Under FRA	Under FC Act.		
1	2	3	4	5	6	7	8	9
1	Balugaon	Aranga RF	2651.60	2608.14	0.923		2607.217	2607.217
2	-do-	Bankard RF	1290.28	1323.214			1323.214	1323.214
3	-do-	Kotwal RF	982.40	979.65			979.65	979.65
4	-do-	Tamana RF	3587.2	3573.052			3573.052	3573.052
5	-do-	Rajin RF	6472.40	6667.455	35.109		6632.346	6632.346
6	Khordha	Barunei RF	482.80	444.373		0.5125	443.8605	443.8605
7	-do-	Jayamangal RF	144.48	139.078			139.078	139.078
8	-do-	Manibandha- A & B RF	309.60	312.659			312.659	312.659
9	-do-	Nagapalli RF	551.61	559.68			559.68	559.68
10	-do-	Panchagarh RF	735.00	704.588			704.588	704.588
11	-do-	Pangarsingh RF	264.67	266.149			266.149	266.149
12	Ranapur	Champagarh RF	413.64	413.913			413.913	413.913
13	-do-	Dhani (N) RF	1092.28	1048.957			1048.957	1048.957
14	-do-	Mala RF	10472.46	10863.10	237.33		10625.77	10625.77
15	-do-	Maninag RF	1497.67	1735.576	2.797		1732.779	1732.779
16	-do-	Nuapada-B RF	272.77	121.448			121.448	121.448
17	-do-	Satabhaya RF	377.18	318.668			318.668	318.668
18	Ranapur	Sulia-B RF	1394.19	1784.685			1784.685	1784.685
19	Tangi	Sulia RF	1609.09	1608.007			1608.007	1608.007
20	-do-	Kuhudi RF	641.04	656.617			656.617	656.617
21	-do-	Patia RF	3702.18	3888.975	2.446		3886.529	3886.529
22	-do-	Dhani (S) RF	839.75	850.238			850.238	850.238
23	Khordha	Jariput DPF	464.19	421.622			421.622	421.622
24	-do-	Kapileswarpur DPF	75.60	81.846			81.846	81.846
25	-do-	Tartua DPF	362.40	388.961			388.961	388.961
26	-do-	Kerang DPF	121.60	100.895			100.895	100.895
27	-do-	Mandalsingh DPF	317.60	313.12			313.12	313.12
28	-do-	Brahmanidei DPF	730.80	753.666			753.666	753.666

1	2	3	4	5	6	7	8	9
29	-do-	Narganga DPF		235.449			235.449	235.449
30	-do-	Puinchia DPF		251.121			251.121	251.121
31	-do-	Duburi DPF	400.40	339.397			339.397	339.397
32	Tangi	Nargoda DPF	1020.00	599.724			599.724	599.724
33	-do-	Tangi DPF	179.20	176.017			176.017	176.017
34	-do-	Rameswar DPF	481.20	687.484			687.484	687.484
35	-do-	Jalbhar DPF	399.20	799.708			799.708	799.708
36	-do-	Kadambajhar DPF	474.80	436.354			436.354	436.354
37	-do-	Kandagadia DPF	212.40	208.243			208.243	208.243
38	-do-	Chakadapathar DPF	994.00	1005.536			1005.536	1005.536
39	-do-	Kunjuri DPF	449.20	384.889			384.889	384.889
40	-do-	Badapari DPF	254.00	265.677			265.677	265.677
41	-do-	Bagheiput DPF	84.40	63.345			63.345	63.345
42	Tangi	Nalsingh DPF	554.80	619.138			619.138	619.138
43	-do-	Bhusandpur DPF	778.80	821.628			821.628	821.628
44	-do-	Kaithapalla DPF	272.80	294.569	0.923		293.646	293.646
45	Balugaon	Sandhamal DPF	1511.20	1495.097			1495.097	1495.097
46	-do-	Solari DPF	1171.20	1114.705			1114.705	1114.705
47	-do-	Bhaleri DPF	807.60	907.221		0.875	906.346	906.346
48	-do-	Jharana DPF	1925.20	1957.402			1957.402	1957.402
49	-do-	Nathapur, No.40 DPF	549.20	428.354	0.965		427.389	427.389
50	-do-	Champagarh DPF	869.60	433.493			433.493	433.493
51	-do-	Bhatapada (Block No.41) DPF	536.40	280.025	1.325		278.70	278.70
52	-do-	Chulijhinka DPF	536.40	554.273			554.273	554.273
53	-do-	Jiripada DPF	68.40	71.466			71.466	71.466
54	Delanga	Beguniapada PRF	32.00	58.236			58.236	58.236
55	-do-	Jamunajharapada PRF	72.00	59.674			59.674	59.674
56	-do-	Kumuka PRF	214.00	210.951		2.03	208.921	208.921
57	-do-	Rengal PRF	112.00	112.016			112.016	112.016
58	Balipatna	Bhanra PRF	97.28	93.009			93.009	93.009
59	Khordha-106 Tangi-12 Ranapur-12 Balugaon-12	142 VFs	924.62				924.62	924.62
		Total	**58138.78**	**58817.151**	**281.818**	**3.4175**	**58531.92**	**58531.92**

19.2 GENERAL CHARACTERISTICS OF VEGETATION:

The composition & diversity of the forests allotted to this Working Circle has been discussed in Part I of this plan. Moreover all the blocks allotted to this overlapping circle have again been briefly described under the respective working circles as well.

The general characteristic of vegetation is moist deciduous and dry deciduous in nature. The forests are even aged having fairly good regeneration as well as degraded open forests having poor regeneration. The major forest types included in this Working Circle are as follow,

Sub-group	2.B.	Northern tropical semi ever green forests.
	2.B/C3	Odisha semi ever green forests.
Sub-group	3.C.	North Indian tropical moist deciduous forests.
	3.C/C1(d)	Peninsular (coastal) Sal forests.
	3.C/2S1	Northern secondary moist deciduous forests.
Sub-group	5.B.	Northern tropical dry deciduous forests.
	5.B/C1(c)	Dry peninsular Sal forests.
	5.B/DS1	Dry deciduous scrub forests.

19 .3 FELLING SERIES, CUTTING SECTION AND JFM AREAS:

Area Allotment:

All the forest blocks included in the Plan have been allotted to this Overlapping Working Circle are described in details in Chapter-II of Part-I. The total area included in this working circle is 58531.92 Ha, which covers 22 RFs, 05 PRFs, 31 DPFs and 142 VFs. Since this Working Circle overlaps the entire plan area, the details of area allotted to this working circle has not been furnished.

19.4 SPECIAL OBJECTIVES OF MANAGEMENT:

The Special objectives of management of this working circle are as follows:

- To regulate, optimize extraction, utilization of various NTFPs in conformity with Government policy with a view to promote sustainable management of forest.

- To enhance the value of forest by way of developing new NTFPs, creating additional opportunities for further value addition in the existing NTFPs and strengthening the marketing.
- to protect the NTFP trees, encourage regeneration and green productivity by taking suitable Silvicultural measures.
- to create alternate employment, generating income and develop cottage industry to utilize the available NTFP items.
- to develop skill among the local people for sustainable harvesting of NTFP items.
- to regulate extraction, utilizations of NTFP items and protect the NTFP species for sustainable yield.
- to increase the growing stock progressively for long term stability of an eco-system.
- to maintain the biological diversity and increase the carbon stock of unit area in the forest.
- to protect and conserve biodiversity within the Division.
- to develop and implement sustainable alternative livelihood options and ensure the conservation of species diversity.

19.5 ANALYSIS AND VALUATION OF CROP:

No systematic study has been done in the past in this division to assess the production of various NTFP and ascertain the impact of collection of such NTFPs on sustainable potentiality of the forest. The availability of NTFP species in different forest blocks of the division is given **Table No. 19.2**

Table No: 19.2 AVAILABLE NTFP SPECIES OF KHORDHA FOREST DIVISION.

Sl. No	Local Name	Botanical Name	Parts Used	Uses
1	**2**	**3**	**4**	**5**
1	Arjuna	*Terminalia arjuna*	Bark , Fruit	Tannin material, Medicinal
2	Asan	*Terminalia tomentosa*	Bark	Tassar cocoons, Medicinal
3	Amba	*Mangifera indica*	Root, bark, seed, kernel	Fruit is edible, medicinal
4	Ambada	*Spondias pinnata*	Root, bark, fruit seed	Medicinal
5	Anla	*Emblica officinalis*	Root, bark, leaf, fruit	Fruit is Edible, Medicinal
6	Arakha	*Calotropis gigantea*	Whole plant	Medicinal
7	Aswasthha	*Ficus religiosa*	Bark, shoot, fruit seed	Medicinal, Rope making, Fruit for animal.
8	Anchhu	*Morinda tinctoria*	Root, leaf	Medicinal
9	Bandhana	*Ougeinia oojeinensis*	Bark	Medicinal

Sl. No	Local Name	Botanical Name	Parts Used	Uses
1	2	3	4	5
10	Bara	*Ficus bengalensis*	Root, bark, leaf, bud latex	Rope making, Medicinal, Fruit for Birds , Animal
11	Bela	*Aegle marmelos*	Root, leaf, fruit	Fruit is Edible, Medicinal
12	Bhalia	*Semecarpus anacardium*	Fruit	Medicinal
13	Bichhuati	*Tragia involucrate*	Root, leaf	Medicinal
14	Baidanka	*Mucuna pruriens*	Root, leaf, seed	Medicinal
15	Bana haladi	*Curcuma aromatica*	Rhizome	Medicinal
16	Baula	*Mimusops elengi*	Bark, flower, fruit, seed	Fruit is edible, Medicinal
17	Begunia	*Vitex negundo*	Whole plant	Medicinal
18	Babul	*Acaccia nilotica*	Bark, Gum, Fruit	Calico-printing, dyeing sizing material for silk, cotton, Medicinal, Tannin for leather.
19	Bahada	*Terminalia bellirica*	Bark, Fruit	Fruit edible for animal, Medicinal, Tannin for leather.
20	Bhuin anla	*Phyllanthus niruri*	Whole plant	Medicinal
21	Bhuinnimba	*Andrographis paniculata*	Whole plant	Medicinal
22	Banakhajuri	*Phoenix sylvestris*	Fruit	Medicinal
23	Barakoli	*Ziziphus mauritiana*	Whole plant	Fruit is edible, Medicinal
24	Bhersunga	*Murraya koenigii*	Root, bark , leaf	Medicinal
25	Banatulasi	*Ocimum americanum*	Leaf , seed	Medicinal
26	Char	*Buchnania lanzan*	Root , Fruit	Fruit is Edible, Medicinal
27	Chhatian	*Alstonia scholaris*	Bark , leaf	Medicinal
28	Chakunda	*Cassia tora*	Leaf , seed	Medicinal
29	Champa	*Michelia champaca*	Whole plant	Perfumes, Medicinal
30	Duba ghassa	*Cynodon dactylon*	Whole plant	Medicinal
31	Dimiri	*Ficus hispida*	Bark , fruit	Fruit is Edible, Medicinal
32	Dudura	*Datura fastusa*	Whole plant	Tannin for leather, Medicinal
33	Dhanantwari	*Cymbopogon citratus*	Whole plant	Medicinal
34	Dhatki	*Woofordia fruticosa*	Flower	Medicinal
35	Dhaura	*Anogeissus latifolia*	Root bark leaf seed Gum	Medicinal, Sizing paper printing
36	Eucalyptus	*Eucalyptus indica*	Leaf	Oil , Medicinal
37	Genduli	*Sterculia urens*	Gum	Gum is edible Confectionaries
38	Gohira	*Acacia leucophloea*	Bark	Medicinal
39	Gayasha	*Leucas aspera*	Leaf, Flower	Medicinal
40	Guluchi	*Tinospora cordifolia*	Stem	Medicinal
41	Gambhari	*Gmelina arborea*	Whole plant	Fruit for animal, Medicinal
42	Gangasiuli	*Nyctanthes arbortristi*	Leaf, Flower seed	Medicinal

Sl. No	Local Name	Botanical Name	Parts Used	Uses
1	2	3	4	5
43	Ghikuanari	*Aloe vera*	Leaf juice	Medicinal
44	Harida	*Terminalia chebula*	Fruit	Tannin for leather, Medicinal
45	Hinjala	*Barringtonia acutangu*	Root, leaf, Fruit	Medicinal
46	Hadabhanga	*Vitis quadrangularis*	Whole plant	Medicinal
47	Jamu	*Syzygium cumini*	Bark, leaf , Fruit	Fruit is Edible, Medicinal
48	Jayas,a	*Litsia glutiness*	Fiber	Medicinal,
49	Jari	*Ficus microcarpa*	Root, bark , leaf	Medicinal
50	Karanja	*Pongamia pinnata*	Whole plant	Oil & Medicinal
51	Kathhachampa	*Plumeria rubra*	Root, leaf , latex	Medicinal
52	Kochila	*Strychnos nuxvomica*	Bark, leaf , seed	Fruit is edible- birds, Medicinal
53	Kendu	*Dyospyros melanoxyl*	Fruit , leaf	Fruit is Edible, Leaf Bidi
54	Kaincha	*Abrus precatorius*	Root, leaf , seed.	Medicinal
55	Kainthha	*Limonia feronia*	Bark, Fruit , Gum	Medicinal
56	Kamala-gundi	*Mallotus philippensis*	Gl,ular hairs of the fruit	Medicinal
57	Khair	*Acacia catechu*	Bark , heart wood	Pan industries Medicinal
58	Kantamaris	*Amaranthus spinasus*	Whole plant	Medicinal
59	Kanteikuli	*Flacourtia indica*	Root, leaf , Fruit	Medicinal
60	Kurein	*Holarrhena antidysent*	Bark, seed , leaf	Medicinal
61	Kusum	*Schleichera oleasa*	Bark , oil	Fruit Edible, Oil, Medicinal, soap
62	Kumbhi	*Careya arborea*	Bark, leaf , Fruit	Medicinal
63	Kunkum	*Bixa orellana*	Root, bark , seed	Medicinal
64	Lantana	*Lantana camara*	Whole plant	Medicinal
65	Lajkuli	*Mimosa pudica*	Root , leaf	Medicinal
66	Lodha	*Symplocus racemosa*	Bark	Medicinal
67	Mahula	*Madhuca Indica*	Flower , Fruit	Edible Oil, Fruit, country liquor
68	Mohalimba	*Melia composite*	Whole plant	Medicinal
69	Mai	*Lannea coromondelic*	Bark, leaf	Medicinal
70	Mohakal	*Trichosanthes anguin*	Root , Fruit	Medicinal
71	Mundi	*Mitragyna parvifolia*	Root, Bark , leaf	Medicinal
72	Neem	*Azadirachta indica*	Bark, leaf, seed	Oil & Medicinal
73	Nageswar	*Mesua ferrea*	Flower	Oil & Medicinal
74	Palasa	*Butea monosperma*	Root	Rope making
75	Piasal	*Pterocarpus marsupiu*	Heartwood, gum	Medicinal
76	Panasa	*Artocarpus heterophyl*	Root, leaf, Fruit, seed	Edible fruit, Medicinal
77	Poksungha	*Ageratum conyzoides*	Root, leaf	Medicinal
78	Phanaphana	*Oroxylum indicum*	Root, leaf, Fruit, seed	Medicinal
79	Raktachita	*Plumbago rosea*	Root	Medicinal
80	Rithha	*Sapindus laurifolia*	Root, bark, Fruit	Herbal Shampoo, Soap, Medicinal

Sl. No	Local Name	Botanical Name	Parts Used	Uses
1	2	3	4	5
81	Sal	*Shorea robusta*	Leaf, Bark, Fruit, resin.	Tannin, Medicinal, Edible Oil, Leaf plates, Agarbati, Varnish
82	Siris	*Albizia lebbek*	Bark, Flower, seed	Medicinal
83	Sissoo	*Dalbergia sissoo*	Root, leaf, bark, heart wood	Medicinal
84	Sunari	*Cassia fistula*	Whole plant	Medicinal
85	Satabari	*Asparagus racemosus*	Tuberous Root	Medicinal
86	Semul	*Bombax ceiba*	Root, gum, bark, fruit.	Cotton , Medicinal
87	Salai	*Boswellia serrata*	Bark, gum, resin	Pleasant smell- burnt, Medicinal
88	Sahada	*Streblus asper*	Root, Bark, leaf latex	Medicinal
89	Siali	*Bauhinia vahlii*	Fiber	Binding KL, Rope making
90	Siju	*Euphorbia antiquor*	Root juice	Medicinal
91	Tentuli	*Tamarindus indica*	Root, Fruit, seed	Fruit is Edible,Medicinal

The details of Flora and Fauna available in Khordha Forest Division and the description thereof is given in Executive summery of Part –I and chapter-22 of Part-II of this Working Plan.

However, the Working plan Bhubaneswar Division has taken up the inventory of NTFP species in this Division during 2009-10 and 2010-11. Also recently one NGO HELP (Health, Environment and Literacy of people) Bhubaneswar was entrusted to carry out the inventory of NTFP and the collection, uses and marketing of the NTFP by the Forest fringe villegers of Khordha Forest Division. The details of inventory made by HELP is furnished below,

19.5.1 –NTFP INVENTORY DATA OF KHORDHA FOREST DIVISION.

The list of NTFP species is shown in following table

Table No-19.3

List of NTFP Species (Source –HELP)

Sl.	Category	Local Name	Botanical Name
1	2	3	4
1	TREES	Aamba	*Mangifera indica*
2	TREES	Acacia	*Acacia auriculiformis*
3	TREES	Achhu	*Morinda tinctoria*
4	TREES	Adanga	*Cycas circinalis*
5	TREES	Agasti	*Sesbania grandiflora*
6	TREES	Ambada	*Spondias pinnata*
7	TREES	Ankula	*Alangium alvifolium*
8	TREES	Anla	*Emblica officinalis*
9	TREES	Arakha	*Calotropis gigentia*
10	TREES	Arjun	*Terminalia arjuna*
11	TREES	Asan	*Terminalia tomentosa*

Sl.	Category	Local Name	Botanical Name
1	2	3	4
12	TREES	Ashoka	*Saraca asoca*
13	TREES	Aswastha	*Ficus religiosa*
14	TREES	Babul	*Acacia nilotica*
15	TREES	Bahada	*Terminalia belerica*
16	TREES	Bahal	*Melia dubia*
17	TREES	Bajramuli	*Sida acuta*
18	TREES	Bana kadali	*Corchorus aestuans*
19	TREES	Bandhana	*Desmodium oojeinensis*
20	TREES	Bara	*Ficus bengalensis*
21	TREES	Bara koli	*Ziziphus mauritiana*
22	TREES	Barbakulia	*Delbergia paniculata*
23	TREES	Behenta	*Limonia acidissima*
24	TREES	Bel	*Aegle marmelos*
25	TREES	Benta	*Naringi crenulata*
26	TREES	Bhada bhadalia	*Olax scandens*
27	TREES	Bhalia	*Semecarpus anacardium*
28	TREES	Bheru	*Chloroxylon swietiana*
29	TREES	Bhrukundi	*Hymenodictyon orixense*
30	TREES	Bhuin dimiri	*Ficus heterophylla*
31	TREES	Chakundi	*Cassia siamea*
32	TREES	Char	*Buchanania lanzan*
33	TREES	Chauli	*Cassine glauca*
34	TREES	Chaulia	*Psidium sps.*
35	TREES	Chaunri	*Bauhinia semla*
36	TREES	Chepeti	*Xylocarpus granatum*
37	TREES	Chhatian	*Alstonia scholaris*
38	TREES	Dalsingha	*Canthium dicoccum*
39	TREES	Dhaman	*Grewia tiliafolia*
40	TREES	Dhamani	*Xylia xylocarpa*
41	TREES	Dhaura	*Anogeissus latifolia*
42	TREES	Dhuanla	*Cordia obliqua*
43	TREES	Dimiri	*Ficus racemosa*
44	TREES	Eucalyptus	*Eucalyptus sps.*
45	TREES	Gambhari	*Gmelina arborea*
46	TREES	Gandha palas	*Meliosa velutina*
47	TREES	Gangasiuli	*Nyctanthes arbortristis*
48	TREES	Gendu	*Tagetes patula*

Sl.	Category	Local Name	Botanical Name
1	2	3	4
49	TREES	Genduli	*Sterculia urens*
50	TREES	Giridi	*Casearia graveolens*
51	TREES	Giringa	*Pterospermum canescens*
52	TREES	Gohiria	*Acacia leucophloea*
53	TREES	Gotha	*Ziziphus xylopyrus*
54	TREES	Gundi	*Celastrus timorensis*
55	TREES	Halada	*Diospyros montana*
56	TREES	Haldu	*Adina cordifolia*
57	TREES	Harida	*Terminalia chebula*
58	TREES	Hentala	*Licuala peltata*
59	TREES	Hinjala	*Barringtonia acutangula*
60	TREES	Jamun	*Syzigium cuminii*
61	TREES	Jari	*Ficus infectoria*
62	TREES	Jayasanddha	*Litsea glutinosa*
63	TREES	Jhara champa	*Actinodaphne angustifolia*
64	TREES	Joain (Madhura)	*Carum copticum*
65	TREES	Kadamba	*Anthocephalus cadamba*
66	TREES	Kahanda	*Syzygium cerasoides*
67	TREES	Kaitha	*Feronia limonia*
68	TREES	Kaju	*Anacardium occidentale*
69	TREES	Kaluchia	*Diospyros sylvatica*
70	TREES	Kamala	
71	TREES	Kamala gundi	*Mallotus philippinensis*
72	TREES	Kanchan	*Bauhinia purpurea*
73	TREES	Kansa	*Hymendictyon excellsum*
74	TREES	Kanta baula	*Ziziphus xylopyrus*
75	TREES	Kanta koli	*Ziziphus oenoplia*
76	TREES	Kapasia	*Kydia calycina*
77	TREES	Karada	*Cleistanthus collinus*
78	TREES	Karanja	*Pongamia pinnata*
79	TREES	Karuna	*Citrullus aurantium*
80	TREES	Kasi	*Bridelia retusa*
81	TREES	Katakala	*Strychnos potatorum*
82	TREES	Kendu	*Diospyros melanoxylon*
83	TREES	Kerunha/Kurein	*Holarrhena antidysenterica*
84	TREES	Khair	*Acacia catechu*
85	TREES	Khajuri	*Phoenix sylvestris*

Sl.	Category	Local Name	Botanical Name
1	2	3	4
86	TREES	Khakada	*Casearia elliptica*
87	TREES	Khira koli	*Carissa spinarum*
88	TREES	Kochila	*Strychnos nuxvomica*
89	TREES	Kodala	*Sterculia villosa*
90	TREES	Krushnachuda	*Delonix regia*
91	TREES	Kumbhi	*Careya arborea*
92	TREES	Kuruma	*Schleichera oleosa*
93	TREES	Labanisore	*Ochna obtusata*
94	TREES	Lembu	*Citrus aurantifolia*
95	TREES	Lembura moi	*Bursera serrata*
96	TREES	Maha nima	*Melia azedarach*
97	TREES	Mahula	*Madhuca indica*
98	TREES	Mai	*Lannea coromandelica*
99	TREES	Majurgodia	
100	TREES	Manda/Mukha	*Schrebera swietenioides*
101	TREES	Mankada kendu	*Diospyros malabarica*
102	TREES	Masania/Mosu	*Aporusa octandra*
103	TREES	Mayura chulia	*Elephantopus scaber*
104	TREES	Mitikinia	*Mitragyna parvifolia*
105	TREES	Mrutanjibi/Mrugachar	*Grewia disperma*
106	TREES	Mundika	*Walsura trifoliata*
107	TREES	Nahalbeli	*Cipadessa baccifera*
108	TREES	Naragi	*Clerodendrum indicum*
109	TREES	Narguni	*Atlantia malabarica*
110	TREES	Neem	*Azadirachta indica*
111	TREES	Nirasa	*Memecylon umbellatum*
112	TREES	Nunu nunia	*Antidesma acidum*
113	TREES	Ostha puspa	*Pentapetes phoenicea*
114	TREES	Paladhua	*Erythrina indica*
115	TREES	Palm (Tala)	*Borassus flabellifer*
116	TREES	Palas	*Butea monosperma*
117	TREES	Panasa	*Artocarpus heterophyllus*
118	TREES	Pani gambhari	*Trewia nudiflora*
119	TREES	Phanphana	*Oroxylum indicum*
120	TREES	Patuli	*Stereospermum chelonoides*
121	TREES	Phasi	*Anogeissus acuminata*
122	TREES	Piasal	*Pterocarpus marsupium*

Sl.	Category	Local Name	Botanical Name
1	2	3	4
123	TREES	Poi chandia	*Balanites aegyptiaca*
124	TREES	Potamasu	*Polyalthia cerasoides*
125	TREES	Rai	*Dillenia pentagyna*
126	TREES	Rubber	*Ficus elastica*
127	TREES	Sahada	*Streblus asper*
128	TREES	Sahaja	*Terminalia alata*
129	TREES	Sajanapati	*Dalbergia lanceolaria*
130	TREES	Sal	*Shorea robusta*
131	TREES	Salai	*Boswellia serrata*
132	TREES	Salapa	*Caryota urens*
133	TREES	Salia baunsa	*Dendrocalamus strictus*
134	TREES	Sana hati	*Cleistanthus patulus*
135	TREES	Sidha	*Lagerstroemia parviflora*
136	TREES	Simaruba	*Simaruba glouca*
137	TREES	Simili	*Bombax ceiba*
138	TREES	Sisoo	*Dalbergia sisoo*
139	TREES	Soam/Rohini	*Soymida fabrifuga*
140	TREES	Sunari	*Cassia fistula*
141	TREES	Teak	*Tectona grandis*
142	TREES	Telakoruanha	*Ixora pavetta*
143	TREES	Tentuli	*Tamarindus indica*
144	TREES	Tinia	*Albizzia odoratissima*
145	TREES	Udabara/Jirang	*Ficus tinctoria*
146	SHRUBS	Aata	*Annona sqoamosa*
147	SHRUBS	Amari	*Ipomoea carnea*
148	SHRUBS	Anku koli	*Carissa spinarum*
149	SHRUBS	Begunia	*Vitex negundo*
150	SHRUBS	Beta	*Calamus sps.*
151	SHRUBS	Bhaincha	*Flacourtia indica*
152	SHRUBS	Bana khajuri	*Phoenix acaulis*
153	SHRUBS	Chauladhua	*Aerva sanguinolenta*
154	SHRUBS	Chireigudia	*Vitex leucoxylon*
155	SHRUBS	Dhatuki	*Woodfordia fruticosa*
156	SHRUBS	Firika	*Benkara malaberica*
157	SHRUBS	Gaba	*Ricinus communis*
158	SHRUBS	Gaurakasa	*Maytenus emarginatus*
159	SHRUBS	Guakoli	*Diaspyras ferrea*

Sl.	Category	Local Name	Botanical Name
1	2	3	4
160	SHRUBS	Hadakankali	*Ardisia solanacea*
161	SHRUBS	Indrajab	*Holarrhena pubescens*
162	SHRUBS	Jajhangi	*Breynia vitisidaea*
163	SHRUBS	Jambala/Kia	*Pandanus fascicularis*
164	SHRUBS	Jhumpuri	*Streblus taxoides*
165	SHRUBS	Kalchua	*Glochidion zeylanicum*
166	SHRUBS	Kaniara	*Cascabela thevetia*
167	SHRUBS	Kanta kapali	*Allophlus cobbe*
168	SHRUBS	Kantei koli	*Firmiana indica*
169	SHRUBS	Khiri koli	*Mimosa himalayan*
170	SHRUBS	Khiro koli	*Mymuspos hexendra*
171	SHRUBS	Kolathia	*Trichosanthes cucumerina*
172	SHRUBS	Korunha	*Holarrhena pubescens*
173	SHRUBS	Kukurchhelia	*Pavetta crassicaulis*
174	SHRUBS	Lankagaba	*Jatrapha gossypifolia*
175	SHRUBS	Nageri	*Lantana camara*
176	SHRUBS	Naguari	*Lippia javanica*
177	SHRUBS	Nephuda	*Capparis brevispina*
178	SHRUBS	Rahana	*Mimosa intsia*
179	SHRUBS	Rani dantakathi	*Flemengia chappar*
180	SHRUBS	Sagar batua	*Eugenia bracteata*
181	SHRUBS	Salara	*Catunaregam spinosa*
182	HERB & GRASSES	Aatikapodi	*Boerhavia diffusa*
183	HERB & GRASSES	Ankaranti	*Solanum virginianum*
184	HERB & GRASSES	Apamaranga	*Achyranthes aspera*
185	HERB & GRASSES	Aparajita	*Clitoria ternatea*
186	HERB & GRASSES	Arakha	*Calotropis gigantea*
187	HERB & GRASSES	Baguli	*Eulaliopsis binata*
188	HERB & GRASSES	Bajramuli	*Sida acuta*
189	HERB & GRASSES	Balikhai	*Symphorema polyandrum*
190	HERB & GRASSES	Bamboo grass	*Saccharum bengalense*
191	HERB & GRASSES	Bana alu	*Dioscorea pentaphylla*
192	HERB & GRASSES	Bana bana	*Canscora decussata*
193	HERB & GRASSES	Bana bhendi	*Abelnoschus moschotus*
194	HERB & GRASSES	Bana durlava	*Tephrosia purpurea*
195	HERB & GRASSES	Bana gayasa	*Leucas aspera*
196	HERB & GRASSES	Bana haladi	*Curcuma aromatica*

Sl.	Category	Local Name	Botanical Name
1	2	3	4
197	HERB & GRASSES	Bana kadali	*Corchorus aestuans*
198	HERB & GRASSES	Bana piaja	*Urginea indica*
199	HERB & GRASSES	Bana saru	*Colocasia sps.*
200	HERB & GRASSES	Bana tulasi	*Ocimum canum*
201	HERB & GRASSES	Bari anla	*Phyllanthus fraternus*
202	HERB & GRASSES	Bena	*Vetiveria zizanioides*
203	HERB & GRASSES	Bhuin nima	*Andrographis paniculata*
204	HERB & GRASSES	Bhuin patali/Thalkudi	*Centilla asiatica*
205	HERB & GRASSES	Bichhuati	*Tragia involucrata*
206	HERB & GRASSES	Bisalya karani	*Tridax procumbens*
207	HERB & GRASSES	Brahmi	*Bacopa monnieri*
208	HERB & GRASSES	Chhana grass	*Imperata cylindrica*
209	HERB & GRASSES	Chhelianthua	*Psychopria adenophylla*
210	HERB & GRASSES	Daskerenta	*Baleria prionitis*
211	HERB & GRASSES	Danti	*Baliospermum montanum*
212	HERB & GRASSES	Dhalachita	*Plumbago zeylanica*
213	HERB & GRASSES	Duba grass	*Cynodon dactylon*
214	HERB & GRASSES	Fern	*Fern sps.*
215	HERB & GRASSES	Fulajhadu	*Thysanolaena maxima*
216	HERB & GRASSES	Fulari	*Grewia rothii*
217	HERB & GRASSES	Gaigobara	*Costus speciosus*
218	HERB & GRASSES	Gandhi/Gandhuri	*Chromolaena odorata*
219	HERB & GRASSES	Gandiana	*Cissus quadrangula*
220	HERB & GRASSES	Gharpodia	*Hedyotis corymbosa*
221	HERB & GRASSES	Gudaguhala	*Marsdenia hamiltonii*
222	HERB & GRASSES	Guguchia	*Chrysopogon aciculatus*
223	HERB & GRASSES	Bana harada	*Cajanus cajan*
224	HERB & GRASSES	Hariharika	*Euphorbia hirta*
225	HERB & GRASSES	Hemakal kiri	*Kalanchoe pinnata*
226	HERB & GRASSES	Indrajal	
227	HERB & GRASSES	Indramarish	*Acalypha indica*
228	HERB & GRASSES	Jalajali	*Stachytarpheta indica*
229	HERB & GRASSES	Jhumuka	*Passiflora foetida*
230	HERB & GRASSES	Jhunka	*Crotolaria spectabilis*
231	HERB & GRASSES	Juani	*Trachyspermum ammi*
232	HERB & GRASSES	Juilata	*Pogostemon plectranthoides*
233	HERB & GRASSES	Kakudia grass	*Dactyloctenium acgyptium*

Sl.	Category	Local Name	Botanical Name
1	2	3	4
234	HERB & GRASSES	Kanduli	*Atylosia cajanifolia*
235	HERB & GRASSES	Kansiri lata	*Ipomea biloba*
236	HERB & GRASSES	Kasunda	*Casia sophera*
237	HERB & GRASSES	Khadika phula	*Ixora coccinea*
238	HERB & GRASSES	Koili khia	*Hygrophila auriculata*
239	HERB & GRASSES	Kolathia	*Tephrosia purpurea*
240	HERB & GRASSES	Kujiparna	*Carmona retusa*
241	HERB & GRASSES	Kusa grass	*Desmostachya bipinnata*
242	HERB & GRASSES	Luhabena	*Eragrostis nutans*
243	HERB & GRASSES	Machhi kanda	*Zingiber capitatum*
244	HERB & GRASSES	Madan mostok	*Hybanthus emeasfermus*
245	HERB & GRASSES	Madanga	*Dendrophthoe falcata*
246	HERB & GRASSES	Mahakala	*Trichosanthes tricuspidata*
247	HERB & GRASSES	Murga	*Sansevieria roxburghiana*
248	HERB & GRASSES	Mutha	*Cyperus rotundus*
249	HERB & GRASSES	Ninia	*Suaeda monoica*
250	HERB & GRASSES	Olua	*Amorphophalus paeoniifolius*
251	HERB & GRASSES	Palua	*Polycarpaea corimbosa*
252	HERB & GRASSES	Panairi	*Artemisia nilagirica*
253	HERB & GRASSES	Pani noi	*Ipomoea eriocarpa*
254	HERB & GRASSES	Panua	*Merremia umbellata*
255	HERB & GRASSES	Pasan vedi	*Polycarpaea aurea*
256	HERB & GRASSES	Patala garuda	*Rauwolfia serpentina*
257	HERB & GRASSES	Kashtandi	*Saccharum spontaneum*
258	HERB & GRASSES	Paunsia	*Aerva lanata*
259	HERB & GRASSES	Pedipedika	*Abutilon indicum*
260	HERB & GRASSES	Pita saga	*Glinus oppositifolius*
261	HERB & GRASSES	Pokasunga	*Ageratum conyzoides*
262	HERB & GRASSES	Pokasungha	*Eupatorium odoratum*
263	HERB & GRASSES	Rakta khai	*Dracaena terniflora*
264	HERB & GRASSES	Rangani	*Ixora coccinea*
265	HERB & GRASSES	Rasuna	*Allium sps.*
266	HERB & GRASSES	Sanjibani	
267	HERB & GRASSES	Siju (Tikanta)	*Euphorbia ligularia*
268	HERB & GRASSES	Sinkula	*Heteropogon contortus*
269	HERB & GRASSES	Solaganthia	*Spermacoce articularis*
270	HERB & GRASSES	Talamuli	*Curculigo orchioides*

Sl.	Category	Local Name	Botanical Name
1	2	3	4
271	HERB & GRASSES	Tundapoda	*Toddalia asiatica*
272	CLIMBERS	Akandi	*Calycopteris floribunda*
273	CLIMBERS	Akan bendhi	*Cissampelos pareira*
274	CLIMBERS	Ashadhua	*Capparis zeylanica*
275	CLIMBERS	Atundi	*Combretum decandrum*
276	CLIMBERS	Bada gila	*Entada scandens*
277	CLIMBERS	Baidhanka	*Mucuna pruriens*
278	CLIMBERS	Bana alu/Tunga	*Dioscorea pentaphylla*
279	CLIMBERS	Bana lati/Khalua	*Finlaysonia obovata*
280	CLIMBERS	Bana malati	*Jasminum auriculatum*
281	CLIMBERS	Bana malli	*Hiptage benghalensis*
282	CLIMBERS	Bhada bhadalia	*Olax scandens*
283	CLIMBERS	Bichhuati	*Tragia involucrata*
284	CLIMBERS	Bileikhoji	*Acalypha hispida*
285	CLIMBERS	Bruddha taraka	*Argyreia nervosa*
286	CLIMBERS	Chemeri barmul	*Hemidesmus indicus*
287	CLIMBERS	Cheranga	*Dioscorea asuleata*
288	CLIMBERS	Dahidahia	*Cocculus hirsutus*
289	CLIMBERS	Dantari	*Acacia pennata*
290	CLIMBERS	Enturidi	*Argyreia nervosa*
291	CLIMBERS	Gaja pippali	*Scindapsus officinalis*
292	CLIMBERS	Gilla	*Caesalpinia decapetala*
293	CLIMBERS	Gopakanu/Dudhi	*Cryptolepis buchananii*
294	CLIMBERS	Kaincha	*Abrus precatorius*
295	CLIMBERS	Kakudi	*Cucumis sativus*
296	CLIMBERS	Kalabati	*Anamirta cocculus*
297	CLIMBERS	Kankada	*Momordica dioica*
298	CLIMBERS	Kaliboiti	*Thunbergia fragrans*
299	CLIMBERS	Kanisiri lata	*Ipomea biloba*
300	CLIMBERS	Kanja kanjia	*Cayratia auriculata*
301	CLIMBERS	Kanjia loi	*Ampelocissus latifolia*
302	CLIMBERS	Kanta alu	*Dioscorea glabra*
303	CLIMBERS	Kanta malli/Kula	*Ventilago denticulata*
304	CLIMBERS	Kasa alu	*Dioscorea puber*
305	CLIMBERS	Kerenda koli	*Carissa carandas*
306	CLIMBERS	Khalua/Khasai nata	
307	CLIMBERS	Kuradhia gachha	*Desmodium triflorum*

Sl.	Category	Local Name	Botanical Name
1	2	3	4
308	CLIMBERS	Lai beheda	*Celastrus paniculata*
309	CLIMBERS	Lajakuli	*Mimosa pudica*
310	CLIMBERS	Lekhan koli	*Uvaria hamiltonii*
311	CLIMBERS	Muturi	*Smilax zeylanica*
312	CLIMBERS	Nirmuli	*Cuscuta reflexa*
313	CLIMBERS	Palasa	*Butea superba*
314	CLIMBERS	Paniri	*Aristolochia bracteata*
315	CLIMBERS	Pitamasia/Pita alu	*Dioscorea wallichii*
316	CLIMBERS	Rakta pichali	*Gouania leptostachya*
317	CLIMBERS	Sakta	*Curcuma montana*
318	CLIMBERS	Satabari	*Asparagus racemosus*
319	CLIMBERS	Siali	*Bauhinia vahlii*
320	CLIMBERS	Suam loi	*Ichnocarpus frutescens*

ABSTRACT

No of TREES: 145

No of SHRUBS: 36

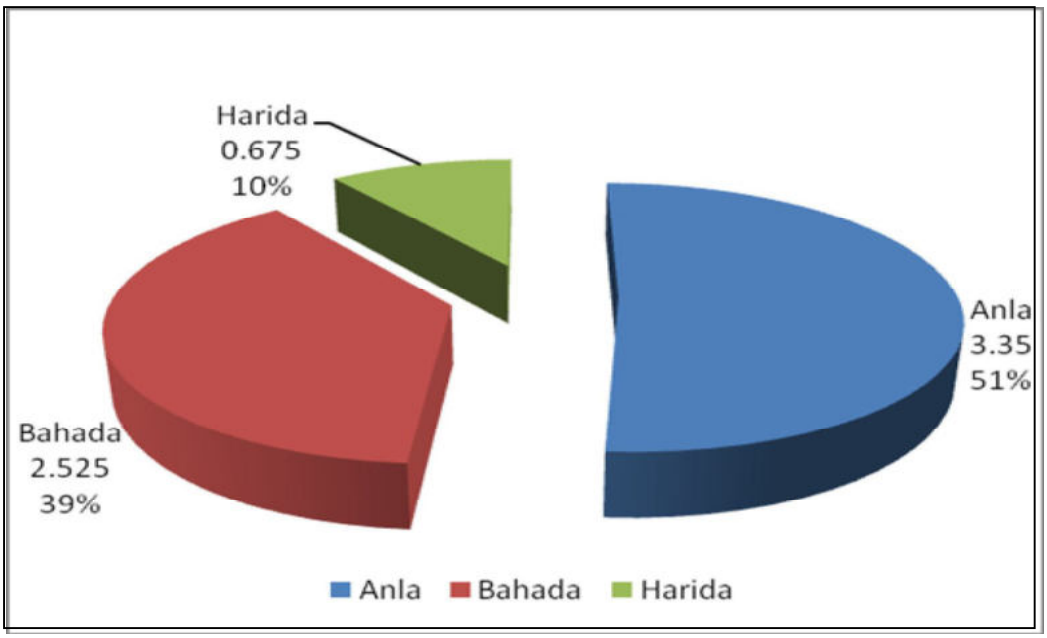
No of HERBS & GRASSES: 90

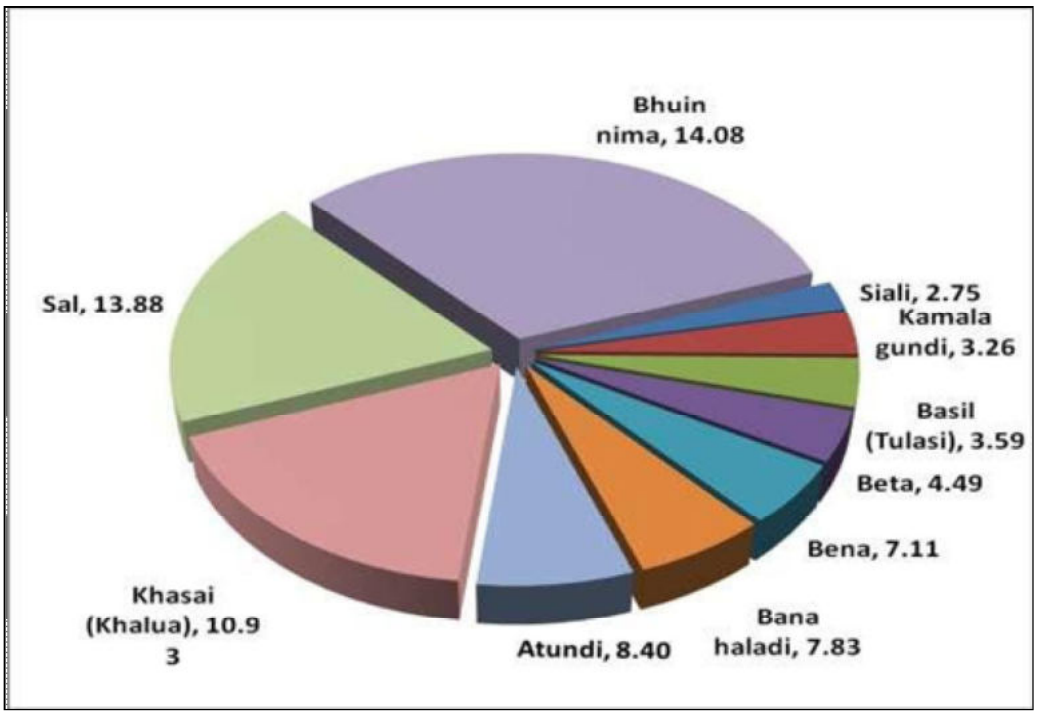
No of CLIMBERS: 49

TOTAL NO OF SPECIES: 320

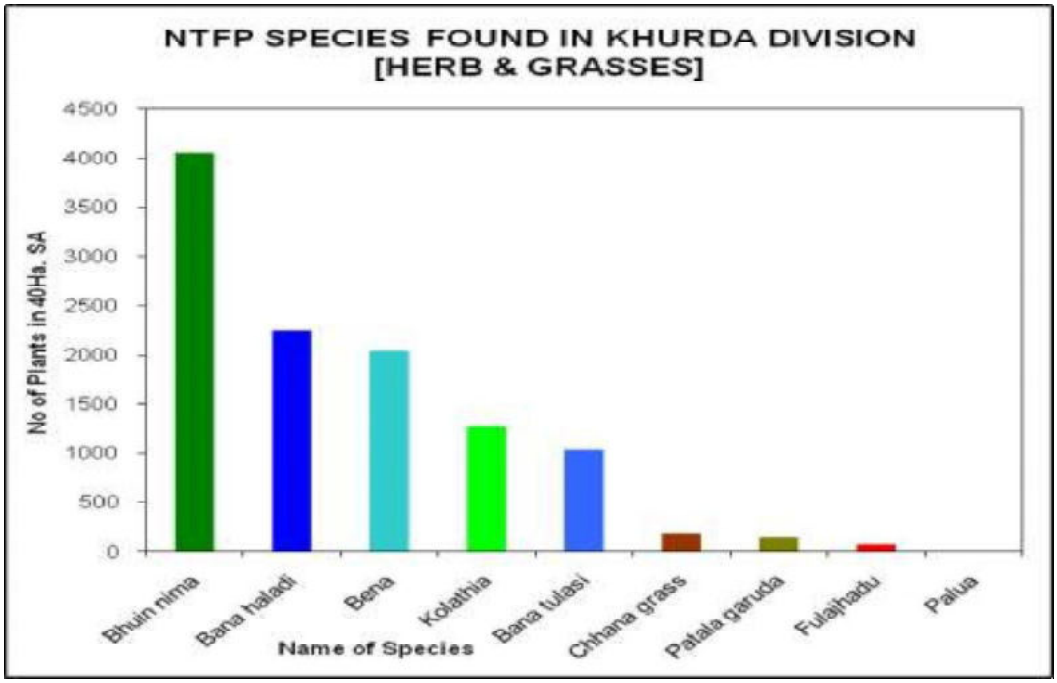
Presentation of 'No of Species' of Khordha Division

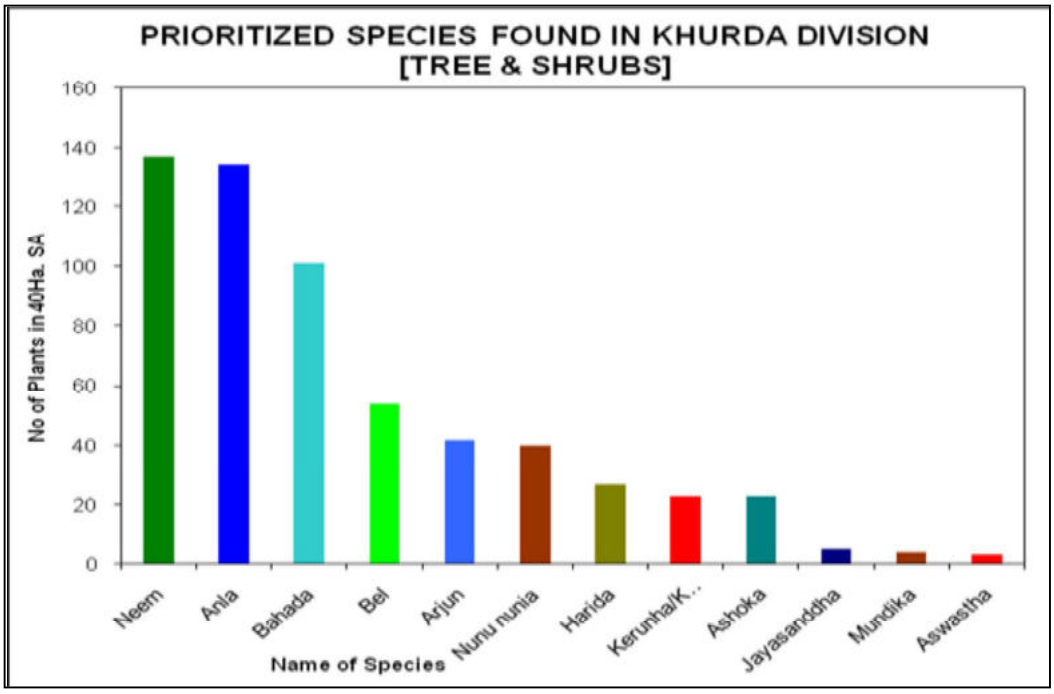
Analysis of Triphala (No of Stem / Ha. of Sample Area) of Khordha Division



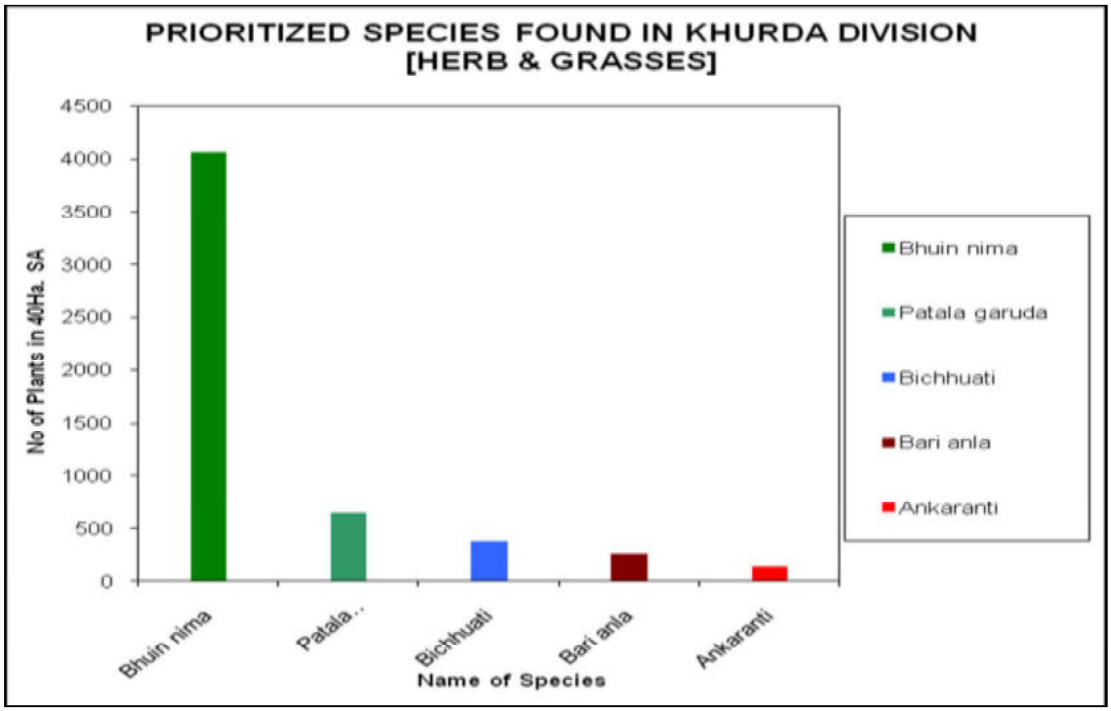


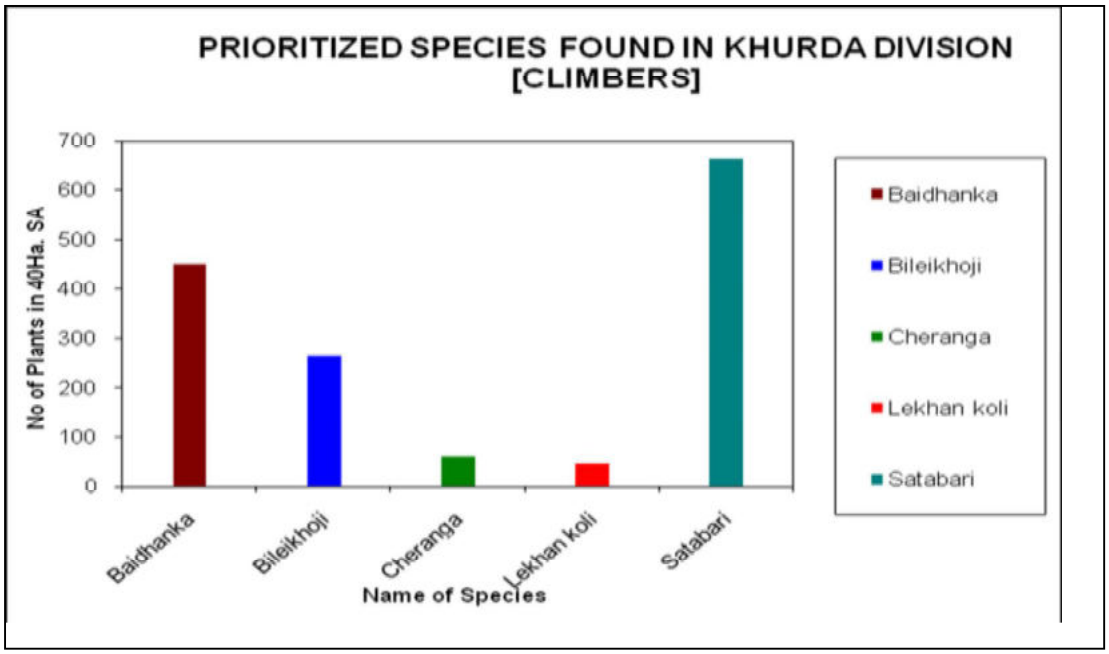
Source: NGO---HELP (Health, Environment & Literacy of People





Source: NGO---HELP (Health, Environment & Literacy of People), Bhubaneswar



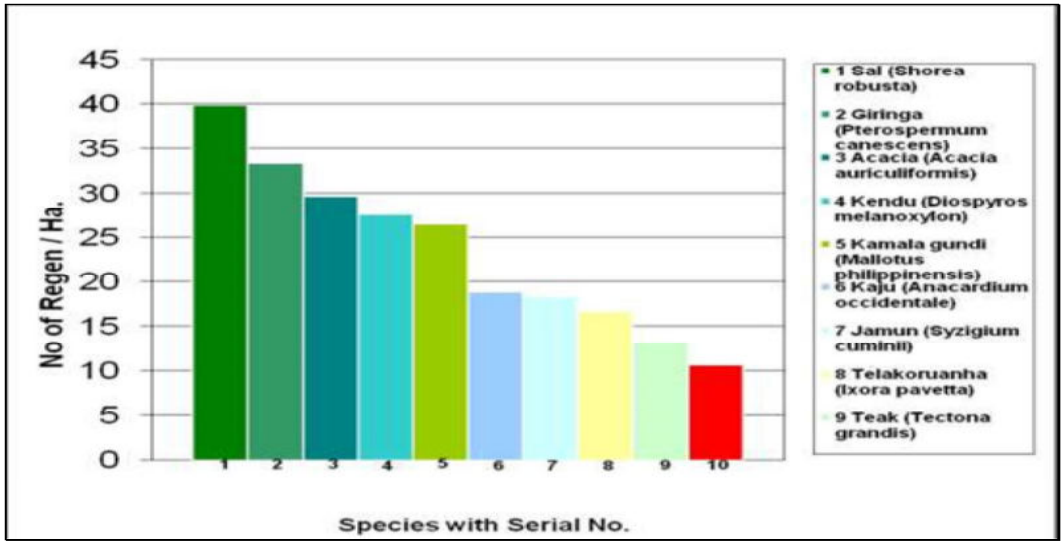


Source: NGO---HELP (Health, Environment & Literacy of People), Bhubaneswar

Table 19.4 TWENTY BEST REGENERATING SPECIES FOUND IN KHORDHA DIVISION

Sl. No.	Local Name	Botanical Name	Total no of Regen. Plants
1	Sal	*Shorea robusta*	**39.93**
2	Giringa	*Pterospermum canescens*	**33.38**
3	Acacia	*Acacia auriculiformis*	**29.68**
4	Kendu	*Diospyros melanoxylon*	**27.68**
5	Kamala gundi	*Mallotus philippinensis*	**26.55**
6	Kaju	*Anacardium occidentale*	**18.85**
7	Jamun	*Syzigium cuminii*	**18.33**
8	Telakoruanha	*Ixora pavetta*	**16.65**
9	Teak	*Tectona grandis*	**13.18**
10	Sunari	*Cassia fistula*	**10.70**
11	Khakada	*Casearia elliptica*	**10.63**
12	Mahula	*Madhuca indica*	**10.13**
13	Char	*Buchanania lanzan*	**10.05**
14	Kasi	*Bridelia retusa*	**7.95**
15	Aamba	*Mangifera indica*	**7.53**
16	Lembura Moi	*Bursera serrata*	**6.25**
17	Nahalbeli	*Cipadessa baccifera*	**6.13**
18	Anla	*Emblica officinalis*	**6.05**
19	Karada	*Cleistanthus collinus*	**5.83**
20	Bhalia	*Semecarpus anacardium*	**5.65**

TEN BEST REGENERATING SPECIES FOUND IN KHORDA DIVISION



Source: NGO---HELP (Health, Environment & Literacy of People), Bhubaneswar

Table No: 19.5 RANGEWISE NTFP MARKETING ABSTRACT IN KHORDHA FOREST DIVISION

RANGES	NO OF VILL.	TOTAL NO OF HOUSE HOLDS	POPULATION IN 2011	NTFP SPECIES NAME	UNIT	NO OF NTFP COLLECTORS	SELF CONSUMPTION	TOTAL SOLD	UNIT PRICE (Rs.)	SALE VALUE (Rs.)	TOTAL OF NTFP SALE (Rs.)
1	2	3	4	5	6	7	8	9	10	11	12
BALUGAON	1	4020	26483	Jhadu	Each Piece	2	0	110	12	1320	
	11			Sal leaf	Bundle (80plts)	79	561	16732	17	284444	
	6			Siali leaf	Bundle (80plts)	81	313	16820	20	336400	**622164**
KHORDHA	1	134	876	Sal leaf	Bundle (80plts)	20	121	1590	17	27030	**27030**
RANPUR	3	512	3217	Jhuna	Kg.	4	0	11	100	1100	
	1			Tunga	Kg.	2	110	120	10	1200	
	18			Sal leaf	Bundle (80plts)	83	765	22190	17	377230	
	15			Siali leaf	Bundle (80plts)	74	160	13030	20	260600	
	1			Siali loi	Bundle	1	15	0	0	0	**640130**
TANGI	1	311	1867	Bahada	Kg.	2	0	70	12	840	
	1			Harida	Kg.	2	0	35	15	525	
	3			Sal leaf	Bundle (80plts)	7	45	1530	17	26010	
	3			Siali leaf	Bundle (80plts)	17	45	3295	20	65900	**93275**

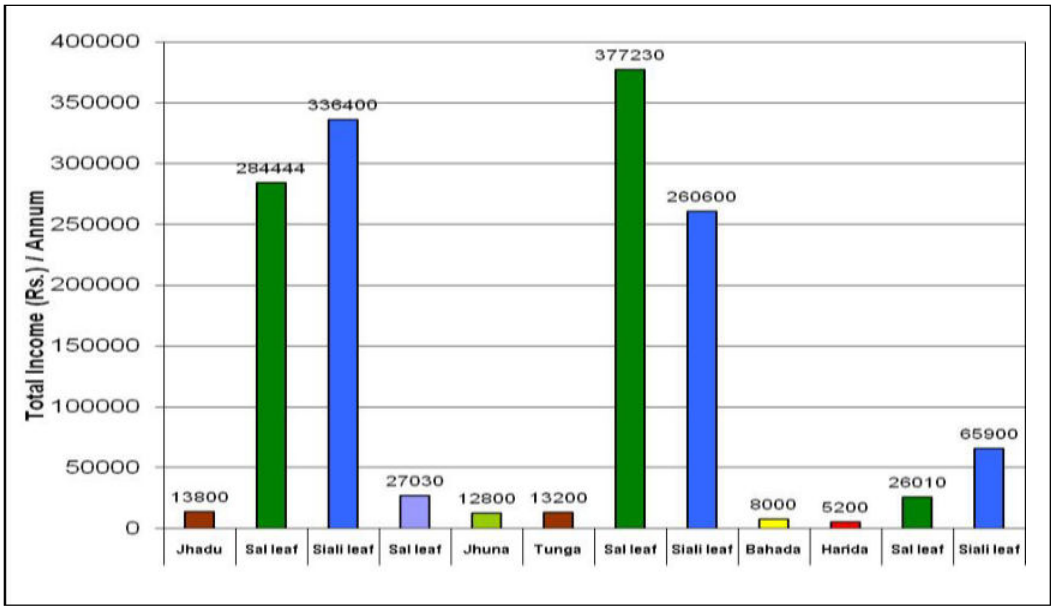
Table No: 19.6 NTFP MARKETING ABSTRACT IN KHORDHA FOREST DIVISION

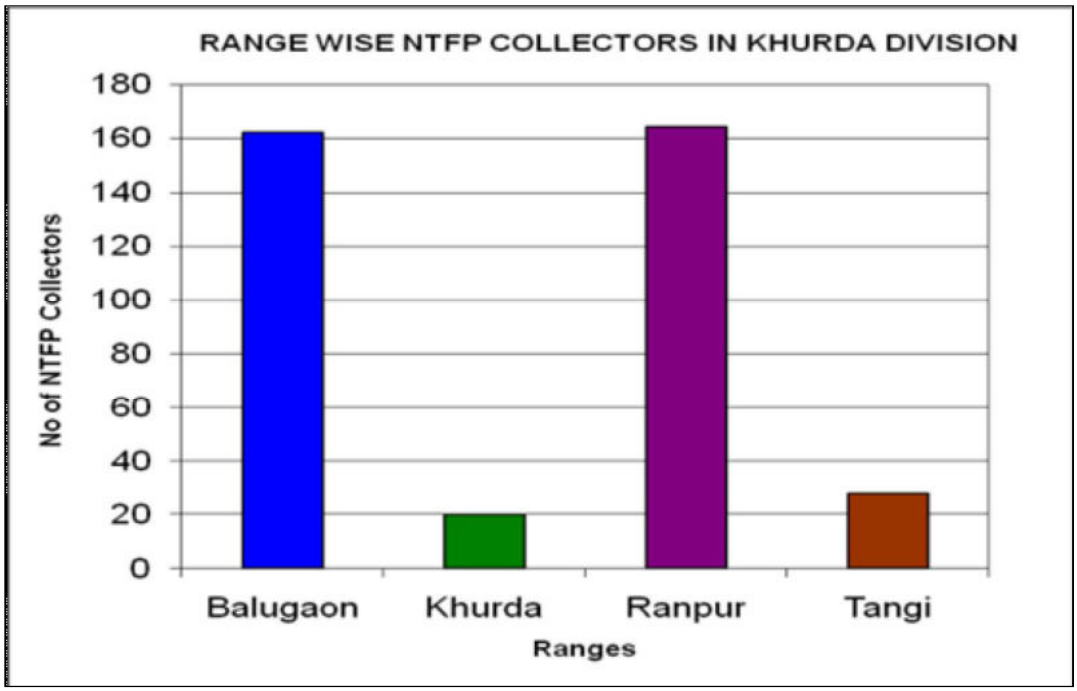
TOTAL NO OF HOUSE HOLD	POPULATION IN 2011	NTFP SPECIES NAME	UNIT	NO OF NTFP COLLECTORS	SELF CONSUMPTION	TOTAL SOLD	UNIT PRICE (Rs.)	SALE VALUE (Rs.)
6023	28163	Bahada	Kg.	2	0	70	12	840
		Harida	Kg.	2	0	35	15	525
		Jhuna	Kg.	4	0	11	100	1100
		Tunga	Kg.	2	110	120	10	1200
		Sal leaf	Bundle (80plts)	189	1492	42042	17	714714
		Siali leaf	Bundle (80plts)	172	518	33145	20	662900
		Siali loi	Bundle	1	15	0	0	0
		Jhadu	Each Piece	2	0	110	12	1320
				374	**2135**	**75533**	**186**	**1382599**

Source: NGO---HELP (Health, Environment & Literacy of People), Bhubaneswar

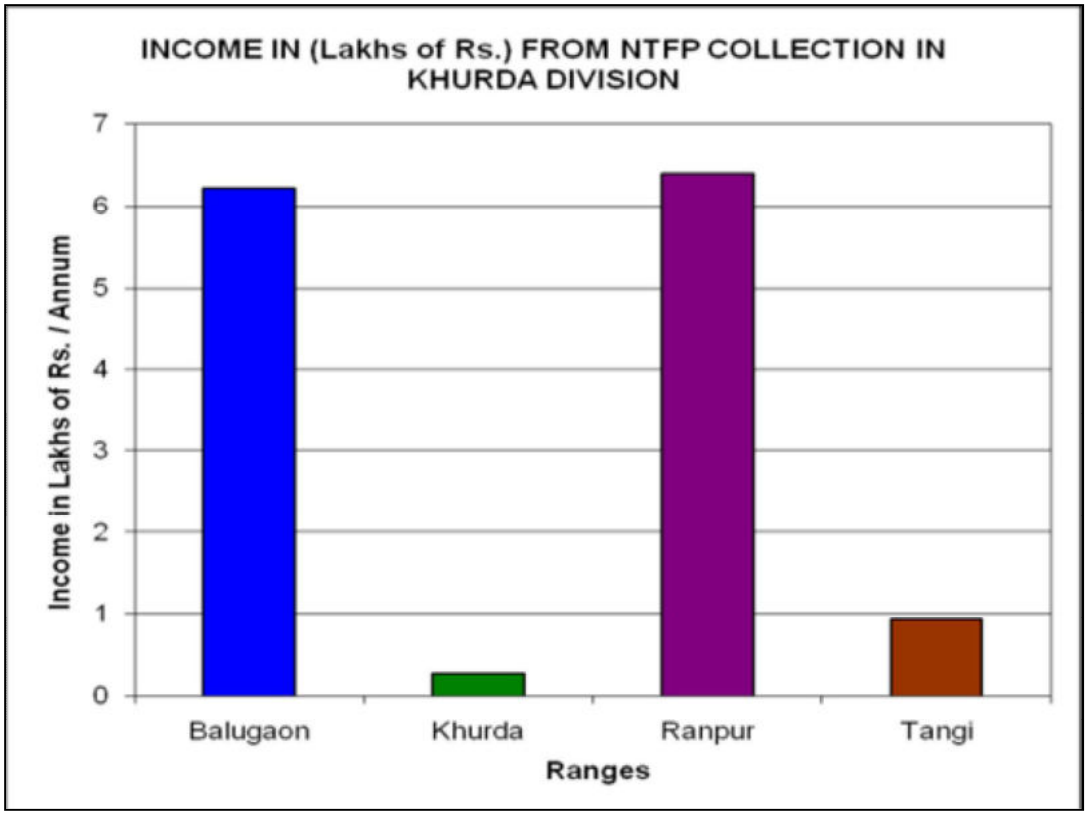
1. NTFP Species available in the Khordha Division 54
2. NTFP Species being procured 8
3. % of NTFP Species being procured 14.8
4. NTFP Collection per year (1382599 / 374) Rs. 3696 /Head

INCOME GENERATED FROM COLLECTION OF MAJOR NTFPs IN KHORDHA DIVISION





Source : NGO---HELP (Health, Environment & Literacy of People), Bhubaneswar



RESULT FINDINGS: FOREST TREE COMPOSITION

Table No: 19.7

A. MODERATE FORESTS:

TREES	GBH (IN INCH)	HEIGHT (IN FT)
1	2	3
AMLA	28.44444	21
VALIA	19.4	20.5
BAHADA	20.55556	27.11111
CHAKUNDA	31.7	49.8
KALACHUA	17.76923	27.38462
HARIDA	19.85714	29.57143
ASANA	16.2	24.6
SAL	20.91379	23.25862
SIDHA	18	20
KAJU	14.4	13.7
KHAKADA	17.5	23.5
KENDU	14.69231	17.15385
ACACIA	12	20
MANGO	41.5	31.8

TREES	GBH (IN INCH)	HEIGHT (IN FT)
1	2	3
JAMUN	18.94737	20.73684
KURUMA	17.86792	17.33962
GIRINGA	23.19231	16.30769
KATAKALA	14	30
RAI	21.31818	19.09091
SIRISA	10	50
TEAK	21	28
BAMBOO	15	30
MARIHA	19.625	17.5
DHAMANA	25.54545	24.72727
LEMBURA	20.1	15.4
BADA CHAKUNDA	55	27.5
BEL	17	25
NEEM	20.44444	30.77778
NARGINI	20	50
CHHATIAN	55	15
BARA	23	30
TELUNI	18	30
JARI	16	35
BHALIA	18	20
CHARA	16.8	28
TINIA	19	32.5
DIMIRI	25.42857	24.57143
MAHULA	29.75	25.5
SAHADA	19	26
PHASI	27.66667	30
DHAURA	12	25
KARADA	18	20
PIASAL	15	20
KANTAPALAS	52	30
KASI	18	30
BHALIA	40	40
BANDHANA	18	40
KERUAN	45	40
KOCHILA	15	30

Table No:19.8
A. OPEN FORESTS:

TREES	GBH (IN INCH)	HEIGHT (IN FT)
1	2	3
ASHOKA	19	44
AKASIA	16.3333	22.8333
AMLA	26	29.1428
ASANA	20.5	26.5
BADA CHAKHUNDA	18	50
BADHANA	18	40
BAHADA	22.4285	33.5714
BAIDANKA	25	41
BAMBOO	26	41.25
BAUNSA		8.2222
BELA	21.6666	27.3333
BETA	47.6666	76.8055
BHALERI	40	40
BHALIA	21	5
CHAULI	21	55
CHAKHUNDA	20.5	28.5
CHARA	16.5833	26.5833
CHHATIANA	21.5	17.5
DAHARA	19	45.75
DASARA KENDU	45	72
DHAMANA	36	40
DHAURA	23.5	19
DIMIRI	21	30
FASI	18	40
BHERU	16	16.25
GILA	16	33
GIRINGA	21.8	24.3
HADOI	17.3333	14
HARIDA	36	27.5
JAMU	29.6666	25.8333
JHADAPANA	21.5	30
JARI	15	0
KADANDI	43	74
KAJU	14	13.5
KALACHUA	31.6666	33.333
KALI	18	38
KALUCHUA	20.5	24.3333
KAMALAGUNDI	32	60

TREES	GBH (IN INCH)	HEIGHT (IN FT)
1	2	3
KANTAPALI	52	30
KARALA	27.2	43.4
KARANJA	22	37
KARUA	45	40
KASI	18	30
KENDU	11.7222	15.8888
KHAKADA	30	45
KHARAKHARI	23	35
KOCHI LAST	22.25	44
KOCHILA	24.1428	35.1428
KUMBHI	22.6666	26
KUNJA	55	70
KURUMA	17.8	15.8
KUSUM	40	40
LABANESWAR	12	20
LEMBURA	16.5	17.5
LIMBA	18.8	26
MAHANEEM	24.3333	33.375
MAHI	32.2	53
MAHULA	29	48.909
MANGO	33.5	26
MASAN	43	73
MAYI	18	20
MITIKIRIA	15	30
MONGA	18	20
MORIHA	24	25
NARUGUNI	31.5	20
NEEM	27.1666	40.3333
PATUNI	52	30
PIASAL	15	20
PIYASALE	27.25	42
PRAGATI	13	15
RAHANBALI	31	40
RAI	24	16
SAGUANA	23.3333	39
SAHADA	19.3333	33.2222
SALA	29.0769	40.0384
SARADA	25	41

TREES	GBH (IN INCH)	HEIGHT (IN FT)
1	2	3
SESHU	54	72
SIALI	13	15
SIMILI	45	72
SIRISA	10	50
SUNANI	22	33
SUNARI	33	61
TEAK	35	50.25
TELAKURUMA	16	15.8
TELUNI	15	32.5
THUNGA	12	1
TIGIA	12	1
TIRINGA	13	15
EUCALYPTUS	21	38
BHALIA	12.25	16.25

Table No:19.9

B. DENSE FORESTS:

TREES	GBH (IN INCH)	HEIGHT (IN FT)
1	2	3
ACACIA	13.6444	19.8222
ANLA	19.8571	27.5714
ASANA	17.5	17.8333
BADA CHAKHUNDA	55	27.5
BAHADA	19.5555	26.7777
BAMBOO	18	38.6666
BARA	18.5	17.5
BARADA	22	25
BELA	19.3333	37.3333
BETAKOLI	19	36
BHALIA	27.4	39.4
CHAHAR	56	76
CHAKHUNDA	33.5	33.5
CHARA	16.375	30.125
CHATIAN	55	15
DAHARA	21.5	54.5
DASARA KENDU	28	46.3333
DHAMANA	23.8	22.4
DHAURA	21	27.5

TREES	GBH (IN INCH)	HEIGHT (IN FT)
1	2	3
DIMIRI	282.575	344.7583
PHASI	18	40
GAMBHARI	26.8571	39.8571
GILA	46	71
GIRINGA	19	30.25
GUNDI	20.775	22.45
HADOI	16.5	32.5
HADUA GAMBHARI	26.5	33.6666
HARIDA	19	25.3333
JAMU	19.3333	25.238
JARI	16	35
JHADAJOKA	19	32
KADANDI	22.5	25.5
KALI	18	41
KALUCHUA	19.5333	25.5666
KAMALAGUDI	15	41
KANTABAULA	14.4	17.6
KANTABAUSA	19	33
KARALA	33	52
KARANJA	22	34.333
KASANDI	18	32
KENDU	22.8333	27.8333
KHAKADA	26	40
KHARAKHARI	20	41
KOCHI LAST	23.25	43.75
KOCHILA	25.75	44.5
KURE	15	21
LEMBURA	14	17.4444
LIMBA	25.6	31.7
MAHANEEM	22.2	37.4
MAHI	28	41.4444
MAHULA	29.5	45.8333
MAKADAKENDU	24	36
MANGO	42.7	34.6
MASAN	43	73
MUCHUKUNDA	14.6666	13.8333
NARUGUNI	20.5	42.5
NEEM	26.25	41.5

TREES	GBH (IN INCH)	HEIGHT (IN FT)
1	2	3
NIRANGUDI	18	26
PIYASALE	26	40.3333
RABANISWAR	16	21.3333
RAHANBALI	31	40
RAI	22.6071	25.1428
SAGUANA	658.257	996.0811
SAHADA	18.1428	33.1428
SALA	24.2888	25.5333
SESHU	54	72
SIALI	43	55.5
SIDA	19	29
SIDHA	14.8888	29.3333
SIMILI	27.5	29
SUNANI	16	29
TAMARIND	27	63
TEAK	54.5	70
TELUNI	17	30
TINIA	27.2	30.8
TUNGA	18	33
EUCALYPTUS	21	38
BHALIA	14.5	17

SHRUB COMPOSITION:

Table No:19.10

A. OPEN FOREST:

SL NO.	SHRUB SPECIES NAME	AVERAGENUMBER
1	2	3
1	ACHHU	2
2	ASANA	3
3	ATANDA	6.5
4	BAGULI	4.8333
5	BAIDANKA	4.571
6	BAISAKULI	4
7	BAMBO	4
8	BAUNSA	2
9	BAUNSA GHASA	15
10	BAUSA PATURIA	12.666
11	BETA	4.083
12	BHUI LIMBA	12

SL NO.	SHRUB SPECIES NAME	AVERAGENUMBER
1	2	3
13	BHUINIMBA	5
14	BUILIMBA	2
15	CHOULDU	5
16	CHULI	2
17	GUAKOLI	5
18	JHUMARI	5
19	JUNGA	4.5
20	KALUCHUA	3.2857
21	KANGARI	3
22	KANTAKOLI	4.111
23	KANTEI KOLI	3
24	KARUCHA	6
25	KHAKADA	3.5
26	KHARABA NAI	3
27	KHIRAGA	5
28	KHIRAKOLI	2
29	KURE	6
30	LEMBURA	3
31	NAHALABELI	6
32	PHASARUNA	14
33	PICHULI	3.5
34	PUKASUNGA	4.1428
35	SAGADA BATUA	15
36	SIALI	2
37	SUNANI	4.1666
38	TALAKUMARI	3

Table No:19.11

B. MODERATE FOREST:

SL NO.	SHRUB SPECIES NAME	AVERAGENUMBER
1	2	3
1	AMLA	2
2	ANATAMULA	5
3	ACHHU	3.5
4	ASANA	3
5	ATANDA	6.5
6	ATANDI	5
7	BAGULI	4

SL NO.	SHRUB SPECIES NAME	AVERAGENUMBER
1	2	3
8	BAIDANKA	4
9	BAIDANKA	3.5
10	BAMBO	3
11	BANAHALDI	5
12	BAUNSA	2
13	BAUNSHA	3
14	BAUNSHA PATURI	5
15	BAMBO	3
16	BANAHALDI	5
17	BAUNSA	2
18	BAUNSHA	3
19	BAUNSHA PATURI	5
20	BAUSA PATURIA	20
21	BETA	3.7272
22	BETAKOLI	4.666
23	BHADABADAKIYA	5.5
24	BHI NEEM	4
25	BHUI LIMBA	8
26	BHUIN NIMBA	4
27	BHUINIMBA	2
28	BHUINLIMBA	4
29	CHEDI	6
30	CHULI	2
31	GIRINGA	4
32	GUA KOLI	5.25
33	JAMU	7
34	JATAJATIA	6.5
35	JE PRA	3
36	JHADA	6
37	KALUCHUA	3.2
38	KANGARI	3
39	KANTAKOLI	2.5
40	KANTEI KOLI	5
41	KANTI	4
42	KARUA	3
43	KENDU	5
44	KHAKADA	3
45	LAJAKULI	4

SL NO.	SHRUB SPECIES NAME	AVERAGENUMBER
1	2	3
46	NAGBALI	3.5
47	NAHALABELI	6
48	PALASI	5
49	PHASARUNA	14
50	PUKASUNGA	5
51	SAGADA BATUA	15
52	SALA	3
53	SATABARI	6
54	SIAL	9
55	SIALI	3
56	SONARI	4
57	SUNANI	4

Table No: 19.12

C. DENSE FOREST:

SL NO.	SHRUB SPECIES NAME	AVERAGENUMBER
1	2	3
1	ACHHU	3.5
2	ASANA	3
3	ATANDA	5
4	BAGULI	4.25
5	BAIDANKA	4
6	BAMBO	4
7	BANA BARAKOLLI	4
8	BAUNSA	2
9	BAUNSHA	3
10	BAUNSHA GRASS	3
11	BAUSA PATURIA	13.2
12	BETA	3.5454
13	BHADABAD	3
14	BHUI LIMBA	7
15	BHUINIMBA	5
16	CHULI	2
17	GIRINGA	4
18	GUA KOLI	5
19	GUAKOLI	5.5
20	JATAJHATIA	4
21	JHATI	5.3333
22	KAICHILA	4

SL NO.	SHRUB SPECIES NAME	AVERAGENUMBER
1	2	3
23	KALUCHUA	4.1428
24	KANGARI	3
25	KANIYARI	6.5
26	KANTAKOLI	2.6
27	KANTEI KOLI	3
28	KANTI	6
29	KARUA	5
30	KHAKADA	3
31	KHALUALOU	8
32	LAJAKULI	3
33	NAHALBELI	5.5
34	NAGBERI	4
35	NAHALABELI	5.6666
36	PATALAGARUD	7
37	PHASARUNA	13.6
38	PHULJHADU	5
39	PUKADUNGA	5
40	PUKASUNGA	5.5
41	SAGADA BATUA	15
42	SAGUAN	6
43	SATABARI	2
44	SIALI	2
45	SUNANI	4.6
46	VHUINLIMBA	3

HERB COMPOSITION:

Table No: 19.13

A. OPEN FOREST:

SL.NO.	HERB SPECIES NAME	AVERAGE NUMBER
1	2	3
1	AKASHI	8.7
2	ACACIA	8
3	ANATAMULA	9
4	ATANDI	5
5	BAUNSA	15
6	BHUIN NIMBA	4
7	BHUINEEM	12.2857
8	CHARA	8

SL.NO.	HERB SPECIES NAME	AVERAGE NUMBER
1	2	3
9	PHASI	5
10	GIRINGA	2
11	GURUKHAI	14
12	HAUMARICHA	5
13	JAMUN	30
14	JIPIRI	7
15	JUNGA	2
16	KAJU	2
17	KALACHUA	4
18	KENDU	12
19	LAJAKULI	5.857
20	LIMBA	2
21	MUTURI	4
22	NAI	12
23	PHATAKA	3
24	PHULJHADU	3
25	SALA	12
26	SANIARI	2
27	SATABARI	5.625
28	SEKETA	4

Table No: 19.14

B. MODERATE FOREST:

SL.NO.	HERB SPECIES NAME	AVERAGE NUMBER
1	2	3
1	AKASHI	7.333
2	ACACIA	15
3	ATANDI	5
4	BAGUL	5
5	BANAHALADI	7
6	BANAHALDI	11.5
7	BETA	3.5
8	BHUILIMBA	3
9	BHUINEEM	9.5
10	BHUINIMBA	3
11	CHAULADHUA	8
12	DUBA GHASA	20
13	DUBAGHASHA	15
14	PHASI	5

SL.NO.	HERB SPECIES NAME	AVERAGE NUMBER
1	2	3
15	GARUKHAI	4
16	GIRINGA	4
17	GURUKHAI	10
18	JAMU	2
19	JAMUN	30
20	KALACHERA	5
21	KARABA	4.5
22	LAJAKULI	7
23	LEMBURA	1
24	MANGO	3
25	PAHARA	7.75
26	RAI	4
27	SAHADA	4
28	SALA	2.5
29	SANIARI	2
30	SATABARI	6.875
31	SEKETA	4

Table No: 19.15

C. DENSE FOREST:

SL.NO.	HERB SPECIES NAME	AVERAGE NUMBER
1	2	3
1	ACACIA	15
2	AMLA	1
3	ANATAMULA	6
4	ATANDI	4.6
5	BAGALU	4
6	BAGUL	3
7	BAIDANKA	2
8	BETA	3
9	BHUINEEM	7.33
10	PHASI	5
11	GIRINGA	3.6
12	GURUKHAI	10.5

SL.NO.	HERB SPECIES NAME	AVERAGE NUMBER
1	**2**	**3**
13	JAMUN	30
14	JUNGA	2
15	KALACHERA	5
16	KALUCHUA	4
17	KARALAMAL	6.5
18	LAJAKULI	11
19	LEMBURA	1
20	MANGO	3
21	ODASUNGA	3
22	PHULJHADU	3
23	PUKASUNGA	5
24	RAI	4
25	SAHADA	4
26	SALA	3.33
27	SANIARI	2
28	SATABARI	8.5714
29	SEKETA	3.6
30	BHALIA	3

Source : NGO---HELP (Health, Environment & Literacy of People), Bhubaneswar

Table 19.16 **VILLAGE SURVEY REPORT**

Total number of villages surveyed = 27

Village number	01
Name of the panchayat	Badpari
Name of the village	Badpari,bhobara
Name of the forest block	Badapari
Legal status of the forest (RF/VF/Any other)	DPF
Forest Range	Tangi
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantity of last 3 year (in kg)		
					2017	2018	2019
Harida	275	59	216	15	375	330	275
Bahada	262	79	183	15	385	325	262
Anla	285	92	193	15	395	350	285
Beta koli	585	0	585	25	790	710	585
Chara koli	3	3	0	0	0	0	0
Kochila	2370	0	2370	20	3300	3000	2370
Madhuri chera	800	630	170	10	1000	855	800
Nara koli	6	3	0	0	0	0	0

Village number	02
Name of the panchayat	Bandhamunda
Name of the village	Jaripada
Name of the forest block	Mal forest
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Ranpur
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantity of last 3 year (in kg)		
					2017	2018	2019
Harida	44	21	23	20	224	172	118
Bahada	57	28	29	20	213	167	99
Anla	24	12.5	12	20	110	94	56
Beta koli	42.2	20	22.2	25	185	161	101
Mahu	91	38	53	100	286	223	141

Jhuna	41	19	35	50	234	193	107
Pichuli	91	38	53	10	178	175	120
Tunga	108	42	66	5	240	201	127
latafala	4	3	1	25	68	56	32
kankana	17.5	14.5	3	20	128	102	63.5
kalara	27	14	13	20	93	73	45
salapa	264	264	0	0	234	202	175
kochila	21	06	15	20	53	39	26

Village number	03
Name of the panchayat	Banlei
Name of the village	Banlei
Name of the forest block	Bankada
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Balugaon
Name of the Division	Khordha
Forest Circle	Bhubaneswar

- Normally peoples are not dependent on forest.

Village number	04
Name of the panchayat	Berbera
Name of the village	Mahulia
Name of the forest block	Rajin
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Balugaon
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Village number	05

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantity of last 3 year (in kg)		
					2017	2018	2019
Harida	220	46	174	20	320	295	220
Bahada	220	46	174	20	315	250	220
Anla	260	71	189	20	395	310	260
Beta koli	10000	160	9840	300	14215	10265	10000
Mahu	445	44	401	400	705	540	445
Jhuna	525	78	447	250	800	670	525
Cherega	1010	645	365	20	1290	1035	1010
Tunga	955	625	330	20	1300	1025	955
Mahula	265	27	238	50	445	315	265

Name of the panchayat	Padampur
Name of the village	Bhagabatipura
Name of the forest block	Solari
Legal status of the forest (RF/VF/Any other)	DPF
Forest Range	Balugaon
Name of the Division	Khordha
Forest Circle	Bhubaneswar

- Villagers are not going to forest for collection of NTFP

Village number	06
Name of the panchayat	Thumuraput sashanka
Name of the village	Nuagarh
Name of the forest block	Bhaleri
Legal status of the forest (RF/VF/Any other)	DPF
Forest Range	Balugaon
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantity of last 3 year(in kg)		
					2017	2018	2019
Harida	7.5	7.5	0	20	224	172	118
Bahada	10	8	2	20	213	167	99
Anla	24	12.5	12	20	110	94	56
Beta koli	42.2	20	22.2	25	185	161	101
Mahu	91	38	53	100	286	223	141
Jhuna	41	19	35	50	234	193	107
Kaasalu	91	38	53	10	178	175	120
Karaba	108	42	66	5	240	201	127
Sal leave	4	3	1	25	68	56	32
Tamarind	17.5	14.5	3	20	128	102	63.5
Aruguna	27	14	13	20	93	73	45

Village number	07
Name of the panchayat	Berbera
Name of the village	Bhatapada
Name of the forest block	Chulijhinka
Legal status of the forest (RF/VF/Any other)	DPF
Forest Range	Balugaon
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantity of last 3 year(in kg)		
					2017	2018	2019
Harida	19	57	148	25	410	300	205
Bahada	19	57	148	25	430	235	205
Anla	19	62	148	25	635	410	210
Beta koli	121	0	121	20	230	160	121
Mahula	22	23	120	50	335	245	143
Jhuna	22	62	58	100	360	263	120
karaba	39	435	115	10	565	540	510
Tunga	42	395	95	10	570	535	470
Kassalu	44	390	175	10	750	710	555
kochila	32	0	615	25	620	750	695

Village number	08
Name of the panchayat	Biribadi
Name of the village	Haripur
Name of the forest block	Kaithapalla
Legal status of the forest (RF/VF/Any other)	DPF
Forest Range	Tangi/nachuni
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantity of last 3 year (in kg)		
					2017	2018	2019
Harida	30	36	227	20	490	371	263
Bahada	29	36	247	20	485	349	283

Anla	37	68	259	25	575	432	327
Karaba	69	427	193	15	865	810	620
Kassalu	65	292	228	15	645	417	520
Arugna	79	427	229	20	1100	890	656

Village number	09
Name of the panchayat	Bandhamunda
Name of the village	Dimiribadi
Name of the forest block	Mal forest
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Ranpur
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (inkg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantity of last 3 year (in kg)		
					2017	2018	2019
Adanga	420	250	170	5	480	415	420
Kanta alu	450	260	190	20	515	480	450
Anla	58	6	52	20	85	75	58
Harida	58	12	46	20.00	80	72	58
Mahu	310	31	279	200	360	290	310
Jhuna	145	21	124	50.00	270	175	145
Bahada	58	12	38	20.00	90	75	58
Tunga	530	220	310	5.00	680	535	530
Tentuli	470	60	410	25.00	590	460	470
Karaba	590	340	250	7.00	590	485	590
Kusuma	790	0	790	10.00	895	755	790
Tola	760	60	700	25.00	719	891	735
Kochila	490	0	490	25.00	700	555	490

Village number	10
Name of the panchayat	Gopalpur
Name of the village	Samantasingharpur
Name of the forest block	Dhani north
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Ranpur
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Peoples are not depend on forest

Village number	11
Name of the panchayat	Harippur
Name of the village	Jalvar
Name of the forest block	Jalvar
Legal status of the forest (RF/VF/Any other)	DPF
Forest Range	Tangi
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (inkg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantityoflast3year (in kg)		
					2017	2018	2019
Harida	80	12	68	30.00	115	115	80
Bahada	80	12	68	30.00	140	105	80
Anla	110	40	70	40.00	170	140	110
Mahula	42	4	38	20.00	75	55	42
Kendu	90	40	50	30.00	140	100	90

Village number	12
Name of the panchayat	Nachuni
Name of the village	Haripur
Name of the forest block	Kaithapalla
Legal status of the forest (RF/VF/Any other)	DPF
Forest Range	Tangi
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (inkg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantityoflast3year(in kg)		
					2017	2018	2019
Sala leave	15	3	12	100.00	90	75	45
Siali leave	10.2	3	7	50	140	161	69
Arugna	3.6	0	3.6	25	60	96	45
Beta koli	6	6	0	20	12	15	06
Tunga	4.5	4.5	0	20	6	9	4.5
Kassalu	27	15	12	5	90	135	108
Karaba	16	8	8	10	70	80	32
Kochila	6	6	0	20	9	9	6

Village number	13
Name of the panchayat	Kandapada
Name of the village	Karadapalla/nathapur
Name of the forest block	Maninag
Legal status of the forest (RF/VF/Any other)	DPF
Forest Range	Ranapur
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (inkg)	Sell in market in a year (in kg)	Marke t price (Rs.)	Quantity of last 3 year (in kg)		
					2017	2018	2019
Siali leave	100.5	58.5	42	20	326	270	154
Sal leave	140.5	95.5	45	20	351	290	195
Karaba	164.5	132.5	32	20	324	274	205
Beta koli	89.5	57.5	32	25	276	219	131
Tonga	111	63	48	20	264	196	116

Village number	14
Name of the panchayat	Kerenda Tangi
Name of the village	Barapalli
Name of the forest block	Dhani south
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Tangi
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (inkg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantity of last 3 year (in kg)		
					2017	2018	2019
Siali leave	14.4	4	62.4	50.00	200	236	102
Sal leave	20	4	16	100.00	120	100	60
Karaba	32	16	16	10.00	140	160	64
Beta koli	8	8	0	20.00	16	20	8
Tonga	6	6	0	20.00	8	12	6
Kochila	8	8	0	20.00	12	12	8
Kassalu	36	20	16	5.00	120	180	144
Arugna	4.8	0	4.8	25.00	80	128	60

Village number	15
Name of the panchayat	Kunjuri
Name of the village	Kunjuri,Ashakapali,Ostapada,Malakadi
Name of the forest block	Sulia
Legal status of the forest (RF/VF/Any other)	DPF
Forest Range	Tangi
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantity of last 3 year(in kg)		
					2017	2018	2019
Tunga	36	170	350	20.00	670	505	520
Kasaalu	31	220	190	25.00	540	533	410
Karaba	30	225	240	25.00	515	450	465
Amla	15	20	95	30.00	200	165	115
Bahada	17	11	117	30.00	240	235	128
Harida	18	12	111	35.00	240	170	123

Village number	16
Name of the panchayat	Phasioda
Name of the village	Kusupalla
Name of the forest block	Pancha garej
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Khordha
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantity of last 3 year (in kg)		
					2017	2018	2019
Siali leave	25	5	20	100.00	150	125	75
Bahada	20	20	0	20.00	30	30	20
Anla	15	15	0	20.00	20	30	15
Pichuli	90	50	40	5.00	300	450	360
Tunga	80	40	40	10.00	350	400	160
Betakoli	12	0	12	25.00	200	320	150
Sal leave	72	36	36	10.00	315	360	144

Village number	17
Name of the panchayat	Nakithana
Name of the village	Nakithana
Name of the forest block	Dhani north
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Ranapur /gopalpur
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantityoflast3year (in kg)		
					2017	2018	2019
Amla	12	28	79	20.00	160	135	107
Bahada	19	19	116	25.00	265	247	135
Harida	16	16	109	25.00	169	157	125
Mahu	10	18	67	100.00	113	124	85
Karaba	41	340	100	10.00	542	513	440

Village number	18
Name of the panchayat	Nuagara
Name of the village	Mulijhara, rautapur
Name of the forest block	Bhusundapur
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Bhusundapur
Name of the Division	Khordha
Forest Circle	Bhubaneswar

<u>Villagers are not dependent upon forest.</u>

Village number	19
Name of the panchayat	Patia
Name of the village	Jaripada,/godisahi
Name of the forest block	Dhani south
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Tangi/patia
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantityoflast3year (in kg)		
					2017	2018	2019
Sala leave	35	7	28	100.00	210	175	105
Siali leave	18	6	90	50.00	240	258	108
Beta kali	14	14	0	20.00	28	35	14
Kochilakoli	14	14	0	20.00	21	21	14
Tunga	10.5	10.5	0	20.00	14	21	10.5
Kasaalu	63	35	28	5.00	210	315	252
Karaba	56	28	28	10.00	245	280	112
Aruguna	8.4	0	8.4	25.00	140	224	105
Patal garuda	21	7	105	50.00	280	301	126
Anla	14	14	0	20.00	28	35	14
Bahada	12	12	0	20.00	18	18	12
Harida	9	9	0	20.00	12	18	9

Village number	20
Name of the panchayat	Phasioda
Name of the village	Mandalsigh
Name of the forest block	Mandalsigh
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Khordha
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantity of last 3 year (in kg)		
					2017	2018	2019
Beta kali	8.4	0	8.4	25.00	140	224	105
Bahada	14	14	0	20.00	21	21	14
Anla	10.5	10.5	0	20.00	14	21	10.5
Pichuli	63	35	28	5.00	210	315	252
Tunga	56	28	28	10.00	245	280	112
Bamboo	56	28	28	10.00	245	280	112
Kasi kali	8.4	0	8.4	25.00	140	224	105

Village number	21
Name of the panchayat	Pratapa
Name of the village	Pratapa
Name of the forest block	Champagada
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Balugaon
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Only personal use.

Village number	22
Name of the panchayat	Pubusahi
Name of the village	Goudput
Name of the forest block	Jaymangal
Legal status of the forest (RF/VF/Any other)	DPF
Forest Range	Khordha
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Do not depend on forest.

Village number	23
Name of the panchayat	Nakithana
Name of the village	Nakithana /ostapada
Name of the forest block	Dhani south
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Ranapur
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantity of last 3 year		
					2017	2018	2019
Mahaneem	14	14	0	20.00	21	21	14
Bhuineem	14	14	0	20.00	28	35	14
Kochilakoli	14	14	0	0.00	21	21	14
Tunga	10.5	10.5	0	20.00	14	21	10.5
Kasaalu	63	35	28	5.00	210	315	252
Karaba	56	28	28	10.00	245	280	112
Aruguna	8.4	0	8.4	25.00	140	224	105
Patal garuda	21	7	105	50.00	280	301	126
Anla	14	14	0	20.00	28	35	14
Bahada	14	14	0	20.00	21	21	14
Harida	14	14	0	20.00	21	21	14

Village number	24
Name of the panchayat	Nakithana
Name of the village	Nakithana /ostapada
Name of the forest block	Dhani south
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Ranapur
Name of the Division	Khordha
Forest Circle	Bhubaneswar

People are not interested to go to forest and using LPG gas for cooking. The VSS members are protecting the forest.

Village number				25			
Name of the panchayat				Nachuni			
Name of the village				Raipada			
Name of the forest block				Champagarh			
Legal status of the forest (RF/VF/Any other)				RF			
Forest Range				Ranapur			
Name of the Division				Khordha			
Forest Circle				Bhubaneswar			
Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantity of last 3 year (in kg)		
					2017	2018	2019
Mahaneem	8	8	0	20.00	12	12	8
Bhuineem	8	8	0	20.00	16	20	8
Tunga	6	6	0	20.00	8	12	6
Kasaalu	36	20	16	5.00	120	180	144
Karaba	32	16	16	10.00	140	160	64
Sal leave	20	4	16	100.00	120	100	60
Siali leave	12	4	60	50.00	160	172	72
Beta koli	8	8	0	20.00	16	20	8
Kusuma	36	20	16	5.00	120	180	144
Karanja	6	6	0	20.00	8	12	6

Village number				26			
Name of the panchayat				Bandhamunda			
Name of the village				Sirikuti			
Name of the forest block				Mal			
Legal status of the forest (RF/VF/Any other)				RF			
Forest Range				Ranpur			
Name of the Division				Khordha			
Forest Circle				Bhubaneswar			
Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Quantity of last 3 year (in kg)		
					2017	2018	2019
Aruna Fala	595	240	835	20	840	660	595
Tunga	605	305	300	20	900	700	605
Karaba	530	280	250	15	730	580	530
Pichuli	400	195	205	15	590	500	400

Village number	27
Name of the panchayat	Thumuraput sasan
Name of the village	Muktadeipur
Name of the forest block	Jharana
Legal status of the forest (RF/VF/Any other)	RF
Forest Range	Balugan
Name of the Division	Khordha
Forest Circle	Bhubaneswar

Name of the NTFP	Quantity (kg) In a year	Personal use in a year (in kg)	Sell in market in a year (in kg)	Market price (Rs.)	Year wise total quantity collected in last 3 year (in kg)		
					2017	2018	2019
Bamboo	240	120	120	10	1050	1200	480
Kasi kali	36	0	36	25	600	964	450
Junng	150	30	120	100	900	750	450
Beta kali	2	2	0	20	4	5	2
Kochila koli	2	2	0	20	3	3	2
Tunga	1.5	1.5	0	20	2	3	1.5
Kasaalu	9	5	4	5	30	45	36
Karaba	8	4	4	10	35	40	16
Aruguna	1.2	0	1.2	25	20	32	15
Bahada	4	1	3	100	30	25	15
Harida	0.5	0.5	0	25	25	26	12
Honey	2	2	0	50	20	15	7
Jhuna	2	1	1	20	5	7	3
Tamarin	2	1	1	20	3	2	1
Bhuineem	2	1	1	20	7	5	3
Mahanee	8	3	5	5	5	3	2
Kusuma	5	2	3	100	32	28	15
Mahul	2	1	1	50	7	5	3
Koili	1.5	1.5	0	20	20	15	8
Siali seed	2	1	1	20	4	3	2
Kusuma	5	2	3	100	32	28	15
Karanja	2	1	1	25	6	3	3
Sala leave	5	1	4	100	30	25	15

Source : NGO---HELP (Health, Environment & Literacy of People), Bhubaneswar

Research and Database:

The need for a database covering various aspects of NTFP such as the seasonality of collection, processing, marketing was felt by all the participants & the recommendations were unanimous as to a comprehensive and systematic development of a database on the following lines:

- Research on the productivity of NTFP and impact of NTFP extraction on bio-diversity should be taken up on a priority basis.
- Dynamics of social issues such as gender balance, culture and tradition and livelihood systems as regards NTFP collection & marketing should form the part of the research and database development.
- Forestry research encompassing Silviculture of NTFP production, seasonal fluctuations, etc. should be a regular feature.
- There is an urgent need for undertaking marketing intelligence information on value addition, demand, prices and export potentials.
- Identified NTFP species should be included in agro-forestry extension.
- The research subjects need to be identified in consultation with different stakeholders

i.e. collectors, traders, field officers, NGOs. There should be an effort to transfer the research results and appropriate technology for value addition to the village groups.

- The state forest department should identify research institutions and collaborate with them to conduct product development oriented NTFP research.
- Since the present allocation for forestry research is inadequate it is suggestion funds should be tapped from different resources, i.e. central Government, tribal welfare dept., externally aided projects, forest user agencies. A minimum of 5% of forest revenue in a year should be earmarked for forestry research.
- In order to provide a thrust on forest research and a multitude of flora and fauna that flourishes in Odisha, there should be an autonomous forest research institute. Since basic infrastructure is already available with the Forest Department Government may initiate the process to make the autonomous institute functional for Forest (NTFP) research and database development.

19.6 SILVICULTURAL SYSTEMS:

The collection of NTFP should be managed on a sustainable basis for protecting the NTFP species and conserving the Biodiversity in the Division. The collection session of various MFPs item with their distribution in this division is shown in **Table No. 19.17**

Table No. 19.17 Collection Season for various Minor Forest Products of Khordha Division.

Sl. No.	Items	Collection Season	Area of distribution
1	**2**	**3**	**4**
1	Palas Leaves	April to June	Tangi, Ranpur, Balugaon Range.
2	Siali Plate	April to June	-do-
3	Siali Fibre	Whole year	-do-
4	Chara Seeds	April to June	-do-
5	Dhataki Flower	March to April	-do-
6	Mohua Flower	March to May	-do-
7	Mohua Seeds	May to June	-do-
8	Aroow-root	October to December	-do-
9	Kusum Seeds	May to July	-do-
10	Kendu Seeds	April to June	-do-
11	Simuli Cotton	May to June	-do-
12	Honey	January to June	All over division.
13	Wax	October to February	Tangi, Ranpur, Balugaon,Khordha Range
14	Thatch Grass	January to March	Ranpur, Balugaon Range
15	Khajuri Leave	May to July	All over division.
16	Sabai Grass	October to January	Balugon, Ranpur Range
17	Kochila Seeds	January to March	All over division.
18	Tamarind	March to June	-do-
19	Sunari Fruit	March to June	-do-
20	Harida	March to June	-do-

Sl. No.	Items	Collection Season	Area of distribution
1	2	3	4
21	Bahada	March to June	-do-
22	Amla	March to June	All over division
23	Chireita	Throughout the year	Balugaon, Ranpur, Tangi Range
24	Marking nut	January to March	-do-
25	Sikakai	January to March	All over division
26	Sal Plate	May to August	Balugaon, Ranpur, Khordha, Tangi Ranges.
27	Sal Seed	April to June	Balugaon,Ranpur, Khordha,Tangi, Ranges.
28	Jhuna	November to February	-do-
29	Tassar	February to May	-do-

19.7 FELLING CYCLE (COLLECTION CYCLE):

The collection cycle of NTFP shall be one year. Collection cycle will be the collection period for different NTFP items from 1st October to 30th September of following year. There may be local variations in period of ripening due to terrain, aspect and weather conditions.

19.8 CALCULATION OF YIELD:

There is a substantial fluctuation both in quantity collected and royalty realized. This is because the outturn depends on various factors like weather condition, consumption by the local people, existing market for disposal and market price. The potentiality of NTFP items can't be assessed as many of them are consumed locally. Only surplus is sold if it fetches good price. In view of these factors it is not possible to prescribe any regulation of yield. However, the general observation is that many NTFP items have been declined mainly for the reason of over exploitation and degradation of the forests. There are 69 items of NTFP species which have been handed over to the Gram Panchayat since 2000 and the NTFP collectors and traders are not furnishing the progress report to the concerned Range Officers. No penal provision has been made for violation of the procedure. In this circumstance the Divisional Forest Officer should instruct the field staff to collect the progress report from the traders and prepare a annual production report of NTFP for the Division. The Divisional Forest Officer is conducting the auction of cashew in his Division and the average annual production is also to be calculated.

19.9 METHOD OF EXECUTION OF NTFP COLLECTION & CONSERVATION OF BIO-DIVERSITY:

To collect the NTFPs in a sustainable manner the primary collectors should be properly guided and trained Training on proper techniques of collection, drying and storage and its long preservation should be imparted to them. This upgraded training results value addition to collected NTFPs which benefits the primary collectors of NTFP in disposing the same at higher rate.

For collection of cashew nuts, lots are formed taking the cashew plantations. These lots are auctioned in the Divisional Office. The highest bidder is allowed to collect. Provision has been made in the outgoing plan for collection of cane from the cane bearing area of Balugaon & Ranpur Range through either TDCC Ltd. or other Co-operative organizations. There is a rubber plantation of 64 ha in Dhani (N) RF of Ranpur Range. The total forest area of the Division will be divided into 06 Management & Conservation Series, each forest range being 01 series. Basing on the enumerations the status of species *viz.* abundant, medium, poor, endangered & critically endangered species are found out. Different prescriptions will be made for conservation of different category of species.

19.10 METHODS OF TREATMENT FOR MAJOR NTFP ITEMS:

19.10.1 CANE

Cane *(Calamus viminalis)* is the most important species of the Khordha Forest Division. The climber can grow up to a length of 10mt mainly *Calamus viminalis, Calamus guruba* and *Calamus latifolius* species are available in this Division. **"CANE"** is a highly valuable natural resource of rural Economy of Odisha. But the species have suffered a set-back silviculturally due to delay in revision of working plan. To earn sizeable amount of revenue it has been decided to manage the cane forest of this division scientifically under Non-Timber Forest Produce (Overlapping) Working Circle.

19.10.1.1 General Constitution:

The cane bearing areas extend over 29,415.62 Ha. in Rajin, Katwal, Tamana, Arange, Bankard R.F. of Balugaon Range, Mal R.F. of Ranapur Range, Patia R.F. of Tangi Range as per the expired working plan of Sj. Abhiram Das, I.F.S. and the same area has also been included in this revised plan.

19.10.1.2 Distribution and configuration:

Generally cane occurs in the alluvial plains, more abundantly forms a rich vegetation in moist deciduous, semi-evergreen forests. Considering the ground reality the exploitable canes have been distributed in 4 felling series for its easy working. The **Table No.19.18** shows the distribution of cane bearing areas of this Division.

Table No. 19.18 DISTRIBUTION OF CANE BEARING AREAS OF KHORDHA DIVISION

Sl. No.	Range	Name of the Felling series	Forest Block allotted	Composition of Area in Ha.		Total Area (in Ha.)
				Compartment	Area	
1	2	3	4	5	6	7
1	Balugaon	i) Berbera	Rajin R.F.	1 to 28	6667.455	7647.105
			Katwal R.F.	1 to 5	979.65	
		ii) Dhuanali	Tamana	1 to 13	3573.052	7504.406
			Aranga	1 to 8	2608.14	
			Bankard	1 to 4	1323.214	
2	Ranapur	iii) Sankhajodi	Mal R.F.	1 to 21	4511.96	6575.47
				24 to 31	1852.29	
				35 to 36	211.22	
	Ranapur	iv) Patia	Mal R.F.	22,23,31,33,34, 37 to 51	973.05 3113.83	7975.846
3.	Tangi	-do-	Patia R.F.	1 to 12	3888.97	
			TOTAL			**29702.83Ha.**

Source: - Divisional Forest Officer, Khordha Forest Division, Khordha

19.10.1.3 Objectives of Management:

- ✓ To enforce scientific exploitation in order to ensure optimum outturn to satisfy the local demand as well as demand of small-scale Industries & to cater the need of the artisans.
- ✓ To adopt proper Silvicultural operations for optimum growth of the cane Forests to get sustained yield in perpetuity.
- ✓ To improve the Socio-economic conditions of the local people & artisans by value additions.
- ✓ To generate long-term employment opportunity to forest dwellers to earn their livelihood
- ✓ To protect the area from biotic interference, fire & illicit felling etc.

19.10.1. 4 Cutting Cycle of Cane:

Cutting cycle is 5 years. The sequence of felling is furnished in **Table No. 19.19**

Table No. 19.19 YEAR WISE SEQUENCE OF EXPLOITATION OF CANE IN DIFFERENT FELLING SERIES

Year of working	Coupe No.	Berbera Felling Series			Dhuanali Felling Series			Sankhajodi Felling Series			Patia Felling Series		
		Block	Comptt. No.	Area in Ha.	Block	Comp t. No.	Area in Ha.	Block	Comptt. No.	Area in Ha.	Block	Comptt. No.	Area in Ha.
1	2	4	5	6	7	8	9	10	11	12	13	14	15
2021-22 & 2026-27	I	Rajini	8 to 11	953.58	Bankar	1 to 4	1307.20	Mal	2,3,4,13, 14,15	1086.32	Mal	44 to 51	1337.20
2022-23 & 2027-28	II	Rajini	12 to 15	1067.56	Tamana	1 to 7	1919.48	Mal	5 to 12	1228.95	Patia	3 to 8	1475.91
2023-24 & 2028-29	III	Rajini	16 to 28	2951.68	Tamana	8 to 13	1619.07	Mal	18,19,20, 21,27	1306.50	Patia	1,2,9,10, 11,12	2342.27
2024-25 & 2029-30	IV	Katwal	1 to 5	966.52	Aranga	5 to 8	924.43	Mal	24, 25, 26, 28, 29, 30, 31,35, 36	1902.06	Mal	22, 23, 34, 37, 38, 39, 40	1854.86
2025-26& 2030-31	V	Rajini	1 to 7	1694.55	Aranga	1 to 4	1656.46	Mal	1,16,17	935.29	Mal	32,33,41, 42,43	868.51
TOTAL AREA				**7633.89**			**7426.64**			**6459.12**			**7878.75**

19.10.1.5 Yield:

The yield shall be regulated by area basis. However, in order to ascertain the expected potentiality a enumeration was carried out by One NGO(HELP). According to their report the yield of cane is not monitored properly. Also it has been not regulated for which it is proposed the yield will be regulated by the Forest Department at the time of harvest. The year wise working of coupes has been proposed in accordance with the previous Working Plan of Khordha Forest Division. The enumeration report and potentiality of cane has been discussed in **Table No. 19.20**

Table No- 19.20 **Y I E L D C A L C U L A T I O N**

Year of Working	Coupe	Total area of the coupe in Ha
1	2	3
2021-22 & 2026-27	I	4684.30
2022-23 & 2027-28	II	5691.90
2023-24 & 2028-29	III	8219.52
2024-25 & 2029-30	IV	5647.87
2025-26 & 2030-31	V	5154.81
TOTAL		**29398.40**

19.10.1. 6 Demarcation of Annual Coupes:

Cane coupes generally consist of the whole compartment areas. So no specific demarcation shall be necessary. However, sign board indicating the serial no. of the cane coupes will be put at the corners of the said coupe boundary, at places where they meet roads, foot paths.

19.10.1.7 Cutting Rules of cane:

All cane culms more that 6 mt. Length shall be cut.

- Cane shall not be cut flush to the ground. Indeed, to be left 30 cm. stump.
- Cane shall be worked from month of October to May.
- Exploitable cane culms shall be carefully cut so as to avoid damage to remaining culms or death of the same.

19.10.1.8 Execution of Collection:

Previously the cane was procured though private agencies, co-operative organizations. However, the T.D.C.C. Ltd. have been allowed to procure the cane of this Division vide letter No. 5188 dt. 26.03.03 of Govt. of Odisha from 2003-04 to 05-06 (3 years), but due to non existence of valid working plan, the work could not be executed. The Divisional Forest Officer may be allowed to procure the cane through the TDCC, Ltd , other co-operative organizations.

19.10.1.9 Subsidiary Silvicultural operations:

- The cane clumps of left out coupes shall be cleaned properly which is to be covered with earth at the base of the clump in order to encourage the growth of the existing individual culms for the improvement of the quality of growing stock.
- Plantation of indigenous species of cane i.e. *Calamus viminalis, Calamus latifilious and Calamus guruba* may be undertaken in the gap areas of the coupe, i.e. (approximately 25%) @ 50 nos. of cane per hectare.

19.10.2 RUBBER:

19.10.2.1 Introduction:

Natural rubber *(Heavea braziliensis)* is one of the most profitable cash crops in India today. It has varied industrial, technological and domestic applications. Latex is processed into natural rubber. Suitable plantation depends on topography, climate and soil. As per practice Rubber trees became suitable for tapping after seven years of plantation on attaining girth of 50 cm in traditional zones like Tamilnadu and Kerala. Ideal tapping of latex should be made in every alternative day. But in nontraditional zones like Odisha and particularly in Dhani (North) RF of Ranpur Range, the trees are tappable after 10 years of plantation.

In this Working Circle Rubber plantation are covering an area of 64 Ha. in Dhani (N) RF in Ranpur Range.

19.10.2.2 History:

The then Chief Conservator of Forests, Odisha, the Conservator of Forests, Berhampur Circle and the Chief Executive, O.F.C., Ltd,. Bhubaneswar has visited the degraded forests of Dhani (N) RF on 20.5.1985 and has decided to carry out the Rubber plantation by O.F.C. Ltd. Accordingly a scheme was prepared for Rubber plantation over the above site during 1985-86, which has been approved by the Govt. of India, Ministry of Environment and Forest. The plantation work was entrusted to the Divisional Manager, Plantation 'A' Division, Bhubaneswar to take up plantation in 64 ha. out of 300 ha. allotted by the Divisional Forest Officer, Khordha Division, Khordha vide his Letter No.2881 (2) dt.12.03.1992. The detail of plantation taken up from 1985-87 is given below.

Year of Plantation	Area covered	Trees planted
1985-86	20 ha.	9,000 Nos.
1986-87	24 ha.	10,900 Nos.
1987-88	20 ha.	8,685 Nos.
Total	**64 Ha.**	**28,585 Nos.**

After various subsequent Silvicultural operations taken up by the O.F.D.C. Ltd., the No. of trees survived comes to 9,756, the detailed of which is given below. No gap plantation has so far been taken up by the O.F.D.C. Ltd.

Table No 19.21 year wise survival %

Year of Plantation	Area covered	No.of Trees planted	No.of Trees survived	% of Survival
1985-86	20 ha.	9,000	3380	37.55
1986-87	24 ha.	10,900	1945	17.84
1987-88	20 ha.	8,685	4431	51.01
Total	**64 ha**	**28,585**	**9756**	**34.13**

19.10.2.3 Silvicultural Treatments:

- ☞ Usually a Rubber tree remains tappable for 15 to 20 years. Hence, tapping should be under-taken regularly to avoid natural wastage and earning for the user agency.
- ☞ Removal of all dead, diseased, uprooted and malformed trees should be ensured.
- ☞ Gaps caused out of dead, diseased, uprooted and malformed trees, whose yield (collection of latex) has been ceased, should be replanted annually and regularly
- ☞ Yield is to be calculated on trees basis after attaining 50cm.girth but not on area-wise and steps be taken to have sustained annual yield for the site.
- ☞ For replanting purpose hybrid variety of Rubber sapling should be planted for early growth and more yield.
- ☞ Fire protection measures are to be ensured by trench fencing around the plantation area.
- ☞ Replanting should be attended in the gap areas of the plantation taken up in the year 1985-86, 1986-87 & 1987-88 over 64 Ha. areas.

19.10.2.4 Tapping:

As per decision of the O.F.D.C Ltd. Board taken in its 166th meeting held on 9.8.1985, the O.F.D.C Ltd. Took up steps for tapping in the year 1995-96 but due to unavoidable circumstances tapping could not be made till 2003. Subsequently Departmental tapping was commenced from 22.1.2004 and following are the data of production of latex as per available records of the O.F.D.C. Ltd.

Table No: 19.22 Yearwise details of latex production

Year	No. of trees tapped	Quantity of dry rubber sheet obtained	Expenditure incurred (In Rs.)	Revenue realized (In Rs.)	Remarks
1	2	3	4	5	6
2003-2004 (22.1.04 to 31.3.04)	1866	0.613 M.T.	1,05,113.00	26,965.00	
2004-2005	3000	4.721 M.T.	1,71,771.00	265465.00	
2005-2006	4200	9.015 M.T.	43,465.00	6,52,710.00	
2006-2007 (1.4.06 to 31.3.2007	9300	11.759 M.T.	31,000.00	1,34,628.00	
2007	9300		Lease out	8.85 lakhs	
2008	9300		Lease out	8.19 lakhs	
2009	9300		Lease out		Remain in operative due to legal disput
2010	9300		Lease out	27.67 lakhs	
2011	9300		Lease out	42.12 lakhs	Include Rs. 5.62 lakhs towards disposal of 36 qunt. Of dry sheet
2012	9300		Lease out	32.51 lakhs	
2013	9206		Lease out	43.17 lakhs	
2014	5384		Deptt. Coll 10.78	13.68 lakhs	
2015	5384		Lease out	14.50 lakhs	
2016	5384		Lease out	7.50 lakhs	
2017	5384		Lease out	8.50 lakhs	
2018	5384		Deptt. Coll 5.94	9.79 lakhs	Department collection of 9.331 Mt. of Dry Rubber sheet
2019	5287		Lease out	4.30 lakhs	
2020	5287		Lease out	4.30 lakhs	

Source :- Divisional Manager Bhubaneswar (C) Division

19.10.3 SAL SEED AND SAL LEAF:

Sal (*Shorea robusta*) is the major species of the Division. The tree is deciduous in nature. Its multiple uses justify a description on collection of its seed and leaf. The tree can grow up to the height of 45 meters. It sheds leaf in late winter, foliage is renewed by March then it flowers. The fruit matures by May-June. The tree is a light demander.

19.10.3.1 Sal Seed:

Commercial use of Sal seed gained its importance during the period when the extraction of oil was for domestic consumption. Alternative uses in soap making factory, manufacture of Vansanpati and Chocolate etc. attracted many industrialists to pour in. Few of them captured specific Forest Divisions to run their industries on Sal seeds. Sal seeds are often collected in an unscientific manner in the forest areas.

Sal seed are collected from the forest floor along with litter, humus. During the process of raking, all previous year seedlings are either killed or their root systems damaged. The removal of leaf litter, humus exposes the soil, dries up the moisture which in turn kills the micro flora, fauna. Sal growth which is dependent on mycorrhiza is adversely effected. It is, therefore necessary that limited area of Sal forest should be worked out at a time. Further, some quantity of the seed should be left on the forest floor to encourage natural regeneration. Moreover, no collection shall be allowed beyond 15th June.

After collection of the sal seeds proper drying is required. If moisture content is not regulated, it becomes susceptible to fungal infection. Though it can be checked through application of fungicides, care should be taken to ensure timely disposal of seed to the traders so that primary collectors do not suffer loss due to such damage.

19.10.3.2 Sal Leaf:

Sal leaf is a major NTFP of Khordha Division which sustains the livelihood of rural poor for at least six months in a year. Though the use of Sal leaf for making cup, plates is an age old practice in forest dwellers it has now become a commercial importance with the introduction of mechanical press, moulding machines.

The fresh leaves appear in March after defoliation. The tree coppices well particularly near the ground level for which the advantage is taken by the leaf puckers. Better quality leaves are available to them at a convenient height from these coppice shoots. However, collection of tender leaf from such coppice shoots has harmful effects on the growth of plant. Hence, collection should not be allowed from March to May and not even during rainy season.

The ideal time for collection is between September & January. Further, total sweeping of the floor for collection of leaf should be discouraged. The limit should be fixed for extraction of leaf and in any case it shall not be more than two quintals per hector of forest area.

It is better if collection of sal leaves is done through VSS. The Forest department jointly with organizations like TDCC, Ltd may organize training camps to share their knowledge of sustainable collection practices amongst primary collectors.

19.10.4 MYROBALANS:

The Fruit of *Terminalia chebula*, *Terminalia bellerica*, *Emblica officinalis* (collectively known as Myrobalans or triphala in Sanskrit) are used for tanning. It has got tremendous medicinal value. The best time for collection is March. Myrobalan tan is usually blended with other quickly penetrating tans to produce shinning leather colour.

Amla (Emblica officinalis) is generally collected by harmful techniques such as lopping, hacking of branches, at times even felling of trees causing injuries to the trees. There is fear of harvesting of unripe Fruits and over exploitation due to competition among the local people. This has adversely affected the natural regeneration. Hence, pre mature harvesting should be discouraged. The best time for collection of *Amla* is the month of Chaitra (March-April) when it is ripe and matured. The Fruit should be carefully plucked *using long poles with a hook* or by shaking the plant. Collection should be done in the morning hours because increasing heat may turn the Fruit black, thus damaging the quality. After collection they should be stored under shade till the processing works begins. The processing of *Amla* begins within two days of its collection, the immature, blackened Fruit should be separated, the selected ones are to be boiled for 8-10 minutes. The boiled Fruits are deseeded in a neat, clean place, after which they are sun dried on bamboo mats.Sun drying makes *Amla* little reddish,, this fetches a better price in the market. The processed

Amla should be stored in gunny bags in dry places with a normal room temperature. Amla is very good market in pickle industries and favourite items in southern parts of India. Amla is also one of the ingredients in shampoo, hair oil and other cosmetics products.

Generally, the primary collectors dry the Fruit using simple sun drying techniques, which blackens the produce thus fetching lower price. However, drying, packaging the produce in small bags can do value addition.

19.10.5 MAHUA FLOWER AND SEED:

The tree Mohua or Mahul *Madhuca indica* is very popular among the tribals for its flower, seed and country liquor (Mahuli). Mohua Flower is sugary in taste. The tribals have traditionally been using Mohua seed (Kernal) as one of the food items. The flowers are even used as cattle food. It fetches good sale price after being well processed. Previously the prime collectors did not get legitimate price on selling of Mohua flowers. They were being exploited by unscrupulous private traders or middle men. Now the Government have issued notifications in entrusting the Gram Panchayats to collect Mohua flowers and seeds from the prime collectors so that they would get proper price. In fact, the country liquor made out of processing Mohua flower is a substitute for costly foreign liquor drinks available in the market. The tribals and the poor people can easily afford to pay the cost.

The matured Mohua flower is available during the month of April & May for collection. The tribals don't allow any body to cut Mohua trees in the forests or in their own land. They earn their livelihood by selling Mohua flowers. They clean the ground underneath the tree for easy collection of Mohua flowers in the morning hours. Sometimes they are being attacked by wild boar who are fond of taking Mohua flowers for food. Proper drying should be ensured for its long preservation and increase in its value addition to fetch good price.

19.10.6 HILL BROOM:

The Hill brooms are prepared out of grass, '*Thysanolena maxima'*, otherwise known as bouquet-grass or tiger grass. It's a tall reed like perennial grass, usually found on forest slopes, particularly near water streams as it thrives well in soils having high moisture content. The grass can grow as tall as four feet, may attain up to 45 cm long inflorescence, which constitutes the major portion of the hill broom.

The collection time is from March to June but harvesting done just before complete maturity gives better quality, Greener the inflorescence, better is the price and durability. Hence, harvesting shall be done before the full maturity to fetch better price. However, care shall be taken to ensure natural regeneration i.e. some matured grass should be left as such for seeding & natural propagation.

The Hill brooms need very simple processing. The broom after cutting are dried in sun for two to three days, separated into equal length. The brooms of different sizes are tied in an orderly manner with the rope or plastic at the lower end. All these operations are done manually. The rate of bound hill brooms even in the local market is much more than the loose brooms. One kilogram of hill brooms may be processed into three hill brooms.

With proper training, the primary collectors can be made good broom makers, taught attractive patterns of tying on the broom thus facilitating further value addition. Hence, there is considerable scope for value addition at local level to raise the income level of poor collectors.

As stated above, not only proper training plays a crucial role in its value addition, but also the way grass is cut affects the price. The unwarranted long stalk increases the waste, hence reduces its price. The skill of the primary collectors may be further upgraded through training, demonstrations & extension programmes at division level before collection from the field.

19.10.7 SIALI LEAF AND FIBER:

These are obtained from Siali or *'Bauhinia vahlii'* which is wood climber of gigantic size, is otherwise looked upon as undesirable in view of the damage caused to the host plant. The natural climber is said to be capable of exerting so much pressure on the tree that the latter some times collapses under its weight. The climber thrives well in loose rocky soil particularly in the hilly areas & ravines. However being strong light demander, it is less available in dense forests.

19.10.7. 1 Siali Leaf:

Large leaves of Siali are shaped like Camel foot & appear as twines. They are largely used in making plates & food wrapper. Siali leaves have high market demand through out India. The quality of leaf varies according to their size & harvesting methods.

Leaves are better available between October & Feb, both in terms of quality & quantity. That is the peak period of collection. The collectors often tend to loose their patience in plucking the leaf, cut down the climbers to get the whole resource to their feet. If the leaf is plucked leaving its petiole or stalk on the climber itself, then the drying is better facilitated & wastage is also reduced since the stalk has no use in making of leaf cups & plates. To ensure proper collection in different areas of the Division, the field staff should intensify their supervision during the collection season.

Siali leaves are the major source of income for the tribal. Most tribal families are engaged in collection of leaf. They dry the collected leaf in sun for about two to three days, then stitch five to six leaves into a plate with the help of thin bamboo straws, then sell them in bundles as per the market demand and specified requirement of the traders.

The income of the primary collectors can be increased by increasing the skill of up-gradation of processing, bundling of leaves and manufacturing of cups and plates. The up-gradation of skill can be improved by imparting proper training to the primary collectors or the Self Help Groups associated in it. This gives value addition and earning of more income.

19.10.7.2 Siali Fiber:

The fibers obtained from the climbers are used for making ropes for domestic purpose, also sold in local market.

For extraction of the fiber, the climbers shall have at least two feet girth. This is the girth when the climber moves towards its maturity, requires to be cut for silvicultural needs. Even the quality of leaf also gets reduced.

The climber has to be cut flush to the ground, carefully pulled out from the host plant. Usually, it takes four to five years for the climber to attain the exploitation size. Hence, cutting cycle of five years may be adopted to work out this climber.

The process of separating the fiber from the wood plant tissue is technically known as ‘Retting’. This process consists of submitting the stem to the action of water, allowing fermentation to take place resulting in removal of gummy material by water, subsequent beating & scrapping of the softened tissue to get the fiber.

19.10.8 GENDULI GUM AND OTHER GUMS:

Genduli gum or Gum karaya is the most important of all Gum. It is extracted from *Sterculia urens*. The sound procedure for collection of gum karaya is that the tapping should be done from the trees of at least 0.9 meter girth. Two blazes should be done on the tree of up to 1.35 meter girth. The initial blaze needs to be made at the breast height with sharp instrument and having dimensions of 7.5 cm wide and 16 cm long. This should be gradually increased to 25 cm and 45 cm respectively. Not more than 1.5 mm to 3.0 mm of fresh bark needs to be cut and removed each time.

Care should be taken to ensure that hammering of the bark is not done since this will lead to closing of pores and thus, preventing the exudation of gum. The exudation of gum is highest within 24 hours of blazing and continues for a couple of days. Exudation takes place round the year but it is maximum during the hot summer from April to June though the collection time starts from September itself. However, gum harvested during rainy season is poor in quality & hence, no tapping should be done during this season. A tapping cycle of 4-5 years may be adopted.

19.10.9 BELA:

Bela *(Aegle marmelus)* is a middle sized tree which occurs scattered in different forest blocks of the Division. The fruit is used both in raw & ripen form. It has a great medicinal value to cure constipation. The ripe Fruit is mostly collected by the local people & sold in the nearby market to earn money.

19.10.10 TAMARIND:

Tamarindus indica is a big tree, occurs frequently in natural forests besides being cultivated on private lands. It may attain height of up to 24m & which are planted in avenues for its hand-some foliage. It thrives well in warm climate and can withstand, drought. Its fruit is a long pod with 6 to 10 seed which contains about 55% of its weight as pulp. Tamarind Fruit generally become available for collection during March-April. On an average, a full grown tree can yield annually around 200 Kgs Fruit.

Tamarind is used mainly as preservative an important ingredient in pickles, juices, tamarind concentrates. Tribal even consume the seed as food after boiling them. Seed boiled with mahua flower are considered delicacy. It is also used in powdered form commercially known as TKP (Tamarind Kernel Powder). The TKP which is becoming increasingly popular in textile and paper industries as a sizing material in view of environmental cost being attached to such units. Its seed is also used as cattle feed & poultry

feed. Tamarind, thus, has many uses, is in great demand in different markets. It needs very simple processing. After collection, thin hard cover is decorticated manually which is sold at much higher price than the seeded one. Even the seed are also sold at good prices. Moreover, the deseeded tamarind is less prone to insect attack & thus, can be stored for longer periods. Hence, the simple process of deseeding at the primary collector's level shall be encouraged.

19.10.11 KARANJA:

Karanja *(Pongamia glabra)* is a big tree occurs frequently in different forest blocks of the Division. The seed which is mainly used for the extraction of oil have a great medicinal value for the skin disease. It is used as Ayurvedic Medicine. The tribal people of the Division are engaged in collecting seed & extract oil by country method for their daily use.

19.10.12 KUSUM:

Kusum (*Schleichera oleosa*) is a big tree found in different forest blocks of this Division particularly abundant in Rajin, Taman, Aranga, Mala, Patia etc. The ripe Fruit of the tree is eaten by the tribal people. The local people living around the forest extract oil from the seed which can be used as edible oil, as medicine. This is a host plant for cultivation of lac.

19.10.13 CHAR SEED:

Char seed, also called Chiranjee dana or Char koli**,** is a fruit of *Buchanania lanzan*, is a semi ever green species of up to 15 meters in height, generally found in the forest of the Division. It is a close associate of Sal, Mahul.

Although various parts of this tree are differently used, it is identified by its delicious fruit, which is often regarded as poor man's grapes. However, char seed/ Kernel has variety of uses. It is either eaten directly or used in flavoring sweetmeat, confectionary, betel nut powder etc. Even its oil has variety of uses.

Generally flowering occurs during January – February , the fruit ripens in summer. Though ripe Fruit fall on the ground, the primary collectors often themselves pluck the Fruit including the immature ones for further processing. However, mature Fruits fetch better return (the seed is matured if it sinks in the water). The un-decorticated seeds give better price if they are washed properly before selling. The Kernel is even vulnerable to insect attack, more particularly when left un-protected from moisture. Hence, in-addition to drying them under the sun, care is also to be taken for their proper storage/bagging.All

the above mentioned issues shall be explained, demonstrated in detail to the primary collectors through field level training before collection so as to facilitate better remuneration to them for their labour.

19.10.14 MEDICINAL PLANTS AND THEIR PRESCRIPTIONS:

The distribution patterns and habitat of medicinal plants are varied and diverse. No specific study on the medicinal plant resources and their potentiality in this Division has been made but still the use in the traditional system of medicine continues to be in vogue and the large population depends on these resources for their disease. However, gradually, popularization of plant extract as medicinal value is gaining importance in the State and is being encouraged by the State Medicinal Plant Board. Lot of study is still required in preserving the plant resources for future.

The Bio-Diversity Act'2002 and the corresponding Rules'2004 have already come into force. These provisions duly take care of all the issues related to even the medicinal plants, their derivatives, uses and harvesting techniques. Hence, the people's Biodiversity Register shall be made on priority and even up dated regularly. It is a participatory documentation duly incorporating the indigenous knowledge (IK) system besides inventorization and characterization of known biological resources of the area, it is intended to even identify and protect locals' rights over the intellectual property and natural resources.

The strategy should be to not only maintain the existing medicinal plant resources at the sustainable level but also to increase the productivity through improved methodologies. The augmentation of raw material resource shall be done by domestication of wild plants and exotics having medicinal value, and their large scale cultivation. Already, cultivation of Amla, Black pepper and Safed musli has been taken up for meeting the requirement in different parts of the State. A very good medicinal plant garden has been developed at Patrapada under Bhubaneswar Range of City Forest Division for propagation and scientific method of cultivation of Medicinal Plants.

Efforts shall be taken for development of Identification of different medicinal plant resources. It will not only improve the management skills but also check the illegal removal of medicinal plants & their parts because of ignorance. It will further help in regulating trade and realization of actual price for the primary collectors.

The best option will be to form the Bio-Diversity Management Committees at the local level under the provisions of the Bio-Diversity Act/Rules and prepare Bio-Diversity Conservation action Plan for promoting conservation & sustainable use of the biodiversity in general and medicinal plants in particular. The conservation measures should be both 'In-situ' and 'Ex-situ' and the traditional healers/users of these resources shall be an intrinsic part of any such effort for long term gains both for the forests and all stakeholders.

19.10.15 DEVELOPMENT OF SPECIAL NTFPS:

It is also felt that development of certain special items should also be considered on priority basis apart from the NTFPs which are naturally available in the Division. It is prescribed that large scale plantation of Agave, Jatropha and Borassus along the boundary of the forest blocks should be under taken. This will not only create the additional NTFPs but also help in forest consolidation and demarcation of boundary.

19.10.15.1 Annual Areas of Treatment:

Though most of the boundary pillars/ boundary lines are damaged, the priority should be given to consolidate the boundaries of all RFs/DPFs. The aspects that shall be taken into account while finalizing the annual treatable area are (i) it should be preferably the blocks other than RF, (ii) the block shall be adjacent to the human habitation and/or susceptible to encroachment, (iii) as far as possible, area of treatment shall be in such a manner that entire block is attended at a time and/or in a systematic manner, and (iv) arbitrary assignments of annual areas shall not be resorted to for equi-distribution of this work among different Ranges as has been in practice otherwise.

The Divisional Forest Officer shall prepare an annual action plan to develop these new NTFPs viz. Jatropha and Agave with the view to enhance the supply of the concerned raw material.

The Odisha Plantation Manual'1977 shall be followed while carrying out this plantation including the calendar of operations.

19.10.16 SISAL (BARAMASI):

Sisal (*Agave sisalana*) is a xerophytic plant and has a greater ability to withstand drought under most adverse conditions. The fiber extracted from its leaves is used for rope making and is in great demand. The plant acts as a good soil binder. The agave plantation shall be taken up along the block boundaries particularly adjoining to village habitations, where the blocks are more susceptible to encroachment. The plantation should be done in staggered pattern in two rows at a spacing 1 meter X 1 meter. It will serve as a good live hedge fencing around any plantation.

19.10.17 BAIGABA:

Baigaba (*Jatropha curcas)* belongs to the family 'Euphorbiaceae' and is thus closely related to some other important cultivated plants like Rubber plant and Castor. It is a

small ever green, nearly glabrous tree or soft wooded shrub 3 to 4 meter high. It flowers between September & December. The fruits mature two to four months after flowering turning yellow when mature. It is easily propagated by seeds or cuttings and grows rapidly. A hot and humid climate helps in the early germination of seeds.

This plant has a production life of nearly 40 to 50 years without necessitating replanting or retending like other crops. It is indigenous to America but now grows in semi wild condition in the vicinity of the villages, almost in all states. It can grow successfully on all kinds of barren and unproductive wastelands. It is more popular as a live fence for protection of agricultural fields from the attack by livestock as it is unpalatable to cattle and goats. Other uses include Jatropha oil as bio-fuel and in soap making, medicinal value etc. However, the main use anticipated in the coming years is its use for bio-fuel production.

19.11 ASSOCIATED REGULATIONS AND MEASURES:

In areas of the divisions where artificial regeneration through block plantation or gap plantation is to be taken preference in species selection should be given to species which yield NTFPs or medicines. Similarly in the Rehabilitation Working Circle areas, care should be taken during cleaning operations to retain the miscellaneous species which yield important NTFPs.

Many NTFPs have been neglected or overlooked because they are often outside the established marketing points. In fact, marketing has been found to be the major weak point for the primary collectors. And, wherever, such market points exist, they are too long that the primary collector finds it difficult to fetch good returns for the NTFPs collected by him. Most times, the middleman exploits the illiterate NTFP collections in the name of inferior quality. Hence, all these marketing aspects of various NTFPs need to be attended to on priority. The Divisional Forest Officer shall contact the State Cooperatives like TDCC, TRIFED and other organizations for marketing of NTFPs available in the Division. The VSS and Gram Panchayats should be given information about the marketing prospects of various NTFPs.

The Divisional Forest Officer shall organize regular trainings on collection, exploitation and utilization of NTFP in accordance with the relevant Government policies in force from time to time. The main objectives of such trainings should be to ensure that collection, exploitation and utilization of desired NTFP shall be regulated in such a manner that composition, regeneration and sustenance of forests are not adversely affected.

The Divisional staff must have a clear perception of threats from various faulty/injurious local practices that adversely affect the sustenance of forests. Keeping in view the perceived threats to forests, they shall take appropriate steps to minimize the impact of injurious practices on forests. Several options have been suggested. These may be used in combination or as alternative options. For example, vulnerable forests may be temporarily closed for NTFP collection for specified periods so that regeneration of desired species is not adversely affected. Collection period may be reduced in some cases (e.g., seeds) to ensure that sufficient seeds are left on forest floor to induce regeneration. Seed

collection may be terminated at least fifteen days before expected closing period. The Divisional staff may work in close co-operation with local people who may be motivated not to collect entire seed from forest floors and to allow some seed to remain on ground for regeneration purposes. Similarly, local people may also be encouraged to adopt more forest friendly techniques to collect barks, branches, leaves and roots so that forests are not adversely affected. They may also be encouraged not to resort to forest fires. The collection of leaves, barks from standing trees and collection of roots must be scrupulously supervised so as to cause minimum damage to the trees.

The Divisional staff should prevent the purchase of the NTFPs at lower price by middlemen and ensure collection/disposal in accordance with Orissa Grama Panchayat Minor Forest Produce Administration Rule's 2002 as per given in above Annexure No.II. The minimum procurement prices should be given wide publicity through VSS and other media. More emphasis should be given on the medicinal plants, their derivatives, and uses. Audio and video methods may also be utilized to create awareness among the public.

The Divisional Forest Officer shall maintain a proper account of different NTFP items, their quantities collected, areas/forests from which collected, and period during which collected. An annual assessment of potential availability of various NTFP shall also be made in the beginning of each calendar year. Steps taken, in accordance with above regulations to ensure sustainable management of forests and fair deal to local people, shall also be recorded and reviewed periodically by the Divisional Forest Officer and higher authorities. Even, the impact of transfer of NTFPs (MFPs) to the Gram Panchayats on the Forests and the primary collectors shall also be studied and annual reports submitted suggesting any changes if any.

All forests shall be strictly protected against forest fires, un-authorized grazing and illicit-felling. Effective measures shall also be taken to contain shifting cultivation and other encroachments in forests. Rights and concessions of local people shall be regulated in accordance with the provisions of the Odisha Forest Act and relevant Rules in force besides the Government policy in vogue.

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CHAPTER – 20

JOINT FOREST MANAGEMENT AND VANA SURAKSHYA SAMITI FRINGE FOREST MANAGEMENT

(OVERLAPPING) WORKING CIRCLE

20.1 GENERAL CONSTITUTION OF WORKING CIRCLE:

Joint Forest Management (JFM) is an approach and programme initiated in the context of the National Forest Policy of 1988 wherein state forest departments solicit support of local forest dwelling and forest fringe communities to protect and manage forests and share the costs and benefits from the forests with them. For working in coordination with villagers, Forest Committees are constituted. A Micro plan for development of forests and villages is prepared by the Forest department and the forest committees. Along with the protection and development of forests, the main purpose of this plan is to fulfill the forest based needs of the local population like small timber, minor forest produce, fuel wood, leaves, grass, fodder etc. by regulated use of the forests. In addition, efforts are taken to increase the agriculture and forest production and processing their produce, employment opportunities are created in villages so that villagers are dissuaded from illicit felling and encroachments in forests. Attempts are also made to provide for other basic necessities of the villagers so that pressure on forest resources will be minimized.

India has a long history of local use and protection of forests. The oldest examples are of sacred groves, which are an indigenous community approach for protecting patches of forests for a variety of ecosystem services. Many communities have historically protected local forests. Revenue systems reserved uncultivated areas as common lands, which included both grazing and forests lands. Even after the start of reservation of forest lands by the colonial Government, the Indian Forest Act of 1927 recognized the logic and need for local control and management of forests in the form of a provision for Village Forests in Section 28. This however was implemented sparingly.

In the National Forest Policy 1952, no Systematic efforts were made to ensure partnership of local people in management of forest. As a result of continuous increase in the human and cattle population the pressure of needs of fuel and fodder kept on increasing. As a result of increasing pressure on forests and in the absence of peoples' participation in forest management uncontrolled use of forests could not be stopped and the condition of forests kept on deteriorating. The situation was further worsened because of diversion of forest lands for

other uses. Loss and degradation of forests accelerated through 1970s and 1980s and the first State of Forest Report published in 1987 highlighted the impact on forest cover.

However, it was being continuously felt that the conservation and development of forests was not possible without the active participation of people in forest management. As a result of this new thinking fundamental changes were brought about in National Forest Policy 1952 and the new National Forest Policy of 1988 was formulated.

Joint Forest Management often abbreviated as **JFM** is the official and popular term in India for partnerships in forest movement involving both the state forest departments and local communities. The policies and objectives of Joint Forest Movement are detailed in the Indian comprehensive National Forest Policy of 1988 and the Joint Forest Management Guidelines of 1990 of the Government of India.

Joint forest management is a concept of developing relationships between fringe forest groups and forest department on the basis of mutual trust and jointly defined roles and responsibilities for forest protection and development. Odisha remains the first to pass the first resolution for JFM. At present, the JFM Resolution 2011 is the basis on which forests are assigned as follows.

"The forests of the State to be covered under this Resolution shall be grouped in to the following two categories:

(a) Reserved Forests, Protected forests, Village forests, Revenue forests etc. Not covered under Protected Areas.

(b) Protected Areas (National Park and Sanctuaries) excluding Core Areas, and Mangrove Wetlands.

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)".**

20.2 SALIENT FEATURES OF JOINT FOREST MANAGEMENT:

One of the salient features of the National Forest Policy, 1988 aims at active involvement of the people in protection, conservation and management of the Forests. Joint Forest management encourages the development of partnerships between local people and forest department to manage forest resource jointly. It provides a communication structure for consultation and negotiation between forest Department and forest users and provides legalized access for the local communities to forest lands. JFM encourages local people to protect forest areas in order to prevent free grazing of livestock and to assist in preventing illegal activities by outsiders. JFM

assures local people that a certain proportion of the intermediate and final harvests from forest lands will accrue to them.

The State of Orissa has been a pioneer amongst the States in involving the village community in protection and management of the forests. Orissa brought under the Orissa Village Forest Rules in 1985 and the first step gives a giant leap for involving the people in forest protection was through Govt. Resolution No. 10F (Pron.)-47/88/ 17240/ FFAH dt. 1.8.1988 In this Resolution, the villagers were assigned with specific role for the protection of Reserved Forests adjoining to their villages and were in shape of return granted, under Section-24 of the Orissa Forest Act, 1972, certain concessions in the matter of meeting their bonafide requirements of firewood and small timbers. The above Govt. Resolution was amended vide Resolution No.10F (Pron.)-47/88/23638/FFAH dt. 13.10.88 which prescribed that the village level Forest Protection Committee (FPC) should be constituted in consultation with the local villagers and the Non-official members of the village level FPC may be selected by convening a meeting of the concerned villagers. This Resolution was again superseded subsequently by Resolution No.10F (Pron.)-4/90/29825/FFAH dt.11.12.1990 in which Protected Forests were also included for assignment to adjoining villages. To make the involvement of villagers more effective, the Govt. of Orissa, issued Resolution No.10F(Pron.) 20/93-16700/F&E dt.3.7.1993 which dealt in an exhaustive manner the involvement of the local communities in protection of adjoining forests, formations of Vana Samrakshayna Samities (VSS) and their Executive Committees, duties and responsibilities of the VSS and their Executive Committees, preparation of JFM Plan, usufructuary benefits for the VSS and provision of MOU etc. Further VSS Resolation has been amended in detail during the year 2008, 2011 and 2015 and it is renamed as Vana Surakshya Samiti (VSS) as per this resolution Vana Surakshya Samities (VSS) are being constituted and degraded government forests are being allotted to them for protection and management. In this working circle 108 nos. of VSS have been constituted over a total extent of Forest area of 16467.11 Ha.

The JFM (Overlapping) Working Circle includes the Working Plan area that are already under the protection of the Vana Surakshya Samities (VSS) constituted as per the Joint

Forest Management Resolution of the State. The total area allotted to this Working Circle is 16467.11 Ha. This Working Circle mainly overlaps the Rehabilitation Working Circle.

All Village forests included in this working plan are also placed in this Working Circle. The VFCs which were constituted to manage these forests as per Village Forest Rules, 1985 will continue to manage and protect these forests.

The prescriptions for this working circle may also be extended to the other areas where VSS are formed during the course of implementation of this Working Plan. All new areas allotted to VSS will automatically become part of this working circle.

The plantations raised by erstwhile Social Forestry Project, Puri Division under the assistance of SIDA managed and protected by the local people in formation of VSS or VFC. They are abide by the resolution and Govt. circulars and instructions from time to time. The VSS in turn gets entire benefit from the interim harvest without any share to Govt. but there will be fifty-fifty sharing benefits on final harvests. After imposition of Central Govt. stipulation on the observations made by the Hon'ble Supreme Court of India the local people involved in protecting and managing of forests are deprived of harvesting the crop even though they were guided by JFM resolutions and Orissa Village Forests Rules. To over come such difficulties an approved working plan is necessary. Keeping all these points in view all villages the forests are included in this working circle for the protection and management of the forests moved after by VSS.

The areas of degraded forest which are being protected by Vana Surakshya Samities (VSS) outside the plan area (Khesra Forest and Rev. Forest etc.) have been listed in the **Table No.20.3.** The prescriptions given for this Circle may also be extended to the VSS areas in these forests blocks.

20.3 GENERAL CONSTITUTION OF WORKING CIRCLE

This Working Circle will cover a total area 16467.11 Ha. consisting of area of all the VSS already formed till 2020-21 as per different resolution in vogue.

Table No. 20.1 AREA ALLOTTED TO JOINT FOREST MANAGEMENT & VSS OVERLAPPING WORKING CIRCLE

Sl No	Name of the Range	Name of the Forest Block	Area in Ha.	GIS Area in Ha.	Area Diverted (in Ha.)		Area under this Plan (in Ha.)	Area allotted to JFM & VSS (O) WC (in Ha.)
					Under FRA	Under FC Act.		
1	2	3	4	5	6	7	8	9
1	Balugaon	Bankard RF	1290.28	1323.214			1323.214	100
2	-do-	Rajin RF	6472.40	6667.455	35.109		6632.346	250
3	Khordha	Barunei RF	482.80	444.373		0.5125	443.8605	150
4	-do-	Jayamangal RF	144.48	139.078			139.078	144.48
5	-do-	Manibandha- A & B	309.6	312.659			312.659	250
6	-do-	Nagapalli RF	551.61	559.68			559.68	400
7	-do-	Panchagarh RF	735.00	704.588			704.588	335
8	-do-	Pangarsingh RF	264.67	266.149			266.149	255
9	Ranapur	Champagarh RF	413.64	413.913			413.913	275
10	-do-	Dhani (N) RF	1092.28	1048.957			1048.957	1430
11	-do-	Mala RF	10472.46	10863.10	237.33		10625.77	2610
12	-do-	Maninag RF	1797.67	1735.576	2.797		1732.779	1050
13	-do-	Satabhaya RF	377.18	318.668			318.668	150
14	-do-	Sulia-B RF	1394.19	1784.685			1784.685	250
15	Tangi	Sulia RF	1609.09	1608.007			1608.007	600
16	Tangi	Kuhudi RF	641.04	656.617			656.617	641

1	2	3	4	5	6	7	8	9
17	-do-	Patia RF	3702.18	3888.975	2.446		3886.529	150
18	-do-	Dhani (S) RF	839.75	850.238			850.238	310
19	Khordha	Kapileswarpur DPF	75.6	81.846			81.846	76.49
20	-do-	Mandalsingh DPF	317.6	313.12			313.12	297.6
21	-do-	Puinchia DPF		251.121			251.121	260
22	-do-	Duburi DPF	400.4	339.397			339.397	150
23	Tangi	Tangi DPF	179.2	176.017			176.017	100
24	-do-	Rameswar DPF	481.2	687.484			687.484	350
25	-do-	Jalbhar DPF	399.2	799.708			799.708	200
26	-do-	Kandagadia DPF	212.4	208.243			208.243	150
27	-do-	Chakadapathar DPF	994	1005.536			1005.536	300
28	-do-	Kunjuri DPF	449.2	384.889			384.889	100
29	-do-	Badapari DPF	254	265.677			265.677	200
30	-do-	Bagheiput DPF	84.4	63.345			63.345	67
31	-do-	Nalsingh DPF	554.8	619.138			619.138	100
32	-do-	Bhusandpur DPF	778.8	821.628			821.628	420
33	-do-	Kaithapalla DPF	272.8	294.569	0.923		293.646	280
34	Balugaon	Sandhamal DPF	1511.2	1495.097			1495.097	200
35	-do-	Solari DPF	1171.2	1114.705			1114.705	600
36	Balugaon	Bhaleri DPF	807.6	907.221		0.875	906.346	400
37	-do-	Jharana DPF	1925.2	1957.402			1957.402	400
38	-do-	Champagarh DPF	869.6	433.493			433.493	200
39	-do-	Chulijhinka DPF	536.4	554.273			554.273	250
40	-do-	Jiripada DPF	68.4	71.466			71.466	78

1	2	3	4	5	6	7	8	9
41	Delanga	Kumuka PRF	214	210.951		2.03	208.921	208.921
42	-do-	Rengal PRF	112	112.016			112.016	50
43	Balipatna	Bhanra PRF	97.28	93.009			93.009	50
		Total	**45356.8**	**46874.283**	**278.605**	**3.4175**	**46565.26**	**14838.49**
						Revenue Forest		**704.00**
						142 VFs		**924.62**
						Grand Total		**16467.11**

The main principle of JFM is to motivate the forest communities to protect the forest from over exploitation so that it can meet the subsistence needs of the local poor people.The JFM resolution represents a significant shift in India's forest policy that balances community and government interest while remaining sensitive to local conditions, institutions and forest dependence. With this background, the JFM resolution has outlined the category of Forests that has been assigned or to be assigned to Vana Surakshya Samities. The scope is spelled out as follows:-

- Area that can be assigned to VSS may be Reserved Forests, Protected forests, Village forests, Revenue forests etc. not covered under Protected Areas..

  At present there are 108 Nos VSS functioning in this Division.

  The detail list of VSS formed is given in **Table No.20.2** as per following.

Table 20.2 **LIST OF VANA SURAKSHYA SUMMITS FORMED IN KHORDHA FOREST DIVISION**

Sl No.	Name of the Range/ Section	Name of the VSS	Name of the G.P	Name of the Forest Block/Revenue Forest	Legal status of land	Area in Ha. assigned to VSS	Whether Executive committee formed	Whether MOU signed	Whether micro-plan prepared	Whether registered by C.F as JFMC
1	2	3	4	5	6	7	8	9	10	11
2005 and before										
1	Khordha/ Bolagarh	Gopinathdev V.S.S., Kotapalla	Phasioda	Mandalsingh	DPF	100	Yes	Yes	Yes	Yes
2	-do-	Shyamsundarpur V.S.S.	Bolagarh	Panchagarh	RF	135	Yes	Yes	Yes	Yes
3	-do-	Dadarakantha V.S.S., Dadarakanta(Samantarapur).	Manibandha	Manibandha	RF	100	Yes	Yes	No	Yes
4	Khordha/ Baideswar	Gahirgadia patna V.S.S.	Gahiragadia	Puinchia	DPF	28	Yes	Yes	No	Yes
5	-do-	Gahirgadiapatna Adivasisahi VSS	-do-	Puinchia	DPF	77	Yes	Yes	No	Yes
6	Khordha/ Bolagarh	Kusupalla V.S.S.	Phasioda	Panchagarh	RF	200	Yes	Yes	Yes	Yes
7	Khordha/ Baideswar	Pandalam V.S.S.	Puinchia	Puinchia	DPF	155	Yes	Yes	Yes	Yes
8	Khordha/ Begunia	Sri Jagannath V.S.S., Pangarsingh	Pangarsingh	Pangarsingh	RF	128	Yes	Yes	No	Yes
9	Khordha/ Bolagarh	Mandalsingh VSS., Mandalsingh	Phasioda	Mandalsingh	DPF	197.6	Yes	Yes	Yes	Yes
10	Khordha/ Khordha	Sialiapatna V.S.S.	Kuradhamalla	Barunei	RF	50	Yes	Yes	Yes	Yes

1	2	3	4	5	6	7	8	9	10	11
11	Khordha/ Bolagarh	Balmiki VSS, Sampur, Harirajpur, Sikharpara, Chandrasekharpur, Chhotraypurpatna, Nayapatna, Bauripatna, Gobindapur, Gopalpur, Nagapalli.	Khanguria	Nagapalli	RF	200	Yes	Yes	No	Yes
12	-do-	Nandapalli VSS, Nandapalli	Bolagarh	Duburi	DPF	150	Yes	Yes	No	Yes
13	-do-	Patabandha VSS, Patabandha, Krunshapur & Jaripada.	Sagargaon	Nagapalli	RF	200	Yes	Yes	No	Yes
14	Khordha/ Begunia	Mahavir VSS, Goudput	Pubusahi	Jayamangal	RF	144.48	Yes	Yes	No	Yes
15	Khordha/ Banki	Maa Bauti V.S.S, Kumusar	Kiapalla	Kiapalla RevF	Rev F	100	Yes	Yes	No	Yes
16	Khordha/ Baideswar	Maa Mangala V.SS, Baideswar	Baideswar	Baideswar	Rev F	45	Yes	Yes	No	Yes
17	Khordha/ Begunia	Bije Kapileswar VSS, Pubusahi Kapileswarpur	Pubusahi	Kapileswar	DPF	76.49	Yes	Yes	No	Yes
18	Khordha/ Bolagarh	Maa Kosalasuni VSS, Arikama, Sankarpur, Bhabanipur	Arikama	Manibandha	RF	150	Yes	Yes	No	Yes
19	Khordha/ Belapada	Maa Mangala VSS, Kholadwar, Belapada	Padanpur	Barunei	RF	100	Yes	Yes	No	Yes

1	2	3	4	5	6	7	8	9	10	11
20	Khordha/ Begunia	Kuradhilo VSS, Kuradhilo	Pangarsingh	Pangarsingh	RF	47	Yes	Yes	No	Yes
21	Khordha/ Begunia	Chiramaru VSS, Chiramaru	Pangarsingh	Pangarsingh	RF	40	Yes	Yes	Yes	Yes
22	-do-	Balunkeswardev VSS, Godipokhari	Pangarsingh	Pangarsingh	RF	40	Yes	Yes	Yes	Yes
		Total				**2463.57**				
23	Balugaon/ Balugaon	Sri Sri Trinath Dev V.S.S., Jhintikapalli	Kumaranga-sasan	Bhaleri	DPF	200	Yes	Yes	Yes	Yes
24	Balugaon/ Padmapur	Brahmanidevi V.S.S., Karadapalli	Gambhari-munda	Chakadapathar	DPF	200	Yes	Yes	No	Yes
25	-do-	Khilamunda V.S.S, Pankala	-do-	Sandhamul	DPF	200	Yes	Yes	No	Yes
26	Balugaon/ Balugaon	Brundaban Ch. V.S.S., Bhuskapada	Tumuraput-sasan	Jharana	DPF	200	Yes	Yes	Yes	Yes
27	Balugaon/ Padmapur	Sidheswar Sidheswari V.S.S., Bhatapada	Bhatapada	Solari	DPF	200	Yes	Yes	Yes	Yes
28	-do-	Sarbamangala V.SS., Jivandeipur	Nachuni	Jivandeipur	Rev F	50	Yes	Yes	Yes	Yes
29	Balugaon/ Mohulia	Maa Jemadei VSS, Mohulia	Berbera	Rajin	RF	150	Yes	Yes	No	Yes
30	-do-	Maa Banadurga VSS, Sibida	-do-	Rajin	RF	100	Yes	Yes	No	Yes
31	Balugaon/ Balugaon	Maa Mangala Devi VSS, Muktadeipur	Tumuraput-sasan	Jharana	DPF	100	Yes	Yes	No	

1	2	3	4	5	6	7	8	9	10	11
32	-do-	Sulia Devi VSS, Pratap		Champagarh	DPF	200	Yes	Yes	No	Yes
33	Balugaon/ Padmapur	Bhagabatipur VSS, Bhagabatipur		Solari	DPF	200				
34	Balugaon/ Berbera	Khilamunda V.S.S, Kalamatia		Krushnapalli	Rev F	70	Yes	Yes	No	Yes
35	Balugaon/ Sanasireipur	Brahmani Devi VSS, Banlei		Bankada	RF	100	Yes	Yes	No	Yes
				Jharan	DPF	100	Yes	Yes	No	Yes
36	Balugaon/ Balugaon	Maa Chandi Devi VSS, Nuagarh		Bhaleri	DPF	200	Yes	Yes	No	Yes
37	Balugaon/ Berbera	Kanchan Bauti VSS, Bhatapada		Chulijhinka	DPF	100	Yes	Yes	No	
38	Balugaon/ Balugaon	Poteisuni VSS, Badasula.	Banapur	Chulijhinka	DPF	150	Yes	Yes	No	Yes
39	Balugaon/ Berbera	Maa Thanguni Bauti VSS, Jiripada.		Jiripada	DPF	78	Yes	Yes	No	Yes
40	Balugaon/ Balugaon	Maa Dhulia Devi VSS, Banchhanidhipur.		Solari	DPF	200	Yes	Yes	No	
		Total				**2798**				
41	Tangi/ Tangi	Haripur V.S.S.		Kaithapalla	DPF	200	Yes	Yes	No	
42	Tangi/ Bhusandapur	Rameswar V.SS.		Rameswar	DPF	200	Yes	Yes	No	Yes
43	-do-	Bagheiput V.S.S.		Bagheiput	DPF	67	Yes	Yes	Yes	Yes
44	Tangi/ Tangi	Ram Rahim V.S.S., Dixitpara		Kuhudi	(part RF)	200	Yes	Yes	No	
45	Tangi/ Nachuni	Raghunathdev V.SS.., Gamei		Sulia , Chaka-dapathar	(Part RF, DPF)	200	Yes	Yes	Yes	Yes

1	2	3	4	5	6	7	8	9	10	11
46	Tangi/ Patia	Dhani South, Panchamouza, Barapalli	Kerandatangi	Dhani south	RF	200	Yes	Yes	No	
47	Tangi/ Tangi	Maa Banadurga V.S.S, Adibasi sahi, Chandeswar		Kuhudi	RF	441	Yes	Yes	No	Yes
48	Tangi/ Nachuni	Maa Pandabasuni V.S.S., Salpadi	Nachuni	Sulia	RF	200	Yes	Yes	No	Yes
49	Tangi/ Tangi	Boitiani VSS, Kandagadia(Kambhua)	Pariorada	Kandagadia	DPF	150	Yes	Yes	No	Yes
50	Tangi/ Tangi	Maa Dholarai VSS, Kunjuri, Akasapalli, Ostapalli, Malkadiha.	Kunjuri	Sulia	RF	100	Yes	Yes	No	
51	Tangi/ Patia	Maa Duarasuni VSS, Jiripada, Godisahi	Patia	Dhani (S)	RF	50	Yes	Yes	No	Yes
52	-do-	Dhanitri Mahila VSS, Kandambajola, Gadapalla	Patia	Dhani South	RF	60	Yes	Yes	No	
53	-do-	Maa Brahmani Devi VSS, Kaithapalla	Biribadi	Kaithapalla	DPF	80	Yes	Yes	Yes	Yes
54	Tangi/ Nachuni	Janibhuin VSS, Mundala	Kunjuri	Sulia	RF	200	Yes	Yes	No	Yes
55	Tangi/ Bhusandapur	Maa Ugratara VSS, Mulijhar, Routarapur	Nuagarh	Bhusandapur	DPF	120	Yes	Yes	No	Yes
56	-do-	Kapileswar VSS, Jalvar	Hirapur	Jalvar	DPF	200	Yes	Yes	No	

1	2	3	4	5	6	7	8	9	10	11
57	Tangi/ Tangi	Girigobardhan VSS, Badapari, Bhobara, Nuagaon	Badapari	Badapari	DPF	200	Yes	Yes	No	
58	Tangi/ Bhusandapur	Khajuripada VSS, Khajuripada.		Rameswar	DPF	150	Yes	Yes	No	Yes
59	Tangi/ Tangi	Maa Ratnamati VSS	Tangi	Tangi	DPF	100	No	No	No	No
60	Tangi/ Bhusandapur	Maa Jogamaya VSS	Bhusandpur	Bhusandapur	DPF	100	No	No	No	No
61	Tangi/ Bhusandapur	Ugratara VSS	Bhusandpur	Bhusandapur	DPF	100	No	No	No	No
62	Tangi/Tangi	Mahujhar VSS	Kunjuri	Kunjuri	DPF	100	No	No	No	No
63	Tangi/ Bhusandapur	Maa Sakulrei VSS	Sundarpur	Bhusandapur	DPF	100	No	No	No	No
64	Tangi/ Bhusandapur	Maa Baithakurani VSS	Belpada	Nalsingh	DPF	100	No	No	No	No
65	Tangi/Patia	Ramchandi VSS	Patia	Patia	RF	150	No	No	No	No
		Total				**3768**				

1	2	3	4	5	6	7	8	9	10	11
66	Ranapur/ Gopalpur	Ranabijuli V.S.S., Samantasingharpur	Gopalpur	Dhani North	RF	100	Yes	Yes	No	
67	Ranapur/ Gopalpur	Nakithana V.S.S., Nakithana		Dhani (N)	RF	200	Yes	Yes	No	
68	Ranpur/ Ranpur	Sanakillo V.S.S., Sanakillo	Khairapalli	Sanakillo	Rev F	200	Yes	Yes	No	
69	-do-	Paikarapur VSS		Sulia	RF	200	Yes	Yes	Yes	Yes
70	Ranpur/ Betuli	Maa Khilamunda V.S.S , Raipada	Bandhamunda	Dhani (N)	RF	500	Yes	Yes	Yes	Yes
71	Ranpur/ Ranpur	Maa Maninag V .S.S., Gaonbanikilo	Balabhadrapur	Maninag	RF	200	Yes	Yes	Yes	
72	Ranpur/ Karadapala	Banabihari VS.S, Nathapur, Karadapalla	Kandapada	Maninag & Mal	RF	200	Yes	Yes	Yes	Yes
73	Ranpur/ Ranpur	Gadabanikilo V.S.S.,	Khairapalli	Gadabanikilo	Rev F	200	Yes	Yes	Yes	
74	Ranpur/ Karadapala	Maa Brahmani Devi V.S.S, 11 nos. Mouza.	Majhiakhanda	Mal	RF	1000	Yes	Yes	Yes	Yes
75	Ranpur/ Ranpur	Maa Asura Kumari V.S.S., Bajrakota	Baunsagarh	Maninag	RF	200	Yes	Yes	Yes	Yes
76	Ranpur/ Gopalpur	Maa Mangala VSS, Andharua	Gopalpur	Dhani (N)	RF	200	Yes	Yes	Yes	Yes
77	Ranpur/ Sankhajodi	Om Maa Bauti VSS, Jaripada	Bandhamunda	Mal	RF	50	Yes	Yes	No	Yes
78	-do-	Raghunathdev VSS, Sankhajodi	-do-	Mal	RF	100	Yes	Yes	No	Yes

1	2	3	4	5	6	7	8	9	10	11
79	-do-	Maa Khilamunda V.S.S, Dimiribadi, Ranla, Bada Chakundajhar, Nuagaon	-do-	Mal	RF	50	Yes	Yes	No	
80	Ranpur/Ranpur	Satabhaya VSS, Jamusahi	Kasanda	Satabhaya	RF	150	Yes	Yes	No	Yes
81	-do-	Mahavir VSS, Kalamatia, Dhamada	Kandapada	Maninag	RF	200	Yes	Yes	No	
82	Ranpur/ Gopalpur	Baba Swopneswar VSS, Champagarh	Champagarh	Champagarh	RF	125	Yes	Yes	No	Yes
83	Ranpur/Ranpur	Maa Kalimai VSS, Chhatipur	Baunsagarh	Maninag	RF	50	Yes	Yes	No	
84	Ranpur/Ranpur	Maa Sulia Devi VSS, Sankhamula	Baunsagarh	Maninag	RF	100	Yes	Yes	No	Yes
85	Ranpur/Ranpur	Baidanka VSS, Arada	Balabhadrapur	Maninag	RF	100	Yes	Yes	No	Yes
86	Ranpur/ Gopalpur	Maa Mandia Jena VSS, Ostapada	Jankia	Champagarh	RF	150	Yes	Yes	No	Yes
87	Ranpur/ Karadapala	Maa Kalimai VSS, Bhetabar, Raipada.	Bandhamunda	Mal	RF	200	Yes	Yes	No	
88	Ranpur/ Karadapala	Maa Mangala VSS, Sanachakundajhar (Nuagaon).	Bandhamunda	Mal	RF	180	Yes	Yes	No	Yes
89	Ranpur/Ranpur	Shree Balunkeswar Dev VSS, Sanagarh.	Gourangapur	Maninag	RF	100	Yes	Yes	No	Yes

1	2	3	4	5	6	7	8	9	10	11
90	Ranpur/ Karadapala	Maa Dakhinachandi VSS, Sikharpur, Madhupur, Nuasukala, Jaripatna, Nuasahi.	Majhiakhanda	Mal	RF	130	Yes	Yes	No	Yes
91	-do-	Baba Kamaleswar Dev VSS, Sinduria, Malisahi, Telipatna, Majhiakhanda.	Majhiakhanda	Mal	RF	100	Yes	Yes	No	Yes
92	-do-	Nilakantheswar VSS, Mahatapalla, Niladripur.	Mahatapalla	Dhani (N)	RF`	120	Yes	Yes	No	
93	Ranpur/ Sankhajodi	Maa Jhanjhiri Mangala VSS, Bandhamunda, Waupada, Sririkuti, Tabhadihi.	Bandhamunda	Mal	RF	200	Yes	Yes	No	Yes
94	Ranpur/Ranpur	Maa Banadurga VSS, Kolathapangi	Baunsagarh	Sulia (B)	RF	50	Yes	Yes	No	
95	Ranpur/ Karadapala	Maa Budhidei VSS, Laxminarayanpur.	Mahatapalla	Dhani (N)	RF	110	Yes	Yes	No	
96	-do-	Dimiria VSS, Dimiria.	Mahatapalla	Dhani (N)	RF	100	Yes	Yes	Yes	Yes
97	Ranpur/ Betuli	Maa Ramachandi VSS, Betuli, Nelipada	Bandhamunda	Mal	RF	200	Yes	Yes	Yes	Yes
98	Ranpur/ Sankhajodi	Maa Khora Khai VSS, Khamana, Lakhamundali, Suanga, Raipada.	Bandhamunda	Mal	RF	200	Yes	Yes	Yes	Yes

1	2	3	4	5	6	7	8	9	10	11
99	Ranpur	Bhagabatidev VSS, Odapalla	Majhiakhanda	Mal	RF	100	Yes	Yes	Yes	Yes
100	Ranpur	Budha Kamaleswar VSS, Manpur	Mahatapalla	Dhani (N)	RF	100	Yes	Yes	No	
		Total				**6165**				
101	Delanga/ Delanga	Maa Barunei V.S.S., Kuapada	Sauria	Kumuka	PRF	48.3785	Yes	Yes	No	
102	-do-	Sri Balunkeswar V.SS., Kumundal	Garh Motori	Kumuka	PRF	41.9825	Yes	Yes	No	
103	-do-	Maa Khetramani VSS, Batola	-do-	Kumuka	PRF	68.6025	Yes	Yes	No	
104	-do-	Sri Satyanarayan VSS, Garhmotori	-do-	Kumuka	PRF	49.9575	Yes	Yes	No	
105	Delanga/ Delanga	Balunkeswar VSS, Chhotijodi	Gadasanaput	Kanas	Rev. F	25.0	Yes	Yes	No	
106	Delanga/ Delanga	Maa Barahi VSS, Rengal	Rengal	Rengal	PRF	50.0	Yes	Yes	No	
107	Delanga/ Delanga	Motari VSS	Sauria	Delang	Rev F	14	Yes	Yes	No	
		Total				**297.921**				
108	Balipatna/ Balakati	Bhanra Nijigarh VSS, Bhanragarh, Srirampur, Bhaliadanda, Maukasahi, Paidapatna	Nariso, Deulidharpur, Bhapur, Amankuda.	Bhanra	PRF	50	Yes	Yes	No	
				Total		**50**				
				G total		**16467.11**				

N.B Plan Area 15542.49 Ha. and Rev. F Area 924.62 Ha.
Source:- Statistical data of Khordha Foerst Division

20.4 GENERAL CHARACTERISTICS OF VEGETATION:

The areas allotted to VSS are mostly degraded forests and also revenue forests. The vegetation is of natural growth and plantations of previous plan period. The forest types are mainly of moist deciduous and dry deciduous forest and at places it includes dry deciduous crop forest. Generally people participation has been sought for protection and management of degraded forest. Most of the VSS comes under Rehabilitation Working Circle. The crop density is less than 40% in most of the cases. The characteristics of vegetation are as follows.

Different types of forests ranging from Mixed Deciduous Forests to Northern Dry and Dry Deciduous Scrub forests are present in this Working Circle. Due to intense biotic interference most of these forests have become degraded. Many degraded patches which are now under the protection of VSS have started showing signs of rejuvenation especially in Manibandha RF, Panchagarh RF, of Khordha Range and Jharana DPF, of Balugaon Range and Dhani (S) RF of Tangi Range.

The detailed description of the vegetation in these forests has been covered in Chapter-II of Part-I. The important species present are *Shorea robusta,Anogeissus latifolia, Termilaia tomentosa, , Ougeinia dalbergioides,* S*yzygium cumini, Albizzia, Emblica officinalis, Adina cordifolia, Syzygium cumini, Mytragyna parvifolia,Aegle marmelos, Albizzia procera, Schleichera oelosa, Holerrhena antidysentrica, Nyctanthus arbortristis, Ixora arobrea, Combretum decandrum, Casearia tomentosa,* etc. Besides this Teak and Bamboo are also present.

20.5 FELLING SERIES, CUTTING SECTIONS, AND JFM AREAS:

Allotment of Area:

The area allotted to this working circle will increase as more and more degraded forest land is allotted to the VSS. The community protected areas are distributed over all the six ranges. Range wise list of the VSS along with the individual areas is given in **Table No: 20.3** earlier there were Village Forest Protection Committees (VFPC), some of them are converted to VSS as per Govt. notification.

Table :20.3	RANGEWISE LIST OF VSS IN KHORDHA FOREST DIVISION						
KHORDHA RANGE							
Sl No.	**Name of the Range/ Section**	**Name of the VSS**	**Name of the G.P**	**Name of the Forest Block/Revenue Forest**	**Legal status of land**	**Area in Ha. assigned to VSS**	**Area in Ha. Block wise**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	Khordha/ Bolagarh	Gopinathdev V.S.S., Kotapalla	Phasioda	Mandalsingh	DPF	100	**297.6**
2	Khordha/ Bolagarh	Mandalsingh VSS., Mandalsingh	Phasioda	Mandalsingh	DPF	197.6	
3	-do-	Shyamsundarpur V.S.S.	Bolagarh	Panchagarh	RF	135	**335**
4	Khordha/ Bolagarh	Kusupalla V.S.S.	Phasioda	Panchagarh	RF	200	
5	Khordha/ Bolagarh	Maa Kosalasuni VSS, Arikama, Sankarpur, Bhabanipur	Arikama	Manibandha	RF	150	**250**
6	-do-	Dadarakantha V.S.S., Dadarakanta (Samantarapur).	Manibandha	Manibandha	RF	100	
7	Khordha/ Baideswar	Gahirgadia patna V.S.S.	Gahiragadia	Puinchia	DPF	28	**260**
8	-do-	Gahirgadiapatna Adivasisahi VSS	-do-	Puinchia	DPF	77	
9	Khordha/ Baideswar	Pandalam V.S.S.	Puinchia	Puinchia	DPF	155	
10	Khordha/ Begunia	Sri Jagannath V.S.S., Pangarsingh	Pangarsingh	Pangarsingh	RF	128	**255**
11	Khordha/ Begunia	Kuradhilo VSS, Kuradhilo	Pangarsingh	Pangarsingh	RF	47	
12	Khordha/ Begunia	Chiramaru VSS, Chiramaru	Pangarsingh	Pangarsingh	RF	40	
13	-do-	Balunkeswardev VSS, Godipokhari	Pangarsingh	Pangarsingh	RF	40	
14	Khordha/ Khordha	Sialiapatna V.S.S.	Kuradhamalla	Barunei	RF	50	**150**
15	Khordha/ Belapada	Maa Mangala VSS, Kholadwar, Belapada	Padanpur	Barunei	RF	100	
16	Khordha/ Bolagarh	Balmiki VSS, Sampur, Harirajpur, Sikharpara, Chandrasekharpur, Chhotraypurpatna, Nayapatna, Bauripatna, Gobindapur, Gopalpur, Nagapalli.	Khanguria	Nagapalli	RF	200	**400**
17	-do-	Patabandha VSS, Patabandha, Krunshapur & Jaripada.	Sagargaon	Nagapalli	RF	200	
18	-do-	Nandapalli VSS, Nandapalli	Bolagarh	Duburi	DPF	150	**150**
19	Khordha/ Begunia	Mahavir VSS, Goudput	Pubusahi	Jayamangal	RF	144.48	**144.48**

Sl No.	Name of the Range/ Section	Name of the VSS	Name of the G.P	Name of the Forest Block/Revenue Forest	Legal status of land	Area (in ha.) assigned to VSS	Area in Ha. Block wise
1	2	3	4	5	6	7	8
20	Khordha/ Banki	Maa Bauti V.S.S, Kumusar	Kiapalla	Kiapalla RevF	Rev F	100	**100**
21	Khordha/ Baideswar	Maa Mangala V.SS, Baideswar	Baideswar	Baideswar	Rev F	45	**45**
22	Khordha/ Begunia	Bije Kapileswar VSS, Pubusahi Kapileswarpur	Pubusahi	Kapileswar	DPF	76.49	**76.49**
Total						**2463.57**	**2463.57**

TANGI RANGE							
Sl No.	**Name of the Range/ Section**	**Name of the VSS**	**Name of the G.P**	**Name of the Forest Block/Revenue Forest**	**Legal status of land**	**Area in Ha. assigned to VSS**	**Area in Ha. Block wise**
1	2	3	4	5	6	7	8
1	Tangi/ Tangi	Haripur V.S.S.		Kaithapalla	DPF	200	**280**
2	-do-	Maa Brahmani Devi VSS, Kaithapalla	Biribadi	Kaithapalla	DPF	80	
3	Tangi/ Bhusandapur	Khajuripada VSS, Khajuripada.		Rameswar	DPF	150	**350**
4	Tangi/ Bhusandapur	Rameswar V.SS.		Rameswar	DPF	200	
5	-do-	Baghciput V.S.S.		Baghciput	DPF	67	**67**
6	Tangi/ Tangi	Ram Rahim V.S.S., Dixitpara		Kuhudi	(part RF)	200	**641**
7	Tangi/ Tangi	Maa Banadurga V.S.S, Adibasi sahi, Chandeswar		Kuhudi	RF	441	
8	Tangi/ Nachuni	Raghunathdev V.SS.., Gamei		Chaka-dapathar	(Part DPF,	100	**100**
9	Tangi/ Nachuni	Raghunathdev V.SS.., Gamei		Sulia ,	RF	100	**600**
10	Tangi/ Nachuni	Maa Pandabasuni V.S.S., Salpadi	Nachuni	Sulia	RF	200	
11	Tangi/ Tangi	Maa Dholarai VSS, Kunjuri, Akasapalli, Ostapalli, Malkadiha.	Kunjuri	Sulia	RF	100	
12	Tangi/ Nachuni	Janibhuin VSS, Mundala	Kunjuri	Sulia	RF	200	
13	Tangi/ Patia	Dhani South, Panchamouza, Barapalli	Kerandatangi	Dhani south	RF	200	**310**
14	Tangi/ Patia	Maa Duarasuni VSS, Jiripada, Godisahi	Patia	Dhani (S)	RF	50	
15	-do-	Dhanitri Mahila VSS, Kandambajola, Gadapalla	Patia	Dhani South	RF	60	

Sl No.	Name of the Range/ Section	Name of the VSS	Name of the G.P	Name of the Forest Block/Revenue Forest	Legal status of land	Area in Ha. assigned to VSS	Area in Ha. Block wise
1	2	3	4	5	6	7	8
16	Tangi/ Tangi	Boitiani VSS, Kandagadia(Kambhua)	Pariorada	Kandagadia	DPF	150	**150**
17	Tangi/ Bhusandapur	Maa Ugratara VSS, Mulijhar, Routarapur	Nuagarh	Bhusandapur	DPF	120	**420**
18	Tangi/ Bhusandapur	Maa Jogamaya VSS	Bhusandpur	Bhusandapur	DPF	100	
19	Tangi/ Bhusandapur	Ugratara VSS	Bhusandpur	Bhusandapur	DPF	100	
20	Tangi/ Bhusandapur	Maa Sakulrci VSS	Sundarpur	Bhusandapur	DPF	100	
21	-do-	Kapileswar VSS, Jalvar	Hirapur	Jalvar	DPF	200	**200**
22	Tangi/ Tangi	Girigobardhan VSS, Badapari, Bhobara, Nuagaon	Badapari	Badapari	DPF	200	**200**
23	Tangi/ Tangi	Maa Ratnamati VSS	Tangi	Tangi	DPF	100	**100**
24	Tangi/Tangi	Mahujhar VSS	Kunjuri	Kunjuri	DPF	100	**100**
25	Tangi/ Bhusandapur	Maa Baithakurani VSS	Belpada	Nalsingh	DPF	100	**100**
26	Tangi/Patia	Ramchandi VSS	Patia	Patia	RF	150	**150**
Total						**3768**	**3768**

RANPUR RANGE							
Sl No.	**Name of the Range/ Section**	**Name of the VSS**	**Name of the G.P**	**Name of the Forest Block/Revenue Forest**	**Legal status of land**	**Area in Ha. assigned to VSS**	**Area in Ha. Block wise**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	Ranapur/ Gopalpur	Ranabijuli V.S.S., Samantasingharpur	Gopalpur	Dhani North	RF	100	
2	Ranpur/ Betuli	Maa Khilamunda V.S.S , Raipada	Bandhamunda	Dhani (N)	RF	500	
3	Ranpur/ Gopalpur	Maa Mangala VSS, Andharua	Gopalpur	Dhani (N)	RF	200	
4	Ranapur/ Gopalpur	Nakithana V.S.S., Nakithana		Dhani (N)	RF	200	
5	-do-	Nilakantheswar VSS, Mahatapalla, Niladripur.	Mahatapalla	Dhani (N)	`	120	
6	Ranpur/ Karadapala	Maa Budhidei VSS, Laxminarayanpur.	Mahatapalla	Dhani (N)	RF	110	**1430**
7	-do-	Dimiria VSS, Dimiria.	Mahatapalla	Dhani (N)	RF	100	
8	Ranpur	Budha Kamaleswar VSS, Manpur	Mahatapalla	Dhani(N)	RF	100	
9	Ranpur/ Ranpur	Sanakillo V.S.S., Sanakillo	Khairapalli	Sanakillo	Rev F	200	**200**
10	-do-	Paikarapur VSS		Sulia (B)	RF	200	
11	Ranpur/Ranpur	Maa Banadurga VSS, Kolathapangi	Baunsagarh	Sulia (B)	RF	50	**250**
12	Ranpur/ Ranpur	Maa Maninag V .S.S., Gaonbanikilo	Balabhadrapur	Maninag	RF	200	
13	Ranpur/ Karadapala	Banabihari VS.S, Nathapur, Karadapalla	Kandapada	Maninag	RF	100	
14	Ranpur/ Ranpur	Maa Asura Kumari V.S.S., Bajrakota	Baunsagarh	Maninag	RF	200	
15	Ranpur/Ranpur	Maa Kalimai VSS, Chhatipur	Baunsagarh	Maninag	RF	50	**1050**
16	Ranpur /Ranpur	Maa Sulia Devi VSS, Sankhamula	Baunsagarh	Maninag	RF	100	
17	Ranpur /Ranpur	Baidanka VSS, Arada	Balabhadrapur	Maninag	RF	100	
18	-do-	Mahavir VSS, Kalamatia, Dhamada	Kandapada	Maninag	RF	200	
19	Ranpur /Ranpur	Shree Balunkeswar Dev VSS, Sanagarh.	Gourangapur	Maninag	RF	100	

Sl No.	Name of the Range/ Section	Name of the VSS	Name of the G.P	Name of the Forest Block/Revenue Forest	Legal status of land	Area in Ha. assigned to VSS	Area in Ha. Block wise
1	2	3	4	5	6	7	8
20	Ranpur/ Ranpur	Gadabanikilo V.S.S.,	Khairapalli	Gadabanikilo	Rev F	200	**200**
21	Ranpur/ Karadapala	Maa Brahmani Devi V.S.S, 11 nos. Mouza.	Majhiakhanda	Mal	RF	1000	
22	Ranpur/ Karadapala	Maa Kalimai VSS, Bhetabar, Raipada.	Bandhamunda	Mal	RF	200	
23	Ranpur/ Karadapala	Maa Mangala VSS, Sanachakundajhar (Nuagaon).	Bandhamunda	Mal	RF	180	
24	Ranpur/ Karadapala	Maa Dakhinachandi VSS, Sikharpur, Madhupur, Nuasukala, Jaripatna, Nuasahi.	Majhiakhanda	Mal	RF	130	
25	-do-	Baba Kamaleswar Dev VSS, Sinduria, Malisahi, Telipatna, Majhiakhanda.	Majhiakhanda	Mal	RF	100	
26	Ranpur	Bhagabatidev VSS, Odapalla	Majhiakhanda	Mal	RF	100	
27	Ranpur/ Sankhajodi	Maa Jhanjhiri Mangala VSS, Bandhamunda, Waupada, Sririkuti, Tabhadihi.	Bandhamunda	Mal	RF	200	
28	Ranpur/ Betuli	Maa Ramachandi VSS, Betuli, Nelipada	Bandhamunda	Mal	RF	200	**2610**
29	Ranpur/ Sankhajodi	Maa Khora Khai VSS, Khamana, Lakhamundali, Suanga, Raipada.	Bandhamunda	Mal	RF	200	
30	Ranpur/ Sankhajodi	Om Maa Bauti VSS, Jaripada	Bandhamunda	Mal	RF	50	
31	-do-	Raghunathdev VSS, Sankhajodi	-do-	Mal	RF	100	
32	-do-	Maa Khilamunda V.S.S, Dimiribadi, Ranla, Bada Chakundajhar, Nuagaon	-do-	Mal	RF	50	
33	Ranpur/ Karadapala	Banabihari VS.S, Nathapur, Karadapalla	Kandapada	Mal	RF	100	
34	Ranpur/ Ranpur	Satabhaya VSS, Jamusahi	Kasanda	Satabhaya	RF	150	**150**
35	Ranpur/ Gopalpur	Baba Swopneswar VSS, Champagarh	Champagarh	Champagarh	RF	125	**275**
36	Ranpur/ Gopalpur	Maa Mandia Jena VSS, Ostapada	Jankia	Champagarh	RF	150	
Total						**6165**	**6165**

BALUGAON RANGE							
Sl No.	**Name of the Range/ Section**	**Name of the VSS**	**Name of the G.P**	**Name of the Forest Block/Revenue Forest**	**Legal status of land**	**Area in Ha. assigned to VSS**	**Area in Ha. Block wise**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	Balugaon/ Balugaon	Sri Sri Trinath Dev V.S.S., Jhintikapalli	Kumaranga-sasan	Bhaleri	DPF	200	**400**
2	Balugaon/ Balugaon	Maa Chandi Devi VSS, Nuagarh		Bhaleri	DPF	200	
3	Balugaon/ Padmapur	Brahmanidevi V.S.S., Karadapalli	Gambhari-munda	Chakadapathar	DPF	200	**200**
4	-do-	Khilamunda V.S.S, Pankala	-do-	Sandhamul	DPF	200	**200**
5	Balugaon/ Balugaon	Brundaban Ch. V.S.S., Bhuskapada	Tumuraput-sasan	Jharana	DPF	200	**400**
6	Balugaon/ Sanasireipur	Brahmani Devi VSS, Banlei		Jharan	DPF	100	
7	Balugaon/ Balugaon	Maa Mangala Devi VSS, Muktadeipur	Tumuraput-sasan	Jharana	DPF	100	
8	Balugaon/ Padmapur	Sidheswar Sidheswari V.S.S., Bhatapada	Bhatapada	Solari	DPF	200	**600**
9	Balugaon/ Balugaon	Maa Dhulia Devi VSS, Banchhanidhipur.		Solari	DPF	200	
10	Balugaon/ Padmapur	Bhagabatipur VSS, Bhagabatipur		Solari	DPF	200	
11	-do-	Sarbamangala V.SS., Jivandeipur	Nachuni	Jivandeipur	Rev F	50	**50**
12	Balugaon/ Mohulia	Maa Jemadei VSS, Mohulia	Berbera	Rajin	RF	150	**250**
13	-do-	Maa Banadurga VSS, Sibida	-do-	Rajin	RF	100	
14	-do-	Sulia Devi VSS, Pratap		Champagarh	DPF	200	**200**
15	Balugaon/ Berbera	Khilamunda V.S.S, Kalamatia		Krushnapalli	Rev F	70	**70**
16	Balugaon/ Sanasireipur	Brahmani Devi VSS, Banlei		Bankada	RF	100	**100**
17	Balugaon/ Berbera	Kanchan Bauti VSS, Bhatapada		Chulijhinka	DPF	100	**250**
18	Balugaon/ Balugaon	Poteisuni VSS, Badasula.	Banapur	Chulijhinka	DPF	150	
19	Balugaon/ Berbera	Maa Thanguni Bauti VSS, Jiripada.		Jiripada	DPF	78	**78**
Total						**2798**	**2798**

DELANGA RANGE							
Sl No.	**Name of the Range/ Section**	**Name of the VSS**	**Name of the G.P**	**Name of the Forest Block/Revenue Forest**	**Legal status of land**	**Area in Ha. assigned to VSS**	**Area in Ha. Block wise**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	Delanga / Delanga	Maa Barunei V.S.S., Kuapada	Sauria	Kumuka	PRF	48.3785	**208.921**
2	-do-	Sri Balunkeswar V.SS., Kumundal	Garh Motori	Kumuka	PRF	41.9825	
3	-do-	Maa Khetramani VSS, Batola	-do-	Kumuka	PRF	68.6025	
4	-do-	Sri Satyanarayan VSS, Garhmotori	-do-	Kumuka	PRF	49.9575	
5	Delanga / Delanga	Balunkeswar VSS, Chhotijodi	Gadasanaput	Kanas	Rev. F	25.0	**25.0**
6	Delanga / Delanga	Maa Barahi VSS, Rengal	Rengal	Rengal	PRF	50.0	**50.0**
7	Delanga / Delanga	Motari VSS	Sauria	Delang	Rev. F	14	**14**
Total						**297.921**	**297.921**

BALIPATNA RANGE							
Sl No.	**Name of the Range/ Section**	**Name of the VSS**	**Name of the G.P**	**Name of the Forest Block/Revenue Forest**	**Legal status of land**	**Area (in ha.) assigned to VSS**	**Area in Ha. Block wise**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	Balipatna / Balakati	Bhanra Nijigarh VSS, Bhanragarh, Srirampur, Bhaliadanda, Maukasahi, Paidapatna	Nariso, Deulidharpur, Bhapur, Amankuda.	Bhanra	PRF	50	50
Total						**50**	**50**

Table No. 20.4	Rangewise List of VSS		
Khordha Range			
1	**2**	**3**	**4**
S.No.	**Name of the VSS.**	**Name of Block**	**Area in Ha**
1	Maa Bauti VSS. Kumusar	Kiapalla Rev F	100.00
2	Maa Mangala VSS, Baideswar	Baideswar Rev F	45.00
		Total (2 Nos.)	**145.00**
Balugaon Range			
3	Sarbamangala VSS, Jivandeipur	Jivandeipur Rev F	50.00
4	Khilamunda VSS, Kalamatia	Krushnapalli Rev F	70.00
		Total (2Nos.)	**120.00**
Ranpur Range			
5	Sanakillo VSS, Sanakillo	Sanakillo Rev F	200.00
6	Gadbaniklo VSS	Gadobaniklo Rev F	200.00
		Total (2Nos.)	**400.00**
Delanga Range			
7	Balunkeswar VSS,Chhotijodi	Kanas Rev F	**25.00**
8	Motari VSS	Delanga Rev F	**14.00**
		Total (2Nos.)	**39.00**
		Grand Total (8 Nos.)	**704.00**

Table No. 20.5 Blockwise JFM Area of Khordha Forest Division

Name of Range	No. of RF	Area in Ha	No. of PRF	Area in Ha.	No. of DPF	Area in Ha	No. of Rev. Forest	Area in Ha
1	2	3	4	5	6	7	8	9
Khordha	6	1534.48			4	784.09	2	145.00
Balugaon	2	350.00			8	2328.00	2	120.00
Tangi	5	1701.00			11	2067.00		
Ranpur	6	5765.00					2	400.00
Delanga			2	258.921			2	39.00
Balipatna			1	50.00				
Total	19	9350.48	3	308.921	23	5179.09	8	704.00

Table No. 20.6 List of Village Forests In Khordha Forest Division

Sl. No.	Name of Range	Name of Tahasil	Name of Village	Area in Ha.	Notification No.
1	`2	3	4	5	6
1	Khordha	Banki	Malisahi	11	AFFN(SIDA) -83/91, 314/F & E dtd.06.01.92
2			Alasua	20	-do-
3			Kadamala	8	-do-
4			Baideswar	25	-do-
5			Kantakai	5	-do-
6			Bania	5	-do-
7			Kendapalli	5	No. 9867 F.F.A.H. dtd. 01.05.89
8			Nuagaon	2	-do-
9			Rameswar	2	-do-
10			Hatimara	4	AFFN(SIDA)-83/91, 22555/F & E dtd.20.12.91
11			Gopalpur	5	-do-
12			Gopalpur (Nuagaon Sabarsahi)	5	-do-
13			Gopalpur	5	-do-
14			Gopalpur	8	-do-

Sl. No.	Name of Range	Name of Tahasil	Name of Village	Area in Ha.	Notification No.
1	`2	3	4	5	6
15	Khordha	Banki	Chiramaru (Nargang)	4	-do-
16			Kumusar	5	-do-
17			Palasuni (Nargang)	6	-do-
18			Puincha	5	-do-
19			Berhampura	3	-do-
20			Jayamangal	5	-do-
21			Baraput	5	-do-
22			Nargang	5	-do-
23			Baraput	5	-do-
24			Dengamba	5	-do-
25			Kiapalla	5	-do-
26			Nuagaon	5	-do-
27		Khordha	Chotipalanga	10	AFFN(SIDA)-13/92, 2108/F & E dtd.30.01.92
28			Jayamangal	3	-do-
29			Tartua	20	-do-
30			Pubusahi	2	-do-
31			Tartua	30	AFFN(SIDA)-13/92, 2108/F & E dtd.30.01.92
32			Olasingh	2	-do-
33			Garhgudam	8	-do-
34			Lekhanpur	3.247	-do-
35			Sialiapatna	6	-do-
36			Olasingh	5	-do-
37			Olasingh	3	-do-
38			Rautapada (Dakhineswar)	8	-do-
39			Palla	10	-do-
40			Podapatana	1.0632	-do-
41			Bengitangi	8	-do-
42			Brahmanapur	8	-do-
43			Brahmanapur	3.185	-do-
44			Brahmanapur	3	-do-
45			Kotalanga	3	-do-
46			Masania	10	-do-
47			Masania	6	-do-
48			Masania	0.8	-do-
49			Karadagadia	5	-do-
50			Kapileswarpur	2	-do-

Sl. No.	Name of Range	Name of Tahasil	Name of Village	Area in Ha.	Notification No.
1	`2	3	4	5	6
51	Khordha	Khordha	Kapileswarpur	4.588	-do-
52			Kadalibadi	2	-do-
53			Kadalibadi	1.0704	-do-
54			Kadalibadi	1.4376	-do-
55			Kadalibadi	1	-do-
56			Kurum	15	-do-
57			Madhapur	1.5936	-do-
58			Kokasingh	2.882	-do-
59			Atri	1	-do-
60			Atri	8	-do-
61			Atri	6	-do-
62			Bhuasunu Patna	3	-do-
63			Podaput	2	-do-
64			Podaput	5.75	-do-
65			Podaput	8	-do-
66			Badaberena	14.812	-do-
67			Badaberena	2	-do-
68			Badaberena	3	-do-
69			Gobindapur Patna	1.874	-do-
70			Gobindapur Patna	3	AFFN(SIDA)-13/92, 2108/F & E dtd.30.01.92
71			Karadagadia	14.608	-do-
72			Karadagadia	3.16	-do-
73			Karadagadia	2	-do-
74			Balibereni	6	-do-
75			Gaudaput	5.1	-do-
76			Gaudaput	2.6	-do-
77			Paikatigiria	19.2	-do-
78			Paikatigiria	23.14	-do-
79			Paikatigiria	15.324	-do-
80			Aranga	8	-do-
81			Aranga	5	-do-
82			Niala	8	-do-
83			Niala	8	-do-
84			Deulatangi	6	-do-
85			Routapada	8	-do-
86			Suanla	5	-do-
87			Kendupalli	4.5	-do-
88			Sahadapur	4	-do-
89			Godipokhari	20	-do-

Sl. No.	Name of Range	Name of Tahasil	Name of Village	Area in Ha.	Notification No.
1	`2	3	4	5	6
90	Khordha	Khordha	Basudevpur	8	-do-
91			Basudevpur	6	-do-
92			Routapada	2.02	-do-
93			Ostapur	3	-do-
94			Ostapur	1.65	-do-
95			Kusupalla	25	AFFN (SIDA)- 13/92, 30230/ F & E dtd. 19.12.1992
96			Gaudaput	6	-do-
97			Botalama	6	-do-
98			Suanla	5	-do-
99			Suanla	4.064	-do-
100			Chhotaraypur	2.126	-do-
101			Raghunathpur	7.998	-do-
102			Basanta	8	-do-
103			Botalama	3	-do-
104			Routapada (Jharmunda)	15	-do-
105			Routapada (Jharmunda)	1	-do-
106			Chandapur	3	-do-
Sub Total				**690.79**	

Sl. No.	Name of Range	Name of Tahasil	Name of Village	Area in Ha.	Notification No.
1	`2	3	4	5	6
1	Tangi	Ranpur	Balarampur	4	AFFN(SIDA)-24/90/19957/ FFAH, dtd. 21.08.90
2		Banpur	Mangaljodi	4.3	AFFN(SIDA)-13/92, 2108/F & E dtd. 30.01.92
3			Mangaljodi	8	-do-
4			Mangaljodi	10	-do-
5			Tarapi	10	-do-
6			Gainada	8	-do-
7			Gainada	4	-do-
8			Tarapi	10	-do-
9			Kandhaambajhar	5	-do-
10	Tangi	Banpur	Tarapi	5.05	-do-
11	Tangi	Khordha	Nalsingh	5.5	-do-

Sl. No.	Name of Range	Name of Tahasil	Name of Village	Area in Ha.	Notification No.
1	**`2**	**3**	**4**	**5**	**6**
12	Tangi	Khordha	Malipada	10	-do-
Sub Total				83.85	
1	Ranpur	Ranpur	Lodhachua	5	AFFN(SIDA)-24/90/19957/ FFAH, dtd. 21.08.98
2			Bagala	8	-do-
3			Ektal	5	-do-
4			Ektal	5	-do-
5			Ektal	5	-do-
6			Ektal	7	-do-
7			Khandisi	2	AFFN(SIDA)-13/92, 2108/F & E dtd. 30.01.92
8			Kerendatangi	1.32	-do-
9			Nagajhar	9	-do-
10			Narsinghpur	10	AFFN(SIDA) 013/92, 30230/ F & E dtd. 19.12.92
11			Narsinghpur	10	-do-
12			Hansara	7.352	-do-
			Sub Total	74.672	
1	Balugaon	Banpur	Kanheipur	9	AFFN(SIDA)-13/92, 2108/ F & E, dtd.30.01.92
2			Tarasingh	5.77	-do-
3			Samantasingharpur	2	-do-
4			Bania sahi	2.695	AFFN(SIDA)-13/92, 2108/ F & E, dtd. 30.01.92
5			Kanheipur	10.71	-do-
6			Kulei	14.25	-do-
7			Boria sahio	7	AFFN(SIDA)-13/92, 2108/ F&E, dtd. 30.01.92
8			Dasarathipur	7.98	-do-
9			Champatipur	5	AFFN(SIDA)-13/92, 30230/F&E dtd.19.12.92
10			Ostapalli	2	-do-
11			Boria sahio	4	-do-
12			Jaripur	4.9	-do-
Sub Total				**75.305**	

ABSTRACT

Sl No.	Range	No. of plots in Villages	Area in Ha.
1	**2**	**3**	**4**
1	Khordha	106	690.79
2	Tangi	12	83.85
3	Ranpur	12	74.672
4	Balugaon	12	75.305
Total		**142**	**924.617**

20.6 SPECIAL OBJECTIVE OF MANAGEMENT:

The special objectives of management are within the scope of General objective of management. These are,

1. to involve the local people for protection and management of forest
2. to make partner in the protection, management & utilization of forest produce
3. to improve the socio-economical condition of the local people
4. to create income generating sources from the minor forest produce
5. to restock the degraded, barren area of forest
6. to increase the productivity of soil through suitable soil and moisture conservation activities.
7. to encourage people to rational utilization of their own community resources for the betterment of the community.
8. to involve people in NTFP collection and trade.
9. to create income generating activities in the villages protecting the forests.

20.7 ANALYSIS OF THE CROP AND VALUATION:

As mentioned earlier the forest blocks allotted to this working circle are either Village Forests or degraded Reserved Forests, Proposed RFs, DPFs etc. Except the plantations under various schemes like Jagannath Bana Prakalpa, Forest

Development Agency and Social Forestry Project Plantations, all other forests assigned to VSS are mostly degraded. Crop varies from natural forest to monoculture like Eucalyptus. Crop Density also varies from 30% in case of natural forest to 70% in plantations. Degradation of these forests have taken place due to relentless biotic pressure on these forests and these blocks are remaining in a shrubby state due to the continue pressure of people and cattle for the biomass growing in these forests. It is expected that with the formation of VSS and allotment of these degraded forests to the villagers most of the biotic pressure will be reduced allowing for rejuvenation of the crop.

20.8 SILVICULTURAL SYSTEM:

This Working Circle is an overlapping circle. It overlaps the Rehabilitation Working Circle and Plantation Working Circle and hence the Silvicultural system to be followed depends on the prescriptions outlined for main Working Circle to which the block is primarily allotted. Moreover, the system of working in these particular areas would be guided by the micro plans prepared in conformity with the prescriptions of the main Working Circle, by the DFO for the individual VSS areas. The overall prescription of Micro plan shall be in line of prescriptions of this working Plan. In case of any contradictory prescription in micro plan is made by any VSS, the working plan prescription will supersede the micro plan prescription. The intermediate and final felling to be proposed in the micro plans should be clearly mentioned in the micro plans and the yield needs to be fixed by taking into account all the safeguards.

20.9 METHOD OF EXECUTION OF OPERATONS:

20.9.1 Demarcation of VSS Area:

The important task is to demarcate the areas assigned to the VSS for protection and management. It helps to give a specific identity to the VSS, motivate them to protect the forest and helps for the better management. The demarcation of area is to be done with pillar posting. It helps to give a specific identity to the VSS and to motivate them to protect and to avoid dispute between the villages. A uniform system may be adopted over the entire division while

demarcating the VSS area. The Village forests of erstwhile Social Forestry Project needs special thrust.

20.9.2 Preparation of Micro-plan:

As stated above the forest areas assigned to the VSS are coming under Rehabilitation Working Circle & Plantation Working Circle. The microplans should be prepared keeping in view of the overall prescriptions of the concerned Working Circles. The micro-plans should be prepared for each VSS irrespective of whether money for implementation is available or not. The prescriptions like prescribed exploitable girth class of different species of the final harvest, specific marking rules, limiting the final yield with due emphasis conservation measures and biotic pressure etc. should be followed while preparing the micro-plan. The yield in the area assigned to the VSS should be calculated with due consideration to safeguard against erosion, illicit felling and other biotic pressure. The Plantation and Soil and Moisture Conservation measures is to be undertaken and effort should be taken to obtain funds from different sources and while preparing the Micro-plans, PRA exercise are to be followed. Other tools like GIS and MIS can also be taken in to account. The detail process has been provided in the JFM Resolution-2011 Para -10. The same should be followed. In case of village forest, the management plan shall be prepared as per Rule 11 of the Odisha Village Forest Rule, 1985.

20.9.3 Plantation & Choice of Species.

Wherever the existing plantations are there, these plantations should be thinned and pruned as per requirements (Prescription under Plantation Working Circle may be the guiding principle). In many of the VSS assigned area due to protection by villagers bamboo, and other species have attended harvestable situation. After harvesting, the area may be planted up. The choice of species may be carefully decided to suit the soil condition. Grazing and fire protection should be provided to all plantations. In natural vegetation area where crop is approaching established stage regulated grazing may be allowed after discussion in the VSS. These prescriptions should serve as a guideline while preparing the micro-plan in these areas.

Efforts should be made as far as possible to identify the contiguous patches of RF and these areas should be planted with suitable species to meet the firewood and small timber needs of the villages.

Most of the times it becomes difficult to sustain the motivation level of the people to protect the forests, because the lagging period is more for the returns from forest. In course of time there may be many conflicts. Most of the time it is difficult for the Forest Department personnel to upkeep the motivation level. Hence it is advisable to identify the genuine NGOs or eminent persons (like teachers, doctors, village level workers etc.) closely associated with the people, who can convince the people and keep up their motivation. These persons and institutions should be encouraged and if possible some remuneration should be given to them.

20.9.4 Incentive Schemes for the VSS:

The following incentive based activities shall be introduced under the Joint Forest Management (JFM) in order to increase village participation.

Entry Point Activities (E.P.A.):

In each village, the efforts should be made to create sustainable income generating activities. Earlier in this Working Plan areas, activities like Sericulture, Pisciculture, Lac, and Honey collection were going on. Many NTFP items are also collected in the division and efforts should be made to explore the marketing and value addition to the forest based products. The entry point activities done in different programmes should aim at sustainable income generation to the villages. There are many Self Help Groups working in the villages, it would be better to take the help of these groups also to motivate the women.

The entry point activities in other words called Community Development Works (CDW) which includes small community infrastructures such as water tanks, rural roads/community halls as desired by the villagers which attract people's attention to the forest development activities. Forest/water conservation related activities as well as non-forest activities can also be selected for CDW based on the needs of each VSS. CDW shall be selected based on the Rapid Rural Appraisal (RRA)/Participatory Rural Appraisal (PRA) and incorporated in the

Micro Plan prepared by the VSS. The implementers of these activities should start preferably before the plantation and other activities take place.

Income Generating Activities (I.G.A.):

These shall be identified at the micro planning stage. However, the local NGOs shall be required to provide inputs with regards to the marketability potential of the goods to undertake the IGAs by Self Help Groups (SHG) existing within a VSS. It is confirmed that IGA are not restricted in the forest related activities but any potential IGA activities are to be encouraged based on the agricultural, horticultural and forestry etc. produces are concerned. The value addition in the produces may be encouraged with handholding, capacity building and market linkage supports provided by the NGOs. Each Self Help Groups (SHG) may be provided revolving fund supports from JFM Committee on loan basis to undertake the Income Generation Activities. Prior to beginning of IGAs a market research will be undertaken by the group of specialists from specialized market research organization. It will look at a macro level market environment as well as field level situations in close collaboration with the NGOs assigned to the community. A final shortlist of potential options of project areas based IGAs for forest dependents and other poor communities will be assessed through the market research study for implementation to the IGAs. IGA will be implemented by the Self Help Groups through the help of Revolving Fund loans provided to the JFM Committee.

Livelihood Improvement Activities:

Under such component, the fulfilment of basic human needs to make the local people capable for participating in JFM activities are to be prioritized during the micro planning process in the community. The provision of incentives to the local people towards the information dissemination on environmental protection and basic livelihood improvement activities. The following activities may be facilitated in the community on priority basis.

a) Medical & Health Camps in convergence with the Govt. PHC/Hospitals.

b) Prevention and Control of Vector & Water Borne Diseases.

c) Promotion of Fuel Efficient Devices in convergence with OREDA etc.

Capacity Building Programmes:

To enable VSS to manage the respective JFM areas, organizations and forests a standard JFM Management Manual in Odia will be prepared and different trainings modules also to be prepared by the consultant agencies for imparting trainings to the JFM Committee in the following thematic areas.

(a.) Maintenance and submission of records, reports and bills to forest departments at VSS level.
(b.) Financial management, budgeting and book keeping.
(c.) Duties and responsibilities of the General Body and Executive Body
(d.) Conflict resolution mechanism.
(e.) Forest protection and management arrangements.
(f.) Sustainable harvesting management for different forest products.
(g.) Beneficiary management within the community.
(h.) Exposure trips/ exchange visits.

Formulation of Micro Planning:

An approved Micro Plan is a comprehensive document to guide the VSS in pursuing all forest management for its JFM area, community development, institutional development and other intervention under a scheme designed. The VSS will be responsible for formulation of their Micro Plan which will be assisted by the contracted NGOs/Experts and the forest division concerned. PRA for resource assessment for analysis will be conducted for this purpose. Micro Planning is vital for any JFM Committee to ensure their participation at different levels of implementation of a scheme.

Training camps for VSS Members.

The JFM resolution-2011, Para-9, the role of Forest department has been defined. It includes the followings:-

- To assist in capacity building of VSS members on different aspects of forest management, planning, Silviculture, nursery technology, forest laws, accounting, book keeping, micro-enterprise development, value addition and processing of NTFPs etc.
- To provide technical help to the VSS in preparation and implementation of the Micro plan/ annual work programme.

To fulfil the responsibility in this aspect, it is recommended that the DFO, may arrange training camps for 2 to 3 days duration for VSS members where

plantations/ Rehabilitation and harvesting operation is likely to be taken during the same year or for the coming year. It may be made an annual feature and included in the work schedule of the division.

20.10 USUFRUCT SHARING MECHANISM:

The sharing of the intermediate and final yields should be clearly spelt out in the micro plans. This sharing mechanism should be on the basis of the JFM resolution 2011 of Government of Orissa.

As per this Joint Forest Management Resolution the following usufruct sharing has been made:

The VSS / EDC shall be entitled to get the usufructuary benefits from the assigned forests as under:—

- Usufructs like fallen leaves, 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.
- All intermediate yields in the shape of small wood, poles, firewood etc as maybe 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 EC. If sold at a price, the funds so obtained shall be deposited in the VSS / EDC account.
- 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.
- 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 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 forest produce so harvested if it is for their bona fide domestic use and they agree to pay the proportionate cost of harvesting.

❖ 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.

❖ In the event of a natural calamity occurring in the village there may be a 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.

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 forests, should be specially considered.

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 Rewards 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. In case of Village Forest created during Social Forestry Project, the sharing mechanism will be as per Rule -9 of the village forest Rule, 1985.

20.11 RIGHTS AND CONCESSIONS:

The Rights and Concessions in this Working circle shall be regulated in accordance with the provision of the relevant gazette notification of the respective forest blocks and the Government of Odisha policy with regard to JFM. Community rights as allowed under The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 will also be honoured. The provisions of the Odisha Village Forest Rule, 1985 will also be followed for allowing the rights and concession to villagers.

20.12 EVALUATION OF PERFORMANCE & INCENTIVE:

The incentive to VSS / VFC or any other group is always drive the group in a positive direction. It encourages the villagers for better participation. The Principal Chief Conservator of Forests, Odisha Bhubaneswar has formulated a set of parameters for evaluation of performance of VSS. The Government also rewards the VSS every year either on "World Forest day" or World Environment day in state level functions. The Divisional Forest Officer shall under take motivation cum evaluation camps and reward the VSS / NGO/ Staffs for their contribution for Joint Forest Management.

20.13 SCOPE OF EXPANDING JFM WORKING CIRCLE:

(i) There are some forest areas under encroachment by individual as well as by community. All-out efforts will be taken up by the Forest Department to make the area free from encroachment and bring to the management fold. These areas may be brought within the purview of JFM for mutual cooperation & better relation with the people.

(ii) There are many forested area under the administrative control of Revenue department. The JFM resolution 2011 has extended its purview to manage Revenue Forests in a joint Forest management approach. Where PRI (Panchyat Raj Institutes) are interested in management of such forests, the same may be taken for management under VSS.

20.14 ASSOCIATED REGULATIONS AND MEASURES:

The JFM area is mostly covered either plantations or degraded forest area intended to regenerate the area through Aided Natural Regeneration. Plantation area will be managed through clear felling with Standard followed by planting. During planting period till its establishment, control of Grazing is of paramount importance. In the Village Forest Rule, 1985, elaborate provisions have been made for Control of Grazing. Also Rule 10 of the Odisha Village Forest Rule 1985 has to be followed scrupulously. The same principle may be extended to the VSS area / area worked out under National Afforestation Schemes by Forest Development Agency. The Divisional Forest Officer shall declare the plantation area, regeneration area closed to Grazing for at least for three years from the year of

plantation. After third year Rotational Grazing may be allowed depending upon growth Pattern of plantations.

20.14.1 Auditing / accounting of VSS Account:

The accounting procedure for VSS has been well defined in the JFM Resolution. The accounts of VSS involved in FDA program, AJY are regularly maintained and audited. In case of other VSS, the Secretary of VSS shall make it a point to update the Account and get audited annually. In VFC constituted during Social Forestry Project may not have their own account. The Secretary of VFC may open an account jointly as per the Odisha Village Forest Rules-1985 and in line of JFM Resolution-2011 & up to date amendments.

20.14.2 Regular Meeting of EC/ General body:

In many VSS / VFC monthly meeting of EC and Annual Meeting of General body is found to be irregular. The Secretary of VFC / VSS shall make a point to convey / conduct regular meeting of VSS / VFC in his jurisdiction.

20.15 INTERIM REVISION:

No major changes in the prescriptions of this Working Circle are anticipated. However, it may be reviewed if necessary, after five years jointly by the Regional Conservator of Forests, Bhubaneswar Circle and Chief Conservator of Forests, Working Plan. Any deviations suggested shall be subjected to the sanction of competent authority.

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CHAPTER –21

CATCHMENT AREA TREATMENT (OVERLAPPING) WORKING CIRCLE

21.1 GENERAL CONSTITUTION OF WORKING CIRCLE:

The Berbera Forest landscape is the major catchment area of Chillika lake which drains water in to the lake. There have been sporadic catchment treatment activities in the past with departmental support and local public participation. It is proposed to go for a working circle for the forest blocks constitutes the catchment area. There are 52 rivers and rivulets surrounding Chillika lake which drains water in to the lake. So management of rain water in the rivers and revulates is essential specially from ridge to valley in forest areas for catchment treatment of lake /Rivers, which not only improving ground water in the forest area but also in the nearby villages.

This Working Circle will cover all the Forest Blocks of the Khordha Forest Division for catchment treatment in the forests and development of ground water regime. Water is precious for survival of living organism on this planet. The source of water is Nallah and Rivers, Streams, Reservoirs, Ponds, and Wells. In our country rainfall is received generally in a particular period *i.e.* rainy season starting from July to October. In Odisha, annual rainfall ranging from 1200 mm to 1600 mm. These rain water are drained from forest to plain area as surface run off, forming gullies, streams & rivers and ultimately enter into the sea. Major portion of the rain water stored in water bodies are evaporated to atmosphere. As per report of ICAR 58% of rain water flows through the surface run off into the nallas, rivers, ponds and lastly to sea. Whereas 27 % of the rain water evaporates and 15% percolates into the ground. The management of the water plays a vital role not only in agriculture production but also in the development of Forest and Bio diversity. A little portion of rain water percolates into the ground level. For the sustainable growth of forest and wildlife the conservation and management of water resource is most important.

This Working Circle will cover the whole area of the Division and overlaps all the Working Circles. The total area allotted to this Working Circle is 58531.92 Ha. This is given in TableNo21.1

Table No.21.1 **Area allotted to Catchment Treatment (Overlapping) Working Circle :**

Sl No	Name of the Range	Name of the Forest Block	Area in Ha.	GIS Area in Ha.	Area Diverted in Ha.		Area under this Plan in Ha.	Area allotted to Catchment treatment (O) WC
					Under FRA	Under FC Act.		
1	2	3	4	5	6	7	8	9
1	Balugaon	Aranga RF	2651.60	2608.14	0.923		2607.217	2607.217
2	-do-	Bankard RF	1290.28	1323.214			1323.214	1323.214
3	-do-	Kotwal RF	982.40	979.65			979.65	979.65
4	-do-	Tamana RF	3587.20	3573.052			3573.052	3573.052
5	-do-	Rajin RF	6472.40	6667.455	35.109		6632.346	6632.346
6	Khordha	Barunei RF	482.80	444.373		0.5125	443.8605	443.8605
7	-do-	Jayamangal RF	144.48	139.078			139.078	139.078
8	-do-	Manibandha- A & B RF	309.60	312.659			312.659	312.659
9	-do-	Nagapalli RF	551.61	559.68			559.68	559.68
10	-do-	Panchagarh RF	735.00	704.588			704.588	704.588
11	-do-	Pangarsingh RF	264.67	266.149			266.149	266.149
12	Ranapur	Champagarh RF	413.64	413.913			413.913	413.913
13	-do-	Dhani (N) RF	1092.28	1048.957			1048.957	1048.957
14	-do-	Mala RF	10472.46	10863.10	237.33		10625.77	10625.77
15	-do-	Maninag RF	1797.67	1735.576	2.797		1732.779	1732.779
16	Ranapur	Nuapada-B RF	272.77	121.448			121.448	121.448
17	-do-	Satabhaya RF	377.18	318.668			318.668	318.668
18	-do-	Sulia-B RF	1394.19	1784.685			1784.685	1784.685
19	Tangi	Sulia RF	1609.09	1608.007			1608.007	1608.007
20	-do-	Kuhudi RF	641.04	656.617			656.617	656.617
21	-do-	Patia RF	3702.18	3888.975	2.446		3886.529	3886.529
22	-do-	Dhani (S) RF	839.75	850.238			850.238	850.238
23	Khordha	Jariput DPF	464.19	421.622			421.622	421.622
24	-do-	Kapileswarpur DPF	75.60	81.846			81.846	81.846
25	-do-	Tartua DPF	362.40	388.961			388.961	388.961
26	-do-	Kerang DPF	121.60	100.895			100.895	100.895
27	-do-	Mandalsingh DPF	317.60	313.12			313.12	313.12
28	-do-	Brahmanidei DPF	730.80	753.666			753.666	753.666
29	-do	Narganga DPF		235.449			235.449	235.449
30	-do-	Puinchia DPF		251.121			251.121	251.121

1	2	3	4	5	6	7	8	9
31	-do-	Duburi DPF	400.40	339.397			339.397	339.397
32	Tangi	Nargoda DPF	1020.00	599.724			599.724	599.724
33	-do-	Tangi DPF	179.20	176.017			176.017	176.017
34	-do-	Rameswar DPF	481.20	687.484			687.484	687.484
35	-do-	Jalbhar DPF	399.20	799.708			799.708	799.708
36	-do-	Kadambajhar DPF	474.80	436.354			436.354	436.354
37	-do-	Kandagadia DPF	212.40	208.243			208.243	208.243
38	Tangi	Chakadapathar DPF	994.00	1005.536			1005.536	1005.536
39	-do-	Kunjuri DPF	449.20	384.889			384.889	384.889
40	-do-	Badapari DPF	254.00	265.677			265.677	265.677
41	-do-	Bagheiput DPF	84.40	63.345			63.345	63.345
42	-do-	Nalsingh DPF	554.80	619.138			619.138	619.138
43	-do-	Bhusandpur DPF	778.80	821.628			821.628	821.628
44	-do-	Kaithapalla DPF	272.80	294.569	0.923		293.646	293.646
45	Balugaon	Sandhamal DPF	1511.20	1495.097			1495.097	1495.097
46	-do-	Solari DPF	1171.20	1114.705			1114.705	1114.705
47	-do-	Bhaleri DPF	807.60	907.221		0.875	906.346	906.346
48	-do-	Jharana DPF	1925.20	1957.402			1957.402	1957.402
49	-do-	Nathapur, No.40 DPF	549.20	428.354	0.965		427.389	427.389
50	-do-	Champagarh DPF	869.60	433.493			433.493	433.493
51	-do-	Bhatapada (Block No.41) DPF	536.40	280.025	1.325		278.70	278.70
52	-do-	Chulijhinka DPF	536.40	554.273			554.273	554.273
53	-do-	Jiripada DPF	68.40	71.466			71.466	71.466
54	Delanga	Beguniapada PRF	32.00	58.236			58.236	58.236
55	-do-	Jamunajharapada PRF	72.00	59.674			59.674	59.674
56	-do-	Kumuka PRF	214.00	210.951		2.03	208.921	208.921
57	Delanga	Rengal PRF	112.00	112.016			112.016	112.016
58	Balipatna	Bhanra PRF	97.28	93.009			93.009	93.009
59	Khordha-106 Tangi-12 Ranapur-12 Balugaon-12	142 VFs	924.62				924.62	924.62
		Total	**58138.78**	**58817.151**	**281.818**	**3.4175**	**58531.92**	**58531.92**

21.2 GENERAL CHARACTERISTICS OF VEGETATION:

The forests of Khordha Forest Division have got rich heritage of flora & fauna. The relentless biotic pressure by humans and domestic cattle and thereby considerable degradation of forests over the years has adversely affected the bio-diversity of flora and fauna. The detailed descriptions and composition of bio-diversity of this division has been already described in Part-I of this plan for development of any forest management of ground water through soil and moisture conservation method is essential which will not only enrich ground flora but also development of habitat of fauna therein.

All the Forest blocks allotted to this overlapping circle have already been briefly described under the respective working circles.

The general characteristic of vegetation is moist deciduous and dry deciduous in nature. The forests are even aged having farely good regeneration and the degraded open forests having poor regeneration.

Management of water resources in Khordha Forest Division has been a challenge whose magnitude has risen manifold over the past 40 years due to a variety of reasons, notably the rising demands and growing environmental degradation. Broadly, most of the challenges in Catchment treatment in this division can be categorized in the following groups:

(a) Water availability, (rainfall, storage of water, & ground water)

(b) Quality of water.

(c) Uses of water (Agriculture, drinking, Industries, Project construction etc).

(d) Distribution of water.

(e) Challenges induced due to climate and land-use cover changes.

Here we analyse each of these challenges in detail. It is suggested that conservation of water and management of variability should be a cornerstone of leading to Catchment treatment in this division. This prescribes remedies to address the challenges and covers new initiatives by this Division of Forest Department.

During the monsoon period generally from July to October more than 70% of the annual precipitation takes place . Consequently, this is the period when the rivers and rivulets of this region carry more than 70–75% of the annual flows, at times exceeding the capacity to safely pass this water resulting damage of rivers, rivulets, barrages, dyke and some other water storage bodies. The remaining eight-month

period accounts for the balance 25–30% of flows of water and many rivers and rivulet do not flow for some summer months. Groundwater levels also show somewhat similar rise and fall, with fall in the summer season and rise in the rainy season.

This variability of water specially in rainy season causing floods. Whereas in some years after October due to scarcity of water drought arises resulting damage of Kharif crops. Due to non availability of water in summer season even if drinking water/other day to day uses of water is challenge in some pockets of forest locality & other locality of this division. To mitigate the above challenges it is need to prepare Catchment treatment for soil and moisture conservation Plan in following basis.

21.3 OBJECTIVE OF TREATMENT:

The objectives of treatment are within the scope of general object of management. These are:

(a) To conserve the water resource by increasing the tree population in the forest area & near the water bodies.

(b) To conserve the water by constructing check dams, water harvesting structures and reservoirs.

(c) To conserve rain water by constructing soil & moisture conservation structures like Gully plugging, Staggered trench, Contour bond, Contour trench in hilly terrain at least to hold rain water..

(d) To create awareness among the people for integrated approach to the available water.

(e) To motivate the people to adopt sprinkle & drip irrigation method in the plantation & in vegetable crops to conserve water.

(f) To increase the porosity of the soil & the humus content in the forest floor by protecting the forest fire.

(g) To educate the forest people for organic mulching of plantation area to check evaporation and construct staggered trenches in all the plantation area for conservation of rain water.

(h) To intervene the forest management on Watershed basis.

21.3.1 To conserve water resource by increasing tree population in the forest area & near water bodies:

Generally forest cover occupies top storey which is hilly terrain and middle storey valley region and ground storey occupies agriculture land. Rain water received in the top storey is drained out through the gullies, nalas, rivulets, rivers and finally into the sea. Not only water drained out to the sea but also along with the water soils also drained out forming gullies and ravine. So to conserve the soil & water from top storey to ground storey proper soil conservation measures and maintenance of forest density need to be conserved through Block plantation and ANR plantation. Even if plantation programme in the Division area to be undertaken outside Working Plan area under GMM, IGC, & MGNREGS. At the time of receiving rain on the top level of hilly area small structures of soil moisture conservation such as Gully plugging, loose boulder check dam, contour trench, contour bund, sunken pits, percolation pits, field bunds etc should be constructed.

21.3.2 To conserve water by constructing check dams, water harvesting structures and reservoirs:

Check dams, water harvesting structures reservoirs & other water bodies need to be constructed in proper places so as to receive & store rain water which will help recharge of ground water as a result of which the ground water level rise resulting improvement of growth of the forest/crops and also agriculture crop in ground storey.

21.3.2.1 Check dams:

Check dams are widespread and effective soil and water conservation structures. This presents an overview of the use of check dams for soil and water management and runoff control. Among all civil engineering structures, check dams are probably the most emblematic of torrent control works. Over the past several hundred years, people have increasingly realized the envisioned advantages of check dams such as land development, environmental improvement, agricultural production, enhancement of gully stabilities, and mitigation of intensive flood. The optimum size, location and type have great influence on the efficiency of check dams under watershed management. Moreover, in both the theoretical and practical realms, check dams have been proved to be a useful tool for controlling soil erosion and flooding at a catchment scale. So site specific check dam in forest area need to be constructed.

21.3.2.2 Water harvesting Structures:

In general, water harvesting is the activity of direct collection of rainwater. The rainwater collected can be stored for direct use or can be recharged into the groundwater. Rain is the first form of water that we know in the hydrological cycle, hence is a primary source of water for us. Rivers, lakes and groundwater are all secondary sources of water. In present times, we depend entirely on such secondary sources of water. In the process, it is forgotten that rain is the ultimate source that feeds all these secondary sources and remain ignorant of its value. Water harvesting means to understand the value of rain, and to make optimum use of the rainwater at the place where it falls. Water harvesting structure in forest area will revitalise the growth of forest as well as improve the forest Biodiversity.

21.3.2.3 Reservoir:

A reservoir is, most commonly, an enlarged natural or artificial lake, pond or impoundment created using a dam or lock to store water. Reservoirs can be created in a number of ways, including controlling a watercourse that drains an existing body of water, interrupting a watercourse to form an embakment within it, through excavation, or building any number of retaining walls. It is mainly used to store water for recharging of ground water level.

21.3.3 To create awareness among the people for integrated approach to the available water:

Awareness is required among the local stake holders/peoples for judicious use of the water resources. Multipurpose uses of water bodies like psciculture, agriculture, forestry, horticulture by forming site specific plan.

21.3.4 To motivate people adopt sprinkle & drip irrigation method in plantation & vegetable crops to conserve water:

Sprinkle & drip irrigation system need to be adopted for forestry crop, agriculture crop, horticulture crop so that required quantity of water will be used and balance water will help in recharging of ground water. For this system proper motivation among the stake holders, and demonstration need to be made and the equipments & machinery for this purpose should be sufficiently available to the land users.

Drip irrigation is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface. The goal is to place water

directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. Depending on how well designed, installed, maintained, and operated it is, a drip irrigation system can be more efficient than other types of irrigation systems, such as surface irrigation or sprinkler irrigation.

An irrigation sprinkler (also known as a water sprinkler or simply a sprinkler) is a device used to irrigate agricultural crops, lawns, landscapes, golf courses, and other areas. They are also used for cooling and for the control of airborne dust. Sprinkler irrigation is the method of applying water in a controlled manner in way similar to rainfall. The water is distributed through a network that may consist of pumps, valves, pipes, and sprinklers.

Irrigation sprinklers can be used for residential, industrial, and agricultural usage. It is useful on uneven land where sufficient water is not available as well as on sandy soil. The perpendicular pipes, having rotating nozzles on top, are joined to the main pipeline at regular intervals of time. When water is allowed to flow through the main pipe under pressure with the help of pump it, escapes from the rotating nozzles. It gets sprinkled on the crop. In sprinkler or overhead irrigation, water is piped to one more central locations within the field and distributed by overhead high pressure sprinklers or guns.

21.3.5 To increase the porosity of the soil & humus content in the Forest floor by protecting the Forest fire:

Soil is the 'living, breathing skin of the Earth. It allows the growth of terrestrial vegetation and thus supports, directly or indirectly, most forms of life on the Earth's land surface, including our own kind. Soils have enabled the development of human agro-ecosystems and the associated acceleration of human population growth. They also represent the largest terrestrial organic carbon stock, and act as stores and filters for water. The time to form a fully developed soil can range from centuries to millions of years, and, therefore, soils are considered one of the most valuable non-renewable resources on planet Earth.

Fire can directly influence soil properties through heating and combustion processes, and indirectly through the changes to its vegetation cover and enhanced redistribution of soil through accelerated post-fire erosion. The rise of human societies has exerted a strong influence on the fire–soil interaction. On the one hand, for several

thousand years humans have used fire as a vegetation-management or land-clearing tool, introducing or increasing fire impacts in some ecosystems. On the other hand, landscape fragmentation and conversion to agricultural and urban land has decreased forest, shrub and grassland covers and their associated fire occurrence from large parts of the Earth surface. Over the last century, advances in fire suppression and fuel management, but also afforestation, increased ignition opportunities, and invasion of alien plants has led to further changes in fire occurrence and behaviour in many parts of the world. Moreover due to fire hazards in the forest floor the micro-organism including beneficial worms are being burnt every year and losses the properties of soil resulting loss of micro nutrients therein. Due to absence of micro-organism in the soils it becomes hard and losses the porosity & fertility.

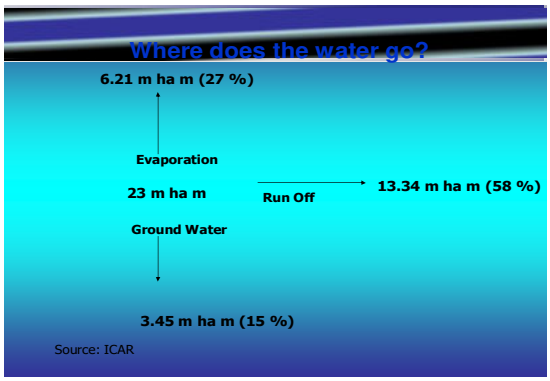
To overcome the above situations it is required to combat the forest fire not only to save the forest, wildlife & micro organisms but also to save the soil quality. For this purpose planning at the grass root level need to be chalked out and implemented properly.

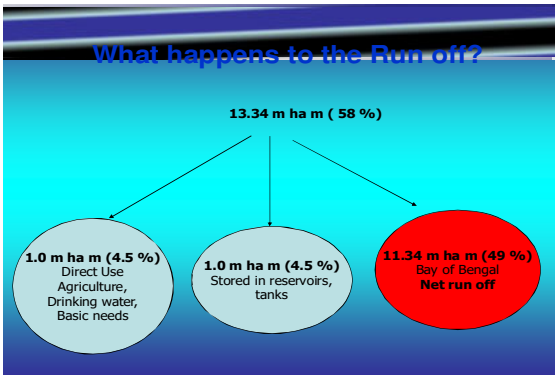
21.3.6 To educate forest people for organic mulching of Plantation area to check evaporation and construct staggered trenches in all the Plantation area for conservation of rain water:

It is admitted fact that forest cover occupies in the top story of the hills. In some parts also middle & ground story. To increase the moisture content in the soil & atmosphere water plays a vital role. Annual rainfall of this division ranges from 1300 mm to 1600 mm per annum. If we allow to stagnant above quantity of rainfall by forming soil conservation methods such as Gully plugging, Loose boulder check dam, staggered trenches, reservoirs, check dams etc in all section of the ground floor. The water level in the ground will rise leading to increase in the humus of soil and vegetative growth on it will definitely enhance.

Like-wise some portion of the water also evaporates due to scorching sun and wind on which the grounds become dry and water level also goes down. Organic mulching in plantation area and forest area will definitely help to prevent moisture evaporation on the ground. Proper awareness programme and planning at Govt. level as well as stake holder level need to be made to sensitise the above programme.

Apart from above Govt. need to take strong water conservation plan in the top storey & middle storey of Forests.





21.3.7 To intervene the Forest management on watershed basis:

Watershed is an area of land that drains or "sheds" water into a specific water body. In this manner every portion of the land in the earth is covered under a watershed. To conserve the water appropriate conservation methods like staggered trench, check dams, reservoir, contour bonding, contour trenches need to be planned considering the terrain of the land. A series of soil and water conservation measures in appropriate location of the hill area need to be constructed by following integrated water management programme and Pradhan mantri Jala Sichai Yojana (PMJSY).

21.4 SILVICULTURAL SYSTEM:

Plantation of trees on barren land and rehabilitation of degraded forest with soil and moisture conservation measures.

21.5 TREATMENT CYCLE:

There shall be a treatment cycle of 10 years in consonance with the working plan period.

21.6 METHOD OF EXECUTION:

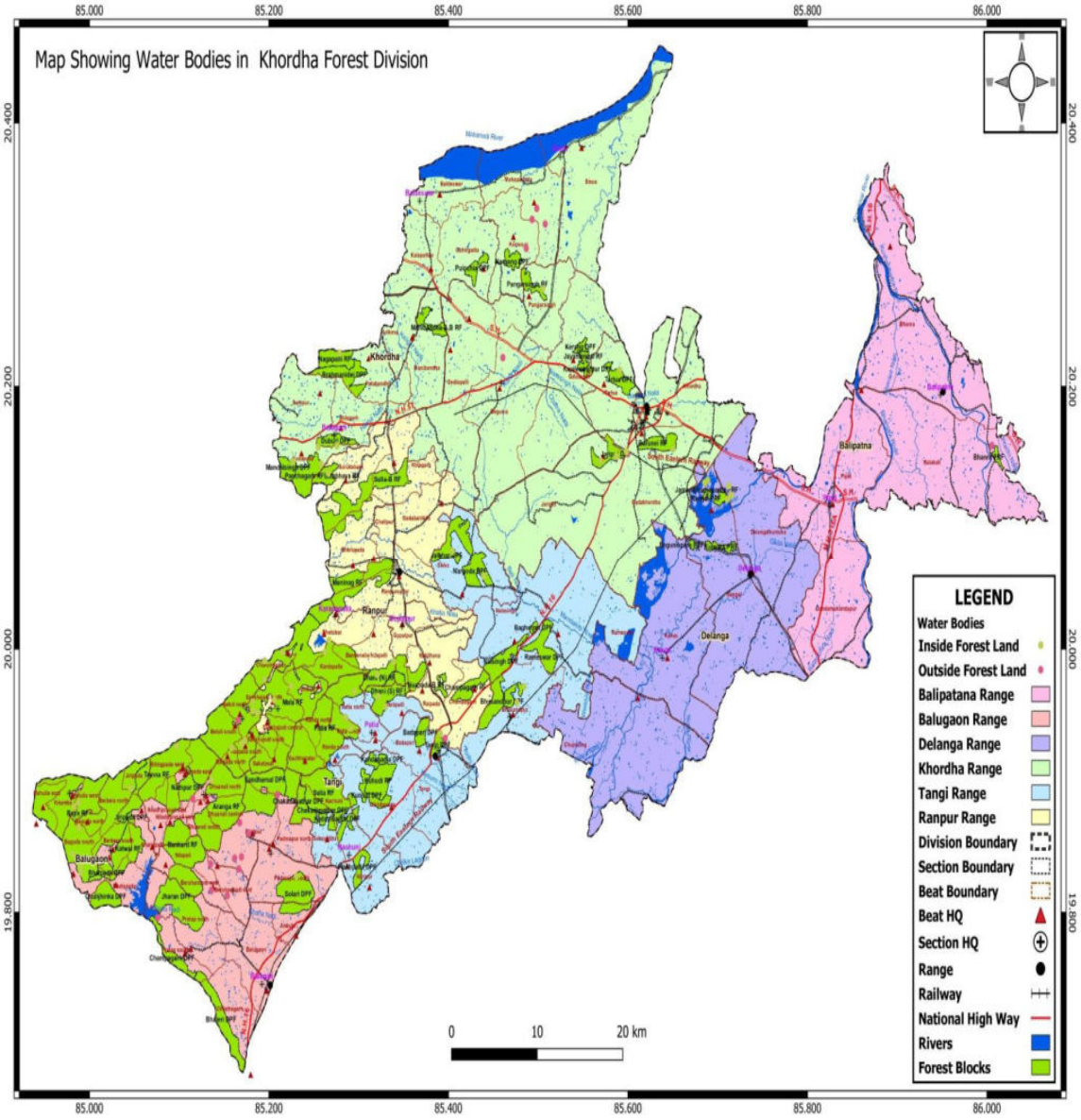
Different treatment series shall be formed as per the Watershed map of the Division. Plantation of trees & rehabilitation of degraded forest shall be taken up by

forming annual coupes within the Watershed area. Construction of check dams, loose boulder structures, gully plugging, creating water bodies may be taken up to check the soil erosion and conserve the water resource. Cross bonds with loose boulders are to be constructed on all the streams, nallah at different distances to store the flowing water. To create awareness among the VSS members, adopt sprinkle & deep irrigation, take up agro-forestry, fisheries, poultries, farming in combination to minimize the loss of water.

Table No:21.2

WATER BODY OF KHORDHA FOREST DIVISION DURING LAST 10 YEARS						
Sl No.	**Name of Range**	**Place of Water body**	**Year**	**Forest Block**	**Scheme**	**GPS Co-ordinates**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Balipatna	Bhanra	2015	Bhanra PRF	CAMPA	N20 14 27.89 E86 05 57.94
2	Balugaon	Rajin	2012	Rajin RF Compt No.18 Mahulia	CAMPA	N19 50 02.5 E84 59 24.6
3		Sakara Road (Wildlife wings)	2012	Rajin RF Compt No.16	CAMPA	N19 50 39.9 E84 58 51.4
4		Tamana	2013	Tamana RF, Compt No.5	CAMPA	N19 55 33.58 E85 5 50.35
5		Rajin (Sacara road-I)	2013	Rajin RF Compt No.16	CAMPA	N19 53 39.8 E85 02.43.8
6		Rajin (Sacara road-II)	2013	Rajin RF Compt No.16	CAMPA	N19 52 49.0 E84 58 59.2
7		Rajin	2013	Rajin RF Compt No.18	CAMPA	N19 53 39.5 E85 02 45.5
8		Rajin	2013	Rajin RF	CAMPA	N19 49 42.7 E84 58 50.4
9		Aranga	2015	Aranga RF Compt No.1	State Plan	N19 51 50.6 E84 59 17.3
10		Rajin	2015	Rajin RF Compt No.17	CAMPA	N19 54 2.55 E85 8 9.85
11		Rajin	2016	Rajin RF Compt No.18	CAMPA	N19 53 0.95 E84 59 15.96
12		Solari	2016	Solari DPF, Bhatapada	CAMPA	N19 49 51.4 E85 13 46.5
13	Delang	Rengal	2014	Rengal PRF near pillar no.12	CAMPA	N20 07 02.0 E85 42 54.3
14		Rengal	2014	Rengal PRF near pillar no.16	CAMPA	N20 06 52.0 E85 42 38.5
15		Rengal	2014	Rengal PRF near pillar no.7	CAMPA	N20 07 28.0 E85 42 44.7
16		Rengal	2014	Jamuna Jharapada PRF pillar no.12	CAMPA	N20 07 43.4 E85 41 19.3
17		Rengal	2014	Jamuna Jharapada PRF pillar no.9	CAMPA	N20 07 37.3 E85 41 08.1
18		Rengal	2020	Rengal PRF	CAMPA	
19		Rengal	2021	Jamuna Jharapada PRF	CAMPA	

Sl No.	Name of Range	Place of Water body	Year	Forest Block	Scheme	GPS Co-ordinates
1	2	3	4	5	6	7
20	Khordha	Jariput	2013	Jariput Bandha	CAMPA	N20 08 56.4 E85 35 58.7
21		Pangarasingh	2014	Pangarasingh RF	CAMPA	N20 16 27.1 E85 30 18.1
22		Duburi	2014	Duburi DPF	CAMPA	N20 09 20.9 E85 16 33.3
23		Jariput	2014	Jariput-I	CAMPA	N20 9 2.37 E85 35 51.9
24		Jariput	2014	Jariput-II	CAMPA	N20 9 2.05 E85 35 53.6
25		Chiramaru	2016	Chiramaru	CAMPA	N20 18 17.0 E85 29 11.8
26		Duburi	2015	Duburi DPF	CAMPA	N20 09 22.7 E85 15 11.4
27		Kasiabandha	2015	Kasiabandha-I	CAMPA	N20 08 48.4 E85 35 14.4
28		Kasiabandha	2015	Kasiabandha-II	CAMPA	N20 08 50.8 E85 35 13.8
29		Panchagarh	2015	Panchagarh RF	CAMPA	N20 8 28.5 E85 15 28.8
30		Tarapur	2015	Tarapur	CAMPA	N20 19 35.9 E85 29 35.4
31	Tangi	Patia RF	2009	WHS-II Patia RF, Revenue area	CAMPA	N19 55 56.4 E85 18 33.2
32		Tangi DPF	2012	WHS-I Tangi DPF	CAMPA	N19 56 08.5 E85 23 26.3
33		Dhani (S) RF	2013	WHS-VI Dhani (S) RF	CAMPA	N19 58 03.5 E85 17 42.1
34		Patia RF	2013	WHS-I Patia RF	CAMPA	N19 57 19.5 E85 19 55.9
35		Tangi DPF	2013	WHS-III Tangi DPF	CAMPA	N19 56 08.5 E85 23 24.4
36		Jalvar DPF	2015	WHS-III Jalvar DPF	CAMPA	N20 04 40.3 E85 24 24.5
37		Bhusandapur	2015	WHS-I Bhusandpur DPF	CAMPA	N19 57 33.4 E85 28 33.9
38		Bhusandapur	2015	WHS-II Bhusandpur DPF	CAMPA	N19 58 17.3 E85 29 03.0
39		Patia RF	2015	WHS-IV Patia RF	CAMPA	N19 56 55.4 E85 17 13.9
40		Patia	2015	Patia RF, Kusupalla	CAMPA	N19 56 56.3 E85 17 14.1
41		Narogoda	2017	WHS-IV Patia RF Narogoda DPF	CAMPA	N20 03.19.2 E85 26 21.9
42		Ranpur	2020	Patia RF,C-3	CAMPA	
43	Ranpur	Ranpur	2017	Mal RF	CAMPA	
44		Ranpur	2020	Mal RF,C-22	CAMPA	



Financial Forecast:-

1. Construction of water body 50Nos along with four side plantation with fruits & fodder plants @ Rs.10,00000 Rs.50000000
2. Construction of soil conservation measures such as percolation tank, gulleypluging, contour bond etc. as per cost norms of PCCF ,Odisha. Rs.50000000

Rs.100000000

NB: Each year one crore will be spent on above activities starting from 2021-22 to 2030-31.

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CHAPTER –22
WILDLIFE MANAGEMENT (OVERLAPPING) WORKING CIRCLE

22.1 GENERAL CONSTITUTION OF WORKING CIRCLE:

The erstwhile Puri Forest Division is a land of rich biodiversity of flora and fauna, which is now sub-divided into two Wildlife Divisions and two Territorial Divisions after reorganisation vide Govt. notification no. 1F(A)-100/2003/ 13228/F&E, dt. 8th August, 2003.

This Working Circle will cover the whole area of the Division and overlaps all the Working Circles. Khordha Forest Division comprises 22 nos Reserve Forests, 31 nos Demarcated Protected Forests, 5 nos Proposed Reserve Forests and 142 nos Village Forests. Which is declared under provision of Odisha Forest Act, 1972. Besides the Forest Blocks under administrative control of the Forest department there are also Revenue Forests. The wild animals are seen throughout the division covering all the Working Circle areas. For the management of the wild animals the entire area is taken an entity. For physical interventions the Forest blocks under administrative control of Forest department is taken into consideration and this Wildlife Management (Overlapping) Working Circle is constituted. The total area under this Working Circle is 58531.92 Ha.

During recent years the Forest patches are maintained exclusively for giving importance to the conservation of bio-diversity and wildlife. This is mainly confined to Protected Areas. Wildlife is an integral part of the forests and performs important function in the eco-system. Most of the forest areas are coming outside the protective mantle offered by the Protective Areas network and therefore it is imperative that steps for conservation and protection of wildlife is taken up in all our forests. The Reserve Forests of this division in general sustain a substantial number of Flora and Fauna and their level of bio-diversity is often exceeding that of many Protective Areas (PAs). Many of these Forest patches are to be Silviculturally worked. While revising this working plan conscious attempt has been made to incorporate the elements of conservation ethos. The National Forest Policy, 1988 has emphasized the need to conserve wildlife and their habitat. Wildlife embraces all forms that are wild, and is therefore any plant or animal which is neither domesticated nor cultivated/ reared and inhabits a wild landscape which may include land, wetlands and sea. Therefore for

protection of the existing wild life, to improve their habitat and to conserve bio-diversity this overlapping working circle has been constituted extending the entire division.

In Khordha Forest Division, the endangered species, wild buffalos are found in Balugaon & Ranpur Range. Beside these abundant wild lives like spotted deer, Barking deer, Sambar, Wild boar and even Neelgai's are found. Several herds of wild Elephants are migrating to the forests of Khordha Division from Chandaka Wildlife Santuary. In the recent time, Black bucks from Ghumsur (S) Division are migrating to the adjoining area of Rajin RF of Balugaon Range. In this Working Circle one Wildlife Reserve namely Barbara Wildlife Reserve is proposed to be constituted for the conservation of Wildlives found in the area. This Wildlife Reserve will cover the forest blocks of Rajin RF, Tamana RF, Katwal RF, Bankard RF & Aranga RF of Balugaon Range and Mala RF of Ranpur Range. In addition to this, the forest blocks of Champagarh DPF, Jharan DPF, Chulijhianka DPF, Jiripada DPF, Nathapur DPF & Sandhamal DPF of Balugaon Range will be included in this Wildlife Reserve. Further, a Community Reserve comprising the non-forest areas within the VSS areas of the locality adjoining to the above forest blocks for giving protection to the wild lives migrating from Ghumsur (S) Division and forest of Khordha Division is proposed to be constituted. This Working Circle will also cover all the water bodies like Nalahs, Streams, Rivers and Reservoirs found inside the Forest Blocks of this Division for Management, Protection and Conservation of Flora & Fauna.

22.2 GENERAL CHARACTERISTICS OF VEGETATION:

The forests of Khordha Forest Division have got rich heritage of wildlife. The relentless biotic pressure by humans and domestic cattle and thereby considerable degradation of forests over the year has adversely affected the bio-diversity of flora and fauna. The detailed descriptions of the composition and bio-diversity allotted to this working circle have been already described in Part-I of this Plan. The division has an important place in the wildlife wealth of Odisha and forms an important buffer area to Konark- Balukhand wildlife sanctuary, Chilika Wildlife Bird sanctuary and Chandaka Wildlife Division. Part of the City Forest Division and Khordha Forest Division forms migratory corridor for elephants. Improvements and protection of the migratory corridor needs to be taken care for the free movements of the migratory elephants and this will reduce man-animal conflicts in future. Plant Species diversity is variety in number and richness of the species of a region. Species richness is the number of species per unit area & species evenness is the number of individual of the different species. It is the product of both species richness & evenness. The details of plant species diversity is given in **Chapter II** of Executive Summary of Part-I of this Revised Working Plan.

Table No. 22.1 **Area allotted to Wildlife Management (Overlapping) Working Circle :**

Sl No	Name of the Range	Name of the Forest Block	Area in Ha. as per notification	GIS Area in Ha.	Area Diverted (in Ha.)		Area under this Plan in Ha.	Area allotted to Wildlife Management (O) WC
					Under FRA	Under FC Act.		
1	2	3	4	5	6	7	8	9
1	Balugaon	Aranga RF	2651.6	2608.14	0.923		2607.217	2607.217
2	-do-	Bankard RF	1290.28	1323.214			1323.214	1323.214
3	-do-	Kotwal RF	982.4	979.65			979.65	979.65
4	-do-	Tamana RF	3587.2	3573.05			3573.05	3573.05
5	-do-	Rajin RF	6472.4	6667.455	35.109		6632.346	6632.346
6	Khordha	Barunei RF	482.8	444.373		0.5125	443.8605	443.8605
7	-do-	Jayamangal RF	144.48	139.078			139.078	139.078
8	-do-	Manibandha- A & B RF	309.6	312.659			312.659	312.659
9	-do-	Nagapalli RF	551.61	559.68			559.68	559.68
10	-do-	Panchagarh RF	735.00	704.588			704.588	704.588
11	-do-	Pangarsingh RF	264.67	266.149			266.149	266.149
12	Ranapur	Champagarh RF	413.64	413.913			413.913	413.913
13	-do-	Dhani (N) RF	1092.28	1048.957			1048.957	1048.957
14	-do-	Mala RF	10472.46	10863.10	237.33		10625.77	10625.77
15	-do-	Maninag RF	1797.67	1735.576	2.797		1732.779	1732.779
16	Ranapur	Nuapada-B RF	272.77	121.448			121.448	121.448
17	-do-	Satabhaya RF	377.18	318.668			318.668	318.668
18	Ranapur	Sulia-B RF	1394.19	1784.685			1784.685	1784.685

1	2	3	4	5	6	7	8	9
19	Tangi	Sulia RF	1609.09	1608.007			1608.007	1608.007
20	-do-	Kuhudi RF	641.04	656.617			656.617	656.617
21	-do-	Patia RF	3702.18	3888.975	2.446		3886.529	3886.529
22	-do-	Dhani (S) RF	839.75	850.238			850.238	850.238
23	Khordha	Jariput DPF	464.19	421.622			421.622	421.622
24	-do-	Kapileswarpur DPF	75.6	81.846			81.846	81.846
25	-do-	Tartua DPF	362.4	388.961			388.961	388.961
26	-do-	Kerang DPF	121.6	100.895			100.895	100.895
27	-do-	Mandalsingh DPF	317.6	313.12			313.12	313.12
28	-do-	Brahmanidei DPF	730.8	753.666			753.666	753.666
29	-do-	Narganga DPF		235.449			235.449	235.449
30	-do-	Puinchia DPF		251.121			251.121	251.121
31	-do-	Duburi DPF	400.4	339.397			339.397	339.397
32	Tangi	Nargoda DPF	1020	599.724			599.724	599.724
33	-do-	Tangi DPF	179.2	176.017			176.017	176.017
34	-do-	Rameswar DPF	481.2	687.484			687.484	687.484
35	-do-	Jalbhar DPF	399.2	799.708			799.708	799.708
36	-do-	Kadambajhar DPF	474.8	436.354			436.354	436.354
37	-do-	Kandagadia DPF	212.4	208.243			208.243	208.243
38	Tangi	Chakadapathar DPF	994	1005.536			1005.536	1005.536
39	-do-	Kunjuri DPF	449.2	384.889			384.889	384.889
40	-do-	Badapari DPF	254	265.677			265.677	265.677

1	2	3	4	5	6	7	8	9
41	-do-	Bagheiput DPF	84.4	63.345			63.345	63.345
42	-do-	Nalsingh DPF	554.8	619.138			619.138	619.138
43	-do-	Bhusandpur DPF	778.8	821.628			821.628	821.628
44	-do-	Kaithapalla DPF	272.8	294.569	0.923		293.646	293.646
45	Balugaon	Sandhamal DPF	1511.2	1495.097			1495.097	1495.097
46	-do-	Solari DPF	1171.2	1114.705			1114.705	1114.705
47	-do-	Bhaleri DPF	807.6	907.221		0.875	906.346	906.346
48	-do-	Jharana DPF	1925.2	1957.402			1957.402	1957.402
49	-do-	Nathapur, No.40 DPF	549.2	428.354	0.965		427.389	427.389
50	-do-	Champagarh DPF	869.6	433.493			433.493	433.493
51	-do-	Bhatapada (Block No.41) DPF	536.4	280.025	1.325		278.70	278.70
52	-do-	Chulijhinka DPF	536.4	554.273			554.273	554.273
53	-do-	Jiripada DPF	68.4	71.466			71.466	71.466
54	Delanga	Beguniapada PRF	32	58.236			58.236	58.236
55	-do-	Jamunajharapada PRF	72	59.674			59.674	59.674
56	-do-	Kumuka PRF	214	210.951		2.03	208.921	208.921
57	Delanga	Rengal PRF	112	112.016			112.016	112.016
58	Balipatna	Bhanra PRF	97.28	93.009			93.009	93.009
59	Khordha-106 Tangi-12 Ranapur-12 Balugaon-12	142 VFs	924.62	924.62			924.62	924.62
		G Total	**58138.78**	**58817.151**	**281.818**	**3.4175**	**58531.92**	**58531.92**

22.2.1 GENERAL CHARACTERISTICS OF FAUNA:

The rich varied Fauna of this Division are due to existence of large stretch of forests in different density available in Berbera & Mala areas with different type of natural habitat in plain and hilly region. The climatic condition, compactness of area and composition of forests are extremely favourable for their growth and multiplication of variety of wild animals of mammalian species, Birds, Reptiles and Fishes and other insects arthropods and micro-organisms as well. Fauna of this Division are broadly classified into following categories found in varied profiles. They are Mammals, Birds, Reptiles and Fishes etc. The Faunal species found in Khordha Forest Division has been shown in Chapter. IV of Executive Summary of Part-I of this Revised Working Plan. The description of the Mammalian species in particular is given below.

22.2.1.1 DESCRIPTION OF MAMMALS:

22.2.1.1.1 Indian Elephants

Local Name – Hati
Zoological Name – *Elephas maximus*.

In the world there are only two kinds of elephants. They are the Indian elephant and the African elephant. The Indian Elephant rarely exceeds 10 ft 6 inch.(3.20 m.) in Ht. at the shoulder. The average height of an adult male is 9 ft. (2.75 m.) The female is one foot (30 cm) lower. It has got the enormous ears and hollow back. It has four nails on each hind foot. The trunk ends in a single lip. Generally only the males have large tusks. The tusks of females scarcely protrude and perhaps protrude a few inches. The contour of the tusk may be widespread curved straight or pointed downwards. In some males the tusks are no longer than females. Many of these tuskless males or "Makhna" are very large in build with extraordinary well developed trunks. Elephants frequently cover area with tall forests and in hilly areas covered with bamboo. They are extremely adaptable and are found both in humid forests as well as in the cool elevated jungles. They feed on all types of grasses, succulent stems and leaves of bamboos and tender bark of particular kinds of trees. A full grown elephant will eat from 600 to 700 lb (270 to 320 kg) of green fodder a day. The 'Musth' on elephants is a function of sexual period found in male elephants. Elephants are quite unpredictable during such period. They have poor eyesight but their sense of hearing and smell are better developed than in most other animals. The skin of an elephant is about one inch or 2.5 cm thick.

22.2.1.1.2 The Chital or Spotted Deer

Local Name – Kasturi Mriga
Zoological Name – *Axis axis*

Chital is the most beautiful of our Deer and also the most common and most prolific. Its coat is a bright rufour-fawn profusely spotted with white at all ages and in all seasons. Old bucks are more brownish in colour and darker. The lower series of spots on the flank are arranged in longitudinal rows and suggest broken linear markings. It weights about 85 kg and is 90 cm. at the shoulder. This deer are the main food of tigers. Chital are highly gregarious.

They are seen in a herd of ten to thirty. They often seen in proximity of villages in cultivated lands and frequently associate with many forest animals particularly with monkeys. They are less nocturnal than Sambar and feed till late in the morning and again in the afternoon.

22.2.1.1.3 The Barking Deer

Local Name – Kutura
Zoological Name – *Muntiacus muntjak*

Barking Deer is another small deer and is hardly 50 to 75 cm in height. It is brownish in colour and are found in the thickly-forested area of Orissa. When alarmed or in flight it makes a series of cackling barks, hence this name barking deer.

22.2.1.1.4 The Mouse Deer

Local Name – Khurandi/Gurandi
Zoological Name – *Tragulus meminna*

It is the smallest deer, and is about 25 to 30 cm in height at shoulder. It is olive brown in colour and has three white stripes around the throat and on the back and rump. It is mostly found in an altitude of 1850 mt. It is timid, solitary and easily tamed.

22.2.1.1.5 Indian Hare

Local Name – Thekua
Zoological Name – *Lepus nigricollis*

The size of Indian Hare varies from 17 to 19 inch (40 to 50 cm.), weight varies from 4 to 5 lb. They are less numbers in forests. They ascend to some height. Many Hares live in the neighborhood of villages of cultivation. Here they became unclean feeders. During the hot weather when the grass is scanty, hares come to road sides or even enter compounds to feed on the grass growing there. They are nocturnal but not exclusively so. The hare is said to give birth to one or two young ones at a time between February and October.

22.2.1.1.6 Striped Hyena

Local Name – Heta Bagha
Zoological Name – *Hyena hyena*

The striped hyena is common in the open country with low hills and ravines throughout India. It is persecuted for its habit of predating on livestock and for occasional child

lifting. The hind legs are heavier and shorter than the forelegs. The head is broad with pointed ears. The colour of the coat varies from grey to light brown with vertical black stripes along the length of the body. On the back there is a conspicuous darker erectile crest. The legs also have dark stripes on them and the coat is very long. It has very powerful jaws which are capable of crushing bones. It moves noiselessly and may be unnoticed at close quarter. By day it stays hidden in the dense vegetations or in dense in cracks among rocks. It feeds on refuse, carrion and small animal, some will also prey in domestic animals like sheep, goats, dogs etc. It has small territory around the den but has a large home range upto 14 sq. km. Breeding occurs at anytime of the year. Litters of 1 to 5 cups are born after a gestation period of about 90 days. This species has become rare due to hunting and habitat destruction.

22.2.1.1.7 Wolf

Local Name – Gadhia
Zoological Name – *Cannis lupus*

This is a member of the canidae family and is a powerful animal having great endurance. It varies in colour i.e. black, white and grayish. The size also varies from place to place. It also adapts to changed environments. It lives in packs of 5 to 15 animals based around a dominant pair and governed by strict domestic hierarchies for both sexes. It hunts in a pack, the preferred prey being large herbivores such as deer, and mountain sheep but will also take smaller game and domestic animal. Usually one pack moves with a female. Mating usually occurs once a year in January or February. Gestation lasts for 63 days after which 4-7 cubs are born. The den is usually in a hole in the ground or in a crevice and is often used year after year. They are persecuted protect poultry goat and sheep from their predation. Wolves are found in the drier parts of India.

22.2.1.1.8 Jackal

Local Name – Bilua
Zoological Name – *Canis aureous*

It has uniform colour between dirty yellow and reddish-brown with some black in the back. The back of the ear is darker and tail is reddish with a black tip. It used to be well distributed throughout India. The jackal is adjusted to environmental changes. It is nocturnal but it is commonly sighted during the day light hours, especially when the climate is harsh on the bad weather. It feeds on anything that is edible but prefers rodents, insect and lizards. After about 62 days of gestation 3-8 young are born. They are reared for 4-6 weeks. The female are sexually matured after 10-11 month and the males after 21-22 months.

22.2.1.1.9 Wild Dog

Local Name – Balia Kukura
Zoological Name – *Cuoo alpines*

It is much like a domestic dog in appearance with a long wolf-like body but with shorter legs, rounded tips to the ears and a bushy tail which is not raised higher than the line of the back. The wild dog differs from the domestic dog, the wolf and the jackal and it has 12 molar teeth in the lower jaw against 14 in the others while it has 40 teeth in all as against 42 in true dogs. Wild dogs do not bark but yaps or ulters excited whimpers when in sight of their prey. They communicate with each other by peculiar whistling cries which can be imitated by blowing into an empty cartridge shell. They move in packs of upto 40 in numbers during the non-breeding season and once they attack an animal they never relax, hanging into any parts of the prey and often devouring it alive. They are said to attack the eyes first and the anus next and with their paws remove the entrails. Wild dogs do not attack domestic dog and have been known to fraternize with them for mating. Wild dogs help to conserve the genetics in wild life.

22.2.1.1.10 Mangoose

Local Name – Neula
Zoological Name – *Herpestes edwarden*

Our common mangoose is frequently exhibited by wandering snake charmers and is familiar to most people of India. The mangoose generally eat vegetables and has a preference for meat. This is shown in the structure of their teeth which are compressed sharp-blades for cutting meat. Their manner of hunting is distinctive. The method of prey of the mangoose is direct, open and headlong attack. Seeing its prey, a mangoose goes to it but if the distance is too far for a pounce, it approaches slowly to come sufficiently nearer and follow its prey by scent. A mangoose may trail it to its burrow and on entering, dig its victim out. Its pointed head, small ears, flexible body and short legs are well suited to give the mangoose easy entry.

22.2.1.1.11 Jungle Cat

Local Name – Katas
Zoological Name – *Felis chaus*

One of the smaller cats, it weighs 5 to 6 Kg and is about 60 cm tall. It generally keeps to grass land, scrub jungle and reedy banks of river and marshes. The jungle cat preys on small mammals and birds. Its colour is sandy-grey to yellowish grey. The tail is ringed with block and has a black tip with the ears being reddish and has black hair at the tip.

22.2.1.1.12 Squirrels

Local Name – Gunduchi Musa
Zoological Name – *Funumbulus pennant*

Squirrels are commonly seen in gardens. The palm or striped squirrels are rodents. They are herbivores which are capable of eating any edible vegetable matter. They are provided with well adopted teeth, for the purposes of growing their food. They have four incisor teeth, two in each jaw, and these have a hard edge of enamel which resists wear with only the inner porting of soft dentine getting worn by se. the teeth grow throughout their life. They are two species of squirrels, one in the three tripped palm squirrels (*Funambulus palmarum*) and the other is the five striped palm squirrel (*F. pennanti*). The squirrels have particularly for saken forest to live with man. They eat fruits, nuts, shoots, buds, bark and bird eggs. The female may mate with more than one male. The gestation period is about six weeks. Two or three youngs are born blind.

22.2.1.1.13 The Rhesus Macaque

Local Name – Pati Mankada
Zoological Name – *Macaca mulatta*

A male rhesus is about 2 feet high and scales about 15-23 lb. Females are smaller and slighter in built. Head & body 1 ½ feet, weight 10-14 lb. In the jungle they usually keep to the outskirts rarely penetrating into the depths, except where driven to seek denser cover. It is a common sight to see these monkeys mingling with the human beings on the crowded platform of a railway station, accepting food from passengers or stealing it when they can. Like most macaques this Rhesus lives mainly on the ground, some live habitually among rocks & cliffs. Ground plants, insects and spiders are their usual food.

22.2.1.1.14 The Common Langur

Local Name – Hanu Mankada
Zoological Name – *Presbytis entellas*

This langur is 2 to 2 ½ feet high, tail 3 to 3 ¼ ft, weight 35 – 46 lb. This is the long limbed, long tailed, black faced monkey. Langurs are more arboreal in habit than macaques. They live in forests, haunt shady groves around tanks and temples and establish themselves in towns and villages. Langurs are pure vegetarians. They eat wild fruits, flowers, buds, shoots and leaves feeding commences at dawn. The hottest hours of the day are spent resting in some shady grove on nullah. In the evening they are out again. When feeding on troops, they display no objection to consorting with a party of macaques but go their separate way at dusk. The invertebrate enemy of the Langur is the Panther quite distinct is the joyous “whoop” emitted when bounding from tree to tree Langur live in peaceful, relaxed and fairly stable group of all ages and both sexes. The average group size is 10 to 15. Each group forms a closed social system whose membership remains more or less constant.

22.2.1.1.15 Sloth Bear

Local Name – Bhalu
Zoological Name – *Melunsus ursinus*

Height at shoulder from 2 ft 2 inch (65 cm) to 2 ft. 9 in (85 cm) average length 4 ½ to 5 ½ feet (140 to 170 cm). Males are usually larger weighing about 280-320 lb. Female from 140 lb upwards. Sloth bears live where there is sufficient forest to provide food and favour places where outcroppings of rock and tumbled boulders offer them shelter during the hot weather and the rains. They come out shortly before sunset hunt for food all night and retire in the morning. Their food consists mainly of fruits, insects, flower. and a hungry sloth bear may sometimes eat carrion. They are very fond of honey and termites and will climb trees to get at toddy pots and the intoxicating mahua flowers when in bloom. These bears have formidable four inch claws and its foot prints are very much like that of a man and such is frequently mistaken.

22.2.1.1.16 Wild Boar

Local Name – Baraha
Zoological Name – *Sas serofa*

The Indian wild boar is generally found in grass and bush jungle and sometimes in forests. Being omnivorous they feed not only on crops and root tubers but also on offal and carrion. They are courageous and determined fighters and display remarkable intelligence. They have an acute sense of smell and eyesight which help them in fighting. Wild boar appears to breed throughout the year. New born wild bear have a longitudinally striped coat. The males have well developed tusks.

22.2.1.1.17 The Gaur Or Indian Bison

Local Name – Gayala
Zoological Name – *Bos gauras*

A bull may stand 6 ft. 4 inch. (195 cm) at the shoulder. Cows are about 4 inch (10 cm) shorter. An old bull may scale over 2000lb (900 kg.). They are generally black and hair less. Newly born gaur is light golden yellow in colour. Gaur is essentially animals of deep forests in the hills but they come down to the lower levels seasonally in search of food. They mostly feed on grass during the early morning and evenings. They also browse on leaves and eat the bark of certain trees. Gaur have been seen in the close company of elephants and they get on well having very little to fear from predators. Gaur is by nature shy and timid animals. Their defence is their massive size and an acute sense of smell.

22.2.1.1.18 Sambhar

Local Name – Sambara
Zoological Name – *Cervas unicolor*

The Sambar is the largest Indian Deer with some reaching 150 cm at the shoulder and weighing between 225 to 320 kg. The coat is coarse and shaggy and usually forms a ruff around the throat. Sambar suffers from an infliction called 'Sore patch' which is a red, wet and sore patch at an area around the throat.

22.2.1.1.19 Leopard

Local Name – Kalarapataria Bagha
Zoological Name – *Panthra pardus*

The average total length is 7 ft, females about 1 ft. less. An exceptionally large male may reach 8 ft. Weight 68 kg. Female about 50 Kg. Leopard is a sleek short haired animal with a fulvous or bright fulvous coat marked with small close set black rosettes. It feeds on animals smaller than that which the super predator normally feed upon. Panthers come in all sizes from the small dog panther about the size of a large dog who will run away on sighting a human. Panthers are able to live and thrive almost any where. Panthers living near human settlement particularly outside forest areas, prey mainly on domestic animals, calves, sheep and goats. Panthers breed all the year round. In captivity the female produces the first litter when 2 ½ to 4 years of age. Gestation period varies from 87-94 days. Normally 2 cubs per litter are born.

22.2.1.1.20 Pangolin

Local Name – Bajrakapta
Zoological Name – *Manis crassicaudata*

The Pangolin is light yellowish-brown in colour and it has large scales. The hair and skin are brownish. These animals are largely nocturnal. They dig well, making tunnels that end in an enlarged cave.

Pangolins have short limbs with five toes. The front feet are equipped with large digging claws. The eyes are small with thick lids protecting them against ant or termite bites. There are no epidermal glands and the anal area is surrounded by large bean shaped glandular sacs. The scales are not glued hairs but two sided symmetrical elevation of the skin which are flattened from the back towards the stomach. The horn scales are lost through wear and are constantly replaced by the skin base. The snout is elongated with a narrow slit for the mouth. Pangolins feed only on ants and termites. The long tall tree pangolins have a preference for ants, while the white bellied Pangolins prefer termites.

22.2.1.1.21 Otter

Local Name – Odha
Zoological Name – *Lutra lutra*

The long streamlined body and rudder tail of the otter is well adapted to aquatic life. The coat is rough and waterproof. In adults there is often a white patch on the throat. The head is broad and flattered and the ears which close off when the otter lives under water and it is completely concealed by the coat. Their legs are short and the feet are webbed with 5 toes and small claws. This otter is generally solitary except during the mating season and is active mainly at night. It preys on fish, water fowl, other birds, freshwater fish and other invertebrates. It reproduces through out the year and gestation lasts for about 61 days. In many areas otters have disappeared because of over-haunting by man for the fur, or because it is considered to be a pest and also because of pollution in rivers and lake.

22.2.1.1.22 Ratel

Local Name – Gada Bhalu
Zoological Name – *Mellivora capensis*

The body of ravel is thickest and compact, its head is large and its feet are powerful with strong claws. The upper back varies from grey to whitish and contrasts sharply with black under parts. The tail is short and often held upright. It is confined in all types of habitat. The ravel is a brave creature and will not hesitate to attack animals much larger than itself. It digs large hollows in the ground. It is omnivorous feeding on insects, plant matter and small vertebrates. It is very fond of honey often climbing into tree to find suspended hives. The gestation period lasts about 180 days and usually 2 young are born in each litter.

22.2.1.1.23 Small Indian Civets

Local Name – Salia patani
Zoological Name – *Viverricula indica*

It is found in Mal R.F, Rajin R.F, Tamana R.F, Nathapur D.P.F, Jiripara D.P.F, Aranga R.F. of Khordha Forest Division. A well grown adult male is slightly over 3 ft (90 cm.) in entire length. The tail is a little over a feet (30 cm.) long. Weight 6 - 8 lb (3-4kg). The animal is grayish brown in colour, lined on back and croup, spotted more or less in rows along the flanks. There are usually some cross bars on the neck. It lives in heavy forest and prefers long grass or scrub. It shelters in holes, or under rocks on under bushes. It preys on rats, squirrels, small birds, lizards, insects and their grubs. There does not appear to be any marked period of breeding activity.

22.2.1.1.24 Indian Porcupines

Local Name – Jhinka
Zoological Name – *Hystorix indica*

Porcupines are rodents whose hair has been modified into spines. They are mostly nocturnal with a keen sense of smell. They live mostly on vegetables of all kinds of grains, fruits & roots. They are destructive to gardens and cultivations. When alarmed they erect and rattle the hollow spines just above the tail. They attack by charging backwards with their erect spines which are driven into the enemy. Sometimes their quills are left embedded in the victims. Porcupines grow their lost quilts again. Porcupines are born in the month of March with their eyes open and have short spines.

22.2.1.1.25 Nepali Musa

Local Name – The Indian Giant Squirrels
Zoological Name – *Ratufa indica*

These are found mostly inside Rajin R.F, Tamana R.F, Aranga R.F, Mal R. F, Patia R.F, Sulia R.F, Dhani R. F of Khordha Forest Division. Head and body 14 to 16 in (35 to 50 cm), tail about 2 ft (60 cm). It has a deep brown almost black coat with buff coloured under parts. They keep to the summits of the higher trees, and seldom if ever come to ground. They move from tree to tree taking amazing leaps with limbs outspread. They are active and agile animals, mostly active in the early hours of the morning and in the evening. If seeking shadows in the ground of leaves on tree top, it will be believed the presence of langurs or a giant squirrel leaping from tree to tree with amazing skill and accuracy. They like to eat the fruits of Asan (*Terminalia tomentasa*). They are shy, worry animals not easy to discover. They share with monkeys the habit of scolding, barking and raising a general alarm when any suspicious object is sighted. They usually live alone or in pairs. These animals build large globular nest of twigs and leaves placing them for greater security among the slimmer twigs and branches of trees, where heavier predator cannot get at them.

22.2.1.1.26 Black Bucks

Local Name – Krushnasar Mruga
Zoological Name – *Antilope cervicapra*

The Indian Black buck is one of the three species of antelopes found in Orissa. Krushnasar Mruga (*Antilope cervicapra*) is commonly found in Balukhand – Konark sanctuary and sometime noticed in buffer zone of sanctuary which is outside the notified area of the sanctuary. Blackbuck is considered to be the second fastest animal in the world next to Cheetah. There is a fast decline in the population of Blackbucks throughout the country due to poaching and habitat loss. In the recent past, this endemic animal was quite numerous and commonly seen. Subsequently, within a short span of time it has suffered a drastic reduction in numbers. Blackbuck is included in the

Schedule-I of Wildlife (Protection) Act, 1972 and is designated as Vulnerable as per Red Data Book (1994). It is one of the most popular exhibits in the zoos of the country and elsewhere. It primarily covers three Forest Ranges i.e. Buguda and Aska in Ghumsur South Division and Khallikote Range of Berhampur Forest Division and Balukhand - Konark area of Puri Wild Life Forest Division. The state highway from Khordha to Berhampur via Nayagarh also passes through their habitat.

22.2.1.2 BIRDS

The birds available in this division are mostly divided into two categories.

1) Terrestrial Birds and 2) Aquatic Birds

22.2.1.2.1 Terestrial Birds

Banakukuda, Bhadbhadalia, Bani, Baya chadei, Baliakhai, Cuckoo, Chataka, Dhauka, Deuliapara, Gharachatia, Grey heron, Ghukalika, Gobara Chadei, Haladi Basanta, Harada Chadei, Kjala Pati, Kumbhatua,Mayura, Kochila Khai, Macharanka, Owl, Ramachadei, Sari, Sua, Sankhachilla, Teetri, Tailor bird, Wood Pecker.

22.2.1.2.2 Aquatic Birds

The aquatic birds are seen in the wet lands in the bank of streams, reservoirs etc of this division area. The birds are broadly classified into Residential, Migratory and local Migratory birds.

22.2.1.3 REPTILES:

The common reptiles found in this division are as follows:-

Tortoise, lizard, Garden lizard, Iguana, Python, King Cobra, Tampa, Naga, Chiti (Common krait), Dhanda, Viper, Rana (Branded Krait), Chhamelion, Pangolin, Domundia, Laudankia, Dhanmana.

22.2.1.4 FISHES:

The Common fresh water fishes found in this division, as follows:-

Rohi, Bhakura, Pohala, Denga Pohala, Serana, Chitala, Phali, Balia, Jalanga, Kau, Chenga, Baligarada, Baunsapatia, Pabata, Jallah, Kantia. They are mostly found in Dams, Ponds and river. The above fishes are edible. Magura, Rata, Singi, Seula are mostly found in ponds which are also edible but they possess some medicinal values.

22.2.1.5 WORMS AND INSECTS:

The common worms and insects noticed in this division are Cockroach, White ant, Dragon Fly, Grasshopper, Spider, Wasp, Honey Bee, Common rats, Black Buck, Beetle Moles, crickets etc.

Table No. 22.2 LIST OF FAUNA FOUND IN KHORDHA FOREST DIVISON:

MAMMALS		
Sl. No.	**English Name**	**Latin Name**
1	**2**	**3**
1	Barking deer	*Muntiacus mintijack*
2	Bison	*Bibos gaurus*
3	Black bear	*Mehursus ursinus*
4	Common mangoose	*Herpestes eduardsii*
5	Common otter	*Lutra lutra*
6	Fox	*Vulpes bengalensis*
7	Haeyna	*Hyaena hyaena*
8	Indian elephant	*Elephas maximma*
9	Indian Gaint flying squirrels	*Petaurista philipnensis*
10	Indian Gaint squirrels	*Ratufa Indica*
11	Jangle cat	*Felis chaus affinis*
12	Leopard	*Panthera pardus fusca*
13	Monkey	*Presbytis entellus*
14	Mouse deer	*Tragulus minna*
15	Pangolin	*Menis crassicaudata*
16	Porcupine	*Hystrix indica*
17	Rat	*Rattus rattus*
18	Rhesus macacue	*Macaca mulatta*
19	Sambar	*Carvus unicolour*
20	Shortnosed fruitbat	*Cynopterus spinax*
21	Small Indian civet	*Viverricula indica*
22	Spotted deer	*Axis axis*
23	Squirrel	*Funumbulus pennanli*
24	Pangolin	*Manis crassicaudata*
25	Wild boar	*Sus scrofa cristatus*
26	Wild dog	*Cuon alpinus dukhunensis*
REPTILES AND AMPHIBIANS		
27	Banded krait	*Bungarus fasiatus*
28	Checkeered keel back	*Natrix piscator*
29	Common green whip snake	*Dryophis nasutrus*
30	Common Indian Krait	*Bungarus cacruleus*
31	Green Keel Back	*Macropisthodon Plumbicolor*
32	Indian cobra	*Naja naja naja*
33	Indian python	*Pythonmolurus*
34	King Cobra	*Naja Hannah*
35	Monocellata cobra	*Naja Naja kuathia*
36	Rat snake	*Ptyas mucosus*
37	Russels viper	*Viper russelli*
LIZARDS		
38	Cargelandmonitor	*Vernus monitor*
39	Common garden lizard	*Calotesversicolor*
40	House lizard	*Homidactylus flaviriridis*
41	Indian chameleon	*Chammaeleon zeylanicus*

Sl. No.	English Name	Latin Name
1	2	3
42	Mabuya	*Mabuya bibro*
TURTLES AND TORTOISES		
43	Land tortoise	*Testudo elonguta*
44	Water turtle	*Lissemys punctan granose*
FISHES		
45	Cat Fish	*Wallagonia attu*
46	The Tank Goby	*Glossogobius giuris*
47	Catla Fish	*Catle catla*
48	Dwart Snake Head	*Ophiocaphalus gachua*
49	Clown Knife Fish	*Notopterus chitala*
50	Shark Catfishes	*Pangasisus*
51	Chile Arsentine	*Chela argentea*
52	Kfrandi	*Myotus cavasius*
53	Puntis	*Barbus ambassis*
54	Walking Catfish	*Clarias batrachus*
55	Mrigal Card	*Cirrhina mrigala*
56	Mola Carplet	*Amblypharyngodon mola*
57	Bronze Featherback	*Notopterus notopterus*
58	Rohu	*Labeo rohita*
59	Asian Snake Head	*Ophiocephalus striatus*
60	Asian Stinging Catfish	*Heterophneustes fossil*
61	Tire Trac Eel	*Mastacembelus armatus*
BIRDS		
62	Alexandrine Parakeet	*Psittacula eupatria*
63	Ashy Drongo	*Dicrurus leucophaeus*
64	Ashy Prinia	*Prinia socialis*
65	Ashy Minivet	*Pericrocotus digaricatus*
66	Ashy Woodswallow	*Artamus fuscus*
67	Asian Brown Flycatcher	*Muscicapa dauurica*
68	Asian Koel	*Eudynamys scolopacea*
69	Asian Openbill	*Anastomus oscitans*
70	Asian Palm Swift	*Cypsiurus balasiensis*
71	Asian Paradise Flycatcher	*Terpsiphone paradisi*
72	Asian Pied Starling	*Sturnus contra*
73	Banded Bay Cuckoo	*Cacomantis sonneratii*
74	Bar-winged Flycatcher Shrike	*Hemipus picatus*
75	Baya Weaver	*Ploceus philippinus*
76	Besra	*Accipiter virgatus*
77	Black Drongo	*Dicrurus macrocercus*
78	Black headed Cuckooshrike	*Coracina melanoptera*
79	Black Kite	*Milvus migrans*
80	Black-crested Bulbul	*Pycnonotus melanicterus*
81	Black-crowned Night Heron	*Nycticorax nycticorax*
82	Black-headed Munia	*Lonchura malacca*
83	Black-hooded Oriole	*Oriolus xanthornus*
84	Black-naped Monarch	*Hypothymis azurea*

Sl. No.	English Name	Latin Name
1	2	3
85	Black-shouldered Kite	*Elanus caeruleus*
86	Blue Bearded Bee-eater	*Nyctyornis athertoni*
87	Blue Rock Pigeon	*Columba livia*
88	Blue Rock Thrush	*Monticola solitarius*
89	Blue Capped Rock Thrush	*Monticola cinclorhynchus*
90	Brahminy Kite	*Haliastur indus*
91	Brahminy Starling	*Sturnus pagodarum*
92	Bronze Winged Jacana	*Metopidius indicus*
93	Bronzed Drongo	*Dicrurus aeneus*
94	Brown capped pygmy Woodpecker	*Dendrocopos nanus*
95	Brown hawk Owl	*Ninox scutulata*
96	Brown Shrike	*Lanius cristatus*
97	Brown-cheeked Fulvetta	*Alcippe poioicephala*
98	Cattle Egret	*Bubulcus ibis*
99	Crested Hawk Eagle	*Spizaetus cirrhatus*
100	Chestnut Headed Bee-eater	*Merops leschenaulti*
101	Chestnut-Bellied Nuthatch	*Sitta cinnamoventris*
102	Chestnut-tailed Starling	*Sturnus malabaricus*
103	Cinnamon Bittern	*Ixobrychus cinnamomeus*
104	Common Greenshank	*Tringa nebularia*
105	Common Hawk Cuckoo	*Hierococcyx varius*
106	Common Hoopoe	*Upupa epops*
107	Common Iora	*Aegithina tiphia*
108	Common Kestrel	*Falco tinnunculus*
109	Common Myna	*Acridotheres tristis*
110	Common Tailorbird	*Orthotomus sutorius*
111	Coppersmith Barbet	*Megalaima haemacephala*
112	Crested Goshawk	*Accipiter trivirgatus*
113	Crested Serpent Eagle	*Spilornis cheela*
114	Crested Treeswift	*Hemiprocne coronata*
115	Dollar Bird	*Eunystomus orientalis*
116	Emerald Dove	*Chalcophaps indica*
117	Eurasian Collared Dove	*Streptopelia decaocto*
118	Forest Wagtail	*Dendronanthus indicus*
119	Fulvous-breasted Woodpecker	*Dendrocopos macei*
120	Golden-fronted Leaf-bird	*Chloropsis aurifrons*
121	Great Tit	*Parus major*
122	Greater Coucal	*Centropus sinensis*
123	Greater flameback Woodpecker	*Chrysocolaptes guttacristatus*
124	Greater Racket-Tailed Drongo	*Dicrurus paradiseus*
125	Green Bee-eater	*Merops orientalis*
126	Green-billed Malkoha	*Phaenicophaeus tristis*
127	Greenish Warbler	*Phylloscopus trochiloides*
128	Grey Backed Shrike	*Lanius tephronotus*
129	Grey bellied Cuckoo	*Cacomantis passerinus*
130	Grey Francolin	*Francolinus pondicerianus*

Sl. No.	English Name	Latin Name
1	2	3
131	Grey Headed Woodpecker	*Picus canus*
132	Grey Treepie	*Dendrocitta formosae*
133	Grey Wagtail	*Motacilla cinerea*
134	Grey-breasted Prinia	*Prinia hodgsonii*
135	Grey-headed Canary Flycatcher	*Culicicapa ceylonensis*
136	Heart spotted Woodpecker	*Hemicircus canente*
137	Hill Myna	*Gracula religiosa*
138	House Crow	*Corvus splendens*
139	Hume's Warbler	*Phylloscopus humei*
140	Imperial Green Pigeon	*Ducula aenea*
141	Indian Cuckoo	*Cuculus micropterus*
142	Indian Golden Oriole	*Oriolus (oriolus) kundoo*
143	Indian Grey Hornbill	*Ocyceros birostris*
144	Indian Nightjar	*Caprimulgus asiaticus*
145	Indian Peafowl	*Pavo cristatus*
146	Indian Pitta	*Pitta brachyura*
147	Indian Pond Heron	*Ardeola grayii*
148	Indian Robin	*Saxicoloides fulicata*
149	Indian Roller	*Coracias benghalensis*
150	Indian Scimitar Babbler	*Pomatorhinus horsfieldii*
151	Indian Silverbill	*Lonchura malabarica*
152	Indian yellow tit	*Parus xanthogenys*
153	Intermediate Egret	*Mesophoyx intermedia*
154	Jerdon's Baza	*Aviceda jerdoni*
155	Jerdon's Lark	*Mirafra affinis*
156	Jerdon's Leaf-Bird	*Chloropsis jerdoni*
157	Jerdon's Nightjar	*Caprimulgus atripennis*
158	Jungle Babbler	*Turdoides striata*
159	Jungle Crow	*Corvus macrorhymchos*
160	Jungle Myna	*Acridotheres fuscus*
161	Jungle Owlet	*Glaucidium radiatum*
162	Large Cuckooshrike	*Coracina macei*
163	Large Hawk Cuckoo	*Hierococcyx sparverioides*
164	Large Woodshrike	*Tephrodornis gularis*
165	Large-billed Crow	*Corvus macrorhyncos*
166	Laughing Dove	*Streptopelia senegalensis*
167	Lesser Flameback Woodpecker	*Dinopium benghalense*
168	Lesser Yellownape Woodpecker	*Picus chlorolophus*
169	Little Egret	*Egretta garzetta*
170	Long-tailed Shrike	*Lanius schach*
171	Malabar pied Hornbill	*Anthracoceros coronatus*
172	Malabar Trogon	*Harpactes fasciatus*
173	Orange Breasted Green Pigeon	*Treron bicinctus*
174	Orange-headed Thrush	*Zoothera citrina*
175	Oriental Honey Buzzard	*Pernis ptilorhyncus*
176	Oriental Magpie Robin	*Copsychus saularis*

Sl. No.	English Name	Latin Name
1	2	3
177	Oriental Skylark	*Alauda gulgula*
178	Oriental Turtle Dove	*Streptopelia orientalis*
179	Oriental White-eye	*Zosterops palpebrosus*
180	Olivebacked Pipit	*Anthus hodgsoni*
181	Paddyfield Pipit	*Anthus rufulus*
182	Pale Billed Flowerpecker	*Dicaeum erythrorhynchos*
183	Pale-capped Pigeon	*Columba punicea*
184	Pale-chinned Flycatcher	*Cyornis poliogenys*
185	Peregrine Falcon	*Falco peregrinus*
186	Pied Bushchat	*Saxicola caprata*
187	Pied Kingfisher	*Ceryle rudis*
188	Pied Starling	*Gracupica contra*
189	Pin Striped Tit Babbler	*Macronous gularis*
190	Plain Prinia	*Prinia inornata*
191	Plum-headed Parakeet	*Psittacula cyanocephala*
192	Puff-throated Babbler	*Pellorneum ruficeps*
193	Purple Sunbird	*Nectarinia asiatica*
194	Purple-rumped Sunbird	*Nectarinia zeylonica*
195	Red Jungle Fowl	*Gallus gallus*
196	Red-rumped Swallow	*Hirundo daurica*
197	Red-vented Bulbul	*Pycnonotus cafer*
198	Red-wattled Lapwing	*Vanellus indicus*
199	Red-whiskered Bulbul	*Pycnonotus jocosus*
200	Rose-ringed Parakeet	*Psittacula krameri*
201	Rosy Minivet	*Pericrocotus roseus*
202	Rufous Treepie	*Dendrocitta vagabunda*
203	Rufous Woodpecker	*Celeus brachyurus*
204	Rufous-capped Babbler	*Stachyris ruficeps*
205	Scaly-breasted Munia	*Lonchura punctulata*
206	Scarlet Minivet	*Pericrocotus flammeus*
207	Shikra	*Accipiter badius*
208	Small Minivet	*Pericrocotus cinnamomeus*
209	Spotted Dove	*Streptopelia chinensis*
210	Streaked Weaver	*Ploceus manyar*
211	Taiga Flycatcher	*Ficedula parva*
212	Thick-billed Flowerpecker	*Dicaeum agile*
213	Tickell's Blue Flycatcher	*Cyornis tickelliae*
214	Velvet-fronted Nuthatch	*Sitta frontalis*
215	Verditer Flycatcher	*Eumyias thalassinus*
216	White Bellied Drongo	*Dicrurus caerulescens*
217	White Naped Woodpacker	*Chrysocolaptes festivus*
218	White Throated Fantail	*Rhipidura albicollis*
219	White-breasted Waterhen	*Amaurornis phoenicurus*
220	White-browed Bulbul	*Pycnonotus luteolus*
221	White-browed Fantail	*Rhipidura aureola*
222	White-rumped Munia	*Lonchura striata*
223	White-rumped Needletail	*Zoonavena sylvatica*

Sl. No.	English Name	Latin Name
1	2	3
224	White-rumped Shama	*Copsychus malabaricus*
225	White-throated Kingfisher	*Halcyon smyrnensis*
226	Wire-Tailed Swallow	*Hirundo smithii*
227	Yellow crowned Woodpecker	*Leiopicus mahrattensis*
228	Yellow eyed Babbler	*Chrysomma sinense*
229	Yellow-footed Green Pigeon	*Treron phoenicopterus*
230	Yellow-wattled Lapwing	*Vanellus malabaricus*

22.3 SPECIAL OBJECTIVES OF MANAGEMENT:

The special objectives of management are within the scope of General objective of management. These are,

i) To protect, conserve and improve the wildlife habitat of the existing wildlife in different blocks of the Division.

ii) To promote wildlife in general with special emphasis to endangered species like Wild buffalos, Spotted dear, Barking dear, Sambar and Neelgai.

iii) To increase awareness among the local people regarding the necessity for conservation of wildlife and their habitat for ecological balance.

iv) To retain and increase the biodiversity and wildlife population.

v) To prevent wildlife related offences.

vi) To minimize the man-animal conflict.

vii) To protect the flora & fauna found in the water bodies both inside the forest blocks and outside the forest areas of the division.

viii) To conserve and develop important wild life habitat for the purpose of eco-tourism.

ix) To co-ordinate forestry operations and wild life conservation measures.

x) To eliminate all sorts of human exploitation and disturbance in sensitive zones/threatened areas and progressively reducing them all around.

xi) Amelioration of habitat by reducing the limiting factors e.g. Fire, grazing, hunting rights, poaching & poisoning, illicit felling, etc in order to build up the wild life population to the intrinsic carrying capacity.

xii) To restore wild life habitats after natural calamities, e.g. cyclone FANI, etc

22.4 ANALYSIS OF AVAILABLE FAUNA AND VALUATION THEREOF:

To assess the availability of wildlife's in the forest Periodical Wildlife Census are carried out. For every 3 years Elephant census and in every 4 years Tiger & Carnivores census are

being taken up. At the time of census, the presence of other Herbivores is also accounted. No elephant census has been conducted in this Division from 2000 to 2006. The elephant census from 2007 to 2017 along with crop damages caused by elephants is furnished in the following Tables.

Table No. 22.3 ELEPHANT CENSUS

Year	Category	No of elephant in different route		Total
		Nayagarh-Ranpur-Balugaon- Tangi	Chandaka-Khordha-Delang- Tangi	
1	**2**	**3**	**4**	**5**
2007	Adult male tusker	1	2	3
	Female	3	8	11
	Juveline	0	4	4
	Calf	1	1	2
	Sub adult female	3	0	3
Total		**8**	**15**	**23**
2009	Sub adult tusker	2	0	2
	Adult female	2	0	2
	Claf male	1	0	1
	Tusker	1	0	1
Total		**6**	**0**	**6**
2012	Juvenile	3	0	3
	Adult cow	2	0	2
	Adult tusker	3	2	5
	Unknown sex(calf)	2	0	2
	Sub adult bull	1	0	1
	Sub adult cow	2	0	2
Total		**13**	**2**	**15**
2015	Juveline	0	0	0
	Tusker	0	8	8
	Makhna	0	0	0
	Adult cow/bull	2	14	16
	calf	1	6	7
Total		**3**	**28**	**31**
2017	Juvenile	**-**	**-**	11
	Adult cow	**-**	**-**	8
	Adult tusker	**-**	**-**	10
	Unknown sex	**-**	**-**	1
	Sub adult bull	**-**	**-**	2
	Sub adult cow	**-**	**-**	2
	Calf	**-**	**-**	6
	Total			**40**
Census has not been done from 2017 to till date				

Table No. 22.4 INFORMATION ON CROP DAMAGE FOR THE YEAR 2004-05 to 2020-21

Sl. No.	Year	No. of Cases	Area in Ha.	Amount
1	**2**	**3**	**4**	**5**
1	2004-05	105	68.249	68249.00
2	2005-06	160	40.675	40675.00
3	2006-07	80	35.350	35350.00
4	2007-08	345	193.686	193686.00
5	2008-09	320	363.086	363086.00
6	2009-10	396	416.862	416862.00
7	2010-11	402	395.832	395832.00
8	2011-12	338	385.421	385679.00
9	2012-13	886	303.397	2444946.00
10	2013-14	3589	722.750	7283687.00
11	2014-15	1445	310.345	3189630.00
12	2015-16	1708	772.370	4601394.00
13	2016-17	4069	807.752	8268784.00
14	2017-18	2533	558.008	5818468.00
15	2018-19	2236	494.51	5020526.00
16	2019-20	3528	688.127	10596688.00
17	2020-21	2522	627.8693	6421332.00
Total		**24662**	**7184.2893**	**55544874.00**

Due to degradation of the forest cover and the habitat the number and type of wild animals in the forest is reducing. The biotic pressure on forest for requirement of fuel wood, small timbers, mining operation inside forests, and diversion of forest lands for non forestry purposes for construction of Hydro-electricity project, Irrigation projects and Dams etc. continues under constant threat to the Wildlife habitat resulting considerable degradation of forests which force the wild animals coming out of the forest leading to man-animal conflicts. The various causes for habitat destruction are as followings:

i. demand for fuel wood, timber, fodder and other NTFPs
ii. Encroachment on forest lands.
iii. Poaching of wild animals and mass hunting associated with festivals
iv. Inadequacy of awareness amongst the people and less number of forest staff to combat poaching.
v. Insufficient focus of management for improvement on habitat of wild lives.

22.5 ALLOTMENT OF AREA FOR MANAGEMENT:

This working circle covers all the forest blocks, included in this Plan over a total area of 58531.92 Ha. Since this Working Circle overlaps the entire plan area the details of area allotment to this circle has not been furnished here.

22.6 MANAGEMENT PRACTICES:

Usually the management practices involve:

1. Development of new habitats for the residential as well as migratory wild animals and birds and improvement of the existing habitats.

2. Improvement of existing wet lands by providing a conducive environment for propagation of species both flora & fauna.
3. To provide safe shelter to wild lives during natural calamities.
4. To provide water to the animals during summer by renovating existing water bodies and creating new water harvesting structures.
5. Development of existing natural meadows and creation of new meadow.
6. Restoration of habitats of wild animals & birds after cyclonic disturbances, etc
7. Plantation of fodder plants, fruit bearing trees and shrubs.
8. Maintenance of roosting and nesting trees.
9. Involvement of local people in protection and conservation of wild lives through awareness.
10. One Wild Life quarantine centre may be established at Ketakijhar nursery to observe the behaviour of injured/sick Wild Lives after rescue and before release.

22.7 WILD LIFE HABITAT:

A bulk of the forest area is terrestrial habitat. The perennial rivers, streams, ponds, minor irrigation projects like Salia, Bhetabar and Randa Dams and series of other small dams and water harvesting structures as in Rajin, Brahamandei, Sulia 'B', Dhani, Pangarsingh and Aranga and well spread network of nalas form very rich and most congenial acquatic habitat for the Wild Lives. Important perennial water sources include Salia Nadi, Ashoka Nala, Tava Nala, Nitijhar etc. in Banpur and Ranpur. The old water tanks, Ponds in Rajin Compartment No. 18, Mal Compartment No.6, Mal Compartment No.37 and Bankard and Rajin R.F. etc. serve as very useful water source during summer. They form ideal habitat for the aquatic wildlife including the transitory home for migratory birds. Number of other seasonal and perennial streams criss-cross the entire Division provide water source for the wildlife. Sub-terrestrial habitat consists of burrows and natural crevices interspersed extensively all over the forest areas. There are many burrows which are dug by the local people in the process of removal of roots & tubers and the accumulated rock pieces at the foothills and cracks in the rocky patches on the steep slopes also serve as a shelter for many reptiles like snakes, lizards etc. The vast stretch of forest cover in different Ranges besides interspersed scrubs all through the Division which are criss-crossed by many nallahs & streams provide most ideal arboreal habitat for varieties of rich avifauna as well.

The forest types in the terrestrial habitat are mostly covered with fairly dense woodlands of mixed deciduous species though some pure Sal patches are also found in plain areas, particularly in forest blocks like Rajin, Tamna, Mal, and Bankar R.Fs. The special habitats for

wildlife which are biological in origin and provide habitat for many of the wild lives and not serving in succession stages are also available in the forests. They include snags, snag recruits, den trees, down wood, isolated large old trees, trees with fluting boles, buttresses, lianas, some significant species of fruit bearing trees and shrubs. All these special habitats need to be maintained and care should be taken to retain them during the course of Silvicultural operations in the forests.

22.8 SPECIES STRUCTURE:

22.8.1 Autotrophs:

Most of the forest blocks of this Working Circle support almost dry deciduous & moist miscellaneous deciduous types of forest. The top canopy includes species like Shorea robusta, Pterocarpus marsupium, Terminalia tomantosa, Bombax ceiba, Mitragyna parvifolia, Anogeissus latifolia and Gmelina arborea etc. The middle storey consists of Bridellia retusa, Dalbergia sissoo, Desmodium oojeinensis, Lannea coromandelica, Lagerstroemia parviflora, Buchanania lanzan, Aegle marmelos, Terminalia bellirica, Terminalia chebula, Semecarpus anacardium, Sygygium cumini, Diospyrous melanoxylon, Schleichera oleosa, Madhuca indica, Cleistanthus collinus, Morinda tinctoria, Sterculia urens, Dellenia pentagyna, Emblica officinalis, Tamarindus indica, Anogeissus accuminata, Mangifera indica, Bauhinia variegata, Mallotus philippinensis and Pongamia pinnata etc. Undergrowth like Woodfordia fructicosa, Holarrheina antidysenterica, Indigofera pulchela, Andrographis paniculata, Phoenix acaulis, Tridax procumbens, Eupatorium odoratum and Clerodendron infortunetum etc are also noticed in this forest type. Interspersed amongst the wooded lands are grasslands which may be in small or large patches which are very important for the herbivores in the forests. In case of degraded forests, areas are mostly open and having scrubby growth of some of the above referred species.

22.8.2 Heterotrophs:

The major heterotrophic species structure communities are as follows:-

Primary heterotrophs are Sambar (Cervus unicolor), Cheetal (Axis axis), Barking deer (Muntiacus muntjak), Wild boar (Sus scrofa), Mouse deer (Tragullus memina) etc.

- Secondary heterotrophs are Leopard(Panthera pardus), Jungle cat (Felis chaus), Civet cat(Vivericula indica), Leopard cat(Felis bengalensis) etc
- Scavengers and other animals are Hyaena (Hyaena hyaena), Jackal(Canis aureus), Wild dog(Cuon alpinus), Sloth bear (Melursus ursinus), Mongoose (Herpestes edwardsii), large Indian squirrel (Ratufa indica) and Otters (Lutrogale perspiciclata) etc.

- The primates are represented by the common Langur (Presbytis entellus) and the common Pati (Macaca mullata).
- Amongst the snakes, Dhamana (Zamaris nucosus), Cobra (Naja tripudians), Viper (Vipera russelii) and the Krait (Bungarus candidus) are met with all over the Division. Some snake charmers of Kela Communities earn their livelihood by catching snakes from forests of this division.
- The avifauna includes peafowl, red jungle fowl, common quail, green pigeon, the imperial pigeon, doves, the hill mynas, the red-vented bulbuls, the golden back and the pied wood-peckers, the koels, the crow pheasants, large Indian parakeets, the common king fisher, the common horn-bills, the common Indian night jar, the screech owl, the great horned owl, the swifts, Pariah kite, the eagles, bush quail (Perdicula asiatica), the grey patridge, the cattle egret, storks, pond herons, the jungle crow, pipits etc.

22.9 POACHING AND WILDLIFE CRIME:

The wild animals primarily live in the forests but since it moves outside of the forests, crime against it is committed both inside and outside the forests. This is in fact man's oldest crime. Man kills wildlife as a sport or fancy, for its meat or to make quick monetary gains by sale of wildlife products. The wild life crime may comprise of poaching of wild animals, capture, possession, transport or trade of live animals and plants or their parts, products and derivatives. It also includes damaging or destroying its habitat besides the mass-hunting which is associated with local festivals and rituals. In fact, this crime is one of the fastest growing crimes in the world and is next to only the narcotic trade. A wildlife criminal may be a villager or a poor tribal or he may be a smuggler operating from towns/cities, depending on the level at which he is operating in the trade link starting from poaching within a locality to international border smuggling.

The methods of poaching the wild animals vary from place to place. Shooting is a common method for all kinds of mammals and some birds. However, poisoning of big cats, birds and large herbivores, trapping and snaring mammals like deer and some reptiles, and netting small mammals, small birds & butterflies are frequently resorted to. Application of glue by stick, insecticides and pesticides for killing fast flying birds and taking young hatchlings from birds' nest holes on trees are also commonly practiced. Digging out of snakes, porcupines, lizards etc from underground pits is commonly seen by the local tribes.

The poaching of herbivores like deer, sambar, wild boar, mouse deer, hare etc which is reported mainly for meat and for their trophy. When paddy or other crops ripen, and during the hot summer months when natural streams become dry all these animals including the wild elephants

generally stray into the human habitation and crop fields. Wire nooses for hare are a common sight in most of the tribal dominated forest areas. Tribals use bows and arrows to kill deer and sambhar. Most of them are expert at tracking wild animals and they follow them for two to three days accompanied by hunting dogs and they finally kill the animals using arrows. There are other trapping methods which are also used for killing deer and other herbivores.

22.10 METHOD OF TREATMENT:

The Divisional Forest Officer shall take steps to declare the portion of forest blocks as Wildlife Reserve and Community Reserve. In these forest blocks, no felling may be allowed except salvaging of uprooted, dry, dead and illicitly felled trees. Sufficient number of water bodies may be created inside the forest to make availability of water to the wild lives. Anti-poaching squads may be deployed on the vulnerable areas. Elephant corridors may be maintained for migration of wild lives. Anti-depredation squads may also be deployed to minimize the man-animal conflict. Fauna found in the existing water bodies are to be protected by patrolling along the nalah & on reservoirs by boat. During winter season many migratory birds are seen on the reservoirs. They should be given protection so that every year they can visit these water bodies.

22.11 MAINTENANCE OF SPECIAL HABITATS:

To provide habitats for small wild animals special habitats are maintained which are biological in origin. They include snags, snag recruits, den trees, down wood, isolated large old trees, trees with fluting boles, buttresses, lianas, some significant species of fruit bearing trees and shrubs. These special habitats have been neglected in the past. Care should be taken while implementing the plan to maintain these special habitats especially in the areas coming under the Selection working Circle.

22.11.1 Snags:

Maintain at least five tallest and largest diameter snags per hectare, in a well distributed design in all silvicultural treatments as a thumb rule. Retained snags need to appear in the compartment history. These are vital for a variety of primary hole-nesting birds like Woodpeckers and Barbets, which are colonized by secondary hole-nesters like Hill Mynas, Rollers, Owlets etc during subsequent years.





22.11.2 Snag recruits:

At least maintain five snag recruits per hectare. These are dying trees, but not quite dead mostly affected by a fungus causing heart rot disease. They can be recognized by their external symptoms. All such trees which are being retained need to be reflected on the compartment histories. These, along with snags provide a very good substrate for epiphytic orchids, especially of genus *Dendrobium,* birds and insects.





22.11.3 Large old trees:

These are naturally found in low densities. The *Ficus s*p. should not be counted among these since Ficus is not felled even otherwise. Large old trees of different species as and when encountered need to be reserved in any felling/tending operation. These retained trees (2 to 4 per Ha.) need to be entered in the compartment histories and serve as day-time roosts/nesting sites for large owls & other birds, etc.





22.11.4 Down wood:

In felling operations, among the rejects, apart from lops and tops, large size irregular shaped hollow logs often found. Being uneconomical they usually remain on site, or are converted

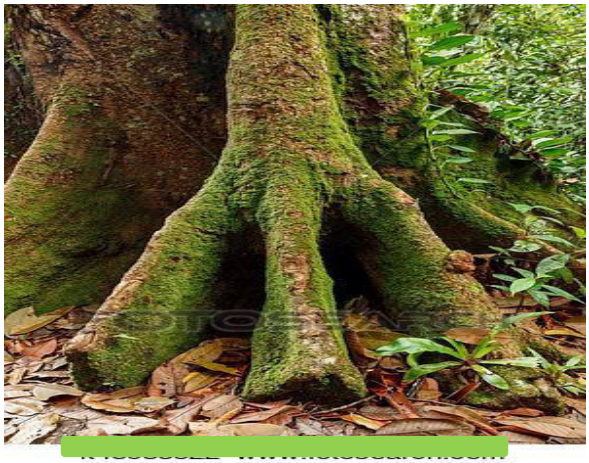
into fuel wood. Such large sized material provides critical ecological functions in support of maintenance of vegetation and animal diversity, besides serving the functions of cover and micro-habitat for several species. The large size hollow logs, or the rejects for any reason need to be maintained at the rate of at least three logs per hectare, and as far as practicable those should be evenly distributed and placed suitably in the compartment history.

22.11.5 Trees with fluting boles and buttresses and holes at the base:

These trees occur in very low densities represented by a small number of species. They provide significant microhabitat functioning for small mammals like the Mouse Deer and reptiles. One such tree at least, needs to be retained per hectare and entered in the marking list prepared for felling.









22.11.6 Lianas and tangled climbers:

Climber cutting operation is a standard practice and prescription for the same is there in all working circles. However lianas provide significant habitat functions in support of mobility of arboreal animals, and depending on animal species, serve as resting and escape cover for primates. They are equally important for arboreal small carnivores, some rodents and lizards. A climber with tangles is especially important. It is recommended that at least two old spaced apart climbers per hectare be retained, and recorded in compartment histories.





22.11.7 Fruit bearing trees and shrubs:

In all Silvicultural operations the fruit bearing trees and shrubs are kept reserve for providing fruits to local people and wild life. Proper care shall be taken for these trees for retentions, nursing and propagation standard. The species liked by animals, birds needs to be elaborately listed by local observation and distribution and this should be recorded. Marking rules need to be specific in this regard.

22.11.8 Roosting/Nesting trees:

All trees which are known to support nesting colonies of water birds or roosting congregations of raptors/other birds need to be retained. This is crucial especially with reference to vultures, which are critically endangered along with Pallas's Fishing Eagle and White-bellied Sea Eagle which have become very rare in coastal areas. It helps migratory birds along rivers, creeks and other water bodies found in forests.

22.12 DEVELOPMENT OF HABITAT:

The aim for the development of the habitat should be to provide more food, water and shelter to the wild life for reducing the man-animal conflicts. This shall be developed with the cooperation of local people, NGOs and with the active participation of the VSS members by using sound Silvicultural techniques.

22.12.1 Improving the Forest cover:

Providing adequate forest cover to different wild animals within their habitat is necessary for shelter and protection of wild animals from weather, predators and enemies. Keeping in view this aspect, it is prescribed in Selection cum Improvement Working Circle not to fell even those mature trees, which create a lasting gap in the canopy. It is also prescribed not to fell trees near water holes, wallows, and saltlicks to maintain cover. It is prescribed to go for mixed plantations instead of pure plantations to create ground flora and middle storey to provide cover for different types of wild animals in case of rehabilitation working circle. Forest cover around the streams, water holes and salt licks shall also be maintained and improved.

22.12.2 Improving availability of Food:

The adequacy of food in a particular wild life habitat depends upon the quality and quantity of food produced and the animal population living therein. Keeping in view this aspect of wild life management, the exploitable diameter of various species has been kept on higher side and the percentage of removal of exploitable size trees have been properly regulated and safe guarded. For food for wild life and for collection of NTFPs, the fruit bearing trees have been prohibited from felling under the respective working circles. Further, the important species as discussed in the following paragraphs should be a part of any plantation which will be taken in forest areas.

- Food availability in a habitat changes with the season. Herbivores depend on plant materials like leaves, barks, 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.
- Deer, Monkey, Langur, Rats and Hare feed on wild fruits of plants like Ficus species, Terminalia belerica, Buchanania lanzan, Aegle marmelos, Syzygium cumini, Emblica officinalis, Zizyphus mauritiana, Diospyros melanoxylon, Grewia hirsute etc. These animals help in dispersal of fruits and seeds in the forests.
- Among the plant materials, grasses constitute major portion of the herbivores' food. Grasses, which are highly preferred and consumed by herbivores, are Axonopus compresses, Eragrostis pilosa, Saccharum bengalensis etc. These grasses should be raised in the wild life concentrated areas to meet the food requirement of herbivores. Improvement of natural meadows and development of new meadows by creating artificially shall be taken up in suitable areas for providing food in sustained basis to the herbivores.

22.12.3 Water availability:

Most of the rivers and nallahs in the Division are seasonal in nature. Generally, there is no dearth of water from July to December. This scarcity of water is felt from January to June, when those nallahs and streams dry up. Hence, it is necessary to create water harvesting structures, ponds and check dams etc on the higher slopes across nallahs to make ensure the availability of water during summer.

22.12.4 Distribution of natural salt licks and creation of artificial salt licks:

There are good numbers of natural salt licks are found scattered mostly on sides of nallahs and at foothills. These shall be maintained and improved upon. Artificial salt licks are to be created in areas where more protection can be provided to the wildlife near anti-smuggling/poaching camps, beat houses, rest houses etc, and wild animals frequently visit those spots without any fear and danger to their life.

22.12.5 Corridor development:

Due to loss of connectivity and fragmentation of the habitat there is decreasing prey base in the area. This has resulted in increased man-animal conflicts. Hence, protection measures shall be strengthened in this area. Priority shall be given for the corridor development, particularly with continued concentrated efforts of protection & improvement of forest cover in blocks like Rajin R.F. of Balugon Range, Mal R.F. of Ranpur Range, Patia and Dhani (S) R.F of Tangi Range, and Barunei RF of Khordha Range. Steps should be taken through afforestation activities/ JFM activities to provide and maintain tree cover in potential corridors wherever necessary.

22.13 MAINTAINING UNIQUE HABITATS:

Unique habitats provide special functions not provided by successional stages and special habitats. They are geomorphic in origin.

22.13.1 Caves:

They are used by a variety of taxa. Large mammals like the tiger, leopard, bear and hyena use caves as shelter and for rearing cubs. The caves can have springs and small streams. They can thus be important for amphibians, reptiles, fishes and species of birds like the Edible Nest Swift lets. Several species of bats live in colonies inside caves. Caves need complete protection. Hence, it is crucial that any live cave/den be given stringent protection. All the caves, should be properly maintained and mentioned in the respective compartment histories of the block.

22.13.2 Overhangs:

When soft rock underlying hard rock weathers away, an arch is formed which serves as a shelter, as a substrate for bee hives (pollinators), nesting colonies for swallows etc. Such sites

need to be protected. Inventory of available overhangs in various forest blocks need to be made such exploration with their locations in compartments can be recorded for the sake of compartment history.

22.13.3 Dens:

These are much smaller and distinct from caves, usually dug in soft rock or earth cuttings by animals such as wild dogs, hyena, wolves, foxes, porcupines, for the purpose of shelter and breeding. When not occupied they can be used by a variety of tax such as small mammals and reptiles. Porcupines and pythons are known to share the same underground chambers. Dens are subjected to human disturbance. Local inhabitants are known to smoke out porcupines for pot, smoke out and kill wolf cubs, or otherwise look for animals in dens. All the dens should be protected. The available dens in various forest blocks and the overhangs if noticed any by the field staffs during the implementation working Plan prescriptions shall be recorded in the respective compartment history of this plan for reference.

22.13.4 Cliffs, talus and ledges:

Sheer cliffs often have crevices and ledges, some in shade, some exposed to the sun thus providing a variety of microclimate. Ledges located high up serve as nesting platform for eagles (endangered) and vulture colonies (now critically endangered). Cliff tops are equally important for this purpose. Crevices are colonized by several species of bats. Beehives hang along overhangs. Several cliff dwelling birds like swallows, martins establish their nesting colonies along cliff faces. Plants, specific to rocky substrates grow along cliffs. The base may provide caves. Talus is an aggregate of loose rocks dislodged from time to time from cliff faces. They secrete space in between which provides thermally secure microhabitats to several species of small mammals and reptiles. The threats to cliff based micro habitats may come from honey collectors, from activities such as rock climbing. Talus often may be used as source for stone, road metal etc. These features need to be strongly protected. The same shall be mentioned in the respective compartment histories of the plan for future guidance and reference.

22.13.5 Large bouldery aggregates:

These are normally found in drainages, especially in sections in proximity of headwaters. These are excellent habitat elements for bears, honey badger and some species of reptiles. On rocky banks wild bananas grow which is an important food item for the bear besides species value. These are areas where disturbance needs to be completely controlled.

22.13.6 Sheet rocks:

These often have crevices which provide shelter to several species of small vertebrates. Lithophytic plants peculiar to rocky substrates grow along sheet rocks, in STR, several species are noticed to grow only in the rocky sprayzones of waterfalls. This habitat is vulnerable to road construction, development of hiking trails, and tourism infrastructure, as a source of stone etc. and therefore needs protection.

22.13.7 Earth cuttings:

These are important for species which dig dens. Near streams, kingfishers bore burrows into the banks for nesting. Significant banks/earth-cuttings need to be protected from activities such as road alignment etc.

22.13.8 Saltlicks:

Natural saltlicks are important for all herbivores and such sites need to be protected from disturbance such as road alignment, soil conservation or any other engineering work, setting up labour camps or cattle camps in their vicinity etc.

Hence, the unique habitats are vulnerable for a variety of reasons. Depending on the existing and anticipated situation, the Divisional Forest Officer should prescribe appropriate protection/regulatory strategies. Some of the prescriptions are likely to be generic, while some need to be site specific with reference to critical sites that come into notice during the survey conducted.

22.14 MAINTENANCE OF CRITICAL MACRO HABITATS:

There are two kinds of critical macro habitats found. 1- Riparian zones, 2- Gorges.

22.14.1 Riparian zones:

They are among the most diverse, ecologically productive and dynamic systems. Being dendritic in pattern they connect all kinds of habitats along and across the altitudinal range, and act as wildlife corridors. They are used disproportionately more in relation to their availability by wild animals since all animals need to come to water. Herbivores feed on a diversity of vegetation which is associated with this zone, the riparian forests provide thermal cover in winter and summer which is important for all wild animals. The lofty trees and unbroken canopy is of great significance to arboreal mammals and reptiles. The tall trees provide nesting cover to raptors. These systems are equally attractive to domestic cattle. Often scenic values are associated with riparian zones and hence they are attractive to people. Riparian zones are linear and hence most vulnerable to change due to the great pressures they attract. The Divisional Forest Officer should ensure that:-

- As far as practicable extraction path alignment needs to be avoided along the riparian forests.
- Roads already existing but not in particular use need to be closed for traffic (often used as short cuts long after the initial purpose is over).
- There should be no plantation activity in riparian forests.
- Rule of the thumb is that on either side of the stream, an area of a width equal to thrice the average top height of trees in riparian forests should be prescribed as a no felling and no activity zone to filter out effects of an edge in the interior of riparian forests and to maintain their ecological processes and functions.
- Labour camps likewise should be located outside such zones.
- New road alignment should be located outside the no felling zone.
- No borrow pits should be located within the riparian zone.
- Recreation sites within the riparian zones should be minimum in number and strictly controlled. They should not be located on sites that are ecologically fragile of critical value.
- There should be no quarrying within the riparian zones.
- No cattle camps will be allowed or any infrastructure development.
- If pisciculture is to be developed, it will be outside the natural streams.

22.14.2 Gorges:

These may not be a common feature. Gorges may occur in hilly areas. They have steep sides and usually evergreen vegetation along the bottom. These are sites where primitive plants may be found, they also provide crucial microhabitat for herpetofauna. Gorges need to be protected.

22.15 MAINTENANCE OF WATER SOURCES AND WETLANDS:

Water sources, perennial and seasonal, artificial or natural need to be protected and maintained. A water source is subjected to silting, poisoning, being drained off, subject to other pollutants, some are shared between cattle, people and wildlife, some monopolized by cattle or people. Site specific strategies for their protection and maintenance need to be prescribed by the Divisional Forest Officer. Artificial sources may be created if required. The ecological principles for the purpose should be followed.

Wetlands are breeding grounds of reptiles, birds etc. Day by day wetlands are vanishing due to land filling / construction etc. Many wetlands outside the forest areas are under the administrative control of Revenue department. Initiative is to be taken by the forest department to map the wetlands through Satellite imagery and GPS. The list of such wetlands needs to be approved

by the District administration and maintenance of such wetlands may be regulated by the Forest department. The maintenance involves

- Demarcate extent of wetland.
- Partial de-silting of wetland.
- Allow growth of submerged weeds palatable to birds to some extent.
- Allow fish fauna / snails/ crabs to breed & grow naturally.
- Prevent fishing, poaching of birds in the designated wetland.

22.16 CREATION & MAINTENANCE OF GRASS LAND:

A balanced food chain pyramid is a good sign of a healthy forest eco-system. In Khordha Forest Division most of the wild life species available are herbivores. Day by day grass lands are reducing posing a stress time for herbivorous. It is highly required to create and maintain grass lands (meadows) inside forest blocks, Village forests, river banks, near wetlands and swampy areas. This will boost the concentration of food base for herbivorous vis a vis carnivores.

22.17 MAINTAINING THE CULTURAL LANDSCAPE:

Sites of Pilgrimage:

Deities of tribal's inside forest villages and outside local villagers are often located in ancient/old growth stands or groves and there are specific periods of pilgrimage. People follow several forest routes to get to the holy site. Divisional Forest Officer needs to have full information on the average number of people, activities on the pilgrimage site and off site, travel routes, needs of pilgrims etc. From the time pilgrims enter the forest area to the time they exit, their movements and activities need to be regulated and extra protection efforts need to be invested. They would enroute need fuel wood, camping sites and any other demands they place on resources. Rubbish dumping, illegal cutting, opportunistic poaching could be serious issues. Once issues are firmed up, specific strategies for protection and resource regulations should be prescribed by the Divisional Forest Officer. A major concern is for the protection of the old growth/groves from the presence of a large number of people.

22.18 OTHER PRESCRIPTIONS TO ACHIEVE THE OBJECTIVES:

The distribution of wildlife in different forest blocks shall be studied and their occurrence in different habitats in different seasons shall be estimated. Census of wild animals shall be done every alternate year in consultation with the Chief Wildlife Warden to even assess the prey-predator base, this will even help in further improving the management prescriptions and the habitats.

Wildlife habitats of endangered species shall be identified and mapped. Presence of natural waterholes, saltlicks and natural meadows shall be estimated and their adequacy shall be assessed with reference to their population estimates. Watch towers shall be constructed near crucial waterholes and saltlicks to not only facilitate estimation of occurrence of wildlife but also to discourage hunting.

Seasonal migration routes for wild animals shall be identified and preventive measures taken to protect and improve those corridors. The areas vulnerable to poaching shall be protected from all sorts of biotic interference.

During fire season the existing fire lines at vulnerable places should be cleared and new fire lines should be created and the materials removed should be dumped in such a way that it facilitates rodents, insects, jungle fowl and other birds to build their nests for safe breeding. Cattle population in different areas shall be estimated and the carrying capacity of the forests and fodder enhancement measures shall be taken up keeping the requirements of cattle and wildlife in view.

Identified pockets of wild life and scenic beauty can be developed as eco-tourism centers. These centers should be developed with the active support and participation of the local community & VSS members who should be able to earn some livelihood through the influx of visitors. Visitor amenities and recreational facilities should be developed by submitting specific projects for the same. The list of potential site for eco-tourism in the division are:-

(i) Berbera
(ii) Barunei hill
(iii) Dhauligiri
(iv) Jaydev Pitha
(v) Trahi Achyut
(vi) Maa Ugratara Pitha
(vii) Pandabasuni Pitha
(viii) Maa Maninaga Pitha

The awareness and interpretation centres should be developed at every range head quarters, Forest Rest House etc which will serve as a Centre for Environment Education for the School children for whom regular programmes will be conducted. This will contain literature, brochure, pamphlets, poster on “Nature & wild life” and a portion of it will serve as museum for wild life lovers. It will also serve as a venue for grass-root level training and workshop. Also these centres can educate the people and make awareness for protection, improvement, and management of fauna. This will help in building public awareness about forests, medicinal plants and wildlife. Trekking points/routes should be identified and designated.

Generating awareness about the wildlife and its relevance to the well-being of mankind needs be given priority through different campaigns. In fact, the local people shall be actively involved in the process of habitat improvement and conservation through the concept of JFM. Local villagers are the treasure of information which can be of immense help even in tracking down the poachers' vis-à-vis control of wildlife crime.

At least once in a month preferably on a weekly market day, a film show, debates, meetings, symposium etc on "Nature and wild life" shall be conducted by the Range Officers and people shall be educated and motivated on "Nature and wild life" and provisions of "Forest and wild life Acts".

Children enrolled in Eco Clubs schools may be taken in field visit for creating awareness among the children about "Nature and wild life".

Village Forest Committees and other voluntary groups shall be associated in conservation of "Nature and wild life".

Periodical wild life census with the help of voluntary groups, NGOs, & School & College students should be undertaken. They may be explained about identification of pug marks and wild life species.

Soil conservation measures shall be enforced all over the working circle and construction of permanent check dams over the temporary check dams shall be preferred. This will supplement the water requirement of the animals during summer. The existing water holes shall be maintained, protected and renovated

Watch towers, hide outs and viewpoints may be constructed at suitable locations.

22.19 WILDLIFE PROTECTION MEASURES:

It is of paramount importance to provide adequate protection to available fauna and migratory animals & birds. The immediate need is to collect and tabulate all available spatio-temporal information about incidence of wildlife crime including identity and the established behaviour of the criminals. The second step is to analyze the information and prepare a strategy and action plan while third step is to carry out enforcement.

The staff deployed for anti-poaching operations shall be extremely alert, in good health with high motivation. They should be trained in handling of arms and ammunition and in proper identification of wildlife species and their parts. They should be properly armed and provided with VHF sets for communication. Satisfactory maintenance of the fixed and mobile VHF sets is a pre-requisite for efficient operation. The staff involved in the entire operation shall also be conversant with the basics of litigation and court procedure with regard to wildlife crime. The patrolling

party/anti-poaching squads must be well acquainted with the entire terrain of the forest. Patrolling paths should be planned out in advance and such paths should not always follow the beaten tracks but should be varied on random choice or based on specific information. The proper way of conversation with the local villagers during a patrolling is important to gain vital information, and also to gain their trust. The patrolling party must always try to obtain information that can be used to prevent further poaching in the area.

Proper information collection is a vital for prevention and/or detection of wild life crime, both covert and overt information should be collected. The officer who is handling the full time informers and information inflow should ensure proper follow up of the said information. Decoy and undercover operations may also be adopted to arrest the offenders and seize the wildlife products being traded.

The major aspect of concern is the inadequate knowledge of proper prosecution leading to very low conviction rate in wildlife cases. The success of protection efforts can not only be judged with regard to the number and nature of wildlife offence cases booked but also the effectiveness with which such offence cases are investigated and contested in the appropriate courts of law. Mostly, the offenders booked in wildlife offence go out on bail and/or acquitted. Then, they are encouraged to commit crime again. Very often, the accused escape due to technical flaws or perfunctory prosecution report or shoddy investigation. Hence, appropriate training in wildlife crime investigation methods and techniques shall be imparted to adequate number of staff. It is vital that proper evidence is recorded at every stage of investigation and case records are meticulously built / maintained on daily basis. Moreover, the prosecution report shall be thoroughly scrutinized by the ACF and also by the Divisional Forest Officer before being filed in the court. Even, the cases shall be pursued regularly in the court so as to ensure greater rate of conviction. These measures will have long lasting effect even on the overall forest and wildlife protection in the entire Division as well. Considering the protection and improvement of fauna and growing incidence of wildlife criminals a law officer with criminal background need to be posted in Principal Chief Conservator of Forests (WL) to increase the success rate of conviction/ punishments to offenders.

Anti-poaching camp should be set up in vulnerable pockets where there is greater concentration of wildlife. During the fire season these forest blocks should be given priority in protection from fire.

There shall be inventory prepared of all the gun licenses within 10 km radius of blocks rich in wildlife. This will help in better control over the poaching activities otherwise also. This inventory should be regularly posted up to date. Also a list of habitual offenders committing,

poaching cases should be maintained and a keen eye over them should to be taken by the local officers. Reward to the informants should be there as a provision for encouraging the individuals for collecting confidential information regarding poaching and apprehending the offenders.

22.20 THREAT TO WILD ANIMALS AND SUGGESTED REGULATION MECHANISMS:

There are various threats to animals, birds, reptiles, etc of this division and probable steps suggested against these are as follows.

Fire Hazard:

All possible steps are required to be taken against fire hazards and protecting the wild life against fire.

- Maintaining Fire Line along the Forest Blocks,
- Control burning of dry grasses and dry leaf litters before fire season.
- Early fire detection system to be followed.
- In case of fire from all sides of a patch of forest- escape route / path should be immediately cleared to save from fire burnt.
- As most of forest fire are man made it can be prevented to a large extent by motivating and educating the local people.
- Adequate field staffs should be stationed with necessary equipment in fire prone areas to control and suppress the fire menace during the summer season.

Illegal Collection of eggs and Birds hunting:

Illegal collection of Birds egg by local people is normally seen in many parts of the district / State. It can only be checked by patrolling / deploying squad members and it should be ensured. Public awareness before birds' nesting in probable areas will also help in reducing the damage due to collection of eggs.

Illegal trade in wild animals and articles:

Illegal trade of wild animals / animal parts / meat /trophies is encountered in the state. The origin is not always tracked up. Constant patrolling, collection of intelligence, deployment of squad in vulnerable areas is recommended.

Scarcity of Forage:

During Flood and Cyclone fodders are not available to animals for days together. In shelter shed they have to be provided with fodders / grasses etc. It is required to make necessary provisions in management fold to have fodders at stock after getting Flood / Cyclone Warning. Captive grass land / cultivation of grass may be a practice by developing and creating meadows in some open areas.

Wildlife Depredation:

Depredation by wild animals is gradually increasing and the main reason for this conflict is shrinkage of their habitat and shortage of food. Animal depredation is a problem in this division. There are several reports of killings and injury of the human beings, damage to the crops in the division. The Divisional Forest Officer should develop short term and long term measures to combat this problem. To mitigate miseries of people due to wild animals, the compassionate amount for crop damage, house damage, injuries and death, should be disbursed to them as quickly as possible. Delay makes people lose faith in the forest department and they tend to take revengeful self-protection measures even by resorting to killing/poisoning of animals.

Control of Grazing:

The wildlife rich areas shall be closed for grazing. However, grazing may be controlled elsewhere as per the provisions of the Orissa Forest (Grazing of Cattle) Rules, 1980. The local people and the VSS may even be motivated to immunize their cattle which graze inside the forests.

Incentives and Rewards:

There shall be provision for rewards and incentives to the staff and public including the informers whose efforts lead to detection of wildlife crime and arrest of the offenders. Moreover, their deeds shall also be given media publicity in the locality as well as recognition on the occasions like Wildlife Week and World Forestry Day.

Rights and Concessions:

Rights and concessions under this Working Circle shall be regulated in accordance with the provisions of the Orissa Forest Act, 1972, the Wildlife (Protection) Act'1972, Rules made there-under besides the Government policies in force.

Awareness:

The awareness for wildlife preservation may be created through celebration of wildlife week, competitions and debate among the school/college students. Even, publicity material shall be distributed and the benefits of wildlife conservation explained through electronic media. The legal provisions under the Wildlife (Protection) Act'1972 shall also be brought to the notice of all including the scope and extent of the compassionate amount for wildlife depredation.

Infrastructure and Training:

To ensure better protection and to enhance their effectiveness, the field staff shall be provided with modern equipments including proper arms and ammunitions. As fast and better communication is the key for protection of forests and wildlife, divisional headquarters, all the range

headquarters, section headquarters, sensitive beats and check gates should be provided with VHF sets. More and more field staff shall be trained in wildlife management and in detection and investigation of wildlife crimes.

Information network and records keeping:

A regular data base should be maintained at each Divisional level comprising of details like

- schedule species found in the area,
- pictorial directory of all identified poachers to be prepared and circulated in the locality,
- list of traders in cattle and goatskins as well as tanneries,
- list of eating houses alleged to be serving bird/deer meat and
- timely & proper documentation of all the incidences of man-animal conflicts including poaching.

Further, the Divisional Forest Officer shall also submit half-yearly report to the authorities concerned with regard to steps taken by him to protect wildlife and to improve their habitat. He shall also report the constraints faced by him in implementing the prescriptions of this Working Circle.

22.21 INTERMEDIATE REVISION:

No intermediate revision is anticipated. However, if so required, the Regional Chief Conservator of Forests in consultation with the Chief Conservator of Forests (Working Plans), will send a proposal for amendment of prescriptions to the competent authority for necessary approval.

22.22 ASSOCIATED REGULATIONS AND MEASURES:

The wildlife is not confined to forest blocks only. They are seen in forests and outside forest, agricultural fields etc. The public as a whole has a responsibility towards protection & conservation of wild animals. For management of wetland situated outside the forest area required to be regulated by the district administration. A concentrated efforts is required to be initiated and some instructions to regulating officials need to be promulgated. During last cyclone “FANI” many animals and avifauna were affected. As cyclone is a regular phenomenon in Odisha coast animals and birds are likely to be affected before they recouped from the past damage. It is essential to provide protection to animals against storms and immediate fallouts. Plantations should be raised in all the catchment areas of the Chilika lagoon coming under this division to protect the animals and habitation against cyclonic storm. This matter needs to be discussed with district administration.

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CHAPTER –23

GENERAL FINANCIAL FORECAST AND FINANCIAL PLAN OF OPERATION

23.1 COST OF PREPARATION OF WORKING PLAN

The preparation of the Plan started in October, 2016 and continued up to November, 2020. The total cost of the plan is Rs. **2,64,09,51,588.00** (Rupees Two hundred sixty four crores nine lakhs fifty one thousand five hundred eighty eight) Only. The above expenditure is including the salary of regular staff engaged exclusively in working plan work. The management is prescribed for 58 forest blocks (22 RFs, 05 PRF and 31 DPFs) with 142 Nos. of VFs covering an area of 58531.92 Ha. Thus the cost of preparation of plan comes to Rs.973.39 / Ha.

The total expenditure for preparation of this working plan of is Rs.**2,64,09,51,588.00** out of this (Rupees Two hundred sixty four crores nine lakhs fifty one thousand five hundred eighty eight) Only out of this Rs**.56974680.00** is the cost of establishment, maintenance of building, minor works and legal charges, which comes to of the total expenditure. The amount spent on actual working plan preparation is only Rs. **56974680.00** (Rupees Five Crore Sixty Nine Lakh Seventy Four thousand Six Hundred Eighty) Only i.e. 20.95% of the total budget.

23.2 FINANCIAL FORECAST

The Financial Forecast for different working circles along with Miscellaneous Working Circle for the plan period is furnished below:

Table No. 23.1

Head of service	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	Total in Rs.
1	2	3	4	5	6	7
Establishment	71,00,535	77,66,745	1,04,83,189	1,09,76,847	1,09,46,843	**47274159.00**
Building (Maint.)	1200000	400000	400000	320000	240000	**2560000.00**
Minor work	--		--	--	--	**-**
Legal charges	--	--	--		--	**-**
Working Plan Non-plan	100000	115000	770315	22,29,668	9,15,637	**4130620.00**
State Plan	600000	14,60453	-	-	9,49,448	**3009901.00**
Total	**90,00,535**	**97,42,198**	**11,653504**	**13526515**	**13051928**	**56974680.00**

Chapter – 14

Cost of working of Selection-Cum- Improvement Working Circles

Total area covered – 33,466.14 Ha.

Table No-23.2

Sl. No.	Item of work @ Rs. 308.05/-MD	Cost in Rs.
1	**2**	**3**
1	Demarcation of Annual Coupes @ 1 Mandays / 10 Ha @ 308.05/ mandays	10,30,924.00
2	Marking of Selection Coupes including climber cutting @ 3 Mandays/ 10Ha	30,92,773.00
3	Thinning & other operations @ 2.5 Mandays / 10Ha.	25,77,311.00
4	Subsidiary Silvicultural works @ 3 Mandays / 10 Ha.	30,92,773.00
5	Miscellaneous regulations @ 0.5 Mandays / 10Ha.	5,15,462.00
	Total	**1,03,09,243.00**

Chapter – 15

Cost of working of Rehabilitation Working Circles

Total area covered –18087.8985Ha.

Table No-23.3

Sl.No.	Item of work @ Rs. 308.05/-MD	Cost in Rs.
1	**2**	**3**
1	As per approval cost norm of PCCF(O)	
2	ANR Plantation with Silvicultural opearation(400nos plants) @ Rs.52808/- per Ha	95,51,85,744.00
3	Miscellaneous regulation (LS) @ 0.5 MD / Ha	27,85,989.00
	Total	**95,79,71,733.00**

Chapter – 16

Cost of working of Plantation Working Circle

Total area covered -5072.294 Ha.

Area to be planted -1905.581 Ha.

Table No-23.4

Sl.No.	Item of Work @ Rs. 308.05/- per MD	Cost in Rs.
1	**2**	**3**
1.	Cost of tending operation etc.@ 20 mandays per hectare for 1905.581 Ha.	11,740,285.00
2.	Maintenance of JBP plantations 609Ha.maintained upto 10 years For protection – 1MD/20ha/month	11,25,615.00
3.	Cost of raising plantation over 1905.581@ 79,574/- per ha.	16,54,89,600.00
Total		**17,83,55,500.00**

Chapter –17

Cost of working of Car Timber (O) Working Circle
Total area covered -16358.81Ha.
Total area covered by Car Timber FS -16358.81.

Table no-23.5

Sl.No.	Item of Work @ Rs. 308.05/- per MD	Cost in Rs.
1	**2**	**3**
1	Demarcation of Annual Coupes @ 1 MD/10 Ha@ 308.05/-per M.D.	5,03,933.00
2	Marking of trees including climber cutting @ 0.5 MD / 10 Ha.	2,51,967.00
3	Subsidiary Silvicultural operation @ 1 MD / per Ha. including regeneration cleaning	5,03,93,31.00
4	Watch & ward against illicit felling, fire and grazing from February to May, 3 watchers per 200 ha. for 10 years	9,14,63,687.00
5	Extraction and Transportation of Car timber spp.2500Cft (Avg) every year (entire cost bear by Jaganath Temle administration, (Puri)@ Rs. 308.05/- per Cft. Rs. 770125/- x 10 Years	77,01,250.00
6	Extraction of fire wood 51,420 Cft (L.S.) from 1714.50 ha of existing plantations @ 191/-per Cft in 10 years by OFDC Ltd.	32,74,695.00
	Total	**10,82,34,863.00**

Chapter –18

Cost of working of Bamboo (O) Working Circles

Total area covered –29378.51Ha.

Table No-23.6

Sl.No.	Item of Work @ Rs.308.05/- per MD	Cost in Rs.
1	**2**	**3**
1	Demarcation of Coupe @ 0.5 M.D./ 10 ha.	4,52,502.00
2	Silvicultural operation @ 6 M.D. / Ha.	5,43,00,300.00
3	Misc. expenditure @ 0.5 M.D / 10 Ha.	4,52,502.00
	TOTAL	**5,52,05,304.00**

Chapter – 19

Cost of working of NTFP (O) Working Circle

Total area covered – 58,531.92Ha.

Table no-23.7

Sl.No.	Item of Work @ Rs. 308.05/- per MD	Cost in Rs.
1	**2**	**3**
1	General prescriptions, Misc. regulations @ Rs. 215/- Per Ha.	1,25,84,363.00
2	Agave Plantation 100 Kms. @ 56,374/- per RKM	56,37,400.00
3	Publicity, research, marketing etc. on L.S.@4,40512/-per year	44,05,120.00
4	For Cane exploitation over 29,702.83 Ha for 10 years (3.09MD per Ha)	2,82,73,366.00
	Total	**5,09,00,249.00**

Chapter –20

Cost of working of JFM (O) Working Circle
Total area covered – 16467.11 Ha.

Table No-23.8

Sl.No.	Item of Work @ Rs. 308.05/- per MD	Cost in Rs.
1	**2**	**3**
1	Creation of JFM awareness in remote areas by organizing public meeting , exposure visit , wall painting , street play, and Video graphic etc. @ 5,00,000/- each year	50,00,000.00
2	Entry point activities and support to VSS @ 10,00,000/- each year	1,00,00,000.00
3	Survey demarcation and Identification of allotted area to each VSS to avoid inter village conflict @ 2,00,000/- each year	20,00,000.00
	TOTAL	**1,70,00,000.00**

Chapter 21

Cost of working of Catchment Treatment (O) Working Circle

Total area covered - 58,531.92 Ha**.**

Financial Forecast:-

1. Construction of water body 50 @ Rs.10,00000 Rs.50000000
2. Construction of soil conservation measures such as percolation tank, gulley pluging, contour bond etc. As per cost norms of PCCF, Odisha. Rs.50000000

Rs.100000000

Chapter – 22

Cost of working of Wildlife (O) Working Circle
Total area covered - 58,531.92 Ha**.**

Table No-23.9

Sl.No.	Item of Work @ Rs. 308.05/- per MD	Cost in Rs.
1	**2**	**3**
1	For construction of Water holes, Game tanks, Salt licks, watch towers, Wildlife protection, researches, publicity, Wildlife census, Elephant Depredation, corridor development for elephants, compensation amount, fodder cultivation and grass land for herbivorous, training, Awareness camps etc. @ 1320/- per hector on L.S. over 58,531.92 Ha.	**7,72,62,134.00**
	Total	**7,72,62,134.00**

Chapter –24

Cost of working of Miscellaneous Regulation
Total area covered – 58,531.92 Ha.

Table No-23.10

Sl.No.	Item of Work @ Rs. 308.05/- per MD	Cost in Rs.
1	**2**	**3**
1	Reconciliation of area discrepancy and recording, GPS coordinates for each boundary pillar and re-verification of boundary of various Forest blocks with larger discrepancy on LS	40,00,000.00
2	Cost of GPS 50 Nos. @ 20000/- each	10,00,000.00
3	One Data Base computerized system (GIS Cell) to be developed for each Division for maintenance of all valuable records in establishment, forest offence and lease section on LS	20,00,000.00
4	Monitoring and evaluation of different prescriptions through a team consisting of members of reputed Department Vigilance staffs @ 2,00,000/- each year.	20,00,000.00
5	Library Books, maps, tools, equipments etc@ 20,0000/- on L.S.	20,00,000.00
6	Capacity building of Forest personnel on L.S @Rs. 5,00000/- per year	50,00,000.00
7	Development of department buildings @ Rs.10,00000/-per year on L.S.	50,00,000.00
8	Disposal of forest produce @ 10,00000/- per year on L.S.	50,00,000.00
9	Incentives and Rewards to the VSS members and staffs and collecting intelligence regarding smuggling @ Rs. 500000/- each Year	50,00,000.00
10	Engagement of Firewatchers 2 Nos. over 58,531.92 Ha in 11 forest blocks for 4 months i.e. Feb. to May every year @ 2 watcher per 200 Ha for 10 years	5,00,00,000.00
11	Fuel expenses for 4 vehicle engaged for forest protection work at Balugaon, Tangi, Ranpur and Khordha 1500@ per day per vehicle for 10 years	2,19,00,000.00
12	VHF base stations including towers 15 Nos and set @ 1,00000/-	15,00,000.00
13	VHF handsets 50 Nos. @ 15,000/- each	7,50,000.00
14	Maintenance of Boundary of all RFs and DPFs 775.70 Km @ 30 MD per Km,	71,68,632.00
15	Maintenance of Boundary of all PRFs @ 30 MD per Km on L.S. (300Km)	27,72,450.00
16	Construction of masonary pillars 200 pillars every year @ 500/- per pillar on L.S. for 10 Years	10,00,000.00
17	Maintenance of Forest Roads 174.61 Kms, @ 18 Km every year @ Rs. 1,00,000/- per Km Rs. 18,00,000 x 10 years	1,80,00000.00
	Total	**13,90,91,082.00**

Table No-23.11

PROJECTED COST OF THE PLAN

Sl no	Name of the working circle	Chapter	Amount in Rs.
1	**2**	**3**	**4**
1	Selection-cum-Improvement	14	1,03,09,243.00
2	Rehabilitation	15	95,79,71,733.00
3	Bamboo (O)	18	5,52,05,304.00
4	NTFP (O)	19	5,09,00,249.00
5	Car Timber (O)	17	10,82,34,863.00
6	Wildlife (O)	22	7,72,62,134.00
7	Plantation	16	17,83,55,500.00
8	JFM (O)	20	1,70,00,000.00
9	Catchment Treatment (O)	21	10,00,00,000.00
10	Miscellaneous Regulations	24	13,90,91,082.00
	Total		**1,69,43,30,108.00**

(Rupees One hundred sixty nine crore forty three lakh thirty thousand one hundred eight) Only

Abstract of Working Circle-Wise Expenditure for the year 2021-22

Table No-23.12

Sl.No.	Name of the Working Circle	Chapter	Amount in Rs.
1	Selection-cum-Improvement	14	1,03,09,24.00
2	Rehabilitation	15	9,57,97,173.00
3	Bamboo (O)	18	55,20,530.00
4	NTFP (O)	19	50,90,025.00
5	Car Timber (O)	17	1,08,23,486.00
6	Wildlife (O)	22	77,26,213.00
7	Plantation	16	1,78,35,550.00
8	JFM (O)	20	17,00,000.00
9	Catchment Treatment (O)	21	1,00,00,000.00
10	Miscellaneous Regulations	24	1,39,09,108.00
		Total	**16,94,33,011.00**

Abstract of Working Circle-Wise Expenditure for the year 2022-23

Table No-23.13

Sl.No.	Name of the Working Circle	Chapter	Amount in Rs.
1	Selection-cum-Improvement	14	11,34,017.00
2	Rehabilitation	15	10,53,76,891.00
3	Bamboo (O)	18	60,72,583.00
4	NTFP (O)	19	55,99,027.00
5	Car Timber (O)	17	1,19,05,835.00
6	Wildlife (O)	22	84,98,835.00
7	Plantation	16	1,96,19,105.00
8	JFM (O)	20	18,70,000.00
9	Catchment Treatment (O)	21	1,00,00,000.00
10	Miscellaneous Regulations	24	1,53,00,019.00
		Total	**18,53,76,312.00**

Abstract of Working Circle-Wise Expenditure for the year 2023-24

Table No-23.14

Sl.No.	Name of the Working Circle	Chapter	Amount in Rs.
1	Selection-cum-Improvement	14	12,47,418.00
2	Rehabilitation	15	12,75,06,038.00
3	Bamboo (O)	18	66,79,842.00
4	NTFP (O)	19	61,58,930.00
5	Car Timber (O)	17	1,30,96,418.00
6	Wildlife (O)	22	93,48,718.00
7	Plantation	16	2,15,81,016.00
8	JFM (O)	20	20,57,000.00
9	Catchment Treatment (O)	21	1,00,00,000.00
10	Miscellaneous Regulations	24	1,68,30,021.00
		Total	22,22,05,337.00

Abstract of Working Circle-Wise Expenditure for the year 2024-25

Table No-23.15

Sl.No.	Name of the Working Circle	Chapter	Amount in Rs.
1	Selection-cum-Improvement	14	13,72,160.00
2	Rehabilitation	15	14,02,56,641.00
3	Bamboo (O)	18	73,47,826.00
4	NTFP (O)	19	67,74,823.00
5	Car Timber (O)	17	1,44,06,060.00
6	Wildlife (O)	22	1,02,83,590.00
7	Plantation	16	2,37,39,117.00
8	JFM (O)	20	22,62,700.00
9	Catchment Treatment (O)	21	1,00,00,000.00
10	Miscellaneous Regulations	24	1,85,13,023.00
		Total	**24,34,25,871.00**

Abstract of Working Circle-Wise Expenditure for the year 2025-26

Table No-23.16

Sl.No.	Name of the Working Circle	Chapter	Amount in Rs.
1	Selection-cum-Improvement	14	15,09,376.00
2	Rehabilitation	15	17,24,18,392.00
3	Bamboo (O)	18	80,82,609.00
4	NTFP (O)	19	74,52,305.00
5	Car Timber (O)	17	1,58,46,666.00
6	Wildlife (O)	22	1,13,11,949.00
7	Plantation	16	2,61,13,029.00
8	JFM (O)	20	24,88,970.00
9	Catchment Treatment (O)	21	1,00,00,000.00
10	Miscellaneous Regulations	24	2,03,64,325.00
		Total	**27,55,87,621.00**

Abstract of Working Circle-Wise Expenditure for the year 2026-27

Table No-23.17

Sl.No.	Name of the Working Circle	Chapter	Amount in Rs.
1	Selection-cum-Improvement	14	16,60,314.00
2	Rehabilitation	15	15,42,82,306.00
3	Bamboo (O)	18	88,90,869.00
4	NTFP (O)	19	81,97,536.00
5	Car Timber (O)	17	1,74,31,333.00
6	Wildlife (O)	22	1,24,43,144.00
7	Plantation	16	2,87,24,332.00
8	JFM (O)	20	27,37,867.00
9	Catchment Treatment (O)	21	1,00,00,000.00
10	Miscellaneous Regulations	24	2,24,00,758.00
		Total	**26,67,68,458.00**

Abstract of Working Circle-Wise Expenditure for the year 2027-28

Table No-23.18

Sl.No.	Name of the Working Circle	Chapter	Amount in Rs.
1	Selection-cum-Improvement	14	18,26,345.00
2	Rehabilitation	15	16,97,10,536.00
3	Bamboo (O)	18	97,79,956.00
4	NTFP (O)	19	90,17,290.00
5	Car Timber (O)	17	1,91,74,466.00
6	Wildlife (O)	22	1,36,87,458.00
7	Plantation	16	3,15,96,765.00
8	JFM (O)	20	30,11,654.00
9	Catchment Treatment (O)	21	1,00,00,000.00
10	Miscellaneous Regulations	24	2,46,40,834.00
		Total	**29,24,45,304.00**

Abstract of Working Circle-Wise Expenditure for the year 2028-29

Table No-23.19

Sl.No.	Name of the Working Circle	Chapter	Amount in Rs.
1	Selection-cum-Improvement	14	20,08,980.00
2	Rehabilitation	15	18,66,81,590.00
3	Bamboo (O)	18	1,07,57,952.00
4	NTFP (O)	19	99,19,019.00
5	Car Timber (O)	17	2,10,91,913.00
6	Wildlife (O)	22	1,50,56,204.00
7	Plantation	16	3,47,56,441.00
8	JFM (O)	20	33,12,819.00
9	Catchment Treatment (O)	21	1,00,00,000.00
10	Miscellaneous Regulations	24	2,71,04,917.00
		Total	**32,06,89,834.00**

Abstract of Working Circle-Wise Expenditure for the year 2029-30

Table No-23.20

Sl.No.	Name of the Working Circle	Chapter	Amount in Rs.
1	Selection-cum-Improvement	14	22,09,878.00
2	Rehabilitation	15	20,53,49,749.00
3	Bamboo (O)	18	1,18,33,747.00
4	NTFP (O)	19	1,09,10,920.00
5	Car Timber (O)	17	2,32,01,104.00
6	Wildlife (O)	22	1,65,61,825.00
7	Plantation	16	3,82,32,085.00
8	JFM (O)	20	36,44,101.00
9	Catchment Treatment (O)	21	1,00,00,000.00
10	Miscellaneous Regulations	24	2,98,15,409.00
		Total	**35,17,58,818.00**

Abstract of Working Circle-Wise Expenditure for the year 2030-31

Table No-23.21

Sl.No.	Name of the Working Circle	Chapter	Amount in Rs.
1	Selection-cum-Improvement	14	24,30,866.00
2	Rehabilitation	15	22,58,84,724.00
3	Bamboo (O)	18	1,30,17,122.00
4	NTFP (O)	19	1,20,02,012.00
5	Car Timber (O)	17	2,55,21,215.00
6	Wildlife (O)	22	1,82,18,007.00
7	Plantation	16	4,20,55,294.00
8	JFM (O)	20	40,08,511.00
9	Catchment Treatment (O)	21	1,00,00,000.00
10	Miscellaneous Regulations	24	3,27,96,950.00
		Total	**38,59,34,700.00**

Abstract of working Circle wise Total Expenditure

Table No-23.22

Sl No	Selection-cum-Improvement	Rehabilitation	Bamboo (O)	NTFP (O)	Car Timber (O)	Wildlife (O)	Plantation (O)	JFM (O)	Catchment Treatment (O)	Miscellaneous Regulations	Total
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
2021-22	1030924	95797173	5520530	5090025	10823486	7726213	17835550	1700000	10000000	13909108	169433011
2022-23	1134017	105376891	6072583	5599027	11905835	8498835	19619105	1870000	10000000	15300019	185376312
2023-24	1247418	115914580	6679842	6158930	13096418	9348718	21581016	2057000	10000000	16830021	202913943
2024-25	1372160	127506038	7347826	6774823	14406060	10283590	23739117	2262700	10000000	18513023	222205337
2025-26	1509376	140256641	8082609	7452305	15846666	11311949	26113029	2488970	10000000	20364325	243425871
2026-27	1660314	154282306	8890869	8197536	17431333	12443144	28724332	2737867	10000000	22400758	266768458
2027-28	1826345	169710536	9779956	9017290	19174466	13687458	31596765	3011654	10000000	24640834	292445304
2028-29	2008980	186681590	10757952	9919019	21091913	15056204	34756441	3312819	10000000	27104917	320689834
2029-30	2209878	205349749	11833747	10910920	23201104	16561825	38232085	3644101	10000000	29815409	351758818
2030-31	2430866	225884724	13017122	12002012	25521215	18218007	42055294	4008511	10000000	32796950	385934700
Total	**16430278**	**1526760228**	**87983036**	**81121887**	**172498496**	**123135943**	**284252734**	**27093622**	**100000000**	**221675364**	**2640951588**

G.Total (2021-22 to 2030-31) **Rs. 2,64,09,51,588.00**

(Rupees Two hundred sixty four crores nine lakhs fifty one thousand five hundred eighty eight) Only

Requirement of Yearwise Total Expenditure

Table no-23.23

SL No	Year of expenditure	Amount	Remarks
1	2	3	**4**
1	2021-22	16,94,33,011.00	
2	2022-23	18,53,76,312.00	
3	2023-24	20,29,13,943.00	
4	2024-25	22,22,05,337.00	
5	2025-26	24,34,25,871.00	
6	2026-27	26,67,68,458.00	
7	2027-28	29,24,45,304.00	
8	2028-29	32,06,89,834.00	
9	2029-30	35,17,58,818.00	
10	2030-31	38,59,34,700.00	
G.Total = 2,64,09,51,588.00			

Conclusion:

The management prescription outlined in this plan will definite yield a substantial result in view of the long gestation period in forestry sector. This plan would bring a new dimension to the forest of Khordha Division.

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CHAPTER-24

MISCELLANEOUS REGULATIONS

24.1. GENERAL CONSIDERATIONS:

This chapter deals with the important activities which includes mostly all those prescriptions, regulations and recommendations which are not made earlier in the main Working Circles. Therefore, the prescriptions made here would be applicable to all the forest blocks. Some of the important subjects for which regulations have already been prescribed are mentioned here.

24.2 FOREST CONSOLIDATION:

The consolidation of pending Forest blocks if any need to be notified u/s 21 of OFA during this plan period. Utmost priority is to be given to this work and a phased programme is to be drawn by the DFO and pursued vigorously with the Collector/Forest Settlement Officer (FSO) for final notification of all such blocks as RF for better and intensive forest management. Some forest areas as per DLC report and borne in the Revenue records especially large areas with good tree growth should also be converted to RF/PFs for better management. New reservation proposals for areas having good forest cover and/ or coming within the identified wildlife corridor should also be submitted after proper survey, demarcation on the ground and mapping.

As DPFs and PRFs have been notified since long back i.e. more than one century. These blocks may need fresh redecoration to ascertain their exact location, size and area in present condition. In fact, in many such blocks, the boundary lines are not traceable leading to confusion in the field. These blocks need to be redemocreated in consultation with the FSO and assistance should be provided to the FSO to complete his enquiry so that the final notification is facilitated. The DFO should sincerely pursue all the pending proposals and facilitate the notification in a fixed time frame. New proposals for notification as RFs during the plan period shall also be dealt with promptly.

24.3 AREA DISCREPANCY AND ITS RECONCILIATION:

It has been dealt in detail in Part- I that there are some variations between the notified area and digitized topo area/GIS area in case of some RFs, PRFs and DPFs. These are given in **Table No.24.1**. Most of the PRFs area has not been depicted on the Survey of

India topo sheets for which the demarcation of topo sheet is difficult. Thorough verification of all the RFs, PRFs DPFs with a larger discrepancy is needed. The DFO is to take steps to determine the actual area from the village sheets of all Forests Blocks.

Table No. 24.1 Area statement of Forest Blocks with larger variation between notified area and digitized topo area.

Name of the Range	Name of Forest Block	Notified area in Ha.	GIS Area in Ha.
1	**2**	**3**	**4**
Balugaon	Nathapur DPF	549.20	428.354
Tangi	Nargoda DPF	1020.00	599.724
	Jalbhar DPF	399.20	799.708
Delanga	Jamunjharpada PRF	72.00	59.674
	TOTAL	**2040.40**	**1887.46**

24.4 DISPOSAL OF FOREST PRODUCE:

All the timber and bamboo coupes due for working shall continue to be worked out by Odisha Forest Development Corporation Ltd (OFDC). However, all Silvicultural operations including thinning, cleaning and pruning must be done departmentally in addition to bamboo Silvicultural operations. The disposal of NTFPs shall be as per the Government policy in vogue. The seized timber and other forest produce shall be quickly disposed off not only to restrict its quality deterioration but also to fetch revenue for the State. The detail guidelines have been issued by the Government vide letter NO.10F (TR)-23/02.15398/F&E dated, Bhubaneswar, the 31st August-2005.

Similarly, timber and firewood from dead, dry, cyclone fallen trees, **(cyclone HUDHUD, FANI,** etc) and from leftover materials of illicitly felled trees, shall be salvaged departmentally. However, to carry out these operations, the Range Officer shall submit a plan of operation with detail enumeration list to the DFO for approval, indicating location, anticipated quality of timber and firewood available, reasons for availability and funds required for extraction etc. Salvaged materials may be handed over to OFDC Ltd. for sale as per the Government instructions in vogue. Besides, thinning materials are expected to be an important source to meet local demands. Such saleable thinning materials may, therefore, be disposed off through local auctions or in accordance with the Government policy. Besides some materials may be available during subsequent silvicultural operation which should bedisposed off through

O.F.D.C Ltd. In the area covered under VSS, the members of the VSS should be allowed to get the forest produce as per the guidelines.

24.5 IRREGULAR EXPLOITATION:

Generally irregular felling should not be permitted. However in exigencies or extraordinary circumstance i.e. in natural calamities like fire, floods cyclone or urgent departmental requirements and socio religious functions, requirement may be met from the current year selection coupes. The requirement of timber of office of the WPO, office of the CCF and T & D and Siliviculturist should meet from the drift and waif wood or UD case timbers.

Petty felling and extraction:

Felling of matured and over matured teak trees in seed production plot, preservation plot and research plot in this Division have been excluded from the felling prescription. But felling and extraction for research and training purpose shall be allowed. Maybe special grants for maintenance of this area ought to be allowed for removing weeds, thorny bushes from the ground which will not cause much deviation.

24.6 MAINTENANCE OF FOREST BLOCK BOUNDARIES:

The boundaries of various forest blocks are poorly maintained due to a variety of reasons including paucity of funds. Non-maintenance of boundaries in the past has given scope for encroachment. Many of the boundary pillars were found missing or not properly marked. Boundary pillars of RFs are to be periodically repaired, painted and numbered. Boundary lines are also to be cleared and properly maintained. Details of block boundaries, e.g., length of forest boundary, number of pillars, pillar to pillar bearings and distances (along with GPS co-ordinates), and a record of maintenance of boundaries shall be meticulously maintained in the Division Office & Range Office.

The inter divisional boundaries shall be cleared to a width of 15 meters, block boundaries to 8 meters and interior village ring line to 5 meters. Compartment lines, where they do not follow natural features like nallah, etc., should be cut to the width of 5 meters. All the boundary pillars should be repaired at the time of boundary maintenance. In case of replacement, the old pillars should be replaced by masonry pillars or stone cairns depending on the site. Forest Guard, Forester and Range Officer shall inspect the boundaries regularly as per codal provisions. The Divisional Forest Officer and the Assistant Conservator of Forests should annually inspect 10 % of boundary lines of the division. Wherever masonry boundary pillars are not present those should be constructed immediately in all RFs, PRFs and DPFs.

The plantations of Agave and Jatropha along the block boundary line should be made.

- A five year cycle of maintenance of boundaries and boundary pillars is prescribed with annual length of treatment being about 10 Kms. However, no specific block wise programme has been prescribed. As per actual need and funds available the DFO will decide the annual programme of the blocks to be treated in a particular year.
- The boundary clearance of forest blocks would be taken for construction of missing pillars besides repair of existing damaged pillars. The pillars to be constructed should be of only RCC, stone or brick masonry with cement plastering and pointing. In remote areas where availability or transportation of such materials would be very difficult stone cairons with dry wooden poles at the centre is recommended or RCC Blocks may be posted.

It is of vital importance that the field staff regularly inspects the boundaries of blocks. Every Forester shall submit quarterly certificate (1st April, 1st July, 1st October and on 1st January) of having inspected the boundaries of all the blocks within their respective jurisdictions to the Range Officers concerned, for transmission of the same to the Divisional Forest Officer. Similarly every forest guard should submit a monthly certificate of verification of boundaries of all forest blocks under his charge and it should be reflected in his tour diary.

Since all the boundaries of forest blocks have been digitized for use of GIS technology, there is need for GPS (Geographical Positioning System) reading of all the boundary pillars. The DFO shall ensure obtaining this data at the time of boundary verification and hence, the forest personnel beforehand shall be trained in handling GPS instruments.

24.7 CONSOLIDATION OF AREA AND COMPENSATORY AFFORESTATION:

Some Forest area in Khordha Division, are dereserved for construction of water supply reservoir at Barunei hill by I.D.C.O., Bhubaneswar, proposed 230 KV line from Narendrapur to Mendhasal by GRIDO, E.H.T. Division, Bhanjanagar, construction of 4 laning road on N.H-5 from Sunakhala to Bhubaneswar by Project Director, N.H.A.I., Berhampur and Bhubaneswar against which compensatory afforestation should be raised in degraded DPFs of Khordha Forest Division may be taken up. These newly identified patches where compensatory Afforestation has been carried out and to be carried out in future, in those areas protection efforts should be ensured so that the planted crop is not adversely affected by biotic interference.

24.8 FOREST FIRE MANAGEMENT:

Most of the forest blocks are affected by some fire every year. During summer season the dry deciduous forests are severely affected by forest fire. All the ground litters, humus, regeneration, fallen seeds are burnt on the forest floor. Information's on Fire occurrence in the forests are received with Modis Censor of the Satellite. Further ground truthing to make by the field staff about the occurrence and damage of forest fire. Before the onset of summer season, the field staffs are to be provided with vehicles, man powers, fire fighting equipments. The entire VHF network within the Division is to be strengthen so that after receipt of fire alert from Modis Censor, the information can be passed to the field staffs. Fire trace lines are to be created to check the spreading of forest fire. Awareness campaign shall be made in the fringe villages to motivate the people not to light fire on the forest floor and help in existinguishing the fire. Fire Watcher system needs to be strengthened. The forest fringe village where the vulnerability of fire is more are to be identified. In these villages the VSS need to be motivated and incentive should be given for four months i.e. from February, March, April, and May every year to prevent forest fire. The local officials of other departments should also be involved so that information regarding forest fire is obtained early for needful action. On experimental basis some NGO's may be entrusted to motivate to forest fringe villagers to prevent forest fire voluntarily. However the advance technology of remote sensing may be facilitated for check of regular fire occurrence. Incentives may be provided to the VSS for preventing the forest fire.

Incidence of annual fire should be entered in the compartment history. Fire prone areas should be identified and precautionary steps should be taken in time. Every year fire maps need to be prepared block wise and if possible compartment wise.

Analysis of causes of forest fire, its extent and damage done to forest has been explained in the Part -I. Nearer to the Forest blocks, the village level committees or VSS needs to be formed and each committee is to be given incentive in the form of forest produce for preventing the incidence of fire and they should be motivated to protect the forests from fire. The following fire protection measures are suggested:-

- All Range Officers shall maintain annual fire maps on 1:50,000 scales of their respective ranges showing incidence of fire, in order to enable them to take advance fire protection measures in fire prone areas.
- 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 forester. Moreover, old fire lines, forest roads, boundary lines, shall be kept clean by taking up control burning in 1-chain strip on both sides of it.

- The Odisha Forest (Fire Protection) Rules, 1979 and the fire protection measures provided in the O.F.D. code shall be followed in these forests. The forest fringe villages where there is high fire vulnerability is to be identified. In these villages, the village level committees/VSS need to be formed and each committee is to be given incentive in the terms of forest produce for preventing incidents of fire and motivate them to protect the forests from fire.
- Public awareness campaign should be launched in winters to educate people especially in the fire prone areas not to resort to burning of ground flora to collect NTFP. Besides, VSSs shall be actively involved in fire protection including extinguishing of fire in their allotted area. Incentives should be announced to both public (including VSSs) and staff to protect the forests from fire. Funds for this purpose should be provided in budget.
- Fire fighting teams consisting of Section Forester, beat guard and fire watchers should be engaged in areas vulnerable to fire. Incidence of annual fire should be entered in the compartment history.
- Training on forest fire management should be imparted to forest staff, VSS members, and workers. Better communication facilities like wireless sets, vehicles etc. will be of great help to combat the forest fire.

24.9 GRAZING REGULATION:

Due to heavy cattle population pressure in the division natural regeneration in some blocks of the forest is less than expected. For better fodder availability, following measures should be adopted:-

- The Animal Husbandry department along with the VSS, attempt should be made to motivate the people to gradually reduce the number of unproductive cattle. They should be encouraged to procure better quality cattle and stall-feeding through available Govt. and bank schemes.
- Development of natural meadow, plantations of fast growing fodder species and also development of Silvipasture plots in the selected high-density cattle areas may be taken up under various schemes of the govt. so that cattle pressure on forest can be minimized. Acacia nilotica (Babul), Albizzia lebbek (Siris), Gliricidia maculata Sesbania grandiflora (Agasti), Leucaena leucocephala (Subabul), Albizzia procera (Tentra), Grewia oppositifolia are some suitable fodder tree species and Dichanthium annulatum, Cenchrus ciliaris (Anjan), Andropogon ascinodis, Themeda arundinacea, Setaria pumila, Eleusine indica are some suitable fodder grasses which should be planted to meet the cattle demand in the Division.

To regulate grazing of cattle on forest land the following steps should be taken by the DFO through his field staff:-

- ✓ Vulnerable areas should be strictly closed for grazing at least for a period of two years to allow regeneration to be established.

- ✓ Grazing will be allowed strictly basing on the carrying capacity of the forest area. Goats and Sheep should not be allowed inside the forest areas.

- ✓ Lopping of trees for fodder is to be discouraged.

- ✓ Grazing should not be allowed in regeneration areas and where cleaning have been carried out.

- ✓ All plantations shall remain closed for grazing for a period of 5 years including the year of planting.

To control the damage caused by indiscriminate grazing in the forests, the Government has framed the Odisha Forest (Grazing of Cattle) Rules 1980, but the implementation of these rules at the field level has been tardy and ineffective. Hence proper implementation of grazing rules should be ensured.

24.10 INVASIVE SPECIES & WEED MANAGEMENT:

During rainy season moist deciduous forests as well as dry deciduous forests are affected by Invasive Weeds like Pokasungha (Eupatorium odoratum), Nagairi (Lantana camara) etc. The invasive weeds affected area is to be assessed. During rainy season invasive weeds are to be uprooted by involving the VSS members and forest dwellers to check this spreading of the weeds. Care should be taken to remove the weeds before their flowering.

24.11 INFRASTRUCTURE DEVELOPMENT & MANAGEMENT:

The infrastructure of the Divison includes 08 no of Buildings at Division office, 25 no at Forest Colony, Khordha, 29 no at Khordha Range, 38 no at Tangi Range, 50 no at Balugaon Range, 27 no at Ranpur Range, 06 no at Delanga Range, 08 no at Balipatna Range. It also includes 25 no of Forest Roads having length of 226.91 kms. The detail of infrastructures & roads are furnished in following **Appendix-IV & IX**. The expenditure incurred for the maintenance & construction of buildings during the plan period comes Rs. 223.60 lakhs. Further, an amount of Rs. 284.65 lakhs has been incurred during the plan period under CAMPA. The expenditure incurred for the maintenance & construction of roads during the plan period comes Rs. 110.21 lakhs. Further, an amount of Rs. 57.85 lakhs has been incurred during the plan period under CAMPA. The detail of year-wise expenditures on construction of Infrastructures & Roads are furnished in following **Appendix-IV & IX**.

Construction of new quarters for field staff is to be taken up in an urgent manner. The DFO must make sustained efforts to secure desired funds for this purpose. Possibility of construction of barracks at the Section and Beat level and family quarters at the Range and divisional level needs to be explored. The existing old buildings, rest houses and wells are also required to be repaired /renovated in a regular manner. These capital assets of the Division should be regularly and, carefully maintained and their value and utility needs to be augmented. Preference to be given from the level of Forest Guards and Forester for construction of Govt. quarter from CAMPA fund.

A proper review of the building available and the location of sections and beats should be carried out. The requirement of buildings especially in remote isolated beats and section should be assessed and the plans submitted to the competent authorities. Electrification of all the buildings in remote Beats and Sections, where such facilities are available, should also be taken up and where electrification facilities is not in those places solar power system facilities may be provided.

24.12 DEVELOPMENT OF FOREST VILLAGES:

There are three number of forest villages namely Mahulia, Sibida & Nandru Forest Village. These Forest Villages exist in Rajin RF. Since British era *i.e.* in the early part of 20th Century these villages have been settled inside the RF by the Govt. for engagement in the forestry work. Steps have been taken to convert the Forest Villages into Revenue Villages

which has not become fruitful till now. Earlier these villagers were deprived off the benefit from the CD Block of Revenue Department. So, during the year 2006-07 to 2008-09 the SC & ST Department has released an amount of Rs 70.58 lakhs for development of Forest Villages. With this fund, development of the forest villages have been taken up. The forest road from Barbara-Mahulia, Ankula-Rajini, Rajini-Mahulia and Rajini-Nandru have been repaired with construction of hume pipe culvert, concrete road inside the Mahulia, Sibida & Nandru forest village have been constructed. Solar street light have been supplied all these forest villages. To community centers, one at Sibida & another at Nandru have been constructed. To improve the livelihood of villagers, two numbers of ponds were dug at Sibida & Nandru and Pesi culture has been taken up. Diseal pumps, sewing machines, leave plate making machines have been supplied to the villagers. Poultry farming honey cultivation, health camp, veterinary camp, supply of uniform, bags & books to the school children have been undertaken. To improve the farming in the village water harvesting structure has been constructed, fertilizers & pesticides supplied to the villagers. Horticulture species like mango & coconut seedlings have been supplied to the villagers. Steps to be taken for construction of more numbers of WHS and also soil conservation measures. Apart from this more horticultural species and economically important species should be planted.

24.13 ESTABLISHMENT OF NURSERIES:

One central nursery is located at Ketakijhar in Khordha Range. Besides this each range has a temporary nursery. Besides that, other Hi-tech-Nurseries at Tangi & other places will be maintained.

24.14 DEVELOPMENT OF FOREST ROADS:

The existing forest roads are important means for transportation of forest produce, supervision of departmental works and to check smuggling, illicit felling, and poaching. Moreover it also serves local people and tribal who use these roads for communication.

All forest roads should be regularly maintained and made road worthy. These roads should be provided with drains (at least of size 20 cm wide and 40 cm deep) on either side which should be periodically cleared to allow runoff smoothly. Cross-drains should be provided at appropriate places on hill slopes prior to rainy season in each year. Existing causeways and temporary bridges should be improved. Light morrum topping of road should be done periodically so as to prevent soil loss and erosion. Roads should be repaired generally during November and December.

The concerned Range officer shall prepare a plan and estimate for annual repair/special repair after physical verification of forest roads and obtain the approval of the competent authority prior to execution of the work. In case of new construction, detail investigation and alignment of roads shall be undertaken before execution of any such project. While investigation the runoff and intensity of the rainfall should be considered. For construction of causeway, bridge, and culvert the area of catchment, runoff and intensity of the rainfall should be considered.

24.15 MANAGEMENT OF RUBBER PLANTATION:

Introduction:

Natural rubber *(Heavea braziliensis)* is one of the most profitable cash crops in India today. It has varied industrial, technological and domestic applications. Latex is processed into natural rubber. Suitable plantation depends on topography, climate and soil. As per practice Rubber trees became suitable for tapping after seven years of plantation on attaining girth of 50 cm in traditional zones like Tamilnadu and Kerala. Ideal tapping of latex should be made in every alternative day. But in nontraditional zones like Odisha and particularly in Dhani (North) RF of Ranpur Range, the trees are tappable after 10 years of plantation.

In this Working Circle Rubber plantation are covering an area of 64 Ha. in Dhani (N) RF in Ranpur Range.

History:

The then Chief Conservator of Forests, Odisha, the Conservator of Forests, Berhampur Circle and the Chief Executive, O.F.C., Ltd,. Bhubaneswar has visited the degraded forests of Dhani (N) RF on 20.5.1985 and has decided to carry out the Rubber plantation by O.F.C. Ltd. Accordingly a scheme was prepared for Rubber plantation over the above site during 1985-86, which has been approved by the Govt. of India, Ministry of Environment and Forest. The plantation work was entrusted to the Divisional Manager, Plantation 'A' Division, Bhubaneswar to take up plantation in 64 ha. out of 300 ha. allotted by the Divisional Forest Officer, Khordha Division, Khordha vide his Letter No.2881 (2) dt.12.03.1992. The detail of plantation taken up from 1985-87 is given below.

Year of Plantation	Area covered	Trees planted
1985-86	20 ha.	9,000 Nos.
1986-87	24 ha.	10,900 Nos.
1987-88	20 ha.	8,685 Nos.
Total	**64 ha.**	**28,585 Nos.**

After various subsequent Silvicultural operations taken up by the O.F.D.C. Ltd., the No. of trees survived comes to 9,756, the detailed of which is given below. No gap plantation has so far been taken up by the O.F.D.C. Ltd.

Table No: 24.2 Details of Rubber Plantation from 1985-86 to 1987-88

Year of Plantation	Area covered	No. of Trees planted	No. of Trees survived	% of Survival
1985-86	20 ha.	9,000	3380	37.55
1986-87	24 ha.	10,900	1945	17.84
1987-88	20 ha.	8,685	4431	51.01
Total	**64 ha**	**28,585**	**9756**	**34.13**

Silvicultural Treatments:

- ☞ Usually a Rubber tree remains tappable for 15 to 20 years. Hence, tapping should be under-taken regularly to avoid natural wastage and earning for the user agency.
- ☞ Removal of all dead, diseased, uprooted and malformed trees should be felled.
- ☞ Gaps caused out of dead, diseased, uprooted and malformed trees, whose yield (collection of latex) has been ceased, should be replanted annually and regularly
- ☞ Yield is to be calculated on trees basis after attaining 50cm.girth but not on area-wise and steps be taken to have sustained annual yield for the site.
- ☞ For replanting purpose hybrid variety of Rubber sapling should be planted for early growth and more yield.
- ☞ Thinning of congested crop should be taken up to give boast for growth of sound elite trees followed with subsidiary Silvicultural operation.
- ☞ Fire protection measures are to be ensured by trench fencing around the plantation area.
- ☞ Removal of congestion by cleaning operations and cutting of climbers.

Tapping:

As per decision of the O.F.D.C Ltd. Board taken in its 166th meeting held on 9.8.1985, the O.F.D.C Ltd. took up steps for tapping in the year 1995-96 but due to unavoidable circumstances tapping could not be made till 2003. Subsequently Departmental tapping was commenced from 22.1.2004 and details of production of latex and Revenue realized as per available records of the O.F.D.C. Ltd is given in **Table No.24.3**

Table No.24.3 Production of Latex and Revenue realized from 2003-04 to 2019-20 (Yearwise)

Year	No. of trees tapped	Revenue realized (In Rs.)
1	2	3
2003-04 (22.1.04 to 31.3.04)	1866	26,965.00
2004-05	3000	265465.00
2005-06	4200	612000.00
2006-07 (1.4.06 to 31.3.2007	9300	500000.00
2007-08	9300	885000.00
2008-09	9300	819000.00
2009-10	9300	-
2010-11	9300	2767000.00
2011-12	9300	4212000.00
2012-13	9300	3251000.00
2013-14	9206	4317000.00
2014-15	5384	913000.00
2015-16	5384	1450000.00
2016-17	5384	750000.00
2017-18	5384	850000.00
2018-19	5384	979000.00
2019-20	5287	430000.00

24.16 MANAGEMENT OF CASHEW PLANTATION:

The cashew tree (Anacardium occidental) is a fast growing tropical ever green tree that produces the cashew seed and the cashew apple**.** The tree can grow as high as 5 mt but the dwarf cashew growing upto 2.5 mt is more profitable with earlier maturity and greater yields. Apart from revenue Cashew plantation saves the soil from erosion and helps in percolation of rain water to the ground.

Cashew plants start bearing after three years of planting and reach full bearing during eighth year and continue giving remunerative yields for another 20 years. The cashew nuts are harvested during February- May. Normally harvesting consists of picking of nuts that have dropped to the ground after maturity.

Method of Executing Collection:

The cashew nuts are normally put to auction during January / February of each year by lots/units. The lot shall consist of individual plantations. Bigger plantation areas can be divided into smaller lots for ensuing better competition among bidder. These lots are auctioned in the Divisional office. The highest bidder is allowed to collect cashew nut. This should be put to auction sale as per practice in vogue.

Rules for collection:

The cashew nut shall be collected from the trees without injuring the same.

Collection Cycle:

The cycle of collection shall be one year.

Calculation of Yield:

Basing on the number of trees yield of the lot is calculated. Accordingly the Divisional Forest Officer is to conduct the auction of cashew nut in the Division and the average annual production is also calculated out of that.

24.17 SURVEY AND MAINTENANCE OF MAP:

During the revision of this Working plan all administrative boundaries of the Division up to beat level has been digitized at 1:50,000 scale and all the blocks of RF PRFs, DPFs included in this plan have also digitized at this scale. A GIS database showing forest types and density type has now been created. The following maps have now been prepared through this GIS database.

Working Plan Map:

The working plan map has been prepared on 1:12,500 scale by ORSAC. The map shows different working circles. It also shows the permanent features, territorial boundaries, name of the block, number of compartments etc. One set is to be supplied to the DFO for use in the Division and one set retained in the office of the C.C.F. Working Plans Office for record.

Stock Map:

The stock map has been prepared by ORSAC in 1:12,500 scale giving details of crop composition for all the blocks included in the plan. Stock map for each compartment has to be pasted in the respective compartment history file. One complete set of stock maps has been prepared for use in the Division.

Index Maps:

Index map has been prepared on 1:2, 50,000 scale. The map depicts the important towns, roads, forest blocks, river system, range headquarters, beat headquarters, section headquarters, etc of the Division.

Management Maps:

Two sets of management maps have been prepared on 1:50,000 scale topo sheets. Annual coupes with coupe numbers in each Working Circle have been shown. One set of management maps will be supplied to the DFO and one set to be retained in the Working Plans office.

24.18 MANAGEMENT OF OTHER FOREST NOT COVERED IN THE PLAN:

The forest areas which are outside the plan area and are under the control of Revenue department and private personnel needs to be identified and slowly brought into the management of Forest Department. Un-surveyed land having forest, if any, should be located, surveyed, and notified as PF/RF under OFA. Hence, expeditious steps shall be taken to consolidate all such good forests into RF blocks for intensive management.

24.19 RIGHTS AND CONCESSIONS:

No rights were admitted in the RFs. of the Ex-Puri Forest Division. Certain rights were granted by the Govt. for sanctions of relief in distress condition vide letter no. 71057 dt. 2.12.72. of Revenue Department, Govt. of Orissa in the protected Forests (Khesra Forest or un-Reserved Forests). Concessions were also granted by the Govt. of Orissa, Forest Fisheries and Animal Husbandry department no. 10F (M) / 14 / 90- 10488 / FFAH dated 11th May 1990 for supply of

fuel wood, bamboos, house building materials etc. to public, particularly to nistar-cess paying tenants from B-class and Khesra forests.

These concessions were further allowed by the Govt. vide notification no. 1696 dt.22.1.91, Forest and Environment Department, Govt. of Orissa. The village wood lots in VFs which have been transferred from Social Forestry Projects to the Territorial Divisions, usufruct rights are admitted under JFM Rules. Forest areas are also being allotted to VSS for its protection and management by allowing certain usufruct rights and concessions to the Samiti's over the forest land they protect vide Govt. of Orissa Forest and Env. Deptt. Resolution No. 16700 dated 3rd July 1993.

The Govt. of Odisha has brought Forest Rights Act of ST and other Traditional forest dwellers (Recognition of Forest Rights) Act, 2006. Under this Act, forest rights has been granted over and area of 433.39 ha. of forest land in the category of Individual rights and Community rights.

24.20 CAPACITY BUILDING OF FOREST PERSONNEL:

The skill and the information requirements of the staff at the beat, section and Range level has undergone a lot of changes. The interaction of these level of staff with the public, people's representative, NGOs and officials of other department has increased manifold. The following proposal may be considered by the DFO for improving the efficiency and performance of the field staff.

- Proper training and regular refresher courses for the field executives should be carried out through the training schools and F.R.C Angul.
- Regular in-house discussion to update knowledge of the field staff. Important relevant rulings of different Courts should be discussed & changes brought about in Forest Act and Rules in recent years should be brought to their notice. New techniques of plantation, nursery raising etc be demonstrated to the field staff.
- Monthly meeting at the Range level should give opportunity to Foresters and Forest Guard to express their views and opinions on various current issues. Successful tackling of situations should be discussed and analysed.
- Important circulars and changes in methods/ technology/approach should be discussed at length by the DFO during monthly meeting of Range Officers
- Regular computer training and use of GPS should be given to the field staffs through the training schools and F.R.C Angul.

- Supply of firearms to all Range Officers, Section foresters and Guards and impart arms training to them.
- Frequent raids and surprise checks should be conducted in the smuggling prone areas and check gates.
- Awards/Incentives should be given to the field staff for exemplary work in the protection and development activities.

  Books, maps, Equipments, Tools, should be sufficiently provided to the staffs for better scientific managements of Forest and equipped themselves with modern tools.

24.21 PRESERVATION OF GENETIC STOCK:

The seeds and propagules of rare endemic, endangered and threatened species and varieties of herbs, shrubs and trees need to be preserved. The Regional Plant Resources Center (RPRC), Bhubaneswar is maintaining a Gene Bank, where such material especially seeds are preserved at sub zero temperatures. The DFO should take special care to ensure collection of 20 to 200 grams of seeds depending upon the size and send the same to the RPRC with details of place name of collector, date of collection, habitat found along with local and scientific name.

24.22 INTERIM REVISION:

There may not be necessity for intermediate revision during the currency of the Plan. Hence, if required, the Regional Chief Conservator of Forests, Bhubaneswar in consultation with Chief Conservator of Forests (Working Plan), Bhubaneswar would send necessary proposal for approval of competent authority.

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CHAPTER-25

SCIENCE & RESEARCH

25. Science and Research

25.1 Introduction

To assess the growing stock, the forest cover map of Forest Survey of India, Dehradun may be referred to. These maps are to be super imposed on the digitized toposheet. Further, the application of remote sensing map & data shall be made and ground truthing shall be done to verify the same and shall be reflected in the Draft Plan. The State Silviculturist, Bhubaneswar Division has established a Research Garden in Balugaon Range where research on different genetics teak plants is being taken up. The detail research shall be produced in separate Booklet. During the preparation of this plan the inventory of forest resource and carbon stock shall be made as per National Working Plan Code 2014 which provides grid based sample point in all forest types. Ideal sample plots in each forest types shall be selected for Permanent Sample Plots (PSP) and Scientific Research be carried out on these PSPs.

Basic to effective management of soil, water, forest and grass resources are current studies of the factors of environment. These include research in soil relations to determine those characteristics of forest, brush and range land soils that affect their hydrology and stability, with special regard to infiltration of water, storage of moisture and percolation and erosional processes. The elements of local climate as affected by vegetation types and conditions and changes in such vegetation are studied by measurement of soil and air temperatures, precipitation, wind movement, snow storage, humidity, evaporation, and radiant energy under various topographic and geographic locations and under natural and modified vegetation conditions.

Evapo-transpiration losses are being investigated with special effectiveness. The establishment, development and yield of herbs, grasses, shrubs and trees are examined in the light of these weather factors. These results in turn are integrated into studies of rehabilitation, protection and improvement of soil and vegetation to achieve conservation through careful use of land and water, and to prevent excessive erosion and stream sedimentation.

Recently through the use of radioisotopes much of value is being learnt of the physiology of trees and shrubs with regard to nutrient requirements and water conduction. Flowering, fruit and seed production, and effects of growth-promoting substances in vegetative propagation are being studied with good effect. Studies in photosynthetic efficiency and photoperiodic response of forest trees are making clearer the question of light requirements for growth, particularly in relation to competition among trees in forest stands.

Progress is marked in genetics research in variation and selection, manner and strength of inheritance of economically important factors such as fibre length and thickness, and in production of interspecific and intraspecific crosses for superior characteristics of form, growth rate, and resistance to pests.

The phylogenetic relationship between species is being studied, in the case of the genus *Pinus,* for example, on the basis of their oleoresins. The task of identification, classification, and distribution of herbaceous and shrubby forage and range vegetation and of forest trees continues in its unspectacular, but highly important, methodical course.

The silvics, or study of establishment, growth and development of trees and forests, is receiving concentrated attention locally as the foundation for silvicultural practices. Special effort is devoted to the effect of such silvicultural practices as thinning, and use of controlled or prescribed burning on the productivity of forest soils.

Protection of forests and ranges against fire, diseases and insect pests is the subject of research into such elements as fire behavior, fire-danger rating, psychological factors in people's motives and habits for preventing fires, use of aircraft, chemicals for firefighting, beneficial use of fire, lightning prevention and cloud seeding, the pathology of foliage diseases, rusts, cankers, dieback and wilts, malformations, decays, and root ailments, genetic resistance, disease survey techniques, seed and seedling pathogens, rot of wood in transit, storage, processing and use,the incidence and behavior of bark beetles, sawflies, spruce bud-worm, weevils and moths, and the interrelationship of insects and diseases as in the case of elm phloem necrosis, Dutch elm disease, and oak wilt. Special attention is being given to the prediction of epidemics and to the chemical and biological control measures against diseases and insect pests.

25.2. Forestry science proper

The management of forests and ranges for the volume and quality of product desired at the time required is the integrated result of research in silvicultural and vegetational control methods. Studies are accordingly being made of harvesting techniques which will assure regeneration of desired species and maintenance or increasing of soil productivity. This involves research into species composition, stocking density and age-class distribution for each major forest type and condition. Such cultural techniques as pruning, thinning, and use of arboricides and mechanical means for stand improvement through elimination of undesirable species and individuals of inferior form, are the subject of local research of an applied nature.

The control of grazing on forest and open ranges to attain sustained yields of nutritious forage and efficient livestock production at maximum levels consistent with soil and water conservation requires careful investigations of such elements as season, intensity and system of grazing, forage value of range species in terms of herbage, yield, digestible nutrients, or undesirable properties, standards for judging current condition and productivity of specific range types, and of effectiveness and costs of supplemental food or minerals, and water developments. In this field a also, investigations are carried on with regard to forage and other improvements in the habitat of game animals for hunting.

Considerable attention is being given to the artificial establishment of forests through planting which involves concentrated research in seed collection and handling, nursery practices, site preparation and direct seeding and planting methods, as well as more basic studies of species adaptability, both native and exotic, production of seed of superior genetic strains and individuals in tree seed orchards, and spacing requirements in relation to pruning and early thinning for specific products.

A special form of tree planting to protect agriculture, involves careful studies of shelterbelts and windbreaks, particularly in areas and under conditions not favorable to tree growth. Tests are made of native and exotic species, methods of planting and care, and of shape, size and direction of belts in relation to modifying wind movement to reduce excessive evaporation from crops and soil.

Systematic mathematical research is being carried out on such problems as volume estimation, growth, mortality, defect, and yield prediction, sampling to determine log and standing tree contents, and inventory methods for appraisal and management purposes.

Considerable research of an applied character is done in adapting engineering techniques and design of machinery and equipment to the needs of forest harvesting and cultural measures in the forest. Although it is largely mechanical, the natural science aspects of forestry guide the studies which are conducted to render forest operations more efficient from the labor-input angle and less destructive to the residual forest from a biological standpoint.

25.3. Primary forms products

Research continues into the structure and identification of woody species, their physical and mechanical properties, the factors affecting the strength of wood, machinery and wood-working qualities, finishing, gluing, veneering, seasoning, fire-resistance treatments, preservation, chemical properties, and suitability for pulp and paper, and hydrolysis. Of late, increasing attention is being devoted to studies of the electrical properties of wood, vibrational characteristics, and effect of temperature on strength which are important in improving kiln drying and preservation.

An important field of investigation is the variation in structure, chemical composition and properties related to growth conditions, particularly as regards soil properties, spacing and age of trees, elevation, exposure, and climate of the growing site, as well as the effects of thinning, pruning, intermediate cutting, and heredity.

Great advances have been made in developing a variety of new wood products in the form of fibreboard, particle board, and combinations of such reconstituted materials with plywood and paper. This involves careful research into the effect of particle size, kind and shape, adhesives, and processes. Investigations are aimed at improving processing and developing new pulp and paper products, and discovering the chemical microstructure of wood. Research into the colloid chemistry (fundamental surface chemistry) of wood has opened up new possibilities through such studies as the absorption of water vapor at different temperatures for calculating bonding energies, the

bonding of concentrated alkalies by cellulose using radioactive tracer techniques, diffusion of material through wood, limiting sizes of molecules that can penetrate and swell cell walls, the change in molecular weight of cellulose accompanying hydrolysis. and the distribution by size of pit-membrane pores which control flow through wood.

Similarly, efforts are continuing in modifying properties of wood for special uses, including stabilizing dimensions of wood based upon treatment with wood-derived furfural and its conversion to a resin within the structure: altering resin-treated woods for molding purposes. The chemistry of wood preservatives is receiving an increasing amount of attention, particularly as to their toxicity toward wood-destroying agencies to prolong the life of wood in use.

The merging of the results of these investigations with the information obtained by the silvicultural research worker will inevitably lead to a greater variety of marketable wood products and the more profitable and effective management of forest vegetation, particularly in the underdeveloped forest regions of the world.

25.4. Preservation plots

Sufficient number of preservation plots should be created and maintained for preserving representative patches of existing forests as far as possible in their present form and preserving such selected plots from all forms of disturbances so as to allow progression towards climax form and to study and correlate vegetation change matrix with the impact of climate variation.

Sufficient number of preservation plots of Teak in Balugaon Range have been created and maintained by State Silviculturist, Bhubaneswar. Now these plots are being maintained and protected by the DFO, Khordha. The research activities are to be continued by the State Silvicultirist, Bhubaneswar to know the increment and growth of the trees as well as change of biodiversity. Similarly a good patch of sal coveriang 20 ha. of area has also been identified and demarcated in Panchagarh R.F. of Khordha Range to preserve it for further study.

25.5. Sample plots

Like preservation plots, establishment of representative sample plots of Teak, Sal, Bandhan, Sidha, Dhaura, Sissoo, Giringa, Asan, Genduli in Balugaon Range,

Ranpur Range, Tangi Range and Khordha Range are created. The research activities are to be continued on these plots.

25.6. Regeneration plots

Regeneration plots shall be established to study the regeneration status of important species taking the ideal sample plots at the time of enumeration. Data shall be collected on population dynamics of seedlings, saplings and young trees. By marking them and monitoring their status periodically, finding out the conditions in which a species regenerates best and creating those conditions can make the working plan effective with regards to forest sustainability. Now these plots are handed over to DFO, Khordha for protection and management. The research activities are to be continued by the Division.

25.7. NTFP plots

Permanent plots of suitable sizes shall be laid for development of safe harvesting protocol and the optimum limit of the harvest should be standardized for assured regeneration of the species. The following harvesting regimes may be experimented to work out safe harvesting limit:

100 % harvest of the marketable parts (by removing the whole number)
75 % harvest of the marketable parts (by leaving 25 % of the whole number)
50 % harvest of the marketable parts (by leaving 50 % of the whole number)
25 % harvest of the marketable parts (by leaving 75 % of the whole number)

The plots shall be laid in triplicate. The plots so treated shall be visited after a gap of one year to enumerate the number of new recruits and the effect of above removal shall be calculated using standard mathematical formulae.

25.8. Permanent Sample plot:

These are the sample plots which represent local forest conditions and needs its study on increment of forest, development of biodiversity, development of soil fertility etc with a interval of every three years. These permanent sample plots are ear marked out of total sample points enumerated for writing of working plan purposes. The area of sample point is 0.1 Ha. It is demarcated by posting of pillar in four corners of the

plot and also in the middle of the plot. The code no of the permanent sample plots are PSP 1 to PSP40.

Like preservation plots, establishment of representative sample plots of Teak in Balugaon Range have been created and maintained by State Silviculturist Bhubaneswar. The research activities are to be continued on these plots.

25.9. Other Research and Experimental plots

Status of seed orchards, clonal seed orchards and improved nurseries to generate quality seeds/ seedlings and planting stock, other experimental plots for growing stock development data and silvicultural system, etc. are created and maintained by the Silculturist, Bhubaneswar. Now these areas are handed over to DFO, Khordha for protection and management. The research activities on these experimental plots are to be continued by the Division.

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CHAPTER –26

SUMMARY OF PRESCRIPTIONS

GENERAL CONSTITUTION:

The abstract of different facts, figures, and prescriptions under different chapters of part II i.e. different working circles are given in this Chapter to be used as a ready reference to all the Chapters. The total plan area coming under this plan is 58531.92 Ha.

CHAPTER –13

BASIS OF PROPOSALS

Items	Particulars of prescriptions	Para
1	2	3
General objectives of Management	❖ To conserve and improve the existing vegetative-cover for soil and water conservation with a view to ensure ecological and environmental stability. ❖ To endeavor to meet the requirements of people for agricultural small timbers, firewood, bamboos and other forest produces. ❖ To enhance the production of raw materials required for forest based industries consistent with ecological requirement. ❖ To protect, manage and enrich the flora and fauna of the division. ❖ To generate and uphold public interest and awareness on Protection of Forests and Wildlife. ❖ To promote development of sustainable and non-destructive livelihood opportunities for local communities and eco-tourism. ❖ To supply timbers for making chariots for the annual Car Festival of Lord Jagannath at Puri, as specified in the Puri Car Festival Code 1983.	13.1
Constitution of Working Circle	As per recommendation of Working Plan Committee 9 Working Circles are prescribed in ❖ Selection–cum–Improvement Working Circle. ❖ Rehabilitation Working Circle. ❖ Plantation Working Circle. ❖ Car Timber (Over Lapping) Working Circle. ❖ Bamboo (Over Lapping) Working Circle . ❖ NTFP including Biodiversity Conservation & Development (Over Lapping) Working Circle. ❖ JFM and VSS Fringe Forest Management (Over Lapping) Working Circle. ❖ Catchment Treatment (Over Lapping) Working Circle. ❖ Wildlife Management (Over Lapping) Working Circle.	13.3

Items	Particulars of prescription	Para
Allocation of area	Total 58531.92 Ha. of area over 58 forest blocks including RF, DPF & PRF and also 142 nos of VFs comprising of 924.62 Ha. has been taken as management area of the Division.	Table No:13.2
Period of Working Plan	This Working Plan has been prescribed for a period of 10 years i.e from 2021-22 to 2030-31. The Working Plan year shall be taken from 1st July to 30th June.	13.4

CHAPTER-14

THE SELECTION-CUM-IMPROVEMENT WORKING CIRCLE

General Constitution	The Forest Blocks have good Forest growth wit mature trees due for harvest and having adequate natural regeneration are included in this Working Circle. In this plan, 10 (Ten) Reserved Forest blocks and 2(Two) DPF have been allotted to this Working Circle. The total area allotted to Working Circle is 33466.14 Ha. It constitutes 58.11% of the total Working Plan Management area of the Division. Major forest area falls under are 3C North Indian Tropical Moist Deciduous Forests and 5B. Northern Tropical dry deciduous Forests. Salia and Daba Bamboo is present in number of Blocks allotted to this circle. Vegetation consists of Sal, Teak, other associates species.	14.1
Items	**Particulars of prescription**	**Para**
Allocation of area	Total area allotted to this Working Circle is 33466.14 Ha. Forest Blocks, including 10 RFs, and 2 DPF.	14.1
Felling Series	The total area of the felling series was divided into 9 felling series i.e. Mahulia, Rajini, Mala, Sirikuti, Sankhajodi, Patia, Aranga, Tamana and Berbara and each felling series divided into 10 equiproductive coupes.	14.3.1
Objective of Management	▪ To conserve and improve the indigenous forests cover for the purpose of Soil, water and Wildlife conservation. ▪ To enrich the growing stock and improve its quality by adoption of suitable Silvicultural operations and scientific management practices. ▪ To improve the forest cover by improvement of the soil, moisture and regeneration ▪ To encourage natural regeneration of Sal wherever it occurs and to establish and tend those with a view to prepare the forests to be managed in line with the prescriptions of established Silvicultural systems. ▪ To remove dead, diseased, defective, uprooted and mature trees which are Silviculturally available with a view to manage the growing stock scientifically increase the productivity of forests for meeting the requirements of people To for timber, firewood, small timber, poles, etc. consistent with the needs for maintaining ecological balance.	14.6
	To harvest teak species exclusively in order to meet the growing demand of the people due to rapid urbanization with due attention of maintaining the ecological balance.	

Analysis of the crop	The density of crop varies from 0.3 to 0.7, 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. Stand and Stock tables prepared for the whole Block basing on Inventory data. The regeneration is found to be moderate to good and in some compartments excellent regeneration is found.		14.7
Silvicultural System	The Selection system will be adopted with emphasis on sustainable production and stability of the eco-system.		14.8
Harvestable diameter	**Species**	**Exploitable Girth at Breast Height**	14.10
	Sal	120 cms	
	Miscellaneous	150 cms	
	Teak	120 cms	
Felling Cycle	Felling Cycle has been fixed at 10 years which synchronizes with Plan Period.		14.12
Calculation of Yield	The yield will be regulated by volume with a percentage check on the removal of the exploitable trees as calculated by 617smithies safe guarding formula. The yield has been calculated by NRSA. Sustained yield of Selection trees is adequately safe guarded.		14.13
Table of Felling	Each felling series divided into 10 annual coupes so that the entire area is covered during plan period. The work will commence from 2021-22 from coupe No.1 and serially go on.		14.14
Method of Execution of felling	<u>Demarcation of annual coupes:</u> Demarcation will be done during the preceding year of working by a Forest Officer not below the Rank of Forest Range Officer and checked by A.C.F.		14.15

Items	**Particulars of prescription**	**Para**
Subsidiary Silvicultural Operation	The quantum of illicitly felled trees will be reduced from number of trees prescribed to be marked. All dead, dying, seriously diseased, uprooted and fallen trees shall be marked for felling. The trees available for exploitation after calculation of yield is for Sal 0.31, trees/Ha, Teak 0.33, trees/Ha and for Misc 1.53 trees/Ha. Marking shall not be done within 20 mtr from road side and either side of Nallaha Bank There should be no permanent gap in the Canopy. All fruit bearing and oil seeds bearing trees to be retained. Marking shall be done by a Forest Officer, not below the Rank of Range Officer.	14.16
	Subsidiary Silvicultural Operation shall be done in the year following the main felling. (i) All left over marked trees to be felled, and damaged trees during main felling to be removed. (ii) All high stumps should be cut flush to ground.	

Associated regulations and measures	Grazing The coupes shall be closed for grazing for five years including the year of working. Fire Protection The Coupes shall be protected for 5 years after the completion of main felling. Rights and Concessions: Rights and concessions shall be regulated as per the provisions of the Odisha Forest Act and Rules made there under and relevant Government policies in force. Sample Plots At least one 0.1 Ha. Sample plot to be maintained in each annual coupe for monitoring the success of implementation.	14.18

CHAPTER-15

REHABILITAION WORKING CIRCLE

Items	Particulars of prescription	Para
1	**2**	**3**
General Constitution	The forest Blocks allotted to this Working Circle are those whose forest crops are in various stages of degradation.	15.1
General character of vegetation	These forests are mostly open mixed miscellaneous forest in various stages of degradation. The crop density would vary from 0.1 to 0.4 The main forest types in this working circle area. 3.C. North Indian tropical moist deciduous forests. 3.C/C1(d) Peninsular (coastal) Sal forests. 3.C/231Northern secondary moist deciduous forests. 5.B. Northern tropical dry deciduous forests. 5.B/C1(c)Dry peninsular Sal forests. 5.B/D31Dry deciduous scrub forests..	15.2
Area allotment and treatment series.	The area allotted to this WC is 18087.8985 Ha. To facilitate proper and systematic treatment to the degraded forest treatment Series have been covering all the 6 Ranges. Each Treatment Series is divided into 10 annual coupes to synchronize the Plan period of 10 years. Total 12 Nos of treatment series are prepared, covering all Ranges. This Working Circle is covering 11 nos. of RFs =7010.23Ha., 25 no.of DPFs = 14898.50 Ha. and 3 no. of PRFs = 326.831 Ha.	15.3

Items	Particulars of prescription	Para
1	2	3
Treatment type	According to the stage of degradation the treatment areas has been divided into two broad Categories. Category-I It includes the areas where the forest has moderate to good regeneration of the major species and good rootstock (say 300 and more stumps/ha) are already present. Category-II includes those areas where forest growth exists, but the density of forest crop and regeneration status of many species is poor.	15.4
Special objectives of Management	◆ To rehabilitate the degraded areas by adopting suitable cultural operations through cleaning, climber cutting, singling out of multiple shoots of principal species to obtain quick growth ◆ To remove miscellaneous thorny bushes growth to favour the growth of principal and secondary species. ◆ To take up gap filling plantation with suitable species in contiguous area extending over more than one Ha. ◆ To take up soil and moisture conservation measures where there is soil erosion to develop soil quality ◆ To take up Silvicultural thinning wherever required so that villagers involved in protection will get some thinning materials as intermediate yield. ◆ To ensure strict fire protection and restriction from grazing which will help the seedling, sapling and coppice shoots to establish. ◆ To improve the micro climatic and micro edaphic factor.	15.5
Analysis and valuation of Crop	Detailed assessment of growing stock, bio-diversity, and regeneration study was carried out in all these Blocks. There is much variation in crop condition. These blocks required treatment to promote natural regeneration.	15.6
Silvicultural System	The prime objective is to restock these forest blocks and to reduce the biotic pressure due to which these blocks have become degraded. There will be no exploitation of mature trees except for removal of dead and uprooted trees. No formal silvicultural system is prescribed.	15.7
Rotation and Conversion Period	As timber production is not a consideration in this working circle, no rotation period or conversion period is prescribed.	15.8
Rehabilitation Treatment	A site specific treatment plan has to be developed before any treatment is taken up. Micro plans for VSS allotted areas should be studied in case the VSS allotted areas form part of the	15.9

	rehabilitation treatment area. Artificial Regeneration: Depending upon the local factors, particularly soil condition, the species to be artificially raised shall be carefully selected for gap plantation and block plantation. Grass planting is the preferred treatment for exposed soils in eroded areas. Silviculture treatment • High stumps will be cut flush to the ground to encourage coppice shoots. • Singling out of multiple shoots to retain the most promising one. • Removal of congestion by cleaning operations aimed at encouraging the growth of locally desirable species. • Removal of invasive weeds. • Whenever there is heavy congestion in the forest crop, thinning operation shall be undertaken to encourage further growth. Soil and Moisture Conservation measures: soil and moisture conservation measures should form the main component of rehabilitation measures in Category II areas since most of these areas have steep slopes and are affected by erosion	
Rehabilitation Cycle	The Cycle has been fixed to 10 years which synchronizes with the plan period.	15.11

Items	Particulars of prescription	Para
1	2	3
Calculation of yield	No yield is prescribed due to rehabilitation of degraded forests	15.12
Division into Annual treatment areas	Each rehabilitation treatment series has been divided into 10 annual treatment areas or coupes basing on micro water shed There are 12 treatment series covering in all 6 Ranges.	15.13
Method of Execution of Operation	The site specific treatment plan will be prepared by the Range Officer in the year preceding the year in which the work is to be executed. This eco-restoration work will be done with a watershed approach preferably with the active participation of the local people. Demarcation of Annual Rehabilitation Coupes. The annual treatment areas will be demarcated on the ground in the preceding season of treatment with small stone cairns of the half-meter height erected at visible distance. Rehabilitation Operation: The treatment will be carried out as per approved treatment plan on JFM mode.	15.14

Record Keeping	The journal and other records will be maintained for each coupe in accordance with the provisions of the 'Orissa Forest Plantation Manual, 1977'.	15.15
Misc. Regulations	The annual treatment areas shall be rigidly protected and closed to grazing upto 5 years. Involve the local people in protection and management through JFM. Rights and concessions in this Working Circle shall be regulated in accordance with the provisions of the relevant gazette notifications of the respective forest blocks and the Govt. of Orissa policy with regard to JFM.	15.16
Interim Revision	Prescriptions may be reviewed after 5 years by RCCF. Bhubaneswar and CCF, Working Plan.	15.17

CHAPTER-16

THE PLANTATION WORKING CIRCLE

General constitution	This working circle includes all those blocks that have old existing plantations raised during and/or prior to the outgoing plan period.	16.1
General Characteristics of Vegetation	The areas included in this working circle have existing plantations raised during the period of previous plans. Large numbers of plantations have been raised by different planting agencies in and outside the working circle area during the outgoing plan period. 397 Ha of JBP plantation has been raised during the last plan period.	16.2
Items	**Particulars of prescription**	**Para**
Planting Blocks and JFM Area	Total area allotted to this Working Circle is 6977.875 hectares. It comprises of forest area with existing plantations.	16.3
Special Objectives of Management	To maintain and tend the existing Teak plantation under best possible condition of growth. ♦ To restock the degraded and barren areas through artificial regeneration. ♦ To mention and tend plantations already raised in the preceding years. ♦ To harvest natural plantation and replenish the harvested area with new plantation ♦ To take suitable measures for prevention of soil erosion and to conserve soil and moisture in barren hilly tracts. ♦ Preferably with indigenous, site specific, locally available species with a special emphasis on NTFP yielding.	16.4

Analysis and Valuation of Crop	The existing plantations included in the working circle have inadequate stocking but need protection and tending operations and hence no enumeration has been carried out.	16.5
Silvicultural System	The tending operations including thinning in old plantations are to be taken up, therefore, only tending operations including climber cutting, singling out shoot and thinning are prescribed	16.6
Plantation Cycle	All the plantable area included in this working circle shall be planted within 10 years.(2021-22 to 2030-31)	16.7
Method of execution of planting operations	Nursery, Site preparation, Treatment map and Plan: Nursery, Site preparation work will be take up by the Range Officer which will be checked by ACF and approved by Divisional Forest Officer. A site map scale is 1:25,000 is to be prepared for this purpose. Stating, pitting, and planting: Stating, pitting and planting work should be taken up as per plantation manual and tentative schedule of planting operations.	16.8
Choice of Species & nursery	Preferably with indigenous, site specific, locally available species with a special emphasis on NTFP yielding.	16.8.5
Items	**Particulars of prescription**	**Para**
	Post planting operation: Soil working, causality replacement, wedding, clearing, manuring etc will be taken up as per time schedule of planting operations.	
Treatment for existing plantation	The existing plantations have been taken to constitute teak plantation tending series for teak and miscellaneous tending series for miscellaneous crop. Operation in Tending Series: Since the teak plantations are varying in age, these are in need of appropriate silvicultural operations to further boost the growth. They require operations like pruning, thinning and climber cutting. Since the exact age of these teak plantations could not be ascertained, the detailed thinning regime has not been prescribed here. • Weeding and regular pruning shall be done till the 8th year of plantation • All climbers shall be cut • All dead trees shall be removed departmentally • Thinning shall be done in the congested crop on the lines of 'A' grade & 'B' grade thinning only • Gap plantation shall be done where ever required	16.9

	Wherever prominent gaps of at least half an acre exist, these shall be planted with teak intermixed with few Gambhar & Sisoo. Operation in Misc. Tending Series: Growth in the miscellaneous plantations tends to become bushy and branchy for want of pruning and thinning. • Weeding and regular pruning shall be done till the 8th year of plantation • All climbers shall be cut • All dead trees shall be removed departmentally • Thinning shall be done in the congested crop on the lines of 'A' grade & 'B' grade thinning only • Gap plantation shall be done where ever required **Tending operations in Jagannath Bana Prakalpa** **Plantations 609.00 Ha.** Weeding and Climber cutting once in a year, Silvicultural thinning where ever necessary in the tenth year of the plantation . Protection against grazing and fire should continue till the plants achieve a minimum girth of 30 Cm. The Nursery Journal, the Plantation Journal and other records will be maintained for each plantation separately in accordance with the provisions of 'The Orissa Forest Plantation Manual, 1977'	
Miscellaneous Regulations	All the annual coupes/treatment area under different series shall be strictly protected from grazing and fires. The Compartment history files and Control forms besides other records shall be maintained for each Coupe/Compartment including that of Tending Series in accordance with the National Working Plan Code, 2014.	16.12
Rights and Concessions	Only such rights and concessions shall be admitted as have been described in Chapter-I of Part-I. Additional usufructuary rights may be allowed in accordance with the provisions of the current policies and programmes of the Govt. with regard to Joint Forest Management.	16.13
Costs of operations and working norm	Total cost of Operation of this working circle along with maintenance cost of Jagannath Bana Prakalpa Plantation (JBP) is estimated to be Rs.11,25,615.00 and total cost 17,83,55,500.00 over an area of 1905.581 ha @ 79,574.00/per ha. existing plantation and 150 ha of proposed plantations.	16.14
Interim Revision	Prescriptions may be reviewed after 5 years jointly by the Conservator of Forests, Bhubaneswar Circle and the Conservator, Working Plans.	16.15

CHAPTER-17

CAR TIMBER OVERLAPPING WORKING CIRCLE

General Constitution	Khordha Forest Division has been supplied required quantity of timbers of specified species to the Temple Administrator, Puri who will bear the cost of cutting, conversion and transportation etc. As per Puri Ratha Yatra code, 1983 It shall be the responsibility of Divisional Forest Officer, Khordha Division to supply 274 nos of logs of various species and sizes for construction of Raths.	17.1
Availability of Car Timbers at present arrangement	For sustained supply of 274 nos. logs, revised Car Timber (Overlapping) Working Circle was prepared by R.V. Singh, IFS. For the first time, to meet the needs of firewood to kitchen of Jagannath Temple, Swarga Dwar and the people of Puri Town provision has been made in this working circle by harvesting existing plantations in phased manner.	

Items	**Particulars of prescription**	**Para**
History and past system of management	No systematic prescription was made since the inception of the creation of Khordha Forest- sub Division in 1883. Car Timber continued to be supplied from the erstwhile Puri Forest Division (Now Khordha Forest Division) in a irregular manner. 1st time as per recommendation of the working plan committee, G Sharma prescribed a Car Timber (overlapping) Working Circle (1989-92 to 1998-99) and included all DPFs.	17.1.3
General characteristics of vegetation	The Working Circle spread over 7 RFs in Balugaon,Tangi and Ranpur Range covering an area of 16358.81Ha. and the existing plantations. This Working Circle also extends to the Revenue lands, Debotter lands, and Khesara Forests. Beside this, all plantations areas raised under Shree Jagannath Bana Prakalpa (JBP) scheme are also included in this working circle.	17.2
Crop composition and Regeneration status	The Forest coming under the Working Circle are classified as Northern Tropical Semi Evergreen Forests, North Indian Tropical Moist Deciduous Forests and Northern Tropical Dry Deciduous Forests.	17.2.1

Special objectives of Management	The special objectives of management set for this Working Circle are mentioned below. • To maintain and improve the available growing stock with a view to ensure sustained supply of timber for Car Festival. • To induce conditions which promote and establish regeneration of principal species in these forests. • To induce conditions which encourage canopy closure and bio-diversity conservation with a view to conserve soil and moisture to enhance ecological stability. • To cater the needs of fuel wood consumption for 'Swarga Dwar' and for preparation of "Maha Prasad" in "Rosai Ghar" of Sri Jagannath in harvesting of existing exploitable trees in planting areas.	17.4
Items	**Particulars of prescription**	**Para**
Block and Compartments	In this Working Circle, 9 Felling series are formed, covering 7 RFs of 16358.81 Ha. Total Area of Working Circle is 16358.81 Ha.	
Analysis and Evaluation of crop	Enumeration of Car timber has been made along with other timber and bamboo etc. in the 0.1 ha sample points by stratified random sampling method identified by NRSA Hydrabad.	17.5
Silvicultural system	Selection system will be added with emphasis on conservation, sustainable production and stability of ecosystem of car timber species. Annual Clear Felling with subsequent replanting will be carried out in fuel wood plantation areas.	17.6
Harvestable diameters	1. For Simili, Paldhua -- 120 cm and above 2. All other car timber species – 90 cm and above 3. Kalchua Poles –30 cm and above.	17.7
Felling Series & Felling cycle	This working circle comprises 9 felling series i.e. Mahulia, Rajini, Berbara, Tamana, Dhuanali, Patia, Mala, Sankhajodi, Sirikuti,.The felling cycle has been fixed at 10 Years.	17.8
Yield calculation	Removal of car timber species is suggested by selecting the trees in the coupe area for daily consumption of fire wood of Puri town and for (Surgadwara) will be meet by the Puri Wildlife Division/Chilika Wildlife Division	17.9

Table of Felling	The sequence of felling is shown in coupes I to X from (2021-22 to 2030-31) in the management map of 1: 25,000 scale.	17.10
Demarcation of Annual coupes	The Divisional Forest Officer, Khordha Forest Division will regulate the felling of trees in the annual coupes after assessing the actual requirement of car timber for the year. Shortfall, if any, in any particular year shall be met from the surplus trees left in the previous year's coupe but not from advanced coupe.	17.10.1
Items	**Particulars of prescription**	**Para**
Method of Execution of Felling	The annual coupes will be demarcated before commencement of actual marking, during the winter season of the year preceding the year of coupe working. As far as possible the coupe boundaries should coincides with compartment lines and prominent natural features or block boundaries. Coupes shall be demarcated correctly by an officer not below the rank of trained forester and shall be checked by the range officer before starting the marking. <u>Marking Rules :</u> Marking of trees for felling shall be done by a Forest Ranger with a marking hammer. Trees of girth, less than the exploitable girth and more than the exploitable class shall not be marked. Marking shall be checked by the Divisional Forest Officer or by an Asst. Conservator of Forests duly authorized by the Divisional Forest Officer. <u>Execution of Felling :</u> Marked trees will be felled flush to the ground by using saw. The felled trees will be converted into logs as per required length.	17.10.3

Items	**Particulars of prescription**	**Para**
Subsidiary Silvicultural System	Period of subsidiary Silvicultural operation starts from 1st October in the year following the main felling. i) Cutting of all climbers to be done. ii) Cutting back all defective and malformed saplings in group of established regenerations of primary and secondary species with reasonable expectation of coppice development. iii) In dry areas shrubs will be kept to create moist conditions. iv) These operations should not be taken up on 50 mtrs radius left around the key habitats of wild animals. v) Adoption of at least three natural regeneration seedlings of the species of the tree felled vi) The area shall be fully protected from forest fire, browsing, grazing and illicit felling. Trenches of size 3 mt x 2.5 mt x 2mt shall be dug at vulnerable Places to restrict entry of cattle and human beings into the coupe areas.	17.11

Artificial Regeneration	Car Timber: - Plantation will be taken up in blank patches. JBP plantation will be also be taken up in all Forest Divisions. Firewood :- The annual clear felling of plantation coupes will be subsequently replanted.	17.12.1
Associated regulations and measures	Maintenance Of Records-Records like compartment history and other records will be maintained for each coupe, compartment and felling series.	17.13
Miscellaneous Regulations	Grazing –The coupes will be closed to grazing for a period of 5 years after main felling. Fire Protection Annual coupes will be protected against fire for a period of 5 years. Other Regulations: The temple authorities shall be impressed to review the use of alternate species and designs. Sawing of timber shall be done in licensed Govt. sector saw mills in presence of staff of Puri Wild life division, not below the rank of an authorized Forester in order to ensure optimum utilization and in the presence of a representative of temple administration authorized for the purpose	17.16
Financial Forecast	Total Financial Forecast for execution of different prescriptions of this working Circle including cost of extraction was estimated to be Rs. 10,82,34,863/-	17.17
Intermediate Revision	Intermediate revision is not anticipated. If it will be felt necessary by the RCCF, Bhubaneswar circle during his annual review of implementation of prescriptions of this overlapping working circle he will suggest modifications, which may be allowed subject to approval of competent authority.	17.18

CHAPTER-18

THE BAMBOO OVER LAPPING WORKING CIRCLE

Items	Particulars of prescription	Para
1	2	3
General Constitution	This working circle extends to 08 Forest Blocks, which have good concentratioin of bamboo crop with an total area of 29378.51 Ha.	18.2
General characteristics of vegetation	The bamboo of commerce in this division is Salia *(Dendrocalamus strictus),* and Daba Bamboo *(Bambusa arundinaceae)* is also found along Nallah Banks, streams and higher reaches.	18.3

Allotment of Area of Felling series	Total area allotted to this overlapping working circle is 29378.51 Ha which covers major portion of Balugoan, Tangi and Ranpur Range, which comprises 7 Felling series.	18.5
Special objectives of Management	◆ To enforce Silvicultural operation to prevent detoriation of the growing stock. ◆ To enforce scientific cutting rules to ensure optimum outturn to satisfy local demand as well as demand of industry. ◆ To rehabilitate exhausted/ degraded bamboo bearing areas through appropriate measures like tending, soil working, soil conservation measures, plantations etc. ◆ To meet the bonafide requirements of Bamboo artisans, local people and Bamboo based cottage industries. ◆ To generate employment opportunities for the forest dwellers. ◆ To prevent the area from biotic interference, such as fire, grazing illicit felling etc.	18.6
Analysis and valuation of crop	Distribution and configuration : The bamboo found mainly in 8 Forest blocks of Balugaon, Tangi and Ranpur Range of Khordha Forest Division. Enumeration: Enumeration of bamboo clumps/culm has been made in the 0.1 ha sample points by stratified random sampling method identified by NRSA Hydrabad in all the A, B, C & D filling series. Delineation of Bamboo area into Treatment type and quality classes : Mainly quality – II class is found the length of culm varies from 6 mt to 9 mt and the compartment area prescribed for various Treatment type. Clump and culm analysis Number of culms to be harvested will be calculated basing on sample enumeration result.	18.7
Silvicultural system	Silvicultural system prescribed is culm-Selection-cum-Clump Improvement combined with cleaning and cultural operation.	18.8
Sequence of Felling	The inner most compartment or part thereof should be taken up first The coupe has been divided into 4 sections running along the contours. The sections from uphill side should be worked first and completed and so on.	18.8.1

Items	Particulars of prescription	Para
Yield Estimation	1SU = 1MT= 2400m running length 1SU of Daba Bamboo = 2.5 SU of salia Bamboo length 1SU of commercial Bamboo = 350 pieces Yield calculation : No. of culms /ha. to be harvested X Average length of the culm X Total area of Annual coupes ---------- =SaleUnit 2400	18.9
Bamboo Cutting operation	Cutting cycle is 4 years for both Salia and Daba bamboo. Each Felling Series has been divided into four annual coupes namely A, B,C and D.	18.10
Method of execution of operation	Bamboo coupes will be demarcated with double coal tar rings at the breast height of all the trees at a visible distance on coupe line.	18.11
Method of Treatment	Treatment type A : with healthy and well stocked bamboo clumps. Treatment Type B : Well stocked but degraded, damaged, congested and fire burnt bamboo clumps. Treatment Type C : Areas where Bamboo clumps are sparse and scattered. The major species found is Salia and Daba. The Bamboo forest was found to have three quality classes i.e. Quality- I , Quality – II and Quality – III	18.11.2
Regeneration	Natural regeneration areas to be fire and grazing protected till establishment. Artificially, these areas should be planted in bamboo areas to develop clump density of 100 clumps per ha. when mixed with other species.	18.12.1
Treatment of gregariously flowered areas	Areas should be entered in compartment History. The flowered clumps shall be cut after seeds have been shed irrespective of year for which they are due for working. The area should be free from grazing and fire till culms are established.	18.13.1

Items	Particulars of prescription	Para
Miscellaneous Regulation	Grazing Grazing shall be regulated as per Orissa Forest (Grazing of cattle) Rules, 1980 and the bamboo regeneration area should be from grazing. Fire protection Orissa Forest (Fire Protection) Rules, 1980 shall be strictly implemented. Fire lines of 5 mt width on boundaries of each coupe shall be cleared to prevent fire.	18.13.2

Right and Concession	It shall be regulated as per Govt. policy in vogue.	18.13.3
Supply of Artisans, Co-operative Societies, SHGs	The artisans, co-operative Societies, SHGs shall be supplied Bamboo from the adjoining Forests. They shall also be assigned of full/part of Felling series for Bamboo working as per the finalization of CCF (Territorial) and JFM guidelines.	18.13.4
Working by VSS	The VSSs shall be entrusted for working in Bamboo Felling Series in full or part as per JFM guidelines. Which will be finalized by CF (Territorial)	18.13.5
Plantation of Bamboo	Bamboo rhizome/seedlings should be planted in areas where density of Bamboo crop is less than 100 clump/ha. in the treatment area	18.14
Morphological Character	Mainly Salia and Daba Bamboos are seen in this plan area.	18.15
Interim Revision	Prescription may be reviewed after 5 years by CF, Bhubaneswar and CCF, Working Plan	18.17

CHAPTER - 19

THE NTFP OVERLAPPING WORKING CIRCLE.

Items	Particulars of prescription	Para
1	**2**	**3**
General Constitution	The forests of Khordha Division contain a large number of species which yield a variety of non-timber forest products (NTFP). It covers all the forest Blocks of Khordha Division i.e. 58531.92 Ha. of Forest Area over 58 blocks and 142 VFs 924.62 Ha This huge demand for a few varieties of NTFPs is resulting in unsustainable and destructive exploitation of these resources by the primary collectors which is abetted by traders and middlemen.	19.1
General characteristics and vegetation	The details of NTFP items, its composition and diversity is described in Chapter-III of Part-I.	19.2
Area Allotment	All the forest blocks included in the Plan have been allotted to this Overlapping Working Circle. The total area included in this working circle is 58531.92 Ha., which covers 22 RFs of 40589.1025 Ha, 5 PRFs of 531.856Ha, 31 DPFs of 16486.337ha and 142 VFs of 924.62 Ha.	19.3
Special Objectives of Management	◆ To regulate and optimize extraction and utilization of various NTFPs in conformity with Government policy with a view to promote sustainable management of forest. ◆ To enhance the value of forest by way of developing new	19.4

	NTFPs, creating additional opportunities for further value addition in the existing NTFPs and strengthening the marketing. ◆ To develop and extend skills to the local people including the tribals for sustainable collection, extraction and utilization of various NTFPs. ◆ To protect NTFP trees, promote their regeneration and develop productivity by taking suitable Silvicultural measures. ◆ To create alternate employment/ income generation by developing village and cottage industries by using the locally available NTFP items as input / raw materials.	

Items	Particulars of prescription	Para
Analysis and Valuation of Crop	To asses the NTFP availability & its market value 1 NGO namely Help was instructed to survey on above aspect the report of NGO enclosed separately.	19.5
Calculation of Yield	The potentiality of NTFP items are not encouraging in this division. Most of them are consumed locally. So yield is not prescribed for this working circle.	19.8
Method of Execution	The primary collectors should be properly guided and trained to collect the NTFPs in non-destructive way. Latest techniques of collection, drying and storage should be imparted to them. Value addition to collected NTFPs will increase their earning.	19.9
Methods of Treatment of Major NTFP Species and Suggestions for their improvement	Scientific methods for improvement of some major NTFP species given in this Para, such as Sal seeds, Sal-leaves, Myrabolans,Mahua flower, Mahua seeds, Hill brooms, Kendu leaves, Siali leaves and Fibres, Cane, Rubber etc. Cane bearing areas cover 29415.62 Ha and Rubber Plantation cover 64.00 Ha.	19.10
Development of special NTFPs	It is prescribed that large scale plantation of Agave along the boundary of the forest blocks should be under taken. This will not only create the additional NTFPs but also help in forest consolidation. Planting and Nursery technique of Agave and Jatropha described in detail. Annually minimum 10 Kms of agave to be planted to cover 100 Kms during Plan Period.	19.10.15
Associated Regulations and measures	In areas of the divisions where artificial regeneration through block plantation or gap plantation is to be taken preference in species selection should be given to species which yield NTFPs or medicines. The Divisional Forest Officer shall contact the State Cooperatives like TDCC, TRIFED and other organizations for marketing of NTFPs available in the Division. The VSS and Gram Panchayats should be given information about the marketing prospects of various NTFPs.	19.11

CHAPTER – 20

JOINT FOREST MANAGEMENT (OVERLAPPING) WORKING CIRCLE

Headings	Particulars	Para
1	2	3
General constitution of working circle	Joint forest management has proved to be a successful strategy to protect and improve the valuable forest wealth of our country. The State of Orissa has been a pioneer amongst the States in involving the village community in protection and management of the forests. In this working circle Forest Division 108 VSS have been constituted and 16467.11 Ha of forest land have been allotted to these VSS. The JFM (Overlapping) Working Circle includes the Working Plan area that are already under the protection of the Vana Samrakshayna Samities (VSS) constituted as per the Joint Forest Management Resolution of the State. All VFs included in this working circle.	20.1
General Characteristics of Vegetation	Different types of forests ranging from Mixed Deciduous Forests to Northern Dry and Dry Deciduous Scrub forests are present in this Working Circle.	20.4
Area Allotment	The area allotted to this working circle will remain dynamic and is likely to increase as more and more degraded forest land is allotted to the VSS. The total area allotted to this overlapping working circle is 16467.11 Ha. In this working circle, 108 VSS.	20.5
Special objectives of the Management	• To involve communities in forest and natural resource management. • To make the people and Forest Department equal partners in management. • To restock the barren and blank areas through artificial regeneration. • To increase the productivity of soil through suitable soil and moisture conservation activities. • To encourage people to rational utilization of their own community resources for the betterment of the community. • To involve people in NTFP collection and trade. • To create income generating activities in the villages & reduce dependence on Forest. • To study the scope of enhancing the network of VSS protection areas.	20.6
Analysis and Valuation of Crop	The forest blocks allotted to the JFM working circle are either Village Forests or degraded Reserved Forest, Proposed RF, DPFs etc. Growing stock estimates of these blocks have been made by inventory and the estimates have been provided in Annexure-5 & 8.	20.7
Silvicultural System	This Working Circle is an overlapping circle and hence the Silvicultural system to be followed depends on the prescriptions outlined for the main Working Circle to which the block is primarily allotted.	20.8

Method of Execution of operations	Demarcation of the areas assigned to the VSS for protection and management is the first important task. It is seen that this step helps to give a specific identify to the VSS, motivate them to protect the forest and helps for better management. Micro plans should be prepared for each VSS irrespective of whether money for implementation is available or not. It is important that the motivation level of the people to protect the forests should be sustained for a long period for the forest to respond to the protection provided. Well managed VSS should be identified and rewarded. The capacity of the lower functionaries of the Forest Department to work along with the villagers should be improved by training and exposure visits.	20.9
Rights and Concessions	Rights and concessions in this Working Circle shall be regulated in accordance with the provisions of the relevant gazette notification and Govt. of Orissa police is regards to JFM.	20.11
Interim Revision	No major changes in the prescriptions of this Working Circle are anticipated. However, it may be reviewed if necessary, after five years jointly by the Regional Chief Conservator of Forests Bhubaneswar Circle and Chief Conservator of Forests, Working Plan & in accordance with revised JFM resolution of the State Govt. amended from time to time. Any deviations suggested shall be subjected to the sanction of competent authority.	20.15

CHAPTER - 21

CATCHMENT TREATMENT OVERLAPPING WORKING CIRCLE

General Constitution of working circle	This Working Circle will cover all the Forest Blocks of the Khordha Forest Division for management of water resource on the forests and for management of ground water under the forest. Water is precious for survival of living organism on this planet. The source of water is Nallah, River, Streams, Reservoirs, Ponds, Wells. In our country rainfall is received generally in a particular period *i.e.* rainy season starting from July to October. In Odisha, annual rainfall ranging from 1200 mm to 1600 mm. These rain water are drained from forest to plain area as surface run off, forming gullis, streams & rivers and ultimately enter in the sea. Major portion of the rain water stored in water bodies are evaporated to atmosphere. A little portion of rain water percolates into the ground level. For the sustainable growth of forest and wildlife the conservation and management of water resource is most important.	21.1
Allotment of Area	Working Circle will cover the whole area of the Division and overlaps all the Working Circles. The total area allotted to this Working Circle is 58531.92 Ha.	21.1
General Characteristics of Vegetation:	The forests of Khordha Forest Division have got rich heritage of flora & fauna. The relentless biotic pressure by humans and domestic cattle and thereby considerable degradation of forests over the year has adversely affected the bio-diversity of flora and fauna. The detailed descriptions of the composition and bio-diversity of this division has been already described in Part-I of this Plan.	21.2

Objective of Management:	The objectives of management are within the scope of general object of management. These are: (i) To conserve the water resource by increasing the tree population in the forest area & near the water bodies. (j) To conserve the water by constructing check dams, water harvesting structures and reservoirs. (k) To conserve rain water by constructing soil & moisture conservation structures like Gully plugging, Staggered trench, Contour bond, Contour trench in hilly terrain at least to hold rain water..	21.3
Method of Execution:	Different treatment series shall be formed as per the Watershed map of the Division. Plantation of trees & rehabilitation of degraded forest shall be taken up by forming annual coupes within the Watershed area. Construction of check dams, loose boulder structures, gully plugging, creating water bodies may be taken up to check the soil erosion and conserve the water resource.	21.6

CHAPTER – 22

THE WILDLIFE OVERLAPPING WORKING CIRCLE

Items	Particulars of prescription	Para
1	2	3
General Constitutions of working circle	Though there is general decline in the forest cover and wildlife the forest of Khordha Forest Division have reach heritage of wildlife. Provide protection to the existing wildlife, to improve their habitat and conserve biodiversity, the wildlife overlapping working circle was constituted which extents to be the entire working plan area.	22.1
General Characteristics of Vegetation	Formal floral-diversity surveys have been taken up for the first time during the revision of this plan and by the Forest and Ecology Division of NRSA which has been reported in Chapter-II Part-I of this plan. The different wild animals present in the plan area are given in Chapter-IIB of Part-I of this plan.	22.2
Special objectives of Management	i. To conserve, protect and improve wild life habitat with special emphasis on the proposed elephant reserve/corridor. ii. To promote wild life in general and endangered species of fauna in particular. iii. To create awareness among the local people regarding the necessity to conserve and protect the wild life and their habitat. iv. To conserve and develop important wild life habitat for the purpose of eco-tourism. v. To increase in biodiversity and wildlife population in the division. vi. For prevention of wildlife related crimes.	22.3

Analysis Of Available Fauna And Valuation Thereof	Wildlife census has been carried out at intervals for different species of wildlife but no formal analysis and valuation of all such data have been done at the Divisional level except for statistical purpose	22.4
Allotment of Area	This working circle overlaps most of the plan area of the division. The total operational area of this working circle including all RFs, PRFs, DPFs and VFs covering an area of 58531.92 Ha.	22.5
Wildlife Habitat	Bulk of the Division is terrestrial habitat. However Minor Irrigation projects like Salia, Bhetavar and Randa and world famous Chilika Lake form ideal habitat for the aquatic wildlife including transit home for migratory birds in winter. Numbers of other seasonal and perennial streams cross the entire area landscape providing water source for wildlife.	22.7

Items	Particulars of prescription	Para
Species Structure	**Autotrophs:** The forests of this division are mostly uneven-aged and have fairly good natural regenerations and provide varied habitats. Most of these forest blocks support almost dry /moist mixed deciduous types of forest. **Heterotrophs:** Species seen in this working circle. **Primary Heterotrophs** – Sambar, Cheetal, Barking Deer, Elephant etc. **Heterotrophs Heterotrophs –** Leopards, Jungle Cat, Civet Cat, Wild boar etc. **Scavengers are** - Hyaena, Jackal, Wild dog, Sloth beer etc. **The Primates are** – Common langur and common pati. **Among the snakes** – Ahiraj, Cobra, Viper, Krait, Dhaman etc. The avifauna includes a wide range of birds like Peafowl, Red Jungle fowl, Common quail, Green pigeon and Hill mynas etc.	22.8
Poching and Wildlife Crime	Man kills wildlife as a sports or fancy, for its meat or to make quick monetary gains by sale of wildlife trophies and animal parts. The illegal trade world wide in wildlife products is estimated to be in the magnitude of about $25 billion annually in this Division elephant and monkey noticed. During harvest season of paddy usely elephant damages the paddy fill resulting man animal conflict on which. The extent of Poaching and wildlife crimes detected in this Divisions have given in Chapter-IIB of Part-I.	22.9

Methods of Treatment	**Maintaining special habitats:** Special wildlife habitats which are biological in origin and provide habitat functions for small wild animals need to be protected and maintained. They include snags, snag recruits, den trees, downwood, isolated large old trees, trees with fluting boles, buttresses, lianas, some significant species of fruit bearing trees and shrubs. All fruit bearing tree species are not to fell as they provide fruits to local human inhabitants and wildlife. **Development of Habitat –**Habitat shall be developed with the cooperation of local people using sound silvicultural techniques. The aim should be to provide more food, water and shelter to the wild life so as to even reduce the man-animal conflict. Habitat can be improved by improving the forest cover, improving food availability and increasing water source in the forest. Improving natural saltlicks and creating saltlicks in wildlife concentrated areas.	22.10
Items	**Particulars of prescription**	**Para**
Wildlife protection Measures	The immediate need is to collect and tabulate all available spatio-temporal information about incidence of wildlife crime including identity and modus operandi of the criminals. The staff deployed for anti-poaching operations shall be extremely alert, in good health and with high motivation. The patrolling party/anti-poaching squads must be well acquainted with the entire terrain. Information collection is vital for prevention and/or detection of wild life crime. Appropriate training in wildlife crime investigation methods and techniques shall be imparted to adequate number of staff . Considering the growing incidence of t Wildlife criminals, a Law Officer with criminal background need to be posted in the PCCF (Wildlife) Office. Anti-poaching camp should be set up in vulnerable pockets where there is greater concentration of wildlife. There shall be inventory prepared of all the gun licenses within 10 km radius of blocks rich in wildlife.	22.19

Intermediate Revision	No intermediate revision is anticipated. However, if so required, the RCCF, Bhubaneswar in consultation with the Chief Conservator of Forests (Working Plans). For construction of Water holes, Game tanks, Salt licks, watch towers, Wildlife protection, researches, publicity, Wildlife census, Elephant Depredation, corridor development for elephants, compensation amount, fodder cultivation and grass land for herbivorous, training, Awareness camps etc. @ 1320/- per hector on L.S. over 58,531.92 Ha., Rs. 77,262,134.40	22.21
Associate Regulations	**Awareness:** The awareness for wildlife preservation may be created through celebration of wildlife week, competitions and debate among the school/college students. **Infrastructure and Training:** To ensure better protection and to enhance their effectiveness, the field staff shall be provided with modern equipments including proper arms and ammunition. They shall be trained in Wildlife management, detecting and investigatin of wildlife crimes. **Information network and records keeping:** A regular data base should be maintained at each Divisional level comprising details like • schedule species found in the area, • pictorial directory of all identified poachers to be prepared and circulated in the locality, • list of traders in cattle and goat skins as well as tanneries, • list of eating houses alleged to be serving bird/jungle meat and • timely & proper documentation of all the incidences of man-animal conflicts including poaching.	22.22

CHAPTER -23

FINANCIAL FORECAST

Items	Particulars of prescription	Para
Cost of preparation of working plan	The total expenditure for preparation of this working plan of is Rs.**264,09,51,588.00** out of this (Rupees Two hundred sixty four crores nine lakhs fifty one thousand five hundred eighty eight) Only out of this Rs.**56974680.00** is the cost of establishment, maintenance of building, minor works and legal charges, which comes to of the total expenditure. The amount spent on actual working plan preparation is only Rs. **56974680.00** (Rupees Five Crore Sixty Nine Lakh Seventy Four thousand Six Hundred Eighty) Only i.e. 20.95% of the total budget.	23.1
Financial Forecast	The Financial Forecast for different working circles along with Miscellaneous Working Circle for the plan period is furnished below:	23.2

Requirement of Yearwise Total Expenditure

Table No-23.23

SL No	Year of expenditure	Amount	Remarks
1	**2**	**3**	**4**
1	2021-22	16,94,33,011.00	
2	2022-23	18,53,76,312.00	
3	2023-24	20,29,13,943.00	
4	2024-25	22,22,05,337.00	
5	2025-26	24,34,25,871.00	
6	2026-27	26,67,68,458.00	
7	2027-28	29,24,45,304.00	
8	2028-29	32,06,89,834.00	
9	2029-30	35,17,58,818.00	
10	2030-31	38,59,34,700.00	
G.Total = 2,64,09,51,588.00			

CHAPTER - 24
MISCELLANEOUS REGULATIONS

Headings	Particulars	Para
1	**2**	**3**
General Considerations	This chapter deals with the important activities and includes mostly all those prescriptions, regulations and recommendations which are not made earlier in the main Working Circles.	24.1
Forest Consolidation	All the pending 5 Nos of PRFs & DPF blocks need to be notified u/s 21 of OFA, 1972 during this plan period. All PRF & DPF blocks need to be redemarcated in consultation with the FSO and assistance should be provided to the FSO to complete his enquiry so that the final notification is facilitated.	24.2
Area discrepancy and its reconciliation	There are some variations of area between the notified area and digitized topo area/GIS area in case of some PRFs, DPFs and RFs. It was found that topo depiction is prima-facie correct. Hence the topo depicted and digitized area has been taken for the current plan, till detailed survey of all these forest blocks and reconciliation of the discrepancy by the DFO during the currency of the plan is complete.	24.3
Disposal of Forest Produce	All the timber and bamboo coupes due for working shall continue to be worked out by Orissa Forest Development Corporation (OFDC) Ltd. The same shall be promptly disposed of not only to restrict its quality deterioration but also to fetch revenue for the State. Timber and firewood from dead, dry, wind fallen trees, and	24.4

	from leftover materials of illicitly felled trees, shall be salvaged departmentally	
Irregular Exploitation	In emergencies or extraordinary circumstance (i.e. natural calamities like fires, floods, cyclones, urgent departmental requirements and socio religious functions), requirement may be met from the current year selection coupes.	24.5
Maintenance of Block Boundaries	The boundaries of number forest blocks are poorly maintained due to a various of reasons including paucity of funds. The inter divisional boundaries shall be cleared to a width of 15 meters, block boundaries to 8 meters and interior village rin line to 5 meters. All the boundary pillars should be repaired at the time of boundary maintenance. In case of replacement, the old pillars should be replaced by masonry pillars or stone cairns depending on the site. It is of vital importance that the field staff regularly inspects the boundaries of blocks.	24.6
Consolidation of Area and Compensatory Afforestation	Some Areas of Khordha Forest Division are dereserved for four laning of National Highway, Irrigation projects and Electricity projects against which compensatory Afforestation should be raised in degraded DPFs of Khordha Division.	24.7
Forest Fire Management	The implementation of the Orissa Forest (Fire protection) Rules 1979 has been very poor and fire continues to be the major threat to forest regeneration and establishment. Fire Watcher system needs to be strengthened. VSS need to be motivated and incentive should be given for four months i.e. from February, March, April, and May every year to prevent forest fire. Incidence of annual fire should be entered in the compartment history. All Range Officers shall maintain annual fire maps on 1:50,000 scales. Annual fire line clearance of 1 to 2-chain width in fire sensitive areas. Public awareness campaign should be launched in winters to educate people. Fire fighting teams consisting of Section Forester, beat guard and fire watchers should be formed in areas vulnerable to fire.	24.8
Grazing Regulations	Due to heavy cattle population pressure in the division except the interior forest blocks natural regeneration in some blocks of the forest is less than expected. To motivate the people to gradually reduce the number of unproductive cattle in coordination with the Animal Husbandry department and the VSS. Plantations of fast growing fodder species and development of silvipasture plots in the selected high-density cattle areas may be taken up under various schemes of the govt. Forest protection unit wise area should be strictly closed for grazing at least for a period of two years to allow regeneration to be established. Lopping of trees for fodder is to be discouraged. All plantations shall remain closed for grazing for a period of	24.9

	5 years including the year of planting.	
Development of Forest Roads	The existing forest roads of length of 226.91 Kms spread over 25 Roads, are not properly maintained due to paucity of funds. These roads are important means for transportation of forest produce, supervision of departmental work and to check smuggling, illicit felling and poaching. All forest roads should be regularly maintained and made road worthy. The concerned Range officer shall prepare a plan and estimate for annual repair/special repair after physical verification of forest roads and obtain the approval of the competent authority prior to execution of the work.	24.14
Survey and Maintenance of Map	During the revision of this Working plan all administrative boundaries of the Division up to beat level has been digitized at 1:50,000 scale and all the blocks of RF PRFs, DPFs included in this plan have also digitized at this scale. **Working Plan Map:** The working plan map has been prepared on 1:25,000 scale by ORSAC. **Stock Map:** The stock map has been prepared by ORSAC in 1:25,000 scale giving details of crop composition for all the blocks included in the plan. **Index Maps:** Index map has been prepared on 1:2,50,000 scale. **Management Maps:** Two sets of management maps have been prepared on 1:50,000 scale topo sheets.	24.17
Capacity building of Forest personnel.	The skill and the information requirements of the staff at the beat, section and range level has undergone a lot of change in the last two decades accordingly the skill of forest personnel should be improved by following methods. i. Proper training and regular refresher courses for the field executives. ii. Good communication skill training to the FG/FR level iii. Regular in-house discussion to update knowledge of the field staff. iv. Monthly meeting at the Range level should give opportunity to Foresters and Forest Guard to express views and opinion on various current issues. v. Awards/Incentives should be given to the field staff for exemplary work in the protection and development activities.	24.20
Interim revision	The Regional Chief Conservator of Forests (T) in consultation with Chief Conservator of Forests (Working Plan) would send necessary proposal for approval of competent authority.	24.22

CHAPTER-25
SCIENCE & RESEARCH

Headings	Particulars	Para
1	2	3
Science and Research	To assess the growing stock, the forest cover map of Forest Survey of India, Dehradun may be referred to. These maps are to be super imposed on the digitized toposheet. Further, the application of remote sensing map & data shall be made and ground truthing shall be done to verify the same and shall be	25.1

	reflected in the Draft Plan. The State Silviculturist, Bhubaneswar Division has established a Research Garden in Balugaon Range where research on different genetics teak plants is being taken up. During the preparation of this plan the inventory of forest resource and carbon stock is made as per National Working Plan Code 2014 which provides grid based sample point in all forest types. Ideal sample plots in each forest types is selected for Permanent Sample Plots (PSP) and Scientific Research be carried out on these PSPs.	
Preservation plots	Sufficient number of preservation plots should be created and maintained for preserving representative patches of existing forests as far as possible in their present form and preserving such selected plots from all forms of disturbances so as to allow progression towards climax form and to study and correlate vegetation change matrix with the impact of climate variation.	25.4
Permanent Sample plot:	These are the sample plots which represent local forest conditions and needs its study on increment of forest, develop of biodiversity, development of soil fertility etc with a interval of every three years. These permanent sample plots are ear marked out of total sample points enumerated for writing of working plan purposes. The area of sample points 0.1 ha. it is demarcated by posting of pillar in four corner so the plots and also in the middle of the plot. The code no.` of the permanent sample plots are as follows	25.8

Chapter – 27

TREES OUTSIDE FORESTS (TOF)

Headings	Particulars	Para
Trees Outside Forests (Tof)	Trees Outside Forests (TOF) are the tree cover located on the lands other than forests including agricultural lands (e.g agroforestry systems, farm forestry industrial plantations, hedge rows, 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). Also TOF refers to all trees growing outside the recorded forest areas irrespective of size of patch. For estimation of growing stock in TOF, entire TOF area is taken into consideration. The inventory of TOF is carried out in both rural and urban areas. The state of Forest Reports indicates that, there has been a marginal increase in the green cover over the past 15 years. This increase has largely happened outside the forest.	27.1

Constraints

The time management was the measure constraints in writing of this plan within the prescribed time plan. Lack of sufficient researches, studies, and non availability of desired data in departments like Panchayat Raj and collection of information from the divisions in due time, sometimes posses problem in furnishing relevant data in the plan. The scarcity of staffs both at Khordha and Working Plan Division also creates hindrance in preparation of plan. Frequent transfer of technical Forest Officers also jeopardises our efforts in timely submission. Skill developments of staffs towards handling of modern equipments for scientific collection of data also need to be strengthened.

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CHAPTER – 27

Trees Outside Forests (TOF)

27.1. Trees Outside Forests (TOF):

Trees Outside Forests (TOF) are the tree cover located on the lands other than forests including agricultural lands (e.g agro forestry systems, farm forestry industrial plantations, hedge rows, 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).Trees Outside Forests refers to tree resources found outside the forests as defined in the Govt. records.

These are mostly located in farmlands and built up areas, both in rural and urban areas. A large number of TOF consists of planted or domesticated threes. TOF include trees in agro- forestry systems, orchards and small woodlots. These are mainly growing on private lands and main source of wood for industry and domestic wood fuel. These not only contribute nearly one fourth of the total growing stock of the country but also have become measure source of wood in India.

Also TOF refers to all trees growing outside the recorded forest areas irrespective of size of patch. For estimation of growing stock in TOF, entire TOF area is taken into consideration. The inventory of TOF is carried out in both rural and urban areas.

The state of Forest Reports indicates that, there has been a marginal increase in the green cover over the past 15 years. This increase has largely happened outside the forest.Tree outside forests fulfills and maintains the ecological stability, affects light and solar radiation, air temperature, wind, atmospheric humidity, precipitation, evaporation and transpiration. It plays a major role in reducing various types of pollution such as water, air and noise pollution.

Influence of forests on environment thus increased by way of TOF play an important role in climate amelioration by reducing the intensity of solar radiation, modifying temperature, reducing evaporation from soils and increasing the amount of precipitation. These trees have many ecosystem services and economic benefits like their potential role in agriculture, food supply and income by providing goods and services, conservation of biodiversity and carbon (C) sequestration. They can improve soil fertility through fixing atmospheric nitrogen, retaining soil moisture, regulating water shed, reducing topsoil loss and litter fall and regulating micro climate, thus increasing crop yield. In addition to providing aesthetic beauty especially to urban surrounding, they are pollutant sink, reduce ozone levels, checks dust flow, reduce noise pollution and cools air temperature. Most importantly, these trees are useful timber resources and will alleviate pressure on native forests, Forests and TOF are thus considered as two faces of a coin in relation to their capacity for Carbon stocks and biodiversity. The Carbon sequestration potential of the TOFs is to be included in global climate mitigation strategy through reducing emission from deforestation and forest degradation (REDD+) activities.

The outside forest can be assessed by super imposing the recent Forest Cover Map on the digitized top sheet. The growing stock and density of the tree cover outside forest shall be assessed by taking up sample point enumeration of 0.1ha as it will be done in forest area and appended in the Draft Plan. So there is a need to describe the availability 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. The focus of forestry outside forest areas is on production forestry, revitalization of rural economy and expanding economic opportunities through innovations. This requires co-operation among the different communities and organization and Govt. establishments. Establishment of de-centralized nursery shall be taken up through VSS in the Division. The seedlings shall be supplied to the people as per decision of the Govt. from time to time. Technical guidance shall be provided by the field staff to the people for pre-planting and post-planting operation. The survibility of the distributed seedling shall be assessed by the field staff and a database shall be prepared for reference and monitoring of people participation in creation of forest. Plantation of seedlings on their own land is the creation of trees outside forest. Suitable amendments shall be suggested in the Odisha Timbers & Other Forest Produce Transit Rules, 1980 to exempt the transit permit of the planted species so that rural economy shall be revitalized.

As these are additional plantation, so they are complementary with other land uses in mitigating climate change. Due to absence of efficient inventory methods, TOFs are still not accounted fully in the national forest inventories, due to which very less or no information are available for TOFs. Accounting TOFs and its services will not only help to understand its importance for national Carbon budget but also for its ecological and economic role benefiting human society.

27.2 Assessment, role and importance of TOF in Arid and Urban areas

Trees outside the forest (TOF) comprise a heterogeneous and locally very different natural resource, also referred to as tree resource outside the forest (TROF). Traditional systems of growing trees in and around agriculture fields, raising arable crops or grasses and animals have provided life support and sustainability to the agro-ecosystems in arid region.

Trees outside forests (TOF) are defined by FAO as “trees on land not defined as forest or other wooded land”. In India, TOF is defined as all those trees, which have attained 10cm or more DBH and are available on lands is not notified as 'forests' or 'other wooded land'. Trees outside Forests include trees on agricultural lands, in urban and settlement areas, along roads, in home gardens, in hedge rows, scattered in the landscape and on pasture and rangelands.

The tree resource outside the forest (TROF) is a highly diverse and locally different natural renewable resource. Trees outside forests occur in natural and in cultivated landscapes and serve then a number of ecological and economic functions (Kleinn 2005). In many regions they play a prominent role in securing rural livelihoods (like provision of timber, firewood, fodder, fruits, shadow for cattle), particularly. Trees and other woody plants in the landscape serve also important ecological functions, particularly for the conservation of biodiversity, offering shelter and food, and nesting sites other ecological functions are erosion control, water protection and carbon sequestration. In many regions, the decreasing forest cover, the increasing forest fragmentation, the presence of trees in agro forestry systems and the increasing urbanization with the need for green corridors make the relative importance of TROF grow.

The assessment of TOF in India is being done by the Forest Survey of India which includes area of TOF (Trees outside recorded forests) (10.485 million ha) occurring in blocks of more than 1 hectare and canopy cover more than 10 percent under “forest” cover. FSI also assess that TOF, occurring in blocks of less than 1 hectare (about 8.147 million ha.) and calls it “tree

cover" (FSI 2005). The total growing stock of wood in the TOF in India is estimated to be 1, 616 million m^3. Maximum growing stock in TOF area is found in Western Himalayas followed by Eastern Deccan and West Coast (FSI 2005).

27.3 Suggestions

- Prior to year 2000 TOF were not assessed in the global forest resource assessment People's participation is a key factor in the sustainable management of TOF. Group consensus should be encouraged in decision, making and also to avoid possible conflicts.
- Remote sensing is an important tool in assessment of trees outside forest in large areas and these data should extensively be used to monitor the status of trees outside forests and productivity of the non-forest lands.
- Research should be undertaken to identify such production systems for TOF that are efficient, ecologically sustainable and financially viable.
- Trees may be grown in arid areas to meet both ecological and social challenges. This requires development of sites with specific packages of practices for promoting the agro-forestry and sylvo-pastoral systems in the region.
- Agro-forestry should be looked upon as a means for improving the socio-economic conditions of the rural poor and should be the main plan of integrated rural development programme. In order to increase fuel, timber, and forage production agro-forestry programmes should be adopted on a large scale, this would include rural woodlots for the rural areas. Such programmes should be time-bound and target-oriented. People participation is a critical factor of success of such programmes.
- Urban forestry in India should be much more considered as a domain of partly self-management and partly joint management in cooperation with municipal services of green space resources in which social objectives are tried to be achieved through and in combination with urban environmental management. Social cohesion may be enhanced through co-operation of members of forest user groups, neighborhood and religious communities who are willing to care for the quarter's green space, as well as through government institutions and non-governmental organizations, at the national, regional and local.
- It is urgently needed to adapt forest policies and legislation to these facts and to promote techniques, which can accelerate the transformation of residual TOF into constructed parklands.

27.4 Outside Plantation (TOF) under taken during the period from 2003-04 to 2020-21 in Khordha Forest Division.

Besides raising of plantation in Forest Block trees outside forest have been raised in revenue lands such as Block Plantation, Avenue plantation in road side, cannal side, institution plantation in various institutions such as college, temple, graveyard, premises, offices, community land etc. for amelioration of climate and to maintain ecological balance. In this connection govt. have provided healthy seedlings to the public and to the various institutions by raising seedlings in different decengtralised nurseries. The details of plantation under taken in outside block of Khordha Forest Division during 2003-04 to 2020-21 over **1419.92938** Ha. as well as the no. of seedlings distributed to public and various institutions is furnished in **Appendix -XIV**.

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Annexures

ANNEXURE-I	Divisional Area Statement				
Range	**Forest Block**	**Compt./ Sub Compt/ Coupe**	**WC/FS**	**GIS Area**	**Remarks**
1	**2**	**3**	**4**	**5**	**6**
Balugaon	Aranga RF	1	SIWC/B (OL) WC	443.73	
		2	SIWC/B (OL) WC	409.37	
		3	SIWC/B (OL) WC	426.5	
		4	SIWC/B (OL) WC	393.04	
		5	SIWC/B (OL) WC	232.01	
		6	SIWC/B (OL) WC	283.46	
		7	SIWC/B (OL) WC	269.64	
		8	SIWC/B (OL) WC	150.38	
			Total	**2608.13**	
	Bankad RF	1	SIWC	387.83	
		2	SIWC	261.47	
		3	SIWC	361.57	
		4	SIWC	312.35	
			Total	**1323.22**	
	Kotwal RF	1	SIWC/B (OL) WC	210.79	
		2	SIWC/B (OL) WC	157.1	
		3	SIWC/B (OL) WC	208.49	
		4	SIWC/B (OL) WC	149.34	
		5	SIWC/B (OL) WC	253.93	
			Total	**979.65**	
	Rajin RF	1	SIWC/B (OL) WC	508.68	
		2	SIWC/B (OL) WC	177.41	
		3	SIWC/B (OL) WC	165.56	
		4	SIWC/B (OL) WC	255.87	

1	2	3	4	5	6
Balugaon	Rajin RF	5	SIWC/B (OL) WC	206.89	
		6	SIWC/B (OL) WC	192.74	
		7	SIWC/B (OL) WC	175.67	
		8	SIWC/B (OL) WC	259.33	
		9	SIWC/B (OL) WC	232.18	
		10	SIWC/B (OL) WC	225.17	
		11	SIWC/B (OL) WC	228.21	
		12	SIWC/B (OL) WC	221.46	
		13	SIWC/B (OL) WC	179.59	
		14	SIWC/B (OL) WC	246.92	
		15	SIWC/B (OL) WC	399.33	
		16	SIWC/B (OL) WC	254.71	
		17	SIWC/B (OL) WC	169.3	
		18	SIWC/B (OL) WC	406.52	
		19	SIWC/B (OL) WC	116.54	
		20	SIWC/B (OL) WC	292.23	
		21	SIWC/B (OL) WC	347.89	
		22	SIWC/B (OL) WC	171.8	
		23	SIWC/B (OL) WC	115.7	
		24	SIWC/B (OL) WC	155.74	
		25	SIWC/B (OL) WC	281.54	
		26	SIWC/B (OL) WC	242.32	
		27	SIWC/B (OL) WC	218.23	
		28	SIWC/B (OL) WC	219.95	
			Total	**6667.46**	
	Tamana RF	1	SIWC/B (OL) WC	343.69	
		2	SIWC/B (OL) WC	233.61	
		3	SIWC/B (OL) WC	498.85	

1	2	3	4	5	6
Balugaon	Tamana RF	4	SIWC/B (OL) WC	93.99	
		5	SIWC/B (OL) WC	226.16	
		6	SIWC/B (OL) WC	88.95	
		7	SIWC/B (OL) WC	445.24	
		8	SIWC/B (OL) WC	207.74	
		9	SIWC/B (OL) WC	270.54	
		10	SIWC/B (OL) WC	301.05	
		11	SIWC/B (OL) WC	210.36	
		12	SIWC/B (OL) WC	240.68	
		13	SIWC/B (OL) WC	412.19	
			Total	**3573.05**	
Khordha	Barunei RF	1	RWC	444.37	
	Jayamangal RF	1	RWC	139.08	
	Manibandha- A & B RF	1	RWC	312.66	
	Nagapalli RF	1	RWC	559.68	
	Panchagarh RF	1	SIWC	704.59	
	Pangarsingh RF	1	RWC	266.15	
Ranpur	Champagarh RF	1	RWC	413.91	
	Dhani (N) RF	1	RWC	272.06	
		2	RWC	385.68	
		3	RWC	118.7	
		4	RWC	272.15	
			Total	**1048.96**	
	Mala RF	1	SIWC/B (OL) WC	193.43	
		2	SIWC/B (OL) WC	221.35	
		3	SIWC/B (OL) WC	219.32	
		4	SIWC/B (OL) WC	175.99	
		5	SIWC/B (OL) WC	186.66	

1	2	3	4	5	6
Ranpur	Mala RF	6	SIWC/B (OL) WC	140.67	
		7	SIWC/B (OL) WC	83.74	
		8	SIWC/B (OL) WC	332.69	
		9	SIWC/B (OL) WC	72.77	
		10	SIWC/B (OL) WC	99.78	
		11	SIWC/B (OL) WC	156.35	
		12	SIWC/B (OL) WC	218.22	
		13	SIWC/B (OL) WC	216.19	
		14	SIWC/B (OL) WC	186.52	
		15	SIWC/B (OL) WC	75.68	
		16	SIWC/B (OL) WC	329.91	
		17	SIWC/B (OL) WC	426.73	
		18	SIWC/B (OL) WC	399.68	
		19	SIWC/B (OL) WC	313.24	
		20	SIWC/B (OL) WC	281.4	
		21	SIWC/B (OL) WC	181.64	
		22	SIWC/B (OL) WC	90.77	
		23	SIWC/B (OL) WC	271.87	
		24	SIWC/B (OL) WC	108.4	
		25	SIWC/B (OL) WC	265.72	
		26	SIWC/B (OL) WC	578.2	
		27	SIWC/B (OL) WC	140.78	
		28	SIWC/B (OL) WC	141.76	
		29	SIWC/B (OL) WC	276.26	
		30	SIWC/B (OL) WC	157.43	
		31	SIWC/B (OL) WC	183.74	
		32	SIWC/B (OL) WC	356.57	
		33	SIWC/B (OL) WC	115.81	

1	2	3	4	5	6
Ranpur	Mala RF	34	SIWC/B (OL) WC	310.85	
		35	SIWC/B (OL) WC	115.7	
		36	SIWC/B (OL) WC	95.52	
		37	SIWC/B (OL) WC	426.14	
		38	SIWC/B (OL) WC	397.16	
		39	SIWC/B (OL) WC	188.44	
		40	SIWC/B (OL) WC	172.57	
		41	SIWC/B (OL) WC	56.52	
		42	SIWC/B (OL) WC	150.98	
		43	SIWC/B (OL) WC	187.02	
		44	SIWC/B (OL) WC	95.89	
		45	SIWC/B (OL) WC	209.43	
		46	SIWC/B (OL) WC	121.68	
		47	SIWC/B (OL) WC	282.48	
		48	SIWC/B (OL) WC	220.83	
		49	SIWC/B (OL) WC	116.66	
		50	SIWC	159.07	
		51	SIWC	120.23	
				236.65	
			Total	**10863.1**	
	Maniag RF	1	RWC	211.05	
		2	RWC	191.15	
		3	RWC	122.14	
		4	RWC	198.82	
		5	RWC	256.75	
		6	RWC	324.27	
		7	RWC	431.39	
			Total	**1735.58**	

1	2	3	4	5	6
Ranpur	Nuapada-B RF	1	RWC	121.45	
	Satabhaya RF	1	RWC	318.67	
	Sulia-B RF	1	SIWC	1784.69	
Tangi	Dhani (S) RF	5	SIWC/B (OL) WC	423.9	
		6	SIWC/B (OL) WC	426.34	
			Total	**850.24**	
	Kuhudi RF	1	RWC	656.62	
	Patia RF	1	SIWC/B (OL) WC	224.89	
		2	SIWC/B (OL) WC	646.66	
		3	SIWC/B (OL) WC	172.3	
		4	SIWC/B (OL) WC	503.4	
		5	SIWC/B (OL) WC	111.34	
		6	SIWC/B (OL) WC	265.91	
		7	SIWC/B (OL) WC	160.48	
		8	SIWC/B (OL) WC	245.48	
		9	SIWC/B (OL) WC	250.24	
		10	SIWC/B (OL) WC	338.1	
		11	SIWC/B (OL) WC	404.46	
		12	SIWC/B (OL) WC	565.72	
			Total	**3888.97**	
	Sulia (South & North) RF	1	RWC	1608.01	
Balugaon	Bhaleri DPF		RWC	907.22	
	Bhatapada DPF (Block No.41)		RWC	280.03	
	Champagarh DPF		RWC	433.49	
	Chulijhinka DPF		RWC	554.27	
	Jharan DPF		RWC	1957.4	
	Jiripada DPF		SWC	71.47	
	Nathpur, DPF No.40		SWC	428.35	

1	2	3	4	5	6
Balugaon	Sandhamal DPF		RWC	1495.1	
	Solari DPF		RWC	1114.7	
			Total	**8850.04**	
Khordha	Brahmanidei DPF		RWC	753.67	
	Duburi DPF		RWC	339.4	
	Jariput DPF		RWC	421.62	
	Kapileswarpur DPF		RWC	81.85	
	Kerang DPF		RWC	100.9	
	Mandalsingh DPF		RWC	313.12	
	Tartua DPF		RWC	388.96	
Tangi	Badapari DPF		RWC	265.68	
	Bagheiput DPF		RWC	63.35	
	Bhusandpur DPF		RWC	821.63	
	Chakadapathar DPF		RWC	1005.56	
	Jalbhar DPF		RWC	799.71	
	Kadambajhar DPF		RWC	436.35	
	Kaithapalla DPF		RWC	294.57	
	Kandagadia DPF		RWC	208.24	
	Kunjuri DPF		RWC	384.89	
	Nalsingh DPF		RWC	619.14	
	Nargoda DPF		RWC	599.72	
	Rameswar DPF		RWC	687.48	
	Tangi DPF		RWC	176.02	
Balipatna	Bhanra PRF		RWC	93.01	
Delanga	Beguniapada PRF		RWC	58.24	
	Jamunajharapada PRF		RWC	59.67	
	Kumuka PRF		RWC	210.95	
	Rengal PRF		RWC	112.02	

1	2	3	4	5	6
Balugaon	Bania sahi VF		RWC	2.7	
	Boria sahi VF		RWC	7	
	Boria sahi VF		RWC	4	
	Champadeipur VF		RWC	5	
	Dasarathipur VF		RWC	7.98	
	Jaripur VF		RWC	4.9	
	Kanheipur VF		RWC	9	
	Kanheipur VF		RWC	10.71	
	Kulei VF		RWC	14.25	
	Ostapalli VF		RWC	2	
	Samantasingharpur VF		RWC	2	
	Tarasingh VF		RWC	5.77	
Ranpur	Bagala VF		RWC	8	
	Ektal VF		RWC	5	
	Ektal VF		RWC	5	
	Ektal VF		RWC	5	
	Ektal VF		RWC	7	
	Hansara VF		RWC	7.35	
	Kerendatangi VF		RWC	1.32	
	Khandisi VF		RWC	2	
	LodhachuaVF		RWC	5	
	Nagajhar VF		RWC	9	
	Narasinghpur VF		RWC	10	
	Narasinghpur VF		RWC	10	
Khordha	Alasua VF		RWC	20	
	Aranga VF		RWC	8	
	Aranga VF		RWC	5	
	Atri VF		RWC	1	

1	2	3	4	5	6
Khordha	Atri VF		RWC	8	
	Atri VF		RWC	6	
	Badaberena VF		RWC	14.81	
	Badaberena VF		RWC	2	
	Badaberena VF		RWC	3	
	Baideswar VF		RWC	25	
	Balibereni VF		RWC	6	
	Bania sahi VF		RWC	5	
	Baraput VF		RWC	5	
	Baraput VF		RWC	5	
	Basanta VF		RWC	8	
	Basudevpur VF		RWC	8	
	Basudevpur VF		RWC	6	
	Bengitangi VF		RWC	8	
	Berhampura VF		RWC	3	
	Bhuasuni Patna VF		RWC	3	
	Botalama VF		RWC	6	
	Botalama VF		RWC	3	
	Brahmanapur VF		RWC	8	
	Brahmanapur VF		RWC	3.19	
	Brahmanapur VF		RWC	3	
	Chandapur VF		RWC	3	
	Chhotaraypur VF		RWC	2.13	
	Chiramaru VF (Nargang)		RWC	4	
	Chotipalanga VF		RWC	10	
	Dengamba VF		RWC	5	
	Deulatangi VF		RWC	6	
	Garhgudam VF		RWC	8	

1	2	3	4	5	6
Khordha	Gaudaput VF		RWC	5.1	
	Gaudaput VF		RWC	2.6	
	Gaudaput VF		RWC	6	
	Gobindapur Patna VF		RWC	1.87	
	Gobindapur Patna VF		RWC	3	
	Godipokhari VF		RWC	20	
	Gopalpur VF (Nuagaon Sabarsahi)		RWC	5	
	Gopalpur VF		RWC	5	
	Gopalpur VF		RWC	8	
	Gopalpur VF (Nuagaon Sabarsahi)		RWC	5	
	Hatimara VF		RWC	4	
	Jayamangal VF		RWC	5	
	Jayamangal VF		RWC	3	
	Kadalibadi VF		RWC	2	
	Kadalibadi VF		RWC	1.07	
	Kadalibadi VF		RWC	1.44	
	Kadalibadi VF		RWC	1	
	Kadhamala VF		RWC	8	
	Kantakai VF		RWC	5	
	Kapileswarpur VF		RWC	2	
	Kapileswarpur VF		RWC	4.59	
	Karadagadia VF		RWC	5	
	Karadagadia VF		RWC	14.61	
	Karadagadia VF		RWC	3.16	
	Karadagadia VF		RWC	2	
	Kendupalli VF		RWC	5	
	Kendupalli VF		RWC	4.5	
	Kiapalla VF		RWC	5	
	Kokasingh VF		RWC	2.88	

1	2	3	4	5	6
Khordha	Kotalanga VF		RWC	3	
	Kumusar VF		RWC	5	
	Kurum VF		RWC	15	
	Kusupalla VF		RWC	25	
	Lekhanpur VF		RWC	3.25	
	Madhapur VF		RWC	1.59	
	Malisahi VF		RWC	11	
	Masania VF		RWC	10	
	Masania VF		RWC	6	
	Masania VF		RWC	0.8	
	Nargang VF		RWC	5	
	Niala VF		RWC	8	
	Niala VF		RWC	8	
	Nuagaon VF		RWC	2	
	Nuagaon VF		RWC	5	
	Olasingh VF		RWC	2	
	Olasingh VF		RWC	5	
	Olasingh VF		RWC	3	
	Ostapur VF		RWC	3	
	Ostapur VF		RWC	1.65	
	Paikatigiria VF		RWC	19.2	
	Paikatigiria VF		RWC	23.14	
	Paikatigiria VF		RWC	15.32	
	Palasuni (Nargang) VF		RWC	6	
	Palla VF		RWC	10	
	Podapatana VF		RWC	1.6	
	Podaput VF		RWC	2	
	Podaput VF		RWC	5.75	
	Podaput VF		RWC	8	
	Pubusahi VF		RWC	2	
	Puinchia VF		RWC	5	

1	2	3	4	5	6
	Raghunathpur VF		RWC	8	
	Rameswar VF		RWC	2	
	Routapada VF (Dakhineswar)		RWC	8	
	Routapada VF (Jharmunda)		RWC	8	
	Routapada VF		RWC	2.02	
	Routapada VF (Jharmunda)		RWC	15	
	RoutapadaVF (Jharmunda)		RWC	1	
	Sahadapur VF		RWC	4	
	Sialiapatna VF		RWC	6	
	Suanla VF		RWC	5	
	Suanla VF		RWC	5	
	Suanla VF		RWC	4.06	
	Tartua VF		RWC	20	
	Tartua VF		RWC	30	
Tangi	Balarampur VF		RWC	4	
	Gainada VF		RWC	8	
	Gainada VF		RWC	4	
	Kadambajhar VF		RWC	5	
	Malipada VF		RWC	10	
	Mangaljodi VF		RWC	4.3	
	Mangaljodi VF		RWC	8	
	Mangaljodi VF		RWC	10	
	Nalsingh VF		RWC	5.5	
	Tarapi VF		RWC	10	
	Tarapi VF		RWC	10	
	Tarapi VF		RWC	5.05	
			Total	**924.62**	

ANNEXURE-II Sample Pointwise (KOD) number of trees in various DBH classes

Sl no	Range	Forest Block	Name of the Compartment	Unique ID	Trees	Local Name	DBH in cm						Total	G. Total
							0-10	10-20	20-30	30-40	40-50	50--above		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Balugaon	Aranga RF	A-1	Kod-1,2 & 3	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	1	1	0	1	**3**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	0	1	0	**1**	
					Cassia siamea	Chakundi	0	0	1	0	0	0	**1**	
					Buchanania lanzan	Char	0	1	1	1	0	0	**3**	
					Grewia tiliaefolia	Dhaman	0	0	0	2	0	1	**3**	
					Sterculia urens	Genduli	0	0	1	0	0	1	**2**	
					Pterospermum canescens	Giringa	0	6	1	1	2	1	**11**	
					Syzigium cumini	Jamu	0	1	0	0	1	2	**4**	
					Ficus retusa	Jari	0	0	0	1	0	2	**3**	
					Diospyros sylvatica	Kalachua	0	0	1	1	0	0	**2**	
					Mallotus philipinensis	Kamalagundi	0	15	0	2	1	0	**18**	
					Bridelia retusa	Kasi	0	1	1	0	1	2	**5**	
					Strychnos nuxvomica	Kochila	0	0	0	1	0	2	**3**	
					Dillenia pentagyna	Rai	0	0	30	0	0	0	**30**	
					Cassia fistula	Sunari	0	0	1	0	0	0	**1**	**90**
2	Balugaon	Aranga RF	A-2	Kod-4,5 &6	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	1	4	1	0	0	**6**	
					Mangifera indica	Amba	0	0	1	0	0	0	**1**	
					Emblica officinalis	Amla	0	0	1	0	0	0	**1**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	1	0	1	**2**	
					Buchanania lanzan	Char	0	0	0	2	0	1	**3**	
					Syzigium cumini	Jamu	0	1	2	0	0	3	**6**	
					Diospyros sylvatica	Kalachua	0	2	0	0	0	0	**2**	
					Mallotus philipinensis	Kamalagundi	1	3	0	0	0	0	**4**	
					Bauhinia variegata	Kanchan	0	0	0	0	1	0	**1**	
					Bridelia retusa	Kasi	0	1	0	1	1	0	**3**	
					Phoenix sylvastris	Khajuri	0	0	0	0	0	1	**1**	
					Strychnos nuxvomica	Kochila	0	2	1	0	0	0	**3**	
					Careya arborea	Kumbhi	0	0	0	0	2	0	**2**	
					Scheichera oleosa	Kusum	0	0	1	0	0	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Lannea coromandelica	Mai	0	3	2	0	0	0	**5**	
					Dillenia pentagyna	Rai	0	0	1	0	0	0	**1**	**42**
3	Balugaon	Aranga RF	A-3	Kod-7,8,9 & 10	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Acacia auriculiformis	Acacia	0	1	1	0	0	0	**2**	
					Mangifera indica	Amba	0	0	3	0	3	1	**7**	
					Emblica officinalis	Amla	0	0	1	0	0	0	**1**	
					Morinda tinctoria	Anchhu	0	0	1	0	0	0	**1**	
					Terminalia tomentosa	Asan/ Sahaja	0	1	1	0	0	0	**2**	
					Aegle marmelos	Bela	0	2	1	0	0	0	**3**	
					Naringi crenulata	Benta	0	0	1	0	0	0	**1**	
					Buchanania lanzan	Char	0	0	1	0	0	0	**1**	
					Sterculia urens	Genduli	0	0	1	0	0	0	**1**	
					Pterospermum canescens	Giringa	0	5	2	0	2	0	**9**	
					Syzigium cumini	Jamu	0	2	0	0	0	0	**2**	
					Diospyros sylvatica	Kalachua	0	1	2	0	0	0	**3**	
					Xylia xylocarpa	Kangada	0	1	0	0	0	0	**1**	
					Cleistanthus collinus	Karada	0	1	0	0	0	0	**1**	
					Pongamia pinnata	Karanj	0	1	0	0	0	0	**1**	
					Lannea coromandelica	Mai	0	0	1	0	1	0	**2**	
					Macaranga peltata	Manda/Gandhagur ia	0	1	0	0	0	0	**1**	
					Diospyros embryopteris	Mankada kendu	0	0	1	0	0	0	**1**	
					Bursera serrata	Nimburumoi	1	5	0	0	0	0	**6**	
					Dillenia pentagyna	Rai	1	0	0	0	0	0	**1**	
					Cassia fistula	Sunari	0	1	0	0	0	0	**1**	**48**
4	Balugaon	Aranga RF	A-4	Kod-11,12 & 13	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	5	2	0	**7**	
					Mangifera indica	Amba	1	3	0	0	0	0	**4**	
					Emblica officinalis	Amla	0	0	0	1	0	0	**1**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	1	0	1	0	**2**	
					Aegle marmelos	Bela	0	1	0	0	0	0	**1**	
					Buchanania lanzan	Char	0	0	0	1	2	0	**3**	
					Pterospermum heyneanum	Giringa	1	4	0	0	0	0	**5**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Syzigium cumini	Jamu	0	0	2	1	1	0	**4**	
					Diospyros sylvatica	Kalachua	2	1	0	0	0	0	**3**	
					Bauhinia variegata	Kanchan	0	1	1	1	0	0	**3**	
					Bridelia retusa	Kasi	0	0	0	2	0	0	**2**	
					Diospyros melanoxylon	kendu	2	4	0	1	0	0	**7**	
					Casearia elliptica	Khakada	0	0	1	0	1	0	**2**	
					Sterculia villosa	Kodala	1	0	0	0	0	0	**1**	
					Careya arborea	Kumbhi	0	1	1	1	0	0	**3**	
					Scheichera oleosa	Kusum	0	2	0	0	0	0	**2**	
					Madhuca indica	Mahula	0	0	0	1	0	1	**2**	
					Lagerstroemia parviflora	Sidha	0	1	0	0	0	0	**1**	
					Cassia fistula	Sunari	1	0	0	0	0	0	**1**	**54**
5	Balugaon	Aranga RF	A-5	Kod-14 & 15	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Aegle marmelos	Bela	0	2	0	0	1	0	**3**	
					Chloroxylon swietenia	Bheru	0	0	0	1	0	0	**1**	
					Anogeissus latifolia	Dhaura	0	1	0	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	2	0	0	0	0	**2**	
					Bauhinia variegata	Kanchan	0	1	0	0	0	0	**1**	
					Cleistanthus collinus	Karada	1	0	0	0	0	0	**1**	
					Diospyros melanoxylon	kendu	0	1	0	2	0	0	**3**	
					Acacia catechu	Khair	0	1	0	0	0	0	**1**	
					Casearia elliptica	Khakada	0	0	0	1	0	0	**1**	
					Scheichera oleosa	Kusum	0	0	1	0	0	0	**1**	
					Lannea coromandelica	Mai	0	1	1	0	0	0	**2**	
					Lagerstroemia parviflora	Sidha	0	1	0	0	0	0	**1**	
					Albizzia lebbek	Siris	0	1	0	0	0	0	**1**	
					Dalbergia latifolia	Sisoo	0	1	0	0	0	0	**1**	
					Cassia fistula	Sunari	1	0	0	1	0	0	**2**	**22**
6	Balugaon	Aranga RF	A-6	Kod-16,17 & 18	Shorea robusta	Sal	0	1	0	0	0	0	**1**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Mangifera indica	Amba	0	3	1	0	0	0	**4**	
					Terminalia tomentosa	Asan/ Sahaja	0	1	0	0	0	0	**1**	
					Ficus bengalensis	Bara	0	0	0	0	0	1	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Semecarpus anacardium	Bhalia	0	1	0	0	0	0	**1**	
					Alstonia scholaris	Chatian	0	1	0	0	0	0	**1**	
					Pterospermum canescens	Giringa	0	9	1	0	0	0	**10**	
					Syzigium cumini	Jamu	0	4	2	1	0	0	**7**	
					Diospyros sylvatica	Kalachua	1	1	0	0	0	0	**2**	
					Madhuca indica	Mahula	0	9	0	0	0	0	**9**	
					Lannea coromandelica	Mai	0	3	0	0	0	0	**3**	
					Diospyros embryopteris	Mankada kendu	0	1	0	0	0	0	**1**	
					Messua ferrea	Nageswar	1	1	0	0	0	0	**2**	
					Bursera serrata	Nimburumoi	1	2	0	0	0	0	**3**	
					Pterocarpus marsupium	Piasal/ Bijasal	0	1	0	0	0	0	**1**	
					Soymida febrifuga	Rohini	1	0	0	0	0	0	**1**	
					Lagerstroemia parviflora	Sidha	0	3	0	0	0	0	**3**	**51**
7	Balugaon	Aranga RF	A-7	Kod-19,20 & 21	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	1	0	0	**1**	
					Acacia auriculiformis	Acacia	0	1	0	0	0	0	**1**	
					Terminalia tomentosa	Asan/ Sahaja	0	1	0	0	0	0	**1**	
					Cassia siamea	Chakundi	0	1	1	0	0	0	**2**	
					Buchanania lanzan	Char	0	0	1	0	0	0	**1**	
					Anogeissus latifolia	Dhaura	0	0	0	1	0	0	**1**	
					Pterospermum heyneanum	Giringa	0	1	0	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	1	0	0	0	0	**1**	
					Diospyros melanoxylon	kendu	0	1	0	0	0	0	**1**	
					Careya arborea	Kumbhi	0	1	0	0	0	0	**1**	
					Dillenia pentagyna	Rai	0	0	1	0	0	0	**1**	
					Lagerstroemia parviflora	Sidha	0	0	1	0	0	0	**1**	**13**
8	Balugaon	Aranga RF	A-8	Kod-22 & 23	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Mangifera indica	Amba	0	0	0	0	2	2	**4**	
					Terminalia arjuna	Arjuna	0	0	1	0	0	0	**1**	
					Terminalia tomentosa	Asan/ Sahaja	0	1	0	0	0	0	**1**	
					Cassia siamea	Chakundi	0	1	0	0	0	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Ficus glomerata	Dimiri	1	0	0	0	0	0	**1**	
					Pterospermum heyneanum	Giringa	1	0	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	1	0	0	0	0	**1**	**10**
9	Tangi	Badapari DPF	Nil	Kod-24	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Emblica officinalis	Amla	0	0	1	0	0	0	**1**	
					Morinda tinctoria	Anchhu	0	3	1	0	0	0	**4**	
					Anacardimum occidentale	Cashew	0	4	0	0	0	0	**4**	
					Diospyros sylvatica	Kalachua	3	15	0	0	0	0	**18**	
					Bridelia retusa	Kasi	0	1	1	0	0	0	**2**	
					Lannea coromandelica	Mai	1	1	0	0	0	0	**2**	
					Azadirachta indica	Neem/Nimba	0	1	0	0	0	0	**1**	
					Lagerstroemia parviflora	Sidha	0	1	0	0	0	0	**1**	**33**
10	Tangi	Baghaiput DPF	Nil	Kod- 25 & 26	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Morinda tinctoria	Anchhu	0	0	0	1	0	0	**1**	
					Pterospermum heyneanum	Giringa	0	1	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	0	0	1	0	0	**1**	
					Lannea coromandelica	Mai	0	0	0	0	1	0	**1**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	1	0	0	0	**1**	
					Mitragyna parviflora	Mundi/Mitkania	0	0	1	0	0	0	**1**	**6**
11	Balugaon	Bankard RF	B-1	Kod- 27,28 &29	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	3	4	6	**13**	
					Mangifera indica	Amba	0	1	1	1	0	0	**3**	
					Dalbergia paniculata	Barabakulia	0	1	0	0	0	0	**1**	
					Albizia chinensis	Ghoralanjia	0	0	0	1	0	0	**1**	
					Pterospermum canescens	Giringa	0	3	3	7	2	0	**15**	
					Diospyros sylvatica	Kalachua	0	1	0	6	0	0	**7**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Mallotus philipinensis	Kamalagundi	0	2	0	1	0	0	**3**	
					Bridelia retusa	Kasi	0	0	0	0	0	1	**1**	
					Casearia elliptica	Khakada	0	0	0	1	0	0	**1**	
					Strychnos nuxvomica	Kochila	0	0	0	1	0	0	**1**	
					Lannea coromandelica	Mai	0	1	0	1	1	0	**3**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	4	2	2	1	**9**	
					Dillenia pentagyna	Rai	0	0	1	0	0	0	**1**	
					Cassia fistula	Sunari	0	0	1	0	0	0	**1**	**60**
12	Balugaon	Bankard RF	B-2	Kod- 30,31 &32	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Mangifera indica	Amba	0	1	0	0	0	1	**2**	
					Terminalia tomentosa	Asan/Sahaj	0	0	0	0	0	1	**1**	
					Ficus religiosa	Aswatha	0	0	1	0	0	0	**1**	
					Semecarpus anacardium	Bhalia	0	0	0	0	0	1	**1**	
					Buchanania lanzan	Char	0	0	0	0	0	1	**1**	
					Ficus glomerata	Dimiri	0	0	0	2	2	0	**4**	
					Pterospermum heyneanum	Giringa	0	0	4	0	0	4	**8**	
					Syzigium cumini	Jamu	0	1	1	0	0	1	**3**	
					Diospyros sylvatica	Kalachua	0	0	0	0	0	1	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	1	0	1	0	**2**	
					Bridelia retusa	Kasi	0	0	0	0	0	1	**1**	
					Strychnos nuxvomica	Kochila	0	1	0	0	0	0	**1**	
					Careya arborea	Kumbhi	0	0	0	0	0	1	**1**	
					Scheichera oleosa	Kusum	0	0	0	0	0	1	**1**	
					Bursera serrata	Nimburumoi	0	1	0	0	0	0	**1**	
					Dillenia pentagyna	Rai	0	0	1	0	0	0	**1**	
					Streblus asper	Sahada	0	0	0	0	1	1	**2**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Bombax ceiba	Simili	0	0	0	0	0	1	**1**	**33**
13	Balugaon	Bankard RF	B-3	Kod- 33 &34	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Acacia auriculiformis	Acacia	0	0	1	0	0	0	**1**	
					Cassia siamea	Chakundi	0	1	0	0	0	0	**1**	
					Ficus glomerata	Dimiri	0	0	1	0	0	1	**2**	
					Pterospermum heyneanum	Giringa	0	0	1	0	0	0	**1**	
					Diospyros montana	Halda	0	0	1	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	0	1	0	0	0	**1**	**7**
14	Balugaon	Bankard RF	B-4	Kod- 35,36 &37	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	2	0	0	1	**3**	
					Terminalia tomentosa	Asan/ Sahaja	0	1	0	0	0	0	**1**	
					Aegle marmelos	Bela	0	1	0	0	0	0	**1**	
					Sterculia urens	Genduli	0	1	1	0	0	0	**2**	
					Pterospermum canescens	Giringa	0	2	0	0	0	0	**2**	
					Syzigium cumini	Jamu	0	1	1	0	0	0	**2**	
					Diospyros sylvatica	Kalachua	0	1	0	0	1	0	**2**	
					Bridelia retusa	Kasi	0	0	0	0	0	2	**2**	
					Diospyros melanoxylon	kendu	0	0	2	0	0	0	**2**	
					Strychnos nuxvomica	Kochila	0	1	0	0	0	0	**1**	
					Scheichera oleosa	Kusum	0	0	0	1	0	0	**1**	
					Lannea coromandelica	Mai	0	2	0	0	0	0	**2**	
					Bursera serrata	Nimburumoi	0	0	1	0	0	0	**1**	**22**
15	Khordha	Barunai RF	Nil	Kod- 38 & 39	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Emblica officinalis	Amla	0	1	0	0	0	0	**1**	
					Alangium lamarckii	Ankula	0	2	0	0	0	0	**2**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Terminalia tomentosa	Asan/ Sahaja	0	1	0	0	0	0	**1**	
					Pterospermum canescens	Giringa	2	3	0	0	0	0	**5**	
					Diospyros sylvatica	Kalachua	0	2	0	0	0	0	**2**	
					Mallotus philipinensis	Kamalagundi	1	0	0	0	0	0	**1**	
					Xylia xylocarpa	Kangada	0	2	0	0	0	0	**2**	
					Pongamia pinnata	Karanj	0	1	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	5	0	0	0	0	**5**	
					Lannea coromandelica	Mai	0	3	0	0	0	0	**3**	
					Mitragyna parviflora	Mundi/Mitkania	0	1	0	0	0	0	**1**	
					Azadirachta indica	Neem/Nimba	0	1	0	0	0	0	**1**	
					Albizzia lebbek	Siris	0	1	0	0	0	0	**1**	**26**
16	Delenga	Baguniaparh PRF	Nil	Kod- 40	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Acacia auriculiformis	Acacia	0	0	0	6	1	1	**8**	
					Anacardimum occidentale	Cashew	0	0	0	10	3	15	**28**	**36**
17	Balugaon	Bhaleri DPF		kod-41,42,43,44 & 45	Acacia auriculiformis	Acacia	0	2	4	1	1	0	**8**	
					Mangifera indica	Amba	0	1	0	0	0	0	**1**	
					Cassia siamea	Chakundi	3	26	8	2	6	5	**50**	
					Syzigium cumini	Jamu	0	2	0	0	0	0	**2**	
					Diospyros sylvatica	Kalachua	0	4	0	0	0	0	**4**	
					Diospyros melanoxylon	kendu	0	2	0	0	0	0	**2**	
					Strychnos nuxvomica	Kochila	0	1	0	0	0	0	**1**	**68**
18	Balipatana	Bhanra PRF		kod-46	Phoenix sylvastris	Khajuri	0	0	1	0	0	0	**1**	
					Diospyros embryopteris	Mankada kendu	0	1	0	0	0	0	**1**	
					Lagerstroemia speciosa	Patuli	0	3	0	1	1	0	**5**	
					Lagerstroemia parviflora	Sidha	0	0	2	0	0	0	**2**	**9**
19	Balugaon	Bhatapara DPF		kod-47,48,49	Shorea robusta	Sal	0	7	11	13	3	1	**35**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Tectona grandis	Saguan	0	10	6	2	0	0	**18**	
					Mangifera indica	Amba	0	2	1	0	0	2	**5**	
					Spondias mangifera	Ambada	0	1	0	0	0	0	**1**	
					Alangium lamarckii	Ankula	0	1	0	0	0	0	**1**	
					Terminalia tomentosa	Asan/ Sahaja	0	2	2	0	0	0	**4**	
					Dalbergia paniculata	Barabakulia	0	0	1	0	0	0	**1**	
					Buchanania lanzan	Char	0	0	1	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	2	2	0	0	0	**4**	
					Ficus glomerata	Dimiri	1	0	0	0	0	0	**1**	
					Pterospermum canescens	Giringa	0	1	0	0	0	0	**1**	
					Diospyros montana	Halda	0	1	0	0	0	0	**1**	
					Syzigium cumini	Jamu	0	1	0	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	4	2	1	0	0	**7**	
					Mallotus philipinensis	Kamalagundi	0	9	1	0	0	0	**10**	
					Bridelia retusa	Kasi	0	6	4	1	0	1	**12**	
					Diospyros melanoxylon	kendu	0	2	1	0	0	0	**3**	
					Scheichera oleosa	Kusum	0	1	0	0	0	1	**2**	
					Lannea coromandelica	Mai	0	2	1	3	1	2	**9**	
					Mitragyna parviflora	Mundi/Mitkania	0	1	0	0	0	0	**1**	
					Bursera serrata	Nimburumoi	0	1	4	1	1	0	**7**	
					Anogeissus acuminata	Phasi	0	0	1	0	0	0	**1**	
					Dillenia pentagyna	Rai	0	4	2	0	1	0	**7**	
					Streblus asper	Sahada	1	0	1	0	0	0	**2**	
					Lagerstroemia parviflora	Sidha	0	2	0	0	0	0	**2**	
					Albizzia lebbek	Siris	0	0	0	0	0	1	**1**	
					Tamarindus indica	Tentuli	0	1	0	0	0	0	**1**	**139**
20	Tangi	Bhusandpur DPF		Kod-50,51 &52	Shorea robusta	Sal	0	0	0	0	0	0	**0**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Acacia auriculiformis	Acacia	0	2	0	0	0	0	**2**	
					Semecarpus anacardium	Bhalia	0	1	0	0	0	0	**1**	
					Anacardimum occidentale	Cashew	0	10	0	0	0	0	**10**	
					Bridelia retusa	Kasi	0	2	0	0	0	0	**2**	
					Diospyros melanoxylon	kendu	0	1	0	0	0	0	**1**	
					Lannea coromandelica	Mai	0	2	0	0	0	0	**2**	**18**
21	Khordha	Brahamanidevi DPF		kod-53,54,55,56	Mangifera indica	Amba	0	1	0	0	0	0	**1**	
					Aegle marmelos	Bela	0	2	0	0	0	0	**2**	
					Semecarpus anacardium	Bhalia	0	1	0	0	0	0	**1**	
					Cassia siamea	Chakundi	0	5	0	0	0	0	**5**	
					Buchanania lanzan	Char	2	1	0	0	0	0	**3**	
					Canthium didymum	Dalsinga /Kumarchikini	1	0	0	0	0	0	**1**	
					Gmelina arborea	Gamhari	0	1	0	0	0	0	**1**	
					Pterospermum canescens	Giringa	0	5	0	0	0	0	**5**	
					Diospyros sylvatica	Kalachua	2	1	0	0	0	0	**3**	
					Bridelia retusa	Kasi	0	3	0	0	0	0	**3**	
					Diospyros melanoxylon	kendu	1	2	0	0	0	0	**3**	
					Strychnos nuxvomica	Kochila	2	2	0	0	0	0	**4**	
					Scheichera oleosa	Kusum	1	0	0	0	0	0	**1**	
					Ailanthus excelsa	Mahanimba	0	1	0	0	0	0	**1**	
					Madhuca indica	Mahula	0	1	0	0	0	0	**1**	
					Lannea coromandelica	Mai	0	8	1	0	0	0	**9**	
					Lagerstroemia speciosa	Patuli	0	1	0	0	0	0	**1**	
					Lagerstroemia parviflora	Sidha	1	0	0	0	0	0	**1**	
					Cassia fistula	Sunari	1	0	0	1	0	0	**2**	**48**
22	Khordha	Chakadapathr DPF		Kod57,58,59,60 ,61,62,63	Tectona grandis	Saguan	0	20	3	0	0	0	**23**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Aegle marmelos	Bela	0	1	0	0	0	0	**1**	
					Anacardimum occidentale	Cashew	1	11	1	1	0	0	**14**	
					Cassia siamea	Chakundi	0	12	0	0	0	0	**12**	
					Buchanania lanzan	Char	0	1	0	0	0	0	**1**	
					Ficus glomerata	Dimiri	0	1	0	0	0	0	**1**	
					Pterospermum canescens	Giringa	0	4	0	0	0	0	**4**	
					Diospyros sylvatica	Kalachua	0	7	0	0	0	0	**7**	
					Pongamia pinnata	Karanj	1	0	0	0	0	0	**1**	
					Bridelia retusa	Kasi	1	1	0	0	0	0	**2**	
					Phoenix sylvastris	Khajuri	0	0	1	0	0	0	**1**	
					Strychnos nuxvomica	Kochila	0	1	0	0	0	0	**1**	
					Lannea coromandelica	Mai	1	0	0	0	0	0	**1**	
					Diospyros embryopteris	Mankada kendu	1	1	0	0	0	0	**2**	
					Azadirachta indica	Neem/Nimba	1	5	0	0	0	0	**6**	
					Dillenia pentagyna	Rai	0	3	0	0	0	0	**3**	
					Streblus asper	Sahada	0	1	0	0	0	0	**1**	
					Cassia fistula	Sunari	0	1	0	0	0	0	**1**	
					Borassus flabellifer	Tala	0	0	1	1	0	0	**2**	**84**
23	Balugaon	Champagarh DPF		Kod-64 & 65	Cassia siamea	Chakundi	0	19	10	9	7	4	**49**	
					Diospyros sylvatica	Kalachua	0	1	0	1	0	0	**2**	
					Casearia elliptica	Khakada	0	0	0	1	0	0	**1**	
					Lannea coromandelica	Mai	0	1	0	0	0	0	**1**	**53**
24	Ranpur	Champagarh RF		Kod-66,67&68	Morinda tinctoria	Anchhu	0	0	0	1	0	0	**1**	
					Anacardimum occidentale	Cashew	0	4	8	11	2	2	**27**	
					Pterospermum canescens	Giringa	0	0	1	1	1	0	**3**	
					Litsea glutinesa	Jaisanda	0	0	0	1	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	0	2	1	1	0	**4**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Casearia elliptica	Khakada	0	1	1	0	0	0	**2**	
					Careya arborea	Kumbhi	0	0	0	1	0	0	**1**	
					Lannea coromandelica	Mai	0	0	0	0	0	1	**1**	
					Azadirachta indica	Neem/Nimba	0	0	0	0	0	1	**1**	**41**
25	Balugaon	Chulijhinka DPF		Kod-69,70,71&72	Shorea robusta	Sal	0	0	1	1	3	0	**5**	
					Tectona grandis	Saguan	0	0	0	1	0	0	**1**	
					Mangifera indica	Amba	0	0	1	1	1	6	**9**	
					Emblica officinalis	Amla	0	1	0	0	0	1	**2**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	2	1	0	**3**	
					Buchanania lanzan	Char	0	1	1	1	0	0	**3**	
					Albizia procera	Dhalasiris	0	0	0	0	0	1	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	1	0	2	**3**	
					Anogeissus latifolia	Dhaura	0	1	0	0	0	0	**1**	
					Sterculia urens	Genduli	0	1	0	0	0	0	**1**	
					Pterospermum heyneanum	Giringa	0	1	0	4	1	1	**7**	
					Adina cordifolia	Haldu (kurum)	0	0	0	0	0	1	**1**	
					Feronia elephantum	Kaitha	0	0	1	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	0	1	0	0	0	**1**	
					Mallotus philipinensis	Kamalagundi	0	4	4	1	1	0	**10**	
					Bridelia retusa	Kasi	0	0	0	1	0	1	**2**	
					Diospyros melanoxylon	kendu	0	1	0	0	1	0	**2**	
					Casearia elliptica	Khakada	0	0	0	0	0	1	**1**	
					Strychnos nuxvomica	Kochila	0	0	1	1	0	4	**6**	
					Careya arborea	Kumbhi	0	0	1	2	1	1	**5**	
					Scheichera oleosa	Kusum	0	0	0	1	0	0	**1**	
					Lannea coromandelica	Mai	0	2	1	4	0	3	**10**	
					Macaranga peltata	Manda/Gandhagur ia	0	1	0	0	0	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Oroxylon indicum	Phanphana/Phanpuni	0	0	1	0	0	1	**2**	
					Pterocarpus marsupium	Piasal/ Bijasal	0	1	0	0	0	0	**1**	
					Dillenia pentagyna	Rai	0	2	0	2	2	9	**15**	
					Lagerstroemia parviflora	Sidha	0	0	2	1	0	0	**3**	
					Bombax ceiba	Simili	0	0	0	0	0	3	**3**	**101**
26	Ranpur	Dhani (N) RF	D-1	Kod-73 &74	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Semecarpus anacardium	Bhalia	0	0	1	0	0	0	**1**	
					Ficus glomerata	Dimiri	0	0	0	0	1	1	**2**	
					Pterospermum canescens	Giringa	0	0	0	1	1	0	**2**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	0	1	**1**	
					Strychnos potatorum	Katakala	0	0	0	0	0	2	**2**	
					Diospyros melanoxylon	kendu	0	0	0	0	1	0	**1**	
					Macaranga peltata	Manda/Gandhaguria	0	0	0	0	1	1	**2**	
					Diospyros embryopteris	Mankada kendu	0	0	0	1	0	0	**1**	
27	Ranpur	Dhani (N) RF	D-2	Kod-75,76 &77	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	1	8	4	2	2	**17**	
					Alangium lamarckii	Ankula	0	1	0	0	0	0	**1**	
					Naringi crenulata	Benta	0	0	0	0	1	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	1	0	0	0	**1**	
					Pterospermum canescens	Giringa	0	2	1	0	0	1	**4**	
					Diospyros sylvatica	Kalachua	1	5	1	1	3	1	**12**	
					Scheichera oleosa	Kusum	0	1	0	0	0	0	**1**	
					Lannea coromandelica	Mai	0	1	3	3	0	0	**7**	
					Macaranga peltata	Manda/Gandhaguria	0	2	0	1	1	0	**4**	
					Dillenia pentagyna	Rai	0	0	1	0	0	0	**1**	
					Cassia fistula	Sunari	0	0	0	1	0	0	**1**	**50**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
28	Ranpur	Dhani (N) RF	D-3	Kod-78	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Pterospermum canescens	Giringa	0	7	0	0	1	0	**8**	
					Adina cordifolia	Haldu (kurum)	0	0	0	1	0	0	**1**	
					Ficus virens	Jida	0	0	0	0	0	1	**1**	
					Kydia calycina	Kapasia	0	1	0	0	0	0	**1**	
					Macaranga peltata	Manda/Gandhagur ia	0	4	0	0	0	0	**4**	
					Cassia fistula	Sunari	0	0	0	0	1	0	**1**	**16**
29	Ranpur	Dhani (N) RF	D-4	Kod-79 &80	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	1	12	1	2	0	0	**16**	
					Acacia auriculiformis	Acacia	0	1	4	0	0	0	**5**	
					Alangium lamarckii	Ankula	0	1	0	0	0	0	**1**	
					Cassia siamea	Chakundi	0	2	0	0	0	0	**2**	
					Grewia tiliaefolia	Dhaman	0	6	1	0	1	0	**8**	
					Pterospermum canescens	Giringa	0	0	0	1	0	0	**1**	
					Syzigium cumini	Jamu	0	0	1	1	1	0	**3**	
					Diospyros sylvatica	Kalachua	0	1	0	6	0	0	**7**	
					Bridelia retusa	Kasi	0	1	0	1	0	0	**2**	
					Casearia elliptica	Khakada	0	1	0	2	0	0	**3**	
					Streblus asper	Sahada	0	1	0	0	0	0	**1**	
30	Ranpur	Dhani (S) RF	D-5	Kod-81,82 & 83	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	2	0	0	0	0	**2**	
					Terminalia tomentosa	Asan/ Sahaja	0	1	0	0	0	0	**1**	
					Terminalia belerica	Bahada	0	1	0	0	0	0	**1**	
					Ougeinia oojeinensis	Bandhan/Tinsa	0	1	0	0	0	0	**1**	
					Aegle marmelos	Bela	0	2	0	0	0	0	**2**	
					Cassia siamea	Chakundi	1	2	0	0	0	0	**3**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Buchanania lanzan	Char	1	0	0	0	0	0	**1**	
					Pterospermum heyneanum	Giringa	1	2	2	0	1	0	**6**	
					Ficus retusa	Jari	0	1	0	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	2	0	0	0	0	**2**	
					Mallotus philipinensis	Kamalagundi	0	1	1	0	0	0	**2**	
					Xylia xylocarpa	Kangada	0	0	0	0	1	0	**1**	
					Cleistanthus collinus	Karada	1	0	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	1	0	0	0	0	**1**	
					Lannea coromandelica	Mai	0	2	0	0	0	0	**2**	
					Bursera serrata	Nimburumoi	0	1	0	0	0	0	**1**	
					Erythrina indica	Paldhua	1	0	0	0	0	0	**1**	
					Oroxylon indicum	Phanphana/Phanpuni	0	1	0	0	0	0	**1**	
					Streblus asper	Sahada	0	1	0	0	0	0	**1**	
					Lagerstroemia parviflora	Sidha	0	1	2	0	0	0	**3**	
					Bombax ceiba	Simuli semal	0	0	0	1	0	1	**2**	
					Albizzia lebbek	Siris	0	1	0	0	0	0	**1**	**38**
31	Ranpur	Dhani (S)	D-6	Kod-84,85 & 86	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	1	3	2	0	0	4	**10**	
					Ficus bengalensis	Bara	0	0	0	2	0	0	**2**	
					Anacardimum occidentale	Cashew	0	1	1	0	0	0	**2**	
					Grewia tiliaefolia	Dhaman	0	0	1	0	0	0	**1**	
					Pterospermum canescens	Giringa	0	3	0	0	1	0	**4**	
					Diospyros montana	Halda	0	2	1	1	1	0	**5**	
					Diospyros sylvatica	Kalachua	0	7	1	13	7	2	**30**	
					Mallotus philipinensis	Kamalagundi	0	0	0	4	3	3	**10**	
					Bridelia retusa	Kasi	0	0	1	1	1	0	**3**	
					Strychnos nuxvomica	Kochila	0	1	0	4	1	6	**12**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Macaranga peltata	Manda/Gandhagur ia	0	0	0	0	0	1	**1**	
					Azadirachta indica	Neem/Nimba	0	3	0	0	0	0	**3**	
					Streblus asper	Sahada	0	1	0	2	2	2	**7**	
					Cassia fistula	Sunari	0	1	1	0	0	0	**2**	**92**
32	Khordha	Duburi DPF		Kod-87	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Acacia leucophloea	Gohira	0	0	0	1	1	1	**3**	
					Azadirachta indica	Neem/Nimba	0	0	0	2	0	0	**2**	
33	Tangi	Jalbhar DPF		Kod-88, 89 & 90	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Acacia auriculiformis	Acacia	0	3	0	0	0	0	**3**	
					Mangifera indica	Amba	2	1	0	0	0	1	**4**	
					Terminalia belerica	Bahada	0	9	0	0	0	0	**9**	
					Aegle marmelos	Bela	0	3	0	0	0	0	**3**	
					Semecarpus anacardium	Bhalia	0	1	0	0	0	0	**1**	
					Anacardimum occidentale	Cashew	0	10	0	0	0	0	**10**	
					Buchanania lanzan	Char	0	4	0	0	0	0	**4**	
					Diospyros sylvatica	Kalachua	0	1	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	1	0	0	0	0	**1**	
					Lannea coromandelica	Mai	0	1	0	0	0	0	**1**	
					Diospyros embryopteris	Mankada kendu	0	2	0	0	0	0	**2**	
					Lagerstroemia parviflora	Sidha	0	1	0	0	0	0	**1**	
					Cassia fistula	Sunari	0	2	0	0	0	0	**2**	**42**
34	Khordha	Jariput DPF		Kod-91 & 92	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Anacardimum occidentale	Cashew	1	9	3	2	2	3	**20**	
					Lannea coromandelica	Mai	1	0	0	0	0	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
35	Balugaon	Jharan DPF		Kod-93,94,95,96,97, 98,99 &100	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Mangifera indica	Amba	0	1	1	0	0	0	**2**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	2	0	0	0	**2**	
					Acacia nilotica	Babul	1	1	0	0	0	0	**2**	
					Ficus bengalensis	Bara	0	0	1	0	0	1	**2**	
					Dalbergia paniculata	Barabakulia	0	1	0	0	0	1	**2**	
					Aegle marmelos	Bela	0	2	0	0	0	0	**2**	
					Naringi crenulata	Benta	0	1	0	0	0	0	**1**	
					Buchanania lanzan	Char	0	1	0	0	0	0	**1**	
					Anogeissus latifolia	Dhaura	0	0	1	0	0	0	**1**	
					Ficus glomerata	Dimiri	0	1	1	0	0	1	**3**	
					Eucalyptus species	Eucalyptus	0	0	1	0	0	0	**1**	
					Pterospermum heyneanum	Giringa	0	4	2	0	0	0	**6**	
					Diospyros montana	Halda	0	0	1	0	0	0	**1**	
					Syzigium cumini	Jamu	0	0	1	0	0	0	**1**	
					Ficus retusa	Jari	0	0	0	1	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	3	1	1	0	0	**5**	
					Bridelia retusa	Kasi	0	1	0	0	0	0	**1**	
					Diospyros melanoxylon	kendu	0	0	0	1	0	0	**1**	
					Strychnos nuxvomica	Kochila	0	0	0	1	0	0	**1**	
					Careya arborea	Kumbhi	0	1	1	0	0	1	**3**	
					Lannea coromandelica	Mai	0	1	0	0	0	0	**1**	
					Diospyros embryopteris	Mankada kendu	0	1	0	2	0	0	**3**	
					Azadirachta indica	Neem/Nimba	0	2	0	0	0	0	**2**	
					Bursera serrata	Nimburumoi	0	2	2	0	0	0	**4**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Lagerstroemia speciosa	Patuli	0	0	0	1	0	0	**1**	
					Dillenia pentagyna	Rai	0	0	0	1	0	0	**1**	
					Lagerstroemia parviflora	Sidha	0	1	0	0	0	0	**1**	
					Bombax ceiba	Simuli semal	0	1	0	1	0	0	**2**	
					Albizzia lebbek	Siris	0	1	1	0	0	0	**2**	
					Cassia fistula	Sunari	1	2	0	0	0	0	**3**	**59**
36	Balugaon	Jiripada DPF		Kod-101	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Semecarpus anacardium	Bhalia	0	1	1	0	0	0	**2**	
					Grewia tiliaefolia	Dhaman	0	0	0	1	0	0	**1**	
					Pterospermum canescens	Giringa	0	1	0	0	0	0	**1**	
					Diospyros montana	Halda	0	1	0	0	0	0	**1**	
					Ficus retusa	Jari	0	2	0	2	0	1	**5**	
					Diospyros sylvatica	Kalachua	0	1	1	1	0	0	**3**	
					Mallotus philipinensis	Kamalagundi	0	2	0	1	0	0	**3**	
					Scheichera oleosa	Kusum	0	0	2	1	0	0	**3**	
					Careya arborea	Kumbhi	0	0	1	0	0	0	**1**	
					Lannea coromandelica	Mai	0	1	1	0	0	1	**3**	
					Azadirachta indica	Neem/Nimba	0	0	0	1	0	0	**1**	
					Dillenia pentagyna	Rai	0	1	0	0	0	0	**1**	
					Bursera serrata	Nimburumoi	0	1	0	1	0	0	**2**	**27**
37	Tangi	Kadamajhar DPF		Kod-102	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Azadirachta indica	Neem/Nimba	1	0	0	0	0	0	**1**	
					Anacardimum occidentale	Cashew	0	11	0	0	0	0	**11**	**12**
38	Tangi	Kaithapalla DPF		Kod-103	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Acacia auriculiformis	Acacia	1	5	0	0	0	0	**6**	
					Anacardimum occidentale	Cashew	0	1	1	0	0	0	**2**	
					Vitex peduncularis	Chadeigudi	0	1	0	0	0	0	**1**	
					Eucalyptus species	Eucalyptus	0	3	1	0	0	0	**4**	
					Diospyros melanoxylon	kendu	0	1	0	0	0	0	**1**	
					Strychnos nuxvomica	Kochila	0	1	0	0	0	0	**1**	**15**
39	Tangi	Kandagadia DPF		Kod-104,105	Acacia auriculiformis	Acacia	2	5	0	0	0	0	**7**	
					Anacardimum occidentale	Cashew	0	4	1	0	0	0	**5**	
					Cassia siamea	Chakundi	0	16	2	0	0	0	**18**	
					Eucalyptus species	Eucalyptus	0	1	0	0	0	0	**1**	
					Pterospermum canescens	Giringa	1	1	0	0	0	0	**2**	
					Diospyros sylvatica	Kalachua	0	5	0	0	0	0	**5**	
					Pongamia pinnata	Karanj	0	1	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	1	0	0	0	0	**1**	
					Strychnos nuxvomica	Kochila	0	1	0	0	0	0	**1**	**41**
40	Khordha	Kapileswar DPF		Kod- 106	Anacardimum occidentale	Cashew	1	13	2	9	0	0	**25**	**25**
41	Khordha	Keranga DPF		Kod-107	Anacardimum occidentale	Cashew	1	13	10	3	0	0	**27**	**27**
42	Balugoan	Katwal RF	K-1	Kod-108, 109	Tectona grandis	Saguan	0	4	2	5	2	3	**16**	
					Terminalia tomentosa	Asan/ Sahaja	0	1	0	0	0	0	**1**	
					Buchanania lanzan	Char	0	1	0	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	3	1	0	0	0	**4**	
					Ficus retusa	Jari	0	0	0	1	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	2	0	0	0	0	**2**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	0	1	**1**	
					Bridelia retusa	Kasi	0	2	4	0	1	1	**8**	
					Diospyros melanoxylon	kendu	0	2	2	0	0	0	**4**	
					Casearia elliptica	Khakada	0	1	0	0	0	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Scheichera oleosa	Kusum	0	0	1	2	0	0	**3**	
					Bursera serrata	Nimburumoi	0	2	2	0	1	0	**5**	
					Dillenia pentagyna	Rai	0	1	1	0	1	1	**4**	
					Lagerstroemia parviflora	Sidha	0	1	1	0	0	0	**2**	
					Albizzia lebbek	Siris	0	1	0	1	0	0	**2**	**55**
43	Balugoan	Katwal RF	K-2	Kod-110,111	Mangifera indica	Amba	0	1	0	0	0	0	**1**	
					Alangium lamarckii	Ankula	0	1	0	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	2	3	2	0	0	**7**	
					Ficus glomerata	Dimiri	0	2	0	0	0	0	**2**	
					Pterospermum canescens	Giringa	0	4	0	0	0	0	**4**	
					Diospyros montana	Halda	0	2	0	1	0	0	**3**	
					Ficus retusa	Jari	0	3	0	0	0	0	**3**	
					Mallotus philipinensis	Kamalagundi	0	4	0	1	0	0	**5**	
					Bridelia retusa	Kasi	0	4	2	0	0	0	**6**	
					Lannea coromandelica	Mai	0	5	0	1	0	0	**6**	
					Macaranga peltata	Manda/Gandhagur ia	0	1	1	1	1	0	**4**	
					Diospyros embryopteris	Mankada kendu	0	1	0	0	0	0	**1**	
					Bursera serrata	Nimburumoi	0	4	0	0	0	0	**4**	**47**
					Streblus asper	Sahada	0	1	1	0	0	0	**2**	
44	Balugoan	Katwal RF	K-3	Kod-112,113	Polyalthia simiarum	Ajhar (Ojhar)	0	1	0	0	0	0	**1**	
					Naringi crenulata	Benta	0	3	0	0	0	0	**3**	
					Gmelina arborea	Gamhari	0	1	0	0	0	0	**1**	
					Pterospermum canescens	Giringa	0	5	0	0	0	0	**5**	
					Diospyros sylvatica	Kalachua	0	2	0	0	0	0	**2**	
					Bridelia retusa	Kasi	0	1	1	0	0	0	**2**	
					Casearia elliptica	Khakada	0	1	0	0	0	0	**1**	
					Scheichera oleosa	Kusum	0	1	0	0	0	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Lannea coromandelica	Mai	0	1	0	0	0	0	**1**	
					Azadirachta indica	Neem/Nimba	0	1	0	0	0	0	**1**	
					Macaranga peltata	Manda/Gandhagur ia	0	2	0	0	0	0	**2**	
					Bursera serrata	Nimburumoi	0	8	3	0	0	0	**11**	**31**
45	Balugoan	Katwal RF	K-4	Kod-114,115	Tectona grandis	Saguan	0	1	4	5	1	8	**19**	
					Buchanania lanzan	Char	0	0	3	0	0	0	**3**	
					Glochidion zeylanicum	Chikini/Kalchua	0	1	0	0	0	0	**1**	
					Gmelina arborea	Gamhari	0	0	1	0	0	1	**2**	
					Sterculia urens	Genduli	0	1	2	0	1	0	**4**	
					Pterospermum canescens	Giringa	0	1	0	0	0	0	**1**	
					Diospyros montana	Halda	0	1	0	0	0	0	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	0	1	0	0	**1**	
					Bridelia retusa	Kasi	0	4	3	0	0	1	**8**	
					Lannea coromandelica	Mai	0	1	0	0	0	0	**1**	
					Dillenia pentagyna	Rai	0	1	1	0	0	0	**2**	
					Careya arborea	Kumbhi	0	0	0	0	1	0	**1**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Bombax ceiba	Simili	0	0	0	1	0	0	**1**	
					Naringi crenulata	Benta	0	0	0	1	0	0	**1**	**46**
46	Balugoan	Katwal RF	K-5	Kod-116,117,118	Tectona grandis	Saguan	0	1	7	3	3	3	**17**	
					Polyalthia simiarum	Ajhar (Ojhar)	0	1	0	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	1	0	0	0	0	**1**	
					Buchanania lanzan	Char	0	2	0	0	0	0	**2**	
					Pterospermum canescens	Giringa	0	2	1	0	0	0	**3**	
					Sterculia urens	Genduli	0	1	0	0	0	0	**1**	
					Syzigium cumini	Jamu	0	1	0	0	0	0	**1**	
					Adina cordifolia	Haldu (kurum)	0	1	0	0	0	1	**2**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Diospyros sylvatica	Kalachua	0	2	0	0	1	1	**4**	
					Mallotus philipinensis	Kamalagundi	0	4	2	0	1	1	**8**	
					Diospyros melanoxylon	kendu	0	1	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	2	3	1	0	0	**6**	
					Bursera serrata	Nimburumoi	0	4	0	1	4	0	**9**	
					Lannea coromandelica	Mai	0	0	0	1	0	0	**1**	
					Dillenia pentagyna	Rai	0	4	0	0	0	1	**5**	**62**
47	Tangi	Kuhudi RF		Kod-119,120,121,122	Emblica officinalis	Amla	0	1	0	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	2	0	0	0	0	**2**	
					Terminalia belerica	Bahada	0	1	0	0	0	1	**2**	
					Vitex peduncularis	Chadeigudi	0	1	0	0	0	0	**1**	
					Anacardimum occidentale	Cashew	0	8	13	1	0	0	**22**	
					Ficus retusa	Jari	0	1	1	0	0	0	**2**	
					Pterospermum canescens	Giringa	0	1	0	0	0	0	**1**	
					Sterculia urens	Genduli	0	0	2	0	0	0	**2**	
					Careya arborea	Kumbhi	0	1	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	1	0	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	2	0	0	0	0	**2**	
					Azadirachta indica	Neem/Nimba	0	1	1	0	0	0	**2**	
					Macaranga peltata	Manda/Gandhaguria	0	2	0	0	0	0	**2**	**41**
48	Delanga	Kumuka PRF		Kod-123,124	Acacia auriculiformis	Acacia	0	0	0	14	2	0	**16**	
					Azadirachta indica	Neem/Nimba	0	0	5	0	0	0	**5**	
					Anacardimum occidentale	Cashew	0	19	7	0	0	0	**26**	**47**
49	Tangi	Kunjuri DPF		Kod-125,126	Aegle marmelos	Bela	1	0	0	0	0	0	**1**	
					Anacardimum occidentale	Cashew	0	15	7	1	1	0	**24**	
					Cassia siamea	Chakundi	0	6	0	0	0	0	**6**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Macaranga peltata	Manda/Gandhagur ia	0	1	0	0	0	0	**1**	**31**
50	Ranpur	Maninag RF	M-1	Kod-127,128	Acacia auriculiformis	Acacia	0	1	0	0	0	0	**1**	
					Mangifera indica	Amba	0	3	0	0	0	0	**3**	
					Emblica officinalis	Amla	0	1	0	0	0	0	**1**	
					Aegle marmelos	Bela	0	2	0	0	0	0	**2**	
					Ficus bengalensis	Bara	0	1	0	0	0	0	**1**	
					Buchanania lanzan	Char	0	3	0	0	0	0	**3**	
					Grewia tiliaefolia	Dhaman	0	3	0	0	0	0	**3**	
					Pterospermum heyneanum	Giringa	0	1	0	0	0	0	**1**	
					Syzigium cumini	Jamu	0	1	0	0	0	0	**1**	
					Ficus retusa	Jari	0	1	0	0	0	0	**1**	
					Cleistanthus collinus	Karada	0	1	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	1	0	0	0	0	**1**	
					Pongamia pinnata	Karanj	0	1	0	0	0	0	**1**	
					Diospyros melanoxylon	kendu	0	1	0	0	0	0	**1**	**21**
51	Ranpur	Maninag RF	M-2	Kod-129,130	Mangifera indica	Amba	0	1	0	0	0	0	**1**	
					Acacia auriculiformis	Acacia	0	3	0	0	0	0	**3**	
					Semecarpus anacardium	Bhalia	0	1	0	0	0	0	**1**	
					Terminalia belerica	Bahada	0	1	0	0	0	0	**1**	
					Pterospermum heyneanum	Giringa	0	5	0	0	0	0	**5**	
					Grewia tiliaefolia	Dhaman	0	1	0	0	0	0	**1**	
					Terminalia chebula	Harida	0	2	0	0	0	0	**2**	
					Diospyros melanoxylon	kendu	0	1	0	0	0	0	**1**	
					Terminalia chebula	Harida	0	2	0	0	0	0	**2**	
					Strychnos nuxvomica	Kochila	0	0	1	0	0	0	**1**	**18**
52	Ranpur	Maninag RF	M-3	Kod-131,132	Ficus retusa	Jari	0	3	0	0	0	0	**3**	
					Bridelia retusa	Kasi	0	1	0	0	0	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Scheichera oleosa	Kusum	0	1	0	0	0	0	1	
					Ficus virens	Jida	0	1	0	0	0	0	1	6
53	Ranpur	Maninag RF	M-4	Kod-133,134	Ziziphus mauritiana	Barkoli	0	1	0	0	0	0	1	
					Emblica officinalis	Amla	0	1	0	0	0	0	1	
					Aegle marmelos	Bela	0	2	0	0	0	0	2	
					Grewia tiliaefolia	Dhaman	0	1	0	0	0	0	1	
					Ficus glomerata	Dimiri	0	1	0	0	0	0	1	
					Diospyros sylvatica	Kalachua	0	0	0	0	0	1	1	
					Pterospermum canescens	Giringa	0	1	1	0	0	0	2	
					Mallotus philipinensis	Kamalagundi	0	1	0	0	0	0	1	
					Lannea coromandelica	Mai	0	1	0	0	0	0	1	
					Azadirachta indica	Neem/Nimba	0	0	1	0	0	0	1	12
54	Ranpur	Maninag RF	M-5	Kod-135,136	Shorea robusta	Sal	0	1	0	0	0	0	1	
					Aegle marmelos	Bela	0	1	0	0	0	0	1	
					Buchanania lanzan	Char	0	1	0	0	0	0	1	
					Grewia tiliaefolia	Dhaman	0	1	0	0	0	0	1	
					Diospyros sylvatica	Kalachua	0	1	0	0	0	0	1	
					Mallotus philipinensis	Kamalagundi	0	3	0	0	0	0	3	
					Pterospermum heyneanum	Giringa	0	2	0	0	0	0	2	
					Scheichera oleosa	Kusum	0	1	0	0	0	0	1	
					Bridelia retusa	Kasi	0	2	0	0	0	0	2	
					Diospyros melanoxylon	kendu	0	3	0	0	0	0	3	
					Casearia elliptica	Khakada	0	1	0	0	0	0	1	
					Streblus asper	Sahada	0	1	0	0	0	0	1	
					Lannea coromandelica	Mai	0	2	0	0	0	0	2	
55	Ranpur	Maninag RF	M-6	Kod-137,138	Aegle marmelos	Bela	0	2	0	0	0	0	2	
					Anogeissus latifolia	Dhaura	2	1	0	0	0	0	3	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Diospyros montana	Halda	0	1	0	0	0	0	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	2	0	0	0	**2**	
					Cleistanthus collinus	Karada	1	1	0	0	0	0	**2**	
					Diospyros melanoxylon	kendu	1	1	0	0	0	0	**2**	
					Strychnos nuxvomica	Kochila	0	2	0	0	0	0	**2**	
					Madhuca indica	Mahula	0	1	0	0	0	0	**1**	
					Albizzia lebbek	Siris	1	1	0	0	0	0	**2**	
					Lannea coromandelica	Mai	0	1	0	0	0	0	**1**	
					Lagerstroemia speciosa	Patuli	0	1	0	0	0	0	**1**	**19**
56	Ranpur	Maninag RF	M-7	Kod-139 &140	Shorea robusta	Sal	0	0	0	0	2	0	**2**	
					Naringi crenulata	Benta	0	0	0	0	1	0	**1**	
					Pterospermum canescens	Giringa	0	1	0	0	0	0	**1**	
					Anogeissus latifolia	Dhaura	0	1	0	0	1	1	**3**	
					Semecarpus anacardium	Bhalia	0	0	1	0	0	0	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	1	0	**1**	
					Diospyros montana	Halda	0	1	0	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	0	0	1	0	0	**1**	
					Cleistanthus collinus	Karada	0	0	0	1	0	0	**1**	
					Dillenia pentagyna	Rai	0	0	0	0	0	1	**1**	
					Lannea coromandelica	Mai	0	0	1	0	0	1	**2**	
					Cassia fistula	Sunari	0	0	0	0	1	0	**1**	
					Dalbergia sissoo	Sissoo	0	0	1	0	2	0	**3**	**19**
57	Ranpur	MAL RF	ML-1	Kod-141 &142	Bridelia retusa	Kasi	0	0	0	0	0	1	**1**	
					Scheichera oleosa	Kusum	0	0	0	1	1	1	**3**	
					Aegle marmelos	Bela	0	0	1	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	0	1	0	0	0	**1**	
					Lannea coromandelica	Mai	0	0	1	0	0	1	**2**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Caryota urens	Salapa	0	0	0	0	0	1	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	1	0	0	**1**	
					Dillenia pentagyna	Rai	0	0	1	0	0	0	**1**	
					Strychnos nuxvomica	Kochila	0	0	0	1	0	0	**1**	**12**
58	Ranpur	MAL RF	ML-10	Kod-143 &144	Shorea robusta	Sal	0	0	0	0	0	12	**12**	
					Tectona grandis	Saguan	0	0	0	7	1	0	**8**	
					Terminalia belerica	Bahada	0	0	0	0	0	1	**1**	
					Buchanania lanzan	Char	0	0	0	0	1	1	**2**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	0	3	**3**	
					Adina cordifolia	Haldu (kurum)	0	0	0	0	1	0	**1**	
					Syzigium cumini	Jamu	0	0	0	0	1	1	**2**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	3	1	**4**	
					Bridelia retusa	Kasi	0	0	0	0	1	1	**2**	
					Strychnos nuxvomica	Kochila	0	0	0	0	2	0	**2**	
					Scheichera oleosa	Kusum	0	0	0	0	1	2	**3**	
					Symplocos racemosa	Lodha	0	0	0	0	1	0	**1**	
					Lannea coromandelica	Mai	0	0	0	0	1	1	**2**	
					Dillenia pentagyna	Rai	0	0	0	0	0	1	**1**	
					Dalbergia sissoo	Sissoo	0	0	0	0	1	0	**1**	**45**
59	Ranpur	MAL RF	ML-11	Kod-145 &146	Shorea robusta	Sal	0	0	0	1	0	1	**2**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Terminalia belerica	Bahada	0	0	0	0	0	1	**1**	
					Buchanania lanzan	Char	0	0	0	0	1	1	**2**	
					Diospyros montana	Halda	0	0	0	1	0	1	**2**	
					Syzigium cumini	Jamu	0	0	0	0	1	0	**1**	
					Diospyros sylvatica	Kalachua	0	0	0	0	0	1	**1**	
					Diospyros melanoxylon	kendu	0	0	0	2	1	0	**3**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Diospyros sylvatica	Kalachua	0	0	0	0	0	1	**1**	
					Syzigium cumini	Jamu	0	0	0	0	1	0	**1**	
					Casearia elliptica	Khakada	0	0	0	0	1	0	**1**	**15**
60	Ranpur	MAL RF	ML-12	Kod-147,148,149	Shorea robusta	Sal	0	0	0	0	1	7	**8**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	0	1	3	**4**	
					Terminalia belerica	Bahada	0	0	0	0	0	1	**1**	
					Buchanania lanzan	Char	0	0	0	0	1	1	**2**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	0	1	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	0	1	**1**	
					Anogeissus latifolia	Dhaura	0	0	0	0	0	1	**1**	
					Lannea coromandelica	Mai	0	0	0	0	0	1	**1**	
					Trewia nudiflora	Panigambhar	0	0	0	0	0	1	**1**	
					Hymenodictyon excellsum	Kansa	0	0	0	0	0	1	**1**	
					Bridelia retusa	Kasi	0	0	0	0	0	1	**1**	
					Dillenia pentagyna	Rai	0	0	0	0	0	4	**4**	
					Caryota urens	Salapa	0	0	0	0	0	1	**1**	
					Lagerstroemia parviflora	Sidha	0	0	0	0	0	1	**1**	
					Lagerstroemia speciosa	Patuli	0	0	0	0	0	1	**1**	**29**
61	Ranpur	MAL RF	ML-13	Kod-150	Shorea robusta	Sal	0	0	0	0	2	2	**4**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Semecarpus anacardium	Bhalia	0	0	0	1	0	0	**1**	
					Dalbergia paniculata	Barabakulia	0	0	0	1	0	0	**1**	
					Mangifera indica	Amba	0	0	0	0	3	0	**3**	
					Syzigium cumini	Jamu	0	0	1	1	0	0	**2**	
					Bridelia retusa	Kasi	0	0	0	1	0	0	**1**	
					Pterospermum heyneanum	Giringa	0	0	0	1	0	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Diospyros sylvatica	Kalachua	0	0	0	0	1	0	**1**	
					Pterocarpus marsupium	Piasal/ Bijasal	0	0	0	0	0	1	**1**	
					Anogeissus acuminata	Phasi	0	0	0	0	0	1	**1**	
					Diospyros melanoxylon	kendu	0	0	0	1	1	3	**5**	
					Lagerstroemia parviflora	Sidha	0	0	0	0	0	2	**2**	**23**
62	Ranpur	MAL RF	ML-14	Kod-151,152	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	2	0	0	**2**	
					Ficus bengalensis	Bara	0	0	0	0	0	1	**1**	
					Pterospermum canescens	Giringa	0	0	0	0	0	0	**0**	
					Lagerstroemia speciosa	Patuli	0	0	0	0	0	1	**1**	
					Erythrina indica	Paldhua	0	0	0	0	0	1	**1**	
					Dillenia pentagyna	Rai	0	0	0	1	0	0	**1**	
					Acacia auriculiformis	Acacia	0	0	1	0	0	0	**1**	
					Chloroxylon swietenia	Bheru	0	0	1	0	0	0	**1**	
					Mangifera indica	Amba	0	0	0	0	1	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	0	1	**1**	
					Lannea coromandelica	Mai	0	0	0	0	0	1	**1**	
					Diospyros sylvatica	Kalachua	0	0	0	0	0	1	**1**	
					Pterospermum canescens	Giringa	0	0	0	1	0	1	**2**	**14**
63	Ranpur	MAL RF	ML-15	Kod-153,154	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Dillenia pentagyna	Rai	0	0	0	0	1	0	**1**	
					Pterospermum heyneanum	Giringa	0	0	0	0	0	1	**1**	
					Anogeissus latifolia	Dhaura	0	0	0	0	0	1	**1**	
					Bridelia retusa	Kasi	0	0	0	0	0	1	**1**	**4**
64	Ranpur	MAL RF	ML-16	Kod-155,156,157	Shorea robusta	Sal	0	0	0	0	0	1	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Tectona grandis	Saguan	0	0	0	1	2	1	**4**	
					Mangifera indica	Amba	0	0	0	0	1	2	**3**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	1	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	2	0	0	**2**	
					Gmelina arborea	Gamhari	0	0	0	1	0	0	**1**	
					Syzigium cumini	Jamu	0	0	1	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	0	0	0	0	1	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	0	2	**2**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	0	1	0	0	**1**	
					Dillenia pentagyna	Rai	0	0	0	0	0	1	**1**	
					Lagerstroemia parviflora	Sidha	0	0	0	0	0	1	**1**	**19**
65	Ranpur	MAL RF	ML-17	Kod-158,159,160 &161	Shorea robusta	Sal	0	0	0	0	1	0	**1**	
					Tectona grandis	Saguan	0	0	0	0	1	0	**1**	
					Mangifera indica	Amba	0	0	0	1	1	1	**3**	
					Syzigium cumini	Jamu	0	0	1	0	0	0	**1**	
					Melia dubia/composita	Batra	0	0	0	0	0	1	**1**	
					Bridelia retusa	Kasi	0	0	0	0	0	1	**1**	
					Diospyros sylvatica	Kalachua	0	0	3	2	0	0	**5**	
					Diospyros melanoxylon	kendu	0	0	0	0	1	0	**1**	
					Dillenia pentagyna	Rai	0	0	0	1	1	3	**5**	
					Lannea coromandelica	Mai	0	0	0	1	1	0	**2**	
					Ailanthus excelsa	Mahanimba	0	0	1	0	0	0	**1**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	0	0	1	1	**2**	
					Lagerstroemia parviflora	Sidha	0	0	0	0	0	2	**2**	**26**
66	Ranpur	MAL RF	ML-18	Kod-162 &163	Dillenia pentagyna	Rai	0	0	0	0	0	3	**3**	
					Strychnos nuxvomica	Kochila	0	0	0	0	0	2	**2**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Buchanania lanzan	Char	0	0	1	0	0	0	**1**	
					Syzigium cumini	Jamu	0	0	0	0	0	1	**1**	
					Diospyros sylvatica	Kalachua	0	0	0	0	0	1	**1**	
					Bridelia retusa	Kasi	0	0	0	0	0	1	**1**	**9**
67	Ranpur	MAL RF	ML-19	Kod-164 &165	Shorea robusta	Sal	0	0	0	3	19	11	**33**	
					Dillenia pentagyna	Rai	0	0	0	1	3	5	**9**	
					Semecarpus anacardium	Bhalia	0	0	0	0	0	1	**1**	
					Buchanania lanzan	Char	0	0	0	0	1	0	**1**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	0	1	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	1	1	**2**	
					Pterospermum canescens	Giringa	0	0	0	0	1	0	**1**	
					Casearia elliptica	Khakada	0	0	0	0	1	0	**1**	
					Lannea coromandelica	Mai	0	0	0	0	3	2	**5**	
					Mallotus philipinensis	Kamalagundi	0	0	0	2	0	0	**2**	
					Lagerstroemia parviflora	Sidha	0	0	0	0	0	1	**1**	**60**
68	Ranpur	MAL RF	ML-19	Kod-166,167&168	Anacardimum occidentale	Cashew	0	0	0	7	5	3	**15**	
					Dillenia pentagyna	Rai	0	0	0	2	1	0	**3**	
					Diospyros melanoxylon	kendu	0	0	1	0	0	0	**1**	
					Mangifera indica	Amba	0	0	0	0	1	0	**1**	
69	Ranpur	MAL RF		Kod-169	Shorea robusta	Sal	0	0	0	0	2	0	**2**	
					Tectona grandis	Saguan	0	0	0	0	0	0	**0**	
					Pterospermum canescens	Giringa	0	0	0	1	1	0	**2**	
					Diospyros melanoxylon	kendu	0	0	1	2	1	0	**4**	
					Dillenia pentagyna	Rai	0	0	0	0	1	0	**1**	
70	Ranpur	MAL RF	ML-20	Kod-170,171,172&173	Shorea robusta	Sal	0	0	1	1	2	11	**15**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	0	1	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Naringi crenulata	Benta	0	0	0	0	0	1	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	0	3	**3**	
					Syzigium cumini	Jamu	0	0	0	0	0	3	**3**	
					Diospyros melanoxylon	kendu	0	0	0	1	0	4	**5**	
					Casearia elliptica	Khakada	0	0	0	1	0	0	**1**	
					Lagerstroemia speciosa	Patuli	0	0	0	0	0	1	**1**	
					Dillenia pentagyna	Rai	0	0	0	0	0	1	**1**	**31**
71	Ranpur	MAL RF	ML-21	Kod-174 &175	Shorea robusta	Sal	0	0	0	3	1	8	**12**	
					Cleistanthus collinus	Karada	0	0	0	0	0	1	**1**	
					Sterculia villosa	Kodala	0	0	0	0	0	1	**1**	
					Buchanania lanzan	Char	0	0	0	1	1	0	**2**	
					Mangifera indica	Amba	0	0	0	0	1	0	**1**	
					Scheichera oleosa	Kusum	0	0	0	0	1	0	**1**	
					Lannea coromandelica	Mai	0	0	0	1	0	0	**1**	**19**
72	Ranpur	MAL RF	ML-22	Kod-176 &177	Lagerstroemia parviflora	Sidha	0	0	0	0	0	1	**1**	
					Shorea robusta	Sal	0	0	0	0	0	1	**1**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	0	0	1	0	**1**	**3**
73	Ranpur	MAL RF	ML-23	Kod-178 &179	Mallotus philipinensis	Kamalagundi	0	0	1	0	0	2	**3**	
					Bridelia retusa	Kasi	0	0	2	0	0	0	**2**	
					Pterocarpus marsupium	Piasal/ Bijasal	0	0	0	0	0	1	**1**	**6**
74	Ranpur	MAL RF	ML-24	Kod-180 &181	Shorea robusta	Sal	0	0	0	1	0	0	**1**	
					Anacardimum occidentale	Cashew	0	0	0	0	0	2	**2**	
					Lannea coromandelica	Mai	0	0	0	0	0	1	**1**	
					Dillenia pentagyna	Rai	0	0	0	0	0	1	**1**	**5**
75	Ranpur	MAL RF	ML-25	Kod-182,183&184	Shorea robusta	Sal	0	0	0	0	0	1	**1**	
					Tectona grandis	Saguan	0	0	0	1	3	1	**5**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	1	2	**3**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Grewia tiliaefolia	Dhaman	0	0	0	0		1	**1**	
					Diospyros montana	Halda	0	0	0	0	2	0	**2**	
					Dillenia pentagyna	Rai	0	0	0	2	4	2	**8**	**20**
76	Ranpur	MAL RF	ML-26	Kod-185,186,187,188 &189	Shorea robusta	Sal	0	0	2	31	23	45	**101**	
					Emblica officinalis	Amla	0	0	1	0	0	1	**2**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	1	2	7	**10**	
					Mangifera indica	Amba	0	0	0	0	0	2	**2**	
					Semecarpus anacardium	Bhalia	0	0	0	0	0	1	**1**	
					Buchanania lanzan	Char	0	0	0	1	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	1	1	4	**6**	
					Holoptelia integrifolia	Dhauranga	0	0	0	0	1	1	**2**	
					Pterospermum canescens	Giringa	0	0	0	0	1	3	**4**	
					Diospyros montana	Halda	0	0	1	0	1	1	**3**	
					Adina cordifolia	Haldu (kurum)	0	0	0	0	0	3	**3**	
					Syzigium cumini	Jamu	0	0	0	1	1	4	**6**	
					Diospyros sylvatica	Kalachua	0	0	0	0	1	3	**4**	
					Mallotus philipinensis	Kamalagundi	0	0	0	2	1	5	**8**	
					Xylia xylocarpa	Kangada	0	0	0	0	2	0	**2**	
					Diospyros melanoxylon	kendu	0	0	0	0	1	1	**2**	
					Casearia elliptica	Khakada	0	0	0	0	1	0	**1**	
					Scheichera oleosa	Kusum	0	0	0	0	1	1	**2**	
					Madhuca indica	Mahula	0	0	0	0	0	1	**1**	
					Lannea coromandelica	Mai	0	0	0	0	1	0	**1**	
					Dillenia pentagyna	Rai	0	0	0	6	1	10	**17**	
					Streblus asper	Sahada	0	0	0	3	0	1	**4**	
					Lagerstroemia parviflora	Sidha	0	0	0	1	3	1	**5**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Albizzia lebbek	Siris	0	0	0	0	0	1	**1**	**189**
77	Ranpur	MAL RF	ML-28	Kod-190	Tectona grandis	Saguan	0	0	0	1	1	5	**7**	
					Diospyros sylvatica	Kalachua	0	0	0	1	0	0	**1**	**8**
78	Ranpur	MAL RF	ML-29	Kod-191,192 &193	Shorea robusta	Sal	0	0	0	5	6	14	**25**	
					Tectona grandis	Saguan	0	0	0	0	1	1	**2**	
					Emblica officinalis	Amla	0	0	0	0	2	0	**2**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	1	1	2	**4**	
					Ougeinia oojeinensis	Bandhan/Tinsa	0	0	0	0	0	1	**1**	
					Buchanania lanzan	Char	0	0	0	1	0	2	**3**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	0	3	**3**	
					Pterospermum canescens	Giringa	0	0	0	2	1	5	**8**	
					Diospyros montana	Halda	0	0	0	0	0	1	**1**	
					Syzigium cumini	Jamu	0	0	1	1	0	1	**3**	
					Ficus retusa	Jari	0	0	0	0	0	1	**1**	
					Diospyros sylvatica	Kalachua	0	0	0	2	1	0	**3**	
					Mallotus philipinensis	Kamalagundi	0	0	0	3	3	4	**10**	
					Bridelia retusa	Kasi	0	0	0	0	0	1	**1**	
					Careya arborea	Kumbhi	0	0	0	0	0	1	**1**	
					Scheichera oleosa	Kusum	0	0	0	0	0	1	**1**	
					Lannea coromandelica	Mai	0	0	0	2	1	6	**9**	
					Diospyros embryopteris	Mankada kendu	0	0	0	0	1	0	**1**	
					Bursera serrata	Nimburumoi	0	0	0	0	0	1	**1**	
					Lagerstroemia speciosa	Patuli	0	0	0	0	0	2	**2**	
					Dillenia pentagyna	Rai	0	0	0	1	4	7	**12**	
					Lagerstroemia parviflora	Sidha	0	0	0	1	1	1	**3**	
					Bombax ceiba	Simuli semal	0	0	0	1	0	0	**1**	**98**
					Scheichera oleosa	Kusum	0	0	0	0	1	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Lannea coromandelica	Mai	0	0	0	1	0	0	**1**	**19**
79	Ranpur		ML-3	Kod-194,195,196	Anogeissus latifolia	Dhaura	0	0	0	2	0	0	**2**	
					Emblica officinalis	Amla	0	0	0	1	0	0	**1**	
					Alangium lamarckii	Ankula	0	0	0	1	0	0	**1**	
					Mangifera indica	Amba	0	0	0	1	0	1	**2**	
					Buchanania lanzan	Char	0	0	0	1	1	0	**2**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	1	1	**2**	
					Pterospermum canescens	Giringa	0	0	0	6	3	0	**9**	
					Sterculia urens	Genduli	0	0	0	0	1	0	**1**	
					Diospyros montana	Halda	0	0	0	1	0	0	**1**	
					Lannea coromandelica	Mai	0	0	0	2	1	0	**3**	
					Bridelia retusa	Kasi	0	0	0	0	0	1	**1**	
					Diospyros sylvatica	Kalachua	0	0	0	4	0	0	**4**	
					Lagerstroemia parviflora	Sidha	0	0	0	0	2	0	**2**	
					Dillenia pentagyna	Rai	0	0	0	1	0	2	**3**	
					Cassia fistula	Sunari	0	0	0	0	0	1	**1**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	1	0	0	0	**1**	
80	Ranpur	MAL RF	ML-30	Kod-197 & 198	Shorea robusta	Sal	0	0	0	2	0	0	**2**	
					Grewia tiliaefolia	Dhaman	0	0	0	1	10	2	**13**	
					Pterospermum heyneanum	Giringa	0	0	0	2	1	0	**3**	
					Diospyros montana	Halda	0	0	0	0	1	1	**2**	
					Diospyros sylvatica	Kalachua	0	0	0	3	3	0	**6**	
					Mallotus philipinensis	Kamalagundi	0	0	0	2	1	0	**3**	
					Lannea coromandelica	Mai	0	0	0	0	2	0	**2**	
					Diospyros embryopteris	Mankada kendu	0	0	0	2	0	0	**2**	
					Dillenia pentagyna	Rai	0	0	0	4	5	2	**11**	
					Caryota urens	Salapa	0	0	0	0	1	0	**1**	**45**
81	Ranpur	MAL RF	ML-31	Kod-199 & 200	Tectona grandis	Saguan	0	0	0	1	1	6	**8**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	1	0	**1**	
					Diospyros montana	Halda	0	0	0	0	0	3	**3**	
					Gmelina arborea	Gamhari	0	0	0	1	0	0	**1**	
					Pterospermum heyneanum	Giringa	0	0	0	0	1	1	**2**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Diospyros sylvatica	Kalachua	0	0	0	0	0	1	**1**	
					Ficus retusa	Jari	0	0	0	0	0	1	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	0	2	**2**	
					Lannea coromandelica	Mai	0	0	1	0	0	3	**4**	
					Bridelia retusa	Kasi	0	0	0	0	0	1	**1**	
					Careya arborea	Kumbhi	0	0	0	0	1	0	**1**	
					Lagerstroemia speciosa	Patuli	0	0	0	0	1	0	**1**	
					Dillenia pentagyna	Rai	0	0	0	0	0	4	**4**	
					Dalbergia latifolia	Sisoo	0	0	0	0	0	1	**1**	**31**
82	Ranpur	MAL RF	ML-32	Kod-201,202 &203	Mangifera indica	Amba	0	0	0	0	0	1	**1**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	1	0	0	**1**	
					Buchanania lanzan	Char	0	0	0	0	1	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	3	3	**6**	
					Pterospermum canescens	Giringa	0	0	0	0	0	3	**3**	
					Acacia leucophloea	Gohira	0	0	0	0	1	0	**1**	
					Diospyros montana	Halda	0	0	0	0	0	1	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	1	0	0	0	**1**	
					Bursera serrata	Nimburumoi	0	0	0	1	4	0	**5**	
					Dillenia pentagyna	Rai	0	0	0	2	3	6	**11**	
					Caryota urens	Salapa	0	0	0	0	0	1	**1**	
					Lagerstroemia parviflora	Sidha	0	0	0	3	0	1	**4**	
					Dalbergia latifolia	Sisoo	0	0	0	0	0	2	**2**	**38**
83	Ranpur	MAL RF	ML-33	Kod-204	Mallotus philipinensis	Kamalagundi	0	0	0	0	1	0	**1**	**1**
84	Ranpur	MAL RF	ML-34	Kod-205,206,207	Shorea robusta	Sal	0	0	0	4	1	1	**6**	
					Buchanania lanzan	Char	0	0	1	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	4	3	**7**	
					Pterospermum canescens	Giringa	0	0	0	1	1	1	**3**	
					Diospyros melanoxylon	kendu	0	0	0	1	1	0	**2**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	4	3	**7**	
					Scheichera oleosa	Kusum	0	0	0	0	0	1	**1**	
					Lagerstroemia parviflora	Sidha	0	0	0	3	0	1	**4**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Dillenia pentagyna	Rai	0	0	0	0	1	3	**4**	
					Lannea coromandelica	Mai	0	0	0	0	1	0	**1**	
					Albizzia lebbek	Siris	0	0	0	0	0	1	**1**	**37**
85	Ranpur		ML-35	Kod-208,209	Pterospermum heyneanum	Giringa	0	0	0	0	0	3	**3**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	1	0	**1**	
					Shorea robusta	Sal	0	0	0	0	0	1	**1**	
					Diospyros sylvatica	Kalachua	0	0	0	0	0	1	**1**	**6**
86	Ranpur		ML-36	Kod-210	Diospyros montana	Halda	0	0	0	0	0	1	**1**	
					Mangifera indica	Amba	0	0	0	1	0	0	**1**	
					Syzigium cumini	Jamu	0	0	0	1	0	0	**1**	
					Butea parviflora	Handiphuta	0	0	0	0	0	1	**1**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	0	0	1	**1**	**5**
87	Ranpur		ML-37	Kod211,212,213,214	Shorea robusta	Sal	0	0	0	0	0	4	**4**	
					Pterospermum canescens	Giringa	0	0	0	1	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	1	2	6	**9**	
					Ficus glomerata	Dimiri	0	0	0	0	0	0	**0**	
					Gmelina arborea	Gamhari	0	0	0	0	0	1	**1**	
					Syzigium cumini	Jamu	0	0	0	0	1	0	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	0	5	**5**	
					Diospyros sylvatica	Kalachua	0	0	0	0	1	0	**1**	
					Bursera serrata	Nimburumoi	0	0	0	0	1	1	**2**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	0	0	0	6	**6**	
					Bridelia retusa	Kasi	0	0	0	0	0	4	**4**	
					Cassia fistula	Sunari	0	0	0	0	1	2	**3**	
					Lagerstroemia parviflora	Sidha	0	0	0	0	1	1	**2**	**39**
88	Ranpur		ML-38	Kod215,216,217,218	Shorea robusta	Sal	0	0	0	2	1	2	**5**	
					Tectona grandis	Saguan	0	0	0	4	8	4	**16**	
					Acacia auriculiformis	Acacia	0	0	0	0	0	1	**1**	
					Mangifera indica	Amba	0	0	0	0	0	2	**2**	
					Emblica officinalis	Amla	0	0	0	0	0	1	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	0	2	**2**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Pterospermum heyneanum	Giringa	0	0	0	4	2	0	**6**	
					Bridelia retusa	Kasi	0	0	0	1	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	1	0	3	**4**	
					Cassia fistula	Sunari	0	0	0	1	0	0	**1**	
					Dillenia pentagyna	Rai	0	0	0	2	0	0	**2**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	0	1	0	0	**1**	**42**
89	Ranpur		ML-39	Kod-219,220	Diospyros embryopteris	Mankada kendu	0	0	0	0	0	1	**1**	
					Scheichera oleosa	Kusum	0	0	0	1	0	1	**2**	
					Ficus bengalensis	Bara	0	0	0	0	0	2	**2**	
					Diospyros sylvatica	Kalachua	0	0	0	1	0	0	**1**	
					Lannea coromandelica	Mai	0	0	0	1	0	0	**1**	
					Lagerstroemia speciosa	Patuli	0	0	0	0	0	2	**2**	
					Strychnos nuxvomica	Kochila	0	0	0	0	0	1	**1**	
					Aegle marmelos	Bela	0	0	0	0	0	1	**1**	
					Pterospermum canescens	Giringa	0	0	0	1	0	0	**1**	
					Ficus retusa	Jari	0	0	0	0	0	1	**1**	**13**
90	Ranpur			Kod-221,222	Pterospermum heyneanum	Giringa	0	0	0	0	0	0	**0**	
					Diospyros melanoxylon	kendu	0	0	0	0	0	1	**1**	
					Dillenia pentagyna	Rai	0	0	0	0	1	1	**2**	
					Buchanania lanzan	Char	0	0	0	1	0	0	**1**	
					Mangifera indica	Amba	0	0	0	0	0	1	**1**	
					Diospyros sylvatica	Kalachua	0	0	0	3	1	0	**4**	
					Scheichera oleosa	Kusum	0	0	0	0	0	1	**1**	
					Anogeissus latifolia	Dhaura	0	0	0	0	0	0	**0**	
					Bridelia retusa	Kasi	0	0	0	0	0	0	**0**	**10**
91	Ranpur		ML-40	Kod-223,224	Macaranga peltata	Manda/Gandhagur ia	0	0	0	3	3	0	**6**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	0	0	2	**2**	
					Caryota urens	Salapa	0	0	0	0	1	0	**1**	
					Mangifera indica	Amba	0	0	0	0	0	3	**3**	
					Pterospermum canescens	Giringa	0	0	0	1	2	0	**3**	
					Buchanania lanzan	Char	0	0	0	1	0	0	**1**	
					Dillenia pentagyna	Rai	0	0	0	1	1	0	**2**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Semecarpus anacardium	Bhalia	0	0	0	1	1	0	**2**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	0	1	**1**	
					Careya arborea	Kumbhi	0	0	0	1	1	0	**2**	
					Shorea robusta	Sal	0	0	0	0	1	0	**1**	
					Lagerstroemia parviflora	Sidha	0	0	0	1	0	1	**2**	**26**
92	Ranpur		ML-41	Kod-225,226	Aegle marmelos	Bela	0	0	0	1	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	3	2	**5**	
					Mallotus philipinensis	Kamalagundi	0	0	0	3	1	3	**7**	
					Pterospermum canescens	Giringa	0	0	0	0	3	2	**5**	
					Diospyros sylvatica	Kalachua	0	0	0	1	2	0	**3**	
					Scheichera oleosa	Kusum	0	0	0	0	0	2	**2**	
					Bridelia retusa	Kasi	0	0	0	0	0	1	**1**	
					Dalbergia sissoo	Sissoo	0	0	0	1	0	0	**1**	
					Dillenia pentagyna	Rai	0	0	0	3	0	4	**7**	
					Lannea coromandelica	Mai	0	0	0	0	4	2	**6**	**38**
93	Ranpur		ML-43	Kod-227,228	Grewia tiliaefolia	Dhaman	0	0	0	0	0	2	**2**	
					Diospyros montana	Halda	0	0	0	0	0	1	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	1	3	**4**	
					Scheichera oleosa	Kusum	0	0	0	1	0	0	**1**	
					Bridelia retusa	Kasi	0	0	0	0	0	1	**1**	
					Dillenia pentagyna	Rai	0	0	1	0	0	5	**6**	
					Cassia fistula	Sunari	0	0	0	0	0	2	**2**	
					Lannea coromandelica	Mai	0	0	0	1	0	2	**3**	
					Dalbergia latifolia	Sisoo	0	0	0	0	0	1	**1**	**21**
94	Ranpur		ML-45	Kod-229,230	Dillenia pentagyna	Rai	0	0	0	0	0	5	**5**	
					Pterospermum canescens	Giringa	0	0	0	0	0	2	**2**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	0	3	**3**	
					Anogeissus latifolia	Dhaura	0	0	0	0	0	3	**3**	
					Diospyros sylvatica	Kalachua	0	0	0	0	0	2	**2**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	1	0	**1**	
					Sterculia villosa	Kodala	0	0	0	0	0	1	**1**	
					Lagerstroemia parviflora	Sidha	0	0	0	0	0	1	**1**	
					Lannea coromandelica	Mai	0	0	0	0	0	1	**1**	**19**
95	Ranpur		ML-46	Kod-231,232	Pterospermum canescens	Giringa	0	0	0	0	1	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Casearia elliptica	Khakada	0	0	0	0	0	1	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	1	3	**4**	
					Acacia leucophloea	Gohira	0	0	0	0	0	1	**1**	
					Adina cordifolia	Haldu (kurum)	0	0	0	0	0	1	**1**	
					Lannea coromandelica	Mai	0	0	0	0	0	1	**1**	
					Diospyros embryopteris	Mankada kendu	0	0	0	0	0	1	**1**	
					Lagerstroemia speciosa	Patuli	0	0	0	0	1	0	**1**	
					Cassia fistula	Sunari	0	0	0	0	0	1	**1**	
					Dillenia pentagyna	Rai	0	0	0	0	0	2	**2**	**14**
96	Ranpur		Ml-47	Kod-233,234,235	Shorea robusta	Sal	0	0	0	0	1	6	**7**	
					Aegle marmelos	Bela	0	0	0	0	0	1	**1**	
					Buchanania lanzan	Char	0	0	0	0	0	1	**1**	
					Alangium lamarckii	Ankula	0	0	0	0	0	1	**1**	
					Pterospermum canescens	Giringa	0	0	0	0	0	1	**1**	
					Anogeissus latifolia	Dhaura	0	0	0	0	0	1	**1**	
					Syzigium cumini	Jamu	0	0	0	0	0	1	**1**	
					Casearia elliptica	Khakada	0	0	0	0	0	1	**1**	
					Scheichera oleosa	Kusum	0	0	0	0	0	2	**2**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	0	1	**1**	
					Lannea coromandelica	Mai	0	0	0	0	2	9	**11**	
					Diospyros embryopteris	Mankada kendu	0	0	0	0	1	0	**1**	
					Lagerstroemia speciosa	Patuli	0	0	0	0	0	1	**1**	
					Dalbergia sissoo	Sissoo	0	0	0	0	0	1	**1**	
					Dillenia pentagyna	Rai	0	0	0	0	0	2	**2**	
					Lagerstroemia parviflora	Sidha	0	0	0	0	1	0	**1**	**34**
97	Ranpur		ML-48	Kod-236,237,238	Shorea robusta	Sal	0	0	0	2	5	7	**14**	
					Dalbergia paniculata	Barabakulia	0	0	0	0	1	0	**1**	
					Bridelia retusa	Kasi	0	0	0	0	0	1	**1**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	1	5	3	**9**	
					Semecarpus anacardium	Bhalia	0	0	0	0	1	0	**1**	
					Albizia chinensis	Ghoralanjia	0	0	0	0	0	2	**2**	
					Buchanania lanzan	Char	0	0	0	0	1	1	**2**	
					Cleistanthus collinus	Karada	0	0	0	1	0	1	**2**	
					Diospyros melanoxylon	kendu	0	0	0	1	0	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Madhuca indica	Mahula	0	0	0	0	0	1	**1**	**32**
98	Ranpur			Kod-239,240	Terminalia belerica	Bahada	0	0	0	0	0	1	**1**	
					Buchanania lanzan	Char	0	0	0	0	0	1	**1**	
					Alangium lamarckii	Ankula	0	0	0	0	1	0	**1**	
					Pterospermum heyneanum	Giringa	0	0	0	0	1	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	0	3	**3**	
					Gmelina arborea	Gamhari	0	0	0	0	0	1	**1**	
					Lannea coromandelica	Mai	0	0	0	0	2	5	**7**	
					Scheichera oleosa	Kusum	0	0	0	0	1	0	**1**	
					Bridelia retusa	Kasi	0	0	0	0	0	3	**3**	
					Caryota urens	Salapa	0	0	0	0	1	0	**1**	
					Dillenia pentagyna	Rai	0	0	0	0	0	2	**2**	**22**
99	Ranpur		ML-50	Kod-241	Tectona grandis	Saguan	0	0	0	0	3	1	**4**	
					Azadirachta indica	Neem/Nimba	0	0	0	0	0	3	**3**	
					Acacia auriculiformis	Acacia	0	0	0	0	0	2	**2**	**9**
100	Ranpur		ML-51	Kod-242,243	Mallotus philipinensis	Kamalagundi	0	0	0	0	3	1	**4**	
					Pterospermum heyneanum	Giringa	0	0	0	1	1	0	**2**	
					Terminalia chebula	Harida	0	0	0	1	0	0	**1**	
					Macaranga peltata	Manda/Gandhaguri a	0	0	1	0	0	0	**1**	**8**
101	Ranpur		ML-6	Kod-244,245	Lannea coromandelica	Mai	0	0	0	0	1	4	**5**	
					Buchanania lanzan	Char	0	0	0	0	1	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	1	1	1	**3**	
					Dillenia pentagyna	Rai	0	0	0	0	1	0	**1**	
					Semecarpus anacardium	Bhalia	0	0	0	0	1	0	**1**	
					Mitragyna parviflora	Mundi/Mitkania	0	0	0	1	0	0	**1**	
					Albizia chinensis	Ghoralanjia	0	0	0	0	1	0	**1**	
					Bridelia retusa	Kasi	0	0	0	0	0	1	**1**	
					Erythrina indica	Paldhua	0	0	0	1	0	0	**1**	
					Dalbergia latifolia	Sisoo	0	0	0	0	0	2	**2**	**17**
102	Ranpur		ML-7	Kod-246,247	Pterospermum canescens	Giringa	0	0	0	1	1	0	**2**	
					Bridelia retusa	Kasi	0	0	0	0	0	5	**5**	
					Streblus asper	Sahada	0	0	0	0	1	1	**2**	
					Strychnos nuxvomica	Kochila	0	0	0	0	0	1	**1**	
					Diospyros montana	Halda	0	0	0	0	0	1	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Casearia elliptica	Khakada	0	0	0	2	0	1	**3**	
					Adina cordifolia	Haldu (kurum)	0	0	0	1	0	0	**1**	
					Ougeinia oojeinensis	Bandhan/Tinsa	0	0	0	0	0	1	**1**	
					Hymenodictyon excellsum	Kansa	0	0	0	0	1	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	1	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	0	0	1	0	0	**1**	
					Ficus retusa	Jari	0	0	1	0	0	0	**1**	
					Scheichera oleosa	Kusum	0	0	0	0	0	1	**1**	
					Lannea coromandelica	Mai	0	0	0	0	0	1	**1**	**22**
103	Ranpur		ML-8	Kod-248,249	Shorea robusta	Sal	0	0	0	0	0	4	**4**	
					Careya arborea	Kumbhi	0	0	0	0	0	1	**1**	
					Lannea coromandelica	Mai	0	0	0	0	0	4	**4**	
					Diospyros melanoxylon	kendu	0	0	0	0	1	0	**1**	
					Diospyros montana	Halda	0	0	0	0	1	0	**1**	
					Semecarpus anacardium	Bhalia	0	0	0	0	0	1	**1**	
					Chloroxylon swietenia	Bheru	0	0	0	0	1	0	**1**	
					Aegle marmelos	Bela	0	0	0	0	0	1	**1**	**14**
104	Ranpur		ML-9	Kod-250,251	Shorea robusta	Sal	0	0	0	0	0	3	**3**	
					Diospyros montana	Halda	0	0	0	0	0	1	**1**	
					Dillenia pentagyna	Rai	0	0	0	0	0	2	**2**	
					Lagerstroemia speciosa	Patuli	0	0	0	0	0	1	**1**	
					Bridelia retusa	Kasi	0	0	0	0	2	0	**2**	
					Buchanania lanzan	Char	0	0	0	0	2	2	**4**	
					Cleistanthus collinus	Karada	0	0	0	0	0	1	**1**	
					Gmelina arborea	Gamhari	0	0	0	0	0	1	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	0	1	**1**	**16**
105	Ranpur			Kod-252,253,254,255, 256	Tectona grandis	Saguan	0	0	0	3	1	4	**8**	
					Shorea robusta	Sal	0	0	0	0	0	1	**1**	
					Bridelia retusa	Kasi	0	2	0	1	0	0	**3**	
					Diospyros melanoxylon	kendu	0	0	0	2	3	0	**5**	
					Lannea coromandelica	Mai	0	5	0	0	2	4	**11**	
					Careya arborea	Kumbhi	0	0	0	1	0	1	**2**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	0	4	**4**	
					Dillenia pentagyna	Rai	0	0	0	0	0	2	**2**	
					Diospyros montana	Halda	0	0	0	1	0	1	**2**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Diospyros sylvatica	Kalachua	0	0	0	1	2	7	**10**	
					Semecarpus anacardium	Bhalia	0	0	0	0	1	0	**1**	
					Pterospermum heyneanum	Giringa	0	0	0	1	0	0	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	1	1	**2**	
					Mangifera indica	Amba	0	0	0	1	0	1	**2**	
					Erythrina suberosa	Chaladhua	0	0	0	0	1	0	**1**	
					Anacardimum occidentale	Cashew	0	0	0	0	1	2	**3**	
					Strychnos nuxvomica	Kochila	0	0	0	0	0	1	**1**	
					Sterculia villosa	Kodala	0	0	0	0	1	0	**1**	
					Scheichera oleosa	Kusum	0	0	0	0	0	1	**1**	
					Lagerstroemia speciosa	Patuli	0	0	0	0	1	0	**1**	
					Lagerstroemia parviflora	Sidha	0	0	0	1	0	1	**2**	
					Bombax ceiba	Simuli semal	0	0	0	0	1	0	**1**	
					Streblus asper	Sahada	0	3	0	0	0	0	**3**	**68**
106	Khordha		Mandalsingh RF	Kod-257,258	Alangium lamarckii	Ankula	0	3	0	0	0	0	**3**	
					Spondias mangifera	Ambada	0	3	0	0	0	0	**3**	
					Mangifera indica	Amba	0	2	0	0	0	0	**2**	
					Bridelia retusa	Kasi	0	2	0	0	0	0	**2**	
					Cleistanthus collinus	Karada	0	1	0	0	0	0	**1**	
					Kydia calycina	Kapasia	0	2	0	0	0	0	**2**	
					Lannea coromandelica	Mai	0	9	0	0	0	0	**9**	
					Bombax ceiba	Simuli semal	0	0	0	0	1	0	**1**	
					Streblus asper	Sahada	0	3	0	0	0	0	**3**	**26**
107	Khordha		Manibandha	Kod-259,260	Mangifera indica	Amba	0	0	0	0	3	2	**5**	
					Shorea robusta	Sal	0	1	0	0	0	0	**1**	
					Buchanania lanzan	Char	0	4	0	0	0	0	**4**	
					Strychnos nuxvomica	Kochila	0	0	0	1	1	0	**2**	
					Pterospermum heyneanum	Giringa	0	1	0	1	0	0	**2**	
					Bridelia retusa	Kasi	0	0	0	0	1	0	**1**	
					Soymida febrifuga	Rohini	0	1	0	0	0	0	**1**	**16**
108	Khordha		Nagapali	Kod-261,262,263	Terminalia tomentosa	Asan/ Sahaja	0	14	0	0	0	0	**14**	
					Emblica officinalis	Amla	0	1	0	0	0	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Dalbergia paniculata	Barabakulia	0	3	0	0	0	0	**3**	
					Buchanania lanzan	Char	0	3	0	0	0	0	**3**	
					Cleistanthus collinus	Karada	0	2	0	0	0	0	**2**	
					Ficus virens	Jida	0	0	0	0	0	0	**0**	
					Diospyros sylvatica	Kalachua	0	7	0	0	0	0	**7**	
					Bridelia retusa	Kasi	0	1	0	0	0	0	**1**	
					Casearia elliptica	Khakada	0	1	0	0	0	0	**1**	
					Diospyros melanoxylon	kendu	0	2	0	0	0	0	**2**	
					Lannea coromandelica	Mai	0	4	0	0	0	0	**4**	
					Ixora arborea	Telkuruma/Bhuin kuruma	0	1	0	0	0	0	**1**	
					Bursera serrata	Nimburumoi	0	1	0	0	0	0	**1**	
					Mitragyna parviflora	Mundi/Mitkania	0	1	0	0	0	0	**1**	
					Moringa oleifera	Sajana	0	1	0	0	0	0	**1**	**42**
109	Tangi		Nalsingh	Kod-264,265,266	Anacardimum occidentale	Cashew	0	4	9	1	0	2	**16**	
					Mallotus philipinensis	Kamalagundi	0	2	0	0	0	0	**2**	
					Pterospermum canescens	Giringa	0	1	0	0	0	0	**1**	
					Sterculia villosa	Kodala	0	1	0	0	0	0	**1**	
					Streblus asper	Sahada	0	1	0	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	2	0	0	0	0	**2**	
					Terminalia belerica	Bahada	0	1	0	0	0	0	**1**	
					Morinda tinctoria	Anchhu	0	0	1	0	0	0	**1**	
					Syzigium cumini	Jamu	0	1	0	0	0	0	**1**	
					Careya arborea	Kumbhi	0	2	0	0	0	0	**2**	**28**
110	Tangi		Nargang	Kod-267,268	Shorea robusta	Sal	0	29	17	1	0	0	**47**	
					Buchanania lanzan	Char	0	1	0	0	0	0	**1**	
					Anacardimum occidentale	Cashew	0	4	0	0	0	0	**4**	**52**
111	Tangi		Nargoda	Kod-269,270	Anacardimum occidentale	Cashew	0	17	0	0	0	0	**17**	
					Cassia siamea	Chakundi	0	3	0	0	0	0	**3**	
					Acacia auriculiformis	Acacia	0	1	0	0	0	0	**1**	**21**
112	Balugaon		Nathpur	Kod-271,272,273	Mangifera indica	Amba	0	2	2	0	3	3	**10**	
					Strychnos nuxvomica	Kochila	0	3	0	12	3	1	**19**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Pterospermum canescens	Giringa	0	6	0	1	0	0	**7**	
					Mallotus philipinensis	Kamalagundi	0	7	0	0	0	0	**7**	
					Diospyros sylvatica	Kalachua	0	3	0	0	0	0	**3**	
					Bridelia retusa	Kasi	0	1	0	0	1	0	**2**	
					Monilkra hexandra	Khirkoli	0	0	0	1	0	0	**1**	
					Lagerstroemia parviflora	Sidha	0	1	0	0	0	0	**1**	
					Lannea coromandelica	Mai	0	2	0	0	0	0	**2**	
					Streblus asper	Sahada	0	1	0	0	0	0	**1**	**53**
113	Ranpur		Nuapada-B	Kod-277	Anacardimum occidentale	Cashew	0	24	2	0	1	0	**27**	**27**
114	Khordha		Panchagarh	Kod-278,279,280,281	Tectona grandis	Saguan	0	4	2	0	0	0	**6**	
					Terminalia tomentosa	Asan/ Sahaja	1	3	0	0	0	0	**4**	
					Morinda tinctoria	Anchhu	0	1	0	0	0	0	**1**	
					Aegle marmelos	Bela	0	1	0	0	0	0	**1**	
					Semecarpus anacardium	Bhalia	0	2	0	0	0	0	**2**	
					Memecylon edule	Dalsundra/Niras	0	1	0	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	5	0	0	0	0	**5**	
					Ficus glomerata	Dimiri	0	2	0	0	0	0	**2**	
					Anogeissus latifolia	Dhaura	0	1	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	7	0	0	0	0	**7**	
					Cleistanthus collinus	Karada	0	2	0	0	0	0	**2**	
					Acacia leucophloea	Gohira	0	0	1	0	0	0	**1**	
					Mallotus philipinensis	Kamalagundi	0	2	0	0	0	0	**2**	
					Albizzia lebbek	Siris	0	1	0	0	0	0	**1**	
					Lannea coromandelica	Mai	0	4	0	0	0	0	**4**	
					Bursera serrata	Nimburumoi	0	7	0	0	0	0	**7**	
					Careya arborea	Kumbhi	0	1	0	0	0	0	**1**	**48**
115	Khordha		Pangrasingha	Kod-282	Acacia auriculiformis	Acacia	0	9	1	1	0	0	**11**	**11**
116	Tangi	Patia RF	PT-2	Kod-283	Tectona grandis	Saguan	0	0	0	2	0	4	**6**	
					Dillenia pentagyna	Rai	0	0	0	0	0	1	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	0	1	0	1	**2**	
					Mimusops elengi	Baula	0		0	1	0	0	**1**	**10**
117	Tangi	Patia RF	PT-3	Kod-284,285	Tectona grandis	Saguan	1	28	2	0	0	0	**31**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Diospyros melanoxylon	kendu	0	0	1	0	0	0	**1**	
					Lagerstroemia parviflora	Sidha	0	1	0	0	0	0	**1**	
					Soymida febrifuga	Rohini	0	1	0	0	0	0	**1**	
					Ficus semicordata	Punang/Polanga	0	1	0	0	0	0	**1**	**35**
118	Tangi	Patia RF	PT-4	Kod-286	Anacardimum occidentale	Cashew	0	0	1	10	4	0	**15**	**15**
119	Tangi	Patia RF	PT-5	Kod-287	Tectona grandis	Saguan	0	2	0	4	5	4	**15**	
					Acacia auriculiformis	Acacia	0	1	0	0	0	0	**1**	
					Mangifera indica	Amba	0	0	0	0	0	1	**1**	
					Anacardimum occidentale	Cashew	0	2	0	0	0	0	**2**	
					Grewia tiliaefolia	Dhaman	0	0	0	1	1	0	**2**	
					Ficus glomerata	Dimiri	0	0	0	2	1	0	**3**	
					Eucalyptus species	Eucalyptus	0	1	0	1	0	0	**2**	
					Adina cordifolia	Haldu (kurum)	0	4	0	0	0	0	**4**	
					Diospyros sylvatica	Kalachua	0	6	0	0	0	0	**6**	
					Bridelia retusa	Kasi	1	1	0	0	0	0	**2**	
					Strychnos nuxvomica	Kochila	1	0	0	0	0	0	**1**	**39**
	Tangi	Patia RF	PT-6	Kod-NIL	Nil	Nil	0	0	0	0	0	0	**0**	**0**
	Tangi	Patia RF	PT-7	Kod-NIL	Nil	Nil	0	0	0	0	0	0	**0**	**0**
	Tangi	Patia RF	PT-8	Kod-NIL	Nil	Nil	0	0	0	0	0	0	**0**	**0**
	Tangi	Patia RF	PT-9	Kod-NIL	Nil	Nil	0	0	0	0	0	0	**0**	**0**
	Tangi	Patia RF	PT-10	Kod-NIL	Nil	Nil	0	0	0	0	0	0	**0**	**0**
	Tangi	Patia RF	PT-11	Kod-NIL	Nil	Nil	0	0	0	0	0	0	**0**	**0**
	Tangi	Patia RF	PT-12	Kod-NIL	Nil	Nil	0	0	0	0	0	0	**0**	**0**
120	khordha	Puinchia		Kod-288,289	Shorea robusta	Sal	3	38	2	24	20	23	**110**	
					Semecarpus anacardium	Bhalia	0	0	1	4	0	0	**5**	
					Buchanania lanzan	Char	0	1	0	0	0	0	**1**	
					Syzigium cumini	Jamu	0	2	0	0	0	0	**2**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Madhuca indica	Mahula	0	0	0	1	0	0	**1**	
					Xylia xylocarpa	Kangada	0	2	0	0	0	0	**2**	
					Albizzia lebbek	Siris	0	1	0	0	0	0	**1**	**122**
121	Balugaon	Rajin RF	R-1	Kod290,291,292, 293 & 294	Shorea robusta	Sal	0	3	1	1	1	0	**6**	
					Tectona grandis	Saguan	0	7	2	7	6	1	**23**	
					Mangifera indica	Amba	0	0	0	0	0	2	**2**	
					Ficus bengalensis	Bara	0	0	0	0	0	1	**1**	
					Dalbergia paniculata	Barabakulia	0	0	1	1	1	3	**6**	
					Buchanania lanzan	Char	0	2	0	0	0	2	**4**	
					Grewia tiliaefolia	Dhaman	0	3	2	2	2	3	**12**	
					Ficus glomerata	Dimiri	0	0	0	2	1	0	**3**	
					Pterospermum canescens	Giringa	0	6	3	2	0	0	**11**	
					Terminalia chebula	Harida	0	0	0	0	0	1	**1**	
					Syzigium cumini	Jamu	0	0	1	0	1	1	**3**	
					Diospyros sylvatica	Kalachua	0	1	2	0	0	1	**4**	
					Ficus retusa	Jari	0	0	0	1	0	1	**2**	
					Mallotus philipinensis	Kamalagundi	0	1	0	0	0	0	**1**	
					Kydia calycina	Kapasia	0	12	1	1	0	0	**14**	
					Bridelia retusa	Kasi	0	0	0	0	1	0	**1**	
					Careya arborea	Kumbhi	0	4	1	2	0	0	**7**	
					Scheichera oleosa	Kusum	0	0	1	0	2	1	**4**	
					Lannea coromandelica	Mai	0	0	0	1	1	1	**3**	
					Macaranga peltata	Manda/Gandhaguria	0	4	3	2	2	1	**12**	
					Bursera serrata	Nimburumoi	0	0	1	1	0	0	**2**	
					Dillenia pentagyna	Rai	0	3	0	1	0	2	**6**	
					Caryota urens	Salapa	0	0	0	0	1	0	**1**	
					Cassia fistula	Sunari	0	1	0	1	0	0	**2**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Lagerstroemia parviflora	Sidha	0	0	0	1	0	0	**1**	
					Tamarindus indica	Tentuli	0	0	0	0	0	1	**1**	**133**
122	Balugaon	Rajin RF	R-10	Kod-295 & 296	Mangifera indica	Amba	0	1	0	0	0	0	**1**	
					Aegle marmelos	Bela	0	0	1	0	0	0	**1**	
					Buchanania lanzan	Char	0	0	0	1	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	1	0	1	**2**	
					Pterospermum canescens	Giringa	0	1	0	2	2	0	**5**	
					Diospyros montana	Halda	0	0	0	0	1	0	**1**	
					Ficus retusa	Jari	0	0	2	0	4	0	**6**	
					Diospyros melanoxylon	kendu	0	0	0	1	0	0	**1**	
					Strychnos nuxvomica	Kochila	0	1	0	0	0	1	**2**	
					Careya arborea	Kumbhi	0	1	0	1	1	0	**3**	
					Scheichera oleosa	Kusum	0	1	0	0	0	0	**1**	
					Lannea coromandelica	Mai	0	0	0	0	1	0	**1**	
					Macaranga peltata	Manda/Gandhagur ia	0	2	1	1	0	0	**4**	
					Pterocarpus marsupium	Piasal/ Bijasal	0	0	0	1	0	0	**1**	
					Dillenia pentagyna	Rai	0	0	1	1	0	0	**2**	
					Streblus asper	Sahada	0	0	3	0	0	2	**5**	
					Lagerstroemia parviflora	Sidha	0	0	0	0	0	1	**1**	
					Cassia fistula	Sunari	0	0	1	0	0	0	**1**	**39**
123	Balugaon	Rajin RF	R-11	Kod-NIL			0	0	0	0	0	0	**0**	**0**
124	Balugaon	Rajin RF	R-12	Kod-297 & 298	Shorea robusta	Sal	0	0	0	1	0	0	**1**	
					Tectona grandis	Saguan	0	3	4	0	0	4	**11**	
					Mangifera indica	Amba	0	0	0	0	0	5	**5**	
					Grewia tiliaefolia	Dhaman	0	0	1	1	0	0	**2**	
					Ficus glomerata	Dimiri	0	1	1	0	0	0	**2**	
					Pterospermum canescens	Giringa	0	2	0	0	0	0	**2**	
					Diospyros montana	Halda	0	2	0	0	0	0	**2**	
					Syzigium cumini	Jamu	0	0	2	0	0	0	**2**	
					Mallotus philipinensis	Kamalagundi	0	3	1	0	0	0	**4**	
					Bridelia retusa	Kasi	0	1	0	2	1	0	**4**	
					Casearia elliptica	Khakada	0	1	0	0	0	0	**1**	
					Lannea coromandelica	Mai	0	1	0	1	0	0	**2**	
					Diospyros embryopteris	Mankada kendu	0	0	0	1	0	1	**2**	
					Bursera serrata	Nimburumoi	0	1	3	1	0	0	**5**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Dillenia pentagyna	Rai	0	0	3	0	0	0	**3**	
					Dalbergia sissoo	Sissoo	0	0	1	0	0	0	**1**	
					Soymida febrifuga	Rohini	0	0	1	0	0	0	**1**	**51**
125	Balugaon	Rajin RF	R-13	Kod-299 & 300	Shorea robusta	Sal	0	2	4	6	0	0	**12**	
					Mangifera indica	Amba	0	0	0	1	0	1	**2**	
					Alangium lamarckii	Ankula	0	1	1	3	0	0	**5**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	0	0	1	**1**	
					Semecarpus anacardium	Bhalia	0	0	0	1	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	1	3	0	1	0	**5**	
					Pterospermum canescens	Giringa	0	3	1	1	0	0	**5**	
					Mallotus philipinensis	Kamalagundi	0	1	2	1	0	0	**4**	
					Bridelia retusa	Kasi	0	0	1	2	1	0	**4**	
					Strychnos nuxvomica	Kochila	0	0	1	0	0	1	**2**	
					Scheichera oleosa	Kusum	0	0	0	0	0	1	**1**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	0	2	0	0	**2**	
					Lannea coromandelica	Mai	0	0	4	1	2	0	**7**	
					Bursera serrata	Nimburumoi	0	0	2	1	0	0	**3**	
					Dillenia pentagyna	Rai	0	0	3	2	0	2	**7**	**61**
126	Balugaon	Rajin RF	R-14	Kod-301 & 302	Shorea robusta	Sal	0	0	5	5	2	1	**13**	
					Emblica officinalis	Amla	0	1	0	0	0	0	**1**	
					Terminalia tomentosa	Asan/ Sahaja	0	1	0	1	0	0	**2**	
					Buchanania lanzan	Char	0	0	1	0	0	0	**1**	
					Anogeissus latifolia	Dhaura	0	1	1	0	0	0	**2**	
					Pterospermum heyneanum	Giringa	0	1	1	0	0	0	**2**	
					Syzigium cumini	Jamu	0	1	1	1	3	1	**7**	
					Mallotus philipinensis	Kamalagundi	0	2	1	1	0	2	**6**	
					Diospyros melanoxylon	kendu	0	0	0	1	1	0	**2**	
					Careya arborea	Kumbhi	0	0	1	0	0	1	**2**	
					Lannea coromandelica	Mai	0	0	0	1	0	0	**1**	
					Bursera serrata	Nimburumoi	0	3	8	5	0	1	**17**	
					Dillenia pentagyna	Rai	0	4	1	4	3	0	**12**	
					Albizzia lebbek	Siris	0	0	0	1	0	0	**1**	
					Lagerstroemia parviflora	Sidha	0	2	3	0	1	0	**6**	**75**
127	Balugaon	Rajin RF	R-15	Kod-303,304,305 & 306	Shorea robusta	Sal	0	2	5	3	3	3	**16**	
					Mangifera indica	Amba	0	0	1	0	0	1	**2**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Emblica officinalis	Amla	0	1	0	0	0	0	**1**	
					Buchanania lanzan	Char	0	0	0	1	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	2	1	2	2	0	**7**	
					Pterospermum canescens	Giringa	0	1	0	0	0	0	**1**	
					Syzigium cumini	Jamu	0	3	0	0	0	0	**3**	
					Mallotus philipinensis	Kamalagundi	0	0	0	1	0	1	**2**	
					Bridelia retusa	Kasi	0	2	0	0	0	0	**2**	
					Diospyros melanoxylon	kendu	0	0	0	1	0	0	**1**	
					Careya arborea	Kumbhi	0	1	0	0	1	1	**3**	
					Casearia elliptica	Khakada	0	1	0	0	0	0	**1**	
					Sterculia villosa	Kodala	0	1	0	0	0	0	**1**	
					Scheichera oleosa	Kusum	0	0	1	1	0	0	**2**	
					Lannea coromandelica	Mai	0	1	1	1	2	1	**6**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	0	1	0	4	**5**	
					Bursera serrata	Nimburumoi	0	5	6	1	1	1	**14**	
					Dillenia pentagyna	Rai	0	2	1	3	3	2	**11**	
					Cassia fistula	Sunari	0	2	0	0	0	0	**2**	
					Boswellia serrata	Salai	0	0	0	0	0	1	**1**	
					Lagerstroemia parviflora	Sidha	0	3	0	0	0	0	**3**	
					Albizzia lebbek	Siris	0	0	0	1	0	0	**1**	**86**
128	Balugaon	Rajin RF	R-16	Kod-307,308 & 309	Shorea robusta	Sal	0	0	0	2	0	0	**2**	
					Emblica officinalis	Amla	0	0	0	0	1	0	**1**	
					Buchanania lanzan	Char	0	1	0	1	0	0	**2**	
					Grewia tiliaefolia	Dhaman	0	4	3	1	0	0	**8**	
					Pterospermum canescens	Giringa	0	2	2	0	2	0	**6**	
					Syzigium cumini	Jamu	0	0	0	0	2	0	**2**	
					Ficus retusa	Jari	0	1	0	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	0	0	1	1	0	**2**	
					Mallotus philipinensis	Kamalagundi	0	0	0	1	2	4	**7**	
					Cleistanthus collinus	Karada	0	0	0	0	1	0	**1**	
					Bridelia retusa	Kasi	0	0	1	0	0	2	**3**	
					Diospyros melanoxylon	kendu	0	1	1	4	0	0	**6**	
					Careya arborea	Kumbhi	0	0	0	2	0	2	**4**	
					Scheichera oleosa	Kusum	0	0	2	1	3	0	**6**	
					Bursera serrata	Nimburumoi	0	0	0	1	2	0	**3**	
					Pterocarpus marsupium	Piasal/ Bijasal	0	0	0	0	0	1	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Dillenia pentagyna	Rai	0	0	0	1	1	0	**2**	
					Cassia fistula	Sunari	0	0	1	0	0	0	**1**	
					Lagerstroemia parviflora	Sidha	0	0	2	3	2	1	**8**	**66**
129	Balugaon	Rajin RF	R-17	Kod-310,311 & 312	Shorea robusta	Sal	0	2	13	6	4	8	**33**	
					Mangifera indica	Amba	0	0	0	0	0	1	**1**	
					Dalbergia paniculata	Barabakulia	0	0	0	1	0	0	**1**	
					Naringi crenulata	Benta	0	0	1	0	0	0	**1**	
					Ficus glomerata	Dimiri	0	0	1	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	0	2	**2**	
					Pterospermum canescens	Giringa	0	0	1	1	1	0	**3**	
					Mallotus philipinensis	Kamalagundi	0	1	3	0	2	0	**6**	
					Syzigium cumini	Jamu	0	0	0	0	2	0	**2**	
					Bridelia retusa	Kasi	0	0	1	4	0	1	**6**	
					Careya arborea	Kumbhi	0	0	0	0	0	1	**1**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	2	1	0	0	**3**	
					Azadirachta indica	Neem/Nimba	0	0	0	0	0	1	**1**	
					Bursera serrata	Nimburumoi	0	0	1	0	0	1	**2**	
					Dillenia pentagyna	Rai	0	0	0	0	1	1	**2**	
					Lagerstroemia parviflora	Sidha	0	1	0	0	0	2	**3**	**68**
130	Balugaon	Rajin RF	R-18	Kod-313,314,315 & 316	Shorea robusta	Sal	0	9	3	2	0	2	**16**	
					Mangifera indica	Amba	0	0	0	0	1	1	**2**	
					Terminalia tomentosa	Asan/ Sahaja	0	1	2	0	0	0	**3**	
					Saraca asoca	Ashok	1	0	1	1	0	0	**3**	
					Anogeissus latifolia	Dhaura	0	2	1	0	0	0	**3**	
					Gmelina arborea	Gamhari	0	1	0	0	0	0	**1**	
					Pterospermum heyneanum	Giringa	1	0	0	0	0	0	**1**	
					Syzigium cumini	Jamu	0	0	0	0	0	1	**1**	
					Strychnos nuxvomica	Kochila	0	1	0	0	0	1	**2**	
					Lannea coromandelica	Mai	0	1	0	1	0	0	**2**	
					Macaranga peltata	Manda/Gandhagur ia	0	1	0	0	0	0	**1**	**35**
131	Balugaon	Rajin RF	R-19	Kod-317	Shorea robusta	Sal	0	2	3	0	12	4	**21**	
					Buchanania lanzan	Char	0	0	0	1	0	0	**1**	
					Anogeissus latifolia	Dhaura	0	1	2	0	0	0	**3**	
					Diospyros sylvatica	Kalachua	0	0	0	0	1	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Diospyros melanoxylon	kendu	0	0	0	0	0	2	**2**	
					Careya arborea	Kumbhi	0	0	3	0	0	2	**5**	
					Lannea coromandelica	Mai	0	0	0	0	0	1	**1**	
					Anogeissus acuminata	Phasi	0	0	0	1	0	0	**1**	
					Dillenia pentagyna	Rai	0	0	1	0	0	0	**1**	
					Lagerstroemia parviflora	Sidha	0	0	1	1	3	0	**5**	**41**
132	Balugaon	Rajin RF	R-2	Kod-318,319 & 320	Dalbergia paniculata	Barabakulia	0	0	2	1	1	0	**4**	
					Grewia tiliaefolia	Dhaman	0	5	3	0	0	0	**8**	
					Ficus glomerata	Dimiri	0	1	0	2	0	0	**3**	
					Pterospermum canescens	Giringa	0	4	0	0	1	1	**6**	
					Ficus virens	Jida	0	0	0	0	0	1	**1**	
					Diospyros sylvatica	Kalachua	0	1	1	0	0	0	**2**	
					Mallotus philipinensis	Kamalagundi	0	13	0	1	2	0	**16**	
					Bridelia retusa	Kasi	0	2	1	0	1	0	**4**	
					Careya arborea	Kumbhi	0	0	1	0	0	0	**1**	
					Scheichera oleosa	Kusum	0	0	0	1	0	0	**1**	
					Lannea coromandelica	Mai	0	2	1	2	2	0	**7**	
					Macaranga peltata	Manda/Gandhagur ia	0	2	1	0	0	0	**3**	
					Dillenia pentagyna	Rai	0	1	0	0	0	0	**1**	
					Tectona grandis	Saguan	0	20	3	2	1	0	**26**	
					Lagerstroemia parviflora	Sidha	0	1	0	5	3	3	**12**	
					Cassia fistula	Sunari	0	1	0	0	0	1	**2**	**97**
133	Balugaon	Rajin RF	R-20	Kod-321,322 & 323	Shorea robusta	Sal	0	3	3	3	0	0	**9**	
					Mangifera indica	Amba	0	0	1	0	1	0	**2**	
					Pterospermum heyneanum	Giringa	0	0	0	1	1	0	**2**	
					Syzigium cumini	Jamu	0	0	4	1	0	0	**5**	
					Bridelia retusa	Kasi	0	0	0	1	1	0	**2**	
					Lannea coromandelica	Mai	0	1	0	6	0	0	**7**	
					Dillenia pentagyna	Rai	0	0	1	1	0	0	**2**	**29**
134	Balugaon	Rajin RF	R-21	Kod-324,325 & 326	Shorea robusta	Sal	0	0	1	0	1	9	**11**	
					Ougeinia oojeinensis	Bandhan/Tinsa	1	1	0	1	2	1	**6**	
					Aegle marmelos	Bela	1	0	0	0	0	0	**1**	
					Anogeissus latifolia	Dhaura	0	1	0	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	2	0	1	0	0	0	**3**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Lannea coromandelica	Mai	0	0	1	1	0	7	**9**	
					Bursera serrata	Nimburumoi	1	0	0	0	0	0	**1**	**32**
135	Balugaon	Rajin RF	R-22	Kod-327 & 328	Shorea robusta	Sal	0	0	0	0	0	1	**1**	
					Terminalia tomentosa	Asan/ Sahaja	0	1	2	0	0	0	**3**	
					Grewia tiliaefolia	Dhaman	0	2	0	2	0	0	**4**	
					Anogeissus latifolia	Dhaura	0	0	0	0	1	0	**1**	
					Syzigium cumini	Jamu	0	0	2	0	0	0	**2**	
					Ficus retusa	Jari	0	0	0	1	0	1	**2**	
					Diospyros sylvatica	Kalachua	0	0	1	0	0	0	**1**	
					Bauhinia variegata	Kanchan	0	0	0	0	0	1	**1**	
					Bursera serrata	Nimburumoi	0	0	0	1	0	0	**1**	
					Symplocos racemosa	Lodha	0	1	0	0	1	0	**2**	
					Lannea coromandelica	Mai	0	1	1	0	0	0	**2**	
					Madhuca indica	Mahula	0	0	2	0	0	0	**2**	
					Lagerstroemia parviflora	Sidha	0	0	1	0	0	0	**1**	**23**
136	Balugaon	Rajin RF	R-23	Kod-329 & 330	Shorea robusta	Sal	1	3	2	1	0	0	**7**	
					Mangifera indica	Amba	0	1	0	0	0	0	**1**	
					Terminalia tomentosa	Asan/ Sahaja	0	1	0	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	1	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	1	0	1	0	0	**2**	
					Lannea coromandelica	Mai	1	1	1	0	0	0	**3**	
					Dillenia pentagyna	Rai	0	2	0	0	0	2	**4**	
					Cassia fistula	Sunari	0	3	0	0	0	0	**3**	**22**
137	Balugaon	Rajin RF	R-24	Kod-331 & 332	Emblica officinalis	Amla	0	1	0	0	0	0	**1**	
					Ficus bengalensis	Bara	0	0	0	0	1	0	**1**	
					Anogeissus latifolia	Dhaura	0	1	0	1	0	0	**2**	
					Pterospermum heyneanum	Giringa	1	0	0	0	0	0	**1**	
					Syzigium cumini	Jamu	0	0	0	3	1	1	**5**	
					Lannea coromandelica	Mai	0	1	3	2	2	0	**8**	
					Lagerstroemia parviflora	Sidha	0	2	0	0	0	0	**2**	**20**
138	Balugaon	Rajin RF	R-25	Kod-333,334 & 335	Shorea robusta	Sal	0	4	4	3	0	1	**12**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	0	1	1	0	**2**	
					Ougeinia oojeinensis	Bandhan/Tinsa	0	0	1	1	0	0	**2**	
					Semecarpus anacardium	Bhalia	0	1	0	0	0	0	**1**	
					Pterospermum heyneanum	Giringa	0	1	0	1	0	2	**4**	
					Bridelia retusa	Kasi	0	0	1	1	1	0	**3**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Garuga pinnata	Kenkat	0	0	0	1	0	0	**1**	
					Lannea coromandelica	Mai	0	1	1	0	1	1	**4**	
					Dillenia pentagyna	Rai	0	1	3	0	0	0	**4**	**33**
139	Balugaon	Rajin RF	R-26	Kod-336 & 337	Shorea robusta	Sal	0	2	1	0	0	0	**3**	
					Terminalia tomentosa	Asan/ Sahaja	0	0	2	1	0	0	**3**	
					Buchanania lanzan	Char	0	3	0	0	0	0	**3**	
					Anogeissus latifolia	Dhaura	0	0	2	0	0	0	**2**	
					Sterculia urens	Genduli	0	0	0	1	1	0	**2**	
					Pterospermum canescens	Giringa	0	0	3	0	0	0	**3**	
					Madhuca indica	Mahula	0	0	1	0	0	0	**1**	
					Lannea coromandelica	Mai	0	1	0	0	0	0	**1**	
					Diospyros embryopteris	Mankada kendu	0	1	1	0	0	0	**2**	**20**
140	Balugaon	Rajin RF	R-27	Kod-338,339 & 340	Shorea robusta	Sal	1	4	0	0	0	1	**6**	
					Grewia tiliaefolia	Dhaman	0	2	1	0	0	0	**3**	
					Anogeissus latifolia	Dhaura	0	0	1	0	0	0	**1**	
					Pterospermum canescens	Giringa	0	0	0	2	1	0	**3**	
					Bridelia retusa	Kasi	1	0	1	2	1	0	**5**	
					Scheichera oleosa	Kusum	0	0	0	1	0	0	**1**	
					Lannea coromandelica	Mai	0	0	2	2	3	1	**8**	
					Mitragyna parviflora	Mundi/Mitkania	0	1	0	0	0	0	**1**	
					Bursera serrata	Nimburumoi	1	1	0	0	0	0	**2**	
					Lagerstroemia parviflora	Sidha	0	1	0	0	0	0	**1**	**31**
141	Balugaon	Rajin RF	R-28	Kod-341 & 342	Pterospermum canescens	Giringa	2	0	0	0	0	0	**2**	
					Syzigium cumini	Jamu	1	0	0	0	0	1	**2**	
					Diospyros sylvatica	Kalachua	1	0	0	0	0	0	**1**	
					Diospyros melanoxylon	kendu	1	1	0	0	0	0	**2**	**7**
142	Balugaon	Rajin RF	R-3	Kod-343,344 &345	Shorea robusta	Sal	0	2	1	2	2	1	**8**	
					Mangifera indica	Amba	0	1	0	1	1	1	**4**	
					Emblica officinalis	Amla	0	0	0	1	0	0	**1**	
					Anogeissus latifolia	Dhaura	0	0	0	0	0	1	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	1	0	**1**	
					Pterospermum heyneanum	Giringa	0	0	1	1	2	0	**4**	
					Ficus glomerata	Dimiri	0	0	1	0	0	0	**1**	
					Terminalia chebula	Harida	0	0	0	0	0	1	**1**	
					Diospyros montana	Halda	0	0	0	0	0	1	**1**	
					Diospyros sylvatica	Kalachua	0	0	2	1	0	1	**4**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Syzigium cumini	Jamu	0	0	0	0	0	1	**1**	
					Mallotus philipinensis	Kamalagundi	0	0	0	1	0	1	**2**	
					Bridelia retusa	Kasi	0	0	1	0	0	0	**1**	
					Scheichera oleosa	Kusum	0	0	0	0	0	1	**1**	
					Diospyros melanoxylon	kendu	0	0	0	0	0	1	**1**	
					Macaranga peltata	Manda/Gandhagur ia	0	1	3	0	0	0	**4**	
					Diospyros embryopteris	Mankada kendu	0	0	0	1	0	1	**2**	
					Lannea coromandelica	Mai	0	0	0	0	1	2	**3**	
					Bursera serrata	Nimburumoi	0	0	0	3	2	9	**14**	
					Oroxylon indicum	Phanphana/Phanp uni	0	1	6	0	5	1	**13**	
					Dillenia pentagyna	Rai	0	0	0	0	0	3	**3**	
					Lagerstroemia parviflora	Sidha	0	0	0	0	0	1	**1**	
					Cassia fistula	Sunari	0	0	0	0	1	0	**1**	**73**
143	Balugaon	Rajin RF	R-4	Kod-346,347 & 348	Shorea robusta	Sal	0	1	3	0	0	0	**4**	
					Mangifera indica	Amba	0	0	0	1	0	0	**1**	
					Pterospermum canescens	Giringa	0	1	0	2	0	0	**3**	
					Adina cordifolia	Haldu (kurum)	0	2	0	0	0	0	**2**	
					Diospyros sylvatica	Kalachua	0	1	0	1	0	0	**2**	
					Mallotus philipinensis	Kamalagundi	0	4	0	0	0	0	**4**	
					Bridelia retusa	Kasi	0	0	0	1	0	0	**1**	
					Diospyros melanoxylon	kendu	0	1	0	0	0	0	**1**	
					Strychnos nuxvomica	Kochila	0	1	0	0	0	0	**1**	
					Sterculia villosa	Kodala	0	1	1	0	0	0	**2**	
					Careya arborea	Kumbhi	0	1	0	0	0	0	**1**	
					Lannea coromandelica	Mai	0	4	0	0	0	0	**4**	
					Macaranga peltata	Manda/Gandhagur ia	0	4	0	1	2	0	**7**	
					Diospyros embryopteris	Mankada kendu	0	1	0	0	0	0	**1**	
					Bursera serrata	Nimburumoi	0	0	0	1	0	0	**1**	
					Dillenia pentagyna	Rai	0	2	1	1	1	0	**5**	
					Dalbergia latifolia	Sisoo	0	2	0	0	0	0	**2**	**42**
144	Balugaon	Rajin RF	R-5	Kod-349,350 & 351	Shorea robusta	Sal	0	0	0	0	0	1	**1**	
					Mangifera indica	Amba	0	1	4	4	4	1	**14**	
					Terminalia arjuna	Arjuna	0	0	0	0	1	1	**2**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	1	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Pterospermum heyneanum	Giringa	0	1	0	0	0	0	**1**	
					Adina cordifolia	Haldu (kurum)	0	0	0	1	0	0	**1**	
					Syzigium cumini	Jamu	0	0	0	1	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	3	1	0	1	0	**5**	
					Strychnos nuxvomica	Kochila	0	0	0	0	0	2	**2**	
					Careya arborea	Kumbhi	0	0	1	0	0	0	**1**	
					Lannea coromandelica	Mai	0	3	1	6	3	2	**15**	
					Macaranga peltata	Manda/Gandhagur ia	0	1	2	1	3	0	**7**	
					Diospyros embryopteris	Mankada kendu	0	0	3	5	2	2	**12**	
					Dillenia pentagyna	Rai	0	0	0	1	0	0	**1**	
					Dalbergia latifolia	Sisoo	0	0	0	0	0	1	**1**	**65**
145	Balugaon	Rajin RF	R-6	Kod-352 & 353	Shorea robusta	Sal	4	0	1	0	0	0	**5**	
					Terminalia arjuna	Arjuna	1	0	0	0	0	0	**1**	
					Ficus bengalensis	Bara	0	0	0	0	0	2	**2**	
					Anogeissus latifolia	Dhaura	1	0	0	0	0	0	**1**	
					Syzigium cumini	Jamu	0	0	1	0	0	2	**3**	
					Diospyros sylvatica	Kalachua	3	0	0	1	0	1	**5**	
					Diospyros melanoxylon	kendu	1	0	0	0	0	0	**1**	
					Bursera serrata	Nimburumoi	0	0	1	0	0	0	**1**	
					Lannea coromandelica	Mai	1	1	1	0	0	0	**3**	
					Dillenia pentagyna	Rai	0	1	1	0	0	0	**2**	
					Cordia macleodii	Samarsinga	2	0	0	0	0	0	**2**	
					Lagerstroemia parviflora	Sidha	1	0	0	0	0	0	**1**	
					Tamarindus indica	Tentuli	0	0	0	0	0	1	**1**	**28**
146	Balugaon	Rajin RF	R-7	Kod-354 & 355	Emblica officinalis	Amla	1	0	0	0	0	0	**1**	
					Pterospermum canescens	Giringa	2	2	0	0	0	0	**4**	
					Diospyros sylvatica	Kalachua	2	0	0	0	0	0	**2**	
					Bridelia retusa	Kasi	0	4	1	0	0	0	**5**	
					Lagerstroemia parviflora	Sidha	1	0	0	0	0	0	**1**	
					Dillenia pentagyna	Rai	0	1	0	0	1	0	**2**	
					Lannea coromandelica	Mai	1	5	3	1	0	1	**11**	**26**
147	Balugaon	Rajin RF	R-8	Kod-356,357 &358	Shorea robusta	Sal	0	3	6	1	0	0	**10**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	0	1	**1**	
					Anogeissus latifolia	Dhaura	0	1	0	1	0	0	**2**	
					Pterospermum canescens	Giringa	1	1	3	0	1	2	**8**	
					Terminalia chebula	Harida	0	1	0	0	0	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Ficus retusa	Jari	0	0	0	0	0	1	**1**	
					Diospyros sylvatica	Kalachua	0	0	1	1	1	2	**5**	
					Mallotus philipinensis	Kamalagundi	0	1	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	2	0	0	0	0	**2**	
					Diospyros melanoxylon	kendu	0	2	0	0	0	0	**2**	
					Strychnos nuxvomica	Kochila	0	0	0	0	0	1	**1**	
					Madhuca indica	Mahula	0	1	0	0	0	0	**1**	
					Lannea coromandelica	Mai	0	0	2	0	0	0	**2**	
					Bursera serrata	Nimburumoi	0	2	0	1	3	3	**9**	
					Dillenia pentagyna	Rai	0	1	0	1	1	0	**3**	
					Streblus asper	Sahada	0	0	0	1	0	0	**1**	
					Lagerstroemia parviflora	Sidha	0	0	1	1	0	0	**2**	**52**
148	Balugaon	Rajin RF	R-9	Kod-359,360 & 361	Shorea robusta	Sal	0	0	0	5	2	15	**22**	
					Mangifera indica	Amba	0	0	0	0	2	1	**3**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	0	1	**1**	
					Anogeissus latifolia	Dhaura	0	0	0	1	0	0	**1**	
					Pterospermum canescens	Giringa	0	1	1	3	0	0	**5**	
					Diospyros sylvatica	Kalachua	1	0	0	1	0	1	**3**	
					Syzigium cumini	Jamu	0	1	0	0	0	8	**9**	
					Mallotus philipinensis	Kamalagundi	0	1	0	0	0	1	**2**	
					Diospyros melanoxylon	kendu	0	1	0	0	0	1	**2**	
					Bridelia retusa	Kasi	0	0	0	1	0	3	**4**	
					Careya arborea	Kumbhi	0	0	0	0	1	0	**1**	
					Scheichera oleosa	Kusum	0	5	0	0	0	0	**5**	
					Lannea coromandelica	Mai	0	0	1	2	3	3	**9**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	0	0	0	1	**1**	
					Bursera serrata	Nimburumoi	0	6	0	0	0	0	**6**	
					Dillenia pentagyna	Rai	0	0	0	3	2	3	**8**	
					Cassia fistula	Sunari	0	1	0	0	0	0	**1**	**83**
149	Tangi	Rameswar DPF		Kod-362,363 & 364	Mangifera indica	Amba	0	0	3	5	1	8	**17**	
					Acacia auriculiformis	Acacia	0	1	0	0	0	0	**1**	
					Anacardimum occidentale	Cashew	0	1	0	0	0	0	**1**	
					Eucalyptus species	Eucalyptus	0	2	0	0	0	0	**2**	
					Diospyros sylvatica	Kalachua	0	1	0	0	0	0	**1**	
					Careya arborea	Kumbhi	0	1	0	0	0	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Sapindus emerginatus	Ritha	0	1	0	0	0	0	**1**	**24**
150	Delanga	Rengala PRF		Kod-365 & 366	Acacia auriculiformis	Acacia	1	29	0	0	0	0	**30**	
151	Balugaon	Sandhamal DPF		Kod-367,368,369,370,371,372	Mangifera indica	Amba	0	2	0	0	0	0	**2**	
					Spondias mangifera	Ambada	0		2	0	0	0	**2**	
					Aegle marmelos	Bela	0	1	0	0	0	0	**1**	
					Naringi crenulata	Benta	0	1	0	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	1	0	0	0	0	**1**	
					Pterospermum canescens	Giringa	0	4	0	0	0	0	**4**	
					Syzigium cumini	Jamu	0	1	0	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	1	2	0	0	0	0	**3**	
					Bridelia retusa	Kasi	0	1	0	0	0	0	**1**	
					Mallotus philipinensis	Kamalagundi	1	1	0	0	0	0	**2**	
					Scheichera oleosa	Kusum	0	5	1	0	0	0	**6**	
					Diospyros melanoxylon	kendu	0	2	0	0	0	0	**2**	
					Lannea coromandelica	Mai	0	5	1	0	0	0	**6**	
					Bursera serrata	Nimburumoi	1	5	0	0	0	0	**6**	
					Bombax ceiba	Simuli semal	0	1	0	0	0	0	**1**	
					Cassia fistula	Sunari	0	2	0	0	0	0	**2**	**41**
152	Ranpur	Satabhaya RF		Kod-373 & 374	Morinda tinctoria	Anchhu	1	0	0	0	0	0	**1**	
					Gmelina arborea	Gamhari	0	1	0	0	0	0	**1**	
					Pterospermum canescens	Giringa	0	1	0	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	1	0	0	0	0	**1**	
					Cleistanthus collinus	Karada	0	1	1	0	0	0	**2**	
					Diospyros melanoxylon	kendu	1	0	0	0	0	0	**1**	
					Lannea coromandelica	Mai	2	1	0	0	0	1	**4**	**11**
153	Balugaon	Solari DPF		Kod-375,376,377,378,379 & 380	Mangifera indica	Amba	0	0	0	0	0	3	**3**	
					Morinda tinctoria	Anchhu	0	0	0	0	0	1	**1**	
					Erythrina suberosa	Chaladhua	1	0	0	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	1	0	0	0	0	0	**1**	
					Pterospermum heyneanum	Giringa	1	0	0	0	0	1	**2**	
					Syzigium cumini	Jamu	0	0	0	0	0	2	**2**	
					Diospyros sylvatica	Kalachua	0	1	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	1	0	0	0	0	**1**	
					Lannea coromandelica	Mai	0	1	0	0	0	2	**3**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Ixora arborea	Telkuruma/Bhuin kuruma	0	1	0	0	0	0	**1**	
					Erythrina indica	Paldhua	0	0	0	0	0	1	**1**	
					Cassia fistula	Sunari	0	0	1	1	0	0	**2**	**19**
154	Ranpur	Sulia-B RF		Kod-381,382,383,384,385,386,387 & 388	Tectona grandis	Saguan	0	4	0	0	0	0	**4**	
					Mangifera indica	Amba	0	3	0	0	0	0	**3**	
					Emblica officinalis	Amla	0	1	0	0	0	0	**1**	
					Terminalia tomentosa	Asan/ Sahaja	0	3	1	1	0	0	**5**	
					Aegle marmelos	Bela	0	0	0	1	0	0	**1**	
					Chloroxylon swietenia	Bheru	0	1	0	0	0	0	**1**	
					Semecarpus anacardium	Bhalia	0	0	0	0	1	0	**1**	
					Buchanania lanzan	Char	0	6	0	0	0	0	**6**	
					Grewia tiliaefolia	Dhaman	0	6	0	0	0	0	**6**	
					Anogeissus latifolia	Dhaura	0	2	0	0	0	0	**2**	
					Gmelina arborea	Gamhari	0	2	0	0	0	0	**2**	
					Pterospermum heyneanum	Giringa	0	8	0	1	1	0	**10**	
					Adina cordifolia	Haldu (kurum)	0	1	0	0	0	0	**1**	
					Syzigium cumini	Jamu	0	2	0	0	0	0	**2**	
					Diospyros sylvatica	Kalachua	0	1	0	3	0	0	**4**	
					Cleistanthus collinus	Karada	0	1	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	0	0	2	0	0	**2**	
					Diospyros melanoxylon	kendu	0	11	0	0	0	0	**11**	
					Strychnos nuxvomica	Kochila	1	1	0	2	0	0	**4**	
					Lannea coromandelica	Mai	0	0	0	0	1	1	**2**	
					Anogeissus acuminata	Phasi	0	2	0	0	0	0	**2**	
					Macaranga peltata	Manda/Gandhaguria	0	2	0	0	0	0	**2**	
					Lagerstroemia speciosa	Patuli	0	0	0	0	1	1	**2**	
					Lagerstroemia parviflora	Sidha	0	1	0	0	0	0	**1**	**76**
155	Balugaon	Tamana RF	T-1	Kod-389, 390 &391	Shorea robusta	Sal	0	0	0	0	0	0	**0**	
					Tectona grandis	Saguan	0	0	0	2	0	4	**6**	
					Aegle marmelos	Bela	0	0	0	0	1	0	**1**	
					Grewia tiliaefolia	Dhaman	0	1	1	0	0	5	**7**	
					Pterospermum canescens	Giringa	0	2	6	2	0	0	**10**	
					Diospyros montana	Halda	0	0	0	0	0	1	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Ficus retusa	Jari	0	0	0	0	0	1	**1**	
					Diospyros sylvatica	Kalachua	0	0	3	2	0	2	**7**	
					Mallotus philipinensis	Kamalagundi	0	1	0	1	2	4	**8**	
					Bridelia retusa	Kasi	0	0	0	0	1	0	**1**	
					Casearia elliptica	Khakada	0	0	1	0	0	0	**1**	
					Strychnos nuxvomica	Kochila	0	0	1	0	0	0	**1**	
					Careya arborea	Kumbhi	0	0	1	0	0	0	**1**	
					Lannea coromandelica	Mai	0	0	0	1	1	0	**2**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	0	1	0	0	**1**	
					Bursera serrata	Nimburumoi	0	0	1	1	0	0	**2**	
					Dillenia pentagyna	Rai	0	0	0	0	0	5	**5**	
					Caryota urens	Salapa	0	0	0	1	0	0	**1**	
					Cassia fistula	Sunari	0	0	0	0	1	0	**1**	**57**
156	Balugaon	Tamana RF	T-10	Kod-392 &393	Shorea robusta	Sal	0	0	0	0	3	14	**17**	
					Mangifera indica	Amba	0	0	0	0	1	5	**6**	
					Morinda tinctoria	Anchhu	0	0	0	1	0	0	**1**	
					Dalbergia paniculata	Barabakulia	0	0	0	0	0	1	**1**	
					Chloroxylon swietenia	Bheru	0	0	0	0	1	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	0	1	**1**	
					Syzigium cumini	Jamu	0	0	0	0	0	2	**2**	
					Mallotus philipinensis	Kamalagundi	0	0	0	0	0	3	**3**	
					Bridelia retusa	Kasi	0	0	0	0	0	3	**3**	
					Lannea coromandelica	Mai	0	0	0	0	0	1	**1**	
					Bursera serrata	Nimburumoi	0	0	0	0	0	1	**1**	
					Dillenia pentagyna	Rai	0	0	0	0	2	1	**3**	**40**
157	Balugaon	Tamana	T-11	Kod-394,395,396	Tectona grandis	Saguan	0	0	0	0	1	26	**27**	
					Mangifera indica	Amba	0	0	0	0	1	2	**3**	
					Naringi crenulata	Benta	0	0	0	0	1	0	**1**	
					Buchanania lanzan	Char	0	0	1	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	0	0	0	2	**2**	
					Pterospermum heyneanum	Giringa	0	0	0	0	0	7	**7**	
					Baringtonia acutangula	Hinjal	0	0	0	0	0	1	**1**	
					Syzigium cumini	Jamu	0	0	0	0	0	4	**4**	
					Diospyros sylvatica	Kalachua	0	0	0	0	1		**1**	
					Mallotus philipinensis	Kamalagundi	0	0	1	1	5	12	**19**	
					Bridelia retusa	Kasi	0	0	0	0	0	4	**4**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Casearia elliptica	Khakada	0	0	1	0	0	3	**4**	
					Strychnos nuxvomica	Kochila	0	0	0	1	0	4	**5**	
					Scheichera oleosa	Kusum	0	0	0	0	0	1	**1**	
					Lannea coromandelica	Mai	0	0	0	0	0	3	**3**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	0	0	0	1	**1**	
					Dillenia pentagyna	Rai	0	0	0	1	1	2	**4**	
					Cassia fistula	Sunari	0	0	0	0	0	1	**1**	
					Lagerstroemia parviflora	Sidha	0	0	0	0	0	1	**1**	**90**
158	Balugaon	Tamana	T-12	Kod-397,398	Shorea robusta	Sal	0	0	0	0	0	1	**1**	
					Tectona grandis	Saguan	0	0	1	1	1	15	**18**	
					Mangifera indica	Amba	0	0	0	0	0	1	**1**	
					Ougeinia oojeinensis	Bandhan/Tinsa	0	1	0	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	1	0	0	0	0	**1**	
					Anogeissus latifolia	Dhaura	0	1	0	0	0	0	**1**	
					Ficus glomerata	Dimiri	0	1	0	0	0	0	**1**	
					Gmelina arborea	Gamhari	0	1	0	0	0	0	**1**	
					Pterospermum canescens	Giringa	0	1	0	0	0	0	**1**	
					Adina cordifolia	Haldu (kurum)	0	1	0	0	0	0	**1**	
					Syzigium cumini	Jamu	0	0	0	0	0	1	**1**	
					Bridelia retusa	Kasi	0	1	0	0	0	0	**1**	
					Casearia elliptica	Khakada	0	1	0	0	1	0	**2**	
					Diospyros embryopteris	Mankada kendu	0	1	0	1	0	0	**2**	
					Dillenia pentagyna	Rai	0	1	0	0	0	3	**4**	
					Albizzia lebbek	Siris	0	1	0	0	0	0	**1**	**38**
159	Balugaon	Tamana RF	T-13	Kod-399,400 & 401	Shorea robusta	Sal	0	1	1	2	1	0	**5**	
					Tectona grandis	Saguan	0	0	3	2	1	3	**9**	
					Mangifera indica	Amba	0	0	1	1	0	0	**2**	
					Naringi crenulata	Benta	0	0	0	1	1	0	**2**	
					Pterospermum canescens	Giringa	0	2	0	1	1	0	**4**	
					Syzigium cumini	Jamu	0	0	0	1	2	0	**3**	
					Mallotus philipinensis	Kamalagundi	0	3	7	2	2	0	**14**	
					Pongamia pinnata	Karanj	0	1	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	0	3	0	0	1	**4**	
					Diospyros melanoxylon	kendu	0	0	0	1	0	0	**1**	
					Casearia elliptica	Khakada	0	0	0	1	0	0	**1**	
					Strychnos nuxvomica	Kochila	0	0	0	0	0	1	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Scheichera oleosa	Kusum	0	0	0	1	0	0	**1**	
					Lannea coromandelica	Mai	0	0	1	0	0	1	**2**	
					Diospyros embryopteris	Mankada kendu	0	0	0	0	0	1	**1**	
					Pterospermum acirifolium	Muchkunda	0	0	0	0	0	1	**1**	
					Dillenia pentagyna	Rai	0	1	3	4	1	2	**11**	
					Lagerstroemia parviflora	Sidha	0	0	1	0	0	2	**3**	**66**
160	Balugaon	Tamana	T-2	Kod-402,403	Tectona grandis	Saguan	0	3	1	2	4	5	**15**	
					Grewia tiliaefolia	Dhaman	0	0	2	0	0	1	**3**	
					Pterospermum canescens	Giringa	0	0	0	0	5	6	**11**	
					Diospyros montana	Halda	0	0	0	0	0	1	**1**	
					Syzigium cumini	Jamu	0	0	1	0	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	0	0	3	2	3	**8**	
					Mallotus philipinensis	Kamalagundi	0	1	2	3	1	5	**12**	
					Macaranga peltata	Manda/Gandhagur ia	0	0	0	0	0	2	**2**	
					Bridelia retusa	Kasi	0	0	0	1	0	2	**3**	
					Bursera serrata	Nimburumoi	0	0	1	1	0	0	**2**	
					Dillenia pentagyna	Rai	0	0	0	0	0	1	**1**	
					Cassia fistula	Sunari	0	0	0	0	1	0	**1**	**60**
161	Balugaon	Tamana	T-3	Kod-404,405,406	Tectona grandis	Saguan	0	18	7	0	1	0	**26**	
					Emblica officinalis	Amla	0	1	0	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	5	0	3	0	0	**8**	
					Pterospermum canescens	Giringa	0	7	0	0	0	0	**7**	
					Diospyros sylvatica	Kalachua	0	5	0	0	0	0	**5**	
					Mallotus philipinensis	Kamalagundi	0	12	2	0	0	0	**14**	
					Bridelia retusa	Kasi	0	3	0	2	0	0	**5**	
					Scheichera oleosa	Kusum	0	3	0	0	0	0	**3**	
					Lannea coromandelica	Mai	0	5	0	0	0	0	**5**	
					Macaranga peltata	Manda/Gandhagur ia	0	3	2	0	1	0	**6**	
					Diospyros embryopteris	Mankada kendu	0	0	1	0	0	0	**1**	
					Bursera serrata	Nimburumoi	0	6	1	0	0	0	**7**	
					Dillenia pentagyna	Rai	0	1	0	0	0	0	**1**	
					Lagerstroemia parviflora	Sidha	0	1	0	0	0	0	**1**	**90**
162	Balugaon	Tamana	T-4	Kod-407,408	Shorea robusta	Sal	0	25	9	1	0	0	**35**	
					Mangifera indica	Amba	0	0	1	1	0	2	**4**	
					Terminalia tomentosa	Asan/ Sahaja	0	1	0	0	0	0	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Terminalia belerica	Bahada	0	1	0	0	1	0	**2**	
					Grewia tiliaefolia	Dhaman	0	0	1	1	0	0	**2**	
					Anogeissus latifolia	Dhaura	0	0	0	0	1	0	**1**	
					Diospyros montana	Halda	0	1	0	0	0	0	**1**	
					Syzigium cumini	Jamu	0	2	0	0	1	0	**3**	
					Diospyros sylvatica	Kalachua	0	2	1	1	0	0	**4**	
					Mallotus philipinensis	Kamalagundi	0	3	0	0	0	0	**3**	
					Bridelia retusa	Kasi	0	2	1	0	0	0	**3**	
					Diospyros melanoxylon	kendu	0	2	0	0	0	0	**2**	
					Careya arborea	Kumbhi	0	0	1	0	0	0	**1**	
					Scheichera oleosa	Kusum	0	0	0	1	0	0	**1**	
					Lannea coromandelica	Mai	0	1	0	0	0	0	**1**	
					Bursera serrata	Nimburumoi	0	1	1	0	1	1	**4**	
					Dillenia pentagyna	Rai	0	3	0	0	0	0	**3**	
					Caryota urens	Salapa	0	0	0	0	1	0	**1**	
					Lagerstroemia parviflora	Sidha	0	1	0	0	0	0	**1**	**73**
163	Balugaon	Tamana	T-5	Kod-409,410	Shorea robusta	Sal	0	11	5	0	0	0	**16**	
					Polyalthia simiarum	Ajhar (Ojhar)	0	0	0	0	1	0	**1**	
					Mangifera indica	Amba	0	0	0	1	0	1	**2**	
					Semecarpus anacardium	Bhalia	0	1	0	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	2	0	0	0	0	**2**	
					Syzigium cumini	Jamu	0	0	6	0	0	0	**6**	
					Diospyros sylvatica	Kalachua	0	2	0	0	0	0	**2**	
					Mallotus philipinensis	Kamalagundi	0	4	1	0	0	0	**5**	
					Lannea coromandelica	Mai	1	0	0	0	1	0	**2**	
					Bursera serrata	Nimburumoi	0	0	1	0	0	0	**1**	
					Dillenia pentagyna	Rai	0	3	2	0	0	0	**5**	**43**
164	Balugaon	Tamana	T-6	Kod-411,412	Shorea robusta	Sal	0	11	18	9	2	3	**43**	
					Buchanania lanzan	Char	0	1	0	0	0	0	**1**	
					Semecarpus anacardium	Bhalia	0	1	0	0	0	0	**1**	
					Anogeissus latifolia	Dhaura	0	0	1	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	0	0	2	0	0	0	**2**	
					Diospyros montana	Halda	0	0	1	0	0	0	**1**	
					Syzigium cumini	Jamu	0	2	1	1	0	0	**4**	
					Diospyros sylvatica	Kalachua	0	1	0	0	1	0	**2**	
					Mallotus philipinensis	Kamalagundi	0	6	3	0	0	0	**9**	
					Bridelia retusa	Kasi	0	1	1	0	0	0	**2**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Careya arborea	Kumbhi	0	0	0	1	0	0	**1**	
					Scheichera oleosa	Kusum	0	1	0	0	0	1	**2**	
					Bursera serrata	Nimburumoi	0	1	1	0	0	0	**2**	
					Lagerstroemia speciosa	Patuli	0	1	0	0	0	0	**1**	
					Dillenia pentagyna	Rai	0	2	4	1	0	0	**7**	
					Cassia fistula	Sunari	0	1	0	0	0	0	**1**	
					Lagerstroemia parviflora	Sidha	0	0	0	1	0	0	**1**	**81**
165	Balugaon	Tamana	T-7	Kod-413,414	Shorea robusta	Sal	0	1	4	0	0	0	**5**	
					Ficus religiosa	Aswatha	0	1	0	0	0	0	**1**	
					Semecarpus anacardium	Bhalia	0	1	0	0	0	0	**1**	
					Grewia tiliaefolia	Dhaman	1	0	0	0	0	0	**1**	
					Anogeissus latifolia	Dhaura	0	1	1	0	0	0	**2**	
					Pterospermum canescens	Giringa	0	4	0	0	0	0	**4**	
					Adina cordifolia	Haldu (kurum)	0	0	0	1	0	0	**1**	
					Diospyros sylvatica	Kalachua	0	3	0	0	0	0	**3**	
					Mallotus philipinensis	Kamalagundi	1	0	0	0	0	0	**1**	
					Bridelia retusa	Kasi	0	1	0	0	0	0	**1**	
					Careya arborea	Kumbhi	0	1	0	0	0	0	**1**	
					Scheichera oleosa	Kusum	0	2	0	0	0	0	**2**	
					Lannea coromandelica	Mai	0	7	1	1	0	0	**9**	
					Diospyros embryopteris	Mankada kendu	2	0	0	0	0	0	**2**	
					Bursera serrata	Nimburumoi	0	8	0	0	0	0	**8**	
					Dillenia pentagyna	Rai	0	2	0	0	0	0	**2**	
					Lagerstroemia parviflora	Sidha	0	7	0	0	0	0	**7**	**51**
166	Balugaon	Tamana	T-8	Kod-415,416	Shorea robusta	Sal	0	1	0	0	1	2	**4**	
					Emblica officinalis	Amla	0	1	0	1	0	0	**2**	
					Naringi crenulata	Benta	0	1	1	1	0	2	**5**	
					Buchanania lanzan	Char	0	1	0	0	0	0	**1**	
					Anogeissus latifolia	Dhaura	0	2	2	2	0	3	**9**	
					Sterculia urens	Genduli	0	1	0	0	0	2	**3**	
					Pterospermum canescens	Giringa	0	0	0	0	2	8	**10**	
					Syzigium cumini	Jamu	0	0	0	0	0	3	**3**	
					Diospyros sylvatica	Kalachua	0	0	0	3	1	0	**4**	
					Diospyros melanoxylon	kendu	0	0	0	1	2	2	**5**	
					Casearia elliptica	Khakada	1	0	0	0	0	0	**1**	
					Careya arborea	Kumbhi	0	1	1	1	3	15	**21**	
					Scheichera oleosa	Kusum	0	0	0	0	0	1	**1**	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					Lannea coromandelica	Mai	0	0	0	0	1	0	**1**	
					Erythrina indica	Paldhua	0	1	0	0	0	0	**1**	
					Dillenia pentagyna	Rai	0	0	0	0	0	1	**1**	
					Lagerstroemia parviflora	Sidha	0	0	1	0	0	1	**2**	
					Dalbergia latifolia	Sisoo	0	0	0	0	0	1	**1**	**75**
167	Balugaon	Tamana	T-9	Kod-417,418,419	Shorea robusta	Sal	0	6	9	5	0	0	**20**	
					Tectona grandis	Saguan	0	2	0	0	0	0	**2**	
					Mangifera indica	Amba	0	0	4	1	2	3	**10**	
					Grewia tiliaefolia	Dhaman	0	0	0	2	0	0	**2**	
					Pterospermum canescens	Giringa	0	3	4	3	3	3	**16**	
					Diospyros montana	Halda	0	2	1	0	0	0	**3**	
					Syzigium cumini	Jamu	0	1	1	0	0	1	**3**	
					Diospyros sylvatica	Kalachua	0	1	3	0	1	1	**6**	
					Mallotus philipinensis	Kamalagundi	0	2	1	0	0	0	**3**	
					Scheichera oleosa	Kusum	0	2	0	2	0	2	**6**	
					Lannea coromandelica	Mai	0	1	0	0	1	0	**2**	
					Macaranga peltata	Manda/Gandhagur ia	0	5	2	1	0	2	**10**	
					Bursera serrata	Nimburumoi	0	1	1	0	0	0	**2**	
					Dillenia pentagyna	Rai	2	9	1	0	0	0	**12**	
					Cassia fistula	Sunari	0	2	2	0	0	0	**4**	**101**
168	Tangi	Tangi DPF	Nil	Kod-420 &421	Cassia siamea	Chakundi	2	3	2	1	0	0	**8**	
					Acacia auriculiformis	Acacia	6	11	3	0	0	0	**20**	
					Morinda tinctoria	Anchhu	0	1	0	0	0	0	**1**	
					Acacia nilotica	Babul	0	1	0	0	0	0	**1**	
					Eucalyptus species	Eucalyptus	0	0	0	1	0	0	**1**	
					Strychnos nuxvomica	Kochila	0	1	0	0	0	0	**1**	**32**
169	Khordha	Tartua DPF	Nil	Kod-422	Acacia auriculiformis	Acacia	8	11	0	0	0	0	**19**	
					Anacardimum occidentale	Cashew	0	0	0	2	0	0	**2**	
					Azadirachta indica	Neem/Nimba	0	1	0	0	0	0	**1**	**22**

ANNEXURE-III

GPS co-ordinates of surveyed sample points in different Forest Blocks of Khordha Forest Division					
Sl No	**Name of the Range**	**Name of the Forest Blocks**	**Unique ID**	**Latitude**	**Longitude**
1	**2**	**3**	**4**	**5**	**6**
1	Balugaon	Aranga RF	kod-1	19.89412	85.1346418
2	Balugaon	Aranga RF	kod-2	19.9146132	85.150401
3	Balugaon	Aranga RF	kod-3	19.9036	85.1507
4	Balugaon	Aranga RF	kod-4	19.8904	85.1517
5	Balugaon	Aranga RF	kod-5	19.8964537	85.143741
6	Balugaon	Aranga RF	kod-6	19.8947711	85.1458444
7	Balugaon	Aranga RF	kod-7	19.8798	85.1523
8	Balugaon	Aranga RF	kod-8	19.8963	85.1745
9	Balugaon	Aranga RF	kod-9	19.8835708	85.1617421
10	Balugaon	Aranga RF	kod-10	19.8917725	85.1691166
11	Balugaon	Aranga RF	kod-11	19.8752	85.1528
12	Balugaon	Aranga RF	kod-12	19.8752	85.1528
13	Balugaon	Aranga RF	kod-13	19.873	85.155
14	Balugaon	Aranga RF	kod-14	19.8825	85.1737
15	Balugaon	Aranga RF	kod-15	19.8723	85.1583
16	Balugaon	Aranga RF	kod-16	19.8637	85.1222
17	Balugaon	Aranga RF	kod-17	19.8716	85.1221
18	Balugaon	Aranga RF	kod-18	19.8752	85.1296
19	Balugaon	Aranga RF	kod-19	19.8511013	85.1321898
20	Balugaon	Aranga RF	kod-20	19.8520285	85.1334017
21	Balugaon	Aranga RF	kod-21	19.8514068	85.1400442
22	Balugaon	Aranga RF	kod-22	19.8589685	85.1431892
23	Balugaon	Aranga RF	kod-23	19.8648425	85.1447208
24	Tangi	Barapari DPF	kod-24	19.9368	85.374
25	Tangi	Bagheiput DPF	kod-25	NA	NA
26	Tangi	Bagheiput DPF	kod-26	20.0184	85.5004
27	Balugaon	Bankard RF	kod-27	19.8625947	85.0917193
28	Balugaon	Bankard RF	kod-28	19.8636592	85.106673
29	Balugaon	Bankard RF	kod-29	19.869324	85.1006137
30	Balugaon	Bankard RF	kod-30	19.8467232	85.1299853

1	2	3	4	5	6
31	Balugaon	Bankard RF	kod-31	19.8555512	85.1192977
32	Balugaon	Bankard RF	kod-32	19.8644268	85.112038
33	Balugaon	Bankard RF	kod-33	19.846586	85.1224308
34	Balugaon	Bankard RF	kod-34	19.8360762	85.1126563
35	Balugaon	Bankard RF	kod-35	19.8543	85.0971
36	Balugaon	Bankard RF	kod-36	19.8514712	85.101509
37	Balugaon	Bankard RF	kod-37	19.841236	85.0957643
38	Khordha	Barunei RF	kod-38	20.1621	85.6526
39	Khordha	Barunei RF	kod-39	20.1624	85.6576
40	Delang	Beguniapara DPF	kod-40	20.0862363	85.6778697
41	Balugaon	Bhaleri DPF	kod-41	19.7406038	85.14461
42	Balugaon	Bhaleri DPF	kod-42	NA	NA
43	Balugaon	Bhaleri DPF	kod-43	19.7187	85.157
44	Balugaon	Bhaleri DPF	kod-44	19.7554	85.1247
45	Balugaon	Bhaleri DPF	kod-45	NA	NA
46	Balipatna	Bhanra PRF	kod-46	20.147106	86.0258302
47	Balugaon	Bhatapara DPF	kod-47	19.833451	85.0216483
48	Balugaon	Bhatapara DPF	kod-48	19.8279667	85.0117642
49	Balugaon	Bhatapara DPF	kod-49	19.8310057	85.026898
50	Tangi	Bhusundapur DPF	kod-50	19.9645	85.4709
51	Tangi	Bhusundapur DPF	kod-51	19.9587	85.4615
52	Tangi	Bhusundapur DPF	kod-52	19.9734	85.4551
53	Khordha	Brahmanidei DPF	kod-53	20.2004	85.3018
54	Khordha	Brahmanidei DPF	kod-54	20.2156178	85.2820303
55	Khordha	Brahmanidei DPF	kod-55	20.2116	85.2562
56	Khordha	Brahmanidei DPF	kod-56	20.2081	85.2622
57	Tangi	Chakadapathar DPF	kod-57	19.8989	85.2861
58	Tangi	Chakadapathar DPF	kod-58	19.9102	85.2712
59	Tangi	Chakadapathar DPF	kod-59	19.8745	85.2641
60	Tangi	Chakadapathar DPF	kod-60	19.8746	85.2602
61	Tangi	Chakadapathar DPF	kod-61	19.8717	85.2307
62	Tangi	Chakadapathar DPF	kod-62	19.8728	85.2359
63	Tangi	Chakadapathar DPF	kod-63	19.8852	85.2991
64	Balugaon	Champagarh DPF	kod-64	19.7656365	85.1058505
65	Balugaon	Champagarh DPF	kod-65	19.7577095	85.1108145

1	2	3	4	5	6
66	Ranapur	Champagarh RF	kod-66	19.9862523	85.4441692
67	Ranapur	Champagarh RF	kod-67	19.9667407	85.4269675
68	Ranapur	Champagarh RF	kod-68	19.9722683	85.4210437
69	Balugaon	Chulijhinka DPF	kod-69	19.8119013	85.0066715
70	Balugaon	Chulijhinka DPF	kod-70	19.8115	85.0134
71	Balugaon	Chulijhinka DPF	kod-71	19.8072005	85.0103347
72	Balugaon	Chulijhinka DPF	kod-72	19.8146	85.0056
73	Ranapur	Dhani (N) RF	kod-73	19.9793	85.3219
74	Ranapur	Dhani (N) RF	kod-74	19.976	85.3255
75	Ranapur	Dhani (N) RF	kod-75	19.9792	85.3337
76	Ranapur	Dhani (N) RF	kod-76	19.9959627	85.3479738
77	Ranapur	Dhani (N) RF	kod-77	19.9851	85.3277
78	Ranapur	Dhani (N) RF	kod-78	19.9907945	85.3765905
79	Ranapur	Dhani (N) RF	kod-79	19.978794	85.3603752
80	Ranapur	Dhani (N) RF	kod-80	19.9808877	85.362347
81	Tangi	Dhani (S) RF	kod-81	19.9784	85.3476
82	Tangi	Dhani (S) RF	kod-82	19.9745	85.3385
83	Tangi	Dhani (S) RF	kod-83	19.9756	85.3523
84	Tangi	Dhani (S) RF	kod-84	19.9624832	85.3241753
85	Tangi	Dhani (S) RF	kod-85	19.9550522	85.320481
86	Tangi	Dhani (S) RF	kod-86	19.9668417	85.3233727
87	Khordha	Duburi DPF	kod-87	20.1561895	85.246532
88	Tangi	Jalabhar DPF	kod-88	20.0943	85.4082
89	Tangi	Jalabhar DPF	kod-89	20.0999	85.41
90	Tangi	Jalabhar DPF	kod-90	20.0755	85.3913
91	Khordha	Jariput DPF	kod-91	20.1447315	85.5732127
92	Khordha	Jariput DPF	kod-92	20.1639102	85.5808287
93	Balugaon	Jharan DPF	kod-93	19.8086	85.1187
94	Balugaon	Jharan DPF	kod-94	19.8170155	85.0963577
95	Balugaon	Jharan DPF	kod-95	19.8225992	85.1103748
96	Balugaon	Jharan DPF	kod-96	19.8083513	85.0820878
97	Balugaon	Jharan DPF	kod-97	19.8254	85.1071117
98	Balugaon	Jharan DPF	kod-98	19.8112	85.113
99	Balugaon	Jharan DPF	kod-99	19.794	85.1217
100	Balugaon	Jharan DPF	kod-100	19.8288418	85.0954302

1	2	3	4	5	6
101	Balugaon	Jiripada DPF	kod-101	19.868332	85.0501097
102	Tangi	Kadambajhar DPF	kod-102	19.8701	85.2747
103	Tangi	Kaithapalla DPF	kod-103	19.8262	85.3045
104	Tangi	Kandagadia DPF	kod-104	19.9161	85.3169
105	Tangi	Kandagadia DPF	kod-105	19.9229	85.3185
106	Khordha	Kapileswar DPF	kod-106	20.215489	85.5641978
107	Khordha	Kerang DPF	kod-107	20.2300682	85.5503138
108	Balugaon	Katwal RF	kod-108	19.8493923	85.0385665
109	Balugaon	Katwal RF	kod-109	19.8649	85.0413
110	Balugaon	Katwal RF	kod-110	19.8650025	85.0487813
111	Balugaon	Katwal RF	kod-111	19.8573072	85.0540168
112	Balugaon	Katwal RF	kod-112	19.8482545	85.0501572
113	Balugaon	Katwal RF	kod-113	19.8470055	85.052135
114	Balugaon	Katwal RF	kod-114	19.8402	85.0403
115	Balugaon	Katwal RF	kod-115	19.8325	85.0383
116	Balugaon	Katwal RF	kod-116	19.8479313	85.0377172
117	Balugaon	Katwal RF	kod-117	19.8428	85.0305
118	Balugaon	Katwal RF	kod-118	19.8438422	85.0254997
119	Tangi	Kuhudi RF	kod-119	19.8959	85.3159
120	Tangi	Kuhudi RF	kod-120	19.9115	85.3392
121	Tangi	Kuhudi RF	kod-121	19.8995	85.3293
122	Tangi	Kuhudi RF	kod-122	19.9004	85.3344
123	Delang	Kumuka PRF	kod-123	20.0849887	85.723439
124	Delang	Kumuka PRF	kod-124	20.0831045	85.7116763
125	Tangi	Kunjari DPF	kod-125	19.8892	85.3229
126	Tangi	Kunjari DPF	kod-126	19.9055	85.3142
127	Ranapur	Maninag RF	kod-127	20.0553	85.288
128	Ranapur	Maninag RF	kod-128	20.05	85.2744
129	Ranapur	Maninag RF	kod-129	20.0582	85.3013
130	Ranapur	Maninag RF	kod-130	20.0623974	85.3137362
131	Ranapur	Maninag RF	kod-131	20.0689867	85.335432
132	Ranapur	Maninag RF	kod-132	20.0679903	85.3342242
133	Ranapur	Maninag RF	kod-133	20.0522	85.3245
134	Ranapur	Maninag RF	kod-134	20.061	85.3322
135	Ranapur	Maninag RF	kod-135	20.0458	85.301

1	2	3	4	5	6
136	Ranapur	Maninag RF	kod-136	20.0606	85.3182
137	Ranapur	Maninag RF	kod-137	20.0433	85.2953
138	Ranapur	Maninag RF	kod-138	20.0512	85.2957
139	Ranapur	Maninag RF	kod-139	20.0284	85.2553
140	Ranapur	Maninag RF	kod-140	20.0339	85.2742
141	Ranapur	Mal RF	kod-141	19.9442868	85.1440192
142	Ranapur	Mal RF	kod-142	19.9387	85.1382
143	Ranapur	Mal RF	kod-143	19.9995	85.2316
144	Ranapur	Mal RF	kod-144	20.0045	85.242
145	Ranapur	Mal RF	kod-145	19.9958	85.2222
146	Ranapur	Mal RF	kod-146	19.9898	85.216
147	Ranapur	Mal RF	kod-147	19.9769	85.1946
148	Ranapur	Mal RF	kod-148	19.9817	85.1987
149	Ranapur	Mal RF	kod-149	19.9845	85.1987
150	Ranapur	Mal RF	kod-150	19.9698	85.1853
151	Ranapur	Mal RF	kod-151	19.9532	85.1646
152	Ranapur	Mal RF	kod-152	19.9548	85.16
153	Ranapur	Mal RF	kod-153	19.9488	85.1568
154	Ranapur	Mal RF	kod-154	19.9491	85.1545
155	Ranapur	Mal RF	kod-155	19.9254	85.1456
156	Ranapur	Mal RF	kod-156	19.9233	85.1408
157	Ranapur	Mal RF	kod-157	19.9261	85.1345
158	Ranapur	Mal RF	kod-158	19.9413	85.1542
159	Ranapur	Mal RF	kod-159	19.9256	85.156
160	Ranapur	Mal RF	kod-160	19.9372	85.1675
161	Ranapur	Mal RF	kod-161	19.9422	85.1623
162	Ranapur	Mal RF	kod-162	19.9493	85.1707
163	Ranapur	Mal RF	kod-163	19.9418	85.1809
164	Ranapur	Mal RF	kod-164	19.9608518	85.1904795
165	Ranapur	Mal RF	kod-165	19.9548	85.1817
166	Ranapur	Mal RF	kod-166	19.955366	85.1939453
167	Ranapur	Mal RF	kod-167	19.952	85.1502
168	Ranapur	Mal RF	kod-168	19.9461	85.147
169	Ranapur	Mal RF	kod-169	19.9498	85.1369
170	Ranapur	Mal RF	kod-170	19.9869	85.2121

1	2	3	4	5	6
171	Ranapur	Mal RF	kod-171	19.977	85.2113
172	Ranapur	Mal RF	kod-172	19.9698	85.1938
173	Ranapur	Mal RF	kod-173	19.9867	85.2131
174	Ranapur	Mal RF	kod-174	19.9935	85.2371
175	Ranapur	Mal RF	kod-175	19.9940533	85.2395342
176	Ranapur	Mal RF	kod-176	19.9175877	85.1654618
177	Ranapur	Mal RF	kod-177	19.9184738	85.1588155
178	Ranapur	Mal RF	kod-178	19.9248	85.1735
179	Ranapur	Mal RF	kod-179	19.9322612	85.1828538
180	Ranapur	Mal RF	kod-180	19.934268	85.1881352
181	Ranapur	Mal RF	kod-181	19.9339473	85.1840892
182	Ranapur	Mal RF	kod-182	19.9278	85.1949
183	Ranapur	Mal RF	kod-183	19.9318475	85.1972958
184	Ranapur	Mal RF	kod-184	19.9358568	85.2006065
185	Ranapur	Mal RF	kod-185	19.9685145	85.2070955
186	Ranapur	Mal RF	kod-186	19.9538417	85.2176118
187	Ranapur	Mal RF	kod-187	19.9544435	85.2004557
188	Ranapur	Mal RF	kod-188	19.949152	85.2060802
189	Ranapur	Mal RF	kod-189	19.9489	85.2201
190	Ranapur	Mal RF	kod-190	19.9624	85.2312
191	Ranapur	Mal RF	kod-191	19.9768	85.219
192	Ranapur	Mal RF	kod-192	19.9688867	85.230701
193	Ranapur	Mal RF	kod-193	19.9756	85.228
194	Ranapur	Mal RF	kod-194	19.9695	85.1695
195	Ranapur	Mal RF	kod-195	19.9548	85.1555
196	Ranapur	Mal RF	kod-196	19.9576	85.1545
197	Ranapur	Mal RF	kod-197	19.9757	85.2513
198	Ranapur	Mal RF	kod-198	19.9781	85.2446
199	Ranapur	Mal RF	kod-199	19.9858	85.2346
200	Ranapur	Mal RF	kod-200	19.9915	85.2429
201	Ranpur	Mal RF	kod201	19.9606483	85.2444668
202	Ranpur	Mal RF	kod202	19.9559	85.2383
203	Ranpur	Mal RF	kod203	19.9577	85.2416
204	Ranpur	Mal RF	kod204	19.9518	85.2247
205	Ranpur	Mal RF	kod205	19.9426	19.9426

1	2	3	4	5	6
206	Ranpur	Mal RF	kod206	19.9293	85.2214
207	Ranpur	Mal RF	kod207	19.9457	85.212
208	Ranpur	Mal RF	kod208	19.9335	85.2188
209	Ranpur	Mal RF	kod209	19.9374	85.2164
210	Ranpur	Mal RF	kod210	19.9436932	85.2028907
211	Ranpur	Mal RF	kod211	19.9135	85.204
212	Ranpur	Mal RF	kod212	19.9272318	85.2114017
213	Ranpur	Mal RF	kod213	19.9233	85.2165
214	Ranpur	Mal RF	kod214	19.9226037	85.2087772
215	Ranpur	Mal RF	kod215	19.9173	85.1987
216	Ranpur	Mal RF	kod216	19.9224	85.1856
217	Ranpur	Mal RF	kod217	19.922532	85.1970853
218	Ranpur	Mal RF	kod218	19.9145	85.1871
219	Ranpur	Mal RF	kod219	19.9204	85.1816
220	Ranpur	Mal RF	kod220	19.9135	85.1764
221	Ranpur	Mal RF	kod221	19.9761	85.1814
222	Ranpur	Mal RF	kod222	19.98	85.1803
223	Ranpur	Mal RF	kod223	19.9097	85.1606
224	Ranpur	Mal RF	kod224	19.9123	85.1567
225	Ranpur	Mal RF	kod225	19.9776	85.2617
226	Ranpur	Mal RF	kod226	19.9786	85.2587
227	Ranpur	Mal RF	kod227	19.9882	85.2518
228	Ranpur	Mal RF	kod228	19.98	85.2636
229	Ranpur	Mal RF	kod229	19.9909	85.2703
230	Ranpur	Mal RF	kod230	19.9891	85.2689
231	Ranpur	Mal RF	kod231	19.9912	85.2619
232	Ranpur	Mal RF	kod232	19.9869	85.2603
233	Ranpur	Mal RF	kod233	19.9924	85.2514
234	Ranpur	Mal RF	kod234	19.9987	85.2654
235	Ranpur	Mal RF	kod235	19.9945	85.2447
236	Ranpur	Mal RF	kod236	19.9996	85.2743
237	Ranpur	Mal RF	kod237	20.0061683	85.272204
238	Ranpur	Mal RF	kod238	20.0025	85.2796
239	Ranpur	Mal RF	kod239	19.9868	85.1921
240	Ranpur	Mal RF	kod240	19.9878	85.1972

1	2	3	4	5	6
241	Ranpur	Mal RF	kod241	19.9861	85.3142
242	Ranpur	Mal RF	kod242	19.9942	85.273
243	Ranpur	Mal RF	kod243	19.9937	85.276
244	Ranpur	Mal RF	kod244	19.9978	85.2127
245	Ranpur	Mal RF	kod245	19.9914	85.2049
246	Ranpur	Mal RF	kod246	20.0036	85.2279
247	Ranpur	Mal RF	kod247	20.0133	85.2301
248	Ranpur	Mal RF	kod248	20.0226	85.2498
249	Ranpur	Mal RF	kod249	20.0175	85.2486
250	Ranpur	Mal RF	kod250	20.0112	85.2392
251	Ranpur	Mal RF	kod251	20.0124	85.2463
252	Ranpur	Mal RF	kod252	19.9279723	85.1747272
253	Ranpur	Mal RF	kod253	19.968455	85.239287
254	Ranpur	Mal RF	kod254	19.9679807	85.2415855
255	Ranpur	Mal RF	kod255	19.9222908	85.160522
256	Ranpur	Mal RF	kod256	19.9194555	85.1624357
257	Khordha	Mandalsing DPF	kod257	20.1346	85.2183
258	Khordha	Mandalsing DPF	kod258	20.1324	85.2143
259	Khordha	Manibandha RF	kod259	20.2561827	85.3762132
260	Khordha	Manibandha RF	kod260	20.2395215	85.3945472
261	Khordha	Nagapalli RF	kod261	20.2215503	85.2777292
262	Khordha	Nagapalli RF	kod262	20.2193615	85.2834813
263	Khordha	Nagapalli RF	kod263	20.2184	85.2726
264	Tangi	Nalsingh DPF	kod264	19.9946115	85.4580797
265	Tangi	Nalsingh DPF	kod265	19.986432	85.4507962
266	Tangi	Nalsingh DPF	kod266	19.9855104	85.4554648
267	Khordha	Narganga DPF	kod267	20.2984242	85.4679332
268	Khordha	Narganga DPF	kod268	20.2985902	85.4808728
269	Tangi	Nargoda DPF	kod269	20.0564	85.4476
270	Tangi	Nargoda DPF	kod270	20.0623	85.4433
271	Balugaon	Nathapur DPF	kod271	19.9027377	85.1077787
272	Balugaon	Nathapur DPF	kod272	19.8911862	85.108847
273	Balugaon	Nathapur DPF	kod273	19.8996	85.1158
274	Ranpur	Non Forest	kod274	19.9429655	85.1932476
275	Balugaon	Non Forest	kod275	Nil	Nil

1	2	3	4	5	6
276	Ranpur	Non Forest	kod276	19.9812	85.2026
277	Ranpur	Nuapada-B RF	kod277	19.9824	85.3994
278	Khordha	Panchaghar RF	kod278	20.121	85.2414
279	Khordha	Panchaghar RF	kod279	20.1371333	85.2433037
280	Khordha	Panchaghar RF	kod280	20.1273	85.2325
281	Khordha	Panchaghar RF	kod281	20.1347	85.248
282	Khordha	Pangarsingh DPF	kod282	20.285429	85.4890862
283	Tangi	Patia RF	kod283	19.9243175	85.2756282
284	Tangi	Patia RF	kod284	19.9494828	85.2897293
285	Tangi	Patia RF	kod285	19.9368292	85.2924428
286	Tangi	Patia RF	kod286	19.954331	85.28119
287	Tangi	Patia RF	kod287	19.960866	85.2854017
288	Khordha	Puinchia DPF	kod288	20.2882007	85.4306503
289	Khordha	Puinchia DPF	kod289	20.2911542	85.426696
290	Balugaon	Rajin RF	kod290	19.8934	85.0343
291	Balugaon	Rajin RF	kod291	19.9112745	85.0575435
292	Balugaon	Rajin RF	kod292	19.9007558	85.0511083
293	Balugaon	Rajin RF	kod293	19.9066	85.0358
294	Balugaon	Rajin RF	kod294	19.9058188	85.0481685
295	Balugaon	Rajin RF	kod295	19.8622	19.8622
296	Balugaon	Rajin RF	kod296	19.856	85.0184
297	Balugaon	Rajin RF	kod297	19.8398678	85.0083645
298	Balugaon	Rajin RF	kod298	19.8421303	85.005475
299	Balugaon	Rajin RF	kod299	19.833	85.0059
300	Balugaon	Rajin RF	kod300	19.8337	85.0018
301	Balugaon	Rajin RF	kod301	19.857	85.0029
302	Balugaon	Rajin RF	kod302	19.8554	85.0051
303	Balugaon	Rajin RF	kod303	19.8429	84.9847
304	Balugaon	Rajin RF	kod304	19.8409	84.9921
305	Balugaon	Rajin RF	kod305	19.857	84.9926
306	Balugaon	Rajin RF	kod306	19.8629	85.0011
307	Balugaon	Rajin RF	kod307	19.863	84.9816
308	Balugaon	Rajin RF	kod308	19.8544	84.9775
309	Balugaon	Rajin RF	kod309	19.8533	84.9732
310	Balugaon	Rajin RF	kod310	19.8655	84.9907

1	2	3	4	5	6
311	Balugaon	Rajin RF	kod311	19.8621	84.9926
312	Balugaon	Rajin RF	kod312	19.8647	84.9981
313	Balugaon	Rajin RF	kod313	Nil	Nil
314	Balugaon	Rajin RF	kod314	19.881283	84.9880443
315	Balugaon	Rajin RF	kod315	19.8805978	19.8805978
316	Balugaon	Rajin RF	kod316	19.875	84.9782
317	Balugaon	Rajin RF	kod317	19.8656	84.9768
318	Balugaon	Rajin RF	kod318	19.8879862	85.0388358
319	Balugaon	Rajin RF	kod319	19.8894525	85.0423015
320	Balugaon	Rajin RF	kod320	19.8909	85.0383
321	Balugaon	Rajin RF	kod321	Nil	Nil
322	Balugaon	Rajin RF	kod322	19.8718	84.9677
323	Balugaon	Rajin RF	kod323	19.8719	84.9695
324	Balugaon	Rajin RF	kod324	19.8787	84.9621
325	Balugaon	Rajin RF	kod325	19.8783	84.9577
326	Balugaon	Rajin RF	kod326	19.8788	84.9647
327	Balugaon	Rajin RF	kod327	19.8687	84.9551
328	Balugaon	Rajin RF	kod328	19.8721	84.9559
329	Balugaon	Rajin RF	kod329	19.8757	84.9453
330	Balugaon	Rajin RF	kod330	19.8787	84.9446
331	Balugaon	Rajin RF	kod331	19.8828	84.9406
332	Balugaon	Rajin RF	kod332	19.8861	84.9456
333	Balugaon	Rajin RF	kod333	19.8841	84.955
334	Balugaon	Rajin RF	kod334	19.8796	84.9482
335	Balugaon	Rajin RF	kod335	19.8855	84.9525
336	Balugaon	Rajin RF	kod336	19.8962	84.9438
337	Balugaon	Rajin RF	kod337	Nil	Nil
338	Balugaon	Rajin RF	kod338	19.8978	84.9959
339	Balugaon	Rajin RF	kod339	19.8817837	84.9755953
340	Balugaon	Rajin RF	kod340	19.8914673	84.9929698
341	Balugaon	Rajin RF	kod341	19.8880942	84.9706462
342	Balugaon	Rajin RF	kod342	19.9001483	84.9809252
343	Balugaon	Rajin RF	kod343	19.9025	85.0212
344	Balugaon	Rajin RF	kod344	19.8986	85.0288
345	Balugaon	Rajin RF	kod345	19.8927	85.0202

1	2	3	4	5	6
346	Balugaon	Rajin RF	kod346	19.8862777	85.0132038
347	Balugaon	Rajin RF	kod347	19.8894	85.0296
348	Balugaon	Rajin RF	kod348	19.8868	85.0277
349	Balugaon	Rajin RF	kod349	19.8871	85.0309
350	Balugaon	Rajin RF	kod350	19.880377	85.032614
351	Balugaon	Rajin RF	kod351	19.871394	85.028332
352	Balugaon	Rajin RF	kod352	19.8993	85.0106
353	Balugaon	Rajin RF	kod353	19.8955	85.0065
354	Balugaon	Rajin RF	kod354	19.8918	85.0031
355	Balugaon	Rajin RF	kod355	19.883	85.0044
356	Balugaon	Rajin RF	kod356	19.8782	85.009
357	Balugaon	Rajin RF	kod357	19.8721	85.0039
358	Balugaon	Rajin RF	kod358	19.8742	85.0139
359	Balugaon	Rajin RF	kod359	19.8662	85.0186
360	Balugaon	Rajin RF	kod360	19.866218	85.0116905
361	Balugaon	Rajin RF	kod361	19.8684	85.0247
362	Tangi	Rameswar DPF	kod362	20.002367	85.5160097
363	Tangi	Rameswar DPF	kod363	19.9945887	85.520156
364	Tangi	Bhusandpur DPF	kod364	19.9957343	85.5144958
365	Delenga	Rengal PRF	kod365	20.1218175	85.7148037
366	Delenga	Rengal PRF	kod366	20.1207607	85.712088
367	Balugaon	Sandhamal DPF	kod367	19.9004225	85.1897758
368	Balugaon	Sandhamal DPF	kod368	19.8885945	85.1767328
369	Balugaon	Sandhamal DPF	kod369	19.8780533	85.2038052
370	Balugaon	Sandhamal DPF	kod370	19.8816477	85.1784893
371	Balugaon	Sandhamal DPF	kod371	19.9066	85.1785
372	Balugaon	Sandhamal DPF	kod372	19.8834122	85.1956955
373	Ranpur	Satabhaya RF	kod373	20.1371	85.2639
374	Ranpur	Satabhaya RF	kod374	20.1287	85.2571
375	Balugaon	Solari DPF	kod375	19.8225	85.2218
376	Balugaon	Solari DPF	kod376	19.8227388	85.2146707
377	Balugaon	Solari DPF	kod377	Nil	Nil
378	Balugaon	Solari DPF	kod378	19.8193	85.2377
379	Balugaon	Solari DPF	kod379	Nil	Nil
380	Balugaon	Solari DPF	kod380	Nil	Nil

1	2	3	4	5	6
381	Ranpur	Sulia-B RF	kod381	20.1096	85.2894
382	Ranpur	Sulia-B RF	kod382	20.0914	85.2636
383	Ranpur	Sulia-B RF	kod383	20.1288	85.3173
384	Ranpur	Sulia-B RF	kod384	20.1332	85.3511
385	Ranpur	Sulia-B RF	kod385	20.0992	85.2708
386	Ranpur	Sulia-B RF	kod386	20.1272	85.3209
387	Ranpur	Sulia-B RF	kod387	20.0956	85.2653
388	Ranpur	Sulia-B RF	kod388	20.0909	85.2672
389	Balugaon	Tamana RF	kod389	19.9048	85.129
390	Balugaon	Tamana RF	kod390	19.9095	85.1164
391	Balugaon	Tamana RF	kod391	19.9040248	85.1183477
392	Balugaon	Tamana RF	kod392	19.8888	85.0474
393	Balugaon	Tamana RF	kod393	19.8716	85.0345
394	Balugaon	Tamana RF	kod394	19.8917327	85.07102
395	Balugaon	Tamana RF	kod395	19.8917173	85.0713317
396	Balugaon	Tamana RF	kod396	19.8889155	85.0630343
397	Balugaon	Tamana RF	kod397	19.8918162	85.077417
398	Balugaon	Tamana RF	kod398	19.9044	85.0888
399	Balugaon	Tamana RF	kod399	19.894558	85.0983685
400	Balugaon	Tamana RF	kod400	19.8913335	85.0913088
401	Balugaon	Tamana RF	kod401	19.88247	85.0899683
402	Balugaon	Tamana RF	kod402	19.9196	85.1299
403	Balugaon	Tamana RF	kod403	19.9164	85.1302
404	Balugaon	Tamana RF	kod404	19.9134588	85.1122648
405	Balugaon	Tamana RF	kod405	19.9256	85.1247
406	Balugaon	Tamana RF	kod406	19.9193	85.1066
407	Balugaon	Tamana RF	kod407	19.9236	85.1032
408	Balugaon	Tamana RF	kod408	19.9291555	85.1059837
409	Balugaon	Tamana RF	kod409	19.915	85.0718
410	Balugaon	Tamana RF	kod410	19.914	85.0682
411	Balugaon	Tamana RF	kod411	19.9188	85.0846
412	Balugaon	Tamana RF	kod412	19.9257207	85.0987123
413	Balugaon	Tamana RF	kod413	19.9077	85.0882
414	Balugaon	Tamana RF	kod414	19.9165	85.0921
415	Balugaon	Tamana RF	kod415	19.9064	85.0671

1	2	3	4	5	6
416	Balugaon	Tamana RF	kod416	19.9126	85.0746
417	Balugaon	Tamana RF	kod417	19.8996832	85.0523483
418	Balugaon	Tamana RF	kod418	19.9079	85.0676
419	Balugaon	Tamana RF	kod419	19.9108	85.0593
420	Tangi	Tangi DPF	kod420	19.9312	85.389
421	Tangi	Tangi DPF	kod421	19.9339	85.3919
422	Khordha	Tartua DPF	kod422	20.2089442	85.5918963

ANNEXURE-IV

REGENERATION SURVEY OF KHORDHA FOREST DIVISION

Name of the Range:- Balugaon Range

Name of the Forest Block:-Aranga RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta			✓		
Piasal	Ptrocarpus marsupium					
Asan	Terminalia tomentos			✓		
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa					
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis	✓				
Jamun	Syzigium cumini		✓			
Bandhan	Oougeinensis					
Teak	Tectona grandis					
Sidha	Lagerstroemia parviflora		✓			
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis		✓			
Bahada	Terminallia belerica			✓		
Harida	Terminallia Chebula			✓		
Karanja	Pongamia Pinnata			✓		
Mahula	Madhuca Indica			✓		
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum					
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia		✓			
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia			✓		
Kasi	Bridelia retusa			✓		
Misc		✓				

REGENERATION SURVEY OF KHORDHA FOREST DIVISION Name of the Range:- Balugaon Range						
Name of the Forest Block:-Bankad RF						
Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta			✓		
Piasal	Ptrocarpus marsupium			✓		
Asan	Terminalia tomentos		✓			
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa		✓			
Kendu	Diospyros melanoxlon	✓				
Kamalagundi	Mallotus philipinensis		✓			
Jamun	Syzigium cumini		✓			
Bandhan	Oougeinensis			✓		
Teak	Tectona grandis	✓				
Sidha	Lagerstroemia parviflora			✓		
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis		✓			
Bahada	Terminallia belerica	✓				
Harida	Terminallia Chebula			✓		
Karanja	Pongamia Pinnata			✓		
Mahula	Madhuca Indica		✓			
Gambhari	Gmelia aroborea			✓		
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia		✓			
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia			✓		
Kasi	Bridelia retusa		✓			
Misc		✓				

REGENERATION SURVEY OF KHORDHA FOREST DIVISION Name of the Range:- Balugaon Range						
Name of the Forest Block:-Champagarh DPF						
Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon				✓	
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos				✓	
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa		✓			
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION						
Name of the Range:- Balugaon Range						
	Name of the Forest Block:-Jharan DPF					
Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos			✓		
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa			✓		
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis			✓		
Jamun	Syzigium cumini		✓			
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica			✓		
Harida	Terminallia Chebula			✓		
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia			✓		
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia			✓		
Kasi	Bridelia retusa			✓		
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Balugaon Range
Name of the Forest Block:-Tamana RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta	✓				
Piasal	Ptrocarpus marsupium		✓			
Asan	Terminalia tomentos		✓			
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa		✓			
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis		✓			
Jamun	Syzigium cumini		✓			
Bandhan	Oougeinensis			✓		
Teak	Tectona grandis		✓			
Sidha	Lagerstroemia parviflora			✓		
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis		✓			
Bahada	Terminallia belerica		✓			
Harida	Terminallia Chebula			✓		
Karanja	Pongamia Pinnata			✓		
Mahula	Madhuca Indica		✓			
Gambhari	Gmelia aroborea			✓		
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia			✓		
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia			✓		
Kasi	Bridelia retusa		✓			
Misc		✓				

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Balugaon Range

Name of the Forest Block:-Bhatapada RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta	✓				
Piasal	Ptrocarpus marsupium			✓		
Asan	Terminalia tomentos		✓			
Mai	Lannea Coromandelica	✓				
Kusum	Scheichera oleosa			✓		
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis		✓			
Jamun	Syzigium cumini		✓			
Bandhan	Oougeinensis			✓		
Teak	Tectona grandis	✓				
Sidha	Lagerstroemia parviflora			✓		
Kalachua	Diospyros sylvatica	✓				
Amla	Emblica Officinlis			✓		
Bahada	Terminallia belerica			✓		
Harida	Terminallia Chebula			✓		
Karanja	Pongamia Pinnata			✓		
Mahula	Madhuca Indica			✓		
Gambhari	Gmelia aroborea			✓		
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia			✓		
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia			✓		
Kasi	Bridelia retusa		✓			
Misc		✓				

	REGENERATION SURVEY OF KHORDHA FOREST DIVISION Name of the Range:- Balugaon Range					
	Name of the Forest Block:-Rajin RF					
Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	2	3	4	5	6	7
Sal	Shorea robusta	✓				
Piasal	Ptrocarpus marsupium		✓			
Asan	Terminalia tomentos		✓			
Mai	Lannea Coromandelica	✓				
Kusum	Scheichera oleosa		✓			
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis		✓			
Jamun	Syzigium cumini		✓			
Bandhan	Oougeinensis		✓			
Teak	Tectona grandis	✓				
Sidha	Lagerstroemia parviflora		✓			
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis		✓			
Bahada	Terminallia belerica		✓			
Harida	Terminallia Chebula			✓		
Karanja	Pongamia Pinnata		✓			
Mahula	Madhuca Indica		✓			
Gambhari	Gmelia aroborea		✓			
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia			✓		
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia		✓			
Kasi	Bridelia retusa		✓			
Misc		✓				

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Balugaon Range

Name of the Forest Block:-Jiripada DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos			✓		
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa			✓		
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis		✓			
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis			✓		
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica		✓			
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa		✓			
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Balugaon Range

Name of the Forest Block:-Nathapur DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa		✓			
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis		✓			
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis			✓		
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora			✓		
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis			✓		
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata			✓		
Mahula	Madhuca Indica			✓		
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia			✓		
Kasi	Bridelia retusa		✓			
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Balugaon Range

Name of the Forest Block:-Sandhamal DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos			✓		
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa		✓			
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis		✓			
Jamun	Syzigium cumini		✓			
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis			✓		
Bahada	Terminallia belerica			✓		
Harida	Terminallia Chebula			✓		
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica			✓		
Gambhari	Gmelia aroborea			✓		
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa		✓			
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Balugaon Range

Name of the Forest Block:-Solari DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa			✓		
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis			✓		
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc				✓		

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Ranpur Range

Name of the Forest Block:-Champagarh RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata			✓		
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos				✓	
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa				✓	
Misc (Kaju)		✓				

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Ranpur Range

Name of the Forest Block:-Dhani (N) RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta			✓		
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos		✓			
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa			✓		
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis		✓			
Jamun	Syzigium cumini		✓			
Bandhan	Oougeinensis			✓		
Teak	Tectona grandis		✓			
Sidha	Lagerstroemia parviflora			✓		
Kalachua	Diospyros sylvatica	✓				
Amla	Emblica Officinlis			✓		
Bahada	Terminallia belerica			✓		
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata		✓			
Mahula	Madhuca Indica		✓			
Gambhari	Gmelia aroborea		✓			
Giringa	Pterospermum heyneanum	✓				
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia			✓		
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia		✓			
Kasi	Bridelia retusa		✓			
Misc		✓				

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Ranpur Range

Name of the Forest Block:-Mala RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta	✓				
Piasal	Ptrocarpus marsupium		✓			
Asan	Terminalia tomentos		✓			
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa		✓			
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis		✓			
Jamun	Syzigium cumini		✓			
Bandhan	Oougeinensis			✓		
Teak	Tectona grandis		✓			
Sidha	Lagerstroemia parviflora		✓			
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis		✓			
Bahada	Terminallia belerica		✓			
Harida	Terminallia Chebula		✓			
Karanja	Pongamia Pinnata		✓			
Mahula	Madhuca Indica		✓			
Gambhari	Gmelia aroborea		✓			
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia		✓			
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia		✓			
Kasi	Bridelia retusa		✓			
Misc		✓				

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Ranpur Range

Name of the Forest Block:-Maninag RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta			✓		
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos			✓		
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa		✓			
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis		✓			
Jamun	Syzigium cumini		✓			
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis		✓			
Sidha	Lagerstroemia parviflora			✓		
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis			✓		
Bahada	Terminallia belerica			✓		
Harida	Terminallia Chebula			✓		
Karanja	Pongamia Pinnata			✓		
Mahula	Madhuca Indica			✓		
Gambhari	Gmelia aroborea			✓		
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia		✓			
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia			✓		
Kasi	Bridelia retusa		✓			
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Ranpur Range

Name of the Forest Block:-Nuapada B RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica			✓		
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc (Cashew)		✓				

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Ranpur Range

Name of the Forest Block:-Satabhaya RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis			✓		
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica			✓		
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea			✓		
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Ranpur Range

Name of the Forest Block:-Sulia (B)

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos			✓		
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa			✓		
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis			✓		
Sidha	Lagerstroemia parviflora			✓		
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis			✓		
Bahada	Terminallia belerica			✓		
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica			✓		
Gambhari	Gmelia aroborea			✓		
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia			✓		
Kasi	Bridelia retusa			✓		
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Dhani (S)

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos			✓		
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa		✓			
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis		✓			
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis		✓			
Sidha	Lagerstroemia parviflora			✓		
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis			✓		
Bahada	Terminallia belerica			✓		
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica			✓		
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa		✓			
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Kuhuri (RF)

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	*Shorea robusta*				✓	
Piasal	*Ptrocarpus marsupium*				✓	
Asan	*Terminalia tomentos*			✓		
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa			✓		
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis			✓		
Bahada	Terminallia belerica			✓		
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc (Cashew not)		✓				

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Patia (RF)

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta			✓		
Piasal	Ptrocarpus marsupium			✓		
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa		✓			
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis		✓			
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis	✓				
Sidha	Lagerstroemia parviflora		✓			
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis			✓		
Bahada	Terminallia belerica			✓		
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica			✓		
Gambhari	Gmelia aroborea			✓		
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia			✓		
Kasi	Bridelia retusa			✓		
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Badpari DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini		✓			
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica			✓		
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata			✓		
Mahula	Madhuca Indica			✓		
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa					
Misc (Kaju .Acasia)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Bagheiput DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon				✓	
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos				✓	
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc (Kaju)				✓		

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Bhusandpur DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon					
Kamalagundi	Mallotus philipinensis		✓		✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica				✓	
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos				✓	
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa				✓	
Misc (Kaju)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Chakadapatha DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis		✓			
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis	✓				
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa		✓			
Misc (Kaju)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Jalbhar DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa			✓		
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora			✓		
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica		✓			
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc (Kaju)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Kadamjhar DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica					
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos				✓	
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa				✓	
Misc (Kaju)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Kaithapalla DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica					
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos				✓	
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa				✓	
Misc (Kaju)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Kandagadia DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon				✓	
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata		✓			
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos				✓	
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa		✓			
Misc (Kaju)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Kunjuri DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon				✓	
Kamalagundi	Mallotus philipinensis			✓		
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos				✓	
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc (Kaju)		✓				

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Nalsingh DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon				✓	
Kamalagundi	Mallotus philipinensis			✓		
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica			✓		
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos				✓	
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc (Kaju)		✓				

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Nargoda DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon				✓	
Kamalagundi	Mallotus philipinensis			✓		
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos				✓	
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc (Kaju)		✓				

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Rameswar DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon				✓	
Kamalagundi	Mallotus philipinensis			✓		
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos				✓	
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc				✓		

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Tangi Range

Name of the Forest Block:-Tangi DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon				✓	
Kamalagundi	Mallotus philipinensis			✓		
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica				✓	
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos				✓	
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc(Acasia, Kaju)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Khordha Range

Name of the Forest Block:-Barunei RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos			✓		
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis		✓			
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis			✓		
Bahada	Terminallia belerica			✓		
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata			✓		
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia		✓			
Kasi	Bridelia retusa			✓		
Misc (Ankula)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Khordha Range

Name of the Forest Block:-Jaymangala RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta	✓				
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia			✓		
Kasi	Bridelia retusa			✓		
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Khordha Range

Name of the Forest Block:-Manibandha RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	*Shorea robusta*	✓				
Piasal	*Ptrocarpus marsupium*				✓	
Asan	*Terminalia tomentos*				✓	
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia			✓		
Kasi	Bridelia retusa			✓		
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Khordha Range

Name of the Forest Block:-Nagapalli RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos		✓			
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora			✓		
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia			✓		
Kasi	Bridelia retusa			✓		
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Khordha Range

Name of the Forest Block:-Panchagarh RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta		✓			
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos		✓			
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini			✓		
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora			✓		
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata			✓		
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum			✓		
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia		✓			
Kasi	Bridelia retusa			✓		
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Khordha Range

Name of the Forest Block:-Pangarsingha RF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon				✓	
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa				✓	
Misc (Accacia)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Khordha Range

Name of the Forest Block:-Brahmanidevi DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon		✓			
Kamalagundi	Mallotus philipinensis			✓		
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora			✓		
Kalachua	Diospyros sylvatica		✓			
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum		✓			
Amba	Mangifera indica		✓			
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos		✓			
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa		✓			
Misc			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Khordha Range

Name of the Forest Block:-Brahmanidevi DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica			✓		
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon				✓	
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa				✓	
Misc (Accacia)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Khordha Range

Name of the Forest Block:-Duburi DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa				✓	
Misc				✓		

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Khordha Range

Name of the Forest Block:-Jariput DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc (Cashew)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Khordha Range

Name of the Forest Block:-Kapileswar DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc (Cashew)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Khordha Range

Name of the Forest Block:-Keranga DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc (Cashew)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Khordha Range

Name of the Forest Block:-Mandalsingha DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica		✓			
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis			✓		
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc				✓		

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Khordha Range

Name of the Forest Block:-Tartua DPF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon				✓	
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc (Cashew)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Balipatna Range

Name of the Forest Block:-Bhanra PRF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora			✓		
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica			✓		
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa				✓	
Misc (Arjuna, Patuli)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Delanga Range

Name of the Forest Block:-Beguniapada PRF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa				✓	
Misc (Cashew)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Delanga Range

Name of the Forest Block:-Jamuna Jharpada PRF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos			✓		
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa				✓	
Misc (Accacia)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Delanga Range

Name of the Forest Block:-Kumuka PRF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos				✓	
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa				✓	
Misc (Cashew)			✓			

REGENERATION SURVEY OF KHORDHA FOREST DIVISION
Name of the Range:- Delanga Range

Name of the Forest Block:-Rengala PRF

Name of the species	Botanical Name	Regeneration status of different species				
		Good Regn	Fair Regn	Poor Regn	No Regn	New Regn
1	**2**	**3**	**4**	**5**	**6**	**7**
Sal	Shorea robusta				✓	
Piasal	Ptrocarpus marsupium				✓	
Asan	Terminalia tomentos				✓	
Mai	Lannea Coromandelica				✓	
Kusum	Scheichera oleosa				✓	
Kendu	Diospyros melanoxlon			✓		
Kamalagundi	Mallotus philipinensis				✓	
Jamun	Syzigium cumini				✓	
Bandhan	Oougeinensis				✓	
Teak	Tectona grandis				✓	
Sidha	Lagerstroemia parviflora				✓	
Kalachua	Diospyros sylvatica			✓		
Amla	Emblica Officinlis				✓	
Bahada	Terminallia belerica					
Harida	Terminallia Chebula				✓	
Karanja	Pongamia Pinnata				✓	
Mahula	Madhuca Indica				✓	
Gambhari	Gmelia aroborea				✓	
Giringa	Pterospermum heyneanum				✓	
Amba	Mangifera indica				✓	
Sisoo	Dalbergia latifolia				✓	
Bela	Aegle marmolos				✓	
Dhaura	Anogeissus latifolia				✓	
Kasi	Bridelia retusa			✓		
Misc (Accacia)			✓			

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Appendices

APPENDIX - I

SCHEDULE OF RATES, 1946
Schedule of rates of forest produce removed from the Reserved Forests

(Approved by the Agent to the Governor in Ganjam in his Letter D. Dis. No. 6094 / 38, dated the 21st February 1946).

Rules for the management and classification of timber

Class – I:	Sal	*Shorea robusta*
	Teak	*Tectona grandis*
	Piasal	*Pterocarpus marsupium*
	Sissoo	*Dalbergia latifolia*
	Halanda	*Adina cordifolia*
	Mundi	*Mitragyana parvifolia*
	Gambhari	*Gmelina arborea*
	Bandhan	*Ougenia dalbergioides*
	Panasa	*Artocarpus integrifolia*
Class –II:	Mahula	*Madhuca latifolia*
	Dhou	*Anogeissus latifolia*
	Bheru	*Chloroxylon swietenia*
	Kendu	*Diospyros melanoxylon*
	Kangada	*Xylia xylocarpa*
	Kusuma	*Schleichera trijuga*
	Suama	*Soymida febrifuga*
	Sahaj	*Terminalia tomentosa*
	Arjuna	*Terminalia arjuna*
	Sunari	*Cassia fistula*
	Sidha	*Lagerstroemia parviflora*
	Karada	*Cleistanthus collinus*
	Jamu	*Eugenia jambolana*
	Kasi	*Bridelia retusa*
	Lembura Mai	*Bursera serrata*
	Sirisa	*Albizzia lebbeck*
	Phasi	*Anoglissus acuminata*
	Dhaman	*Grewia tiliifolia*
	Toon	*Cedrela toona*
	Khaira	*Acacia catechu*
	Sundra	*Acacia suma*
	Gohira	*Acacia leucophloea*
	Amba	*Mangifera indica*

Class –III: All other species

1. For the purpose of Royalty calculation timber the various species of trees are classed as follows :-
2. In measuring the length of timber in the round any thing under 6" will be omitted while 6" and up to 12" will count as one foot; in measuring the circumference anything under ½" will be omitted while ½" and up to 1" will count as one inch.
3. All the calculation will be made according to Mercer's tables.
4. Timber broadly defined, means any piece of wood which for use or is commonly used for purposes other than for burning as firewood.
5. Round timber means timber which has not been squared in any way.
6. Logs are defined as round timber of which diameter at the butt end is 12" or more over bark, or 10" under bark.
7. Poles are ballis are defined as round timber of which the diameter at the butt end is less than 12" over bark.
8. Firewood is any wood which is commonly used for burning as fuel and does not fall within the definition of timber.
9. In measuring the girth of round timber except poles or ballis the measurement will be taken under bark at the middle of the log.
10. In measuring the girth of poles or ballis the measurement will be taken over bark at the butt end.
11. In the event of any dispute between the purchaser and Range Officer as to the class in which any item is to be included, the decision of the District Forest Officer will be final.

CLASSIFICATION OF LOCALITIES

For purpose of this schedule the various localities are classified as follows:-

Class - A

i) Ghumsur South Division :- The whole of Berhampur Range

Class - B

i) Ghumsur North Division :- The whole Division exclusive of Chhakapad Khandam
ii) Ghumsur South Division :- The whole of Buguda Range and the whole of Surada Range exclusive of Pandakhol Mutha
iii) Paralakhemundi Division:-The whole of Paralakhemundi Division exclusive of Chandragiri Range.

Class - C

i) Ghumsur North Division :- The Chhakpad Khadam
ii) Ghumsur South Division :-The whole of Chandragiri Range and Pandakhol Mutha of Surada Range
iii) Balliguda Division — The whole division.
iv) Udayagiri Division — The whole division.

(Chhakapada Khandam is now in Phulbani Division and Chandragiri Range in Paralakhemundi Division)

A. Royalty (Rates for Round Timber Green and Dry)

Sl. No	Kind	Class	Dimension: Length in feet / Diameter in inches over bark		Per	Rate (Rs): Locality A	Locality B	Locality C
1.	Poles	I	**Any**	< 4”	Ten	0.47	0.35	0.23
2.	Poles	I	**Any**	4”- 6”	Pole	0.37	0.28	0.19
3.	Poles	I	Any	6” - 8”	Pole	0.75	0.56	0.37
4.	Poles	I	Any	8” - 10”	Pole	1.50	1.12	0.75
5.	Poles	I	Any	10” - 12”	Pole	3.00	2.25	1.50
6.	Logs	I	Any	12” - 16”	Cft	1.12	0.56	0.28
7.	Logs	I	Any	16”- 20”	Cft	1.50	0.75	0.37
8.	Logs	I	Any	≥ 20”	Cft	1.87	0.91	0.47
9.	Poles	II	Any	< 4”	Ten	0.37	0.28	0.19
10.	Poles	II	Any	4”- 6”	Pole	0.28	0.19	0.14
11.	Poles	II	Any	6” - 8”	Pole	0.56	0.37	0.28
12.	Poles	II	Any	8” - 10”	Pole	1.12	0.75	0.56
13.	Poles	II	Any	10” - 12”	Pole	2.25	1.50	1.12
14.	Logs	II	Any	12” - 16”	Cft	0.75	0.37	0.19
15.	Logs	II	Any	16”- 20”	Cft	0.09	0.47	0.23
16.	Logs	II	Any	≥ 20”	Cft	0.09	0.47	0.23
17.	Poles	III	Any	< 4”	Ten	0.19	0.14	0.09
18.	Poles	III	Any	4”- 6”	Pole	0.14	0.09	0.08
19.	Poles	III	Any	6” - 8”	Pole	0.28	0.19	0.05
20.	Poles	III	Any	8” - 10”	Pole	0.56	0.37	0.28
21.	Poles	III	Any	10” - 12”	Pole	1.12	0.75	0.56
22.	Poles	III	Any	12” - 16”	Cft	0.28	0.14	0.08
23.	Poles	III	Any	16”- 20”	Cft	0.37	0.19	0.09
24.	Poles	III	Any	≥ 20”	Cft	0.47	0.23	0.12

B. Royalty Rates for Bamboos (Rs)

Sl. No.	Description of produce	Per	Rate of all localities
25.	Salia Bamboos	Every 10 fraction there of	0.09
26.	Kanta Bamboos	Each	0.09
27.	Kusangi (Bamboo branches)	Cart load	0.94
28	Kusangi (Bamboo branches)	Kavadi load	0.19
29.	Kusangi (Bamboo branches)	Head load	0.09

C. Royalty Rates For Firewood (Rs)

Sl. No.	Description of produce	Per	Rates: Locality A	Locality B	Locality C
30.	Firewood	Cart load	1.12	0.75	0.37
31.	Firewood	Kavidi load	0.14	0.09	0.05
32.	Firewood	Head load	0.08	0.05	0.03

D. Royalty Rates For Other Produce (Rs)			
Sl. No.	**Description of produce**	**Per**	**Rates for all localities**
33.	Babuli grass	Cart load	1.87
34.	Babuli grass	Kavidi load	0.19
35.	Babuli grass	Head load	0.09
36.	Thatch grass	Cart load	0.75
37.	Thatch grass	Kavadi load	0.05
38.	Thatch grass	Head load	0.05
39.	Broom grass	For every 10 brooms or portion there of	0.05
40.	Fibre from climber	Cart load	0.75
41.	Fibre from climber	Kavadi load	0.09
42.	Fibre from climber	Kavadi load	0.05
43.	Leaves	Cart load	0.75
44.	Leaves	Kavadi load	0.9
45.	Leaves	Head load	0.05
46.	Honey	Seer	0.28
47.	Wax	Seer	0.28
48.	Sheekayi	Head load	0.19
49.	Arrow root	Cart load	15.0
50.	Arrow root	Kavadi load	1.50
51.	Arrow root	Head load	0.75
52.	Karala powder	Seer	0.19
53.	Tamarind	Cart load	5.62
54.	Tamarind	Kavadi load	0.56
55.	Tamarind	Head load	0.28
56.	Mahula flower	Cart load	8.44
57.	Mahula flower	Kavadi load	0.84
58.	Mahula flower	Head load	0.42
59.	Mahula seeds	Cart load	8.44
60.	Mahula seeds	Kavidi load	0.84
61	Mahula seeds	Head load	0.42
62.	Karanja seeds	Cart load	8.44
63.	Karanja seeds	Kavidi load	0.84
64.	Karanja seeds	Head load	0.42
65.	Amala	Cart load	8.44
66.	Amala	Kavadi load	0.84
67.	Amala	Head load	0.42
68.	Bhalia	Cart load	8.44
69.	Bhalia	Kavidi load	0.84
70.	Bhalia	Head load	0.42
71.	Soap nut	Cart load	8.44
72.	Soap nut	Kavadi load	0.84
73.	Soap nut	Head load	0.42
74.	Fruits of mango, Kendu, Chara, Jamba, Kaitha and guava (jami)	Cart load	2.81

75.	Fruits of mango, Kendu, Chara, Jamba, Kaitha and guava (jami)	Kavadi load	0.28
76.	Fruits of mango, Kendu, Chara, Jamba, Kaitha and guava (jami)	Head load	0.14
77.	Harida	Cart load	5.62
78.	Harida	Kavadi load	0.56
79.	Harida	Head load	0.28
80.	Oil from jungle seeds	Kerosene tin	0.56
81.	Ambula	Cart load	5.62
82.	Ambula	Kavadi load	0.56
83.	Ambula	Head load	0.28
84.	Ambasadda	Head load	0.28
85.	Salia seeds	Cart load	1.87
86.	Salia seeds	Kavadi load	0.19
87.	Salia seeds	Head load	0.09
88.	Limestone	Cart load	0.05
89.	Rough stone	Cart load	0.09
90.	Gravel	100 cft	0.37
91.	Road metal	100 cft	0.37

SCHEDULE OF RATES, 1967

Government of Orissa, Co-operation, and Forest Department

Notification No .12 F (N / 2) 16 / 67 No. 9693 dated 23.05.67

In exercise of the powers conferred by sub section (h) of section 2 of Madras Forest Act, 1882 and in suppression of existing schedule of rates for forest produce in Ghumsur South Division including ex-Zamindary areas where Madras Forest Act is in force, the State Government do hereby enforce the following revised schedule of rates in these areas with effect from 1st July, 1967. These rates are applicable for bonafide domestic consumption and not for trade. The revised rates were to be effective from 01.07.1967.

For the purpose of schedule of rates reserved trees are classified into various classes as under :-

Class – I:	Teak	*Tectona grandis*
	Sal	*Shorea robusta*
	Bija	*Pterocarpus marsupium*
	Bandhan	*Ougenia oojeinensis*
	Mundi	*Mitragyana parviflora*
	Khaira	*Acacia catechu*
	Tangan	*Xylia xylocarpa*
	Gambaro	*Gmelina arborea*
	Sahaj	*Terminalia tomentosa*
	Harida	*Terminalia chebula*
	Kusum	*Schleichera trijuga*
Class –II:	Sunari	*Cassia fistula*
	Char	*Buchanania latifolia*
	Mango	*Mangifera indica*
	Dhau	*Anogeissus latifolia*
	Kasi	*Bridelia retusa*
	Senul	*Salmalia malbarica*
	Rohini	*Soymida febrifuga*
	Panang	*Callyphullun incophyllum*

Class –III: Other species except bamboo and cane not included above.

SCHEDULE OF RATE					
		Dimension		**Rates (Rs)**	
Type	**Class**	**Length in feet**	**Diameter in cm over bark**	**For Ghumsur (South) Division**	**For Pondakhol Mutta**
A. Royalty Rates for Poles (Rs)					
Poles	I	Any	Under 30 cm	0.07 each	0.05 each
Poles	I	Any	30 - 40 cm	0.60 each	0.40 each
Poles	I	Any	45 - 60 cm	0.10 each	0.75 each
Poles	I	Any	60 - 75 cm	2.25 each	1.50 each
Poles	I	Any	75 - 90 cm	4.40 each	3.00 or 21.00 cum
Logs	I	Any	90 - 105 cm	1.70 / cft or 59.50 / cum	0.60
Logs	I	Any	105 - 120 cm	2.25 / cft or 78.75 / cum	--
Logs	I	Any	120 - 150 cm	3.00 / cft or 106.00 / cum	--
Logs	I	Any	≥150 cm	3.75 / cft or 131.25 / cum	--
Poles	II	Any	Under 30 cm	0.06 each	0.04 each
Poles	II	Any	30 - 40 cm	0.40 each	0.30 each
Poles	II	Any	45 - 60 cm	0.80 each	0.60 each
Poles	II	Any	60 - 75 cm	1.70 each	1.10 each
Poles	II	Any	75 - 90 cm	3.40 each	2.25 each
Logs	II	Any	90 - 105 cm	0.80 / cft or 28.00 / cum	0.30 / cft or 10.50 / cum
Logs	II	Any	105 - 120 cm	1.10 / cft or 38.50 / cum	0.45 / cft or 15.75 / cum
Logs	II	Any	120 - 150 cm	1.50 / cft or 52.50 / cum	0.55 / cft or 19.25 / cum
Logs	II	Any	≥150 cm	1.90 / cft or 66.50 / cum	0.70 / cft or 24.50 / cum
Poles	III	Any	Under 30 cm	0.03 each	0.02 each

Poles	III	Any	30 - 40 cm	0.20 each	0.15 each
Poles	III	Any	45 - 60 cm	0.40 each	0.35 each
Poles	III	Any	60 - 75 cm	0.80 each	0.55 each
Poles	III	Any	75 - 90 cm	1.70 each	1.10 each
Logs	III	Any	90 - 105 cm	0.40 / cft or 14.00 / cum	0.15 / cft or 5.25 / cum
Logs	III	Any	105 - 120 cm	0.60 / cft or 21.00 / cum	0.25 / cft or 6.75 / cum
Logs	III	Any	120 - 150 cm	0.75 / cft or 26.25 / cum	0.30 / cft or 10.50 / cum
Logs	III	Any	≥150 cm	0.95 / cft or 33.25 / cum	0.40 / cft or 14.00 / cum

B. Royalty Rates for Bamboos (Rs)

Description of produce	Per	Rate	
		For Ghumsur (South) Division	For Pondakhol Mutta
Salia Bamboos	100	3.00	2.00
Kanta Bamboos	100	4.00	3.00

C. Royalty Rates for Firewood (Rs)

Firewood	Cart load	1.70	0.75
Firewood	Kavidi load	0.20	0.10
Firewood	Head load	0.10	0.05

D. Royalty Rates for Other Produce (Rs)

Description of produce	Per	Rates	
		For Ghumsur (South) Division	For Pondakhol Mutta
Babuli grass	Cartload	1.90	1.90
Babuli grass	Kavidi load	0.20	0.20
Babuli grass	Head load	0.10	0.10
Thatch grass	Cart load	1.50	1.50
Thatch grass	Kavadi load	0.20	0.20
Thatch grass	Head load	0.10	0.10
Broom grass	Head load	0.05	0.05
Fibre from climber	Cart load	0.75	0.75
Fibre from climber	Kavadi load	0.20	0.20
Fibre from climber	Head load	0.10	0.10
Leaves (Thorns)	Cart load	1.50	1.50
Leaves (Thorns)	Kavadi load	0.20	0.20
Leaves (Thorns)	Head load	0.10	0.10
Honey	Kilogram	0.60	0.60
Wax	Kilogram	0.60	0.60
Shekayi	Head load	0.40	0.40
Arrow root	Cart load	30.00	30.00
Arrow root	Kavadi load	3.00	3.00
Arrow root	Head load	1.30	1.50
Kamala powder	Kilogram	0.40	0.40
Tamarind	Cart load	11.25	11.25
Tamarind	Kavadi load	1.28	1.12
Tamarind	Head load	0.60	0.60
Mahula flower	Cart load	16.90	16.90
Mahula flower	Kavadi load	1.80	1.80
Mahula flower	Head load	0.85	0.85
Mahula seeds	Kavidi load	1.80	1.80

Mahula seeds	Head load	0.85	0.85
Harida	Quintal	1.10	1.10
Karanja seeds	Cart load	16.20	16.90
Karanja seeds	Kavidi load	1.30	1.80
Karanja seeds	Head load	0.85	0.85
Myrobalan	Cart load	16.90	16.90
Myrobalan	Kavadi load	1.80	1.80
Myrobalan	Head load	0.85	0.85
Bhalia	Cart load	16.90	16.90
Bhalia	Kavidi load	1.20	1.80
Bhalia	Head load	0.85	0.85
Soap nut	Cart load	16.90	16.90
Soap nut	Kavadi load	1.80	1.80
Soap nut	Head load	0.85	0.85
Fruits of Mango, Kendu, Chara, Jamba, Kaitha and Guava (jami)	Cart load	5.40	5.40
Fruits of Mango, Kendu, Chara, Jamba, Kaitha and Guava (jami)	Kavadi load	0.60	0.60
Fruits of Mango, Kendu, Chara, Jamba, Kaitha and Guava (jami)	Head load	0.25	0.25
Bark from Balan	Quintal	1.50	0.60
Ambasoda	Head load	1.10	1.10
Oil from jungle trees	Per tin	0.60	0.60
Ambula	Cart load	11.25	11.25
Ambula	Kavadi load	1.10	1.10
Ambula	Head load	0.60	0.60
Siali leaves	Cart load	3.75	3.75
Siali leaves	Kavadi load	0.40	0.40
Siali leaves	Head load	0.20	0.20
Limestone	Quintal	0.60	0.40
Rough stone	100 cft or 2.8 cum	0.40	0.60
Gravel	100 cft or 2.8 cum	0.75	0.75
Road metal	100 cft or 2.8 cum	0.75	0.75
Buffalo grazing	Annually	0.50	0.50
Cow, Bullock, Pony grazing	Annually	0.40	0.40
Sheep grazing	Annually	0.25	0.25

RETAIL SELLING RATE OF ROUND TIMBER (Rate in Rs./Cum Excluding Taxes)

Name of the species										
Girth Class	**Length Class**	**Sal, Kasi, Panasa**	**Teak, Sisoo (Rose wood) Mehogany**	**Bija, Kendu (with black portion), Haldu/ Kurum**	**Gambhari, Champa**	**Bandhan, Bali Sisoo, Acacia, Tentra, Sirish, Kangada and Mitikinia**	**Asan, Jamu, Arjun , L.Mai & Sidha**	**Dhaura, Neem, Kendu (without black portion)**	**Harida, Bahada, Mango, Mahul, Kusum, Veru, Sunari, Chankunda, Mangium and other hard wood**	**Eucalyptus, Simili, Rai, Mai, Salai, Chatiana and other soft wood**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
60 to 74 cm	Below 2 mtrs	7663	15326	9196	8429	6897	4598	4831	3865	2899
	2 mtrs to under 3.75 mtrs	10206	20412	12247	11227	9185	6124	4637	5149	3862
	3.75 mtrs to under 5 mtrs	14055	28110	16866	15461	12650	8433	8852	7081	5311
	5 mtrs & above	17869	35738	21443	19656	16082	10721	11252	9001	6751
75 to 89 cm	Below 2 mtrs	9217	18434	11060	10139	8295	5530	5801	4640	3480
	2 mtrs to under 3.75 mtrs	12219	24438	14663	13441	10997	7331	7691	6153	4615
	3.75 mtrs to under 5 mtrs	16810	33620	20172	18491	15129	10086	10584	8467	6350
	5 mtrs & above	21401	42802	25681	23541	19261	12841	13477	10781	8086
90 to 119 cm	Below 2 mtrs	10729	21458	12875	11802	9656	6437	6898	5518	4138
	2 mtrs to under 3.75 mtrs	14239	28477	17086	15663	12815	8543	9154	7322	5492
	3.75 mtrs to under 5 mtrs	19604	39207	23524	21564	17643	11762	12603	10082	7562

1	2	3	4	5	6	7	8	9	10	11
	5 mtrs & above	24968	49935	29661	27464	22471	14981	16051	12840	9630
120 to 149 cm	Below 2 mtrs	18738	37477	22486	20612	16864	11243	12047	9637	7228
	2 mtrs to under 3.75 mtrs	24968	49935	29961	27464	22471	14981	16051	12840	9630
	3.75 mtrs to under 5 mtrs	34337	68647	41205	37771	30903	20602	22074	17659	13244
	5 mtrs & above	43681	87366	52418	48050	39313	26209	28081	22465	16849
150 to 179 cm	Below 2 mtrs	19010	38020	22812	20911	17109	11406	12221	9777	7332
	2 mtrs to under 3.75 mtrs	25314	50628	30377	27846	22783	15188	16274	13019	9764
	3.75 mtrs to under 5 mtrs	34831	69663	41798	38314	31348	20899	22392	17914	13435
	5 mtrs & above	44299	88598	53159	48729	39869	26579	28478	22783	17087
180 cm & above	Below 2 mtrs	19975	39949	23969	21972	17977	11985	12841	10273	7705
	2 mtrs to under 3.75 mtrs	26599	53199	31919	29259	23939	15960	17100	13680	10260
	3.75 mtrs to under 5 mtrs	36562	73123	43874	40218	32906	21937	23504	18803	14102
	5 mtrs & above	46524	93048	55829	51127	41872	27914	29909	23927	17945
IMPORTMENT NOTE: Chandan, Khaira & Red Sandres will not be sold at this retail selling rate. Their sale will be decided by the Head Office.										

RETAIL SELLING RATE OF SAWN TIMBER (Rate in Rs./Cum Excluding Taxes)

Item	Name of the species										
	Girth Class	Length Class	Sal, Kasi, Panasa	Teak, Sisoo (Rose wood) Mehogany	Bija, Kendu (with black portion), Haldu/ Kurum	Gambhar, Champa	Bandhan, Bali Sisoo, Acacia, Tentra, Sirish, Kangada and Mitikinia	Asan, Jamu, Arjun, L.Mooi & Sidha	Dhaura, Neem, Kendu (without black portion)	Harida, Bahada, Mango, Mahul, Kusum, Veru, Sunari, Chakunda, Mangium and other hard wood	Eucalyptus, Simili, Rai, Mai, Salai, Chatiana and other soft wood
1	2	3	4	5	6	7	8	9	10	11	12
Reapers	5cm x 1.3cm	Below 1 mtr	5082	9961	6098	5590	4483	3049	3202	2561	1922
	5cm x 1.3cm	1 mtr to under 1.5 mtrs	6353	12452	7624	6988	5604	3812	4002	3202	2401
	2.5cm x 2.5cm	1.5 mtrs to under 2.5 mtrs	8952	17546	10742	9847	7896	5371	5640	4512	3384
	2.5cm x 3.8cm	2.5 mtrs to under 5 mtrs	9240	18110	11088	10164	8149	5544	5121	4657	3493
	2.5cm x 1.3cm	5 mtrs & above	9345	18690	11214	10280	8411	5607	6008	4806	3605
Battens	5cm x 5cm	Below 1 mtr	6353	12452	7624	6988	5604	3812	4002	3202	2401
	5cm x 3.75cm	1 mtr to under 1.5 mtrs	11550	22638	13860	12705	10187	6930	7277	5821	4366
	7.5cm x 2.5cm	1.5 mtrs to under 2.5 mtrs	12705	24902	15246	13976	11206	7623	8005	6404	4802
	7.5cm x 3.5cm	2.5 mtrs to under 5 mtrs	14438	28298	17326	15882	12734	8663	9096	7277	5458
		5 mtrs & above	16079	32158	19295	17687	14471	9647	10337	8269	6202

1	2	3	4	5	6	7	8	9	10	11	12
Scantling	8cm x 8cm	Below 1 mtr	10402	20804	12482	11442	9362	6241	6687	5350	4012
	8cm x 6cm	1 mtr to under 1.5 mtrs	16390	32780	19668	18029	14751	9834	10536	8429	6322
	6cm x 6cm	1.5 mtrs to under 2.5 mtrs	19543	39085	23451	21497	17588	11726	12563	10050	7538
	6cm x 5cm	2.5 mtrs to under 5 mtrs	22379	44758	26855	24617	20141	13427	14387	1159	8632
		5 mtrs & above	25624	51247	30748	28186	23062	15374	16473	13178	9884
Scantling	10cm x 5cm	Below 1 mtr	11710	23421	14052	12881	10539	7026	7529	6023	4517
	10cm x 6cm	1 mtr to under 1.5 mtrs	21521	43042	25825	23673	19369	12912	13835	11068	8301
	10cm x 8cm	1.5 mtrs to under 2.5 mtrs	24688	49375	29625	27156	22219	14813	15871	12696	9522
	10cm x 10cm	2.5 mtrs to under 5 mtrs	24833	54438	29800	27316	24497	14900	17498	13999	10499
		5 mtrs & above	30510	61019	36611	33560	27459	18306	19614	15691	11768
Scantling	13cm x 8cm	Below 1 mtr	13620	27240	16344	14982	12258	8172	8756	7005	5253
	13cm x 6cm	1 mtr to under 1.5 mtrs	23439	46878	28127	25783	21095	14063	15068	12055	9041
	13cm x 5cm	1.5 mtrs to under 2.5 mtrs	26606	53213	31928	29267	23946	15964	17105	13684	10263
		2.5 mtrs to under 5 mtrs	29773	59546	35728	32750	26796	17864	19140	15312	11484
		5 mtrs & above	32904	65807	39484	36194	29614	19742	21153	16922	12692

1	2	3	4	5	6	7	8	9	10	11	12
Beam	Up to 200sq.cm.	Below 1 mtr	13948	27895	16737	15342	12553	8369	8967	7173	5380
		1 mtr to under 1.5 mtrs	24861	49722	29833	27347	22375	14917	15982	12785	9590
		1.5 mtrs to under 2.5 mtrs	26681	53361	32017	29349	24013	16008	17152	13721	10292
		2.5 mtrs to under 5 mtrs	30901	61802	37081	33951	27811	15840	19865	15892	11919
		5 mtrs & above	33373	66745	40047	36710	30036	20024	21454	17163	12873
Beam	200 sq.cm. to -	Below 1 mtr	18192	36383	21830	20011	16372	10915	11695	9356	7016
	under 330 sq.cm.	1 mtr to under 1.5 mtrs	27287	54575	32745	30017	26195	16372	17542	14034	10526
		1.5 mtrs to under 2.5 mtrs	29106	58212	34927	32017	26195	17464	18711	14969	11227
		2.5 mtrs to under 5 mtrs	33957	67914	40748	37353	30561	20374	21830	17464	13098
		5 mtrs & above	35176	70351	42211	38693	31658	21105	22630	18090	13568
Beam	330 sq.cm. & up	Below 1 mtr	21124	42248	25349	23236	19011	12674	13580	10864	8148
		1 mtr to under 1.5 mtrs	29822	59644	35787	32804	26840	17893	19172	15337	11503
		1.5 mtrs to under 2.5 mtrs	34173	68345	41007	37590	30755	20504	21968	17574	13181
		2.5 mtrs to under 5 mtrs	37278	74556	44733	41006	33550	22367	23964	19172	14378
		5 mtrs & above	41349	82698	49619	45484	37214	24809	26582	21265	15949
	IMPORTMENT NOTE: Chandan, Khaira & Red Sandres will not be sold at this retail selling rate. Their sale will be decided by the Head Office.										

RETAIL SELLING RATE OF PLANKS (Rate in Rs./Cum Excluding Taxes)

Name of the species											
Girth Class	**Thickness**	**Length Class**	**Sal, Kasi, Panasa**	**Teak, Sisoo (Rose wood) Mehogany**	**Bija, Kendu (with black portion), Haldu/ Kurum**	**Gambhar, Champa**	**Bandhan, Bali Sisoo, Acacia, Tentra, Sirish, Kangada and Mitikinia**	**Asan, Jamu, Arjun, L.Mai & Sidha**	**Dhaura, Neem, Kendu (without black portion)**	**Harida, Bahada, Mango, Mahul, Kusum, Veru, Sunari, Chankunda, Mangium and other hard wood**	**Eucalyptus, Simili, Rai, Mai, Salai, Chatiana and other soft wood**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Up to 15 cm	Up to 2.5 cm	Below 1.85 mtr	18983	37967	22780	20882	17085	11390	12204	9763	7322
Up to 17.5 cm			21093	42186	25312	23202	18984	12656	13560	10848	8136
Up to 20 cm			23437	46873	28124	25780	21093	14062	15066	12053	9040
Up to 22.5 cm			26041	52081	31249	28645	23437	15624	16740	13392	10044
Up to 25 cm			28934	57868	34721	31827	26040	17360	18600	14880	11160
25 cm & above			32149	64298	38579	35364	28934	19289	20667	16534	12400
Up to 15 cm	More than 2.5 cm	Below 3.85 mtr	21093	42186	25312	23202	18984	12656	13560	10848	8136
Up to 17.5 cm			23437	46873	28124	25780	21093	14062	15066	12053	9040
Up to 20 cm			26041	52081	31249	28645	23437	15624	16740	13392	10044
Up to 22.5 cm			28934	57868	34721	31827	26040	1736	18600	14880	11160
Up to 25 cm			32149	64298	38579	35364	28934	19289	20667	16534	12400
25 cm & above			35721	71440	42865	39293	32149	21433	22964	18371	13778
Up to 15 cm	Up to 2.5 cm	1.85 to under 3 mtr	21093	42186	25312	2322	18984	12656	13560	10848	8136
Up to 17.5 cm			23437	46873	28124	25780	21093	14062	15066	12053	9040
Up to 20 cm			26041	52081	31249	28645	23437	15624	16740	13392	10044

Up to 22.5 cm			28934	57868	34721	31827	26040	17360	18600	14880	11160
Up to 25 cm			32149	64298	38579	35364	28934	19289	20667	16534	12400
25 cm & above			35721	71442	42865	39293	32149	21433	22964	18371	13778
Up to 15 cm	More than 2.5 cm	1.85 to under 3 mtr	23437	46873	28124	2578	21093	14062	15066	12053	9060
Up to 17.5 cm			26041	52081	31249	28645	23437	15624	16740	13392	10044
Up to 20 cm			28934	57868	34721	31824	26040	17360	18600	14880	11160
Up to 22.5 cm			32149	64298	38579	35364	28934	19289	20667	16534	12400
Up to 25 cm			3521	71442	42865	39293	32149	21433	22964	18371	13778
25 cm & above			39690	79380	47628	43659	35721	23814	25515	20412	15309
Up to 15 cm	Up to 2.5 cm	3 mtr & above	23437	46873	28124	25780	21093	14092	15066	12053	9040
Up to 17.5 cm			26041	52081	31219	28645	23437	15624	16740	13392	10044
Up to 20 cm			28934	7868	34721	31827	26040	17360	18600	14880	11160
Up to 22.5 cm			32149	64298	38579	35364	28934	19289	20667	6534	12400
Up to 25 cm			35721	71442	42865	39293	32149	21433	22964	18371	13778
25 cm & above			39690	79380	47628	43659	35721	23814	25515	20412	15309
Up to 15 cm	More than 2.5 cm	3 mtr & above	26041	52081	31249	28645	23437	15624	16740	13392	10044
Up to 17.5 cm			28934	57868	34721	31827	26040	17360	18600	14880	11160
Up to 20 cm			32149	64298	38579	35364	28934	19289	20667	16534	12400
Up to 22.5 cm			35721	71442	42865	39293	32149	21433	22964	18371	13778
Up to 25 cm			39690	79380	47628	43659	35721	23814	25515	20412	15309
25 cm & above			44100	88200	52920	48810	39690	26460	28350	22680	17061
IMPORTMENT NOTE:		Chandan, Khaira & Red Sandres will not be sold at this retail selling rate. Their sale will be decided by the Head Office.									

RETAIL SELLING RATE OF POLES (Rate in Rs. /Cum Excluding Taxes)

Girth Class	Length Class	Sal	Teak & Sisoo	Other Species
1	**2**	**3**	**4**	**5**
Up to 30 cm	Below 2.75 mtr	73	73	51
30 cm to under 40 cm		91	91	64
40 cm to under 45 cm		109	109	76
45 cm to under 50 cm		196	Not to be sold as "Pole"	137
50 cm to under 60 cm		216	Not to be sold as "Pole"	151
Up to 30 cm	2.75 to under 4 mtr	97	97	68
30 cm to under 40 cm		169	169	118
40 cm to under 45 cm		183	183	128
45 cm to under 50 cm		261	Not to be sold as "Pole"	183
50 cm to under 60 cm		288	Not to be sold as "Pole"	202
Up to 30 cm	4 mtr & up	182	182	127
30 cm to under 40 cm		222	222	155
40 cm to under 45 cm		261	261	183
45 cm to under 50 cm		340	Not to be sold as "Pole"	238
50 cm to under 60 cm		360	Not to be sold as "Pole"	252

IMPORTMENT NOTE:

(1) Teak and Sisoo of 45cm & above mid girth will be sold as timber.
(2) Excepting (1) as above, Retail rate of Teak, Sisoo and Sal poles will be equal for all other classifications.
(3) Poles of other species will be 30% less than the rate of Sal Poles.
(4) Chandan, Khair and Red sanders will not be sold at this retail selling rate. Their sale will be decided by the Head Office.

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APPENDIX-II (A) Total area diverted for Non-forestry activities under Forest Conservation Act, 1980(FRA)

Sl No.	Name of the District	Name of the Division	Name of the Govt. Managed Project & User Agency	Location	Forest area of diversion (in Ha.)	Name of the Forest Block	Purpose of Diversion	No. of trees felled	Stipulations	Date of Application	DFO's Approval Order No. & Date	Remarks
1		2	3	4	5	6	7	8	9	10	11	12
1	Nayagarh	Khordha	Chairman, PanchayatSamiti Ranpur Block	Ranpur	0.99	Maninag RF	Project upgradation of road from lower Maninag Temple to upper Maninag Temple in Ranpur Village	----	----	05.08.2010	5030 dt. 20.08.2010	
					0.95		Project upgradation of road from lower Maninag Temple to upper Maninag Temple in Arada Village	----	----	05.08.2010	5030 dt. 20.08.2010	
2	Khordha	Khordha	Executive Engineer, CESU, Balugaon Electrical Division, Suryanagar, Balugaon	Damiaberbera	0.825	Bhatapada DPF	Rural electrification work in the village of Damiaberbera&Niladriprasad	----	----	16.05.2012	3241 dt. 08.06.2012	
				Niladriprasad	0.923	Arang RF	Rural electrification in Jualiamba village in Niladriprasad GP	----	----	27.01.2012	1396 dt. 12.03.2012	
3	Khordha	Khordha	Executive Engineer (Ele), CESU, BED, Balugaon	Kusapalli	0.5	Bhatapada DPF	Proposal for seeking permission for Electrification work in Kusapalli village of DamiaBerbera GP under RGGVY scheme	----	----	20.09.2013	8840 dt. 21.10.2013	
4	Khordha	Khordha	Executive Engineer (Ele), CESU, BED, Balugaon	Silingpada	0.965	Nathapada DPF	Proposal for seeking permission for Electrification work in Silingipada village of Niladriprasad GP under RGGVY scheme	19	----	23.09.2013	8833 dt. 21.10.2013	

Sl No.	Name of the District	Name of the Division	Name of the Govt. Managed Project & User Agency	Location	Forest area of diversion (in Ha.)	Name of the Forest Block	Purpose of Diversion	No. of trees felled	Stipulations	Date of Application	DFO's Approval Order No. & Date	Remarks
1		2	3	4	5	6	7	8	9	10	11	12
5	Nayagarh	Khordha	Executive Engineer (El), CESU, BED, Suryanagar, Balugaon	Gachhapatra	0.923	Patia RF	Diversion of Forest land for electrification of the village Gachhapatra under BGJY Scheme	---	---	29.01.2013	1031 dt. 10.02.14	
6	Khordha	Khordha	Sarapancha, Pichukoli, Bolgarh Block	Tikatal	0.2499	Gramya Jungle	Diversion of forest land for construction of new connecting road of Tikatal-Kodubareni road	----	----	20.08.2011	6439 dt. 21.11.2011	
7	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Lakhamundali	0.975	Barhamal RF	Diversion of forest land for electrification in Lakhamundali village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1557 dt. 16.03.2016	
8	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Brahmankumei	0.975	Barhamal RF	Diversion of forest land for electrification in Brahmankumei village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1566 dt. 16.03.2016	
9	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Betuli	0.975	Barhamal RF	Diversion of forest land for electrification in Betuli village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1548 dt. 16.03.2016	
10	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Ranla	0.958	Barhamal RF	Diversion of forest land for electrification in Ranla village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1539 dt. 16.03.2016	
11	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Sirikuti	0.964	Barhamal RF	Diversion of forest land for electrification in Sirikuti village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1530 dt. 16.03.2016	
12	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Ukutukumei	0.978	Barhamal RF	Diversion of forest land for electrification in Ukutukumei village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1521 dt. 16.03.2016	

Sl No.	Name of the District	Name of the Division	Name of the Govt. Managed Project & User Agency	Location	Forest area of diversion (in Ha.)	Name of the Forest Block	Purpose of Diversion	No. of trees felled	Stipulations	Date of Application	DFO's Approval Order No. & Date	Remarks
1		2	3	4	5	6	7	8	9	10	11	12
13	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Waupada	0.982	Barhamal RF	Diversion of forest land for electrification in Waupada village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1512 dt. 16.03.2016	
14	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Jamuganda	0.95	Barhamal RF	Diversion of forest land for electrification in Jamuganda village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1503 dt. 16.03.2016	
15	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Chakundajhar	0.976	Barhamal RF	Diversion of forest land for electrification in Chakundajhar village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1494 dt. 16.03.2016	
16	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Tikiraipada	0.975	Barhamal RF	Diversion of forest land for electrification in Tikiraipada village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1485 dt. 16.03.2016	
17	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Sankhajodi	0.975	Barhamal RF	Diversion of forest land for electrification in Lakhamundali village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1575 dt. 16.03.2016	
					22.0089							

The Total Forest Land diverted for non-forestry purpose is about 22.0089 Ha.

APPENDIX-II (B)

Project wise detailed list of forest land diverted under Forest Conservation Act, 1980 during previous working plan.

Sl.	Forest Division	Project Name	FC Application No. / Year	Year of Stage-II Clearance	Total Project Area (Ha.)	Total Forest Area within Project Area (Ha.)	Reserve Forest Area (Ha.)	Revenue Forest Area (Ha.)	Availability of Documents / Maps at the Division Office (Y/N)	Remarks
1	2	3	4	5	6	7	8	9	10	11
1	Khordha Forest Division	Construction of New BG Railway Link from Khordha Road to Bolangir - Dy. Chief Engineer (Con), East Coast Railway, Khordha Road.	2003	5-ORCo48/2007-BHU dtd. 21.01.2008	9.095	9.095	-	9.095	Y	-
2		Laying of Paradip-New Sambalpur-Raipur-Ranchi Petroleum Product Pipeline in Khordha District - Dy. General Manager, Indian Oil Corporation. Ltd., Paradip-Raipur-Ranchi Pipeline Project, BBSR.	2008	F.No. 8-01/2013-FC dtd.04.09.2013	0.3714	0.3714	-	0.3714	Y	-
3		Construction of 4 laning road NH-203 from Bhubaneswar to Puri - Project Director, NHAI, BBSR.	2002	No.5-ORB 39/2011-BHU dtd.08.09.2011	0.113	0.113	-	0.113	N	-

Sl.	Forest Division	Project Name	FC Application No. / Year	Year of Stage-II Clearance	Total Project Area (Ha.)	Total Forest Area within Project Area (Ha.)	Reserve Forest Area (Ha.)	Revenue Forest Area (Ha.)	Availability of Documents / Maps at the Division Office (Y/N)	Remarks
1	2	3	4	5	6	7	8	9	10	11
4	Khordha Forest Division	Proposal for diversion of Forest land of 28.011 ha for construction of LILO of both circuit of 400 KV. Baripada-Mendhasal D/C Transmission line using Multi Circuit Tower at Pandiabilli by Power Grid Corporation of India Ltd under Khordha Division.	2013	No.5-ORC 238/2015-BHU dtd.13.05.2016	28.011	15.453	12.962	2.491	N	-
5		Diversion of proposal for Jagadipur-Haladia-Bokaro-Dhamara pipeline (JHBDPL), Odiha phase-I: Project of GAIL (India) Ltd. for diversion of 0.1005 Ha. land in Khordha Forest Division for laying underground Natural Gas pipeline along with Fibre Cable under Forest (Conservation) Act,1980.	2019	No.5-ORC434/2020-BHU, dated 03.11.2020	0.1005	0.1005	-	0.1005	Y	-

Area over which title rights have been issued under Forest Right Act-2006

Name of the District	Name of the CD Block	Name of the Village	No of claims settled				Kisam of forest land
			Individual		Community		
			No.	Area (in Acre)	No.	Area (in Acre	
Khordha	Banpur	Podakhai	10	16.3			Rev. forest
		Rampur	36	22.140			Rev. forest
		Baguda	55	132.09			Rev. forest
		Bankiapalli	11	7.82			Rev. forest
		Katwal	51	56.98			Rev. forest
		Gurupada	30	12.2			Rev. forest
		Nuagaon	30	52.37			Rev. forest
		Talabarei	5	1.07			Rev. forest
		Nakithana	25	11.64			Rev. forest
		Haradama	10	17.98			Rev. forest
		Balikania	23	49.08			Rev. forest
		Chandrama	5	8.97			Rev. forest
		Kalapata	7	4.82			Rev. forest
		Sinduria	2	3.48			Rev. forest
		Karanjapalli	2	2.04			Rev. forest
		Mahulia	27	51.81			Rajin RF
		Sibida	13	34.95			Rajin RF
		Total	342	485.74 Ac or 196.66 ha.			
Nayagarh	Ranpur	Brahmanakumei	12	31.26			Mal RF
		Jamuganda	18	17.09			Mal RF
		Akhupadar	1	0.1			Mal RF
		Nathapur	12	2.02			Rev. forest
		Ranigadia	10	4.76			Rev. forest
		Routrapur	23	14.4			Rev. forest
		Kadambajhola	34	11.07	1	250.00	Mal RF
		Brahmanakumei			1	250.00	Mal RF
		Dimiribadi					
		Total	110	80.7 or 32.41 ha.	2	500.00 Ac or 202.42 Ha.	
Cuttack	Banki	Gahirgadia	7	3.64			Rev. forest
		Karadapalli	5	1.06			Rev. forest
		Total	12	4.70 or 1.90 ha.			
Puri	-	-		-		-	-
		G. Total		464=571.14 or 230.97	2	500.00 Ac or 202.42 Ha.	

SETTLEMENT OF FOREST RIGHTS UNDER SCHEDULED TRIBES & OTHER TRADITIONAL FOREST DWELLERS (RECOGNITION OF FOREST RIGHTS) ACT, 2006

Name of the District	No. of Forest Rights Committees constituted	No. of claim petition filed in the Forests Rights Committee		No. of claim petition forwarded by Gram Sabha to SDLC		No. of claim petition forwarded by SDLC to DLC		No of claim petition approved by DLC & the total area involved in Ha. (in principle approval)	No of community claim cases approved by DLC & the total area involved in Ha.	No. of titles issued for individuals and the area involved (in Ha.)	No. of titles issued for communities and the area involved (in Ha.)	Total no. of titles issued & the area (in Ha.)
		Individual	Community	Individual	Community	Individual	Community					
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
Khordha	596	596	-	378	-	356	-	342 = 196.66	-	342 = 196.66	-	342 = 196.66
Nayagarh	196	477	40	147	2	110	2	110 = 32.41	2= 202.42	110 = 32.41	2= 202.42	112 = 234.83
Cuttack	69	405	-	405	-	12	-	12 = 1.90	-	12 = 1.90	-	12 = 1.90
Puri	-	-	-	-	-	-	-	-	-	-	-	-
Total	**861**	**1478**	**40**	**930**	**2**	**478**	**2**	**464 = 230.97**	**2= 202.42**	**464 = 230.97**	**2= 202.42**	**466 = 433.39**

DIVERSION PROPOSAL FOR THE YEAR 2003-04 to 2020-21

Details	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
No. of proposals received	2	NIL	1	2	0	NIL	NIL	3	0	1	3	0	0	0	0	1	0	0
No. of Proposal recommended	2	NIL	1	2	0	NIL	NIL	3	0	1	3	0	0	1	0	0	0	1
No. of proposals approved by GOI stage 1	2	NIL	1	1	1	NIL	NIL	0	1	1	0	0	0	1	0	0	0	1
No. of proposals pending for stage- 1	0	NIL	0	1	0	NIL	NIL	3	2	2	5	5	5	0	0	0	0	0
No. of proposals recommended for stage 2 approval	3	NIL	1	2	0	NIL	NIL	3	0	1	3	0	0	0	0	0	0	1
No. of proposals approved with stage 2 approval	3	NIL	1	0	1	NIL	NIL	0	0	0	1	0	2	0	0	0	0	0
No. of proposals pending for stage 2 approval	0	NIL	0	2	1	NIL	NIL	3	3	4	3	3	1	0	0	0	0	1
No. of proposal rejected	0	NIL	0	0	0	NIL	NIL	0	0	0	0	0	0	0	0	0	0	0

STATUS OF COMPENSATORY AFFORESTATION IN KHORDHA FOREST DIVISION

Sl No.	Name of the Division	Name of the Project & User Agency	Area	Nature of Proposal	Amount realized for Compensatory Afforestation in Rs	Area stipulated for Comp. Afforestation (in Ha.)	Allotted Area details
1	2	3	4	5	6	7	8
STAGE-II							
1	Khordha	IDCO, Bhubaneswar	0.5125	Construction of Water supply reservoir at Barunei by IDCO, BBSR.	42000	2.15	Panchagarh RF
2	-do-	Postal & Telegraph Department.	3.43	Construction of Micro Wave Tower on Sahada Hill.	2294	Vacant land around Tower	Barunei RF
3	-do-	Executive Engineer, GRIDCO, Bhanjanagar	0.875	Construction of 220 KV line from Narendrapur to Mendhasal.	Rs 40300 received by the DFO Ghumsar South Divn for CA for 3.15 ha. of non- forestland		in village Janiguda
4	-do-	Project Director, NHAI, Bhubaneswar	10.104	Construction of 4/6 laning road NH-5 from Khordha to Bhubaneswar- OR-I Package.	355000	29 Ha	Jayamangal RF
5	-do-	Project Director, NHAI, Berhampur	11.0469	Construction of 4/6 laning road NH-5 from Khordha to Sunakhala - OR-VI Package.	251160 CA	23 Ha. for CA	Barunei RF
					468510 PCA	23 Ha. for PCA	Barunei RF
6	-do-	Project Director, NHAI, Berhampur	2.758	Construction of 4 laning road NH-5 from Ganjam to Sunakhala -OR-VII package.	the user agency has deposited Rs 656000 in DFO Ghumsar (S), Divn. for CA	32.188	Bhaleri PRF
7	-do-	Project Director, NHAI, Berhampur	7.239	Construction of Tangi-Chandpur Bye Pass part of OR-VI package.	267300	15 Ha.	Maninag RF
8	-do-	Dy. Chief Engineer (Con), East Coast Railway, Khordha Road	9.095	Construction of New BG Railway Link from Khordha Road to Bolangir.	454800	19 Ha.	Nalsingh DPF
9	-do-	Dy. General Manager, Indian Oil Corporation. Ltd., Paradip-Raipur-Ranchi Pipeline Project, BBSR	0.3714	Laying of Paradip-New Sambalpur-Raipur-Ranchi Petroleum Product Pipeline in Khordha District.	142 Ha. in Dhenkanal Rs 3468000 has been deposited with DFO Dhenkanal Divn		Bbuban RF
10	-do-	Project Director, NHAI, BBSR	0.113	Construction of 4 laning road NH-203 from Bhubaneswar to Puri.	7761000 towards plantation	21500 plants	Avenue Plantation & Feeder roads
11	-do-	Executive Engineer, MI Division, Khordha	4.69	Construction of Sulia MIP in Banapur Tahasil.	213000	4.69 Ha. of non-forest land	Jibandeipur mouza
12	-do-	Collector, Khordha	74.12	Conversion of Forest Village into Revenue Village for regularization of eligible category of Pre-80 Encroachments.	1736600	93.14 Ha. non-forest land	Nilapalli mouza
13	-do-	Power Grid Corporation of India	23.908	Proposal for diversion of Forest land of 28.011 ha for construction of LILO of both circuit of 400 KV. Baripada-Mendhasal D/C Transmission line using Multi Circuit Tower at Pandiabilli By Power Grid Corporation of India Ltd.	1380000	47.816 Ha.	Barunei RF

DIVERSION OF FOREST LAND UP TO 1 (ONE) HA. INVOLVING FELLING OF UP TO 75 TREES PER HA. FOR UNDERTAKING GOVT. MANAGED PROJECTS ENVISAGED U/S3(2) UNDER FOREST RIGHTS ACT, 2006

Sl No.	Name of the District	Name of the Division	Name of the Govt. Managed Project & User Agency	Location	Forest area of diversion (in Ha.)	Name of the Forest Block	Purpose of Diversion	No. of trees felled	Stipulations	Date of Application	DFO's Approval Order No. & Date
1		2	3	4	5	6	7	8	9	10	11
1	Nayagarh	Khordha	Chairman, Panchayat Samiti Ranpur Block	Ranpur	0.99	Maninag RF	Project upgradation of road from lower Maninag Temple to upper Maninag Temple in Ranpur Village	----	----	05.08.2010	5030 dt. 20.08.2010
					0.95		Project upgradation of road from lower Maninag Temple to upper Maninag Temple in Arada Village	----	----	05.08.2010	5030 dt. 20.08.2010
2	Khordha	Khordha	Executive Engineer, CESU, Balugaon Electrical Division, Suryanagar, Balugaon	Damiaberbera	0.825	Bhatapada DPF	Rural electrification work in the village of Damiaberbera & Niladriprasad	----	----	16.05.2012	3241 dt. 08.06.2012
				Niladriprasad	0.923	Arang RF	Rural electrification in Jualiamba village in Niladriprasad GP	----	----	27.01.2012	1396 dt. 12.03.2012
3	Khordha	Khordha	Executive Engineer (Ele), CESU, BED, Balugaon	Kusapalli	0.5	Bhatapada DPF	Proposal for seeking permission for Electrification work in Kusapalli village of Damia Berbera GP under RGGVY scheme	----	----	20.09.2013	8840 dt. 21.10.2013
4	Khordha	Khordha	Executive Engineer (Ele), CESU, BED, Balugaon	Silingpada	0.965	Nathapada DPF	Proposal for seeking permission for Electrification work in Silingipada village of Niladriprasad GP under RGGVY scheme	19	----	23.09.2013	8833 dt. 21.10.2013
5	Nayagarh	Khordha	Executive Engineer (El), CESU, BED, Suryanagar, Balugaon	Gachhapatra	0.923	Patia RF	Diversion of Forest land for electrification of the village Gachhapatra under BGJY Scheme	---	---	29.01.2013	1031 dt. 10.02.14
6	Khordha	Khordha	Sarapancha, Pichukoli, Bolgarh Block	Tikatal	0.2499	Gramya Jungle	Diversion of forest land for construction of new connecting road of Tikatal-Kodubareni road	----	----	20.08.2011	6439 dt. 21.11.2011
7	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Lakhamundali	0.975	Barhamal RF	Diversion of forest land for electrification in Lakhamundali village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1557 dt. 16.03.2016

8	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Brahmankumei	0.975	Barhamal RF	Diversion of forest land for electrification in Brahmankumei village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1566 dt. 16.03.2016
9	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Betuli	0.975	Barhamal RF	Diversion of forest land for electrification in Betuli village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1548 dt. 16.03.2016
10	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Ranla	0.958	Barhamal RF	Diversion of forest land for electrification in Ranla village under ST & traditional Forest dwellers.	----	----	22.12.2015	1539 dt. 16.03.2016
11	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Sirikuti	0.964	Barhamal RF	Diversion of forest land for electrification in Sirikuti village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1530 dt. 16.03.2016
12	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Ukutukumei	0.978	Barhamal RF	Diversion of forest land for electrification in Ukutukumei village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1521 dt. 16.03.2016
13	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Waupada	0.982	Barhamal RF	Diversion of forest land for electrification in Waupada village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1512 dt. 16.03.2016
14	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Jamuganda	0.95	Barhamal RF	Diversion of forest land for electrification in Jamuganda village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1503 dt. 16.03.2016
15	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Chakundajhar	0.976	Barhamal RF	Diversion of forest land for electrification in Chakundajhar village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1494 dt. 16.03.2016
16	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Tikiraipada	0.975	Barhamal RF	Diversion of forest land for electrification in Tikiraipada village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1485 dt. 16.03.2016
17	Nayagarh	Khordha	Executive Engineer (EI), BED, Balugaon, CESU	Sankhajodi	0.975	Barhamal RF	Diversion of forest land for electrification in Lakhamundali village under ST & traditional Forest Dwellers.	----	----	22.12.2015	1575 dt. 16.03.2016

DIVERSION OF FOREST LAND UNDER PMGSY SCHEME IN KHORDHA FOREST DIVISION

Sl No.	Name of the Project & User Agency	Nature of Proposal	Area of diversion (in Ha.)	Details of Forest Aera involved	Proposal Approved by Govt. of Odisha	Amount realized for Compensatory Afforestation in Rs	Area stiputaled for Comp. Afforestation (in Ha.)	Alloted Aera details	Amount realized for NPV	State Sl No.of Nodal Officer, O/O the PCCF (o)
1	2	3	4	5	6	7	8	9	10	11
	Under PMGSY Scheme									
1	Executive Engineer, Rural Works Division, BBSR	Proposal for seeeking permission for improvement to Raipada to Aranga road under PMGSY Package No. OR-18-104 for the year 2012-13	0.882	NIL	Proposal approved vide Letter No. 8000/ F & E Deptt. Govt. of Odisha dt. 01.05.2014	NIL	NIL	NIL	NIL	632/2013 23.09.13
	-do-	Niladriprasad to Talabarei road under PMGSY Package No. OR-18-104 for the year 2012-13	0.9162	NIL	Proposal approved vide Letter No. 8000/ F & E Deptt. Govt. of Odisha dt. 01.05.2014	NIL	NIL	NIL	NIL	632/2013 23.09.13
2	Executive Engineer, Rural Works Division, BBSR	Proposal for seeking permission for improvement from MDR 76 to Jamuganda under PMGSY package.	23	Mal RF	Proposal approved vide Letter No. 7665/ F & E Deptt. Govt. of Odisha dt. 28.04.2014	NIL	NIL	NIL	NIL	654/13 dt. 28.12.13
3	Executive Engineer, Rural Works Division, BBSR	Niladriprasad to Sanasireipur	5.472	NIL	Proposal approved vide Letter No. 6179/ F & E Deptt. Govt. of Odisha dt. 31.03.2010	NIL	NIL	NIL	NIL	Not found

ABSTRACT			
Sl No.	**Nature**	**No. of projects**	**Area**
1	Approved by Govt. of India with Stage- II	10	45.0318
2	Approved by Govt. of India with Stage- I	3	106.821
3	Approved by Govt. of Odisha under PMGSY Scheme	3	30.2702
4	Approved by the Dy. Conservator of Forests under FRA, 2006	17	17.0089

APPENDIX- III

DETAILS OF RANGE, SECTION, BEAT, FOREST AREA						
Sl No.	**Range**	**Section**	**Beat**	**Forest Block**	**Compartment**	**Area(in Ha)**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Khordha	Khordha	Garh-khordha	Barunei RF		477.6
2				Sialiapatna VF		6
					Total	**483.6**
3			Jariput	Jariput DPF		464.19
4				Chhotaraypur VF		2.13
5				Deulitangi VF		6
6				Kadalibadi VF		5.51
7				Madhapur VF		1.59
8				Palla VF		10
					Total	**1456.62**
9			Khordha	Aranga VF		13
10				Niala VF		16
					Total:-	**29**
11			Tartua	Tartua DPF		362.4
12				Paikatigiria VF		57.66
13				Podaput VF		15.75
14				Tartua VF		30
					Total	**465.81**
15		Begunia	Baghamari	Podapatna VF		**1.06**
16			Begunia	Atri VF		15
17				Badaberena VF		19.81
18				Balibereni VF		6
19				Basudevpur VF		14
20				Bhuasunipatna VF		3
21				Botalama VF		9
22				Garh-gurum VF		8
23				Karadagadia VF		24.77
24				Kokasingh VF		2.88
25				Kotalanga VF		3
26				Kusupalla VF		25
27				Masania VF		16.8
28				Routpada VF		34.02
29				Suanla VF		14.06
					Total	**196.4**
30		Begunia	Gediapalli	Gobindapurpatna VF		4.87

31			Gediapalli	Kadhamala VF		8
					Total	**12.87**
32				Jayamangal RF		142.8
33				Kapileswarpur DPF		75.6
34				Keranga DPF		121.6
35				Chandapur VF		3
36			Goudaput	Goudaput VF		13.70.
37				Jayamangal VF		8
38				Kapileswarpur VF		6.59
39		Begunia		Olasingh VF		10
40				Pubusahi VF		2
					Total	**369.59**
41				Pangarasingh RF		261.6
42			Pangarasingh	Godipokhari VF		20
43				Lekhanpur VF		3.25
					Total	**284.85**
44			Simor	Chotipalanga VF		10
45			Bolagarh	Duburi DPF		400.4
46			Kusupalla	Panchagarh RF		732.8
47				Mandalsingh DPF		317.6
		Bolagrh			**Total**	**1050.4**
48			Manibandha	Manibandha RF		306
49	Khordha		Patabandha	Nagapalli RF		545.2
50				Brahmanidei DPF		730.8
					Total	**1276**
51				Alasua VF		20
52			Baideswar	Baideswar VF		25
53				Kendupalli		4.5
54				Malisahi VF		11
					Total	**60.5**
55				Bania VF		5
56				Baraput VF		10
57				Kantakai VF		5
58		Baideswar	Gahiragadia	Kaipalla VF		5
59				Kuruma VF		15
60				Puinchia VF		5
61				Puinchia DPF		
					Total	**45**
62			Kalapathar	Nuagaon VF		7
63			Kumusar	Narganga DPF		
64		Banki		Berhampura VF		3
65			Mahaparbat	Chiramaru VF		4
66				Gopalpur VF		13

67	Khordha	Banki	Mahaparbat	Gopalapur sabar sahi VF		10
68				Hatimara VF		4
69				Naraganga VF		5
70				Palasuni VF		6
					Total	**45**
71	Balugaon	Sansereipur	Beruanbadi West	Aranga RF		422.08
72			Beruanbadi East	Aranga RF		590.85
73			Nilapalli	Bankad RF		568.98
74		Dhuanali	Dhuanali South	Aranga RF		1052.26
75			Dhuanali Centre	Aranga RF		837.73
76			Dhuanali North	Tamana RF		608.66
77			Niladriprasad East	Tamana RF		1046.94
78			Niladriprasad West	Bankad RF		677.82
79			Silingipada East	Nathapur DPF		549.2
80			Silingipada West	Tamana RF		1276.09
81		Berbera	Baguda South	Rajin RF		591.61
82			Baguda North	Rajin RF		526.91
83			Berbera North	Rajin RF		591.26
84			Berbera South	Rajin RF & Katwal RF		1520.57
85			Bhatapada	Bhatapada DPF & Rajin RF		670.07
86			Bhatapada	Chulijhinka DPF		536.4
87			Khariapalli	Katwal RF		542.69
88			Jiripada	Jiripada DPF		68.4
89		Mahulia	Kriamba	Rajin RF		891.13
90			Mahulia East	Rajin RF		698.1
91			Mahulia West	Rajin RF		503.89
92		Balugaon	Ankula	Samanatasingharpur VF		2
93			Balugaon	Bania sahi VF		2.7
94				Dasarathipur VF		7.98
					Total	**10.68**
95			Chhatragarh	Boria sahi VF		11
96				Ostapalli VF		2
97				Bhaleri DPF		807.6
					Total	**820.6**
98			Pratap North	Champagarh DPF		307.2
99				Jharan DPF		1925.2
100				Champadeipur VF		5
					Total	**2237.4**

101	Balugaon	Padmapur	Padmapur South	Chakadapathar DPF		994
102				Sandhamal DPF		1511.2
103				Solari DPF		1171.2
104				Tarasingh VF		5.77
105				Kulei VF		14.25
					Total	**3696.42**
106	Ranpur	Gopalpur	Champagarh	Champagarh RF		**307.2**
107			Gopalpur	Khandisi VF		2
108				Nagajhar VF		9
				Total		**11**
109			Nakithana	Dhani N RF		1092.22
110				Nuapada B RF		270.4
					Total	**1362.62**
111			Raipada South	Mal RF		342.78
112				Ektal VF		22
113				Kerendatangi VF		1.32
					Total	**366.1**
114		Karadapalla	Bhetabar	Mal RF		390.94
115			Chakundajhar	Mal RF		669.77
116			Karadapalla	Mal RF		782.03
117			Nuapalli	Mal RF		248.22
118		Betuli	Betuli North	Mal RF		322.25
119			Betuli South	Mal RF		459.85
120			Raipada North	Mal RF		586.41
121		Sankhajodi	Sankhajodi North	Mal RF		1106.25
122			Sankhajodi South	Mal RF		352.09
123			Sankhajodi Central	Mal RF		599.43
124			Sirikuti	Mal RF		1552.42
125			Sakatasal	Mal RF		911.18
126		Ranpur	Bherupada	Maninag RF		587.62
127			Chhatipur	Maninag RF		747.07
128				Lodhachua VF		5
129				Bagala VF		8
					Total	**760.07**
130		Ranpur	Kotagarh	Sulia B RF (South)		700
131				Narasinghpur VF		20
					Total	**720**
132			Ranpur	Hansara VF		7.35
133				Maninag RF		596.11
					Total	**603.46**
134			Surukabadi	Satavaya RF		372
135				Sulia B North		678
					Total	**1050**

136	Delanga	Delanga	Kumuka	Beguniapada PRF		32
137				Kumuka PRF		214
					Total	**246**
138			Rengal	Jamunajharapada PRF		72
139				Rengal PRF		112
					Total	**184**
140		Kanas		-		
141	Balipatna	Balipatna	Bhanra	Bhanra PRF		97.28
142		Pipili	Pipili	-		
143	Tangi	Patia	Barapalli	Dhani S RF		1280.12
144				Balarampur VF		4
					Total	**1284.12**
145			Gachhapatra	Patia RF		901.67
146			Patia N	Patia RF		696.51
147				Kadambajhar VF		5
					Total	**701.51**
148			Patia S	Patia RF		756.74
149			Randa N	Patia RF		570.6
150			Randa S	Patia RF		339.48
151		Tangi	Badapari	Badapari DPF		254
152				Balarampur VF		4
153				Tarapi VF		15.05
154				Gainda VF		8
					Total	**281.05**
155			Dikhitpada	Kunjuri DPF		449.2
156				Kandagadia DPF		121.4
157				Kuhudi RF		633.6
					Total	**1204.2**
158			Tangi	Tangi DPF		179.2
159				Mangalajodi VF		22.3
					Total	**201.5**
160		Nachuni	Dikhitpada	Tarapi VF		10
161				Gainda VF		4
					Total	**14**
162			Haripur	Kaithapalla DPF		**272.8**
163			Nachuni	Sulia RF		800
164				Chakadapathar DPF		994
165				Kanheipur VF		19.71.
					Total	**1794**
166			Salapdiha	Kadambajhar DPF		474.8
167				Sulia RF		790
					Total	**1264.8**

168	Tangi	Bhusandapur	Bhusandpur	Bhusandpur DPF		778.8
169			Nalsingh	Nalsingh DPF		554.8
170				Nalsingh VF		5.5
171				Malipada VF		10
172				Bagheiput DPF		84.4
					Total	**654.7**
173			Rameswar	Rameswar DPF		481.2
174				Balarampur VF		4
					Total	**485.2**
175			Siko	Jalvar DPF		399.2
176				Narogoda DPF		1020
					Total	**1419.2**

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APPENDIX- IV

LIST OF BUILDINGS AND REST HOUSES			
Sl No.	**Name of the Building**	**Year of Construction**	**Remark**
1	Divisional Forest Officer's residential bungalow at Khurda	1873-74	
		1921-22	
		1929-30	
2	Orderly Guard's hut at Khurda	Not known	
3	Divisional Forest Officer's Office at Khurda	1896-1928	
4	Office store godown & Choukidar's shed at Khurda	1928-29	
5	Head Clerk's quarters at Khurda	1922-23	
		1929-30	
6	Junior Clerk's quarters at Khurda	1913	
7	Junior Clerk's quarters at Khurda	1937-38	
8	Sixth Clerk's quarters at Khurda	1953-54	
9	Seven Clerk's quarters at Khurda	1953-54	
10	Elephant's pilkhana at Khurda	1924-25	
11	Mahunt's shed at Khurda	1924-25	
12	Range Officer's quarters and office at Khurda	1908-16	
		1928-29	
		1954-55	
13	Range Officer's quarters and Office at Balugaon	1926-27	
14	Forester's quarters at Bolagarh	1921-22	
15	Forester's quarters at Tangi	1925-26	
16	Forester's quarters at Balugaon	1928-29	
17	Forester's quarters at Berbera	1925-26	
18	Forester's quarters at Dhuanali	1928-29	
19	Forester's quarters at Padmapur	1913-14	
20	Double Forest Guard's hut a Khurda	1927-28	
21	Double Forest Guard's hut a Padmapur	1930-31	
22	Double Forest Guard's shed at Khurda	1947-48	
23	Combined Range inspection shed and Forest Guard's hut at Gourput	Not known	
24	Double Forest Guard cum-Range Inspection shed at Pangarsingh	Not known	
25	Double Forest Guard cum-Range Inspection shed at Manibandh	Not known	
26	Double Forest Guard cum-Range Inspection shed at Patabandh	1929-30	

27	Double Forest Guard cum-Range Inspection shed at Balugaon	1928-29	
28	Double Forest Guard cum-Range Inspection shed at Jankia	Not known	
29	Double Forest Guard cum-Range Inspection shed at Sikoo	1916-17	
30	Double Forest Guard-cum-Range Inspection shed at Sunakhala	1927-28	
31	Double Forest Guard-cum-Range Inspection shed at Pratap	1926-27	
32	Double Forest Guard-cum-Range Inspection shed at Sansiripur	1938-39	
33	Forest Guard'quarter, Khurda	1921-22	
34	Forest Guard'quarter, Gothagopalia	1930-31	
35	Forest Guard'quarter, Tangi	1925-26	
36	Forest Guard'quarter, Dikhitpada	1926-27	
37	Forest Guard'quarter, Solopadihi	19415-16	
38	Forest Guard'quarter, Barunei	Not known	
39	Forest Guard'quarter, Barunei	1960-61	
40	Forest Guard'quarter, Deuliapatna	1936-37	
41	Forest Guard'quarter, Balugaon	1916	
42	Forest Guard'quarter, Pratap	Not known	
43	Forest Guard'quarter, Berbara	1911-12	
44	Forest Guard'quarter, Berbara	Not Known	
45	Forest Guard'quarter, Berbara	Not Known	
46	Forest Guard'quarter, Dhuanali	1913-14	
47	Forest Guard'quarter, Mahulia	Not Known	
48	Forest Guard'quarter, Niladriprasad	Not Known	
49	Forest Guard'quarter, Silingpada	1914-15	
50	Forest Guard'quarter, Bhatapada	1956	
51	Forest Guard'quarter, Bhatapada	1955-56	
52	Forest Guard'quarter, Berbara	1920-21	
53	Range Office & Quarters at Ranapur	1951-52	
54	Forester's quarters at Patia	1951-52	
55	Forester's quarters at Sankhajodi	1951-52	
56	Forest Guard's shed, Bajrakot	1952-53	
57	Forester's quarters at Ranapur	1953-54	
58	Forest Guard's shed at Gachhapatra	1955-56	
59	Forest Guard's shed at Karadapalla	Not known	
60	Forest Guard's shed at Sankhajodi	Not known	
61	Forest Guard's shed at Banikilo	Not known	
62	Forest Guard's shed at Ranapur	Not known	

63	Forest Guard's shed at Verupada	Not known	
64	Forest Guard's shed at Nakithana	Not known	
65	Forest Guard's shed at Champagarh	Not known	
66	Forest Guard's shed at Nuapalli	Not known	
67	Forest Guard's shed at Surukabadi	Not known	
68	Forest Guard's shed at Bhusandpur	1959-60	
69	Forest Guard-cum-RI shed, Golara	1959-60	
70	Forester's quarters, Delanga	1961-62	
71	Forest Guard's shed, Ayatpur	1959-60	
72	Forester's quarters, Khurda	1959-60	
73	Forest Guard's shed, Ghoradia	1959-60	
74	Forester's quarters, Berbera	1961-62	
75	L.D.Clerk's Quarters, Khurda	1959-60	
76	Forest Guard's shed, Sunakhala	1959-60	
77	Forest Guard's shed, Berbera	1961-62	
78	Forest Guard's shed, Chhatragarh	1961-62	
79	Forest Guard's shed, Khurda	1961-62	
80	L.D.Clerk's Quarters, Khurda	1962-63	
81	L.D.Clerk's Quarters, Khurda	1962-63	
82	Forester's quarters, Khurda	1962-63	
83	Forest Guard's shed, Ankula chhaka	1962-63	
84	Forester's quarters, Balugaon	1962-63	
85	Forest Student Barrack, Khurda	1933-34	
86	Forest Rest House at Barbera	1912-13	
87	Forest Rest House at Dhuanali	1914-15	
88	Forest Rest House at Rajini	1907-08	
89	Range Officer rest hut, Solapadihi	1919	
90	Range Office rest hut, Berbara	1920-21	
91	Range Officer's rest shed, Berbara	1959-60	
92	Range Officer's rest hut, Dhuanali	1929-31	
93	Range Officer's rest hut, Tangi	1934-35	
94	Range Officer's rest shed, Rajini	1936-37	
95	Range Officer's rest shed, Padmapur	1933-34	
96	Forest subordinate rest shed, Balugaon	1914-15	
97	R.I. shed at Patia	1957-58	
98	Rest shed at Sankhajodi	1959-60	

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APPENDIX-V LIST OF DIVISIONAL FOREST OFFICERS WHO HELD CHARGE OF ERSTWHILE PURI DIVISION AND KHORDHA FOREST DIVISION

Sl No.	Name of the Officers	Designation	Period	
			From	To
1	2	3	4	5
1	Mr. E.E. Slane	Sub-Assistant Conservator of Forests	Feb. 1890	14-05-1891
2	Mr. G.A. Richardson	Dy. Conservator of Forests	18-5-1891	04-09-1891
3	Babu.S. Chakrabutty	Extra Asst. Conservator of Forests	05-09-1891	25-02-1895
4	Mr. E.E. Slane	Extra Asst. Conservator of Forests	26-02-1895	20-08-1895
5	Mr. C.C Hatt	Dy. Conservator of Forests	21-02-1895	11-06-1897
6	Mr. E.E. Slane	Extra Asst. Conservator of Forests	12-06-1897	24-07-1897
7	Mr. C.C Hatt	Dy. Conservator of Forests	25-07-1897	01-05-1899
8	Mr. P.J. Draper	Forest Ranger of Forests	02-05-1899	17-06-1899
9	Mr. C.C Hatt	Dy. Conservator of Forests	18-06-1899	26-02-1900
10	Mr. P.J. Draper	Extra Asst. Conservator of Forests	27-02-1900	11-04-1904
11	Mr. T.H. Montoath	Dy. Conservator of Forests	12-04-1904	24-03-1906
12	Mr. R.G.A Hannah	Extra Asst. Conservator of Forests	25-03-1906	03-09-1912
13	Mr. G.M. Cooper	Asst. Conservator of Forests	04-09-1912	04-12-1912
14	Mr. R.G.A Hannah	Extra Deputy Conservator of Forests	05-12-1912	24-03-1914
15	Mr. J.P. Haslett	Extra Deputy Conservator of Forests	25-03-1914	27-07-1914
16	Mr. G.M. Cooper	Dy. Conservator of Forests	28-07-1914	27-10-1914
17	Mr. J.P. Haslett	Extra Deputy Conservator of Forests	28-10-1914	05-04-1919
18	Mr. R.G.A Hannah	Dy. Conservator of Forests	06-04-1919	11-03-1920
19	Mr. O.A.Dosworth	Extra Asst. Conservator of Forests	12-03-1920	31-10-1924
20	Mr. E.R. Comber	Dy. Conservator of Forests	01-11-1924	31-08-1926
21	Mr. B.P. Basu	Dy. Conservator of Forests	01-09-1926	02-01-1928
22	Mr. R.L. Derry	Dy. Conservator of Forests	03-01-1928	12-01-1930
23	Mr. P.W. Augier	Extra Asst. Conservator of Forests	13-01-1930	01-06-1932
24	Mr. C.M. Choudhury	Deputy Conservator of Forests	02-06-1932	23-06-1932
25	Mr. M.L. Sengupta	Deputy Conservator of Forests	24-06-1932	01-10-1932
26	Mr. O.A. Dodsworth	Deputy Conservator of Forests	02-10-1932	30-06-1937
27	Mr. Khan Bahadur Saidudin Ahmad	Extra Asst. Conservator of Forests	01-07-1937	30-09-1937
28	Mr. O.A. Dodsworth	Deputy Conservator of Forests	01-11-1937	30-09-1938
29	Mr. R. Sahay	Asst. Conservator of Forests	01-10-1938	11-01-1939
30	Mr. F.C. Osmaston	Deputy Conservator of Forests	12-01-1939	03-03-1940

31	Rai Sahib A.L. Banerjee	Extra Asst. Conservator of Forests	04-03-1940	31-08-1940
32	Mr. F.C. Osmaston	Deputy Conservator of Forests	01-09-1940	05-10-1940
33	Rai Sahib A.L. Banerjee	Extra Asst. Conservator of Forests	06-10-1940	10-12-1940
34	Mr. A.R. Sharma	Deputy Conservator of Forests	11-12-1940	14-02-1944
35	Shri D.N. Choudhury	Asst. Conservator of Forests	15-02-1944	14-06-1944
36	Mr. A.R. Sharma	Deputy Conservator of Forests	15-06-1944	31-12-1946
37	Shri G.C. Dash	Asst. Conservator of Forests	01-01-1947	01-10-1947
38	Rai Sahib A.L. Banerjee	Extra Asst. Conservator of Forests	02-10-1947	19-12-1948
39	Shri G.S. Deb	Asst. Conservator of Forests	20-12-1948	22-08-1951
40	Shri Md. Ahemadullah	Asst. Conservator of Forests	23-08-1951	07-09-1954
41	Shri R.C Patnaik	Asst. Conservator of Forests	08-09-1954	01-10-1954
42	Shri B.L. Das	Asst. Conservator of Forests	02-10-1954	17-07-1956
43	Shri P. Mohapatra	Asst. Conservator of Forests	18-07-1956	13-02-1961
44	Shri B. Das	Dy. Conservator of Forests	14-02-1961	19-12-1962
45	Shri H.K. Mishra	Asst. Conservator of Forests	20-12-1962	30-12-1962
46	Shri A.P. Mohanty	Dy. Conservator of Forests	31-12-1962	01-09-1965
47	Shri N.R. Bohidar	Dy. Conservator of Forests	02-09-1965	27-11-1965
48	Shri A.P. Mohanty	Dy. Conservator of Forests	28-11-1965	15-07-1966
49	Shri S.S. Das, IFS	Dy. Conservator of Forests	16-07-1966	12-07-1967
50	Shri Ch. G. Mishra, IFS	Asst. Conservator of Forests	13-07-1967	24-07-1967
51	Shri G.M. Das, IFS	Dy. Conservator of Forests	25-07-1967	04-01-1969
52	Shri J. Sahoo	Asst. Conservator of Forests	05-01-1969	19-01-1969
53	Shri G.M. Das, IFS	Dy. Conservator of Forests	20-01-1969	12-10-1969
54	Shri N.R. Sanyal, IFS	Dy. Conservator of Forests	13-10-1969	01-05-1970
55	Shri P.C. Mohapatra, IFS	Dy. Conservator of Forests	02-05-1970	24-05-1970
56	Shri S.R. Mohapatra, IFS	Dy. Conservator of Forests	25-05-1970	03-07-1973
57	Shri G.S. Padhi, IFS	Dy. Conservator of Forests	04-07-1973	08-08-1975
58	Shri T. Ratha, IFS	Dy. Conservator of Forests	09-08-1975	21-10-1975
59	Shri G.S. Padhy, IFS	Dy. Conservator of Forests	22-10-1975	09-12-1975
60	Shri H.K. Mishra, IFS	Dy. Conservator of Forests	10-12-1975	09-07-1978
61	Shri C.S. Dani, IFS	Dy. Conservator of Forests	10-07-1978	15-07-1978
62	Shri Ch. G. Mishra, IFS	Dy. Conservator of Forests	16-07-1978	26-07-1978
63	Shri C.S. Dani, IFS	Dy. Conservator of Forests	27-07-1978	09-10-1980
64	Shri B. Mishra, IFS	Dy. Conservator of Forests	10-10-1980	21-12-1981
65	Shri M.M. Mishra, IFS	Dy. Conservator of Forests	22-12-1981	24-01-1982
66	Shri B. Mishra, IFS	Dy. Conservator of Forests	25-01-1982	20-08-1983
67	Shri N. Biswal, IFS	Dy. Conservator of Forests	21-08-1983	05-09-1983
68	Shri B. Mishra, IFS	Dy. Conservator of Forests	06-09-1983	10-08-1984
69	Shri S.C. Sahu	Asst. Conservator of Forests	11-08-1984	19-08-1984

70	Shri B.B. Rautray, IFS	Dy. Conservator of Forests	20-08-1984	07-05-1990
71	Shri H.S Kumar, AIFC	Dy. Conservator of Forests	08-05-1990	17-06-1990
72	Shri S.B Samanta, IFS	Dy. Conservator of Forests	18-06-1990	16-08-1991
73	Shri M. Sataynarayan, IFS	Dy. Conservator of Forests	17-08-1991	01-10-1993
74	Shri G.B. Das, OFS-II	Asst. Conservator of Forests	02-10-1993	09-11-1993
75	Shri Ajit Ku. Pattnaik, IFS	Dy. Conservator of Forests	10-11-1993	18-06-1995
76	Shri P.K. Sarangi, OFS-I	Dy. Conservator of Forests	19-06-1995	11-09-1995
77	Shri Ajit Ku. Pattnaik, IFS	Dy. Conservator of Forests	12-09-1995	06-11-1997
78	Shri S.N. Mohapatra, OFS-II	Asst. Conservator of Forests	07-11-1997	18-11-1997
79	Shri S.C. Swain, IFS	Dy. Conservator of Forests	19-11-1997	03-12-1999
80	Shri S.K. Chadha, IFS	Dy. Conservator of Forests	03-12-1999	30-09-2000
81	Shri L.R. Otta, IFS	Dy. Conservator of Forests	30-09-2000	06-11-2000
82	Shri S.K. Chadha, IFS	Dy. Conservator of Forests	06-11-2000	02-09-2002
83	Shri N.C. Bal, IFS	Dy. Conservator of Forests	02-09-2002	22-12-2002
84	Shri Pravakar Behera, IFS	Dy. Conservator of Forests	23-12-2002	20-03-2004
85	Shri D.B. Ray, IFS	Dy. Conservator of Forests	20-03-2004	30-06-2004
86	Shri Rajiv Kumar, IFS	Dy. Conservator of Forests	01-07-2004	05-02-2005
87	Shri G.Rajesh, IFS	Asst. Conservator of Forests	05-02-2005	21-02-2005
88	Shri Rajiv Kumar, IFS	Dy. Conservator of Forests	21-02-2005	16-08-2006
89	Shri A. Behera, OFS-I	Dy. Conservator of Forests	16-08-2006	13-11-2006
90	Shri C. Mishra, OFS-II	Asst. Conservator of Forests	14-11-2006	07-12-2006
91	Shri G.Rajesh, IFS	Dy. Conservator of Forests	07-12-2006	11-12-2009
92	Shri Manoj Kumar Mohapatra, OFS-I	Dy. Conservator of Forests	11-12-2009	08-01-2010
93	Shri G.Rajesh, IFS	Dy. Conservator of Forests	08-01-2010	22-01-2010
94	Shri Manoj Kumar Mohapatra, OFS-I	Dy. Conservator of Forests	23-01-2010	23-03-2010
95	Shri G.Rajesh, IFS	Dy. Conservator of Forests	23-03-2010	08-05-2012
96	Dr. A.K. Pattanik OFS, Gr-A (SB)	Dy. Conservator of Forests	08-05-2012	22-06-2016
97	Shri Manoj Kumar Mohapatra, OFS, Gr-A (SB)	Dy. Conservator of Forests	22-06-2016	09-08-2016
98	Shri C.Mishra, OFS, Gr-A (SB)	Dy. Conservator of Forests	09-08-2016	19-08-2016
99	Shri Manoj Kumar Mohapatra, OFS, Gr-A (SB)	Dy. Conservator of Forests	19-08-2016	14-07-2017
100	Shri B.R. Dash, OFS, Gr-A (SB)	Dy. Conservator of Forests	14-07-2017	11-08-2017
101	Shri Manoj Kumar Mohapatra, OFS, Gr-A (SB)	Dy. Conservator of Forests	11-08-2017	27-11-2017

102	Shri B.R. Dash, OFS, Gr-A (SB)	Dy. Conservator of Forests	14-12-2017	29-01-2018
103	Shri Manoj Kumar Mohapatra, OFS, Gr-A (SB)	Dy. Conservator of Forests	29-01-2018	28-02-2018
104	Shri B.R. Dash, OFS, Gr-A (SB)	Dy. Conservator of Forests	28-02-2018	21-10-2018
105	Shri K.K.Swain, OFS, Gr-A (SB)	Dy. Conservator of Forests	21-10-2018	09-11-2018
106	Shri Sudeep Nayak, OFS, Gr-A (SB)	Dy. Conservator of Forests	09-11-2018	06-07-2020
107	Shri Samyak Samantra, OFS, Gr-A (SB)	Dy. Conservator of Forests	06-07-2020	31-12-2020
108	Purnima.P,IFS	Dy. Conservator of Forests	31-12-2020	

*****

APPENDIX - VI

LIST OF THE VANA SAMRAKHYAN SAMITI FORMED 2005 to 2021 IN KHORDHA FOREST DIVISION

Sl No.	Name of the Range/ Section	Name of the VSS.	Name of the G.P	Name of the Forest Block.	Legal status of land	Area (in ha.) assigned to VSS.	Whether Executive committee formed	Whether MOU signed.	Whether micro-plan prepared	Whether registered by C.F as JFMC
1	2	3	4	5	6	7	8	9	10	11
1	Khordha/ Bolagarh	Gopinathdev V.S.S., Kotapalla	Phasioda	Mandalsingh	DPF	100	Yes	Yes	Yes	Yes
2	-do-	Shyamsundarpur V.S.S.	Bolagarh	Panchagarh	RF	135	Yes	Yes	Yes	Yes
3	-do-	Dadarakantha V.S.S., Dadarakanta(Samantarapur).	Manibandha	Manibandha	RF	100	Yes	Yes	No	Yes
4	Khordha/ Baideswar	Gahirgadia patna V.S.S.	Gahiragadia	Puincha	DPF	28	Yes	Yes	No	Yes
5	-do-	Gahirgadiapatna Adivasisahi VSS	-do-	Puincha	DPF	77	Yes	Yes	No	Yes
6	Khordha/ Bolagarh	Kusupalla V.S.S.	Phasioda	Panchagarh	RF	200	Yes	Yes	Yes	Yes
7	Khordha/ Baideswar	Pandalam V.S.S.	Puincha	Puincha	DPF	155	Yes	Yes	Yes	Yes
8	Khordha/ Begunia	Sri Jagannath V.S.S., Pangarsingh	Pangarsingh	Pangarsingh	RF	128	Yes	Yes	No	Yes
9	Khordha/ Bolagarh	Mandalsingh VSS., Mandalsingh	Phasioda	Mandalsingh	DPF	197.6	Yes	Yes	Yes	Yes
10	Khordha/ Khordha	Sialiapatna V.S.S.	Kuradhamalla	Barunei	RF	50	Yes	Yes	Yes	Yes
11	Khordha/ Bolagarh	Balmiki VSS, Sampur, Harirajpur, Sikharpara, Chandrasekharpur, Chhotraypurpatna, Nayapatna, Bauripatna, Gobindapur, Gopalpur, Nagapalli.	Khanguria	Nagapalli	RF	200	Yes	Yes	No	Yes

12	-do-	Nandapalli VSS, Nandapalli	Bolagarh	Duburi	DPF	150	Yes	Yes	No	Yes
13	-do-	Patabandha VSS, Patabandha, Krunshapur & Jaripada.	Sagargaon	Nagapalli	RF	200	Yes	Yes	No	Yes
14	Khordha/ Begunia	Mahavir VSS, Goudput	Pubusahi	Jayamangal	RF	144.48	Yes	Yes	No	Yes
15	Khordha/ Banki	Maa Bauti V.S.S, Kumusar	Kiapalla		PRF	100	Yes	Yes	No	Yes
16	Khordha/ Baideswar	Maa Mangala V.SS, Baideswar	Baideswar	Baideswar	PRF	45	Yes	Yes	No	Yes
17	Khordha/ Begunia	Bije Kapileswar VSS, Pubusahi Kapileswarpur	Pubusahi	Kapileswar	DPF	76.49	Yes	Yes	No	Yes
18	Khordha/ Bolagarh	Maa Kosalasuni VSS, Arikama, Sankarpur, Bhabanipur	Arikama	Manibandha	RF	150	Yes	Yes	No	Yes
19	Balugaon/ Balugaon	Sri Sri Trinath Dev V.S.S., Jhintikapalli	Kumaranga-sasan	Bhaleri	DPF	200	Yes	Yes	Yes	Yes
20	Balugaon/ Padmapur	Brahmanidevi V.S.S., Karadapalli	Gambhari-munda	Chakadapathar	DPF	200	Yes	Yes	No	Yes
21	-do-	Khilamunda V.S.S, Pankala	-do-	Sandhamul	DPF	200	Yes	Yes	No	Yes
22	Balugaon/ Balugaon	Brundaban Ch. V.S.S., Bhuskapada	Tumuraput-sasan	Jharana	DPF	200	Yes	Yes	Yes	Yes
23	Balugaon/ Padmapur	Sidheswar Sidheswari V.S.S., Bhatapada	Bhatapada	Solari	DPF	200	Yes	Yes	Yes	Yes
24	-do-	Sarbamangala V.SS., Jivandeipur	Nachuni	Jivandeipur	UDPF	50	Yes	Yes	Yes	Yes
25	Balugaon/ Mohulia	Maa Jemadei VSS, Mohulia	Berbera	Rajin	RF	150	Yes	Yes	No	Yes
26	-do-	Maa Banadurga VSS, Sibida	-do-	Rajin	RF	100	Yes	Yes	No	Yes
27	Balugaon/ Balugaon	Maa Mangala Devi VSS, Muktadeipur	Tumuraput-sasan	Jharana	DPF	100	Yes	Yes	No	Yes
28	-do-	Sulia Devi VSS, Pratap		Champagarh	DPF	200	Yes	Yes	No	Yes
29	Balugaon/ Padmapur	Bhagabatipur VSS, Bhagabatipur		Solari	DPF	200				

30	Balugaon/ Berbera	Khilamunda V.S.S, Kalamatia		Krushnapalli	PF	70	Yes	Yes	No	Yes
31	Balugaon/ Sanasireipur	Brahmani Devi VSS, Banlei		Bankada	RF	100	Yes	Yes	No	Yes
				Jharan	DPF	100	Yes	Yes	No	Yes
32	Balugaon/ Balugaon	Maa Chandi Devi VSS, Nuagarh		Bhaleri	DPF	200	Yes	Yes	No	Yes
33	Balugaon/ Berbera	Kanchan Bauti VSS, Bhatapada		Chulijhinka	DPF	100	Yes	Yes	No	
34	Tangi/ Tangi	Haripur V.S.S.		Kaithapalla	DPF	200	Yes	Yes	No	
35	Tangi/ Bhusandapur	Rameswar V.SS. *		Rameswar	DPF	200	Yes	Yes	No	Yes
36	-do-	Bagheiput V.S.S.		Bagheiput	DPF	67	Yes	Yes	Yes	Yes
37	Tangi/ Tangi	Ram Rahim V.S.S., Dixitpara		Kuhudi	(part RF)	200	Yes	Yes	No	
38	Tangi/ Nachuni	Raghunathdev V.SS.., Gamei		Sulia , Chaka-dapathar	(Part RF, DPF)	200	Yes	Yes	Yes	Yes
39	Tangi/ Patia	Dhani South, Panchamouza, Barapalli	Kerandatangi	Dhani South	RF	200	Yes	Yes	No	
40	Tangi/ Tangi	Maa Banadurga V.S.S, Adibasi sahi, Chandeswar		Kuhudi	RF	441	Yes	Yes	No	Yes
41	Tangi/ Nachuni	Maa Pandabasuni V.S.S., Salpadi	Nachuni	Sulia	RF	200	Yes	Yes	No	Yes
42	Tangi/ Tangi	Boitiani VSS, Kandagadia(Kambhua)	Pariorada	Kandagadia	DPF	150	Yes	Yes	No	Yes
43	Tangi/ Tangi	Maa Dholarai VSS, Kunjuri, Akasapalli, Ostapalli, Malkadiha.	Kunjuri	Sulia	RF	100	Yes	Yes	No	
44	Tangi/ Patia	Maa Duarasuni VSS, Jiripada, Godisahi	Patia	Dhani South	RF	50	Yes	Yes	No	Yes
45	-do-	Dhanitri Mahila VSS, Kandambajola, Gadapalla	Patia	Dhani South	RF	60	Yes	Yes	No	
46	-do-	Maa Brahmani Devi VSS, Kaithapalla	Biribadi	Kaithapalla	DPF	80	Yes	Yes	Yes	Yes

47	Tangi/ Nachuni	Janibhuin VSS, Mundala	Kunjuri	Sulia	RF	200	Yes	Yes	No	Yes
48	Tangi/ Bhusandapur	Maa Ugratara VSS, Mulijhar, Routarapur	Nuagarh	Bhusandapur	DPF	120	Yes	Yes	No	Yes
49	-do-	Kapileswar VSS, Jalvar	Hirapur	Jalvar	DPF	200	Yes	Yes	No	
50	Tangi/ Tangi	Girigobardhan VSS, Badapari, Bhobara, Nuagaon	Badapari	Badapari	DPF	200	Yes	Yes	No	
51	Ranapur/ Gopalpur	Ranabijuli V.S.S., Samantasingharpur	Gopalpur	Dhani North	RF	100	Yes	Yes	No	
52	Ranapur/ Gopalpur	Nakithana V.S.S., Nakithana		Dhani North	RF	200	Yes	Yes	No	
53	Ranpur/ Ranpur	Sanakillo V.S.S., Sanakillo	Khairapalli	Sanakillo	UDPF	200	Yes	Yes	No	
54	-do-	Paikarapur VSS		Sulia (B)	RF	200	Yes	Yes	Yes	Yes
55	Ranpur/ Betuli	Maa Khilamunda V.S.S , Raipada	Bandhamunda	Dhani North	RF	500	Yes	Yes	Yes	Yes
56	Ranpur/ Ranpur	Maa Maninag V .S.S., Gaonbanikilo	Balabhadrapur	Maninag	RF	200	Yes	Yes	Yes	
57	Ranpur/ Karadapala	Banabihari VS.S, Nathapur, Karadapalla	Kandapada	Maninag & Mal	RF	200	Yes	Yes	Yes	Yes
58	Ranpur/ Ranpur	Gadabanikilo V.S.S.,	Khairapalli	Gadabanikilo	UDPF	200	Yes	Yes	Yes	
59	Ranpur/ Karadapala	Maa Brahmani Devi V.S.S, 11 nos. Mouza.	Majhiakhanda	Mal	RF	1000	Yes	Yes	Yes	Yes
60	Ranpur/ Ranpur	Maa Asura Kumari V.S.S., Bajrakota	Baunsagarh	Maninag	RF	200	Yes	Yes	Yes	Yes
61	Ranpur/ Gopalpur	Maa Mangala VSS, Andharua	Gopalpur	Dhani North	RF	200	Yes	Yes	Yes	Yes
62	Ranpur/ Sankhajodi	Om Maa Bauti VSS, Jaripada	Bandhamunda	Mal	RF	50	Yes	Yes	No	Yes
63	-do-	Raghunathdev VSS, Sankhajodi	-do-	Mal	RF	100	Yes	Yes	No	Yes

64	-do-	Maa Khilamunda V.S.S, Dimiribadi, Ranla, Bada Chakundajhar, Nuagaon	-do-	Mal	RF	50	Yes	Yes	No	
65	Ranpur/Ranpur	Satabhaya VSS, Jamusahi	Kasanda	Satabhaya	RF	150	Yes	Yes	No	Yes
66	-do-	Mahavir VSS, Kalamatia, Dhamada	Kandapada	Maninag	RF	200	Yes	Yes	No	
67	Ranpur/ Gopalpur	Baba Swopneswar VSS, Champagarh	Champagarh	Champagarh	RF	125	Yes	Yes	No	Yes
68	Ranpur/Ranpur	Maa Kalimai VSS, Chhatipur	Baunsagarh	Maninag	RF	50	Yes	Yes	No	
69	Ranpur/Ranpur	Maa Sulia Devi VSS, Sankhamula	Baunsagarh	Maninag	RF	100	Yes	Yes	No	Yes
70	Ranpur/Ranpur	Baidanka VSS, Arada	Balabhadrapur	Maninag	RF	100	Yes	Yes	No	Yes
71	Ranpur/ Gopalpur	Maa Mandia Jena VSS, Ostapada	Jankia	Champagarh	RF	150	Yes	Yes	No	Yes
72	Delanga/ Delanga	Maa Barunei V.S.S., Kuapada	Sauria	Kumuka	PRF	50.276	Yes	Yes	No	
73	-do-	Sri Balunkeswar V.SS., Kumundal	Garh Motori	Kumuka	PRF	36.29	Yes	Yes	No	
74	-do-	Maa Khetramani VSS, Batola	-do-	Kumuka	PRF	70.5	Yes	Yes	No	
75	-do-	Sri Satyanarayan VSS, Garhmotori	-do-	Kumuka	PRF	51.855	Yes	Yes	No	
76	Balipatna/ Balakati	Bhanra Nijigarh VSS, Bhanragarh, Srirampur, Bhaliadanda, Maukasahi, Paidapatna	Nariso, Deulidharpur, Bhapur, Amankuda.	Bhanra	PRF	50	Yes	Yes	No	
				Total		**12008.49**				
77	Khordha/ Belapada	Maa Mangala VSS, Kholadwar, Belapada	Padanpur	Barunei	RF	100	Yes	Yes	No	Yes
78	Balugaon/ Balugaon	Poteisuni VSS, Badasula.	Banapur	Chulijhinka	DPF	150	Yes	Yes	No	Yes

79	Balugaon/ Berbera	Maa Thanguni Bauti VSS, Jiripada.		Jiripada	DPF	78	Yes	Yes	No	Yes
80	Balugaon/ Balugaon	Maa Dhulia Devi VSS, Banchhanidhipur.		Solari	DPF	200	Yes	Yes	No	
81	Tangi/ Bhusandapur	Khajuripada VSS, Khajuripada.		Rameswar	DPF	150	Yes	Yes	No	Yes
82	Ranpur/ Karadapala	Maa Kalimai VSS, Bhctabar, Raipada.	Bandhamunda	Mal	RF	200	Yes	Yes	No	
83	Ranpur/ Karadapala	Maa Mangala VSS, Sanachakundajhar (Nuagaon).	Bandhamunda	Mal	RF	180	Yes	Yes	No	Yes
84	Ranpur/Ranpur	Shree Balunkeswar Dev VSS, Sanagarh.	Gourangapur	Maninag	RF	100	Yes	Yes	No	Yes
85	Ranpur/ Karadapala	Maa Dakhinachandi VSS, Sikharpur, Madhupur, Nuasukala, Jaripatna, Nuasahi.	Majhiakhanda	Mal	RF	130	Yes	Yes	No	Yes
86	-do-	Baba Kamaleswar Dev VSS, Sinduria, Malisahi, Telipatna, Majhiakhanda.	Majhiakhanda	Mal	RF	100	Yes	Yes	No	Yes
87	-do-	Nilakantheswar VSS, Mahatapalla, Niladripur.	Mahatapalla	Dhani North	`	120	Yes	Yes	No	
88	Ranpur/ Sankhajodi	Maa Jhanjhiri Mangala VSS, Bandhamunda, Waupada, Sririkuti, Tabhadihi.	Bandhamunda	Mal	RF	200	Yes	Yes	No	Yes
89	Ranpur/Ranpur	Maa Banadurga VSS, Kolathapangi	Baunsagarh	Sulia (B)	RF	50	Yes	Yes	No	
90	Ranpur/ Karadapala	Maa Budhidei VSS, Laxminarayanpur.	Mahatapalla	Dhani North	RF	110	Yes	Yes	No	
91	-do-	Dimiria VSS, Dimiria.	Mahatapalla	Dhani North	RF	100	Yes	Yes	Yes	Yes
				Total		**1968**				
92	Ranpur/ Betuli	Maa Ramachandi VSS, Betuli, Nelipada	Bandhamunda	Mal	RF	200	Yes	Yes	Yes	Yes
93	Ranpur/ Sankhajodi	Maa Khora Khai VSS, Khamana, Lakhamundali, Suanga, Raipada.	Bandhamunda	Mal	RF	200	Yes	Yes	Yes	Yes
				Total		**400**				

94	Delanga/ Delanga	Balunkeswar VSS, Chhotijodi	Gadasanaput	Kanas	Rev. F	25.0	Yes	Yes	No	
95	Delanga/ Delanga	Maa Barahi VSS, Rengal	Rengal	Rengal	PRF	50.0	Yes	Yes	No	
96	Khordha/ Begunia	Kuradhilo VSS, Kuradhilo	Pangarsingh	Pangarsingh	RF	47	Yes	Yes	No	Yes
97	Khordha/ Begunia	Chiramaru VSS, Chiramaru	Pangarsingh	Pangarsingh	RF	40	Yes	Yes	Yes	Yes
98	-do-	Balunkeswardev VSS, Godipokhari	Pangarsingh	Pangarsingh	RF	40	Yes	Yes	Yes	Yes
99	Ranpur	Bhagabatidev VSS, Odapalla	Majhiakhanda	Mal	RF	100	Yes	Yes	Yes	Yes
100	Ranpur	Budha Kamaleswar VSS, Manpur	Mahatapalla	Dhani North	RF	100	Yes	Yes	No	
101	Delanga/ Delanga	Motari VSS	Sauria	Delang	PRF	14	Yes	Yes	No	
				Total		**416**				
102	Tangi/ Tangi	Maa Ratnamati VSS	Tangi	Tangi	DPF	100	No	No	No	No
103	Tangi/ Bhusandapur	Maa Jogamaya VSS	Bhusandpur	Bhusandapur	DPF	100	No	No	No	No
104	Tangi/ Bhusandapur	Ugratara VSS	Bhusandpur	Bhusandapur	DPF	100	No	No	No	No
105	Tangi/Tangi	Mahujhar VSS	Kunjuri	Kunjuri	DPF	100	No	No	No	No
106	Tangi/ Bhusandapur	Maa Sakulrei VSS	Sundarpur	Bhusandapur	DPF	100	No	No	No	No
107	Tangi/ Bhusandapur	Maa Baithakurani VSS	Belpada	Nalsingh	DPF	100	No	No	No	No
108	Tangi/Patia	Ramchandi VSS	Patia	Patia	RF	150	No	No	No	No
				Total		**750**				

VSS **Grand Total** **15542.49** **Ha.**

LIST OF VSS & PHYSICAL ACHIEVEMENT UNDER IST PHASE FDA, PURI (KHORDHA) (2003-04 to 2006-07)

Range	No.	VSS	Area covered			Total expenditure made in works	Total expenditure made in Entry point activity
			AR	ANR	Total		
1	2	3	4	5	6	7	8
Khordha	1	Sialia	2	30	32	65130	48000
	2	Kusupalla	5	25	30	80689	45000
	3	Syamasundarpur	10	30	40	120196	60000
	4	Mandalsingh		10	10	72360	15000
	5	Pandalam	10	25	35	119389	52500
	6	Kotapalla	10	30	40	194690	60000
	7	Balmiki VSS, Sampur.	10	10	20	98450	30000
	8	Maa Mangala VSS, Kholadwar, Belpada	10	15	25	106239	37500
	9	Nandapalli VSS.	20	15	35	179025	52500
	10	Dadarakantha VSS, Samantrapur.	10	10	20	98450	30000
Ranapur	11	Karadapalla	20	20	40	43728	60000
	12	Gadabanikilo	20	5	25	99113	37500
	13	Jaripada	10	30	40	208422	60000
	14	Sankhajodi		25	25	119185	37500
	15	Dimiribadi	20	10	30	193474	45000
	16	Baidanka VSS, Arada.	10	10	20	98450	30000
	17	Maa Kalimai VSS, Chhatipur.	10	10	20	98450	30000
	18	Mahavir VSS, Kalamatia, Dhamada.	10	40	50	205700	75000
	19	Maa Asura Kumari VSS, Bajrakote.	30	10	40	223850	60000
Tangi	20	Salpadi		50	50	83978	75000
	21	Jalvar	30	20	50	219000	75000
	22	Dhani South Panch Mouza VSS, Barapalli		45	45	160875	67500
	23	Maa Janibhuani VSS, Mundala.	15	10	25	129800	37500
	24	Maa Dholari VSS, Kunjuri.	10	15	25	116325	37500
	25	Khajuripada VSS, Khajuripada.	50		50	313500	75000
Balugaon	26	Muktadeipur	10	25	35	196585	52500
	27	Bhuskapada	10	20	30	72820	45000
	28	Mohulia		30	30	116478	45000
	29	Sibida		50	50	185282	75000
	30	Karadapalli	10	20	30	43094	45000
	31	Pankal		35	35	63931	52500
	32	Sulia Devi VSS, Pratap	10	15	25	116325	37500
	33	Kanchan Bauti VSS, Bhatapada.	20	5	25	143275	37500
	34	Bhagabati Devi VSS, Bhagabatipur.	20	5	25	143275	37500
	35	Padheisuni VSS, Badasula.	20	5	25	143275	37500
	36	Maa Thanguni Bauti VSS, Jiripada.		25	25	137213	37500
Delanga	37	Kuapada	20		20	93438	30000
	38	Kumundal	10		10	37638	15000
	39	Motari	20		20	111600	30000
	40	Batalo	15		15	94500	22500
		Total	**487**	**735**	**1222**	**5147197**	**1833000**

LIST OF VSS AND PHYSICAL ACHIEVEMENT TAKEN UP UNDER FDA, KHORDHA IN IIND PHASE (2007-08 to 2014-15)

Name of the Range	Sl. No.	Name of VSS	Physical Achievement (in Ha.)						Total	Total expenditure made in works (in Rs.)	Total expenditure made in Entry point activity (in Rs.)
			ANR	AR	Mixed	ANR	AR	Mixed			
1	2	3	4	5	6	7	8	9	10	11	12
Khordha	1	Gahiragadiapatna VSS	20	-	-	-	-	-	20	143040	80000
	2	Gahiragadiapatna (Adibasisahi) VSS	30	10	-	-	-	-	40	344900	160000
	3	Shree Jagannath VSS, Pangarsingh	-	10	10		-	-	20	355280	80000
	4	Maa Bauti VSS, Kumusar.	50	10	10	-	-	-	70	618330	280000
	5	Maa Mangala VSS, Baideswar.	-	10	10	-	10	-	30	467840	120000
	6	Maa Kosalasuni VSS, Arikama, Sankarpur,Bhabanipur	50	-	-	-	-	-	50	311450	200000
	7	Patabandha VSS, Patabandha	-	-	-	50	-	-	50	668950	200000
	8	Kuradhilo VSS, Kuradhilo	-	-	-	-	20	-	20	501700	80000
	9	Chiramaru VSS, Chiramaru	-	-	-	-	10	10	20	533200	80000
	10	Godipokhari VSS, Godipokhari	-	-	-	-	10	10	20	533200	80000
SUB TOTAL			**150**	**40**	**30**	**50**	**50**	**20**	**340**	**4477890**	**1360000**
Balugaon	11	Shree Shree Trinath Dev VSS, Jhintikapalli	25	-	-	-	-	-	25	245350	100000
	12	Sidheswar Sidheswari VSS, Bhatapada.	25	-	-	20	-	-	45	544950	180000
	13	Brahmani Devi VSS, Banlei.	25	10	-	-	-	-	35	374870	140000
	14	Maa Chandi Devi VSS, Nuagarh.	25	-	-	20	-	-	45	446950	180000
SUB TOTAL			**100**	**10**	**0**	**40**	**0**	**0**	**150**	**1612120**	**600000**
Tangi	15	Pratapeswardev VSS, Haripur.	-	20	-	-	-	-	20	260780	80000
	16	Maa Duarasuni VSS, Jiripada & Godisahi.	20	-	-	-	-	-	20	143040	80000
	17	Rameswar VSS, Rameswar.	20	-	-	20	-	-	40	353380	160000
	18	Dhanitri Mahila VSS, Kadambajhola, Gadapalla.	20	-	-	-	-	-	20	143040	80000
	19	Girigobardhan VSS, Badapari, Bhobara, Nuagaon.	20	-	-	20	-	-	40	387130	160000
	20	Raghunath Dev VSS, Gamei.	20	-	-	10	-	-	30	212940	120000
SUB TOTAL			**100**	**20**	**0**	**50**	**0**	**0**	**170**	**1500310**	**680000**

Ranpur	21	Satabhaya VSS, Jamusahi.	20	-	-	20	-	-	40	375880	160000
	22	Maa Mangala VSS, Sanachakundajhar	20	-	-	-	-	-	20	176790	80000
	23	Maa Kalimai VSS, Bhetabar, Raipada.	20	-	-	-	-	-	20	188040	80000
	24	Shree Balunkeswar Dev VSS, Sanagarh.	-	10	20	-	-	-	30	391570	120000
	25	Nakithana VSS, Nakithana.	20	-	-	20	-	-	40	398380	160000
	26	Baba Kamaleswar Dev VSS, Sinduria.	20	-	-	-	-	-	20	188040	80000
	27	Nilakantheswar VSS, Mahatapalla.	10	-	20	20	-	-	50	542590	200000
	28	Maa Jhanjirimangala VSS, Bandhamunda, Sirikuti.	20	-	-	-	-	-	20	165540	80000
	29	Kolathapangi VSS, Kolathapangi.	20	-	-	-	-	10	30	333660	120000
	30	Dimiria VSS, Dimiria.	-	20	-	-	-	20	40	633020	160000
SUB TOTAL			**150**	**30**	**40**	**60**	**0**	**30**	**310**	**3393510**	**1240000**
GRAND TOTAL :			**500**	**100**	**70**	**200**	**50**	**50**	**970**	**10983830**	**3880000**

LIST OF VSS AND PHYSICAL ACHIEVEMENT TAKEN UP UNDER FDA, KHORDHA IN IIIrd PHASE (2015-16 to 2020-21)

Range	Sl. No.	Name of VSS	Physical achievement (in Ha.)			Total	Financial achievement (in Rs.)
			ANR	AR	Mixed		
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Tangi	1	Pratapeswardev VSS, Haripur.	-	20	-	20	475447
	2	Rameswar VSS, Rameswar.	30	-	-	30	389317
Ranpur	3	Nilakantheswar VSS, Mahatapalla.	-	10	30	40	949893
	4	Dimiria VSS, Dimiria.	30	-	-	30	389316
Khordha	Nil						
Balugaon	1	Maa Kanchan Bauti VSS, Bhatapada	20	-	-	20	105000
Tangi	1	Maa Kajalei VSS	75	-	-	75	611996
	2	Maa Pandabasuni VSS	-	10	-	10	432555
	3	Pratapeswardev VSS	-	10	10	20	645958
	4	Maa by Ratnamali VSS	-	20	-	20	431720
	5	Maa Dholarai VSS	40	-	-	40	544142
	6	by Rameswar VSS	30	-	-	30	-
	7	Pratapeswardev VSS	-	20	-	20	796838

Ranpur	1	Nilakantheswar VSS, Mahatapalla, Niladripur	-	10	30	40	151442
	2	Dimiria VSS, Dimiria	30	-	-	30	81677
	3	Maa Bauti VSS, Jaripada	40	-	-	40	1275214
	4	Maa Khilamunda VSS, Ranla	35	-	-	35	1115809
	5	Satavaya VSS, Jamusahi	20	-	-	20	622299
	6	Sulia VSS, Kasanda	20	-	-	20	220228
Delang	Nil						
	Nil						
	Nil						
	Nil						
	Nil						
Balipatna	1	Bhanra Nijigarh VSS	.-Nil-	.-Nil-	.-Nil-	.-Nil-	.-Nil-

*****

APPENDIX-VII FIRE OCCURRENCE IN KHORDHA FOREST DIVISION				
FROM 2007-08 TO 2015-16				
Year	**Range**	**Fire affected area**	**Date of Occurrance**	**Area affected In Ha.**
2007-08	Khordha	Nil	Nil	Nil
2008-09		Barunei RF	25.02.2009	5
2009-10		Nil	Nil	Nil
2010-11		Barunei RF	__	6.3
2011-12		Nil	Nil	Nil
2012-13		Barunie RF	__	70
2013-14		Nil	Nil	Nil
2014-15		Nil	Nil	Nil
2015-16		Nil	Nil	Nil
2007-08	Balugaon	Nil	Nil	Nil
2008-09		Nil	Nil	Nil
2009-10		Nil	Nil	Nil
2010-11		Nil	Nil	Nil
2011-12		Rajin RF	29.02.12	30
		Tamana RF	24.03.12	8
		Sandhamal DPF	24.03.12	20
2012-13		Tamana RF	03.04.12	0.8
2013-14		Nil	Nil	Nil
2014-15			09.05.14	5
2015-16		Katwal RF	06.03.16	2
		Rajin RF	06.03.16	0.5
		Rajin RF	06.03.16	1
		Rajin RF	12.04.16	1.5
		Taman RF	12.04.16	1
2007-08	Tangi	Nil	Nil	Nil
2008-09		Nil	Nil	Nil
2009-10		Nil	Nil	Nil
2010-11		Nil	Nil	Nil
2011-12		Patia RF	29.02.12	0.75
		Chakadapathar DPF	29.02.12	0.5
		Patia RF	18.03.12	0.8
		Patia RF	18.03.12	0.8
		Patia RF	28.03.12	2.05
2012-13		Patia RF	10.04.12	0.75
		Sulia RF	03.04.12	0.5
		Chakadapathar DPF	16.05.12	1.55
2013-14		Nil	Nil	Nil
2014-15		Chakadapathar DPF	__	5
2015-16		Nil	Nil	Nil
2007-08	Ranpur	Nil	Nil	Nil
2008-09		Nil	Nil	Nil
2009-10		Nil	Nil	Nil

2010-11		Nil	Nil	Nil
2011-12		Mal RF	25.03.12	55
		Sulia B RF near Barapalli Village	07.03.12	0.6
		Mal RF near Randa Village	14.03.12	0.75
		Mal RF near Sakatsala	15.03.12	1.6
		Mal RF	18.03.12	0.5
		Mal RF near Sirikuti	18.03.12	0.4
		Mal RF near Bandhamunda	18.03.12	0.3
		Maninaga RF near Nathapur	20.03.12	0.8
		Mal RF near Sakatsala	21.03.12	0.8
		Mal RF near Waupada	23.03.12	0.4
		Sulia RF near Haribari Village	23.03.12	0.6
		Mal RF	27.03.12	1.2
		Sulia B RF near Sinduria	27.03.12	0.8
2012-13	Ranpur	Mal RF near Jaripada	03.04.12	0.8
		Mal RF Nelipara	03.04.12	0.1
		Mal RF near Brahmanikumbhi	04.04.12	1.5
		Mal RF near Ganiamundia	04.04.12	0.5
		Mal RF near Ganiamundia	06.04.12	0.55
2013-14		Mal RF	__	15
		Dhani (N) RF	__	25
2014-15		Mal RF	__	45
2015-16		Mal RF	12.04.16	2
		Mal RF	12.04.16	1.5
		Mal RF	12.04.16	2.5
		Mal RF	12.04.16	3.5
		Mal RF	12.04.16	2
		Mal RF	12.04.16	1.5
		Mal RF	12.04.16	2
		Mal RF	12.04.16	2
		Mal RF	12.04.16	1.5
		Mal RF	12.04.16	1
		Mal RF	12.04.16	1
		Mal RF	12.04.16	1
		Sulia B RF	12.04.16	2.5
2007-08 to 2015-16	Delang	Nil	Nil	Nil
2007-08 to 2015-16	Balipatna	Nil	Nil	Nil

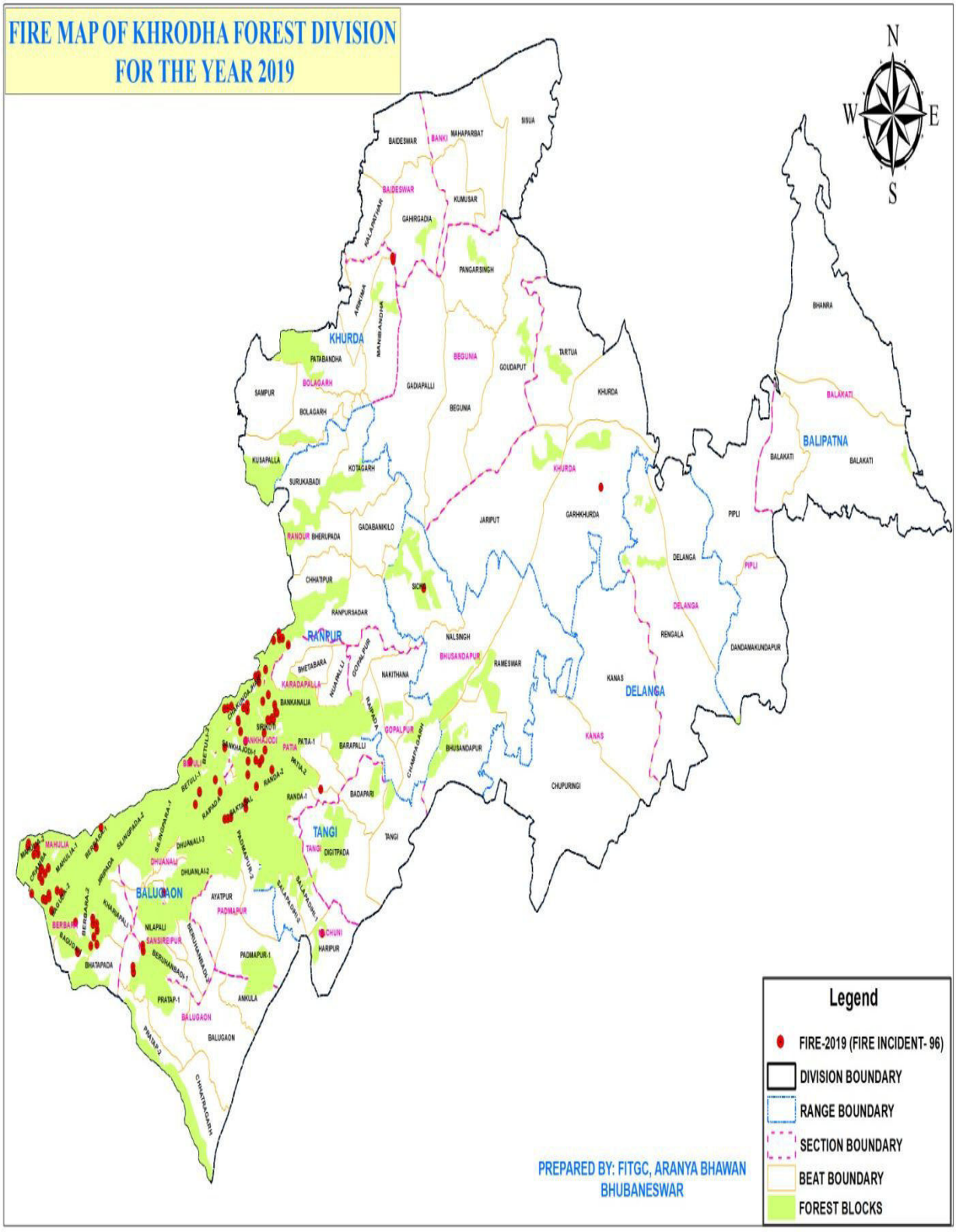
FIRE OCCURANCE INCIDENCE IN KHORDHA FOREST DIVISION				
FROM 2016-17 TO 2020-21				
Year	**Range**	**Fire affected area**	**Date of Occurrance**	**Area affected In Ha.**
2016-17	Khordha	Nil	Nil	Nil
2017-18		Nil	Nil	Nil
2018-19		Nil	Nil	Nil
2019-20		koduabereni rev land	17.04.2019	0.2
		koduabereni rev land	17.04.2019	0.2
2020-21		Barunei RF	24.04.2020	5
		Barunei RF	24.04.2020	0.5
		Barunei RF	14.03.2021	5
		Barunei RF	19.03.2021	1
		Madhupur VF	21.03.2021	5
		Barunei RF	23.03.2021	0.5
		Taratua DPF	24.03.2021	0.3
		Barunei RF	26.03.2021	0.5
2016-17	Balugaon	Aranga RF.	15.04.2016	2
		Katual RF.	15.04.2016	1
		Rajin RF.	16.04.2016	1.5
		Rajin RF.	19.04.2016	2
		Tamana RF.	26.02.2017	2
		Sandha DPF.	27.02.2017	1
		Bankad RF.	01.03.2017	2
		Solari DPF.	04.03.2017	4
		Jharan DPF.	02.03.2017	4
		Solari DPF.	04.03.2017	6
		Katual RF.	04.03.2017	4
		Rajin RF.	04.03.2017	5
		Aranga RF.	20.03.2017	4
		Rajin RF.	24.03.2017	2
		Rajin RF.	30.03.2017	2
		Katual RF.	30.03.2017	1
2017-18		Rajin RF.	12.04.2017	2
		Rajin RF.	14.04.2017	8
		Tamana RF.	14.04.2017	2
		Rajin RF.	15.04.2017	2
		Aranga RF.	15.04.2017	5
		Rajin RF.	22.04.2017	2
		Rajin RF.	23.04.2017	2
		Rajin RF.	27.04.2017	3
		Rajin RF.	28.04.2017	2
		Jharan DPF.	06.02.2018	0.2
		Jharan DPF.	26.02.2018	0.8
		Jharan DPF.	27.02.2018	1

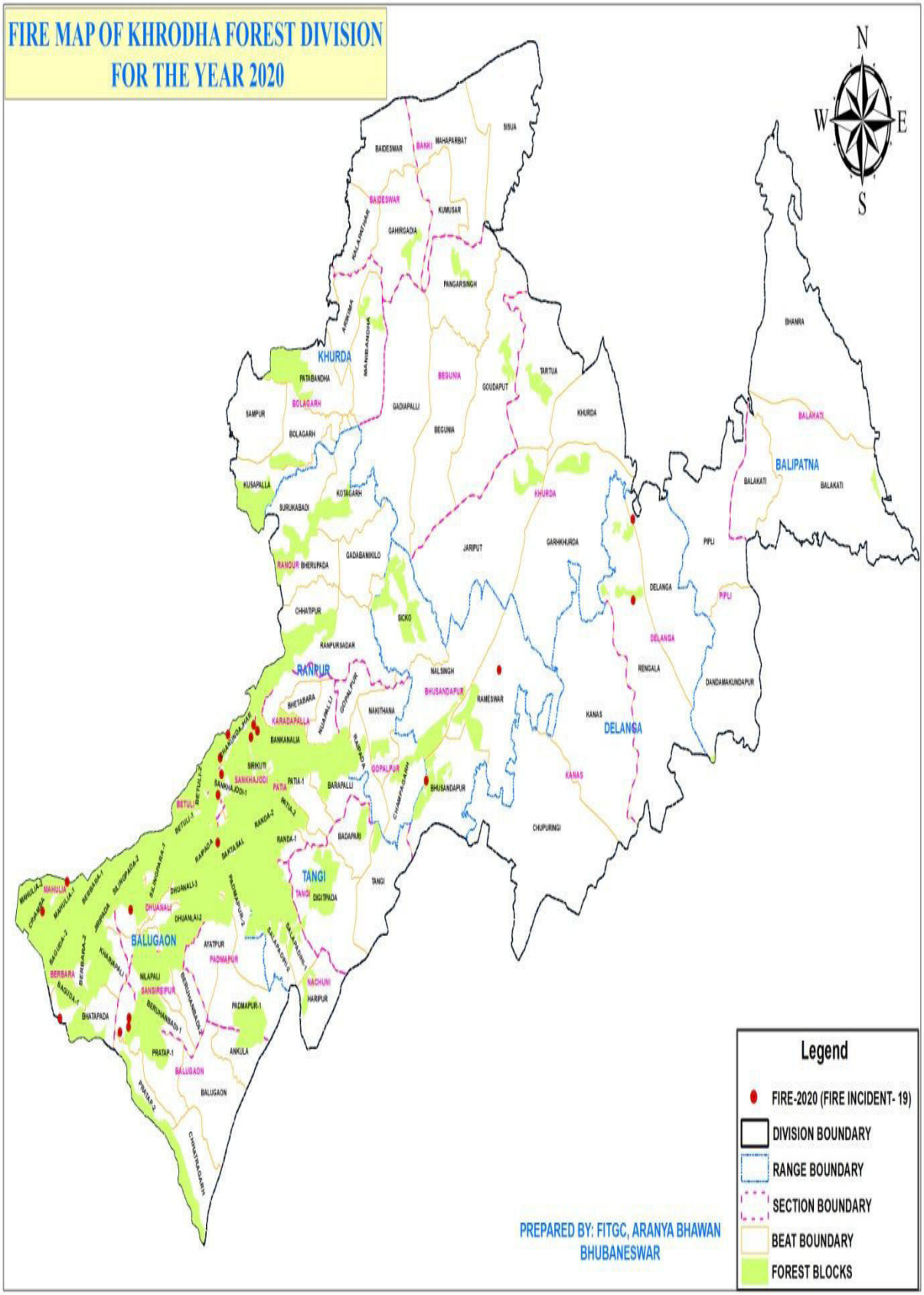
2017-18	Balugaon	Jharan DPF.	04.03.2018	2
		Bankad RF.	08.03.2018	2.5
		Rajin RF.	14.03.2018	4
		Badasireipur Rev. Land	21.03.2018	2
		Rajin RF.	22.03.2018	7.5
2018-19	Balugaon	Jharan DPF.	20.04.2018	2
		Bhatapada DPF.	12.02.2019	1
		Aranga RF.	25.02.2019	3
		Rajin RF.	22.03.2019	1.5
		Rajin RF.	27.03.2019	13.5
2019-20		Rajin RF.	16-04-2019	1.5
		Katual RF.	17-04-2019	2
		Rajin RF.	17-04-2019	1
		Katual RF.	18-04-2019	1
		Rajin RF.	18-04-2019	1.2
		Rajin RF.	22-04-2019	2.3
		Jharan DPF.	28-04-2019	1
		Jharan DPF.	09-05-2019	2
		Champagarh DPF.	18-05-2019	1.2
		Jharan DPF.	18-05-2019	1
		Jharan DPF.	17-03-2020	1
		Jharan DPF.	29-03-2020	0.5
2020-21		Tamana RF.	10-04-2020	2
		Rajin RF.	14-04-2020	2.1
		Rajin RF.	13-02-2021	0.5
		Rajin RF.	23-02-2021	1.2
		Rajin RF.	24-02-2021	1
		Rajin RF.	25-02-2021	1
		Sandhamal DPF.	26-02-2021	2
		Rajin RF.	26-02-2021	3
		Rajin RF.	28-02-2021	2
		Rajin RF.	01-03-2021	2
		Rajin RF.	02-03-2021	2
		Chakadapathar DPF.	05-03-2021	2.5
		Rajin RF.	05-03-2021	1
		Tamana RF.	05-03-2021	1.5
		Jharan DPF.	06-03-2021	1.5
		Tamana RF.	06-03-2021	2
		Rajin RF.	06-03-2021	2
		Rajin RF.	07-03-2021	2.5
		Tamana RF.	07-03-2021	2
		Katual RF.	07-03-2021	1
		Chulijhinka DPF.	07-03-2021	3
		Jharan DPF.	07-03-2021	2
		Tamana RF.	08-03-2021	3
		Rajin RF.	08-03-2021	1.5

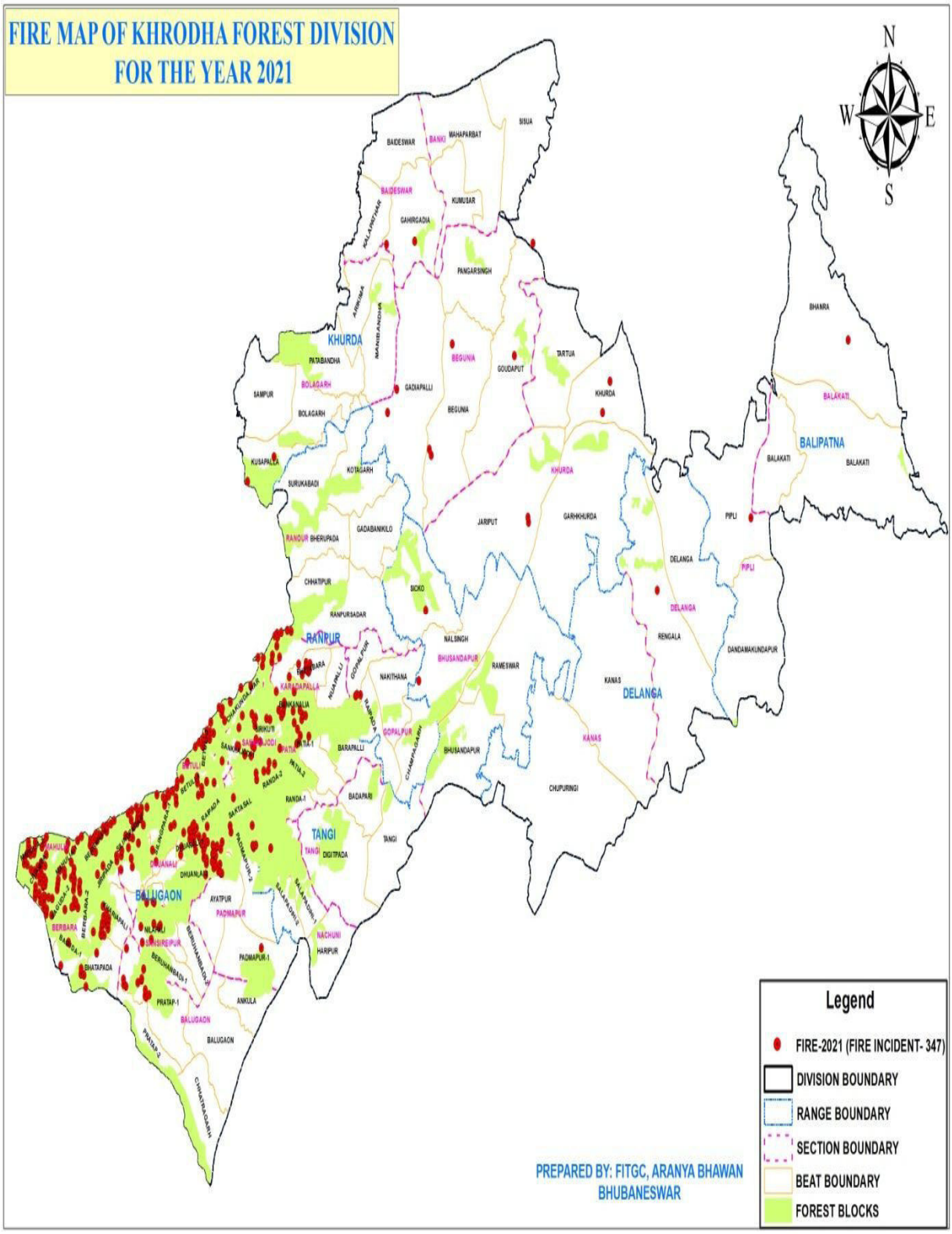
2020-21	Balugaon	Katual RF.	08-03-2021	2.5
		Rajin RF.	10-03-2021	2.5
		Tamana RF.	13-03-2021	2
		Tamana RF.	17-03-2021	2
		Bankad RF.	20-03-2021	3
		Bankad RF.	21-03-2021	1.5
		Bankad RF.	22-03-2021	1.5
		Sandhamal DPF.	24-03-2021	2
		Sandhamal DPF.	25-03-2021	1
		Bankad RF.	25-03-2021	2
		Katual RF.	25-03-2021	2.5
		Aranga RF.	25-03-2021	2
		Aranga RF.	28-03-2021	3
		Tamana RF.	28-03-2021	2
		Aranga RF.	29-03-2021	2
		Tamana RF.	30-03-2021	2.5
		Aranga RF.	31-03-2021	3
		Tamana RF.	31-03-2021	1
		Bhatapada DPF.	31-03-2021	0.5
2016-17	Tangi	Sulia RF	10.04.16	1.214
		Patia RF	10.04.16	1.619
		Patia RF	09.04.16	4.047
2017-18		Patia RF C-2	14.04.17	0.025
		Patia RF C-1	14.04.17	0.040
		Patia RF C-3	15.04.17	0.040
		Bagheiput DPF	21.04.17	0.324
		Bhusandapur DPF	14.05.17	0.364
		Sulia RF	17.05.17	0.405
2018-19		Patia RF	20.03.2021	0.300
2019-20		Kaithapalla DPF	03.02.2019	2.000
		Patia RFC-11	17.04.19	0.081
		Patia RFC-11	18.04.19	0.040
2020-21		Patia RF-C-6	06.03.2021	2.000
		Patia RF-C-6/7	07.03.2021	0.500
		Patia RF-C-8	08.03.2021	2.000
		Nalsingh DPF	09.03.2021	0.500
		Patia RF	23.03.2021	0.200
		Kamaguru-Mayurjhalia	25.03.2021	0.100
		Naragoda DPF	06.04.2021	0.100
		Sulia RF	17.04.2021	0.100
2016-17	Ranpur	Maninag R.F	26.03.2017	4.000
2017-18		Maninag RF	02.03.2018	0.500
		Mal RF	05.03.2018	0.200
		Mal RF	13.03.2018	0.900
		Mal RF	14.03.2018	3.100
		Mal RF	19.03.2018	0.500
		Mal RF	21.03.2018	6.560
		Mal RF	31.03.2018	2.000
2018-19		Maninag R.F.	20.04.2018	1.000
		Mal RF	22.04.2018	1.000
		Dhani 'N' R.F.	28.05.2018	0.400

2019-20	Ranpur	Mal RF	03.04.2019	0.100
		Mal RF	12.04.2019	0.570
		Mal RF	13.04.2019	0.150
		Mal RF	15.04.2019	0.250
		Mal RF	16.04.2019	0.180
		Mal RF	17.04.2019	1.170
		Maninag R.F.	17.04.2019	0.050
		Mal RF	18.04.2019	0.010
		Mal RF	19.04.2019	0.020
		Mal RF	27.04.2019	0.011
		Mal RF	29.04.2019	0.026
		Mal RF	30.04.2019	0.445
2020-21		Mal RF	24.02.2021	0.010
		Mal RF	25.02.2021	0.001
		Mal RF	01.03.2021	0.002
		Mal RF	02.03.2021	0.100
		Mal RF	03.03.2021	0.100
		Mal RF	05.03.2021	0.020
		Mal RF	06.03.2021	0.003
		Mal RF	07.03.2021	0.304
		Mal RF	08.03.2021	0.069
		Mal RF	10.03.2021	0.003
		Mal RF	11.03.2021	0.001
		Mal RF	13.03.2021	0.004
		Mal RF	16.03.2021	0.003
		Mal RF	17.03.2021	0.020
		Mal RF	18.03.2021	0.001
		Mal RF	20.03.2021	0.050
		Mal RF	21.03.2021	0.002
		Mal RF	22.03.2021	0.006
		Mal RF	25.03.2021	0.050
		Mal RF	27.03.2021	0.001
		Mal RF	28.03.2021	0.001
		Maninag R.F.	30.03.2021	0.001
		Dhani 'N' R.F.	31.03.2021	0.050
2021-22		Maninag R.F.	01.04.2021	0.020
		R.l land	03.04.2021	0.700
		Mal RF	18.04.2021	0.001
		Mal RF	24.04.2021	0.020
		Mal RF	25.04.2021	0.005
		Mal RF	01.06.2021	0.001
2016-17	Delang	Nil	Nil	Nil
2017-18		Nil	Nil	Nil
2018-19		Nil	Nil	Nil
2019-20		Nil	Nil	Nil
2020-21		Nil	Nil	Nil
2016-17 to 2020-21	Balipatna	Nil	Nil	Nil

GIS based Forests fire maps for the year 2019, 2020, and 2021 prepared by FITGC, O/o PCCF, Odisha, Bhubaneswar.




FIRE MAP OF KHRODHA FOREST DIVISION
FOR THE YEAR 2020
N
W
E
S
KHURDA
BALUGAON
TANGI
RANPUR
DELANGA
BALIPATNA
BALAKATI
PIPLI
BHANRA
BIJUA
BADESWAR
MAHAPARBAT
KUMUSAR
GAHIRCADA
PANGARSINGH
PATABANDHA
BOLAGARH
SAMPUR
GADAPALLI
BEGUNIA
GOUDAPUT
TARTUA
KUSAPALLA
SURUKABADI
KOTAGARH
GADABANKILO
JARPUT
GARHKHURDA
RANGUR BHERUPADA
CHHATPUR
BICHO
RANPUR BADAR
NALSINGH
BHUSANDAPUR
RAMESWAR
NAKITHANA
KANAS
REINGALA
DANDAMAKUNDAPUR
BHETABARA
KARADAPALLA
BANKANALIA
SRIKUTI
SANKHAJODI
PATIA
BARAPALLI
GOPALPUR
CHHAPADAGARH
BADAPURI
CHUPURINGI
BETULI
RANDA
RAPADA
BATAMAL
DHUANALI
DIGITPADA
AYATPUR
PADMAPUR
NACHUNI
HARIPUR
NILAPALI
SANSIRIPUR
BERUHAMBADA
PRATAP
ANKULA
BHATAPADA
BERBARA
MANGUA
Legend
FIRE-2020 (FIRE INCIDENT- 19)
DIVISION BOUNDARY
RANGE BOUNDARY
SECTION BOUNDARY
BEAT BOUNDARY
FOREST BLOCKS
PREPARED BY: FITGC, ARANYA BHAWAN
BHUBANESWAR


FIRE MAP OF KHRODHA FOREST DIVISION
FOR THE YEAR 2021
N
W
E
S
KHURDA
BALUGAON
TANGI
RANPUR
DELANGA
BALIPATNA
PREPARED BY: FITGC, ARANYA BHAWAN
BHUBANESWAR
Legend
FIRE-2021 (FIRE INCIDENT- 347)
DIVISION BOUNDARY
RANGE BOUNDARY
SECTION BOUNDARY
BEAT BOUNDARY
FOREST BLOCKS

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APPENDIX-VIII

TOTAL NUMBER OF OR CASES BOOKED															
Name of Range	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**Total**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Balipatna	45	51	49	49	40	38	12	36	38	27	15	21	8	14	443
Balugaon	105	40	59	71	75	43	40	87	74	68	35	42	35	33	807
Delang	30	32	13	10	7	0	3	14	29	18	16	12	2	2	188
Khordha	120	66	70	81	57	30	10	13	160	96	11	17	8	14	753
Ranpur	69	54	38	26	37	53	16	49	33	28	41	17	6	22	488
Tangi	149	109	163	106	113	61	24	47	68	143	151	127	120	31	1412
Total	**518**	**352**	**392**	**343**	**329**	**225**	**105**	**246**	**402**	**379**	**269**	**236**	**179**	**116**	**4091**

TYPE OF OR CASES DURING THE YEAR 2007-08 to 2020-21																
Name of Range	**Type of cases**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**Total**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Balipatna	Wild Life cases	1	0	1	1	0	0	1	2	1	2	2	1	0	0	**12**
	Encroachment cases	0	0	0	0	2	0	0	0	0	0	0	0	0	0	**2**
	Forest Produce cases	44	51	48	45	37	38	9	33	34	25	11	17	0	1	**393**
	Saw mill cases	0	0	0	3	1	0	2	1	3	0	2	3	8	13	**36**
	Total	**45**	**51**	**49**	**49**	**40**	**38**	**12**	**36**	**38**	**27**	**15**	**21**	**8**	**14**	**443**
Balugaon	Wild Life cases	0	0	1	1	1	0	0	1	1	2	0	1	0	5	**13**
	Encroachment cases	0	0	0	0	0	0	0	0	0	0	0	0	17	2	**19**
	Forest Produce cases	105	40	58	70	74	43	40	86	73	66	35	41	18	26	**775**
	Saw mill cases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**105**	**40**	**59**	**71**	**75**	**43**	**40**	**87**	**74**	**68**	**35**	**42**	**35**	**33**	**807**
Delang	Wild Life cases	1	0	0	0	0	0	1	0	0	1	0	0	0	1	**4**
	Encroachment cases	0	9	0	0	0	0	0	0	0	0	0	0	0	0	**9**
	Forest Produce cases	29	23	13	10	7	0	2	14	29	17	16	12	1	0	**173**
	Saw mill cases	0	0	0	0	0	0	0	0	0	0	0	0	1	1	**2**
	Total	**30**	**32**	**13**	**10**	**7**	**0**	**3**	**14**	**29**	**18**	**16**	**12**	**2**	**2**	**188**
Khordha	Wild Life cases	3	0	1	2	1	1	2	0	3	1	0	0	0	3	**17**
	Encroachment cases	5	0	0	1	0	0	1	0	0	0	0	0	0	0	**7**
	Forest Produce cases	112	66	69	77	56	28	7	11	157	95	11	17	8	11	**725**
	Saw mill cases	0	0	0	1	0	1	0	2	0	0	0	0	0	0	**4**
	Total	**120**	**66**	**70**	**81**	**57**	**30**	**10**	**13**	**160**	**96**	**11**	**17**	**8**	**14**	**753**

Name of Range	Type of cases	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	Total
		0	1	0	0	0	1	0	0	0	3	1	1	2	6	**15**
	Encroachment cases	1	14	2	0	0	0	0	0	0	0	0	0	0	0	**17**
	Forest Produce cases	66	39	35	26	36	49	16	47	31	23	40	16	3	16	**443**
	Saw mill cases	2	0	1	0	1	3	0	2	2	1	0	0	0	1	**13**
	Total	**69**	**54**	**38**	**26**	**37**	**53**	**16**	**49**	**33**	**27**	**41**	**17**	**5**	**23**	**488**
Tangi	Wild Life cases	1	0	0	0	1	0	0	0	1	3	2	1	0	1	**10**
	Encroachment cases	0	5	7	0	6	0	0	0		4	7	8	3	1	**41**
	Forest Produce cases	148	104	155	106	106	61	24	47	67	130	142	118	117	28	**1353**
	Saw mill cases	0	0	1	0	0	0	0	0	0	6	0	0	0	1	**8**
	Total	**149**	**109**	**163**	**106**	**113**	**61**	**24**	**47**	**68**	**143**	**151**	**127**	**120**	**31**	**1412**
Division Total	Wild Life cases	6	1	3	4	3	2	4	3	6	12	5	4	2	16	**71**
	Encroachment cases	6	28	9	1	8	0	1	0	0	4	7	8	20	3	**95**
	Forest Produce cases	504	323	378	334	316	219	98	238	391	356	255	221	147	82	**3862**
	Saw mill cases	2	0	2	4	2	4	2	5	5	7	2	3	9	16	**63**
	Total	**518**	**352**	**392**	**343**	**329**	**225**	**105**	**246**	**402**	**379**	**269**	**236**	**178**	**117**	**4091**

QUANTITY OF FOREST PRODUCE SEIZED IN OR CASES

Name of Range	Materials	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Balipatna	Timber in cum.	0	0	0	8.3655	0	0.317	0.682	4.0456	0.232	0	0.3598	0.3688	1.8814	4.6086
	Bamboo in nos.	0	0	0	200	0	0	0	0	2	0	0	100	0	0
	Pole in nos.	0	0	0	0	0	0	0	0	0	0	0	0	0	6
	Firewood in kg.	21255	1600	1400	1320	24150	1120	270	1075	1185	4800	710	285	0	0
	Others	0	0	0	0	0	0	0	0	0	0	0	500	0	0
Balugaon	Timber in cum.	4.3566	11.6032	4.5337	10.6898	12.0131	3.1542	3.768	2.715	13.603	5.347	2.779	2.365	5.263	12.312
	Bamboo in nos.	187	0	215	90	70	18	67	83	297	94	0	0	0	0
	Pole in nos.	12	9	18	24	140	2	15	0	2	13	11	0	0	7
	Firewood in kg.	2725	250	450	1325	550	215	400	2080	2895	1554	760	2694	345	200
	Others	Cane 160	0	0	0	cane-65	0	0	0	0	6	2	4	6	4
Delang	Timber in cum.	0	0	0	0	0.4346	0	0.146	2.14	3.351	3.994262	2.9149	0	0.229117	0.3685792
	Bamboo in nos.	0	0	0	0	0	0	0	0	2	0	0	0	0	0
	Pole in nos.	0	0	6	16	0	0	0	0	1	0	0	0	0	0
	Firewood in kg.	700	1800	10	770	250	0	0	130	385	130	245	340	20	0
	Others	Morrum	Morrum	Morrum	Morrum	0	0	0	Morrum	Morrum	0	0	0	0	0
Khordha	Timber in cum.	19.6373	8.7638	6.3631	7.3177	4.7625	11.9747	0.3058	1.0564	1.847	2.728	0.94	1.598	1.606	0
	Bamboo in nos.	93	1739	14	9	12	3	0	0	54	0	0	6	0	0
	Pole in nos.	93	1739	14	9	12	3	-	-	2	0	1	16	0	300
	Firewood in kg.	1730	52975	15760	5115	2178	2905	2000	1340	6865	2693	205	575	250	185
	Others	0	Cane	Cane	Charcoal	K.L,& Morrum	0	0	0	Char coa 10 bags & L.Stone	0	0	0	100	6

Name of Range	Materials	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Ranpur	Timber in cum.	2.123	2.1218	2.0842	3.72	6.1297	15.3059	3.763	1.55	4.66	1.3	4.175	2.212	0.614	2.257
	Bamboo in nos.	0	0	0	0	1145	97	8	0	56	20	68	0	0	0
	Pole in nos.	2	82	0	10	0	50	8	15	20	63	3	0	0	0
	Firewood in kg.	1230	385	310	735	1280	210	40	1070	1220	305	755	170	30	0
	Others	0	K.L.8.09	0	0	0	0	K.L.21 bags	Sal & Siali plate	0	0	0	0	112	0
Tangi	Timber in cum.	5.1007	2.227	4.1925	0.3624	0.873	0.587	0.363	2.7664	2.621	6.386	2.174	3.451	1.436	0.639
	Bamboo in nos.	398	226	218	38	66	0	0	0	176	4	0	0	0	0
	Pole in nos.	36	21	6	30	0	10	2	4	8	8	6	6	2	115
	Firewood in kg.	4010	2786	6864	3307	4437	2290	775	770	1359	3762	5390	800	3641	170
	Others	Stone	Bolder	0	0	0	0	0	0	Char coal 18 Bags	0	0	15	6.35	38.2
Division Total	Timber in cum.	31.2176	24.7158	17.1735	30.4554	24.2129	31.3388	9.0278	14.2734	26.314	19.75526	13.3427	9.9948	11.02952	20.185179
	Bamboo in nos.	678	1965	447	337	1293	118	75	83	587	118	68	106	0	0
	Pole in nos.	143	1851	44	89	152	65	25	19	33	84	21	22	2	428
	Firewood in kg.	31650	59796	24794	12572	32845	6740	3485	6465	13909	13244	8065	4864	4286	555
	Others	Cane,Stone & Morrum	Cane,Bolder,Morrum &K.L	Cane & Morrum	Char coal & Morrum	Cane,K.L & Morrum	0	K.L.21 bags	Sal & Siali plate, Morrum	L.Stone, & Morrum	6	2	519	224.35	48.2

STATUS REPORT OF OR CASES DURING THE YEAR 2007-08 to 2020-21															
Name of Range	**Cases**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Balipatna	Compounded	43	50	47	45	36	37	9	33	28	25	11	18	0	0
	Not compounded	2	1	2	4	4	1	3	3	10	0	0	0	0	0
	Sent to trail	2	1	2	2	3	0	1	0	0	0	0	0	8	14
	Total	45	51	49	49	40	38	12	36	38	25	11	18	8	14
Balugaon	Compounded	88	9	32	33	27	22	27	62	52	47	22	33	11	6
	Not compounded	17	31	27	38	48	21	13	25	22	0	0	0	17	0
	Sent to trail	17	31	26	35	44	6	5	2	2	21	13	9	7	27
	Total	105	40	59	71	75	43	40	87	74	68	35	42	35	33
Delang	Compounded	28	13	6	3	6	0	0	2	15	13	11	12	1	0
	Not compounded	2	19	7	7	1	0	3	12	14	0	0	0	0	0
	Sent to trail	2	19	7	7	1	0	3	6	0	5	5	0	1	0
	Total	30	32	13	10	7	0	3	14	29	18	16	12	2	0
Khordha	Compounded	77	47	45	54	36	9	3	6	144	86	8	14	3	6
	Not compounded	43	19	25	27	21	21	7	7	16	4	1	0	5	0
	Sent to trail	43	19	23	25	19	6	1	0	0	6	2	3	0	8
	Total	120	66	70	81	57	30	10	13	160	96	11	17	8	14
Ranpur	Compounded	44	9	14	8	12	28	3	32	8	17	0	7	1	0
	Not compounded	25	45	24	18	25	25	13	17	25	0	0	0	0	0
	Sent to trail	23	41	14	18	21	15	0	0	0	0	0	0	0	0
	Total	69	54	38	26	37	53	16	49	33	17	0	7	1	0
Tangi	Compounded	121	82	139	97	102	46	15	26	36	106	137	95	78	3
	Not compounded	28	27	24	9	11	15	9	21	32	27	5	31	25	18
	Sent to trail	27	25	24	4	10	1	0	1	0	10	9	1	7	10
	Total	149	109	163	106	113	61	24	47	68	143	151	127	110	31
Division Total	Compounded	401	210	283	240	219	142	57	161	283	294	189	179	94	15
	Not compounded	117	142	109	103	110	83	48	85	119	31	6	31	47	18
	Sent to trail	114	136	96	91	98	28	10	9	2	42	29	13	23	59
	Total	**518**	**352**	**392**	**343**	**329**	**225**	**105**	**246**	**402**	**367**	**224**	**223**	**164**	**92**

TYPE OF UD CASES DURING THE YEAR 2007-08 to 2020-21																
Name of Range	**Type of cases**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**Total**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Khordha	UD	20	23	17	30	13	7	6	6	11	8	5	12	8	13	**179**
	Convert to OR	1	0	3	3	0	1	2	2	4	0	2	0	1	1	**20**
	Wild Life	5	3	5	5	2	4	0	1	7	4	1	4	5	4	**50**
	Saw Mill	0	0	0	0	0	0	1	1	2	0	0	0	0	0	**4**
	Total	**26**	**26**	**25**	**38**	**15**	**12**	**9**	**10**	**24**	**12**	**8**	**16**	**14**	**18**	**253**
Balugaon	UD	177	136	131	202	143	98	86	95	49	99	118	100	60	84	**1578**
	Convert to OR	0	0	0	0	1	0	1	0	0	0	0	1	2	1	**6**
	Wild Life	0	0	0	0	0	0	0	0	0	2	2	2	3	3	**12**
	Saw Mill	0	0	0	0	0	0	0	0	0	0	1	0	0	0	**1**
	Total	**177**	**136**	**131**	**202**	**144**	**98**	**87**	**95**	**49**	**101**	**121**	**103**	**65**	**88**	**1597**
Tangi	UD	60	73	59	77	35	29	28	11	29	52	42	44	22	22	**583**
	Convert to OR	0	1	2	0	1	2	3	1	1	1	0	1	2	6	**21**
	Wild Life	1	0	0	0	0	2	0	3	0	1	5	1	6	5	**24**
	Saw Mill	0	0	0	0	0	0	1	1	3	4	2		2	4	**17**
	Total	**61**	**74**	**61**	**77**	**36**	**33**	**32**	**16**	**33**	**58**	**49**	**46**	**32**	**37**	**645**
Ranpur	UD	108	62	30	48	54	36	27	38	36	72	55	35	19	23	**643**
	Convert to OR	0	1	1	0	4	0	3	1	0	2	0	2	6	5	**25**
	Wild Life	0	0	0	0	2	3	1	1	0	0	6	2	1	5	**21**
	Saw Mill	0	0	0	0	2	2	3	9	4	4	0	1	0	5	**30**
	Total	**108**	**63**	**31**	**48**	**62**	**41**	**34**	**49**	**40**	**78**	**61**	**40**	**26**	**38**	**719**

Delang	UD	0	0	0	0	0	0	0	0	0	3	3	1	3	1	**11**
	Convert to OR	0	0	0	0	0	0	0	1	1	2	2	0	0	0	**6**
	Wild Life	0	0	0	0	1	2	0	0	0	1	1	1	0	0	**6**
	Saw Mill	0	0	0	0	0	0	0	0	0	0	0	0	1	0	**1**
	Total	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**1**	**1**	6	6	2	4	1	**24**
Balipatna	UD	0	1	0	0	0	0	0	2	5	11	11	7	2	8	**47**
	Convert to OR	1	0	0	1	1	0	0	0	0	1	0	0	0	0	**4**
	Wild Life	5	2	5	2	2	2	4	2	3	9	8	4	1	3	**52**
	Saw Mill	0	0	0	0	0	0	0	0	2	0	2	0	0	0	**4**
	Total	**6**	**3**	**5**	**3**	**3**	**2**	**4**	**4**	**10**	**21**	**21**	**11**	**3**	**11**	**107**
Division Total	**Total UD**	**365**	**295**	**237**	**357**	**245**	**170**	**147**	**152**	**130**	**245**	**234**	**199**	**114**	**151**	**3041**
	Total Convert	**2**	**2**	**6**	**4**	**7**	**3**	**9**	**5**	**6**	**6**	**4**	**4**	**11**	**13**	**82**
	Total Wild Life	**11**	**5**	**10**	**7**	**7**	**13**	**5**	**7**	**10**	**17**	**23**	**14**	**16**	**20**	**165**
	Saw Mill	**0**	**0**	**0**	**0**	**2**	**2**	**5**	**11**	**11**	**8**	**5**	**1**	**3**	**9**	**57**
	Grand Total	**378**	**302**	**253**	**368**	**261**	**188**	**166**	**175**	**157**	**276**	**266**	**218**	**144**	**193**	**3345**

QUANTITY OF FOREST PRODUCE SEIZED IN UD CASES 2007-08 to 2020-21																
Name of Range	**Materials**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**Total**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Khordha	Timber in cum.	19	9	13	22	6	2	11	1	0	5.707	1.752	7.552	5.073	4.322	107.406
	Bamboo in nos.	20	0	0	700	1150		0	0	0	0	0	0	0	0	1870
	Pole in nos.	0	9	0	1	4	2	0	0	0	0	0	0	0	0	16
	Firewood in kg.	20	2705	0	1600	0	0	0	0	0	0	0	0	0	300	4625
	Others	50(SW)	0	0	0	0	0	0	0	0	9	16	0	0	150	175
Balugaon	Timber in cum.	116	149	110	254	178	124	124	222	49	60.997	66.635	87.861	41.154	53.42	1636.067
	Bamboo in nos.	950	0	0	0	0	0	0	0	0	0	0	0	0	0	950
	Pole in nos.	10	0	0	0	0	0	0	0	0	0	0	0	0	32	42
	Firewood in kg.	0	0	15	0	0	0	0	0	0	0	0	0	0	0	15
	Others	0	0	0	0	0	0	0	0	0	9	11	1	1	2	24
Tangi	Timber in cum.	4	3	6	19	21	8	3	2	16	7.468	6.572	5.472	5.118	3.948	110.578
	Bamboo in nos.	0	253	625	0	0	0	0	0	0					0	878
	Pole in nos.	150	3	20	109	19	12	40	0	0	166	32	115	8	2	676
	Firewood in kg.	90	0	0	500	0	0	0	0	0	200	740	210	0	350	2090
	Others	0	0	0	0	0	0	0	0	0	16	46	32	30	27	151

Ranpur	Timber in cum.	24	19	8	39	40	22	34	32	27	6.236	4.848	31.91	9.492	3.327	300.813
	Bamboo in nos.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pole in nos.	0	0	5	0	22	42	0	0	68	4	28	15	0	0	184
	Firewood in kg.	0	0	0	0	246	0	0	0	0	390	0	300	0	0	936
	Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delang	Timber in cum.	0	0	0	0	0	0	0	0	0	0	0	0	1.885629	0.301678	2.187307
	Bamboo in nos.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pole in nos.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Firewood in kg.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Balipatna	Timber in cum.	0	0	0	0	0	0	0	2	3	0.3528	0.5214	2.167	0.577	2.479	11.0972
	Bamboo in nos.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pole in nos.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Firewood in kg.	0	0	0	0	0	0	0	0	0	0	0	400	0	0	400
	Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Division Total	**Timber in cum.**	**163**	**180**	**137**	**334**	**244**	**157**	**172**	**259**	**95**	**80.7608**	**80.3284**	**134.962**	**63.29963**	**67.79768**	**2168.1485**
	Bamboo in nos.	**970**	**253**	**625**	**700**	**1150**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3698**
	Pole in nos.	**160**	**12**	**25**	**110**	**45**	**56**	**40**	**0**	**68**	**170**	**60**	**130**	**8**	**34**	**918**
	Firewood in kg.	**110**	**2705**	**15**	**2100**	**246**	**0**	**0**	**0**	**0**	**590**	**740**	**910**	**0**	**650**	**8066**
	Others	**50(SW)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**34**	**73**	**33**	**31**	**179**	**350**

UD CASE BOOKED															
Name of Range	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**Total**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Balipatna	6	3	5	3	3	2	4	4	10	11	11	7	2	8	**79**
Balugaon	177	136	131	202	144	98	87	95	49	99	118	100	60	84	**1580**
Delang	0	0	0	0	1	2	0	1	1	3	3	1	3	1	**16**
Khordha	26	26	25	38	15	12	9	10	24	12	8	16	14	18	**253**
Ranpur	108	63	31	48	62	41	34	49	40	72	55	35	19	23	**680**
Tangi	61	74	61	77	36	33	32	16	33	58	49	46	32	37	**645**
Total	**378**	**302**	**253**	**368**	**261**	**188**	**166**	**175**	**157**	**255**	**244**	**205**	**130**	**171**	**3253**

QUANTITY OF FOREST PRODUCE SEIZED WITH DISPOSAL IN UD CASES DURING THE YEAR 2007-08 to 2020-21

Year	Disposal	Balipatna					Balugaon					Delang					Khordha					Ranpur					Tangi			
		Timber in cum.	Bamboo in nos.	Pole in nos.	Firewood in kg.	Others	Timber in cum.	Bamboo in nos.	Pole in nos.	Firewood in kg.	Others	Timber in cum.	Bamboo in nos.	Pole in nos.	Firewood in kg.	Others	Timber in cum.	Bamboo in nos.	Pole in nos.	Firewood in kg.	Others	Timber in cum.	Bamboo in nos.	Pole in nos.	Firewood in kg.	Others	Timber in cum.	Bamboo in nos.	Pole in nos.	Firewood in kg.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2007-08	Total	**0**	**0**	**0**	**0**	**0**	**115.678**	**0**	**10**	**950**	**0**	**0**	**0**	**0**	**0**	**0**	**81.9563**	**0**	**0**	**0**	**0**	**21.568**	**0**	**0**	**0**	**0**	**4.48**	**875**	**150**	**90**
	Delivered to OFDC	0	0	0	0	0	96.739	0	10	950	0	0	0	0	0	0	2.249	20	0	0	0	21.568	0	0	0	0	4.484	0	150	90
	Deptl. use	0	0	0	0	0	18.939	0	0	0	0	0	0	0	0	0	3.153	0	0	0	0	0	0	0	0	0	0	875	0	0
	Open sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76.5543	84000	0	0	0	0	0	0	0	0	0	0	0	0
2008-09	Total	**0.36**	**0**	**0**	**0**	**0**	**148.514**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**71.5333**	**0**	**24**	**32435**	**0**	**16.479**	**0**	**0**	**0**	**0**	**2.91**	**253**	**3**	**0**
	Delivered to OFDC	0.358	0	0	0	0	128.701	0	0	0	0	0	0	0	0	0	5.021	28000	0	8435	0	15.573	0	0	0	0	2.623	0	0	0
	Deptl. use	0	0	0	0	0	19.813	0	0	0	0	0	0	0	0	0	3.707	17500	9	0	0	0.906	0	0	0	0	0.289	253	3	0
	Open sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62.8053	10500	15	24000	0	0	0	0	0	0	0	0	0	0
2009-10	Total	**0**	**0**	**0**	**0**	**0**	**110.182**	**0**	**0**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**52.7903**	**7000**	**10**	**16000**	**0**	**8.362**	**0**	**5**	**0**	**0**	**5.67**	**625**	**20**	**0**
	Delivered to OFDC	0	0	0	0	0	98.4	0	0	15	0	0	0	0	0	0	10.015	3500	5	8000	0	4.274	0	5	0	0	4.021		4	0
	Deptl. use	0	0	0	0	0	11.782	0	0	0	0	0	0	0	0	0	1.8263	2100	3	4800	0	4.088	0	0	0	0	1.653	625	16	0
	Open sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40.949	1400	2	3200	0	0	0	0	0	0	0	0	0	0
2010-11	Total	**0**	**0**	**0**	**0**	**0**	**254.128**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**21.509**	**700**	**1**	**1600**	**0**	**39.291**	**0**	**0**	**0**	**0**	**18.7**	**0**	**109**	**500**
	Delivered to OFDC	0	0	0	0	0	241.486	0	0	0	0	0	0	0	0	0	19.44	700	1	1600	0	32.67	0	0	0	0	18.651	0	99	500
	Deptl. use	0	0	0	0	0	12.642	0	0	0	0	0	0	0	0	0	2.069	0	0	0	0	6.621	0	0	0	0	0	0	10	0
	Open sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011-12	Total	**0**	**0**	**0**	**0**	**0**	**177.55**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10.825**	**0**	**4**	**4300**	**0**	**39.669**	**0**	**22**	**246**	**0**	**21.3**	**0**	**19**	**0**
	Delivered to OFDC	0	0	0	0	0	177.55	0	0	0	0	0	0	0	0	0	4.882	0	4	4300	0	36.297		22	246	0	21.339	0	19	0
	Deptl. use	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.053	0	0	0	0	3.372	0	0	0	0	0	0	0	0
	Open sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.89	0	0	0	0	0	0	0	0	0	0	0	0	0
2012-13	Total	**0**	**0**	**0**	**0**	**0**	**124.396**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2.445**	**0**	**2**	**0**	**0**	**22.281**	**0**	**42**	**0**	**0**	**6.07**	**0**	**12**	**0**
	Delivered to OFDC	0	0	0	0	0	82.804	0	0	0	0	0	0	0	0	0	2.445	0	2	0	0	22.281	0	42	0	0	3.558	0	12	0
	Deptl. use	0	0	0	0	0	41.592	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	2.516	0	0	0
	Open sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
2013-14	Total	**0**	**0**	**0**	**0**	**0**	**119.112**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7.057**	**0**	**0**	**0**	**0**	**29.329**	**0**	**0**	**0**	**0**	**2.8**	**0**	**40**	**0**
	Delivered to OFDC	0	0	0	0	0	113.34	0	0	0	0	0	0	0	0	0		0	0	0	0	18.627	0	0	0	0	2.074	0	40	0
	Deptl. use	0	0	0	0	0	5.772	0	0	0	0	0	0	0	0	0	5.927	0	0	0	0	10.702	0	0	0	0	0.721	0	0	0
	Open sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.13	0	0	0	0	0	0	0	0	0	0	0	0	0

2014-15	Total	**0**	**0**	**0**	**0**	**0**	**221.58**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1.13**	**0**	**0**	**0**	**0**	**27.408**	**0**	**0**	**0**	**0**	**2.12**	**0**	**0**	**0**
	Delivered to OFDC	0	0	0	0	0	163.585	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27.408	0	0	0	0	0.944	0	0	0
	Deptl. use	0	0	0	0	0	57.995	0	0	0	0	0	0	0	0	0	1.13	0	0	0	0	0	0	0	0	0	1.171	0	0	0
	Open sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015-16	**Total**	**0**	**0**	**0**	**0**	**0**	**27.8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5.623**	**0**	**0**	**0**
	Delivered to OFDC	0	0	0	0	0	6.521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Deptl use	0	0	0	0	0	21.279	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.623	0	0	0
	Open sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2016-17	**Total**	**0.353**	**0**	**0**	**0**	**0**	**60.997**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5.707**	**0**	**0**	**0**	**0**	**6.401**	**0**	**0**	**360**	**0**	**7.468**		**166**	**200**
	Delivered to OFDC	0.3528	0	0	0	0	50.53	0	0	0	0	0	0	0	0	0	4.474	0	0	0	0	6.244	0	0	360	0	7.468		166	200
	Deptl. use	0	0	0	0	0	8.519	0	0	0	0	0	0	0	0	0	1.233	0	0	0	0	0.157	0	0	0	0				
	Open sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2017-18	**Total**	**0.521**	**0**	**0**	**0**	**0**	**66.635**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1.752**	**0**	**0**	**0**	**0**	**4.8536**	**0**	**25**	**0**	**0**	**6.572**		**32**	**740**
	Delivered to OFDC	0.17985	0	0	0	0	54.378	0	0	0	0	0	0	0	0	0	1.752	0	0	0	0	3.4066	0	25	0	0	6.248			740
	Deptl. use	0	0	0	0	0	10.971	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.447	0	0	0	0	0.324			
	Open sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-19	Total	**2.167**	**0**	**0**	**0**	**0**	**87.861**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7.552**	**0**	**0**	**0**	**0**	**32.378**	**0**	**15**	**300**	**0**	**5.472**		**115**	**210**
	Delivered to OFDC	2.167	0	0	400	0	65.641	0	0	0	0	0	0	0	0	0	1.205	0	0	0	0	31.431	0	15	300	0	4.399		115	210
	Deptl. use	0	0	0	0	0	22.087	0	0	0	0	0	0	0	0	0	6.175	0	0	0	0	0.947	0	0	0	0	1.073			
	Open sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2019-20	Total	**0.577**	**0**	**0**	**0**	**0**	**41.154**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5.073**	**0**	**0**	**0**	**0**	**6.4002**	**0**	**0**	**0**	**0**	**5.118**		**8**	**0**
	Delivered to OFDC	0.577	0	0	0	0	6.209	0	0	0	0	0	0	0	0	0	2.844	0	0	0	0	3.8582	0	0	0	0	3.615		8	
	Deptl. use	0	0	0	0	0	5.866	0	0	0	0	0	0	0	0	0	0.947	0	0	0	0	2.542	0	0	0	0	0.497			
	Open sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020-21	Total	**2.479**	**0**	**0**	**0**	**0**	**53.42**	**0**	**32**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4.322**	**0**	**0**	**0**	**0**	**1.607**	**0**	**0**	**0**	**0**	**3.948**		**2**	**350**
	Delivered to OFDC	1.667	0	0	0	0	13.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.607	0	0	0	0	0		0	0
	Deptl. use	0	0	0	0	0	11.975	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.32		0	0
	Open sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NUMBERS OF MOTORISED VEHICLES BOOKED UNDER SECTION - 56 CASES OF OR & UD																						
Name of Range	**S/56 cases**	**2007-08**			**2008-09**			**2009-10**			**2010-11**			**2011-12**			**2012-13**			**2013-14**		
		OR	**UD**	**Total**	**OR**	**UD**	**Total**	**OR**	**UD**	**Total**	**OR**	**UD**	**Total**	**OR**	**UD**	**Total**	**OR**	**UD**	**Total**	**OR**	**UD**	**Total**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
Balipatna	Motorized vehicles	2	0	2	0	0	0	0	0	0	1	0	1	1	0	1	1	0	1	0	0	0
Balugaon	Motorized vehicles	3	0	3	4	0	4	2	0	2	9	0	9	3	2	5	3	0	3	2	1	3
Delang	Motorized vehicles	1	0	1	3	0	3	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0
Khordha	Motorized vehicles	18	1	19	7	2	9	11	3	14	13	2	15	9	0	9	11	0	11	5	1	6
Ranpur	Motorized vehicles	5	1	6	4	0	4	0	0	0	2	0	2	6	1	7	1	0	1	3	0	3
Tangi	Motorized vehicles	7	0	7	3	1	4	1	0	1	2	0	2	2	1	3	2	0	2	2	0	2
Division Total	Motorized vehicles	36	2	38	21	3	24	14	3	17	28	2	30	22	4	26	18	0	18	12	2	14

NUMBERS OF MOTORISED VEHICLES BOOKED UNDER SECTION - 56 CASES OF OR & UD																						
Name of Range	S/56 cases	2014-15			2015-16			2016-17			2017-18			2018-19			2019-20			2020-21		
		OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Balipatna	Motorized vehicles	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	1	0	1	0	0	0
Balugaon	Motorized vehicles	6	0	6	5	2	7	2	0	2	1	0	1	4	0	4	3	1	4	3	0	3
Delang	Motorized vehicles	6	0	6	15	0	15	1	0	1	8	0	8	0	0	0	2	0	2	0	0	0
Khordha	Motorized vehicles	3	2	5	6	0	6	2	0	2	3	2	5	1	0	1	1	0	1	4	0	4
Ranpur	Motorized vehicles	8	0	8	7	1	8	4	10	14	3	6	9	4	5	9	1	4	5	9	5	14
Tangi	Motorized vehicles	5	0	5	5	0	5	10	6	16	9	11	20	1	6	7	7	3	10	10	15	25
Division Total	Motorized vehicles	28	2	30	38	3	41	19	16	35	24	19	43	12	11	23	15	8	23	26	20	46

NUMBERS OF VEHICLES BOOKED UNDER SECTION - 56 CASES OF OR & UD

Name of Range	S/56 cases	2007-08			2008-09			2009-10			2010-11			2011-12			2012-13			2013-14		
		OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Balipatna	Motorized vehicles	2	0	2	0	0	0	0	0	0	1	0	1	1	0	1	1	0	1	1	0	1
	Non Motorized vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other tools	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**0**	**1**	**1**	**0**	**1**	**1**	**0**	**1**
Balugaon	Motorized vehicles	3	0	3	4	0	4	2	0	2	9	0	9	3	2	5	3	0	3	2	1	3
	Non Motorized vehicles	6	3	9	5	5	10	8	14	22	9	23	32	9	10	19	1	5	6	0	1	1
	Other tools	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Total		**9**	**3**	**12**	**9**	**5**	**14**	**10**	**14**	**24**	**18**	**23**	**41**	**12**	**13**	**25**	**4**	**5**	**9**	**2**	**2**	**4**
Delang	Motorized vehicles	1	0	1	3	0	3	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0
	Non Motorized vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other tools	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**1**	**0**	**1**	**3**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
Khordha	Motorized vehicles	18	1	19	7	2	9	11	3	14	13	2	15	9	0	9	11	0	11	5	1	6
	Non Motorized vehicles	3	0	3	1	0	1	2	0	2	1	0	1	1	0	1	3	0	3	0	1	1
	Other tools	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	3	0	3
Total		**22**	**1**	**23**	**8**	**2**	**10**	**14**	**3**	**17**	**14**	**2**	**16**	**10**	**0**	**10**	**14**	**0**	**14**	**8**	**2**	**10**

Ranpur	Motorized vehicles	5	1	6	4	0	4	0	0	0	2	0	2	6	1	7	1	0	1	3	0	3
	Non Motorized vehicles	13	34	47	11	13	24	3	9	12	2	7	9	6	2	8	1	2	3	4	1	5
	Other tools	2	0	2	0	0	0	0	0	0	0	3	3	0	1	1	8	1	9	0	2	2
Total		**20**	**35**	**55**	**15**	**13**	**28**	**3**	**9**	**12**	**4**	**10**	**14**	**12**	**4**	**16**	**10**	**3**	**13**	**7**	**3**	**10**
Tangi	Motorized vehicles	7	0	7	3	1	4	2	0	2	1	0	1	2	1	3	2	0	2	2	0	2
	Non Motorized vehicles	16	28	44	9	52	61	2	14	16	6	14	20	0	2	2	0	5	5	0	2	2
	Other tools	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
Total		**23**	**28**	**51**	**12**	**53**	**65**	**4**	**14**	**18**	**8**	**14**	**22**	**2**	**3**	**5**	**2**	**5**	**7**	**2**	**2**	**4**
Division Total	Motorized vehicles	36	2	38	21	3	24	15	3	18	27	2	29	22	4	26	18	0	18	13	2	15
	Non Motorized vehicles	38	65	103	26	70	96	15	37	52	18	44	62	16	14	30	5	12	17	4	5	9
	Other tools	3	0	3	0	0	0	1	0	1	1	3	4	0	2	2	8	1	9	3	2	5
Grand Total		**77**	**67**	**144**	**47**	**73**	**120**	**31**	**40**	**71**	**46**	**49**	**95**	**38**	**20**	**58**	**31**	**13**	**44**	**20**	**9**	**29**

NUMBERS OF VEHICLES BOOKED UNDER SECTION - 56 CASES OF OR & UD																							
Name of Range	S/56 cases	2014-15			2015-16			2016-17			2017-18			2018-19			2019-20			2020-21		
		OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Balipatna	Motorized vehicles	1	0	1	0	0	0	0	0	0	0	0	0	2	0	2	1	0	1	0	0	0
	Non Motorized vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other tools	0	0	0	0	2	2	0	0	0	3	0	3	3	0	3	2	0	2	22	0	22
Total		**1**	**0**	**1**	**0**	**2**	**2**	**0**	**0**	**0**	**3**	**0**	**3**	**5**	**0**	**5**	**3**	**0**	**3**	**22**	**0**	**22**
Balugaon	Motorized vehicles	6	0	6	5	2	7	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Non Motorized vehicles	3	1	4	0	11	11	2	0	2	1	0	1	4	0	4	3	1	4	3	0	3
	Other tools	0	0	0	0	0	0	4	9	13	2	11	13	0	1	1	3	0	3	0	2	2
Total		**9**	**1**	**10**	**5**	**13**	**18**	**9**	**13**	**20**	**9**	**18**	**22**	**13**	**11**	**16**	**18**	**14**	**21**	**18**	**18**	**22**
Delang	Motorized vehicles	6	0	6	15	0	15	1	0	1	8	0	8	0	0	0	2	0	2	0	0	0
	Non Motorized vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other tools	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**6**	**0**	**6**	**15**	**0**	**15**	**1**	**0**	**1**	**8**	**0**	**8**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**0**
Khordha	Motorized vehicles	3	0	3	6	0	6	2	0	2	3	2	5	1	0	1	1	0	1	4	0	4
	Non Motorized vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
	Other tools	2	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**5**	**0**	**5**	**0**	**1**	**7**	**2**	**0**	**2**	**3**	**2**	**5**	**1**	**0**	**1**	**2**	**0**	**2**	**4**	**0**	**4**
Ranpur	Motorized vehicles	8	0	8	7	1	8	2	1	3	2	0	2	4	3	7	4	3	7	6	1	7
	Non Motorized vehicles	2	0	2	0	4	4	1	2	3	1	6	7	0	2	2	0	0	0	2	3	5
	Other tools	2	6	8	0	3	3	1	4	5	0	0	0	0	1	1	0	0	0	1	5	6
Total		**12**	**6**	**18**	**0**	**8**	**15**	**4**	**7**	**11**	**3**	**6**	**9**	**4**	**6**	**10**	**4**	**3**	**7**	**9**	**9**	**18**
Tangi	Motorized vehicles	5	0	5	5	0	5	10	1	11	9	1	10	1	6	7	7	3	10	10	15	25
	Non Motorized vehicles	0	2	2	0	31	31	0	5	5	0	10	10	0	6	6	0	8	8	0	4	4
	Other tools	0	3	3	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**5**	**5**	**10**	**5**	**33**	**38**	**10**	**6**	**16**	**9**	**11**	**20**	**1**	**12**	**13**	**7**	**11**	**18**	**10**	**19**	**29**
Division Total	Motorized vehicles	29	0	29	38	3	41	18	6	22	28	10	33	17	19	28	27	19	35	35	32	53
	Non Motorized vehicles	5	3	8	0	46	46	3	7	10	2	16	18	4	8	12	4	9	13	5	7	12
	Other tools	4	9	13	0	8	8	5	13	18	5	11	16	3	2	5	5	0	5	23	7	30
Grand Total		**38**	**12**	**50**	**25**	**57**	**95**	**26**	**26**	**50**	**35**	**37**	**67**	**24**	**29**	**45**	**36**	**28**	**53**	**63**	**46**	**95**

Status Report on the cases booked under Section - 56

Name of Range	Booked cases	2007-08			2008-09			2009-10			2010-11			2011-12			2012-13			2013-14		
		OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Balipatna	Seized (Cases booked)	2	0	2	0	0	0	0	0	0	1	0	1	1	0	1	1	0	1	1	0	1
	Confiscated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
	Released	2	0	2	0	0	0	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0
	Disposed out of confiscation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for disposal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for trial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Balugaon	Seized	3	0	3	4	0	4	2	0	2	9	0	9	3	2	5	3	0	3	2	1	3
	Confiscated	3	0	3	3	0	3	2	0	2	9	0	9	3	2	5	1	0	1	1	1	2
	Released	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Disposed out of confiscation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for disposal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for trial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	1	0	1
Delang	Seized	1	0	1	3	0	3	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0
	Confiscated			0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Released	1	0	1	3	0	3	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
	Disposed out of confiscation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for disposal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for trial			0			0			0			0	1		1			0			0

Khordha	Seized	18	1	19	7	2	9	11	3	14	13	2	15	9	0	9	11	0	11	5	1	6
	Confiscated	11	1	12	2	2	4	5	3	8	1		1	4		4	2		2			0
	Released	6		6	4		4	4		4	6		6	4		4	4		4	3		3
	Disposed out of confiscation	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for disposal	1	0	1	0	0	0	1	0	1	3	2	5	1	0	1	0	0	0	0	1	1
	Pending for trial	0		0			0	1		1	1		1			0	5		5	2		2
Ranpur	Seized	4	2	6	4	0	4	0	0	0	2	0	2	6	1	7	1	0	1	3	0	3
	Confiscated	3	2	5	3	0	3	0	0	0	1	0	1	4	0	4	0	0	0	1	0	1
	Released	1		1	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
	Disposed out of confiscation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for disposal	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
	Pending for trial	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	1	0	1	2		2
Tangi	Seized	7	0	7	3	1	4	2	0	2	1	0	1	2	1	3	2	0	2	2	0	2
	Confiscated	5	0	5	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	1		1
	Released	0	0	0	0	0	0	0	0	0	1	0	1	2	0	2	1	0	1	1	0	1
	Disposed out of confiscation	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for disposal	1	0	1	0	0	0	1	0	1	0	0	0	0	1	1	1	0	1	0	0	0
	Pending for trial	1	0	1	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Division Total	**Seized**	**35**	**3**	**38**	**21**	**3**	**24**	**15**	**3**	**18**	**27**	**2**	**29**	**22**	**4**	**26**	**18**	**0**	**18**	**13**	**2**	**15**
	Confiscated	**22**	**3**	**25**	**9**	**2**	**11**	**8**	**3**	**11**	**11**	**0**	**11**	**11**	**2**	**13**	**4**	**0**	**4**	**3**	**1**	**4**
	Released	**10**	**0**	**10**	**9**	**0**	**9**	**4**	**0**	**4**	**10**	**0**	**10**	**7**	**0**	**7**	**5**	**0**	**5**	**4**	**0**	**4**
	Disposed out of confiscation	**0**	**0**	**0**	**1**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Pending for disposal	**2**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**2**	**3**	**2**	**5**	**1**	**2**	**3**	**1**	**0**	**1**	**0**	**1**	**1**
	Pending for trial	**1**	**0**	**1**	**2**	**0**	**2**	**1**	**0**	**1**	**1**	**0**	**1**	**3**	**0**	**3**	**8**	**0**	**8**	**6**	**0**	**6**

Status Report on the cases booked under Section - 56

Name of Range	Booked cases	2014-15			2015-16			2016-17			2017-18			2018-19			2019-20			2020-21		
		OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total	OR	UD	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Balipatna	Seized (Cases booked)	1	0	1	0	0	0	27	11	38	15	11	26	18	7	28	8	2	10	14	8	22
	Confiscated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Released	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Disposed out of confiscation	0	0	0	0	0	0	24	8	32	10	9	19	15	2	17	0	1	1	0	0	0
	Pending for disposal	0	0	0	0	0	0	3	3	6	5	2	7	3	5	8	8	1	9	14	8	22
	Pending for trial	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Balugaon	Seized	7	0	7	5	2	7	4	0	4	2	0	2	4	0	4	5	0	5	3	0	3
	Confiscated	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Released	0	0	0	0	0	0	1	0	1	1	0	1	1	0	1	1	0	1	0	0	0
	Disposed out of confiscation	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for disposal	0	0	0	0	2	2	3	0	3	1	0	1	3	0	3	4	0	4	0	0	0
	Pending for trial	4	0	4	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
Delang	Seized	0	0	0	15	0	15	1	0	1	8	0	8	0	0	0	2	0	2	0	0	0
	Confiscated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Released	0	0	0	4	0	4	1	0	1	8	0	8	0	0	0	0	0	0	0	0	0
	Disposed out of confiscation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for disposal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for trial	0	0	0	11		11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Khordha	Seized	2	2	4	6	0	6	2	0	2	3	2	5	1	0	1	1	0	1	4	0	4
	Confiscated	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Released	1	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	3	0	3
	Disposed out of confiscation	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for disposal	0	2	2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for trial	1		1	4		4	2	0	2	2	2	4	1	0	1	1	0	1	1	0	1
Ranpur	Seized	4	0	4	7	1	8	2	1	3	2	0	2	4	3	7	4	3	7	6	1	7
	Confiscated	0	0	0	0	0	0	0	0	0	2	0	2	0	2	2	3	0	3	0	0	0
	Released	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	2	0	2	0	0	0
	Disposed out of confiscation	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for disposal	4	0	4	0	1	1	0	0	0	0	0	0	2	0	2	2	1		5	1	6
	Pending for trial			0	6		6	0	0	0	0	0	0	0	2	2	3	1	4	5	1	6
Tangi	Seized	5	0	5	5	0	5	10	6	16	9	11	20	1	12	13	7	11	18	10	15	25
	Confiscated	1	0	1	0		0	7	0	7	1	0	1	0	0	0	0	0	0	0	0	0
	Released	2	0	2	2		2	3	0	3	5	0	5	0	0	0	2	0	2	0	0	0
	Disposed out of confiscation	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pending for disposal	2	0	2	0	0	0	0	0	0	0	11	11	0	12	13	0	11	11	0	15	15
	Pending for trial	0		0	2		2	0	0	0	3	0	3	1	12	13	5	0	5	10	0	10
Division Total	**Seized**	**19**	**2**	**21**	**38**	**3**	**41**	**46**	**18**	**64**	**39**	**24**	**63**	**28**	**22**	**53**	**27**	**16**	**43**	**37**	**24**	**61**
	Confiscated	**3**	**0**	**3**	**0**	**0**	**0**	**7**	**0**	**7**	**3**	**0**	**3**	**0**	**2**	**2**	**3**	**0**	**3**	**0**	**0**	**0**
	Released	**3**	**0**	**3**	**6**	**0**	**6**	**6**	**0**	**6**	**15**	**0**	**15**	**2**	**0**	**2**	**5**	**0**	**5**	**3**	**0**	**3**
	Disposed out of confiscation	**1**	**0**	**1**	**4**	**0**	**4**	**24**	**8**	**32**	**10**	**9**	**19**	**15**	**2**	**17**	**0**	**1**	**1**	**0**	**0**	**0**
	Pending for disposal	**6**	**2**	**8**	**0**	**3**	**3**	**6**	**3**	**9**	**6**	**13**	**19**	**8**	**17**	**26**	**14**	**13**	**24**	**19**	**24**	**43**
	Pending for trial	**6**	**0**	**6**	**28**	**0**	**28**	**2**	**0**	**2**	**5**	**2**	**7**	**2**	**14**	**16**	**9**	**1**	**10**	**19**	**1**	**20**

PROSECUTION CASES SENT TO COURT DURING THE YEAR

2007-08 to 2020-21

Year	Name of the Court									
	SDJM, Khordha	SDJM, Bhubaneswar	JMFC, Banpur	SDJM, Banki	JMFC, Ranpur	JMFC , Nimapara	SDJM, Puri	JMFC, Pipili	NGN, Tangi	Total
2007-08	30	0	6	2	38	0	5	1	0	82
2008-09	27	0	7	8	6	0	1	1	0	50
2009-10	28	3	25	7	56	0	17	0	0	136
2010-11	61	0	22	2	61	0	11	1	0	158
2011-12	45	0	100	0	43	0	2	0	0	190
2012-13	32	2	8	2	5	0	0	1	0	50
2013-14	0	1	14	0	1	0	0	1	0	17
2014-15	7	0	3	3	0	0	0	0	0	13
2015-16	21	2	57	2	29	0	0	7	0	118
2016-17	6	2	9	1	1	0	0	1	0	20
2017-18	1	2	7	0	3	0	0	5	0	18
2018-19	0	2	0	0	1	0	0	0	0	3
2019-20	1	0	0	0	1	0	0	2	0	4
2020-21	0	0	7	0	6	0	0	0	9	22
Total	**259**	**14**	**265**	**27**	**251**	**0**	**36**	**20**	**9**	**881**

PERSON ARRESTED																
Name of Range		**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**Total**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Balipatna	No of cases Booked	45	51	49	49	40	38	12	36	38	27	15	21	8	14	443
	Person arrested	7	1	0	9	0	0	3	1	7	5	2	2	2	0	39
Balugaon	No of cases Booked	105	40	59	71	75	43	40	87	74	68	35	42	35	33	807
	Person arrested	28	24	27	29	56	17	22	42	23	14	4	6	3	30	325
Delang	No of cases Booked	30	32	13	10	7	0	3	14	29	18	16	12	2	2	188
	Person arrested	3	14	6	7	2	0	1	15	14	2	8	0	0	0	72
Khordha	No of cases Booked	120	66	70	81	57	30	10	13	160	96	11	17	8	14	753
	Person arrested	16	21	12	14	17	5	4	3	12	5	0	4	0	4	117
Ranpur	No of cases Booked	69	54	38	26	37	53	16	49	33	28	42	17	6	22	490
	Person arrested	21	31	12	15	19	21	5	18	6	0	3	2	9	14	176
Tangi	No of cases Booked	149	109	163	106	113	61	24	47	68	20	8	6	4	4	882
	Person arrested	8	24	21	5	36	8	13	7	14	23	8	13	4	4	188
Total Case		**518**	**352**	**392**	**343**	**329**	**225**	**105**	**246**	**402**	**257**	**127**	**115**	**63**	**89**	**3563**
Total person arrested		**83**	**115**	**78**	**79**	**130**	**51**	**48**	**86**	**76**	**49**	**25**	**27**	**18**	**52**	**917**

WILD LIFE CASES DURING THE YEAR 2007-08 to 2020-21

Name of Range	Type of cases	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Balipatna	Wild Life cases	1	0	1	1	0	0	1	2	1	2	2	1	0	0	12
Balugaon		0	0	1	1	1	0	0	1	1	4	2	3	3	8	25
Delang		1	0	0	0	0	0	1	0	0	2	1	1	0	1	7
Khordha		3	0	1	2	1	1	2	0	3	5	1	1	5	7	32
Ranpur		0	1	0	0	0	1	0	0	0	3	7	3	3	11	29
Tangi		1	0	0	0	1	0	0	0	1	4	7	2	6	7	29
Total		**6**	**1**	**3**	**4**	**3**	**2**	**4**	**3**	**6**	**20**	**20**	**11**	**17**	**34**	**134**

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APPENDIX - IX

EXPENDITURE STATEMENT OF PLAN & NON-PLAN SCHEME FOR THE YEAR 2007-08

Head/ Source	Allotment	DFO	Khordha	Tangi	Balugaon	Ranpur	Balipatna	Delanga	Total
1	2	3	4	5	6	7	8	9	10
22-2406-(NP) : 01- 005-32011 Survey & investigation	10000		10000						10000
22-2406-(NP) : 01- 070-1904- 21064-Repair of building	1000000		865584	30000	42453	16963	20000	25000	1000000
22-2406- (NP) : 01- 070- 1904-21094-Repair of road	1400000			150000	442000	808000			1400000
22-2406- (NP) : 01- 101-1012-21019-Maintenance of boundaries	65000		65000						65000
22-2406- (NP) : 01- 101-1012-22026-Forest Consolidation	20000	19530						470	20000
22-2406- (NP) : 01- 101-1012- 22035-Protection from fire	25000		20000				5000		25000
22-2406- (NP) : 01- 101-1012-22036-Regeneration cleaning	25000		25000						25000
22-2406-(NP) : 01- 1012- 22041-Sowing & planting	200000		175300	10000	14700				200000
22-2406- (NP) : 01- 101-1012- 78124-Working plan	65000		65000						65000
22-2406- (NP) : 01- 102-1289-41128-Support to VSS	3102800					3102800			3102800
22-2406-(NP) : 01- 105- 0334-Drift & weifwood confiscated forest produce : 20002-Other charges	55000		37050			16650	600	700	55000
22-2406-(NP) : 01- 105- 0513-Forest produce sold to consumer & purchaser : 20002-Other charges	145000		96164		39349	3400	1002	5085	145000
22-2406- (NP) : 01-111- 0922-Misc. : 22016-Depttl. Working of Bamboo	30000			5996	14004	10000			30000
22-2406-(NP) : 01- 111-0922- 22020-Depttl. Working of Timber	600000		190037	49410	150493	162950	23755	23355	600000
22-2406- (NP) : 01-: 800- 2003- 17001- Legal Charges	50000	35000	15000						50000
22-2406- (NP) : 02- 110- 0484-20002-Elephant Census	56460		56460						56460
22-2059- ((NP) : 01- 053-2448-Maintenance of non-residential buildings : 21033-Maintenance works	920000		60000	240000	240000	180000	100000	100000	920000
Total Non Plan	7769260	54530	1680595	485406	942999	4300763	150357	154610	7769260
22-2406-(SP) SS: 02- 110-1571- 20002-OC - Payment of compassionate grant.	664337		544008	76529	24000	12090		7710	664337
22-2406-(SP) SS: 02- 789-1786- 20002-OC - Protection & conservation measure.	200000	190000		10000					200000
22-4406-(SP) 01- : 789-S & FF- 0345-: 22023-Other charges (b-Economic pltn)	629000		191608	90058	39915	177322		130097	629000

22-4406- (SP) 01- : 102-S & FF : 0345-: 22023-Other charges (b-Economic pltn)	2246000		836221	603932	125301	502812		177734	2246000
22-4406- (SP) Dist Sector: 01- 070- : 0182-Const. of building : 36002-Minor works	150000			150000					150000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Anti Smuggling Squad	167000		46180	18690	52540	31430		18160	167000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Car Timber Plantation	504000		257229	246771					504000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Incentive & reward	46000		25000	5000	6000	8000		2000	46000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Maintenance of Boundary	96000		96000						96000
22-2406- (SCP) : 01- 789- : 1783-20002 -Strengthening of JFM & Microplan	300000		70000	80000	70000	80000			300000
Total State Plan	5002337	190000	2066246	1280980	317756	811654	0	335701	5002337
22-2406-S & FF: 01- 102-1782- 20002-OC - D.Centralized Nursery	750000		175000	200000	175000	200000			750000
22-2406-(SCP) S & FF: 01- 789-1782- 20002-OC - D.Centralized Nursery	320000		35000	37933	144790	102277			320000
22-2406-TASP: 01- 796-1782- 20002-OC - D.Centralized Nursery	210000		17270	82070	30210	80450			210000
22-2406-(CP) 01- 110-0361- 20002-OC - EMP	122000	22000	100000						122000
22-2406-(CSP) Intigrated Forest Protection Squad- Repair of Road	100000				100000				100000
22-2406-(CSP) Intigrated Forest Protection Squad- Boundary Maintenance	100000			100000					100000
22-2406-(CSP) Intigrated Forest Protection Squad- Publicity- JMFC	15000		15000						15000
22-2406-(CSP) Intigrated Forest Protection Squad- Equipment/ GIS	50000	27900	22100						50000
8443-Civil Deposit-109- Forest Deposit- JBP	691083		450685	57160	89516		40566	53156	691083
8443-Civil Deposit-109-Avenue pltn.- Sunakhala to Ranpur FD	1224432					1224432			1224432
8443-Civil Deposit-109-CDA pltn.- Sunakhala to Ranpur FD	1350421	9043	25236	394512	921630				1350421
8443-Civil Deposit-109-Jaydev Pitha	1717077						1717077		1717077
8443-Civil Deposit-109-NHAI Plantation (Khordha to BBSR)	632525		632525						632525
8443-Civil Deposit-109-NHAI Plantation Berhampur (Khordha to Sunakhala)	1020506		530454	490052					1020506
8443-Civil Deposit-109-Car Timber Plantation	49841				41841	8000			49841
CP/ CSP & others	**8352885**	**58943**	**2003270**	**1361727**	**1502987**	**1615159**	**1757643**	**53156**	**8352885**
G.Total	**21124482**	**303473**	**5750111**	**3128113**	**2763742**	**6727576**	**1908000**	**543467**	**21124482**

EXPENDITURE STATEMENT OF PLAN & NON-PLAN SCHEME FOR THE YEAR 2008-09

Head/ Source	Allotment	DFO	H.C	Khordha	Tangi	Balugaon	Ranpur	Balipatna	Delanga	Total
1	2	3	4	5	6	7	8	9	10	11
22-2406- (NP) : 01- 070- 0851-21033- Maintenance works	250000					250000				250000
22-2406-(NP) : 01- 005-Misc. : 1904- 78180- Global positioning system	114310			114310						114310
22-2406-(NP) : 01- 005-32011 Survey & investigation	30000			30000						30000
22-2406-(NP) : 01- 070-1904- 21064-Repair of building	800000			471460	40000	10000	237450	31760	9330	800000
22-2406- (NP) : 01- 070- 1904-21094-Repair of road	1300000				444165	375148	480687			1300000
22-2406- (NP) : 01- 101-1012-21019- Maintenance of boundaries	50000	41760						8240		50000
22-2406- (NP) : 01- 101-1012- 22035-Protection from fire	15000			15000						15000
22-2406- (NP) : 01- 101-1012-22036- Regeneration cleaning	25000			25000						25000
22-2406-(NP) : 01- 1012- 22041-Sowing & planting	100000			100000						100000
22-2406- (NP) : 01- 101-1012- 78124-Working plan	105000			105000						105000
22-2406- (NP) : 01- 102-1289-41128-Support to VSS	666000						666000			666000
22-2406-(NP) : 01- 105- 0334-Drift & weifwood confiscated forest produce : 20002-Other charges	55000			13361	12668	19943	4638		4390	55000
22-2406-(NP) : 01- 105- 0513-Forest produce sold to consumer & purchaser : 20002-Other charges	185000			112678	15315	42342	9950	1890		182175
22-2406- (NP) : 01-111- 0922-Misc. : 22016- Depttl. Working of Bamboo	35000				4310	18460	12230			35000
22-2406-(NP) : 01- 111-0922- 22020-Depttl. Working of Timber	531000	30750		142473	30730	166540	114097	16730	29680	531000
22-2406- (NP) : 01-: 800- 2003- 17001- Legal Charges	2300	2300								2300
22-2059- ((NP) : 01- 053-2448-Maintenance of non-residential buildings : 21033-Maintenance works	900000			300000	120000	240000	180000	60000		900000
22-2406- (NP) : 02-: 110- 0484- 20002- Wildlife preservation- Field estt. (Divn. Office)- OC	629581	327330		77171	1495	176175	32410			614581
Total Non-Plan	**5793191**	**402140**	**0**	**1506453**	**668683**	**1298608**	**1737462**	**118620**	**43400**	**5775366**

22-2406-(SP) SS: 02- 110-1571- 20002-OC - Payment of compassionate grant.	285317	229330		34200		7707	9080			280317
22-4406-(SP) 01- : 789-S & FF- 0345-: 22023- Other charges (b-Economic pltn)	1080000			745532	243880	25060	43735		21793	1080000
22-4406- (SP) 01- : 102-S & FF : 0345-: 22023- Other charges (b-Economic pltn)	1624000			804036	590774	45976	119986		63228	1624000
22-4406- (SP) Dist Sector: 01- 070- : 0182- Const. of building : 36002-Minor works	250000			250000						250000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Anti Smuggling Squad /POL	226000	6400		89990	26920	85470	8400	1680	7140	226000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Car Timber Plantation	320000			224444	95556					320000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Incentive & reward	11200			5000	1000	3100	1000		1100	11200
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Maintenance of Road	20000					20000				20000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Repair of VHF	14000	14000								14000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Purchase of Arm & Amuniation	50000	50000								50000
22-2406- (SP) SS: 01- 101- : 1779-78090 -FCDR - SSO- Bamboo	546000					210000	336000			546000
22-2406- (SP) SS: 01- 101- : 1779-78090 -FCDR - SSO- Timber	1330000				630000	420000	280000			1330000
22-2406- (SP) SS: 01- 101- : 2151-37198 - OBDP-Infrastructure Dev.	70000			25000						25000
22-2406- (SP) : 01- 102- : 2118-20002 -Critically Endangered Area Squad	400000						75979			75979
Total State Plan	**6226517**	**299730**	**0**	**2178202**	**1588130**	**817313**	**874180**	**1680**	**93261**	**5852496**
22-2406-S & FF: 01- 102-2117- 20002-OC - D.Centralized Nursery	825000			364981	145000	39000	276019			825000
22-2406-(CP) 02- 789-0361- 20002-OC - EMP	150000	64698		63769	21533					150000
22-2406-(CP) 02- 796-0361- 20002-OC - EMP	80000			75000					5000	80000
22-2406-01-101-0736-78097 (CSP) IFPS- Fire Line Maintenance	30000			30000						30000

22-2406-01-101-0736-78097 (CSP) IFPS- Fire Watcher	126000			17710	108290					126000
22-2406-01-101-0736-78097 (CSP) IFPS- Assistance to JMFC	200000					100000	100000			200000
22-2406-01-101-0736-78097 (CSP) IFPS- Purchase of Mobile Phone	30000			22414	1900	3800	1886			30000
22-2406-01-101-0736-78097 (CSP) IFPS- Field sursvey & boundary demarcation	50000			50000						50000
22-2406-01-101-0736-78097 (CSP) IFPS- Purchase of Computer equipment	100000			22451		77549				100000
22-2406-01-101-0736-78097 (CSP) IFPS- Purchase of Wireless set	11000			11000						11000
8443-Civil Deposit-109- Forest Deposit- JBP	135094			63493	5600	17492		17530	30979	135094
8443-Civil Deposit-109-Avenue pltn.- Sunakhala to Ranpur FD	671955						671955			671955
8443-Civil Deposit-109-Jaydev Pitha to Kenduli	1158280							1158280		1158280
8443-Civil Deposit-109-SGRY- Raising of seedling	6869								6869	6869
8443-Civil Deposit-109-NHAI Plantation (Khordha to BBSR)	612334			612334						612334
8443-Civil Deposit-109-NHAI Plantation Berhampur (Khordha to Sunakhala)	1133014			972439	160575					1133014
8443-Civil Deposit-109-Car Timber Plantation	53662					43665	9997			53662
8443-Civil Deposit-109- Elephant Depardation	5750			5750						5750
Total CP/ CSP & others	**5378958**	**64698**	**0**	**2311341**	**442898**	**281506**	**1059857**	**1175810**	**42848**	**5378958**
G.Total	**17398666**	**766568**	**0**	**5995996**	**2699711**	**2397427**	**3671499**	**1296110**	**179509**	**17006820**

EXPENDITURE STATEMENT OF PLAN & NON-PLAN SCHEME FOR THE YEAR 2009-10

Head/ Source	Allotment	DFO	Head Clerk	Khordha	Tangi	Balugaon	Ranpur	Balipatna	Delanga	Total
1	2	3	4	5	6	7	8	9	10	11
22-2406- (NP) : 01- 070- 0851-21033-Maintenance works	240000			213174		26826				240000
22-2406-(NP) : 01- 005-Misc. : 1904- 78180-Global positioning system	150000			150000						150000
22-2406-(NP) : 01- 070-1904- 21064-Repair of building	780000			465579	117410	96616	84845	15000	550	780000
22-2406- (NP) : 01- 070- 1904-21094-Repair of road	1290000				450000	200000	640000			1290000
22-2406- (NP) : 01- 101-1012-21019-Maintenance of boundaries	60000			60000						60000
22-2406- (NP) : 01- 101-1012- 22035-Protection from fire	25000			15000		10000				25000
22-2406- (NP) : 01- 101-1012-22036-Regeneration cleaning	25000			25000						25000
22-2406-(NP) : 01- 101-1012- 22041-Sowing & planting	60000			60000						60000
22-2406- (NP) : 01- 101-1012- 78124-Working plan	105000			105000						105000
22-2406- (NP) : 01- 101-1012- 37109-Other works	594000				100000	344060	149940			594000
22-2406-(NP) : 01- 105- 0334-Drift & weifwood confiscated forest produce : 20002-Other charges	60000			18726	4590	24264	10800	1620		60000
22-2406-(NP) : 01- 105- 0513-Forest produce sold to consumer & purchaser : 20002-Other charges	210000			96368	28660	70287	2500	12185		210000
22-2406- (NP) : 01-111- 0922-Misc. : 22016-Depttl. Working of Bamboo	35000					30000	5000			35000
22-2406-(NP) : 01- 111-0922- 22020-Depttl. Working of Timber	600000			223439	51740	110644	161887	20580	31710	600000
22-2406- (NP) : 01-: 800- 2003- 17001- Legal Charges	50000	2646		47354						50000
22-2406- (NP) : 01-: 800- 0167- 49001- Comp. Affn.	19700				19700					19700
22-2059- ((NP) : 01- 053-2448-Maintenance of non-residential buildings : 21033-Maintenance works	1380000			300000	420000	360000	300000			1380000

22-2406- (NP) : 02-: 110- 0484- 20002- Wildlife preservation- Field estt. (Divn. Office)- OC	230382	129330		70831		12436	17785			230382
Total Non-Plan	**5914082**	**131976**	**0**	**1850471**	**1192100**	**1285133**	**1372757**	**49385**	**32260**	**5914082**
22-4406-(SP) 01- : 789-S & FF- 0345-: 22023-Other charges (b-Economic pltn)	1375600									
22-4406- (SP) 01- : 102-S & FF : 0345-: 22023-Other charges (b-Economic pltn)	1900000			1136423	894882		5002		61318	2097625
22-4406- (SP) Dist Sector: 01- 070- : 0182-Const. of building : 36002-Minor works	550000			550000						550000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Anti Smuggling Squad /POL	251000			50870	49180	105960		16780	28210	251000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- POL	37000			37000						37000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Car Timber Plantation	170000			109506	60494					170000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Incentive & reward	20000							20000		20000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Maintenance of Road	20000	20000								20000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Repair of VHF	50000			50000						50000
22-2406- (SP) SS: 01- 101- : 1779-78141 -FCDR Protection Working Circle- Purchase of Arm & Amuniation	70000			70000						70000
22-2406- (SP) SS: 01- 101- : 1779-78090 -FCDR - SSO-Bamboo	1400000					1400000				1400000
22-2406- (SP) SS: 01- 101- : 1779-78090 -FCDR - SSO-Timber	1390000				412000	357060		620940		1390000
22-2406- (SP) SS: 01- 101- : 2151-37198 -OBDP-Infrastructure Dev.	79000			79000						79000
22-2406- (SP) SS: 01- 789- : 2151-37198 -OBDP-Special Component plan for Schedule Castes	58000			58000						58000
22-2406- (SP) : 01- 102- : 2117-20002 -Creation for forest dwellers	710000			326000	230000	26000	128000			710000
22-2406- (SP) : 01- 102- : 2118-20002 -CEA Squad	459000						459000			459000
22-2406- (SP) : 02- 110- : 1571-20002 -OC	258077			99077		116670			42330	258077
22-2406- (SP) : 02- 110- : 2314-20002 -EMP	200000			190032		9968				200000

22-2406- (SP) : 02- 110- : Engagement of Tracker	45000			45000						45000
22-2406- (SP) : 02- 110- : Incentive based fire protection squad	668997			100000						100000
22-2406- (SP) : 02- 110- : Organisaton of vigilance & app. Response against poching	50000			50000						50000
22-2406- (SP) : 02- 110- : Purchase of Mobile Phone	4920			4920						4920
22-2406- (SP) : 02- 110- :Implementation of EMP - Engagement of trackers	11000			11000						11000
Total State Plan	10074074	20000	0	2966828	1646556	1889020	592002	657720	89528	7361625
22-2406- (Central Plan) : 02- 110- : 0361-20002 -OC	50000			5000	30000		15000			50000
22-2406- (CP) : 02- 110- : 0361-20002 -Purchase of Binocular, spot light	20000			20000						20000
22-2406- (CP) : 02- 110- : 0361-20002 -Awareness Camp in village	10000			10000						10000
22-2406- (CP) : 02- 110- : 0361-20002 -Crop damage & death case	216490			216490						216490
8443-Civil Deposit-109-FD-Avn. pltn.- Sunakhala to Ranpur	370189						370189			370189
8443-Civil Deposit-109-FD-Jaydev Pitha to Kenduli	369521							369521		369521
8443-Civil Deposit-109-NHAI Plantation (Khordha to BBSR)	628216			628216						628216
8443-Civil Deposit-109-NHAI Plantation Berhampur (Khordha to Sunakhala)	40170			25540	14630					40170
8443-Civil Deposit-109-FD-Supply of Car Timber	69977					55000	14977			69977
Total CP/ CSP & others	**1478073**	**0**	**0**	**653756**	**14630**	**55000**	**385166**	**369521**	**0**	**1478073**
G.Total	**15988156**	**151976**	**0**	**5471055**	**2853286**	**3229153**	**2349925**	**1076626**	**121788**	**14753780**

BUILDINGS UNDER CAMPA (APO 2009-10)

Sl. No.	Item of works	Scheme	Range	Name of site	Achievement	
					Phy	Fin
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Forest Guard quarter	CAMPA (General)	Khordha	FG Quarter Jariput	1	300000
	Total General CAMPA					**300000**
1	Malakhana	CAMPA (Wildlife)	Khordha	Division office, Khordha	1	325000
2	Mobile Barrack		Khordha	Division office, Khordha	1	125000
			Sub Total		**2**	**450000**
3	Animal Resque Centre		Khordha	Ketakijhar Nursery House	1	164971
	Total Wildlife CAMPA					**1064971**
	Total CAMPA					**1364971**

ROADS UNDER CAMPA (APO 2009-10)

Sl. No.	Item of works	Scheme	Range	Name of site	Achievement	
					Phy	Fin
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Forest road maintenance	CAMPA (General)	Balugaon	Dhuanali - Raipada forest road	4.5	110300
				Ankula - Maisagotha road	4.5	110200
			Tangi	Nachuni - Gachhapatra road	7	179500
			Ranpur	Sankhajodi - Raipada road	11.5	286820
				Sankhajodi - Sirikuti road	3	75000
				Sankhajodi - Betuli road	3.5	87000
				Betuli - Raipada (Salia bridge)	6	151180
			Sub total		**40**	**1000000**
	Total General CAMPA					**1000000**
2	Road repair		Balugaon	Ankula - Maisagotha road	4	100000
			Tangi	Patia - Sirikuti forest road	4	106460
				Patia - Gachhapatra road	2	43540
			Ranpur	Sankhajodi - Sirikuti road	10	230500
				Sankhajodi - Raipada road	1	19500
			Sub Total		**20**	**500000**
	Total Wildlife CAMPA					**500000**
	Total CAMPA					**1500000**

EXPENDITURE STATEMENT OF PLAN & NON-PLAN SCHEME FOR THE YEAR 2010-11

Head/ Source	Allotment	DFO	Head Clerk	Khordha	Tangi	Balugaon	Ranpur	Balipatna	Delanga	Total
1		2	3	4	5	6	7	8	9	13
22-2406- (NP) : 01- 070- 0851-21033-Maintenance works	300000			256371	3103	10526	30000			300000
22-2406-(NP) : 01- 005-Misc. : 1904- 78180-Global positioning system	150000			150000						150000
22-2406-(NP) : 01- 070-1904- 21064-Repair of building	700000			599697	20000	9893	48010	14900	7500	700000
22-2406- (NP) : 01- 070- 1904-21094-Repair of road	1100000				387280	269970	442750			1100000
22-2406- (NP) : 01- 101-1012-21019-Maintenance of boundaries	120000			120000						120000
22-2406- (NP) : 01- 101-1012- 22035-Protection from fire	28000			28000						28000
22-2406- (NP) : 01- 101-1012-22036-Regeneration cleaning	17000			17000						17000
22-2406-(NP) : 01- 1012- 22041-Sowing & planting	90000			90000						90000
22-2406-(NP) : 01- 101-012-7109-37109-Other works	190000			90000		100000				190000
22-2406- (NP) : 01- 101-1012- 78124-Working plan	85000			85000						85000
22-2406-(NP) : 01- 105- 0334-Drift & weifwood confiscated forest produce : 20002-Other charges	50000	500		9699	4770	24531	10000	500		50000
22-2406-(NP) : 01- 105- 0513-Forest produce sold to consumer & purchaser : 20002-Other charges	100000			10085	9540	77975	2400			100000
22-2406- (NP) : 01-111- 0922-Misc. : 22016-Depttl. Working of Bamboo	30000				10000	10000	10000			30000
22-2406-(NP) : 01- 111-0922- 22020-Depttl. Working of Timber	370000	700		137604	33480	62257	100409	16650	18900	370000
22-2406- (NP) : 01-: 800- 2003- 17001- Legal Charges	50000			50000						50000
22-2406- (NP) : 02- 110- 0484-29016-Field estt. (Divn. Office)	166591			111149	49602		5840			166591
22-2059- ((NP) : 01- 053-2448-Maintenance of non-residential buildings : 21033-Maintenance works	600000			120000	120000	180000	120000		60000	600000
Total NP	**4146591**	**1200**	**0**	**1874605**	**637775**	**745152**	**769409**	**32050**	**86400**	**4146591**

22-4406-(SP) 01- : 789-RDF- 0345-: 22023-OC (b-Economic pltn)	1090000									0
22-4406-(SP) 01- : 796-RDF- 0345-: 22023-OC (b-Economic pltn)	56000									0
22-4406- (SP) 01- : 102-RDF : 0345-: 23923-OC (b-Economic pltn)	1789000			1508182	921259			6363		2435804
22-4406- (SP) 01- : 102-SCP : 0345-: 78301-OC (Baldhill pltn)	735000			432423	302577					735000
22-4406- (SP) 01- : 789-SCP : 0345-: 78301-OC (Baldhill pltn)	100000									0
22-4406- (SP) Dist Sector: 01- 070- : 2327-Const. of building : 36002-Minor works	350000				350000					350000
22-2406- (SP) SS: 01- 101- : 2556-78378 -FCDR Protection Working Circle- 13th FC grant- Building cader of forest protection squad	512970			49960	103510	265000		45000	49500	512970
22-2406- (SP) SS: 01- 101- : 2556-78378 -FCDR-13th FC grant- Distribution of seedlings	1268000			509000	253000		253000	126500	126500	1268000
22-2406- (SP) SS: 01- 101- : 2556-78379 -FCDR- 13th FC grant-Forest Fire Control	200000			45000	70200	35100	49700			200000
22-2406- (SP) SS: 01- 101- : 2556-78378 -FCDR- 13th FC grant- SSO- Timber	5767000				2748474	2284666	733860			5767000
22-2406- (SP) SS: 01- 101- : 2556-78378 -FCDR- 13th FC grant- SSO- Bamboo	756000					756000				756000
22-2406- (SP) SS: 01- 101- : 2556-78379 -FCDR Protection Working Circle- 13th FC grant- Plantation outside working plan area	475000			237500					237500	475000
22-2406- (SP) SS: 01- 101- : 2556-78379 -FCDR-13th FC grant- Implementation of Working plan (Block pltn.)	4396000			238000	1544400	831600	1782000			4396000
22-2406- (SP) SS: 01- 101- : 2556-78379 -FCDR Protection Working Circle- 13th FC grant -Control of Grazing.	135000			135000						135000
22-2406- (SP) SS: 01- 102- : 2118-20002 -CEA Squad	378000						378000			378000
22-2406- (SP) : 01- 102- S & FF: 2117-20002 -Livelihood option Creation for forest dwellers	400000			200000	100000		100000			400000

22-2406- (SP) : 01- 789- S & FF: 2117-20002 -DCN	375000			180000	195000					375000
22-2406- (SP) SS: 01- 101- : 2151-37198 -OBDP-Infrastructure Dev.	123000			123000						123000
22-2406- (SP) SS: 01- 789- : 2151-37198 -OBDP-SCP	65000			65000						65000
Total SP	**18970970**	**0**	**0**	**3723065**	**6588420**	**4172366**	**3296560**	**177863**	**413500**	**18371774**
22-2406- CSP (SS) : 01- 101- FCDR- 2399-78097-Camp equipment for fire protection squad	100000			100000						100000
22-2406- CSP (SS) : 01- 101- FCDR- 2399-78097-Fire protection squad	116000			116000						116000
22-2406- CSP (SS) : 01- 101- FCDR- 2399-78097-Provision of Mobile phone	54000			54000						54000
22-2406- CSP (SS) : 01- 101- FCDR- 2399-78097-Incentive fire protection	25918			25918						25918
22-2406- CSP (SS) : 01- 101- FCDR- 2399-78097-Purchase of Rivolver	84082	84082								84082
22-2406- CSP (SS) : 01- 101- FCDR- 2399-78097-Contingency	7000			7000						7000
22-2406- (SP) : 02- 110- : 1571-20002 -Crop damage	189671	100000			89671					189671
22-2406- (SP) : 02- 110- : 2314-20002 -EMP- Divn level elephant squad	521190	31330		373750	30000	10000	38610	11000	26500	521190
22-2406- (SP) : 02- 110- : 2314-20002 -EMP-Elephant Census	25000			7000	5000	5000	5000		3000	25000
22-2406- (SP) : 02- 110- : 20002 -EMP-Creation of waterbody	30000				30000					30000
22-2406- (CSP) : 02- 796- : TASP- 20002 -OC-Tiger Census	122100			43040	18880	33040	27140			122100
22-2406- (CSP) : 02- 110- : 0361- 20002 -EMP-OC	2000				2000					2000
8443-Civil Deposit-109-NHAI Plantation (Khd to BBSR)	15002			15002						15002
8443-Civil Deposit-109-NHAI Plantation Berhampur (Khordha to Sunakhala)	143640			95760	47880					143640
8443-Civil Deposit-109-FD-Supply of Car Timber	83930					33930	50000			83930
Other Total	**1519533**	**215412**	**0**	**837470**	**223431**	**81970**	**120750**	**11000**	**29500**	**1519533**
G.Total	**24637094**	**216612**	**0**	**6435140**	**7449626**	**4999488**	**4186719**	**220913**	**529400**	**24037898**

BUILDINGS UNDER CAMPA (APO 2010-11)

Sl. No.	Item of works	Scheme	Range	Name of site	Achievement	
					Phy	Fin
1	2	3	4	5	6	7
1	Construction of Range Office		Balugaon	Range Office Campus Balugaon	1	1413445
			Ranpur	Range Office, Ranpur	1	1413444
			Sub total		2	2826889
2	Forest Guard quarter		Khordha	FG Quarter Jariput	1	350000
			Tangi	FG Quarter Barapalli	1	350000
			Sub total		**2**	**700000**
	Total General CAMPA					**3526889**

ROADS UNDER CAMPA (APO 2010-11)

Sl. No.	Item of works	Scheme	Range	Name of site	Achievement	
					Phy	Fin
1	2	3	4	5	6	7
1	Forest road maintenance	CAMPA (General)	Balugaon	Berbera - Niladriprasad road	6	150000
				Silingipada - Maisagotha road	4	100000
			Tangi	Patia - Gachhapatra road	3	75000
			Ranpur	Betuli - Raipada (Salia bridge)	12	300000
			Sub total		**25**	**625000**
	Total General CAMPA					**625000**
1	Road repair	CAMPA (Wildlife)	Tangi	Patia - Gachhapatra road	12	300000
	Total Wildlife CAMPA					**300000**
	Total CAMPA					**925000**

EXPENDITURE STATEMENT OF PLAN & NON-PLAN SCHEME FOR THE YEAR 2011-12

Head/ Source	Allotment	DFO	Head Clerk	Khordha	Tangi	Balugaon	Ranpur	Balipatna	Delanga	Total	Balance
1	2	3	4	5	6	7	8	9	10	11	12
22-2406- (NP) : 01- 070- 0851-21033-Maintenance works	100000			100000						100000	0
22-2406-(NP) : 01- 005-Misc. : 1904- 78180-Global positioning system	180000			180000						180000	0
22-2406-(NP) : 01- 070-1904- 21064-Repair of building	700000			625000	75000					700000	0
22-2406- (NP) : 01- 070- 1904-21094-Repair of road	1100000				255000	505900	339100			1100000	0
22-2406- (NP) : 01- 101-1012-21019-Maintenance of boundaries	120000				120000					120000	0
22-2406- (NP) : 01- 101-1012- 22035-Protection from fire	28000			28000						28000	0
22-2406- (NP) : 01- 101-1012-22036-Regeneration cleaning	17000			17000						17000	0
22-2406-(NP) : 01- 1012- 22041-Sowing & planting	90000			90000						90000	0
22-2406-(NP) : 01- 101-012-7109-37109-Other works	190000			172000		18000				190000	0
22-2406- (NP) : 01- 101-1012- 78124-Working plan	85000				85000					85000	0
22-2406-(NP) : 01- 105- 0334-Drift & weifwood confiscated forest produce : 20002-Other charges	50000			22598	4770	14152		4680	3800	50000	0
22-2406-(NP) : 01- 105- 0513-Forest produce sold to consumer & purchaser : 20002-Other charges	100000					100000				100000	0
22-2406- (NP) : 01-111- 0922-Misc. : 22016-Depttl. Working of Bamboo	40000				10000	15000	15000			40000	0
22-2406-(NP) : 01- 111-0922- 22020-Depttl. Working of Timber	370000			183366	9540	78344	59850	15680	23220	370000	0
22-2406- (NP) : 02- 110- 0484-29016-Field estt. (Divn. Office)	141092	2000		86895	26397	20800	5000			141092	0

22-2059- ((NP) : 01- 053-2448-Maintenance of non-residential buildings : 21033-Maintenance works	560000			270000	120000	60000		110000		560000	0
Total Non Plan	**3871092**	**2000**	**0**	**1774859**	**705707**	**812196**	**418950**	**130360**	**27020**	**3871092**	**0**
22-2406-(SP) SS : 02- 789-SCP: 1571-Wildlife protection & conservation measures : 20002-OC- Payment of compassionate grant.	735000			396357	225610	83250	29783			735000	0
22-4406-(SP) 01- : 789-RDF- 0345-: 22023-OC (b-Economic pltn)	735000			484937	137030	83250	29783			735000	0
22-4406-(SP) 01- : 796-RDF- 0345-: 22023-OC (b-Economic pltn)	107000				7000		53467			60467	46533
22-4406- (SP) 01- : 102-RDF : 0345-: 22023-OC (b-Economic pltn)	2082000			1308557	817976			2000		2128533	-46533
22-4406- COL(SP) 01- : 102-RDF : 0345-: 78434-ACA(b-Economic pltn)	360000				360000					360000	0
22-4406- (SP) 01- : 102-SCP : 0345-: 78301-OC (Baldhill pltn)	4613445			2875783	2533485	490823	490823		490823	6881737	-2268292
22-4406- (SP) 01- : 796-SCP: 0345-: 78301-OC (Baldhill pltn)	1150000				197021				85897	282918	867082
22-4406- (SP) 01- : 789-SCP : 0345-: 78301-OC (Baldhill pltn)	3459070			1020190	1022543					2042733	1416337
22-4406- (SP) Dist Sector: 01- 070- : 2327-Const. of building : 36002-Minor works	375000			375000						375000	0
22-2406- (SP) SS: 01- 101- : 2556-78378 - FCDR Protection Working Circle- 13th FC grant- Plantation outside working plan area	587000			426480					160520	587000	0
22-2406- (SP) SS: 01- 101- : 2556-78378 - FCDR Protection Working Circle- 13th FC grant -raising of seedling under Farm Forestry	2856000			888160	570500	571000		584500	241840	2856000	0
22-2406- (SP) SS: 01- 101- : 2556-78378 - FCDR Protection Working Circle- 13th FC grant- Building cader of forest protection squad	513000			50000		463000				513000	0
22-2406- (SP) SS: 01- 101- : 2556-78379 - FCDR-13th FC grant- Implementation of Working plan (Block pltn.)	6007000			1055331	1770464	961474	2219731			6007000	0
22-2406- (SP) SS: 01- 101- : 2556-78379 - FCDR- 13th FC grant-Stall feeding	135000			135000						135000	0

22-2406- (SP) SS: 01- 101- : 2556-78379 - FCDR- 13th FC grant-Forest Fire Control	200000				86500	113500				200000	0
22-2406- (SP) SS: 01- 101- : 2556-78379 - FCDR- 13th FC grant- SSO- Timber	5773000				745000	2303880	2724120			5773000	0
22-2406- (SP) SS: 01- 101- : 2556-78379 - FCDR- 13th FC grant- SSO- Bamboo	3143000				545400	1350200	1247400			3143000	0
22-2406- (SP) : 01- 102- S & FF: 2117-20002 -Livelihood option Creation for forest dwellers	400000			400000						400000	0
22-2406- (SP) : 01- 789- S & FF: 2117-20002 -DCN	775000									0	775000
22-2406- (SP) SS: 01- 101- : 2151-37198 - OBDP-Infrastructure Dev.	236715			101992	51288		58815		24620	236715	0
22-2406- (SP) SS: 01- 789- : 2151-37198 - OBDP-SCP	66395				20350		46045			66395	0
22-2406- (SP) SS: 01- 102- : 2118-20002 - CEA Squad	392000						392000			392000	0
22-2406- CSP (SS) : 01- 101- FCDR- 2399-78097-Camp equipment for fire protection squad	600000									0	600000
22-2406- CSP (SS) : 01- 101- FCDR- 2399-20002-Construction of barrack	336667					336667				336667	0
22-2406- CSP (SS) : 01- 101- FCDR- 2399-20002-Camp equipment	1633	1633								1633	0
22-2406- (SP) : 02- 110- : 1571-20002 -Crop damage	163863			163863						163863	0
22-2406- (SP) : 02- 110- : 2314-20002 -EMP-Divn level elephant squad	200000									0	200000
22-2406- (SP) : 02- 110- : 2314-20002 -EMP-Crop damage	533508									0	533508
8443-Civil Deposit-109-NHAI Plantation Berhampur (Khordha to Sunakhala)	61020			37440	23580					61020	0
8443-Civil Deposit-109-FD-Supply of Car Timber	75500					38000	37500			75500	0
Total Non Plan	**36672816**	**1633**	**0**	**9719090**	**9113747**	**6795044**	**7329467**	**586500**	**1003700**	**34549181**	**2123635**
G.Total	**40543908**	**3633**	**0**	**11493949**	**9819454**	**7607240**	**7748417**	**716860**	**1030720**	**38420273**	**2123635**

BUILDINGS UNDER CAMPA (APO 2011-12)

Sl. No.	Item of works	Scheme	Range	Name of site	Achievement	
					Phy	Fin
1	2	3	4	5	6	7
1	Construction of Range Office		Tangi	Range Office Tangi	1	1782751
			Khordha	Range Office Khordha	1	1700797
			Sub total		**2**	**3483548**
2	Forester Quarter		Balugaon	Forester quarter Mahulia	1	535568
3	Forest Guard quarter		Khordha	Ketakijhar Nursery house	1	420004
			Balugaon	FG Quarter Mahulia	1	415850
			Tangi	FG Quarter Gachhapatra		75100
				FG Quarter Seiko	1	443445
			Ranpur	FG Quarter Bhetabar	1	420000
			Sub total		**4**	**1774399**
4	Seizure yard		Tangi	Tangi	1	545000
			Ranpur	Ranpur	1	455000
			Sub total		2	1000000
5	Establishment of Checking Station		Ranpur	Bhetabar	1	749219
			Balugaon	Bhatapada	1	472907
			Sub total		2	1222126
6	Vulnerable pockect squad		Ranpur	Barrack at Bhetabar	1	405482
	Total General CAMPA					**8421123**

ROADS UNDER CAMPA (APO 2011-12)

Sl. No.	Item of works	Scheme	Range	Name of site	Achievement	
					Phy	Fin
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Forest road maintenance	CAMPA (General)	Balugaon	Dhuanali - Raipada road	0.58	14500
			Tangi	Patia - Nakithana road	9.8396	245990
				Patia - Sirikuti road	19.48	487000
			Ranpur	Jamuganda - Betuli road	2.03212	50803
				Bhetabar - Sankhajodi road	16.14828	403707
			Sub total		**48.08**	**1202000**
	Total General CAMPA					**1202000**

PHYSICAL & FINANCIAL ACHIEVEMENT DURING 2012-13

Budget head	Budget Sub-head	Item	Physical Achievement (in ha.)		Financial Achievement (in lakhs)	
			Target	Achievement	Target	Achievement
1	2	3	4	5	6	7
22-2406	01-070-0851-21033	Maintenance work.		Maintenance of ACF quarter	100000	100000
22-2406	01-070-1904-21064	Repair of building		**Following Quarters were repaired** : Divisional office building, residence of DFO, Khordha, repair of ACF quarter, Range Officer's residence at Ranpur, Govt. staff quarters, Barbered wire fencing in forest colony.	700000	700000
22-2406	01-070-1904-21094	Repair of road		Patia -Sirikuti 4 kms. of Tangi range.	1100000	1100000
Total 070- Communication & building					**1900000**	**1900000**
22-2406	01-005-1904-78180	Global positioning system to be executed by OCAC		Preparation of map of different reserve forests of 6 nos. ranges.	**180000**	**180000**
22-2406	01-101-1012-21019	Maintenance of boundary		Posting of 18 nos pillar in Bhanra PRF, Sulia 'B' RF & Mal RF, 68 nos. of signboard fixed in Patia RF, Aranga RF, Kumuka PRF, Jamuna-Jharapada PRF of Tangi, Balugaon & Delanga ranges.	100000	100000
	01-101-1012-78124	Working Plan		Preparation of map of different reserve forests of 6 nos. ranges.	85000	85000
	01-101-1012-22026	Forest consolidation		posting of 30 nos. RCC pillars in Aranga RF of Balugaon range.	20000	20000
	01-101-1012-22036	Regeneration cleaning		Regeneration cleaning done in Mal RF near Ripada of Ranpur range.	17000	17000
22-2406	01-101-1012-22041	Sowing & planting		Maintenance of Ketakijhar central nursery of Khordha range.	50225	50225
	01-101-1012-22035	Protection from fire		Fire line tracing done in Bhanra PRF of Balipatna range & Rengal PRF, Jamuna-Jharapada PRF of Delanga range.	28000	28000
	01-101-1012-37109	Other works.		Maint. of 2 nos. FRH at Tangi & Berberra, and repair of staff quarter in forest colony, Khordha, monthly charges for broad band & 33 nos. mobile phone of front line staff, repair & HSD, POL for govt. vehicles.	190000	190000
Total 101 -FCDR					**490225**	**490225**
22-2406	01-105-0334-20002	Drift & waif wood confiscated forest produce		Transporting of UD & OR cases timber over 773.47 cft. was taken up for delivery to OFDC.	50000	50000
	01-105-0513-20002	Forest Produce sold to consumer & purchaser.		Dragging & transporting of UD cases timber over 126.546 cum. was taken up for delivery to OFDC.	100000	100000
Total 105 - Forest Produce					**150000**	**150000**
22-2406	01-111-0922-22020	Depttl. working of Timber.		Dragging & transporting of UD/OR timber over 88.499 cum. & wages to 14 nos. watchers of Khordha, Balugaon, Ranpur, Tangi ranges.	350000	350000
	01-111-0922-22016	Depttl. working of Bamboo		Departmental collection of bamboo in Ankula FS, Sirikuti FS & Patia FS.	50000	50000
Total 111 - Depttl. working of Forest Coupe & Depot					**400000**	**400000**

22-2059	01-053-2448-21033	Repair of non-residential buildings.	51 nos. of buildings : (Division office, two wheeler stand, Range office, FRH, Section, Beats)	Following buildings were repaired & maintained : Ranpur range: 9 nos., Balugaon range: 12 nos, Khordha range: 5 nos., Tangi range: 8 nos., Balipatna range: 2 nos., Delanga range: 2 nos, Division office: 2 nos. including 2 nos. FRH, 2 nos. range office, conference hall, Mobile room, control room, court room & 2 nos. toilets in division office.	3900000	3900000
Total - 01 - Forestry (Non Plan)					**7020225**	**7020225**
22-2406	02-110-0484-20002	Wildlife Preservation- Wildlife Management Project- Comp. grant for Crop damage.		Compassionate amount paid to 75 person for crop damage by wild elephant.	264430	264430
Total Non Plan					**7284655**	**7284655**
22-4406-COL - b. Economic / RDF - Economic Plantation (Non Tribal).						
22-4406	01-102-0345-22023	b. Economic Plantation.	2010-11- 100 ha., 2011-12- 100 ha., 2012-13- 100 ha. & 2013-14- 100 ha.	Planting over 100 ha completed in 2012-13, 2nd year & 3rd year maintenance is progress over 200 ha. and PO for 2013-14 over 100 ha.	3242800	3242800
	01-789-0345-22023	b. Economic Plantation.			1200000	1200000
	01-796-0345-22023	b. Economic Plantation.			271600	271600
		Total b.economic			**4714400**	**4714400**
22-4406	01-102-0345-78301	Bald hill plantation	2011-12- 100 ha., 2012-13- 100 ha. & 2013-14- 100 ha.	Planting over 98 ha. completed in 2012-13, maintenance works is in progress over 100 ha. & PO for 2013-14 over 100 ha.	7399621	7399621
	01-789-0345-78301	Bald hill plantation			2759015	2759015
	01-796-0345-78301	Bald hill plantation			239849	239849
		Total Bald hill			**10398485**	**10398485**
22-4406	01-102-2744-20002	Avenue plantation	15 Rkm	Planting over 15 Rkm in Balugaon range completed	327800	327800
	01-789-2744-20002	Avenue plantation			160000	160000
		Total Avenue			**487800**	**487800**
22-4406	01-102-2745-20002	Maint. of permanent nursery	5 nos.	Seedlings raised in following permanent nurseries: Ketakijhar & Bolgarh in Khordha range, Patharbandha in Tangi range, Berberra in Balugaon range & Bhetabar in Ranpur range.	630000	630000
Total 22-4406 COL (State Plan)					**16230685**	**16230685**
22-2406	01-102-2118-20002	Protection of Critically Endangered Area.		10 nos. of watchers engaged in forest protection at Bhetabar under Ranpur range to protect extent of forest area over 95 sq.km covering 24 villages in Mal RF including fuel.	**378375**	**378375**
22-2406	01-102-2063-20002	Urban plantation	45000 sapling	Raising of 45000 seedlings in Ketakijhar nursery of Khordha range.	**145350**	**145350**
	01-001-2151-37198	Bamboo Plantation.	2010-11- 20 ha., 2011-12- 25 ha., 2012-13- 25 ha. & 2013-14- 25 ha.	Planting over 25 ha. completed in 2012-13, 2nd & 3rd year maintenance is in progress over 45 ha. & PO for 2013-14 over 25 ha.	225539	225539
	01-789-2151-37198	Bamboo Plantation.			61753	61753
	01-796-2151-37198	Bamboo Plantation.			39718	39718
Total State Bamboo					**327010**	**327010**

13th FC Grant - 2406- F & WL - 01- Forestry - 101- FCDR - 78378 - Protection Working Circle.						
22-2406	01-101-2556-78378	Forest protection squads-2nos.	10 nos. each	5 nos. local youth in Balugaon range, 5 nos. in Tangi range & 10 nos. in Khordha ranges engaged for protection activities.	783567	783567
		Incentive to VSS	80 nos.	Incentive given to 8 nos. of VSS of Balugaon range.	80000	80000
		Maint. for fire line	40 kms	Fire line tracing over 40 kms in Barunei RF of Khordha range.	40000	40000
		Monitoring & fire mapping	1 unit	Fire mapping	1000	1000
22-2406	01-101-2556-78378	Fire protection 2 squad	10 youth each	Wages to 20 youth squad	25000	25000
		Stall feeding		Incentive given to 36 nos. of VSS. i.e. 14 VSS of Khordha, 10 VSS of Tangi, 10 VSS of Ranpur & 2 VSS of Delanga range.	375000	375000
		SSO of Bamboo	185.57 ha.	SSO of Bamboo done over 185.57 ha. in Patia FS ofTangi range.	167021	167021
	01-789-2556-78378	Forest protection squads - 2 nos.	10 nos. each	5 nos. local youth in Balugaon range, 5 nos. in Tangi range & 10 nos. in Khordha ranges engaged for protection activities.	567784	567784
22-2406	01-789-2556-78378	Hiring of vehicle	2 nos.	Hiring charges of two private vehicle with POL.	150000	150000
		Equipments	2 squad	Fire equipment.	40000	40000
		Fire protection squad - 2 nos.	10 youth each	Wages to 20 youth squad	200000	200000
		Total 78378			**2429372**	**2429372**
13th FC Grant - 2406- F & WL- 01- Forestry - 101- FCDR - 78379 - Implementation of Working Plan.						
22-2406	01-789-2556-78379	(Outside & inside WP)	2011-12- 410 ha., 2012-13- 395 ha. & 2013-14- 363 ha	Planting over 395 ha. completed in 2012-13 & 2nd year maint. over 410 ha. & PO for 363 ha.	6148398	6148398
	01-796-2556-78379	SSO of Timber			51095	51095
	01-796-2556-78379	SSO of Bamboo			165085	165085
	01-101-2556-78379-503	Plantation (Inside WP)			4956096	4956096
22-2406	01-101-2556-78379-503	SSO of Bamboo	1664.4 ha.	SSO of Bamboo done over 1664.4 ha. in Ankula FS, Patia FS, Sankhajodi FS of Balugaon, Tangi & Ranpur ranges.	1497979	1497979
		SSO of Timber	693.71 ha.	SSO of timber done over 693.71 ha. in Aranga RF, Rajin RF, Patia RF, Mal RF of Balugaon, Tangi & Ranpur ranges.	1040571	1040571
	01-101-2556-78379-908	Raising of seedlings under FF	2012-13 - 5.00 lakh, 2013-14- 7.40 lakh	5.00 lakh seedlings raised & distributed in Khordha, Ranpur, Tangi, Balipatna & Delanga ranges during 2012-13 & PO for 7.40 lakh seedlings in Khordha, Tangi, Ranpur, Delanga & Balipatna ranges.	3752011	3752011
		SSO of Timber	1000.59 ha.	SSO of timber over 1000.59 ha. in Aranga RF, Rajin RF, Patia RF, Mal RF of Balugaon, Tangi & Ranpur ranges.	1500898	1500898
		Plantation / Working Plan (Outside WP)		Planting over 395 ha. completed in 2012-13 & 2nd year maint. over 410 ha. & PO for 363 ha.	5661389	5661389
		Total 78379			**24773522**	**24773522**
Total 13th FC Grant					**27202894**	**27202894**
Total 2406-01- Forestry (State Plan)					**28053629**	**28053629**

Wildlife Management (PCCF (WL)						
22-2406	02-110-1571-20002	Wildlife preservation measures including those for Black Buck & fresh water turtles.		Compassionate amount paid to 165 nos. persons towords crop damage by wild elephants.	953200	953200
	02-110-1571-20002			Celebration of Elephant week	5000	5000
	02-789-1571-20002			Compensation amount paid towards death of Joginath Mallik of Bagheitangi.	200000	200000
	02-796-1571-20002		Crop damage	Compassionate amount paid to 9 nos. persons towords crop damage by wild	110630	110630
				elephants & digging of WHS in Tangi DPF.		
22-2406	02-110-2314-20002	Elephant Management Plan.		171 nos. of elephant squad enaged in different places of Tangi & Khordha range and wages to 10 nos. of depredation squa, hiring of private vehicle & purchase of HSD, crackers, search light, torch lights & old cycle tyres for depradation work. Digging of 2 nos. of WHS in Tangi range & Balugaon range.	50000	50000
	02-110-2314-20002		WHS		250000	250000
	02-789-2314-20002	Elephant Management Plan.			50000	50000
	02-796-2314-20002				300000	300000
Total Wildlife					**1918830**	**1918830**
Total 2406- (01 & 02)State Plan					**29972459**	**29972459**
Total State Plan (4406 & 2406)					**46203144**	**46203144**
2406- Forestry & Wildlife- CSP - Intensificaiton of Forest Management Scheme.						
22-2406	01-101-2399-20002	Squad, Camp equipment etc.		2 nos. of vehicle mounted VHF sets, 8 nos. of VHF sets for different ranges, bio pure water cane etc.	252625	252625
Total - CSP - IFM					**252625**	**252625**
2406- Forestry & Wildlife- Central Plan-02- Envnl. Forestry-110-WL preservation-0361- Elephant Management Project.						
22-2406	02-110-0361-20002	Elephant Census		Cost of booklets, leaflets, signages for awareness.	25000	25000
		Crop damage & human killed		Compensation amount paid towards death of Laxmidhar Nayak of Jariput. Compassionate amount paid to 209 nos. persons towords crop damage by wild elephants.	721000	721000
Total - CP - Wildlife plan					**746000**	**746000**
		Grand Total			**54486424**	**54486424**

BUILDINGS UNDER CAMPA (APO 2012-13)

Sl. No.	Item of works	Scheme	Range	Name of site	Achievement	
					Phy	Fin
1	2	3	4	5	6	7
1	Construction of Range Officer Residence	CAMPA (General)	Tangi	Range Officer Quarter, Tangi	1	868000
2	Forester Quarter		Balugaon	Forester quarter Sansireipur	1	665000
3	Forest Guard quarter		Balugaon	FG Quarter Sansireipur	1	480000
			Khordha	FG Quarter Simore	1	480000
			Tangi	FG Quarter Badapari	1	480000
				FG Quarter Bhusandpur	1	480000
			Ranpur	FG Quarter Surukabadi	1	480000
				FG Quarter Betuli	1	480000
				FG Quarter Ranpur	1	480000
			Sub total		6	2880000
4	Seizure yard		Balugaon	Dhuanali	1	575000
5	Malakhana		Balugaon	Dhuanali	1	575000
6	Common Toilet		Delanga	Ankoi	1	115000
7	Staff Barrack		Tangi	Tangi	1	1087000
			Ranpur	FG Quarter Betuli	1	1087000
			Sub total		2	2174000
8	Divisional Control Room		Khordha	Division office, Khordha	1	309061
	Total General CAMPA					**8161061**

ROADS UNDER CAMPA (APO 2012-13)

Sl. No.	Item of works	Scheme	Range	Name of site	Achievement	
					Phy	Fin
1	2	3	4	5	6	7
1	Forest road maintenance	CAMPA (General)	Balugaon	Aranga - Silingipada road	1.5	63300
				Ankula - Maisagotha road	1	50000
				Silingipada - Maisagotha road	1.5	50000
				Berbera - Dhuanali road	2	80488
				Berbera - Bhatapada road	9.5	405979
				Berbera - Mahulia road	4	164981
			Tangi	Patia - Sirikuti road	3	125000
			Ranpur	Jamuganda - Betuli road	8	339782
				Dadarisahi nala - Sirikuti road	8.5	365508
				Bhetabar - Sankhajodi road	11	454962
			Sub total		**50**	**2100000**
	Total General CAMPA					**2100000**

PHYSICAL & FINANCIAL ACHIEVEMENT UNDER PLAN & NON PLAN SCHEMES 2013-14

Budget head	Area	Total allotment	Khordha	Tangi	Balugaon	Ranpur	Delanga	Balipatna	DFO	HC	Total
1	2	3	4	5	6	7	8	9	10	11	12
Maintenance work.		200000	159541		40459						200000
Minor works (Building		150000	47205	73060	29735						150000
Repair of building		1200000	883957	1230	314535	278					1200000
Repair of road		1000000		200000	573739	226261					1000000
Global positioning system		200000							200000		200000
Maintenance of boundary		300000			300000						300000
Working Plan		85000							85000		85000
Regeneration cleaning		17000	17000								17000
Sowing & planting		22000	22000								22000
Protection from fire		28000					14000	14000			28000
Other works.		350000		163800	37949				143985	4266	350000
Drift & waif wood		50000	44947							5053	50000
FP sold to consumer		300000			146401	49400			80000	24199	300000
Working of Timber		450000	56405	151352	176666	2600			62407	570	450000
Working of Bamboo		50000			50000						50000
Van Mahotsav		23000	3000						20000		23000
World forestry day		50150	10000						40000	150	50150
Non-residential buildings.		1200000	220244	77417	113642	750748			37949		1200000
Wildlife -Crop damage		529000	12650	146910	38330	331110					529000

13th Outside (11-12)	40	263000	131500				113900		17600		263000
Outside Pltn (12-13)	40	353000	353000								353000
Outside Pltn (13-14)	40	612000	609440						2560		612000
Outside pltn (14-15)	40	792000	240600	498918					52482		792000
13th Inside (11-12)	370	2442000	169759	754589	541660	958392	17600	0			2442000
Inside Pltn (2012-13)	355	3141750	811572	936456	509742	860950			23030		3141750
Inside Pltn (2013-14)	323	4941900	510390	1434891	1396817	1558658			41144		4941900
Inside pltn (2014-15)	270	5346000	1268956	1310797	932801	1387282			446164		5346000
ANR pltn (2014-15)	3400	8814443	1942783	2528126	1942783	1942783			457968		8814443
SSO of Timber	1249	1873500			1273500	600000					1873500
B.Economic (10-11)	100	270000	135000	135000							270000
B.Economic (11-12)	100	660000	401825	243137	10180	4580				278	660000
B.Economic (12-13)	100	885000	227330	234030	206970	216670					885000
B.Economic (13-14)	100	1854000	356172	511128	493000	488900			4800		1854000
B.Economic (14-15)	150	2686850	523208	474158	502008	498008	498008		191460		2686850
Bald hill (2011-12)	100	1497264	698506	784650	6008	8100					1497264
Bald hill (2012-13)	100	2233000	481579	373506	463704	467593	446618				2233000
Bald hill (2013-14)	100	8116600	1632277	1655516	1590890	1611095	1622022		4800		8116600
Bald hill (2014-15)	100	3757500	724235	725259	727307	735211	724235		121253		3757500
Avenue (2012-13)	15	481500	0		481500						481500
Avenue (2013-14)	30	2199750	733250	733250		733250			0		2199750
Avenue (2014-15)	30	172005	56215	56215		43450			16125		172005
Bamboo (11-12)	25	58750		35250			23500				58750
Bamboo (12-13)	25	73750				73750	0				73750
Bamboo (13-14)	25	187625				187625					187625
Bamboo (14-15) PO	25	80613				80613					80613
Urban (2013-14)	45000	8706150	8644315	0	8038	12765			41032		8706150
Urban (2014-15)	111000	2775000	1191376		239800			1243219	96402	4203	2775000
Maint. Of P.nursery	5(1.50)	1974000	789600	394800	394800	394800					1974000

13th Seedlings 13-14	7.4	3367989	1088490	589921	243328	568750	227500	650000			3367989
13th Seedlings PO for 14-15	7.4	3115400	850325	428023	171264	416750	171263	520372	557403		3115400
Agro seedlings PO for 14-15	7	2320000	498850	260141	239426	232728	266139	258126	564590		2320000
Critically endangered squad	1	608000				608000					608000
13th FC squad	2	1351351	28200	576708	716397					30046	1351351
Stall feeding		375000	375000								375000
Incentive to communities	50	50000			50000						50000
Fire fighting squad	2	600000	241705	163442	128056	65000			381	1416	600000
Efficient chullahs	30	12000				12000					12000
Crop damage		6433000	2134480	2130780	602940	1174800			390000		6433000
Divn lavel squad		283000	65130	183161					13130	21579	283000
Celebration of WL week		5000	5000								5000
Waterbody	2	500000	250000		250000						500000
Renovation		50000		50000							50000
Tiger census	95	110250	18419	14735	36575	33680	4210	2631			110250
G.Total		**92634090**	**29665436**	**19030356**	**15980950**	**17336580**	**4128995**	**2688348**	**3711665**	**91760**	**92634090**

BUILDINGS UNDER CAMPA (APO 2013-14)

Sl. No.	Item of works	Scheme	Range	Name of site	Achievement	
					Phy	Fin
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Construction of Range Officer Residence	CAMPA (General)	Ranpur	Range Officer, Ranpur	1	868000
			Delanga	Range Officer, Delanga (Ankoi)	1	868000
			Sub total		**2**	**1736000**
2	Forester Quarter		Ranpur	Forester Quarter Ranpur	1	666023
			Tangi	Forester Quarter Nachuni	1	665000
			Delanga	Forester Quarter Ankoi	1	663977
			Sub total		3	1995000
3	Forest Guard quarter		Khordha	FG Quarter Chiramaru	1	480000
			Balugaon	FG Quarter Baguda	1	480000
			Delanga	FG Quarter Ankoi	1	480000
			Sub total		**3**	**1440000**
4	Seizure yard		Tangi	Patia	1	575000
			Delanga	Ankoi	1	575000
			Sub total		2	1150000
5	Checking Station		Tangi	Kadambajhola	1	670000
	Total General CAMPA					**6991000**

ROADS UNDER CAMPA (APO 2013-14)

Sl. No.	Item of works	Scheme	Range	Name of site	Achievement	
					Phy	Fin
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Forest road maintenance	CAMPA (General)	Balugaon	Silingipada - Maisagotha road	9.52	400000
			Ranpur	Sankhajodi - Betuli road	9.52	400000
			Tangi	Patia - Sirikuti road	9.21	387000
				Patia - Nakithana road	1.74	73000
			Sub total		**30.0**	**1260000**
	Total General CAMPA					**1260000**

PHYSICAL & FINANCIAL ACHIEVEMENT UNDER PLAN & NON PLAN SCHEMES 2014-15

Budget head	Area	Amount received	Balugaon	Balipatna	Delanga	DFO	HC	Khordha	Ranpur	Tangi	Total
1	2	3	4	5	6	7	8	9	10	11	12
Maintenance work. (21033)		150000						98760		51240	150000
Minor works (Building 36002)		150000		7450				40503		102047	150000
Repair of building (21064)		1200000			100000			1041478		58522	1200000
Repair of road		1500000	1300000						200000		1500000
Maint. of boundary		80000	40000					40000			80000
Division office (Working Plan)		90000			40000	30000				20000	90000
Working Plan		80000				77779	2221				80000
Forest consolidation		27000		10000		7000			10000		27000
Regeneration cleaning		21000						21000			21000
Sowing & planting		20000						20000			20000
Protection from fire		31000	20000						11000		31000
Other works.		550000				477967	54626	4473	12934		550000
Drift & waif wood FP		80000	25489				17772	21000	15739		80000
FP to consumer		130000				97243	4313		13444	15000	130000
Working of Timber.		459460	350000						109460		459460
Working of Bamboo		42000	42000								42000
Van Mahotsav		45000						45000			45000
World Forestry Day		50150				40000		10150			50150
To produce Teak QPM		25000	25000								25000

Conducting of Recruitment		127880				42198	12565	73117			127880
Non-residential		1400000	406750			135000		696850	157066	4334	1400000
Wildlife - Crop damage.		1057977				220500		536317		301160	1057977
Outside (12-13)	40	264000						264000			264000
Outside (13-14)	40	354000						354000			354000
Outside (14-15)	40	612000				76272		535728			612000
Inside Pltn (12-13)	355	2343000	363000					660000	660000	660000	2343000
Inside Pltn (13-14)	323	2858550	885000					265500	885000	823050	2858550
Inside pltn (14-15)	270	4131000	669660			499392		1412630	666734	882584	4131000
ANR pltn (14-15)	1700	22319557	5067333			825834		5255734	4872833	6297823	22319557
ANR without gap planting	200	1000000	500000						500000		1000000
Econo 11-12	100	270000				3610		163526		102864	270000
Econo 12-13	100	660000	165000					165000	165000	165000	660000
Economic 13-14	100	885000	221250					221250	225300	217200	885000
B.Econ (14-15)	150	2578150	458426		433376	278572		456900	458426	492450	2578150
B.Econ (15-16) PO	100	1055472	280738		25050	123518		187158	183108	255900	1055472
Bald hill 11-12	100	1050000						525000		525000	1050000
Bald hill 12-13	100	1500000	300000		300000			300000	300000	300000	1500000
Bald hill 13-14	100	2234000	446800		446800			446800	446800	446800	2234000
Bald hill 14-15	100	7939500	1549764		1549764	190680		1549764	1549764	1549764	7939500
Bald hill 15-16 PO	50	1518228	291678		291677	59840		291677	291678	291678	1518228
Avenue 12-13	15	227250	227250								227250
Avenue 13-14	30	963000						310000	321000	332000	963000
Avenue 14-15)	30	2027745				5653		685030	674031	663031	2027745
Avenue 15-16 PO)	30	105450	16640	16640	16640	5610		16640	16640	16640	105450

Bamboo (12-13)	25	58750							58750		58750
Bamboo (13-14)	25	73750							73750		73750
Bamboo (14-15)	25	236888				11560			225328		236888
Bamboo (15-16) PO	25	186575	71638		71638	7480		35819			186575
Urban (2013-14) (Kho)	45000	4225500						4225500			4225500
Urban (2014-15)	111000	19058700	1855321	8433077		337190		8433112			19058700
Urban (15-16) PO	50000	500000	18504	240552		26756	10644	203544			500000
Maint. P.nursery	150000	2253153	430231			102000		860461	430231	430230	2253153
Seedlings (7.40) 14-15	740000	2769080	187100	550100	187100			900677	428853	515250	2769080
Seedlings (7.40) 15-16 PO	740000	3058971	169287	263831	253931	554820		809982	462115	545005	3058971
Agro (7 lakh) 14-15	700000	3280000	468574	468571	443842			937143	468570	493300	3280000
Agro (7 lakh) 15-16 PO	700000	2100000	225200	225200	249929	517498	6102	450400	225200	200471	2100000
Fuel Efficient chullah (Balugaon)	30	12000	12000								12000
CEA squad (Ranpur)	1	625000							625000		625000
13th FC squad	1	1350000	649572				2257		48600	649571	1350000
Stall feeding		250000	250000								250000
Incentive to VSS	45	45000	10000					10000	15000	10000	45000
Fire fighting squad		600000	150000					150000	200000	100000	600000
Crop damage		360800				355800		5000			360800
Divisional squad		283000					2000			281000	283000
Celebration of WL week		15000				5000		10000	0		15000
Constr. of watch tower	1	1000000	1000000								1000000
G.Total		**106554536**	**19149205**	**10215421**	**4409747**	**5114772**	**112500**	**33746623**	**16007354**	**17798914**	**106554536**

BUILDINGS UNDER CAMPA (APO 2014-15)						
Sl No.	**Item of works**	**Scheme**	**Range**	**Name of Site**	**Achievement**	
					Phy	**Fin**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	**NIL**					

ROADS UNDER CAMPA (APO 2014-15)						
Sl No.	**Item of works**	**Scheme**	**Range**	**Name of Site**	**Achievement**	
					Phy	**Fin**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	**NIL**					

PHYSICAL & FINANCIAL ACHIEVEMENT UNDER PLAN & NON PLAN SCHEMES 2015-16

Budget head	Area	Allotment	Khordha	Tangi	Balugaon	Ranpur	Delanga	Balipatna	DFO	HC	Total
1	2	3	4	5	6	7	8	9	10	11	12
Maintenance work. (21033)		100000	100000								100000
Repair of building (21064)		1000000	359000		120000	400000		121000			1000000
Repair of road (21094)		1067000			1000000	67000					1067000
Forest consolidation 22026		50000	40000	10000							50000
Regeneration cleaning 22036		25000						25000			25000
Protection from fire 22035		25000			15000	10000					25000
Drift & waif wood FP-0334		50000			15000	15000		20000			50000
FP to consumer -0513		100000			15000				59000	26000	100000
Working of Timber. 22020		450000		69753	265247	115000					450000
Working of Bamboo 22016		42000			42000						42000
Van Mahotsav (17001)		25000	25000								25000
World forestry day (17001)		20050	20050								20050
Non-residential buildings		1000000	501547		398453			100000			1000000
Survey & investigation32011		50000		20000			20000	10000			50000
Other works (37109)		150000							150000		150000
Wildlife - Crop damage.		3234000							3233830	170	3234000
Total Non Plan (Gen + WL)		**7388050**	**1045597**	**99753**	**1870700**	**607000**	**20000**	**276000**	**3442830**	**26170**	**7388050**
Critically endangered squad	1	750500				750500					750500
Compassionate Grant (Wildlife)		3663690							415000	3248690	3663690
Divisional elephant squad		348760		348760							348760
Creation of waterbody		500000			500000						500000
Elephant census		34000	14000	5000	10000	5000					34000
Biju Pattnaik Award		20000	20000								20000
Public awareness programme		10000	10000								10000
Constr. of check dam	1	250000		250000							250000
Total State Plan - State Sector (Gen + WL)		**5576950**	**44000**	**603760**	**510000**	**755500**	**0**	**0**	**415000**	**3248690**	**5576950**
Econo 12-13	100	360000	90000	90000	90000	90000					360000
Economic 13-14	100	820000	205000	205000	205000	205000					820000

B.Econ (14-15)	150	1680000	336000	336000	336000	336000	336000				1680000
B.Econ (15-16)	100	2460000	492000	738000	738000	492000					2460000
B.Econ (16-17) PO	100	1982500	495625	495625	495625	495625					1982500
Bald hill 12-13	100	1357500	271500	271500	271500	271500	271500				1357500
Bald hill 13-14	100	1957500	391500	391500	391500	391500	391500				1957500
Bald hill 14-15	100	2776500	555300	555300	555300	555300	555300				2776500
Bald hill 15-16	50	4462000	892400	892400	892400	892400	892400				4462000
Bald hill 16-17 PO	50	3545300	709060	709060	709060	709060	709060				3545300
Avenue 12-13	15	255975			255975						255975
Avenue 13-14	30	571950	190650	190650		190650					571950
Avenue 14-15)	30	1185000	395000	395000		395000					1185000
Avenue 15-16	30	2293050	382175	382175	382175	382175	382175	382175			2293050
Avenue 16-17 PO	30	210000	35000	35000	35000	35000	35000	35000			210000
Bamboo (13-14)	25	117825				117825					117825
Bamboo (14-15)	25	137825				137825					137825
Bamboo (15-16)	25	244675	48935		97870	97870					244675
Bamboo (16-17) PO	25	250000			100000	150000					250000
Urban (2013-14)	45000	1698750	1698750								1698750
Urban (2014-15)	111000	11528460	5193000		1038600			5296860			11528460
Urban (15-16)	51000	9900000	4356000		396000			5148000			9900000
Urban (16-17) PO	35000	245000	84000		14000			147000			245000
Maint. P.nursery	8	1857460	688084	316592	316592	316592	109800	109800			1857460
Agro forestry 15-16	7.0	3500000	1000000	500000	500000	500000	500000	500000			3500000
Agro forestry 16-17 PO	7.0	4200000	1200000	600000	600000	600000	600000	600000			4200000
Fuel Efficient chullah	30	15000			15000						15000
Total SP- District Sector (Increasing Green Cover)		**59612270**	**19709979**	**7103802**	**8435597**	**7361322**	**4782735**	**12218835**	**0**	**0**	**59612270**
ANR pltn (14-15)	1700	10880000	2560000	3200000	2560000	2560000					10880000
Seedlings (7.40) 15-16	7.4	2775000	928265	649235	180500	463750	275000	278250			2775000
Total SP- District Sector (Management of plantation)		**13655000**	**3488265**	**3849235**	**2740500**	**3023750**	**275000**	**278250**	**0**	**0**	**13655000**
Total State Plan (State Sector + District Sector)		**78844220**	**23242244**	**11556797**	**11686097**	**11140572**	**5057735**	**12497085**	**415000**	**3248690**	**78844220**
Eco Tourism development	2	1000000	500000	500000							1000000
Total COL - State Plan - District Sector.		**1000000**	**500000**	**500000**	**0**	**0**	**0**	**0**	**0**	**0**	**1000000**
Total Expenditure		**87232270**	**24787841**	**12156550**	**13556797**	**11747572**	**5077735**	**12773085**	**3857830**	**3274860**	**87232270**

BUILDINGS UNDER CAMPA (APO 2015-16)						
Sl No.	**Item of works**	**Scheme**	**Range**	**Name of Site**	**Achievement**	
					Phy	**Fin**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Construction of Forester quarter	CAMPA	Ranpur	Sankhajodi	1	750000
2	Construction of Forest guard quarter	CAMPA	Khordha	Patabandha	1	530000
		CAMPA	Delanga	Ankoi	1	530000
		CAMPA	Tangi	Nachuni	1	530000
			Total CAMPA			**2340000**

ROADS UNDER CAMPA (APO 2015-16)						
Sl No.	**Item of works**	**Scheme**	**Range**	**Name of Site**	**Achievement**	
					Phy	**Fin**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	**NIL**					

Physical & Financial Achievement under Plan & Non Plan Scheme of Khordha Forest Division during 2016-17

Budget head	Area	Amount received	Expenditure up to Mar 17	Balance to be spent	Khordha	Tangi	Balugaon	Ranpur	Delanga	Balipatna	DFO	Total	Balance
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Maintenance work. (21033)		200000			0	0						0	0
Khordha		153000	153000	0	0							0	0
Balipatna		30000	30000	0						0		0	0
Balugaon		17000	17000	0								0	0
Total		200000	200000	0	0	0	0	0	0	0	0	0	0
Repair of building (21064)		2100000			0		0	0		0		0	0
Balugaon		67000	67000	0			0					0	0
Ranpur		140000	140000	0				0				0	0
Balipatna		165000	165000	0						0		0	0
Delanga		434900	434900	0					0			0	0
Tangi		65000	65000	0		0						0	0
Khordha		1228100	1228100	0	0							0	0
Total		2100000	2100000	0	0	0	0	0	0	0	0	0	0
Repair of road (21094)		700000					0	0				0	0
Balugaon		600000	600000	0			0					0	0
Ranpur		100000	100000	0				0				0	0
Total		700000	700000	0	0	0	0	0	0	0	0	0	0
Forest consolidation 22026		50000	50000	0		0						0	0
Regeneration cleaning 22036		30000	30000	0	0							0	0
Protection from fire 22035		25000	25000	0						0		0	0
Drift & waif wood FP-0334		100000	100000	0		0	0	0		0	0	0	0
FP to consumer -0513		212000	212000	0	0	0		0			0	0	0
Working of Timber. 22020		450000	300000	150000		0	0	0				0	150000
Working of Bamboo 22016		47000	47000	0		0	0					0	0
World forestry day		100250	100250	0	0						0	0	0
Van Mahotsav		50100	20050	30050	0							0	30050
Recruitment of Fr & FG 16-17													

Khordha		77848	77848	0								0	0
DFO		173272	173272	0							0	0	0
Tota		251120	251120	0	0	0	0	0	0	0	0	0	0
Global positioning (workshop)		136900											
Khordha		34043	34043	0								0	0
DFO		102857	102857	0								0	0
Tota		136900	136900	0	0	0	0	0	0	0	0	0	0
Non-residential buildings		1230000											
Khordha		848817	848817	0	0							0	0
Tangi		176783	176783	0		0						0	0
Ranpur		179400	179400	0				0				0	0
Balugaon		25000	25000	0			0					0	0
Total		1230000	1230000	0	0	0	0	0	0	0	0	0	0
Other works		350000											
Khordha		55000	55000	0								0	0
Balugaon		107763	107763	0			0					0	0
DFO		187237	187237	0							0	0	0
Total		350000	350000	0	0	0	0	0	0	0	0	0	0
Total 01 - Non Plan		6032370	5852320	180050	0	0	0	0	0	0	0	0	180050
Wildlife - Crop damage.		1240590			0	0		0			0	0	0
Delanga		8000	8000	0								0	0
Khordha		381740	381740	0	0							0	0
Tangi		850850	850850	0		0						0	0
DFO		0		0								0	0
Total 02 - Non Plan		1240590	1240590	0	0	0	0	0	0	0	0	0	0
Total Non Plan		7272960	7092910	180050	0	0	0	0	0	0	0	0	180050
Inside 16-17		810960											
Tangi	20	540640	540640	0		0						0	0
Balugaon	10	270320	270320	0			0					0	0
Total	30	810960	810960	0	0	0	0	0	0	0	0	0	0
Economic 13-14		359871											
Khordha	25	89950	89950	0	0							0	0
Tangi	25	90021	90021	0		0						0	0
Balugaon	25	89950	89950	0			0					0	0
Ranpur	25	89950	89950	0				0				0	0
Total	100	359871	359871	0	0	0	0	0	0	0	0	0	0
B.Econ (14-15)		1248000											

Khordha	30	249600	249600	0	0							0	0
Tangi	30	249600	249600	0		0						0	0
Balugaon	30	249600	249600	0			0					0	0
Delanga	30	249600	249600	0					0			0	0
Ranpur	30	249600	249600	0				0				0	0
Total	150	1248000	1248000	0	0	0	0	0	0	0	0	0	0
B.Econ (15-16)		1206400											
Khordha	20	192320	192320	0	0							0	0
Tangi	30	288480	288480	0		0						0	0
Balugaon	30	288480	288480	0			0					0	0
Ranpur	20	192320	192320	0				0				0	0
DFO		244800	244800	0							0	0	0
Total	100	1206400	1206400	0	0	0	0	0	0	0	0	0	0
B.Econ (16-17) PO		679200										QPM 10000 of Rs. 41500	
Khordha	25	163575	163575	0	0							0	0
Tangi	25	171875	171875	0		0						0	0
Balugaon	25	171875	171875	0			0					0	0
Ranpur	25	171875	171875	0				0				0	0
Total	100	679200	679200	0	0	0	0	0	0	0	0	0	0
Bald hill 13-14		1369902											
Khordha	20	273982	273982	0	0							0	0
Tangi	20	273980	273980	0		0						0	0
Balugaon	20	273980	273980	0			0					0	0
Delanga	20	273980	273980	0					0			0	0
Ranpur	20	273980	273980	0				0				0	0
Total	100	1369902	1369902	0	0	0	0	0	0	0	0	0	0
Bald hill 14-15		1510000											
Khordha	20	302000	302000	0	0							0	0
Tangi	20	302000	302000	0		0						0	0
Balugaon	20	302000	302000	0			0					0	0
Delanga	20	302000	302000	0					0			0	0
Ranpur	20	302000	302000	0				0				0	0
Total	100	1510000	1510000	0	0	0	0	0	0	0	0	0	0
Bald hill 15-16		1441800											
Khordha	10	267720	267720	0	0							0	0
Tangi	10	267720	267720	0		0						0	0

Balugaon	10	267720	267720	0			0					0	0
Delanga	10	267720	267720	0					0			0	0
Ranpur	10	267720	267720	0				0				0	0
DFO		103200	103200	0							0	0	0
Total	50	1441800	1441800	0	0	0	0	0	0	0	0	0	0
Bald hill 16-17 PO		604200										QPM 5000 of Rs. 20750	
Khordha	10	118765	118765	0	0							0	0
Tangi	10	120840	120840	0		0						0	0
Balugaon	10	118765	118765	0			0					0	0
Delanga	10	124990	124990	0					0			0	0
Ranpur	10	120840	120840	0				0				0	0
Total	50	604200	604200	0	0	0	0	0	0	0	0	0	0
Bamboo (14-15) Ranpur	25	126100	126100	0				0				0	0
Total	25	126100	126100	0	0	0	0	0	0	0	0	0	0
Bamboo (15-16)		145000											
Balugaon	10	53510	53510	0			0					0	0
Khordha	5	39690	39690	0	0							0	0
Delanga	10	51800	51800	0					0			0	0
Total	25	145000	145000	0	0	0	0	0	0	0	0	0	0
Bamboo (16-17) PO		8950											
Balugaon	10	3580	3580	0			0					0	0
Ranpur	15	5370	5370	0	0			0				0	0
Total	25	8950	8950	0	0	0	0	0	0	0	0	0	0
4th Maint of Avenue (13-14)	30	480000											
Khordha	10	160000	160000	0	0							0	0
Tangi	10	160000	160000	0		0						0	0
Ranpur	10	160000	160000	0				0				0	0
Total	30	480000	480000	0	0	0	0	0	0	0	0	0	0
Urban (2013-14) (Khordha)	45000	1674000	1674000	0	0							0	0
Total		1674000	1674000	0	0	0	0	0	0	0	0	0	0
Urban (2014-15)	111000	4706400											
Khordha / Banki	50000	2170000	2170000	0	0							0	0
Balugaon / Banpur	10000	424000	424000	0			0					0	0
Balipatna / Pipili	51000	2112400	2112400	0						0		0	0

Total	111000	4706400	4706400	0	0	0	0	0	0	0	0	0	0
Urban (15-16)	50000	5154000											
Khordha / Banki	22000	2223320	2223320	0	0							0	0
Balugaon / Banpur	2000	202620	202620	0			0					0	0
Balipatna	26000	2627560	2627560	0						0		0	0
DFO		100500	100500	0							0	0	0
Total	50000	5154000	5154000	0	0	0	0	0	0	0	0	0	0
Urban (16-17)	35000	13503000											
Khordha / Banki	12000	4573187	4573187	0	0							0	0
Balugaon / Banpur	2000	763410	763410	0			0					0	0
Balipatna	21000	8003078	8003078	0						0		0	0
DFO		163325	163325	0							0	0	0
Total	35000	13503000	13503000	0	0	0	0	0	0	0	0	0	0
Urban (PO for 17-18)	50000	335500											
Khordha / Banki	27000	181170	181170	0	0							0	0
Balugaon / Banpur	1000	6710	6710	0			0					0	0
Delanga	7500	50325	50325	0					0			0	0
Ranpur	2500	16775	16775	0				0				0	0
Balipatna	12000	80520	80520	0						0		0	0
Total	50000	335500	335500	0	0	0	0	0	0	0	0	0	0
Maint. P.nursery		594000										0	0
Khordha	50000	174186	174186	0	0							0	0
Balugaon	20000	76494	76494	0			0					0	0
Tangi	20000	72494	72494	0		0						0	0
Ranpur	20000	72494	72494	0				0				0	0
Delanga	20000	72494	72494	0					0			0	0
Balipatna	20000	72494	72494	0						0		0	0
DFO (Polythene)		53344	53344	0							0	0	0
Total	150000	594000	594000	0	0	0	0	0	0	0	0	0	0
Agro (7 lakh) 16-17 PO		2415000											
Khordha	2.00	689568	689568	0	0							0	0
Balugaon	1.00	345000	345000	0			0					0	0
Delanga	1.00	345000	345000	0					0			0	0
Balipatna	1.00	345000	345000	0						0		0	0
Tangi	1.00	345000	345000	0		0						0	0
Ranpur	1.00	345432	345432	0				0				0	0
Total	7.00	2415000	2415000	0	0	0	0	0	0	0	0	0	0

Fuel efficient chullah	20	13960	13960	0							0	0	0
Contingency for PCCF(Affn)		50000	50000	0							0	0	0
Contingency for PCCF		245239	245239	0							0	0	0
SSO of timber	2931	5862000											
Khordha	269	538000	538000	0	0							0	0
Balugaon	1286.79	2573580	2573580	0			0					0	0
Ranpur	1375.21	2750420	2750420	0				0				0	0
Total	2931	5862000	5862000	0	0	0	0	0	0	0	0	0	0
SSO of Bamboo	1000	2000000											
Balugaon	500	1000000	1000000	0			0					0	0
Ranpur	500	1000000	1000000	0				0				0	0
Total	1000	2000000	2000000	0	0	0	0	0	0	0	0	0	0
Total 2829 - IGC		46543482	46543482	0	0	0	0	0	0	0	0	0	0
CEA squad (Ranpur)	1	800000	800000	0				0				0	0
IFM (PCCF office- 7F (Plan)		100000	100000	0							0	0	0
IFM (Fire protection)		563600										0	0
Fire Squad - 10 nos.		264000										0	0
Balugaon		110000	110000	0			0					0	0
Ranpur		110000	110000	0				0				0	0
Delanga		44000	44000	0					0			0	0
Total		264000	264000	0	0	0	0	0	0	0	0	0	0
Hiring of vehicle & Equipment		100000											0
Balugaon		24000	24000	0			0					0	0
Ranpur		21800	21800	0				0				0	0
DFO		54200	54200	0								0	0
Total		100000	100000	0	0	0	0	0	0	0	0	0	0
Incentive to VSS - 10 nos. (Ranpur)		50000	50000	0				0				0	0
Fire line creation - 50 kms		100000											0
Tangi		50000	50000	0								0	0
Ranpour		50000	50000	0								0	0
Total		100000	100000	0	0	0	0	0	0	0	0	0	0
Monitoring & fire mapping		25000	25000	0							0	0	0
Contingency (7F Planning)		24600	24600	0							0	0	0
Total		563600	563600	0	0	0	0	0	0	0	0	0	0
Total of IFM		**663600**	**663600**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Const. of Ministerial quarter		625000	625000	0	0							0	0
Total 01 - State Plan		48632082	48632082	0	0	0	0	0	0	0	0	0	0
WL wings													
Crop damage-SP-110-3128		1369480											
Khordha		1075980	1075980	0	0							0	0
Balugaon		11000	11000	0			0					0	0
Ranpur		282500	282500	0				0				0	0
Total		1369480	1369480	0	0	0	0	0	0	0	0	0	0
Wildlife week-110-3128		20000	20000	0	0							0	0
Crop damage-SP-789-3128		4395830											
Khordha		837440	837440	0	0							0	0
Tangi		1794840	1794840	0		0						0	0
Delanga		91350	91350	0					0			0	0
Ranpur		1672200	1672200	0				0				0	0
Total		4395830	4395830	0	0	0	0	0	0	0	0	0	0
Divisional squad - 110-3173		400000											
Tangi		386100	386100	0		0						0	0
Khordha (HSD)		10000	10000	0	0							0	0
DFO		3900	3900	0							0	0	0
Total		400000	400000	0	0	0	0	0	0	0	0	0	0
Renovation of waterbody-110-3173		65000	65000	0		0						0	0
Contingency (WL) -110-3173 (Khordha)		200000											
Khordha		100000	100000	0								0	0
Tangi		50000	50000	0								0	0
DFO		50000	50000	0								0	0
Total		200000	200000	0	0	0	0	0	0	0	0	0	0
Check Dam- 789-3173		200000	0										0
Tangi		100000	100000	0								0	0
Balugaon		100000	100000	0								0	0
Total		200000	200000	0	0	0	0	0	0	0	0	0	0
Engagement of vehicle -796-3173 (Khordha)		200000	78528										
Khordha		107528	107528	0								0	0

Tangi		4000	4000	0								0	0
Ranpur		24000	24000	0								0	0
DFO		64472	64472	0								0	0
Total		200000	200000	0	0	0	0	0	0	0	0	0	0
Creation of waterbody-796-3173 (Ranpur)		400000	400000	0				0				0	0
Dev. Of intelligence, incentive to informers etc.-796- 3173		10000	10000	0	0						0	0	0
Public awareness programme-796-3173		20000	20000	0	0						0	0	0
Elephant Census - 796-0361-20002		71440											
Khordha	5	5196	5196	0	0							0	0
Tangi	8	4800	4800	0		0						0	0
Balugaon	4	2400	2400	0			0					0	0
Ranpur	3	1800	1800	0				0				0	0
DFO		57244	57244	0							0	0	0
Total	20	71440	71440	0	0	0	0	0	0	0	0	0	0
Total 02 - State Plan		7351750	7351750	0	0	0	0	0	0	0	0	0	0
Total State Plan		55983832	55983832	0	0	0	0	0	0	0	0	0	0
Total NP + SP		63256792	63076742	180050	0	0	0	0	0	0	0	0	180050
Forest Deposit (Renovation of Range Office, Balugaon)		2021442	2021442	0			0					0	0
Forest Deposit (Car Timber expenditure - spill over amount of 2014-15)		17730	0	17730								0	17730
Total Forest Deposit		**2039172**	**2021442**	**17730**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17730**
G.Total		**65295964**	**65098184**	**197780**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**197780**

BUILDINGS UNDER CAMPA (APO 2016-17)						
Sl No.	**Item of works**	**Scheme**	**Range**	**Name of Site**	**Achievement**	
					Phy	**Fin**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Construction of Forester quarter	CAMPA	Ranpur	Karadapalla	1	750000
2	Construction of Forest guard quarter		Khordha	Mahaparbat	1	530000
3			Tangi	Rameswar	1	530000
Total CAMPA						**1810000**

ROADS UNDER CAMPA (APO 2016-17)						
Sl No.	**Item of works**	**Scheme**	**Range**	**Name of Site**	**Achievement**	
					Phy	**Fin**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Repair of Forest Road	CAMPA	Balugaon	Mainshigotha to Silingpada	5	250000
2	Culvert		Balugaon	Niladriprasad to Tamna	1	153000
3			Balugaon	Ankula to Maishigotha	1	153000
4	Causeway		Balugaon	Rajin to Nanduru	1	106000
5			Ranpur	Betuli to Dhuanali	1	106000
Total CAMPA						**768000**

Physical & Financial Achievement under Plan & Non Plan Scheme of Khordha Forest Division during 2017-18

Budget head	Area	Amount received	Expenditure up to Feb 18	Balance to be spent	Khordha	Tangi	Balugaon	Ranpur	Delanga	Balipatna	DFO	Total	Balance
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Maintenance work. (21033)		145000										0	0
Khordha		70000	70000	0	0							0	0
Balipatna		46500	46500	0						0		0	0
Tangi		28500	28500	0		0						0	0
Total		145000	145000	0	0	0	0	0	0	0	0	0	0
Repair of building (21064)		1300000			0		0	0		0		0	0
Balugaon		240300	240300	0			0					0	0
Balipatna		43500	43500	0						0		0	0
Ranpur		50000	50000	0				0				0	0
Tangi		80946	80946	0		0						0	0
Khordha		885254	885254	0	0							0	0
Total		1300000	1300000	0	0	0	0	0	0	0	0	0	0
Repair of road (21094)		700000					0	0				0	0
Balugaon		700000	700000	0			0					0	0
Ranpur				0				0				0	0
Total		700000	700000	0	0	0	0	0	0	0	0	0	0
International Earth Day (17001)		5000	5000	0	0							0	0
World drought day (17001)		5000	5000	0	0							0	0
World forestry day (17001)		29100	29100	0	0						0	0	0
Van Mahotsav		60100	60100	0	0							0	0
Non-residential buildings		1000000											
Khordha		399006	399006	0	0							0	0
Tangi		25000	25000	0		0						0	0
Delanga		175000	175000	0					0			0	0
Ranpur		145000	145000	0				0				0	0
Balugaon		255994	255994	0			0					0	0
Total		1000000	1000000	0	0	0	0	0	0	0	0	0	0
Other works		105061											
Khordha		75000	75000	0	0							0	0
Balugaon		0		0			0					0	0
DFO		30061	30061	0							0	0	0
Total		105061	105061	0	0	0	0	0	0	0	0	0	0

Total 01-Adm. Exp.		3349261	3349261	0	0	0	0	0	0	0	0	0	0
Wildlife - Crop damage.													
Balugaon		0		0								0	0
Khordha		289810	289810	0	0							0	0
Tangi		706410	706410	0		0						0	0
Ranpur		279500	279500	0				0				0	0
Total 02-Adm. Exp.		1275720	1275720	0	0	0	0	0	0	0	0	0	0
Total Adm. Expenditure		4624981	4624981	0	0	0	0	0	0	0	0	0	0
Urban (15-16) (Rs. 42.4)	50000	2259050											
Khordha / Banki	22000	993982	993982	0	0							0	0
Balugaon / Banpur	2000	90362	90362	0			0					0	0
Balipatna	26000	1174706	1174706	0						0		0	0
Total	50000	2259050	2259050	0	0	0	0	0	0	0	0	0	0
Urban (16-17) (Rs. 103.08)	35000	3725925											
Khordha / Banki	12000	1277460	1277460	0	0							0	0
Balugaon / Banpur	2000	248564	248564	0			0					0	0
Balipatna	21000	2199901	2199901	0						0		0	0
Total	35000	3725925	3725925	0	0	0	0	0	0	0	0	0	0
Urban (17-18) - Balance nursery	33175	95544											
Khordha / Banki	19225	55368	55368	0	0							0	0
Balugaon / Banpur	600	1728	1728	0			0					0	0
Balipatna	4300	12384	12384	0						0		0	0
Delanga	7500	21600	21600	0					0			0	0
Ranpur	1550	4464	4464	0				0				0	0
Total	33175	95544	95544	0	0	0	0	0	0	0	0	0	0
Cotingency for PCCF office	1	200000	200000	0							0	0	0
SSO of Timber	1461	3119235											
Balugaon	1461	3119235	3119235	0			0					0	0
Total	1461	3119235	3119235	0	0	0	0	0	0	0	0	0	0
Total 2829-IGC-Dist Sector		9399754	9399754	0	0	0	0	0	0	0	0	0	0
Drift & waif wood FP-0334 (BL)		46000											
Balipatna		20000	20000	0								0	0
Tangi		26000	26000	0		0						0	0
Total		46000	46000	0	0	0	0	0	0	0	0	0	0
FP to consumer -0513 (B) (R)		130000	130000	0	0	0	0	0			0	0	0
Working of Timber. 22020	225	450000											
Balugaon	200	450000	450000	0			0					0	0

Total		450000	450000	0	0	0	0	0	0	0	0	0	0
Working of Bamboo 22016		35000	35000	0		0	0					0	0
Forest consolidation 22026		17500	17500	0			0					0	0
Regeneration cleaning 22036		8500	8500	0	0							0	0
Protection from fire 22035 (K)		17000	17000	0	0					0		0	0
Working Plan (78124)		45000		0									
Khordha		20000	20000	0	0							0	0
Balugaon		25000	25000	0			0					0	0
Total		45000	45000	0	0	0	0	0	0	0	0	0	0
CEA squad (Ranpur)	1	827055	827055	0				0				0	0
IFMS - Fire protection- CSS - 2399 - Sai intelligence		11251	11251	0							0	0	0
Total 01 - State Sector		1587306	1587306	0	0	0	0	0	0	0	0	0	0
Total 01-Programme Exp.		10987060	10987060	0	0	0	0	0	0	0	0	0	0
WL Wings													
Crop damage-SP-110-3128		3571668											
Khordha		476380	476380	0	0							0	0
Tangi		1804718	1804718	0		0						0	0
Balugaon		349610	349610	0			0					0	0
Ranpur		940960	940960	0				0				0	0
Total		3571668	3571668	0	0	0	0	0	0	0	0	0	0
Wildlife Week-110-3128		15000	15000	0	0						0	0	0
Total 110 - 3128 (P.E)		3586668	3586668	0	0	0	0	0	0	0	0	0	0
2 Elephant squad - 110-3173		1200000											
Tangi		626430	626430	0		0						0	0
Khordha		544430	544430	0	0							0	0
Delanga		8000	8000	0					0			0	0
DFO		21140	21140	0							0	0	0
Total		1200000	1200000	0	0	0	0	0	0	0	0	0	0
Dev. Of intelligence, incentive to informers etc.-110-3173		15000	15000	0	0						0	0	0
Renovation of waterbody-110-3173-Khordha		65000	65000	0	0							0	0
Elephant proof barrier -110-3173 Tangi (Patia, Rameswar & Naragoda part)		1100000	1100000	0		0						0	0
Total		1100000	1100000	0	0	0	0	0	0	0	0	0	0

Permanent Protection Camp with solar light (12x40) -110-3173 (Ranpur)		850000	850000	0				0				0	0
Check Dam- 110-3173 (Ranpur)		335000	335000	0				0				0	0
Total		335000	335000	0	0	0	0	0	0	0	0	0	0
Total 110 - 3178 (P.E)		3565000	3565000	0	0	0	0	0	0	0	0	0	0
Strengthening communication network -796-3173 (B)		50000	50000	0			0					0	0
Total		50000	50000	0	0	0	0	0	0	0	0	0	0
Creation of waterbody-796-3173		800000											
Balugaon		400000	400000	0			0					0	0
Ranpur		400000	400000	0				0				0	0
Total		800000	800000	0	0	0	0	0	0	0	0	0	0
Elephant proof barrier -796-3173		1100000											
Ranpur		300000	300000	0				0				0	0
Tangi (Naragoda & Rameswar)		800000	800000	0		0						0	0
Total		1100000	1100000	0	0	0	0	0	0	0	0	0	0
Total 796-3173 - PE)		1950000	1950000	0	0	0	0	0	0	0	0	0	0
Total 02-P.E-State Sector		9101668	9101668	0	0	0	0	0	0	0	0	0	0
Total Programme Exp.		20088728	20088728	0	0	0	0	0	0	0	0	0	0
Total Expenditure (AE+PE)		24713709	24713709	0	0	0	0	0	0	0	0	0	0
Forest Deposit (Nature camp)		10000	0	10000			0				0	0	10000
Forest Deposit (Car Timber)		17730	17730	0		0						0	0
Total Forest Deposit		27730	17730	10000	0	0	0	0	0	0	0	0	10000
G.Total		24741439	24731439	10000	0	0	0	0	0	0	0	0	10000

BUILDINGS UNDER CAMPA (APO 2017-18)						
Sl No.	**Item of works**	**Scheme**	**Range**	**Name of Site**	**Achievement**	
					Phy	**Fin**
1	**2**	**3**	**4**	**5**	**6**	**7**
5	Construction of Forester quarter	CAMPA	Balugaon	Dhuanali	1	942000
6			Balugaon	Padmapur	1	942000
7			Khordha	Baideswar	1	942000
1	Construction of Forest guard quarter		Balugaon	Silingpada	1	684000
2			Balugaon	Niladriprasad	1	684000
3			Ranpur	Sirikuti	1	684000
4			Tangi	Sirikuti	1	684000
Total CAMPA						**5562000**

ROADS UNDER CAMPA (APO 2017-18)						
Sl No.	**Item of works**	**Scheme**	**Range**	**Name of Site**	**Achievement**	
					Phy	**Fin**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Repair of Forest Road	CAMPA	Balugaon		28	1400000
2			Ranpur		10	500000
3			Tangi		7	350000
4	Causeway		Balugaon	Tamana	2	212000
5			Ranpur	Betuli-Dhuanali road	2	212000
6			Tangi	Patia-Nakithana road	1	106000
Total CAMPA						**2780000**

Physical & Financial Achievement under Plan & Non Plan Scheme of Khordha Forest Division during 2018-19

Budget head	Area	Amount received	Expenditure up to Feb 19	Balance to be spent	Khordha	Tangi	Balugaon	Ranpur	Delanga	Balipatna	DFO	Total	Balance
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Repair of building (21064)		880000			0		0	0		0		0	0
Balugaon		29304	29304	0			0					0	0
Balipatna		80000	80000	0						0		0	0
Ranpur		112296	112296	0				0				0	0
Delanga		64000	64000	0					0			0	0
Tangi		80000	80000	0		0						0	0
Khordha		514400	514400	0	0							0	0
Total		880000	880000	0	0	0	0	0	0	0	0	0	0
Repair of road (21094)		1300000					0	0				0	0
Balugaon		400000	400000	0			0					0	0
Tangi		550000	550000	0		0						0	0
Ranpur		350000	350000	0				0				0	0
Total		1300000	1300000	0	0	0	0	0	0	0	0	0	0
International Earth Day (17001)		5000	5000	0	0							0	0
World drought day & VM Day		15000	15000	0	0							0	0
World Forestry Day		25000	25000	0	0							0	0
Non-residential buildings		700000											
Khordha		212600	212600	0	0							0	0
Balugaon		487400	487400	0			0					0	0
Total		700000	700000	0	0	0	0	0	0	0	0	0	0
Maintenance of forest boundary (21019) Tangi		100000	100000	0		0						0	0
Other works (37109)		100000											
Khordha		73296	73296	0	0							0	0
Ranpur		8505	8505	0				0				0	0
DFO		18199	18199	0							0	0	0
Total		100000	100000	0	0	0	0	0	0	0	0	0	0
Total 01-Adm. Exp.		3125000	3125000	0	0	0	0	0	0	0	0	0	0
Wildlife - Crop damage.		3044072											
Delanga		309200	309200	0					0			0	0
Khordha		686180	686180	0	0							0	0
Tangi		1479084	1479084	0		0						0	0
Balugaon		117200	117200	0			0					0	0
Ranpur		52408	52408	0				0				0	0
DFO		400000	400000	0							0	0	0
Total 02-Adm. Exp.		3044072	3044072	0	0	0	0	0	0	0	0	0	0
Total Adm. Expenditure		6169072	6169072	0	0	0	0	0	0	0	0	0	0
Urban (15-16) (Rs.41.7198)	50000	2381365											
Khordha / Banki	22000	988488	988488	0	0							0	0
Balugaon / Banpur	2000	97280	97280	0			0					0	0
Balipatna	26000	1170605	1170605	0						0		0	0
Tangi		34200	34200	0								0	0
DFO		90792	90792	0		0					0	0	0
Total	50000	2381365	2381365	0	0	0	0	0	0	0	0	0	0
Urban (16-17) (Rs. 47.4058)	35000	1963945											

Khordha / Banki	12000	696560	696560	0	0							0	0
Balugaon / Banpur	2000	186116	186116	0			0					0	0
Balipatna	21000	1025869	1025869	0						0		0	0
Ranpur		8000	8000	0				0				0	0
DFO		47400	47400	0							0	0	0
Total	35000	1963945	1963945	0	0	0	0	0	0	0	0	0	0
Urban (PO 19-20) (Rs. 8.225)	50000	411250											
Khordha	10000	82250	82250	0	0							0	0
Balipatna	40000	329000	329000	0						0		0	0
Total	50000	411250	411250	0	0	0	0	0	0	0	0	0	0
AR pltn (PO for 18-19) @Rs.13160	100	1316000											
Khordha	20	263200	263200	0	0							0	0
Tangi	30	394800	394800	0		0						0	0
Balugaon	30	394800	394800	0			0					0	0
Ranpur	20	263200	263200	0				0				0	0
Total	100	1316000	1316000	0	0	0	0	0	0	0	0	0	0
B-economic 3rd yr maint Liability of 17-18	100	118927											
Khordha	20	28399	28399	0	0							0	0
Tangi	30	39499	39499	0		0						0	0
Balugaon	30	51029	51029	0			0					0	0
Total	80	118927	118927	0	0	0	0	0	0	0	0	0	0
B-economic 4th yr maint	100	480463											
Khordha	20	96093	96093	0	0							0	0
Tangi	30	144139	144139	0		0						0	0
Balugaon	30	149179	149179	0			0					0	0
Ranpur	20	91052	91052	0				0				0	0
Total	100	480463	480463	0	0	0	0	0	0	0	0	0	0
Baldhill (PO for18-19)@Rs.13160	60	789600											
Khordha	10	131600	131600	0	0							0	0
Tangi	10	131600	131600	0		0						0	0
Balugaon	20	263200	263200	0			0					0	0
Ranpur	10	131600	131600	0				0				0	0
Delanga	10	131600	131600	0					0			0	0
Total	60	789600	789600	0	0	0	0	0	0	0	0	0	0
Bald Hill 3rd yr maint Liability of 17-18	50	124690											
Khordha	10	28397	28397	0	0							0	0
Tangi	10	16867	16867	0		0						0	0
Balugaon	10	28397	28397	0			0					0	0
Ranpur	10	28397	28397	0				0				0	0
Delanga	10	22632	22632	0					0			0	0
Total	50	124690	124690	0	0	0	0	0	0	0	0	0	0
Bald Hill 4th yr maint	50	864228											
Khordha	10	172845.6	172846	0	0							0	0
Tangi	10	172845.6	163356	9490		0						0	9490
Balugaon	10	172845.6	175508	2662			0					0	2662

Ranpur	10	172845.6	182335	9489				0				0	9489
Delanga	10	172845.6	170183	2663					0			0	2663
Total	50	864228	864228	0.00	0	0	0	0	0	0	0	0	0.00
Bamboo 3rd yr maint liability 17-18	25	33950											
Khordha	5	11318	11318	0	0							0	0
Delanga	10	22632	22632	0					0			0	0
Total	15	33950	33950	0	0	0	0	0	0	0	0	0	0
Raising of seedlings @ Rs.7.15	110300	889429											
Ranpur	36800	296476	296476	0				0				0	0
Delanga	36800	296476	296476	0					0			0	0
Balipatna	36800	296477	296477	0						0		0	0
Total	110400	889429	889429	0	0	0	0	0	0	0	0	0	0
Avenue plantation 4th yr maint	30	627614											
Khordha	5	115803	115803	0	0							0	0
Tangi	5	104602	104602	0		0						0	0
Balugaon	5	104602	104602	0			0					0	0
Ranpur	5	104602	104602	0				0				0	0
Delanga	5	99002	99002	0					0			0	0
Balipatna	5	99003	99003	0						0		0	0
Total	30	627614	627614	0	0	0	0	0	0	0	0	0	0
Avenue pltn 3rd yr maint liability of 17-18	25	39713											
Khordha	5	28397	28397	0	0							0	0
Tangi	5	11316	11316	0		0				0		0	0
Total	10	39713	39713	0	0	0	0	0	0	0	0	0	0
SSO of Timber	6261	17530800											
Balugaon	2104.5	5892656	5892656	0			0					0	0
Tangi	1897.5	5312888	5312888	0		0						0	0
Ranpur	2005.83	5616324	5616324	0				0				0	0
Khordha	253.19	708932	708932	0	0							0	0
Total	6261.00	17530800	17530800	0	0	0	0	0	0	0	0	0	0
Purchase of Root Trainer		100000											
Khordha		50000	50000	0	0							0	0
Tangi		50000	50000	0		0						0	0
Total		100000	100000	0	0	0	0	0	0	0	0	0	0
Total 2829-IGC-Dist Sector		27671974	27671974	0	0	0	0	0	0	0	0	0	0
Drift & waif wood FP-0334		119000											
Balipatna		42500	42500	0					0	0		0	0
Ranpur		26595	26595	0				0				0	0
Khordha		37905	37905	0	0							0	0
Tangi		12000	12000	0		0						0	0
Total		119000	119000	0	0	0	0	0	0	0	0	0	0
FP to consumer -0513		200000											
Balugaon		185000	185000	0			0					0	0
Ranpur		15000	15000	0				0				0	0
Total		200000	200000	0	0	0	0	0	0	0	0	0	0
Working of Timber. 22020	3193.4	214884											
Balugaon	1348.7	112538	112538	0			0					0	0

Ranpur	787.98	22063	22063	0				0				0	0
Tangi	1056.7	29587	29587	0		0						0	0
Total	3193.4	164188	164188	0	0	0	0	0	0	0	0	0	0
Working of Bamboo 22016	7004.5	43902				0	0						
Balugaon	3338.7	18551	18551	0			0					0	0
Ranpur	2655.22	20281	20281	0				0				0	0
Tangi	1010.53	5070	5070	0		0						0	0
Total	7004.5	43902	43902	0	0	0	0	0	0	0	0	0	0
Protection from fire 22035 (PCCF control Room)		57004	57004	0	0						0	0	0
CEA squad (Ranpur) B- 35006/-	1	888889	888889	0			0	0				0	0
GMM - Awareness (Khordha)	1	991200	991200	0	0						0	0	0
GMM under Banki NAC area													
Urban (Rs. 427.75/-)	25000	11464400	11464400	0	0							0	0
Nursery for Urban 2019-20 (Rs. 10/- per seedlings)	20000	200280	200280	0	0							0	0
Avenue (Rs. 43167.80+259)	10	1148821	1148821	0	0							0	0
Raising of Seedling (18-19)	100000	1035500	1035500	0	0							0	0
Nursery for distribution seedlings (Rs. 8.7217 per seedlings)	450000	3924775	3924775	0	0							0	0
Total GMM under NAC area		17773776	17773776	0	0	0	0	0	0	0	0	0	0
GMM Outside Banki NAC area													
AR (Rs. 47698.75/-)	20	1351099	1351099	0	0							0	0
Nursery for AR 19-20	64	1980096	1980096	0	0							0	0
Baldhill (DFO- 26400/-)	10	1684605	1684605	0	0						0	0	0
ANR (DFO- 21000/-)	50	1062574	1062574	0	0						0	0	0
Nursery for ANR 19-20 (Rs.1907/-)	50	185734	185734	0	0							0	0
Bamboo (Rs. 20642/-)	20	457635	457635	0	0							0	0
Avenue (Rs. 107917.8/-)	10	1148821	1148821	0	0							0	0
Total funds outside NAC area		7870564	7870564	0	0	0	0	0	0	0	0	0	0
Total GMM funds		26635540	26635540	0	0	0	0	0	0	0	0	0	0
Total 01 - State Sector		28108523	28108523	0	0	0	0	0	0	0	0	0	0
Total 01-Programme Exp.		55780497	55780497	0	0	0	0	0	0	0	0	0	0
Forest Fire Prevention & Management (CSS)													
(i) Creation & maintenance of fire line	125.93	251860	251860	0	0	0	0	0	0			0	0
(ii) Communication system, VHF	5	17600	17600	0		0						0	0
(iii) Fire fighting equipments	1	58560	58560	0			0	0				0	0
(iv) Hiring of vehicle for squad		87120	87120	0		0	0					0	0
(v) Fire Fighting Squad		289420	289420	0	0	0	0	0	0			0	0
(vi) Awareness campaign		16000	16000	0			0	0				0	0
(vii) Pre-fire season workshop		880	880	0				0				0	0
(viii) Training programme & ICE materials		18000	18000	0	0		0	0				0	0
(ix) Incentive		20000	20000	0	0	0	0	0				0	0
Total FPM (CSS)		759440	759440	0	0	0	0	0	0	0	0	0	0
WL Wings													

Tiger Census - 796-1283 (CSS)	300	110500											
Khordha	19	24250	24250	0	0							0	0
Tangi	16	12000	12000	0		0						0	0
Balugaon	28	51000	51000	0			0					0	0
Ranpur	23	17250	17250	0				0				0	0
Delanga	4	3000	3000	0					0			0	0
Balipatna	4	3000	3000	0						0		0	0
Total of 796 - 1283	94	110500	110500	0	0	0	0	0	0	0	0	0	0
Dev. Of Eco tourism -110-2316 - Berbera		3000000	3000000	0			0					0	0
Dev. Of Eco tourism-789-2316		500000	500000	0	0		0				0	0	0
Total 2316 (P.E)		3500000	3500000	0	0	0	0	0	0	0	0	0	0
Wildlife Week - 110 - 3128		20000	20000	0	0		0					0	0
Compassionate grant -789- 3128		1127656											
Tangi		628164	628164	0		0						0	0
Ranpur		499492	499492	0				0				0	0
Total 789- 3128		**1127656**	**1127656**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total 3128 (P.E)		**1147656**	**1147656**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
3 Elephant squad - 110-3173	3	1972590											
Tangi	1	782370	782370	0		0						0	0
Khordha	1	657062	657062	0	0							0	0
Ranpur	1	359560	359560	0				0				0	0
Balugaon		142848	142848	0			0					0	0
DFO		30750	30750	0							0	0	0
Total		1972590	1972590	0	0	0	0	0	0	0	0	0	0
Total 110 - 3173 (P.E)		1972590	1972590	0	0	0	0	0	0	0	0	0	0
Strengthening communication network -789-3173		250000											
Ranpur		131742	131742	0								0	0
Balugaon		39189	39189	0			0					0	0
Tangi		79069	79069	0		0						0	0
Total		250000	250000	0	0	0	0	0	0	0	0	0	0
Check Dam- 789-3173 (Tangi)		200000											
Tangi		200000	200000	0		0						0	0
Total		200000	200000	0	0	0	0	0	0	0	0	0	0
Renovation of waterbody-789-3173 - Tangi		73000	73000	0		0	0					0	0
Total		73000	73000	0	0	0	0	0	0	0	0	0	0
Dev. Of intelligence / incentive to informers		15000											
Khordha	1	5000	5000	0	0							0	0
Ranpur		5000	5000	0				0				0	0
Tangi		5000	5000	0		0						0	0
Total		15000	15000	0	0	0	0	0	0	0	0	0	0
Total 789-3173 - P.E		538000	538000	0	0	0	0	0	0	0	0	0	0
Total 02-P.E-State Sector		7268746	7268746	0	0	0	0	0	0	0	0	0	0
Total Programme Exp.		63808683	63808683	0	0	0	0	0	0	0	0	0	0
Total Expenditure (AE+PE)		**69977755**	**69977755**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

BUILDINGS UNDER CAMPA (APO 2018-19)						
Sl No.	**Item of works**	**Scheme**	**Range**	**Name of Site**	**Achievement**	
					Phy	**Fin**
1	2	3	4	5	6	7
1	Construction of Forester quarter	CAMPA	Tangi	Bhusandapur	1	942000
2			Tangi	Patia	1	942000
3	Construction of Forest guard quarter		Ranpur	Sankhajodi	1	684000
4			Tangi	Randa	1	684000
Total CAMPA						**3252000**

ROADS UNDER CAMPA (APO 2018-19)						
Sl No.	**Item of works**	**Scheme**	**Range**	**Name of Site**	**Achievement**	
					Phy	**Fin**
1	2	3	4	5	6	7
1	Causeway	CAMPA	Tangi	Patia-Sirikuti road	2	212000
3	Culvert		Ranpur	Bhetabar- Betuli road	1	153000
Total CAMPA						**365000**

Physical & Financial Achievement under Plan & Non Plan Scheme of Khordha Forest Division during 2019-20

Budget head	Area	Amount received	Expenditure up to Jan 20	Balance to be spent	Khordha	Tangi	Balugaon	Ranpur	Delanga	Balipatna	DFO	Total	Balance
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Repair of building (21064)		1300000			0		0	0		0		0	0
Balugaon		33015	33015	0			0					0	0
Balipatna		0		0								0	0
Ranpur		0		0								0	0
Tangi		0		0								0	0
Khordha		1266985	1266985	0	0							0	0
Total		1300000	1300000	0	0	0	0	0	0	0	0	0	0
Repair of road (21094)		1800000										0	0
Balugaon		1200000	1100000	100000			100000					100000	0
Ranpur		400000	400000	0				0				0	0
Tangi		200000	200000	0		0						0	0
Total		1800000	1700000	100000	0	0	100000	0	0	0	0	100000	0
International Earth Day (17001)		5000	5000	0	0							0	0
World drought day (Tangi)		5000	5000	0		0						0	0
Vana Mahotsav (Khordha)		10000	10000	0	0							0	0
Legal charges		35000	35000	0							0	0	0
Non-residential buildings		1100000											
Khordha		678850	678850	0	0							0	0
Balugaon		421150	421150	0			0					0	0
Total		1100000	1100000	0	0	0	0	0	0	0	0	0	0
Maintenance of forest boundary (21019) Bhanra PRF - 100000/- & Bankad RF - 100000/-		200000	200000	0			0			0		0	0
Other works (37109)		180000											
Balipatna		15000	15000	0						0		0	0
Tangi		37000	37000	0		0						0	0
Khordha		30000	30000	0	0							0	0
Ranpur		98000	98000	0				0				0	0
Total		180000	180000	0	0	0	0	0	0	0	0	0	0
Total 01-Adm. Exp.		4635000	4535000	100000	0	0	100000	0	0	0	0	100000	0
Wildlife - Crop damage.		923500											
Khordha		623000	623000	0	0							0	0
Tangi		669180	669180	0		0						0	0
Delanga		273450	273450	0					0			0	0
Ranpur		577000	577000	0				0				0	0
Total 02-Adm. Exp.		2142630	2142630	0	0	0	0	0	0	0	0	0	0
Total Adm. Expenditure		6777630	6677630	100000	0	0	100000	0	0	0	0	100000	0
4th yr main UTP (16-17)	35000	182574											
Khordha / Banki	12000	65800	65800	0	0							0	0
Balugaon / Banpur	2000	10433		10433								0	10433
Balipatna	21000	106341	116774	10433						0		0	10433

ME & IV	35000			0								0	0
Total	35000	182574	182574	0	0	0	0	0	0	0	0	0	0
Balance nursery for UTP 19-20	50000	296250											
Khordha	10000	59250	59250	0								0	0
Balipatna	40000	237000	237000	0						0		0	0
Total	50000	296250	296250	0	0	0	0	0	0	0	0	0	0
Creation of UTP during 19-20	10600	5039770											
Khordha	5000	2327750	2552376	224626	0							0	224626
Balipatna	5600	2607080	2373750	233330						0		0	233330
Contingency (Balipatna- 3000)		4823	3000	1823								0	1823
Monitoring & Evaluation (Balipatna - 15000/- & DFO - 95644/-)	10600	100117	110644	10527						0	0	0	10527
Total	10600	5039770	5039770	0	0	0	0	0	0	0	0	0	0
Balance nursery for AR pltn 19-20	100	871200											
Khordha	20	174240	174240	0	0							0	0
Tangi	30	261360	366720	105360		0						0	105360
Balugaon	30	261360	156000	105360			0					0	105360
Ranpur	20	174240	174240	0				0				0	0
Total	100	871200	871200	0	0	0	0	0	0	0	0	0	0
Creation of AR pltn during 19-20	20	1225240											
Tangi	20	1178000	1178000	0		0						0	0
Monitoring & Evaluation (Tangi)		47240	47240	0		0						0	0
Total	20	1225240	1225240	0	0	0	0	0	0	0	0	0	0
Balance Baldhill nursery (19-20)	60	522720											
Khordha	10	87120	87120	0	0							0	0
Tangi	10	87120	87120	0		0						0	0
Balugaon	20	174240	174240	0			0					0	0
Ranpur	10	87120	87120	0				0				0	0
Delanga	10	87120	87120	0					0			0	0
Total	60	522720	522720	0	0	0	0	0	0	0	0	0	0
Creation of Baldhill during 19-20	20	2751678											
Balugaon	20	2745136	2745136	0			0					0	0
Monitoring & Evaluation		6542	6542	0							0	0	0
Total	20	2751678	2751678	0	0	0	0	0	0	0	0	0	0
Raising of seedlings 19-20	110300	481600											
Ranpur	36800	160533	160533	0				0				0	0
Delanga	36800	160533	160533	0					0			0	0
Balipatna	36800	160534	160534	0						0		0	0
Total	110400	481600	481600	0	0	0	0	0	0	0	0	0	0
18 month maint. of seedlings (Rs. 7.9845/-)	250600	2000929											
Balipatna - Paidapatna	23000	183645	237429	53784						0		0	53784
Khordha - Ketakijhar	52000	415196	402597	12599	0							0	12599
Khordha - Shyamasundarpur	32000	255506	247752	7754	0							0	7754
Khordha - Chiramaru	87000	694656	673576	21080	0							0	21080
Delanga - Ankoi	17600	140528	136264	4264					0			0	4264
Ranpur - Bhetabar	16000	127753	125239	2514				0				0	2514
Tangi - Patharbandha	23000	183645	178072	5573		0						0	5573
Total	250600	2000929	2000929	0	0	0	0	0	0	0	0	0	0

Nursery for AR pltn 2020-21	80000	161600											
Balugaon	40000	80800	80800	0			0					0	0
Tangi	40000	80800	80800	0		0						0	0
Total	80000	161600	161600	0	0	0	0	0	0	0	0	0	0
Nursery for ANR @200 for 20-21	60000	121200											
Balugaon	30000	60600	60600	0			0					0	0
Ranpur	30000	60600	60600	0				0				0	0
Total	60000	121200	121200	0	0	0	0	0	0	0	0	0	0
Nursery for ANR @400 for 20-21	80000	161600											
Balugaon	40000	80800	80800	0			0					0	0
Delanga	20000	40400	40400	0					0			0	0
Ranpur	20000	40400	40400	0				0				0	0
Total	80000	161600	161600	0	0	0	0	0	0	0	0	0	0
Nursery for UTP pltn 2020-21	20000	40400											
Balipatna	10000	20200	20200	0						0		0	0
Khordha	10000	20200	20200	0	0							0	0
Total	20000	40400	40400	0	0	0	0	0	0	0	0	0	0
Total 2829-IGC-Dist Sector		13856761	13856761	0	0	0	0	0	0	0	0	0	0
Forest Consolidation - 22026													
DFO				0		0						0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0
Regeneration - 22036													
DFO				0	0							0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0
Drift & waif wood FP-0334		50000											
Balipatna		19640	19640	0						0		0	0
Ranpur		30360	30360	0				0				0	0
Total		50000	50000	0	0	0	0	0	0	0	0	0	0
FP to consumer -0513		50000											
Khordha		50000	50000	0	0							0	0
Total		50000	50000	0	0	0	0	0	0	0	0	0	0
Working of Timber. 22020	4073.4	1237719											
Balugaon	1212.4	90082	332082	242000			0					0	242000
Ranpur	775.17	46200	46200	0				0				0	0
Tangi	2085.9	119437	319437	200000		0						0	200000
Khordha Fany damaged		982000	540000	442000	0							0	442000
Total	4073.4	1237719	1237719	0	0	0	0	0	0	0	0	0	0
Training Programme of Staff	0	118000				0	0						
Balugaon	0	19210	19210	0			0					0	0
Khordha	0.00	23730	23730	0	0							0	0
Tangi		23165	23165	0		0						0	0
DFO	0.00	51895	51895	0							0	0	0
Total	0	118000	118000	0	0	0	0	0	0	0	0	0	0
CEA squad (Ranpur)	1	888889											
(i) Wages to 10 person for 313 days	1	876400	876400	0				0				0	0
(ii) Hiring, POL & equipment	1	12489	12489	0				0				0	0
Total		888889	888889	0	0	0	0	0	0	0	0	0	0
GMM - Awareness		200000	200000	0	0							0	0
Expenditure on KIOSK				0								0	0

Balipatna	1	15000	15000	0						0		0	0
Delanga	1	15000	10000	5000					0			0	5000
Khordha	2	30000	35000	5000	0							0	-5000
Sub Total	4	60000	60000	0	0	0	0	0	0	0	0	0	0
Expenditure on maint. of KIOSK				0								0	0
Balipatna	1	1000		1000								0	1000
Delanga	1	1000		1000								0	1000
Khordha	2	2000	4000	2000	0							0	2000
Sub Total	4	4000	4000	0	0	0	0	0	0	0	0	0	0
Publicity / Vana Mahotsav	50	50000											
Balugaon	7	7000		7000								0	7000
Balipatna	7	7000	7000	0						0		0	0
Delanga	7	7000		7000								0	7000
Khordha	14	14000	28000	14000	0							0	-14000
Ranpur	7	7000	7000	0				0				0	0
Tangi	8	8000	8000	0		0						0	0
Sub Total	50	50000	50000	0	0	0	0	0	0	0	0	0	0
Total of GMM Awareness		314000	314000	0	0	0	0	0	0	0	0	0	0
GMM under Banki NAC area													
2nd yr maint. Of Urban	25000	3497500	3497500	0	0							0	0
Contingency (Khordha - 7090 & DFO- 24317)		34500	34500	0	0						0	0	0
ME		0		0								0	0
Sub Total		3532000	3532000	0	0	0	0	0	0	0	0	0	0
Creation of Urban 2019-20	7000	3258274	3258274	0	0							0	0
Contingency		3185	3185	0							0	0	0
Monitoring & evaluation		0		0								0	0
Sub Total		3261459	3261459	0	0	0	0	0	0	0	0	0	0
Nursery for Urban 2020-21	20000	84800											
Balipatna	10000	42400	42400	0						0		0	0
Khordha	10000	42400	42400	0	0							0	0
Sub Total	20000	84800	84800	0	0	0	0	0	0	0	0	0	0
2nd yr maint of Avenue	10	441440	441440	0	0							0	0
Contingency		11150	11150	0							0	0	0
Monitoring & evaluation		0		0								0	0
Sub Total		452590	452590	0	0	0	0	0	0	0	0	0	0
Maint. Of distribution seedlings for 19-20	450000	1698557	1698557	0	0							0	0
18 month maint. of seedlings (Rs. 8.65/-)	13000	112450	112450	0	0							0	0
Balance funds of IGC scheme for 18 month maint. of seedlings (Rs. 0.6654/-)	250600	166761											
Balipatna - Paidapatna	23000	15305		15305								0	15305
Khordha - Ketakijhar	52000	34604		34604								0	34604
Khordha - Shyamasundarpur	32000	21294		21294								0	21294
Khordha - Chiramaru	87000	57894		57894								0	57894
Khordha - Chiramaru	13000	0	22054	22054	0							0	22054
Delanga - Ankoi	17600	11712	45421	33709					0			0	33709

Ranpur - Bhetabar	16000	10647	39929	29282				0				0	29282
Tangi - Patharbandha	23000	15305	59357	44052		0						0	44052
Total	263600	166761	166761	0	0	0	0	0	0	0	0	0	0
Total GMM under NAC area		9308617	9308617	0	0	0	0	0	0	0	0	0	0
GMM Outside Banki NAC area													
2nd yr maint of AR pltn)	20	560600	560600	0	0							0	0
Monitoring & Evaluation		0		0								0	0
Sub Total		560600	560600	0	0	0	0	0	0	0	0	0	0
Creation of AR 19-20	64	3173034	3064937	108097	0							0	108097
ME (DFO Desktop)		51990	51990	0							0	0	0
Sub Total		3225024	3116927	108097	0	0	0	0	0	0	0	0	108097
Nursery for AR 2020-21	40	271360	271360	0	0							0	0
ME		0		0							0	0	0
Sub Total		271360	271360	0	0	0	0	0	0	0	0	0	0
2nd yr maint Baldhill	10	410730	396888	13842	0							0	13842
Monitoring & Evaluation		0		0								0	0
Sub Total		410730	396888	13842	0	0	0	0	0	0	0	0	13842
2nd yr maint of ANR	50	371250	380300	9050	0							0	-9050
ME & contingency		9050		9050							0	0	9050
Sub Total		380300	380300	0	0	0	0	0	0	0	0	0	0
Creation of ANR 19-20	50	1081400	1080600	800	0							0	800
ME & contingency		15200	16000	800	0							0	800
Sub Total		1096600	1096600	0	0	0	0	0	0	0	0	0	0
Nursery for ANR (@200) 2020-21	200	169600	169600	0	0							0	0
ME		0		0							0	0	0
Sub Total		169600	169600	0	0	0	0	0	0	0	0	0	0
Nursery for ANR (@400) 2020-21	400	678400	678400	0	0							0	0
ME		0		0							0	0	0
Sub Total		678400	678400	0	0	0	0	0	0	0	0	0	0
2nd yr maint of Bamboo pltn	20	390740	394440	3700	0							0	3700
ME & contingency		3700		3700								0	3700
Sub Total		394440	394440	0	0	0	0	0	0	0	0	0	0
2nd yr maint of Avenue	10	441440	441440	0	0							0	0
Contingency		11150	2843	8307							0	0	8307
Monitoring & evaluation		0		0								0	0
Sub Total		452590	444283	8307	0	0	0	0	0	0	0	0	8307
Total funds outside NAC area		7639644	7509398	130246	0	0	0	0	0	0	0	0	130246
Total GMM funds		17262261	17132015	130246	0	0	0	0	0	0	0	0	130246
Total 01 - State Sector		19606869	19476623	130246	0	0	0	0	0	0	0	0	130246
Forest Fire Prevention & Management (CSS)													
(i) Creation & maintenance of fire line - Balipatna- 20000/- & Ranpur - 10000/-	15	30000	30000	0	0	0	0	0	0	0		0	0
(ii) Cost & transportation of display sheets (Rs. 342 + 35)	915	344955	344955	0		0		0			0	0	0
(iii) Fixing of display sheet (Rs. 4) Khordha- 752, Tangi- 908, Balugaon- 1004, Ranpur- 676, Balipatna- 96	915	3660	3660	0	0	0	0	0	0	0		0	0

(iv) Hiring of vehicle for squad	1	0		0		0	0					0	0
(v) Fire Fighting Squad	1	168000	168000	0	0	0	0	0	0			0	0
(vi) Water bottle & ORS	10	601	601	0			0	0				0	0
(vii) Incentive to VSS	15	75000											
Balugaon	5	25000	25000	0			0					0	0
Ranpur	10	50000	50000	0				0				0	0
Sub Total	15	75000	75000	0	0	0	0	0	0	0	0	0	0
(viii) Fire meeting	25	45000											
Khordha	19	34200	34200	0	0							0	0
Ranpur	6	10800	10800	0				0				0	0
Sub Total	25	45000	45000	0	0	0	0	0	0	0	0	0	0
(ix) Monitoring & review	1	20639	20639	0							0	0	0
(x) Survey on forest fire	1	30944	30944	0							0	0	0
(xi) Imprest money	1	51583	51583	0							0	0	0
(xii) Incentive to VSS - 789-3330	25	112500											
Khordha	19	85500	85500	0	0							0	0
Ranpur	6	27000	27000	0				0				0	0
Sub Total	25	112500	112500	0	0	0	0	0	0	0	0	0	0
(xiii) Imprest Money- 789-3330	1	12500	12500	0							0	0	0
Total FPM (CSS)		895382	895382	0	0	0	0	0	0	0	0	0	0
Total 01-Programme Exp.		34359012	34228766	130246	0	0	0	0	0	0	0	0	130246
WL Wings													
Dev. Of Eco tourism -110-2316 - Berbera		550000	550000	0			0				0	0	0
Dev. Of Eco tourism-789-2316		0	0	0	0		0				0	0	0
Total 2316 (P.E)		550000	550000	0	0	0	0	0	0	0	0	0	0
Wildlife Week-110-3128 (Withdrawn)		0	0	0	0		0					0	0
Compassionate grant -110- 3128		1424160											
Tangi		2827480	2827480	0		0						0	0
Khordha		690370	690370	0	0							0	0
Ranpur		1696300	1696300	0				0				0	0
Balugaon		367800	367800	0			0					0	0
Delanga		1596	1596	0					0			0	0
DFO (Balipatna, Balugaon, Ranpur, Tangi - human death, injury, house damage)		757000	757000	0							0	0	0
Total 110- 3128		**6340546**	**6340546**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total 3128 (P.E)		**6340546**	**6340546**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
3 Elephant squad - 110-3173	3	2638500											
Tangi	1	338910	338910	0		0						0	0
OD-33-S-5630 Khordha	1	338910	338910	0	0							0	0
Ranpur (Including CES-Rs.36841)	1	375750	375750	0				0				0	0
Delanga		11760	11760	0					0			0	0
DFO		1013185	1013185	0							0	0	0
Total		2078515	2078515	0	0	0	0	0	0	0	0	0	0
(ii) Hiring & Pol for vehicle - 110-3173	3												
Khordha (OD-33-S-5630) up to 08	1	284639	284639	0	0							0	0

Tangi (OD-02-X-9120 & OD-02-AC-3020)		81400	81400	0		0						0	0
Balipatna (OD-02-AY-2631		3706	3706	0						0		0	0
TATA SUMO 8086 (Tyre+Fuel)		24559	24559	0							0	0	0
Balugaon (Govt. M/c)		5000	5000	0								0	0
DFO		696	696	0							0	0	0
Total		400000	400000	0	0	0	0	0	0	0	0	0	0
(iii) Purchase of Cracker		50000											
Tangi		50000	50000	0		0						0	0
Total		50000	50000	0	0	0	0	0	0	0	0	0	0
(iv) Uniform & camp eqipment													
Tangi		15000	15000	0		0						0	0
DFO (including CAMPA Squad-85051)		544985	544985	0							0	0	0
Total		559985	559985	0	0	0	0	0	0	0	0	0	0
Permanent protection camp- 110-3173		1230000	1230000	0				0				0	0
Creation of New water body (40x30x3)		560000	560000	0		0	0	0				0	0
Dev. Of intelligence / incentive to informers (Balugaon, Khordha, Ranpur, Tangi)		10000	10000	0	0	0	0	0				0	0
Total 110 - 3173 (P.E)		4888500	4888500	0	0	0	0	0	0	0	0	0	0
Strengthening communication network -789-3173		0		0								0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0
Permanent protection camp- 789-3173 - Ranpur (Sirikuti)		770000	770000	0		0		0				0	0
Total		770000	770000	0	0	0	0	0	0	0	0	0	0
Total 789-3173 - P.E		770000	770000	0	0	0	0	0	0	0	0	0	0
Total 02-P.E-State Sector		12549046	12549046	0	0	0	0	0	0	0	0	0	0
Total Programme Exp.		46908058	46777812	130246	0	0	0	0	0	0	0	0	130246
Total Expenditure (AE+PE)		**53685688**	**53455442**	**230246**	**0**	**0**	**100000**	**0**	**0**	**0**	**0**	**100000**	**130246**
Forest Deposit (Nature camp)		**10000**		**10000**			**0**				**0**	**0**	**10000**
Total Forest Deposit		**10000**	**0**	**10000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10000**
G.Total		**53695688**	**53455442**	**240246**	**0**	**0**	**100000**	**0**	**0**	**0**	**0**	**100000**	**140246**

BUILDINGS UNDER CAMPA (APO 2019-20)						
Sl No.	**Item of works**	**Scheme**	**Range**	**Name of Site**	**Achievement**	
					Phy	**Fin**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Construction of Forester quarter	CAMPA	Tangi	Bhusandapur	1	942000
2			Tangi	Patia	1	942000
3	Construction of Forest guard quarter		Ranpur	Sankhajodi	1	684000
4			Tangi	Randa	1	684000
Total CAMPA						**3252000**

ROADS UNDER CAMPA (APO 2019-20)						
Sl No.	**Item of works**	**Scheme**	**Range**	**Name of Site**	**Achievement**	
					Phy	**Fin**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Causeway	CAMPA	Tangi	Patia-Sirikuti road	2	212000
3	Culvert		Ranpur	Bhetabar- Betuli road	1	153000
Total CAMPA						**365000**

Physical & Financial Achievement under Plan & Non Plan Scheme of Khordha Forest Division during 2020-21

Budget head	Area	Amount received	Expenditure up to Feb 21	Balance to be spent	Khordha	Tangi	Balugaon	Ranpur	Delanga	Balipatna	DFO	Total	Balance
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Repair of building (21064)		1300000			0		0	0		0		0	0
Balugaon		240000	240000	0			0					0	0
Ranpur		100000	100000	0				0				0	0
Delanga		150000	150000	0					0			0	0
Khordha		810000	810000	0	0							0	0
Total		1300000	1300000	0	0	0	0	0	0	0	0	0	0
Repair of road (21094)		1908000										0	0
Balugaon		1513000	1513000	0			0					0	0
Ranpur		395000	395000	0				0				0	0
Total		1908000	1908000	0	0	0	0	0	0	0	0	0	0
World Forestry Day (17001) Khordha		40150	30100	10050	0							0	10050
World day to combat desertification & drought		5000	5000	0	0	0						0	0
Vana Mahotsav (Khordha & Tangi, Ranpur 50/-)		30050	30050	0	0	0		0				0	0
Non-residential buildings		1200000											
Khordha		258000	258000	0	0							0	0
Balipatna		200000	200000	0						0		0	0
Ranpur		142000	142000	0				0				0	0
Balugaon		400000	400000	0			0					0	0
Delanga		100000	100000	0					0			0	0
Tangi		100000	100000	0		0						0	0
Total		1200000	1200000	0	0	0	0	0	0	0	0	0	0
Maint. of forest boundary (21019)		50000	50000	0	0		0			0		0	0
Other works (37109)		30000											
Ranpur		10000	10000	0				0				0	0
Tangi		20000	20000	0		0		0				0	0
Total		30000	30000	0	0	0	0	0	0	0	0	0	0
Total 01-Adm. Exp.		4563200	4553150	10050	0	0	0	0	0	0	0	0	10050
Wildlife - Crop damage.		5574872											
Khordha- 242 dtd. 07.08.20		444950	444950	0	0							0	0
Delanga - 243 dtd. 07.08.20		17132	17132	0					0			0	0
Balugaon		343400	343400	0			0					0	0
Balipatna		1135000	1135000	0						0		0	0
Ranpur - 244 dtd. 07.08.20		502800	502800	0				0				0	0
Tangi - 204 dtd. 07.07.20 & 245 dtd. 07.08.20		3131590	3131590	0		0						0	0
Total 02-Adm. Exp.		5574872	5574872	0	0	0	0	0	0	0	0	0	0
Total Adm. Expenditure		10138072	10128022	10050	0	0	0	0	0	0	0	0	10050
Balance nursery for UTP 20-21	20000	221600											

Khordha	10000	110800	110800	0	0							0	0
Balipatna	10000	110800	110800	0						0		0	0
Total	20000	221600	221600	0	0	0	0	0	0	0	0	0	0
Creation of UTP during 20-21	2000	979620											
Khordha	2000	957530	957530	0	0							0	0
Contingency (Khordha Anrapurna- 598/-)	2000	910	910	0	0							0	0
Monitoring & Evaluation	2000	21180	21180	0	0					0	0	0	0
Total	2000	979620	979620	0	0	0	0	0	0	0	0	0	0
2nd yr maint. of UTP	10600	2107640											
Khordha	5000	950520	950520	0	0							0	0
Balipatna	5600	1064582	1064582	0						0		0	0
Contingency	10600	14628	14628	0	0					0		0	0
Monitoring & Evaluation (K-36750, BL-Bala)	10600	77910	77910	0	0					0	0	0	0
Total	10600	2107640	2107640	0	0	0	0	0	0	0	0	0	0
Balance nursery for AR pltn 20-21	80000	886400											
Tangi	40000	443200	443200	0		0						0	0
Balugaon	40000	443200	443200	0			0					0	0
Total	80000	886400	886400	0	0	0	0	0	0	0	0	0	0
Creation of AR pltn during 20-21	10	632860											
Tangi	10	594122	594122	0		0						0	0
Monitoring & Evaluation	10	38738	38738	0		0						0	0
Total	10	632860	632860	0	0	0	0	0	0	0	0	0	0
2nd yr maint. of AR pltn	20	569160											
Tangi	20	541640	541640	0		0						0	0
Monitoring & Evaluation	20	27520	27520	0		0						0	0
Total	20	569160	569160	0	0	0	0	0	0	0	0	0	0
2nd yr maint of Baldhill	20	848560											
Balugaon	20	807960	807960	0			0					0	0
Monitoring & Evaluation	20	40600	40600	0			0				0	0	0
Total	20	848560	848560	0	0	0	0	0	0	0	0	0	0
18 month maint. of seedlings	250600	3646230											
Balipatna - Paidapatna	23000	296171	296171	0						0		0	0
Khordha - Ketakijhar, Shyamsundarpur, Chiramaru	171000	2629621	2629621	0	0							0	0
Delanga - Ankoi	17600	226635	226635	0					0			0	0
Ranpur - Bhetabar	16000	206032	206032	0				0				0	0
Tangi - Patharbandha	23000	296171	296171	0		0						0	0
Total	250600	3654630	3654630	0	0	0	0	0	0	0	0	0	0
Balance Nursery for ANR@200 for 20-21	60000	664800											
Balugaon	30000	332400	332400	0			0					0	0
Ranpur	30000	332400	332400	0				0				0	0
Total	60000	664800	664800	0	0	0	0	0	0	0	0	0	0
Creation of ANR @200 for 20-21	100	2408300											
Ranpur	100	2249600	2249600	0				0				0	0
Contingency (Sign board- 10000/-)	100	30400	30400	0				0				0	0
Monitoring & Evaluation	100	128300	128300	0				0				0	0
Total	100	2408300	2408300	0	0	0	0	0	0	0	0	0	0
Balance nursery for ANR @400 for 20-21	80000	886400											

Balugaon	40000	443200	443200	0			0					0	0
Delanga	20000	221600	221600	0					0			0	0
Ranpur	20000	221600	221600	0				0				0	0
Total	80000	886400	886400	0	0	0	0	0	0	0	0	0	0
Awareness Khordha (Kiosk at Division Office)	1	21600	21600	0	0							0	0
Total		21600	21600	0	0	0	0	0	0	0	0	0	0
Total 2829-IGC-Dist Sector		**13881570**	**13881570**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Renovation of Forest Building - 4406-2327-37114	1	3578922											
Renovation of DFO's residence		2678922	2678922	0	0							0	0
Repair & renovation of Residential / Non-residential building. (B-800000 & K-100000)		900000	900000	0	0		0					0	0
Total		3578922	3578922	0	0	0	0	0	0	0	0	0	0
Total Distict Sector		**17460492**	**17460492**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Working Plan - 005-0484-78124 (Survey & Utilization)	1	400000											
Khordha		400000	400000	0	0							0	0
Total		400000	400000	0	0	0	0	0	0	0	0	0	0
Working Plan - 101-1012-78124		900000											
Balugaon		300000	300000	0			0					0	0
Ranpur		200000	200000	0				0				0	0
Tangi		400000	400000	0		0						0	0
Total		900000	900000	0	0	0	0	0	0	0	0	0	0
Forest Consolidation - 22026		150000											
Khordha		150000	150000	0	0							0	0
Total		150000	150000	0	0	0	0	0	0	0	0	0	0
Regeneration & cleaning - 22036		60000											
Balugaon		35000	35000	0			0					0	0
Balipatna		25000	25000	0						0		0	0
Total		60000	60000	0	0	0	0	0	0	0	0	0	0
Drift & waif wood FP-0334		200000											
Balugaon		100000	100000	0			0			0		0	0
Balipatna		48000	48000	0						0		0	0
Delanga		52000	52000	0					0			0	0
Total		200000	200000	0	0	0	0	0	0	0	0	0	0
FP to consumer -0513		300000											
Balugaon		125000	125000	0			0					0	0
Balipatna		100000	100000	0						0		0	0
Tangi		20000	20000	0		0						0	0
Khordha		55000	55000	0	0							0	0
Total		300000	300000	0	0	0	0	0	0	0	0	0	0
Working of Bamboo 22016	8005.91	49920											
(855 ha.) Balugaon	4223.53	26334	26334	0			0					0	0
Ranpur	2796.94	17441	17441	0				0				0	0
Tangi	985.44	6145	6145	0		0						0	0
Total	8005.91	49920	49920	0	0	0	0	0	0	0	0	0	0
Working of Timber. 22020	2341.16	463143											

(430.78) Balugaon	1023.33	94556	94556	0			0					0	0
Ranpur	1317.83	118537	40589	77948				0				0	77948
Salvage operation (Tangi)		50050	50050	0		0						0	0
Balugaon		200000	200000	0			0					0	0
Total	2341.16	463143	385195	77948	0	0	0	0	0	0	0	0	77948
CEA squad (Ranpur)	1	969283											
(i) Wages to 10 person for 313 days	1	949642	949642	0				0				0	0
(ii) Hiring, POL & equipment etc.	1	19641	19641	0				0				0	0
Total		969283	969283	0	0	0	0	0	0	0	0	0	0
GMM - Awareness		200000	200000	0	0			0				0	0
KIOSK													
Balipatna(Gudiapokhari)	1	9000	9000	0						0		0	0
Khordha Town	1	9000	9000	0	0							0	0
Ranpur Town	1	9000	9000	0				0				0	0
Tangi Town	1	9000	9000	0		0						0	0
Sub Total	4	36000	36000	0	0	0	0	0	0	0	0	0	0
Mobile Distribution VAN													
Balipatna (Balipatna)	1	18200	18200	0						0		0	0
Delanga	1	18200	18200	0					0			0	0
Khordha (Banki)	1	18200	18200	0	0							0	0
Tangi	1	18200	18200	0		0						0	0
Sub Total	4	72800	72800	0	0	0	0	0	0	0	0	0	0
Total of GMM Awareness		308800	308800	0	0	0	0	0	0	0	0	0	0
3rd yr maint. Of UTP (Khordha)	25000	1564250	1564250	0	0							0	0
Contingency	25000	0	0	0	0						0	0	0
Monitoring & evaluation	25000	78250	78250	0	0							0	0
Sub Total	25000	1642500	1642500	0	0	0	0	0	0	0	0	0	0
2nd yr maint UTP (Khordha)	7000	1332156	1332156	0	0							0	0
Contingency	7000	9660	9660	0	0						0	0	0
Monitoring & evaluation	7000	51450	51450	0	0							0	0
Sub Total	7000	1393266	1393266	0	0	0	0	0	0	0	0	0	0
Balance Nursery for UTP 20-21	20000	177200											
Balipatna	10000	88600	88600	0						0		0	0
Khordha	10000	88600	88600	0	0							0	0
Sub Total	20000	177200	177200	0	0	0	0	0	0	0	0	0	0
Creation of UTP (Khordha)	1000	478768	478768	0	0							0	0
Contingency (Khordha Anrapurna - 300/-)	1000	455	455	0	0						0	0	0
Monitoring & evaluation	1000	10590	10590	0	0							0	0
Sub Total	1000	489813	489813	0	0	0	0	0	0	0	0	0	0
3rd yr maint of Avenue (Khordha)	20	539380	539380	0	0							0	0
Contingency	20	0		0							0	0	0
Monitoring & evaluation	20	23840	23840	0	0							0	0
Sub Total	20	563220	563220	0	0	0	0	0	0	0	0	0	0
18 month maint. of seedlings (Khordha)	13000	167050	167050	0	0							0	0
18 month maint. of seedlings (Balance of IGC) (Khordha)	171000	13300	13300	0	0							0	0
Sub Total		180350	180350	0	0	0	0	0	0	0	0	0	0
3rd yr maint of AR pltn (Khordha)	20	368320	368320	0	0							0	0
Monitoring & Evaluation	20	18420	18420	0	0							0	0

Sub Total		386740	386740	0	0	0	0	0	0	0	0	0	0
2nd yr maint of AR 19-20	64	1733248	1733248	0	0							0	0
Monitoring & Evaluation	64	88064	88064	0	0						0	0	0
Sub Total	64	1821312	1821312	0	0	0	0	0	0	0	0	0	0
Balance Nursery for AR 2020-21	40	567040	567040	0	0							0	0
Sub Total	40	567040	567040	0	0	0	0	0	0	0	0	0	0
Creation of AR (Khordha)	10	594122	594122	0	0							0	0
Monitoring & Evaluation	10	38738	38738	0	0						0	0	0
Sub Total	10	632860	632860	0	0	0	0	0	0	0	0	0	0
3rd yr maint Baldhill	10	222550	222550	0	0							0	0
Monitoring & Evaluation	10	11120	11120	0	0							0	0
Sub Total	10	233670	233670	0	0	0	0	0	0	0	0	0	0
3rd yr maint of ANR	50	148600	148600	0	0							0	0
Contingency	50	10000	10000	0	0							0	0
Monitoring & Evaluation	50	8000	8000	0	0						0	0	0
Sub Total	50	166600	166600	0	0	0	0	0	0	0	0	0	0
2nd yr maint of ANR	50	366450	366450	0	0							0	0
Contingency	50	9050	9050	0	0							0	0
Monitoring & Evaluation	50	16375	16375	0	0							0	0
Sub Total	50	391875	391875	0	0	0	0	0	0	0	0	0	0
Balance Nursery for ANR (@200) 2020-21	200	354400	354400	0	0							0	0
Sub Total		354400	354400	0	0	0	0	0	0	0	0	0	0
Creation of ANR (@200) 2020-21	20	449920	449920	0	0							0	0
Contingency (Kh Arnapurna 1200/-)	20	6080	6080	0	0							0	0
Monitoring & Evaluation	20	25660	25660	0	0						0	0	0
Sub Total	20	481660	481660	0	0	0	0	0	0	0	0	0	0
Balance Nursery for ANR (@400) 2020-21	400	1417600	1417600	0	0							0	0
Sub Total		1417600	1417600	0	0	0	0	0	0	0	0	0	0
3rd yr maint of Bamboo pltn	20	279500	279500	0	0							0	0
Contingency	20	3700	3700	0	0							0	0
Monitoring & Evaluation	20	14160	14160	0	0							0	0
Sub Total	20	297360	297360	0	0	0	0	0	0	0	0	0	0
Total GMM funds		11506266	11506266	0	0	0	0	0	0	0	0	0	0
Total 01 - State Sector		14998612	14920664	77948	0	0	0	0	0	0	0	0	77948
Forest Fire Prevention & Management (CSS)													
(i) Creation & maintenance of fire line	85	245218											
Balugaon	50	175108	175108	0			0					0	0
Ranpur	15	52548	52548	0				0				0	0
Tangi	20	70062	70062	0		0						0	0
Sub Total	85	297718	297718	0	0	0	0	0	0	0	0	0	0
(ii) Hiring of vehicle for squad	1	108000	108000	0		0	0					0	0
(iii) Fire Fighting Squad	1	447000											
Balugaon	5	89400	89400	0			0					0	0
Khordha	8	108737	108737	0	0							0	0
Ranpur	9	112942	112942	0				0				0	0
Tangi	10	135921	135921	0		0						0	0

Sub Total		447000	447000	0	0	0	0	0	0	0	0	0	0
(iv) ORS sachets		13500											
Balugaon	27	4167	4167	0			0					0	0
Khordha	18	2754	2754	0	0							0	0
Ranpur	23	3519	3519	0				0				0	0
Tangi	20	3060	3060	0		0						0	0
Sub Total		13500	13500	0	0	0	0	0	0	0	0	0	0
(v) Imprest Money (To be kept with designated officer for emergency situation)		88720	88720	0							0	0	0
(vi) Monitoring & evaluation		34100											
Balugaon	2	13640	13640	0			0					0	0
Khordha	2	13640	13640	0	0							0	0
Ranpur	1	3410	3410	0				0				0	0
Tangi	1	3410	3410	0		0						0	0
Sub Total		34100	34100	0	0	0	0	0	0	0	0	0	0
(vii) Research & survey		53700											
Balugaon	2	17900	17900	0			0					0	0
Khordha	1	8950	8950	0	0							0	0
Ranpur	2	17900	17900	0				0				0	0
Tangi	1	8950	8950	0		0						0	0
Sub Total		53700	53700	0	0	0	0	0	0	0	0	0	0
(vii) Incentive to VSS / Villager / Communities @2000/- each	75	150000											
Balugaon	25	50000	50000	0			0					0	0
Balipatna	2	4000	4000	0						0		0	0
Delanga	3	6000	6000	0					0			0	0
Khordha	12	24000	24000	0	0							0	0
Ranpur	20	40000	40000	0				0				0	0
Tangi	13	26000	26000	0		0						0	0
Sub Total	75	150000	150000	0	0	0	0	0	0	0	0	0	0
(viii) Awareness campaign among VSS / Villager / temporary staff etc. @ 6000/-	70	150000											
Balugaon	25	150000	150000	0			0					0	0
Balipatna	1	6000	6000	0						0		0	0
Delanga	2	12000	12000	0					0			0	0
Khordha	10	60000	60000	0	0							0	0
Ranpur	20	120000	120000	0				0				0	0
Tangi	12	72000	72000	0		0						0	0
Sub Total	70	420000	420000	0	0	0	0	0	0	0	0	0	0
(ix) Training & capacity building on fire fighting method for frontline staff	1	7000											
Balugaon	2	2000	2000	0			0					0	0
Balipatna	1	1000	1000	0						0		0	0
Delanga	1	1000	1000	0					0			0	0
Khordha	1	1000	1000	0	0							0	0
Ranpur	1	1000	1000	0				0				0	0
Tangi	1	1000	1000	0		0						0	0
Sub Total	7	7000	7000	0	0	0	0	0	0	0	0	0	0

(x) Pre-fire season workshop among line department / elected bodies / NGO	1	10000	10000	0	0							0	0
Total FPM (CSS)		1629738	1629738	0	0	0	0	0	0	0	0	0	0
Total 01-Programme Exp.		**34088842**	**34010894**	**77948**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**77948**
Wildlife Wings													
Celebration of Wildlife Week -2020 (Ranpur)	1	15000	15000	0				0				0	0
Compassionate grant -110- 3128		1695430											
Tangi		1050960	1050960	0		0						0	0
Khordha		434170	434170	0	0							0	0
Balugaon		84000	84000	0			0					0	0
Ranpur		126300	126300	0				0				0	0
Total 110- 3128		**1695430**	**1695430**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total 3128 (P.E)		**1710430**	**1710430**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
3 Elephant squad - 110-3173	3	2217240											
(Through Service Provider) Tangi	1	618992	618992	0		0						0	0
Khordha	1	618990	618990	0	0							0	0
Ranpur	1	614917	614917	0				0				0	0
DFO		354525	354525	0							0	0	0
Total		2207424	2207424	0	0	0	0	0	0	0	0	0	0
(ii) Uniform & camp eqipment													
Tangi		21576	21576	0		0						0	0
Khordha		10500	10500	0	0							0	0
Ranpur		10500	10500	0				0			0	0	0
Total		42576	42576	0	0	0	0	0	0	0	0	0	0
Total Elephant Squad		**2250000**	**2250000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
(iii) Hiring & Pol for vehicle	3	150000											
Khordha (OD-33-S-5630)	1	110000	110000	0	0							0	0
(OD-33-Z-2754) DFO		40000	40000	0							0	0	0
Total		150000	150000	0	0	0	0	0	0	0	0	0	0
Installation of Solar Street Lights - 20 nos. in 10 villages of Tangi Range (Rs. 11785 surrendered)	20	1898500	1886715	11785		0						0	11785
Gajabandhu 10 nos. for 6 months (Tangi)	10	100000	100000	0		0	0	0				0	0
Total 110 - 3173 (P.E)		4398500	4386715	11785	0	0	0	0	0	0	0	0	11785
Gajabandhu 10 nos. for 6 months (Tangi) - 796-3173		500000	500000	0		0						0	0
Total		500000	500000	0	0	0	0	0	0	0	0	0	0
Total 796-3173 - P.E		500000	500000	0	0	0	0	0	0	0	0	0	0
Total of 110/796-3173 PE		4898500	4886715	11785	0	0	0	0	0	0	0	0	11785
Total 02-P.E-State Sector		6608930	6597145	11785	0	0	0	0	0	0	0	0	11785
Total Programme Exp.		40697772	40608039	89733	0	0	0	0	0	0	0	0	89733
Total Expenditure (AE+PE)		**50835844**	**50736061**	**99783**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**99783**
CAMPA													
Creation & maintenance of plantation under NPV													
Balance PO & Creation of Block plantation	100	6620900											
Balugaon	25	1655225	1655225	0			0					0	0
Khordha	25	1655225	1655225	0	0							0	0

Tangi	50	3310450	3310450	0		0						0	0
Sub Total	100	6620900	6620900	0	0	0	0	0	0	0	0	0	0
2nd yr maintenance of Block plantation	100	2525100											
Balugaon	40	874500		874500			0					0	874500
Delanga	20	550200	550200	0					0			0	0
Tangi	40	1100400	1100400	0		0						0	0
Sub Total	100	2525100	1650600	874500	0	0	0	0	0	0	0	0	874500
Balance PO & Creation of ANR plantation @ 200 plants/ha.	300	7102800											
Delanga	50	1168600	1168600	0					0			0	0
Khordha	100	2337200	2337200	0	0							0	0
Ranpur	50	1168600	1168600	0				0				0	0
Tangi	100	2337200	2337200	0		0						0	0
Contingency (Arnapuna Khordha - 6000+24400, T-30400, R-15200, D-15200)	300	91200	91200	0	0	0		0	0			0	0
Sub Total	300	7102800	7102800	0	0	0	0	0	0	0	0	0	0
2nd yr maintenance of ANR plantation	500	3754500											
Balugaon	100	732800	732800	0			0					0	0
Khordha	100	732800	732800	0	0							0	0
Ranpur	100	732800	732800	0				0				0	0
Tangi	200	1465600	1465600	0		0						0	0
Contingency (Tangi - 5000+31200, Khordha -3000+15100, Balugaon-5000+13100, Ranpur-18100)	500	90500	90500	0	0	0	0	0				0	0
Sub Total	500	3754500	3754500	0	0	0	0	0	0	0	0	0	0
3rd yr maintenance of ANR plantation	1000	3190000											
Balugaon	200	598000	598000	0			0					0	0
Khordha	200	598000	598000	0	0							0	0
Ranpur	300	897000	897000	0				0				0	0
Tangi	300	897000	897000	0		0						0	0
Contingency (Ranpur- 6674+29000, Khordha (Mobile) - 39000/-+1000, Computer-30000/-, Stamp-3000/-, vehicle repair - 30000/- Div stationary- 10264/-, Balugaon-1000+29000, T-20736)	1000	200000	200000	0	0	0	0	0				0	0
Sub Total	1000	3190000	3190000	0	0	0	0	0	0	0	0	0	0
3rd yr maintenance of Baldhill plantation	50	1112700											
Balugaon	10	222540	222540	0			0					0	0
Delanga	10	222540	222540	0					0			0	0
Khordha	10	222540	222540	0	0							0	0
Ranpur	10	222540	222540	0				0				0	0
Tangi	10	222540	222540	0		0						0	0
Sub Total	50	1112700	1112700	0	0	0	0	0	0	0	0	0	0
18 months old seedlings	200000	2620000											
Tangi	200000	2620000	2620000	0		0						0	0
Sub Total	200000	2620000	2620000	0	0	0	0	0	0	0	0	0	0
Total of Creation & maint. of plantation		**26926000**	**26051500**	**874500**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**874500**

Soil Moisture Conservation	350	10850000											
Balugaon	100	3100000	3100000	0			0					0	0
Khordha	75	2325000	2325000	0	0							0	0
Ranpur	75	2325000	2325000	0				0				0	0
Tangi	100	3100000	3100000	0		0						0	0
Sub Total	350	10850000	10850000	0	0	0	0	0	0	0	0	0	0
Regeneration of Bamboo Forests	1935.07	4768000											
Balugaon	800	1971200	1971200	0			0					0	0
Ranpur	750	1848000	1848000	0				0				0	0
Tangi	385.065	948800	948800	0		0						0	0
Sub Total	1935.07	4768000	4768000	0	0	0	0	0	0	0	0	0	0
Raising of 18 months old seedlings	500000	9161000											
Khordha	200000	3366000	3366000	0	0							0	0
Balugaon	80000	1346400	1346400	0			0					0	0
Balipatna	60000	1009800	1009800	0						0		0	0
Ranpur	130000	2187900	2187900	0				0				0	0
Delanga	30000	504900	504900	0					0			0	0
Tangi (Balance)	200000	746000	746000	0		0						0	0
Sub Total	500000	9161000	9161000	0	0	0	0	0	0	0	0	0	0
Raising of 6 months old seedlings	200000	800000											
Delanga	50000	200000	200000	0					0			0	0
Khordha	50000	200000	200000	0	0							0	0
Tangi	100000	400000	400000	0		0						0	0
Sub Total	200000	800000	800000	0	0	0	0	0	0	0	0	0	0
Total of NPV		**25579000**	**25579000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total		**52505000**	**51630500**	**874500**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**874500**
Forest Protection													
Para Forest Staff	30	4356000											
(10) Khordha	10	1311922	1311922	0	0							0	0
(5) Tangi	5	618990	618990	0		0						0	0
(4) Balugaon	4	527006	527006	0			0					0	0
(4) Ranpur	4	408786	408786	0				0				0	0
(3) Delanga	3	371394	371394	0					0			0	0
(4) Balipatna	4	456492	456492	0						0		0	0
DFO		661410	661410	0								0	0
Sub Total	30	4356000	4356000	0	0	0	0	0	0	0	0	0	0
Forest Protection Squad with Govt. vehicle (Ranpur)	1	1858000		0									
Wages to Squad persons	10	1459384	1474330	14946				0				0	-14946
Wages to Driver	1	217716	219736	2020				0				0	-2020
Mobile charges / Camp equipment / medical/ Uniform		60900	60900	0				0				0	0
POL Govt. Vehicle No. OR-05-AU-4367		120000	103034	16966				0			0	0	16966
Sub Total		1858000	1858000	0	0	0	0	0	0	0	0	0	0
Forest Protection Squad with hired vehicle	1	4024000		0									
Wages to Squad persons	20	2904480	2904215	265			0					0	265
Mobile charges / Camp equipment / medical/ Uniform		135520	135520	0			0					0	0

Berbera - Hired vehicle No. OD-02-AA-5745 / Govt vehicle, OD-02-C-8086- Rs. 22141+8000/-, OR-02-AJ-8582- Rs. 25301+ 8500/-, OSSF Generator - Rs. 5120 + 6000/-	1	492000	409155	82845			0					0	82845
Division Office - Hired vehicle No. OD-33-S-5630		41186	41186	0	0							0	0
Division Office - Hired vehicle No. OD-33-Z-2754 / OD-13-N-6333 (Puri)	1	450814	420814	30000	0							0	30000
Sub Total		4024000	3910890	113110	0	0	0	0	0	0	0	0	113110
Divsional Control Room	1	331000											
Wages to Data Manager	1	125902	125902	0	0							0	0
Wages to Attendants	3	204779	203041	1738	0							0	1738
Land phone / Internet	1	319	319	0	0							0	0
Contingency				0								0	0
Sub Total		331000	329262	1738	0	0	0	0	0	0	0	0	1738
Total of Forest Protection		**10569000**	**10454152**	**114848**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**114848**
Forest Fire Protection													
Fire Fighting Squad	60	2682000											
Balugaon	20	789800	670560	119240			0					0	119240
Balipatna	2	86400	27720	58680						0		0	58680
Delanga	3	129600	41580	88020					0			0	88020
Khordha	10	432000	374020	57980	0							0	57980
Ranpur	15	528800	513946	14854				0				0	14854
Tangi	10	477000	421104	55896		0						0	55896
Sub Total	60	2443600	2048930	394670	0	0	0	0	0	0	0	0	394670
Fire Vehicle	6	1170000											
Balugaon	1	127134	58134	69000			0					0	69000
Khordha	1	352016	283016	69000	0							0	69000
Ranpur	2	367434	229434	138000				0				0	138000
Tangi	2	323416	185416	138000		0						0	138000
Sub Total	6	1170000	756000	414000	0	0	0	0	0	0	0	0	414000
Fire line maintenance	380	1132400											
Balugaon	138	411240	411240	0			0					0	0
Balipatna	5	14900	14900	0						0		0	0
Khordha	50	149000	149000	0	0							0	0
Ranpur	147	438060	438060	0				0				0	0
Tangi	40	119200	119200	0		0						0	0
Sub Total	380	1132400	1132400	0	0	0	0	0	0	0	0	0	0
Logistic to Fire Squad	6	600000											
Balugaon	1	170000	170000	0			0					0	0
Balipatna	1	17000	17000	0						0		0	0
Delanga	1	25500	25500	0					0			0	0
Khordha	1	175000	175000	0	0							0	0
Ranpur	1	127500	127500	0				0				0	0
Tangi	1	85000	85000	0		0						0	0
Sub Total		600000	600000	0	0	0	0	0	0	0	0	0	0
Additional fund for fire Protection													
Fire Squad for 01.04.21 to 20.04.21		123000											

Balugaon	10	61500	61500	0			0					0	0
Ranpur	10	61500	61500	0				0				0	0
Sub Total	20	123000	123000	0	0	0	0	0	0	0	0	0	0
Fire Vehicle for 01.04.21 to 20.04.21				0								0	0
Balugaon	1	28000	28000	0			0					0	0
Ranpur	1	28000	28000	0								0	0
Sub Total	2	56000	56000	0	0	0	0	0	0	0	0	0	0
Logistic to Fire Squad													
Balugaon	1	15000	15000	0			0					0	0
Ranpur	1	15000	15000	0				0				0	0
Sub Total		30000	30000	0	0	0	0	0	0	0	0	0	0
Total additional fund for fire protection		209000	209000	0	0	0	0	0	0	0	0	0	0
Total of Forest Fire Protection		**5555000**	**4746330**	**808670**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**808670**
Monitoring Cost													
Wages to Data Manager	6	1308000											
Khordha	1	182478	184214	1736	0							0	1736
Tangi	1	182478	182984	506		0						0	506
Balugaon	1	182478	184214	1736			0					0	1736
Ranpur	1	182478	165708	16770				0				0	16770
Delanga	1	182478	184214	1736					0			0	1736
Balipatna	1	182478	184208	1730						0		0	1730
DFO		213132	213132	0								0	0
Sub Total	6	1308000	1298674	9326	0	0	0	0	0	0	0	0	9326
Internet Charges	6	90000											
Balugaon	1	12732	12732	0			0					0	0
Balipatna	1	10910	10910	0						0		0	0
Delanga	1	7200	7200	0					0			0	0
Khordha	1	12907	12907	0	0							0	0
Ranpur	1	14300	14300	0				0				0	0
Tangi	1	1600	1600	0		0						0	0
Division Office		30351	30351	0	0							0	0
Sub Total	6	90000	90000	0	0	0	0	0	0	0	0	0	0
Patrolling vehicle for Ranges	6	2952000											
OD-02-N-5684/ OD-02-BN-7473 (Balugaon)	1	492000	266000	226000			0					0	226000
OR-02-AY-2631 (Balipatna)	1	492000	283391	208609						0		0	208609
OD-02-AD-4522 (Delanga	1	492000	323000	169000					0			0	169000
OD-02-AH-9119 (Khordha)	1	492000	330466	161534	0							0	161534
OD-25-G-0766 (Ranpur)	1	492000	296000	196000				0				0	196000
OD-02-X-9120 (Tangi)	1	492000	294950	197050		0						0	197050
Sub Total	6	2952000	1793807	1158193	0	0	0	0	0	0	0	0	1158193
Total of Monitoring Cost		**4350000**	**3182481**	**1167519**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1167519**
Infrastructure Development													
Range Office	2	3876000											
Balugaon	1	1938000	1938000	0			0					0	0
Delanga	1	1938000	1938000	0					0			0	0
Sub Total	2	3876000	3876000	0	0	0	0	0	0	0	0	0	0
RO Residence (Balipatna)	1	1454000	1454000	0						0		0	0
Forester Quarter	4	4476000											

Balugaon	1	1119000	1119000	0			0					0	0
Khordha	1	1119000	1119000	0	0							0	0
Tangi (Tangi / Nachuni)	2	2238000	2238000	0		0						0	0
Sub Total	4	4476000	4476000	0	0	0	0	0	0	0	0	0	0
Forest Guard Quarter	5	4060000											
Khordha (Tartua)	1	812000	812000	0	0							0	0
Ranpur (Nakithana / Raipada)	2	1624000	1624000	0				0				0	0
Tangi (Tangi / Patia)	2	1624000	1624000	0		0						0	0
Sub Total	5	4060000	4060000	0	0	0	0	0	0	0	0	0	0
Compound Wall	500	2500000											
Balugaon	80	400000	400000	0			0					0	0
Delanga	85	425000	425000	0					0			0	0
Khordha	80	400000	400000	0	0							0	0
Ranpur	105	525000	525000	0				0				0	0
Tangi	150	750000	750000	0		0						0	0
Sub Total	500	2500000	2500000	0	0	0	0	0	0	0	0	0	0
Maintenance of Permanent Nursery	2	796000											
Khordha (Ketakijhar)	1	398000	398000	0	0							0	0
Tangi (Patharbandha)	1	398000	398000	0		0						0	0
Sub Total	2	796000	796000	0	0	0	0	0	0	0	0	0	0
Total Infrastructure Development		**17162000**	**17162000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
DGPS system survey	4007	1402450											
Balugaon	1676	586600	586600	0			0					0	0
Balipatna	23	8050	8050	0						0		0	0
Delanga	126	44100	44100	0					0			0	0
Khordha	726	254100	254100	0	0							0	0
Ranpur	277	96950	96950	0				0				0	0
Tangi	1179	412650	412650	0		0						0	0
Total GIS	**4007**	**1402450**	**1402450**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Capacity Building													
1. Traning on SMC (Khordha)	1	135000	135000	0	0							0	0
2. Training on Fire Protection	1												
Balugaon	1	10000	10000	0			0					0	0
Balipatna	1	10000	10000	0						0		0	0
Delanga	1	10000	10000	0					0			0	0
Khordha	1	10000	10000	0	0							0	0
Ranpur	1	10000	10000	0				0				0	0
Tangi	1	10000	10000	0		0						0	0
Total		**195000**	**195000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
CA, PCA & others													
Creation of ANR Plantation (Khordha)	24.282	531838	531838	0	0							0	0
Sub Total	24.282	531838	531838	0	0	0	0	0	0	0	0	0	0
3rd yr maintenance of ANR Plantation (Khordha)	47.816	159701	159701	0	0							0	0
Sub Total	47.816	159701	159701	0	0	0	0	0	0	0	0	0	0
5th yr maintenance of Block Plantation (Tangi)	12	67586		67586		0						0	67586
Sub Total	12	67586	0	67586	0	0	0	0	0	0	0	0	67586

6th yr maintenance of Block Plantation (Khordha)	52	292874		292874								0	292874
Sub Total	52	292874	0	292874	0	0	0	0	0	0	0	0	292874
5th yr maintenance of Avenue Plantation	19500	1952000											
Balipatna	13500	1351385		1351385								0	1351385
Delanga	5500	550564		550564								0	550564
Khordha	500	50051		50051								0	50051
Sub Total	19500	1952000	0	1952000	0	0	0	0	0	0	0	0	1952000
Total of CA, PCA & others		**3004000**	**691539**	**2312461**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2312461**
Total of CAMPA (General)		**94742450**	**89464452**	**5277998**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5277998**
Wildlife management													
Protection Activities													
Wildlife Protection & Anti-depredation Squad	3	5575000											
Wages to WL protection Squad	30	4369980											
Balugaon	5	617014	617014	0			0					0	0
Delanga	2	73470	73470	0					0			0	0
Khordha	6	898898	898898	0	0							0	0
Ranpur	3	371394	371394	0				0				0	0
Tangi	14	1725729	1725729	0		0						0	0
DFO		685415	685415	0								0	0
Sub-total	30	4371920	4371920	0	0	0	0	0	0	0	0	0	0
Mobile charges/ Camp equipment / medical (K-37800, T-37080)(K-3941, T-2820, B-10500, R-6300)	3	118080	118080	0	0	0	0	0				0	0
Engagement of hired vehicle													
Khordha OD-33-Q-6691	1	365000	365000	0	0							0	0
Tangi OD-02-AC-3020/ OD-02-Z-9935	1	361940	361940	0		0						0	0
Ranpur OD-25-H-1160	1	360000	360000	0				0				0	0
Sub-total	3	1086940	1086940	0	0	0	0	0	0	0	0	0	0
Total Protection Squad		**5576940**	**5576940**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Elephant Tracker	2	584000											
(1) Balugaon	1	132342	132342	0			0					0	0
(2) Khordha	1.5	190742	190742	0	0							0	0
(1) Ranpur	1.5	170006	170006	0				0				0	0
DFO (Tangi light-41700)		88970	88970	0		0					0	0	0
Sub-total	4	582060	582060	0	0	0	0	0	0	0	0	0	0
Compassionate Payment (Tangi)		200000	200000	0	0	0						0	0
Sub-total		200000	200000	0	0	0	0	0	0	0	0	0	0
Elephant Proof Trench (Tangi)	4	5900000	5900000	0		0						0	0
Total of Protection Activities		**12259000**	**12259000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Habitat Improvement													
Creation of Waterbody	2	1192000											
Tangi (Patia RF)	1	596000	596000	0		0						0	0
Ranpur (Mal RF)	1	596000	596000	0				0				0	0
Sub-total	2	1192000	1192000	0	0	0	0	0	0	0	0	0	0
Immunization to Cattle - Tangi	1	100000	100000	0		0						0	0
Maintenance of Waterbody	2	193700											
Delanga (Rengal PRF)	1	96850	96850	0					0			0	0

Delanga (Jamuna Jharapada PRF)	1	96850	96850	0					0			0	0
Sub-total	2	193700	193700	0	0	0	0	0	0	0	0	0	0
2nd year maint. Of plantation of fruit & fodder species around WHS	500	93000											
Khordha	100	18600		18600								0	18600
Balugaon	100	18600		18600								0	18600
Tangi	100	18600		18600								0	18600
Ranpur	200	37200	37200	0				0				0	0
Sub-total	500	93000	37200	55800	0	0	0	0	0	0	0	0	55800
Total of Habitat Improvement		**1578700**	**1522900**	**55800**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**55800**
Infrastructure Development													
Anti-Poaching Barrack- 789-91348 (Tangi - Randa)	1	2000000	2000000	0		0						0	0
Establishment of Anti-depredation Cell with Logistic - 103-91348 (Tangi - Patharbandha)	1	2500000	2500000	0		0						0	0
Anti-Depredation Equipment (Cage, Siron, Net etc.)	1	474000	474000	0		0			0	0		0	0
Development & Upscalling of Intelligence Network - 103-91348	1	200000	200000	0	0							0	0
Total of Infrastructure development		**5174000**	**5174000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Publicity & Awareness													
Fixation of Multi coloured Tin sheet (796-91348)	440	15400											
Balugaon	40	1400	1400	0			0					0	0
Balipatna	10	350	350	0						0		0	0
Delanga	20	700	700	0					0			0	0
Khordha	100	3500	3500	0	0							0	0
Ranpur	70	2450	2450	0				0				0	0
Tangi	200	7000	7000	0		0						0	0
Total of Publicity & Awareness	**440**	**15400**	**15400**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total of CAMPA (Wildlife Management)		**19027100**	**18971300**	**55800**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**55800**
Total of CAMPA		**113769550**	**108435752**	**5333798**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5333798**
G.Total		**164605394**	**159171813**	**5433581**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5433581**

BUILDINGS UNDER CAMPA (APO 2020-21)						
Sl No.	**Item of works**	**Scheme**	**Range**	**Name of Site**	**Achievement**	
					Phy	**Fin**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	RO's Residence	CAMPA	Balipatna	Balakati	1	1454000
2	Range Office		Balugaon	Balugaon	1	1938000
3			Delang	Ankoi	1	1938000
4	Construction of Forester quarter		Tangi	Tangi	1	1119000
5			Tangi	Nachuni	1	1119000
6			Khordha	Khordha	1	1119000
7			Balugaon	Balugaon	1	1119000
8	Construction of Forest guard quarter		Khordha	Tartua	1	812000
9			Ranpur	Raipada	1	812000
10			Ranpur	Nakithana	1	812000
11			Tangi	Tangi	1	812000
12			Tangi	Patia	1	812000
Total CAMPA						**13866000**

ROADS UNDER CAMPA (APO 2020-21)						
Sl No.	**Item of works**	**Scheme**	**Range**	**Name of Site**	**Achievement**	
					Phy	**Fin**
1	**2**	**3**	**4**	**5**	**6**	**7**
1	**NIL**					

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APPENDIX-X

Govt. Policy on collection and disposal of NTFP Items.

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 an aim of maximisation of revenue. However, NTFP is an important source of livelihood of tribals and the rural poors. 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 that collection of NTFP must be on non-destructive basis so that sustainability of forests 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 Samrakshyana 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 :-

<u>Minor Forest Produce.</u>

3 (a). The items of Non-Timber Forest Produce listed in Annexure A will be treated as Minor Forest Produce (MFP) and the term MFP will only mean and include items listed in Annexure-'A'. 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.

3 (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 licence to any individual or agency for collection of Minor Forest Produce from any Reserve Forest or Sanctuary or National Park. However, members of Vana Samrakshyana Samitis, and 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 Samrakshyana 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.

3(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 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 person will be allowed to operate as a Dealer/Trader in MFP in any area without being registered as such by the concerned GP.

3 (d). The collection of MFP by the primary gatherers will be subject to reasonable control to be exercised by the Divisional Forest Officer in accordance with the provisions of law and sound silvicultural principles laid down in the Forest Working Plan which shall be given publicity in advance in the adjoining GPs.

3 (e). The Government agencies like Odisha Forest Development Corporation; Tribal Development Co-operative Corporations etc. may also register themselves with one or more Gram Panchayats for procurement and trading in one or more items of Minor Forest Produce.

3 (f). A Gram Panchayat may cancel the registration of any dealer/trader or may refuse to grant registration for the subsequent seasons if after summary enquiry in course of which 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.

3 (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 of this Resolution. No Forest Department Transit permit will be required thereafter for transport/movement of any Minor Forest Produce within the State).

Other items of NTFP:

4 (a). The Trade in kendu leaf will continue to be directly controlled by the State 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 gatherers in view.

4 (b). Certain items, namely Sal leaves, gums and resins of different trees and climbers and roots of various species which have medicinal or other uses will not be 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 silvicultural availability and enforcement of appropriate collection procedure, any of these lease-barred items may be allowed to be collected either directly by field organization of Forest Department or a Government undertaking.

4 (c). The remaining items of NTFP as per the list of Annexure-B, 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 endeavour 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 Divisional Forest Officer and should be encouraged to engage themselves in trading in these items. The Vana Samrakshyana Samiti, Mahila Samiti, recognised groups of primary gatherers may also get themselves registered for this purpose. The fees to be paid for registration shall be prescribed by Government.

4 (d). The registered dealers will be required to furnish the names of their authorised agents/nominees and the names of their collection and storage centres to the concerned Divisional Forest Officers, and will also record the daily transactions in prescribed formats. The dealers will have to enter into on agreement with the concerned Divisional Forest Officer 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 Divisional Forest Officer may impose temporary ban on such collection.

4 (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 10 percent of the minimum procurement price for the particular item, but this rate may be varied by Government from time to time*, suo muto* or on proposals submitted by the Divisional Forest Officers.

4 (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 centres after setting the royalty dues, etc.

4(g) The Divisional Forest Officer may cancel the registration or refuse registration of any dealer/trader if after summary enquiry in course of which the affected party shall be given an opportunity to show cause 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 file the prescribed returns or has failed to settle the royalty dues in time.

For all NTFP items including MFP, the Committee appointed by Government 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 ordinarily during the month of September and will be given wide publicity as decided by Government.

By order of the Governor

H.S.Chahar

Commissioner-cum-Secretary to Government

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APPENDIX-XI

Odisha G.P. Minor Forest Produce Administraton Rule, 2002
The Odisha Gazette

EXTRAORDINARY

PUBLISHED BY AUTHORITY

No. 2091, CUTTACK, FRIDAY, NOVEMBER 15, 2002/KARTIKA 24, 1924

PANCHAYATI RAJ (G.P) DEPARTMENT

NOTIFICATION

The 14th November 2002

S.R.O. No. 934/2002 – 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 Grama Panchayats 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 (Grama Panchayat) Department No. 9570/G.P., dated the 6th July 2002 bearing S.R.O. 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: -

Short title and commence ment

1. (1) These rules may be called the Odisha Grama Panchayats (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 Grama Panchayats 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 Schedule 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 following year.

(2) All other words and expression used but not defined in these rules shall have the same meaning as have been respectively assigned to them in the Act.

3. Regulating procurement and trading of minor forest produce.

(1) The Grama 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 Grama or collected from Reserve Forests and brought into the Grama.

(2) In case of the forest areas where Vana Sanrakshyana Samiti has been formed the Grama Panchayats shall give priority to such Samities and its members in the matter of collection and trading of minor forest produce.

4. 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 Grama during any trading year shall register himself as a trader in Minor Forest Produce in the Grama Panchayat.

(2) Any person intending to be registered as a trader in minor forest produce shall apply to the Grama Panchayat in form No.1. All such applications shall be placed before the Grama Panchayat immediately in its next meeting and with the approval of the Grama Panchayat the 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 Grama Panchayat.

(4) At the time of filing of application under sub-rule (2) the applicant shall deposit with the Grama Panchayats 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 has not 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.

5. Fixation of minimum price of the minor forest produce.

(i) (a) In the month of September every year the Panchayat Samiti shall by adopting a resolution to that affect, fix-up the minimum price of procurement of different Minor Forest Produces payable

to the primary latherers during the next trading year, which shall be applicable to all the Grama Panchayats within the Block.

Provided the Grama Panchayat shall be competent to modify the minimum price so fixed under this sub-rule of sub-rule (3) by the Panchayat Samiti according to the local need by adopting a resolution to that effect.

(b) The representatives of Divisional Forest Officer, Tribal Development Cooperative Corporation, Odisha, Forest Development Corporation and Tribal Co-operative Marketing Development Federation of India Ltd, shall be invited to the meetings convened under this sub-rule or under sub-rule(3).

(2) 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 Grama panchayats within the Block.

(3) If at any time or in any case it appears to the Collector that a Panchayat Samiti 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 Panchayat Samiti preferably in the month of October to fix-up the minimum price of procurement of Minor Forest produce.

(4) 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 Grama Panchayat shall place the same before the Grama Sabha in its next meeting for ratification.

6. Furnishing of returns.

(1) A trader registered under these rules shall furnish a monthly return of Minor Forest Produce to the Grama 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 Grama Panchayat shall communicate a copy of the annual return received under sub-rule (2) to the Forest Range officer concerned.

7. 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 Grama Panchayat in Minor Forest Produce.

(ii) Register himself in the Grama Panchayat, or

(iii) Comply with the conditions of registration, the Sarpanch shall issue a notice to such dealer or person, as 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 Grama 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 Grama Panchayat are satisfied that circumstances specified in sub-rule (1) exist in relation to such trader or person, the Grama 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 Grama Panchayat the Sarpanch or Secretary of the Grama Panchayat shall lodge necessary complaint before the Divisional Forest Officer concerned for taking appropriate action against the person 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 action against the person under the appropriate provisions of law.

(6) The item of Minor Forest produce seized by the Divisional Forest Officer from 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 under the Odisha Forest Act.

(8). Appeal.

Any person aggrieved by the decision of the Grama Panchayat under these 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.

(9). Deemed traders.

(1) Public Sector undertakings like the Odisha forest Development Corporation, Tribal Development Co-operative Corporation and Tribal Co-operative 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.

(10). 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

1. Tamarind, de-seeded Tamarind,Tamarind . Seeds
2. Mahua Flower
3. Hill Brooms
4. Thorn Broom (Jhadu or Ghoda lanji)
5. Phula Jhadu
6. Broom Grass
7. Nux Vomica(Kochila Seseds)
8. Hardad
9. Bahada
10. Anla
11. Soap Nut (Ritha Phala)
12. Marking Nut (Bhalia)
13. Cleaning Nut (Nirmala)
14. Honey
15. Siali leaves
16. Sabai grass
17. Mango Karnel
18. Thatch Grass
19. Simul Cotton
20. Arrow Roots(Palua)
21. Dhatuki Flowers
22. Purtani
23. Sikakai
24. Jungal Jada or Goba
25. Palasa Seeds
26. Siali Seeds
27. Indra Jaba(Korai Seeds)
28. Gila (Seed and Coat)
29. Benachera
30. Ban Haladi
31. Gaba
32. Basil
33. Bana Kolatha

34. Makhena Seed (Kanta Padma)
35. Tala Makhana Seed
36. Baidanka Seeds
37. Baghanakhi Seeds
38. Kamala Gundi Fruits
39. Landa Baguli
40. Bela
41. Chiraita(bhui Neem)
42. Khajuripata
43. Rohini Fruit
44. Bhurusunga Leaves
45. Phenephena Fruits
46. Rasana Root
47. Sidha Fruit
48. Setabari
49. Katha Lai
50. Aundi Lai
51. Khelua Lai
52. Suama Lai
53. Eksira Fruit
54. Katha Chhstu(Mushroom)
55. Mat Reed(Sapa Masina Grass)
56. Anania Mula
57. Antia Pata
58. Nageswar Flower
59. Mankada Kendu
60. Mahula Seed
61. Mahula Seed
62. Kusum Seed
63. Karanja Seed
64. Neem Seed
65. Char Seed
66. Chakunda Seed
67. Baul Seed
68. Baibiranga Seed

FORM NO.1
(See rule 4(2)

Application form for registration of trading in Minor Forest Produce

To

The Sarpanch……Grama Panchayat

Sir,

I Sri……Village/Post…….do hereby apply for registration as a dealer in Minor Forest Produce in ……. …….Grama Panchayat.

Details of Trade

1. Name of the business organization with full address:-
2. Relationship of the applicant with the organization:-
3. Applicant's name/Fathers name/Permanent Address :-
4. The name of the Minor Forest Produce the dealer wants to deal
5. Type of business

   Retail/wholesale or both :-
6. Amount deposited for registration with registration with receipt number and date.
7. Trading year for which registration is applied for :-
8. Name and address of the place where Minor Forest produce to be stored :-

I hereby declare that……..

1.I shall abide the rules and regulations framed by Government for trading in Minor Forest Produce.

2.I Under take that I shall not default in making payment the registration fees and other dues fixed by the Grama Panchayat.

3.That facts stated above are true to the best of my knowledge and belief.

Yours faithfully,

Signature of the Applicant

Received Rs……..(Rupees……..)only towards registration for vide receipt No……..dated……..

SECRETARY

ORDERS

The application be placed in the next Grama Panchayat meeting for consideration.

SARPANCH

GRAMAPANCHAYAT

FORM No.2

(See rule 4(2))

Certificate of registration for trading in Minor Forest Produce……

Grama Panchayat.

Sri…….Son of……..

Village……Post……Dist…….

Registered as a dealer in Minor Forest Produce.

1. Registration No.
2. Trading year for which registration is granted.
3. Description of Minor Forest Produce to be dealt with by the dealer:-

(a)

(b)

(c)

(d)

(e)

Secretary Sarpanch

……..Grama Panchayat ……Grama Panchayat

N.B: Rules and regulations of registration noted backside

Renewal Report

Date of renew	Trading year for which renewal is granted	Signature of Secretary	Signature of Sarpanch
(1)	(2)	(3)	(4)

Conditions of Registration

1. Registered Minor Forest Produces shall be purchased only from the Primary gatherers as per the price fixed from time to time.
2. While purchasing the Minor Forest Produce from the Primary gatherers the Registered dealer shall ensure proper weight of the produces purchased and the full cost thereof shall be paid to the primary gatherers on the spot.
3. The registered dealer shall submit a monthly return in the prescribed form to the concerned Forest Ranger and the Grama Panchayat.
4. The registered dealer shall abide by all such guide lines as may be issued from time to time.

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APPENDIX-XII

Information on Gazette Notification of Forest Blocks of Khordha Division							
Sl. No.	**Name of the Forest Block**	**Area in ha.**	**Notification No. & Date.**	**Gazttee Notification available or not**	**Map available in grid of latitude / longitude indicating position of boundary pillar.**	**Whether boundary have been maintained with posting of pillars.**	**Remarks**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
A	**Reserve Forest**						
1	Aranga	2630.95	2962 dtd. 03.11.1903	Not available	Not available *	Maintained (part)	Survey of the boundary with reference to notification, map of the block & village cadestral sheets of adjacent village etc. needs to be done.
2	Bankard	1254.57	-do-	- do -	- do -	- do -	
3	Katuwal	990.7	-do-	- do -	- do -	- do -	
4	Tamana	3591.71	2962 dtd. 03.11.1903	- do -	- do -	- do -	
5	Rajin	6773.05	2962 dtd. 03.11.1903	Not available	- do -	- do -	
6	Barunei	482.8	2962 dtd. 23.6.1885	Available	- do -	- do -	
7	Jayamangal	144.48	Dt. 15.11.1903	- do -	- do -	- do -	
8	Manibandha	309.6	1860 dtd.19.10.1911	Not available	- do -	- do -	
9	Nagapalli	551.68	Dt.15.11.1886	- do -	- do -	- do -	
10	Panchagarh	735	2962 dtd.23.6.1885	Not available	- do -	- do -	
11	Pongarsingh	264.67	1861 dtd.19.10.1911	Not available	- do -	- do -	
12	Champagarh	413.64	23710-11F-39/66-CF dt.16.12.1966	Not available	- do -	- do -	
13	Dhani(N)	1092.28	23710-11F-39/66-CF dt.16.12.1966	- do -	- do -	- do -	
14	Mal	10472.46	23710-11F-39/66-CF dt.16.12.1966	- do -	- do -	- do -	
15	Maninag	1797.67	23710-11F-39/66-CF dt.16.12.1966	- do -	- do -	- do -	
16	Nuapada-B	272.77	23710-11F-39/66-CF dt.16.12.1966	- do -	- do -	- do -	
17	Satabhaya	377.18	Dt.16.12.1966	- do -	- do -	- do -	
18	Sulia-B	1394.19	Dt.16.12.1966	- do -	- do -	- do -	
19	Dhani(S)	839.75	23710-11F-39/66-CF dt.16.12.1966	- do -	- do -	- do -	
20	Kuhudi	641.01	Dt.3.7.1885	Not available	- do -	- do -	
21	Patia	3702.18	Dt.16.12.1966	Not available	- do -	- do -	
22	Sulia	1609.09	Dt.03.07.1885	Available	- do -	- do -	
B	**Proposed Reserved Forest**						
1	Beguniapada	32	Fs-23578-74 -55 / R dtd.13.11.1978	Not available	Not available	Maintained (part)	
2	Jamunajharapada	72	Fs-196/78-73206/ R dtd.07.11.1978	- do -	- do -	- do -	
3	Kumuka	214	Fs-217/78-74968/ R dtd.15.11.1978	- do -	- do -	- do -	
4	Rengal	112	Fs-209/78-74543/ R dtd.13.11.1978	- do -	- do -	- do -	
5	Bhanra	97.28	1484 / Fs-62459/ R dtd.17.09.1984	- do -	- do -	- do -	
C	**Demarcated Protected Forest**						
1	Bhaleri	994.35	Pubished in Bengal Govt. Gazette 11th Aug, 1880, 9th Aug, 1880 (Part-I) Page - 698.	Not available	Not available	Maintained (part)	
2	Bhatapada	267.00				- do -	
3	Chulijhinka	556.00				- do -	
4	Jharan	1947.82				- do -	

5	Jiripada	78.11				- do -	
6	Nathapur	594.5				- do -	
7	Sandhamal	1528.96				- do -	
8	Solari	1167.96				- do -	
9	Champagarh	825.00				- do -	
10	Badapari	256.98				- do -	
11	Bagheiput	67.18				- do -	
12	Bhusandpur	787.95				- do -	
13	Chakadapathar	1054.65				- do -	
14	Jalvar	403.99				- do -	
15	Kaithapalla	276.00				- do -	
16	Kandagadia	214.89				- do -	
17	Kadambajhar	469.45				- do -	
18	Kunjuri	434.24				- do -	
19	Nalasingh	561.32				- do -	
20	Nargoda	1031.99				- do -	
21	Rameswar	718.75				- do -	
22	Tangi	181.3				- do -	
23	Brahmanidei	756.38				- do -	
24	Duburi	361.8				- do -	
25	Jariput	464.19				- do -	
26	Kapileswar	76.49				- do -	
27	Keranga	123.03				- do -	
28	Mandalsingh	301.1				- do -	
29	Tartua	366.66				- do -	

*****

APPENDIX-XIII

STATUS OF BOUNDARIES:

During the field verification in the Forest Blocks of Khordha Forest Division it is observed that some of the Boundary Pillars are not maintained properly. Some old R.R stone boundary pillars and stone cairns are in damaged condition. However some masonry pillars are existing. The position of the damaged. Boundary pillars are to be properly surveyed and constructed. The existence of the boundary pillars of RFs & DPFs furnished in following table. But, no record of the position of the Boundary Pillars of PRFs is available.

Table showing Boundary Position in Reserved Forest Blocks of Khordha Forest Division

Name of the Division	Name of Range	Name of Forest Block	Length of Boundary in rkm	Total No. of Pillars as per Notification	No of Pillars existing	Status of boudnary Pillars			Total
						Good	Damaged	Missing	
1	2	3	4	5	6	7	8	9	10
Khordha	Balugaon	Aranga RF	17.6	Continuous Boundary consisting of 1040 Pillars	13Masonry Pillars, 27 stone cairns,	40			40
		Bankard RF	12.2		12Cement Pillars, 23 stone cairns	35			35
		Katwal RF	10.8		17cement pillars, 15 stone cairns	32			32
		Rajin RF	9.2		15cement pillars, 33 stone cairns	48			48
		Tamana RF	16.0		29cement pillars, 26 stone cairns	55			55
	Total					**210**			**210**
	Ranpur	Chmpagarh RF	12.4	35	19stone pillars	19	16		35
		Dhani(N) RF	13.5	-	40 -do-	40			40
		Maninag RF	25.2	226	20 -do-	20	206		226
		Mal RF	87.6	107	Stone cairns wooden pillars		107		107
		Nuapada (B) RF	8.2	16	10 -do-	10	06		16
		Satabhaya RF	4.8	24	12 -do-	12	12		24
		Sulia (B) RF	27.8	147	21 -do-	21	126		147
	Total					**122**	**473**		**595**
	Tangi	Dhani (S) RF	8.5	-	23 -do-	23			23
		Kuhudi RF	11.2	80	12 -do-	12	68		80
		Patia RF	16.8	113	21 -do-	21	92		113
		Sulia RF	16.0	207	20 -do-	20	187		207
	Total					**76**	**347**		**423**
	Khordha	Barunei RF	12.0	79	79 -do-	79			79
		Jaimangal RF	10.4	79	79 -do-	79			79
		Manibanhda RF	16.8	107	107 -do-	107			107
		Nagapalli RF	6.8	104	104 -do-	104			104
		Panchagarh RF	5.2	119	119 -do-	119			119
		Pangarsingh RF	14.4	70	70 -do-	70			70
		Total				**558**			**558**
	Delang	Kumka PRF	NIL						
		Rengal PRF	NIL						
		Jamunajharapara PRF	NIL						
		Beguniapada PRF	NIL						
Total			NIL						
Balipatna		Bhanara PRF	NIL						
Grand Total						**966**	**820**		**1786**

Table showing Boundary Position in DPFs of Khordha Forest Division

Name of the Division	Name of Range	Name of DPFs	Length of Boundary in k.m	Total No. of Pillars as per Notification	No of Pillars existing	Status of boudnary Pillars			Total
						Good	Damaged	Missing	
1	2	3	4	5	6	7	8	9	10
Khordha	Balugaon	Bhatapada	9.8	-	12 stone pillars	12			12
		Chamapagarh	17.25	-	10 –do-	10			10
		Chulijhinka	8.5	-	4 –do-	4			4
		Jharan	22.0	-	10 –do-	10			10
		Jiripada	3.5	-	9 –do-	9			9
		Nathapur	9.6	-	7 –do-	7			7
		Sandhamal	15.5	-	20 –do-	20			20
		Solari	14	-	5 –do-	5			5
		Bhaleri	21.6	-	10 –do-	10			10
	Total					**87**			**87**
	Khordha	Brahmanidei	20.4	-	N.A				
		Duburi	12.8	-	–do-				
		Jariput	13.25	-	–do-				
		Kapileswar	4.5	-	–do-				
		Kerang	6.75	-	–do-				
		Mandalsingh	7.3	-	–do-				
		Tartua	11.15	-	–do-				
	Total								
	Tangi	Bagheiput	3.4	-	–do-				
		Badpari	6.9	-	–do				
		Bhusandpur	19.6	-	–do				
		Chakadapathar	14.8	-	–do				
		Jalbhar	17.5	-	–do				
		Kaithapalla	11.40	-	–do				
		Kadambajhar	20.3	-	–do				
		Kandagadia	7.4	-	–do				
		Kunjuri	14.4	-	–do				
		Nargoda	16.85	-	–do				
		Nalsingh	14.5	-	–do				
		Rameswar	16.85	-	–do				
		Tangi	6.0	-	–do				
		Total							**87**

Rangewise abstract of RF & DPF Boundary pillars of Khordha Forest Division

Range	Forest block	Good	Damaged	Missing	Reconstruction	Total
1	2	3	4	5	6	7
Balugaon	RF(5)	210				210
	DPF (9)	87				87
Ranpur	RF (7)	122	473			595
	DPF	-	-			
Tangi	RF (4)	76	347			423
	DPF(13)					
Khordha	RF (6)	558				558
	DPF(7)					
Delanga	PRF (4)					
Balipatna	PRF (1)					
	Grand Total	**1053**	**820**			**1873**

Programme for creation and maintainance of Boundary pillar of Forest blocks of Khordha Forest Division.

1st Phase (2021-22 to 2025-26) **2nd Phase (2026-27 to 2030-31)**

2021-2022

Name of Range	Name of Forest Block	Renovation	Repair	Reconstruction	Total
1	**2**	**3**	**4**	**5**	**6**
Balugoan	Kotwal RF	Stone cairns			
	Rajin RF	Stone cairns			
	Bhaleri DPF				
Ranpur	Maninag RF			50	50
Khordha	Barunei				
Tangi	Kuhuri RF			20	20
Delang	Kumka PRF				
	Rengal PRF				
	Jamunajharapara PRF				
	Beguniapada PRF				
Balipatna	Bhanara DPF				
	Total			**70**	**70**

2022-2023

Name of Range	Name of Forest Block	Renovation	Repair	Reconstruction	Total
1	**2**	**3**	**4**	**5**	**6**
Balugoan	Arang RF				
	Bankard RF	Stone cairns			
	Chamapgarh DPF				
Ranpur	Mala RF	Stone cairns with RCC Pillars	107		107
	Satabhaya RF		12		12
	Dhani (N) RF				
Khordha	Pangarsingh				
Tangi	Dhani RF				
	Bhusandpur DPF				
Delang	Kumka PRF				
	Rengal PRF				
	Jamunajharapara PRF				
	Beguniapada PRF				
Balipatna	Bhanara DPF				
	Total		**119**		**119**

2023-2024

Name of Range	Name of Forest Block	Renovation	Repair	Reconstruction	Total
1	**2**	**3**	**4**	**5**	**6**
Balugoan	Tamana RF	Stone cairns			
	Jharana DPF				
	Nathpur				
Ranpur	Mala RF				
	Chamapagarh RF	Stone cairns		16	16
Khordha	Nagapalli RF				
	Brahmanidei DPF				
	Mandalsingh DPF				
Tangi	Patia RF			92	92
	Kadambjhar DPF				
	Jalbhar DPF				
	Tangi DPF				
Delang	Kumka PRF				
	Rengal PRF				
	Jamunajharapara PRF				
	Beguniapada PRF				
Balipatna	Bhanara DPF				
	Grand Total			**108**	**108**

2024-2025

Name of Range	Name of Forest Block	Renovation	Repair	Reconstruction	Total
1	**2**	**3**	**4**	**5**	**6**
Balugoan	Bhatapada DPF				
	Chulijhinka DPF				
Ranpur	Mala RF				
	Sulia (B) RF			126	126
Khordha	Manibandha RF				
	Nagapalli RF				
	Duburi DPF				
	Jariput DPF				
Tangi	Sulia RF			187	187
	Chakadapathar DPF				
	Kaithapalla DPF				
	Nargoda DPF				
Delang	Kumka PRF				
	Rengal PRF				
	Jamunajharapara PRF				
	Beguniapada PRF				
Balipatna	Bhanara DPF				
	Grand Total			**313**	**313**

2025-2026

Name of Range	Name of Forest Block	Renovation	Repair	Reconstruction	Total
1	**2**	**3**	**4**	**5**	**6**
Balugoan	Jiripada DPF				
	Solari DPF				
	Sandhamal DPF				
Ranpur	Maninag RF			156	156
	Nuapada (B) RF			06	06
Khordha	Jaymangal RF				
	Panchagarh RF				
	Tartua DPF				
	Kapileswar DPF				
	Kerang DPF				
Tangi	Bagheput DPF				
	Badpari DPF				
	KandgadiaDPF				
	Kuhudi RF			48	48
	Nalsingh DPF				
	Rameswar DPF				
Delang	Kumka PRF				
	Rengal PRF				
	Jamunajharapara PRF				
	Beguniapada PRF				
Balipatna	Bhanara DPF				
	Grand Total			**210**	**210**

Repair of damaged 820 nos. of boundary pillars will be made in rotational manner in two phases.1st phase 2021-22 to 2025-26 and the same will be repeated from 2026-27 to 2030-31 in 2nd phase.

Abstract of Forest Block wise programme of Boundary pillars

Year	Renovation	Repair	Reconstruction	Total
1	**2**	**3**	**4**	**5**
2021-22			70	70
2022-23		119		119
2023-24			108	108
2024-25			313	313
2025-26			210	210
2026-27			70	70
2027-28		119		119
2028-29			108	108
2029-30			313	313
2030-31			210	210
Total		**238**	**1402**	**1640**

As no boundary pillars are available in 20 nos. of DPF and 05 Nos of PRF, D.F.O,Khurda Forest Division should take steps to erect the same in phased manner taking approval from the competent authority.

*****

APPENDIX-XIV

Plantation undertaken outside forest Blocks (TOF) during the period 2003-04 to 2020-21 in Khordha Forest Division								
Sl No	**Name of Range**	**Scheme**	**Type of Plantation**	**Name of site**	**Total Area in Ha.**	**Rkm**	**Nos.**	**Remarks**
1	Khordha	B-economic	Block Plantation	Mahaparbat	60 Ha.			
2	Delanga	Bald hill Plantation (SP)	Block Plantation	Biswanathhill	15Ha.			
3	Balugaon	Bald hill Plantation (SP)	Block Plantation	Dengei pahada	20Ha.			
4	Balugaon	Bald hill Plantation (SP)	Block Plantation	Jibandeipur revenue land	10Ha.			
5	Balugaon	Bald hill Plantation (SP)	Block Plantation	Ghantasila Pahada	10Ha.			
6	Balugaon	Bald hill Plantation (SP)	Block Plantation	Jodamundia	10Ha.			
7	Balugaon	Bald hill Plantation (SP)	Block Plantation	Luniari Mundia	10Ha.			
8	Khordha	Bald hill Plantation (SP)	Block Plantation	Mahaparbata	60Ha.			
9	Khordha	Bald hill Plantation (SP)	Block Plantation	Berhampura Rev land	20Ha.			
10	Khordha	Bald hill Plantation (SP)	Block Plantation	Dudhia pahad	10Ha.			
11	Ranapur	Bald hill Plantation (SP)	Block Plantation	Kotagarh pahad	20Ha.			
12	Ranapur	Bald hill Plantation (SP)	Block Plantation	Giridharpur Rev. Land	20Ha.			
13	Ranapur	Bald hill Plantation (SP)	Block Plantation	Jamusahi pahada	30Ha.			
14	Delanga	13th FC grant	Block (outside)	Chhotijodi Rev land	10Ha.			
15	Khordha	13th FC grant	Block (outside)	Mukundapur Rev. Land	40Ha.			
16	Khordha	13th FC grant	Block (outside)	Diniari Rev. Land	40Ha.			
17	Khordha	13th FC grant	Block (outside)	Paiktigiria V.F	40Ha.			
18	Balugaon	Avenue (SP)	Avenue in rkm	Pratap Salia dam	2Ha.	8		
19	Balugaon	Avenue (SP)	Avenue in rkm	Salia dam road	1.25 Ha.	5		
20	Balugaon	Avenue (SP)	Avenue in rkm	Berbera-Kalamatia	1.75 Ha	7		
21	Khordha	Avenue (SP)	Avenue in rkm	Dhalapathar to Banki	1.25 Ha.	5		
22	Khordha	Avenue (SP)	Avenue in rkm	NH-5 to Dadhimachaagadia	1.25 Ha.	5		
23	Khordha	Avenue (SP)	Avenue in rkm	Simora to Gediapalli	1.25 Ha.	5		
24	Khordha	Avenue (SP)	Avenue in rkm	Harirajpur to Kapilaprasad	2.5 Ha.	10		
25	Ranapur	Avenue (SP)	Avenue in rkm	Lodhachua to Talakani	2.5 Ha.	10		
26	Ranapur	Avenue (SP)	Avenue in rkm	Champatipur to Nadiabhanja	1.25Ha.	5		
27	Ranapur	Avenue (SP)	Avenue in rkm	Gopalpur to Karadapalla	2.5 Ha.	10		
28	Balipatna	Avenue (SP)	Avenue in rkm	Bilipadachhak to Parijanar	1.25 Ha.	5		
29	Delanga	Avenue (SP)	Avenue in rkm	Mandarbasta to Badaput	1.25 Ha.	5		

30	Tangi	Avenue (SP)	Avenue in rkm	Kamaguru to Achyutapur	2.5 Ha.	10		
31	Tangi	Avenue (SP)	Avenue in rkm	Ugratara to Haripur	1.25 Ha.	5		
32	Tangi	Avenue (SP)	Avenue in rkm	Patia to Sirikuti	2.5 Ha	10		
33	Khordha	NHAI (Khordha-BBSR)	Avenue median	Khordha BBSR NH-5	4.1075 Ha.	16.42		
34	Khordha	NHAI (Khordha-Sunakhala)	Avenue median	Khordha-Sunakhala	1.25 Ha.	5		
35	Khordha	NHAI (Khordha-Sunakhala)	Avenue median	Khordha-Sunakhala Tangi	0.75 Ha.	3		
36	Khordha	NHAI (Khordha-Sunakhala)	Avenue median	Khordha-Sunakhala-	1.675 Ha.	6.7		
37	Khordha	NHAI (Khordha-Sunakhala)	Avenue median	Khordha-sunakhala-Tangi	3.25 Ha.	13		
38	Ranapur	DRDA Nayagarh	Avenue	Rajsunakhala-Ranpur Road	3.75 Ha.	15		
39	Balugaon	Increasing Green Covered	UTP	NH5-Balugaon	3.75 Ha.		6000 nos	
40	Balugaon	Increasing Green Covered	UTP	Pratap-Banapur	3.125 Ha.		5000 nos	
41	Balugaon	Increasing Green Covered	UTP	Podasahi to Balidihi	0.625 Ha.		1000 nos	
42	Balipatna	Increasing Green Covered	UTP	Pipili	0.625 Ha.		1000 nos	
43	Balipatna	Increasing Green Covered	UTP	Balakati	5.5 Ha.		8800 nos	
44	Balipatna	Increasing Green Covered	UTP	Anthuari	1.8125 Ha.		2900 nos	
45	Balipatna	Increasing Green Covered	UTP	Padmapur	2.8125 Ha.		4500 nos	
46	Balipatna	Increasing Green Covered	UTP	Banamalipur College	0.9375 Ha.		1500 nos	
47	Balipatna	Increasing Green Covered	UTP	Amanakuda	3.125 Ha.		5000 nos	
48	Balipatna	Increasing Green Covered	UTP	Dudurabasta	3.125 Ha.		5000 nos	
49	Balipatna	Increasing Green Covered	UTP	Prataprudrapur	2.125 Ha.		3400 nos	
50	Balipatna	Increasing Green Covered	UTP	Gadacharipada	11.8125 Ha.		18900 nos	
51	Balipatna	Increasing Green Covered	UTP	Ranpur	6.25 Ha.		10000 nos	
52	Balipatna	Increasing Green Covered	UTP	Nagapur	2.5 Ha.		4000 nos	
53	Balipatna	Increasing Green Covered	UTP	Banamalipur	0.625 Ha.		1000 nos	
54	Balipatna	Increasing Green Covered	UTP	Bhakarsahi	6.25 Ha.		10000 nos	
55	Balipatna	Increasing Green Covered	UTP	Sanghaleisasan	0.625 Ha.		1000 nos	
56	Khordha	Increasing Green Covered	UTP	Graveyard Khordha	4.375 Ha.		7000 nos	
57	Khordha	Increasing Green Covered	UTP	JNV Gurujanga	2.5 Ha.		4000 nos	
58	Khordha	Increasing Green Covered	UTP	PN College Khordha	10 Ha.		16000 nos	
59	Khordha	Increasing Green Covered	UTP	NISER,Jatni	7.5 Ha.		12000 nos	
60	Khordha	Increasing Green Covered	UTP	Forest Colony,Khorhda	0.625 Ha.		1000 nos	
61	Khordha	Increasing Green Covered	UTP	Division Office Campus	1.25 Ha.		2000 nos	
62	Khordha	Increasing Green Covered	UTP	Sub-collector office Khordha	0.625 Ha.		1000 nos	

63	Khordha	Increasing Green Covered	UTP	Govt. Medical ,Khordha	1.875 Ha.		3000 nos	
64	Khordha	Increasing Green Covered	UTP	Saradhapur Girls High school	0.625 Ha.		1000 nos	
65	Khordha	Increasing Green Covered	UTP	Graveyard Gurujanga	12.5 Ha.		20000 nos	
66	Khordha	Increasing Green Covered	UTP	Goshala, Jatani	3.75 Ha.		6000 nos	
67	Khordha	Increasing Green Covered	UTP	ST. John, church	1.875 Ha.		3000 nos	
68	Khordha	Increasing Green Covered	UTP	Graveyard, Kumarbasta	6.25 Ha.		10000 nos	
69	Khordha	Increasing Green Covered	UTP	PHD,Gurujanga	1.875 Ha.		3000 nos	
70	Khordha	Increasing Green Covered	UTP	Reserve Police line, Tartua	3.125 Ha.		5000 nos	
71	Khordha	Increasing Green Covered	UTP	Hanuman Temple, Jariput	1.25 Ha.		2000 nos	
72	Khordha	Increasing Green Covered	UTP	palla High school	1.875 Ha.		3000 nos	
73	Khordha	Increasing Green Covered	UTP	SDPO office ,Banki	0.625 Ha.		1000 nos	
74	Khordha	Increasing Green Covered	UTP	Banki town	1.25 Ha.		2000 nos	
75	Khordha	Increasing Green Covered	UTP	Arakhapadia, Banki	2.5 Ha.		4000 nos	
76	Khordha	Jagannath Bana Prakalpa	Block Plantation	Chandapur Revenue Forest	19 Ha.			
77	Khordha	Jagannath Bana Prakalpa	Block Plantation	Tikatala Village Forest	11 Ha.			
78	Khordha	Jagannath Bana Prakalpa	Block Plantation	Balunkeswar Temple	4 Ha.			
79	Khordha	Jagannath Bana Prakalpa	Block Plantation	Kotalanga Rev. Forest	15 Ha.			
80	Khordha	NBM	Block (outside)	Alasua Govt. land	10 Ha.			
81	Ranapur	State CAMPA	Block Plantation	Andharimundia Rev .Landa	40 Ha.			
82	Khordha	12th FC	Block Plantation	Mahaparbat Govt. Land	25 Ha.			
83	Khordha	Jagannath Bana Prakalpa	Block Plantation	Chandapur K.F(Rev. Forest)	19 Ha.			
84	Khordha	Jagannath Bana Prakalpa	Block Plantation	Kotalanga Rev. Forest	15 Ha.			
85	Khordha	Jagannath Bana Prakalpa	Block Plantation	Tikatala village Forest	11 Ha.			
				Total	**756.9075**	**164.12**		

Rangewise details of afforestation activities in Khordha Forest Division during 2016-17 outside Forest Blocks

Sl No	Name of Range	Scheme	Type of plantation	Name of site	Total Area in Ha.	Rkm	Nos.	Remarks
1	Balugaon	b ecnonomic (MGNREGS)	Block Plantation	Badasireipur Rev. Land	25 Ha.			
2	Balugaon	Bald hill (MGNREGS)	Block Plantation	Hadakhai Mundia	10 Ha.			
3	Ranapur	Bald hill (MGNREGS)	Block Plantation	Akhuapadar Pahad	10 Ha.			
4	Khordha	Bald hill (CAMPA)	Block Plantation	Rmachandrapur Rev.Land	10 Ha.			
5	Khordha	Bald hill (CAMPA)	Block Plantation	Alasua Rev. Landa	10 Ha.			
6	Ranapur	Bald hill (CAMPA)	Block Plantation	Kerendatangi Rev. Landa	10 Ha.			

7	Delanga	CAMPA Avenue Plantation	Avenue Plantation on feeder road	Delanga	3.5 Ha.	14		
8	Balipatna	CAMPA Avenue Plantation	Avenue Plantation on feeder road	Balipatna	10.5 Ha.	42		
9	Khordha	CAMPA Avenue Plantation	Avenue Plantation on feeder road	Khordha	0.5 Ha.	2		
10	Delanga	Avenue CAMPA	Avenue Plantation	Delanga	2.2 Ha.	8		
11	Balipatna	Avenue CAMPA	Avenue Plantation	Balipatna	3 Ha.	12		
12	Khordha	Outside block Plantation MGNRGS	Block Plantation	Jodapada Rev Landa	20 Ha.			
13	Ranapur	Outside block Plantation MGNRGS	Block Plantation	Mahatpalla Rev. Landa	20 Ha.			
14	Balugaon	Outside block Plantation MGNRGS	Block Plantation	Halanda Rev.Landa	10 Ha.			
15	Khordha	Outside block Plantation MGNRGS	Block Plantation	Diniari To Tulasipur Road	1.25 Ha.	5		
16	Tangi	Outside block Plantation MGNRGS	Block Plantation	Bindhania to Kalupada	1.25 Ha.	5		
17	Ranapur	Outside block Plantation MGNRGS	Block Plantation	Kotagarh to Hanuman Temple	1.25 Ha.	5		
18	Balugaon	Outside block Plantation MGNRGS	Block Plantation	Birajai Temple to Bighnaput	1.25 Ha.	5		
19	Balipatna	Outside block Plantation MGNRGS	Block Plantation	Uttara Chhak to Kayari	1.25 Ha.	5		
20	Delanga	Outside block Plantation MGNRGS	Block Plantation	Mandarbasta to Anda road	1.25 Ha.	5		
21	Khordha	ANR Plantation MGNRGS	Block Plantation	Khordha Dist	41.25 Ha.	165		
22	Ranpur	ANR Plantation MGNRGS	Block Plantation	Nayagarh	28 Ha.	112		
23	Delanga	ANR Plantation MGNRGS	Block Plantation	Puri	91.25 Ha.	365		
24	Khordha	UTP	Block Plantation	IIT Arugul	1.875 Ha.		3000 nos	
25	Khordha	UTP	Block Plantation	Palla Graveyard	0.625 Ha.		1000 nos	
26	Khordha	UTP	Block Plantation	Jairajguru High School Jemadei	0.625 Ha.		1000 nos	
27	Khordha	UTP	Block Plantation	Gurujanga Graveyard	1.875 Ha.		3000 nos	
28	Khordha	UTP	Block Plantation	Jariput	1.25 Ha.		2000 nos	
29	Khordha	UTP	Block Plantation	Madhia Karabar Banki	1.25 Ha.		2000 nos	
30	Balugaon	UTP	Block Plantation	Beladiha to Gahantasila	0.625 Ha.		1000 nos	
31	Balugaon	UTP	Block Plantation	Ankula to Saralasingh	0.625 Ha.		1000 nos	
32	Balipatna	UTP	Block Plantation	Kakarudrapur	0.75 Ha.		1200 nos	
33	Balipatna	UTP	Block Plantation	Chadheibar	1.4375 Ha.		2300 nos	
34	Balipatna	UTP	Block Plantation	Rathijema	3.75 Ha.		6000 nos	
35	Balipatna	UTP	Block Plantation	Padmapur	1.5625 Ha.		2500 nos	
36	Balipatna	UTP	Block Plantation	Bhanragarh	5 Ha.		8000 nos	
37	Balipatna	UTP	Block Plantation	Bilipada	0.625 Ha.		1000 nos	
				Total	**334.575**	**750**		

Rangewise details of afforestation activities in Khordha Forest Division during 2017-18 outside Forest Blocks								
Sl No	**Name of Range**	**Scheme**	**Type of plantation**	**Name of site**	**Total Area in Ha.**	**Rkm**	**Nos.**	**Remarks**
1	Khordha	B ecnonomic (MGNREGS)	Block Plantation	Mardabadi Revenue Land	10 Ha.			
2	Tangi	Avenue (MGNREGS)	Avenue Plantation	Badapari to Ramachandarapur	1.5625 Ha.		2500 nos	
3	Ranapur	Avenue (MGNREGS)	Avenue Plantation	Nabaghanapur to Biruda	1.5625 Ha.		2500 nos	
4	Balipatna	Avenue (MGNREGS)	Avenue Plantation	Basantamala To Pubagarh	0.78125 Ha.		1250 nos	
5	khordha	Avenue (MGNREGS)	Avenue Plantation	Cuttack distt.(Banki)	3.75 Ha.		6000 nos	
6	Tangi	Avenue (MGNREGS)	Avenue Plantation	Tangi (Khud.Distt.)	1.40625 Ha.		2250 nos	
7	Balipatna	Avenue (MGNREGS)	Avenue Plantation	Balipatna	1.71875 Ha.		2750 nos	
8	Balipatna	Avenue (MGNREGS)	Avenue Plantation	Puri Distt.(Balipatna)	5.15625 Ha.		8250 nos	
9	Delanga	Avenue (MGNREGS)	Avenue Plantation	Delanga	5.46875 Ha.		8750 nos	
10	Khordha	UTP	Block Plantation	Gurujanga Revenue Landa	2.3125 Ha.		3700 nos	
11	Khordha	UTP	Block Plantation	PN High School Jatani	1.0625 Ha.		1700 nos	
12	Khordha	UTP	Block Plantation	Dhanu Jatra padia,Jatani	1.25 Ha.		2000 nos	
13	Khordha	UTP	Block Plantation	Karabar Banki	0.234375 Ha.		375 nos	
14	Balugaon	UTP	Block Plantation	Banapur College	0.25 Ha.		400 nos	
15	Balipatna	UTP	Block Plantation	Chadheibar (Balipatna)	3.125 Ha.		5000 nos	
16	Balipatna	UTP	Block Plantation	Rathijema	1.5625 Ha.		2500 nos	
17	Balipatna	UTP	Block Plantation	Uttara	0.125 Ha.		200 nos	
18	Ranpur	UTP	Block Plantation	Nadiabhanga to Ranpur	0.59375 Ha.		950 nos	
				Total	**41.921875**			

Rangewise details of afforestation activities in Khordha Forest Division from 2018-19 to 2019-20 outside Forest Blocks								
Sl No	**Name of Range**	**Scheme**	**Type of plantation**	**Name of site**	**Total Area in Ha.**	**Rkm**	**Nos.**	**Remarks**
1	Ranpur	b ecnonomic (MGNREGS)	Block Plantation	Talakani Rev. Land	10 Ha.			
2	Balugaon	Avenue (MGNREGS)	Avenue Plantation	Nimeimal Canal to Chandidebi temple	1.25 Ha.	5		
3	Balugaon	Avenue (MGNREGS)	Avenue Plantation	Birijai Temple to Jiripada	1.25 Ha.	5		
4	Balugaon	Avenue (MGNREGS)	Avenue Plantation	Bighnaput to Kandulasahi	1.25 Ha.	5		
5	Ranapur	Avenue (MGNREGS)	Avenue Plantation	Brajarajpur to Jail chhak	0.75 Ha.	3		
6	Balugaon	Avenue (MGNREGS)	Avenue Plantation	Balipatna (Khud.Distt.)	42 Ha.			
7	Balipatna	Avenue (MGNREGS)	Avenue Plantation	Balipatna	22 Ha.			

8	Delanga	Avenue (MGNREGS)	Avenue Plantation	Delanga	30 Ha.			
9	Khordha	Bald hill PlantationUnder CAMPA APO 2017-18	Block Plantation	Ramachandrapur Rev. land	10 Ha.			
10	Khordha	Green Mahanadi Mission(MGNREGS)	Block Plantation	Baideswar Village Forest	45 Ha.			
11	Khordha	(State Plan) UTP under GMM	Block Plantation	Chakuleswar	6.875 Ha.		11000 nos	
12	Khordha	(SP) UTP under GMM	Block Plantation	Kalikaprasad	3.125 Ha.		5000 nos	
13	Khordha	(SP) UTP under GMM	Block Plantation	Sahadapada	1.875 Ha.		3000 nos	
14	Khordha	(SP) UTP under GMM	Block Plantation	Gopalpur	1.875 Ha.		3000 nos	
15	Khordha	(SP) UTP under GMM	Block Plantation	Damapada Anchalika college	1.25 Ha.		2000 nos	
16	Khordha	(SP) UTP under GMM	Block Plantation	Banki Autonomous College	0.625 Ha.		1000 nos	
17	Khordha	(SP)UTP under Avenue Plantation (GMM)	Avenue Plantation	Ragadi GP Office to Ramachandrapur	1 Ha.	4		
18	Khordha	(SP)UTP under Avenue Plantation (GMM)	Avenue Plantation	Gundichapadia to Kali temple	0.5 Ha.	2		
19	Khordha	(SP)Avenue Plantation (GMM)	Avenue Plantation	Sahadapada to Singhanath UGME School	0.5 Ha.	2		
20	Khordha	(SP)Avenue Plantation (GMM)	Avenue Plantation	Ramachandrapur to Ranasankha	0.5 Ha.	2		
21	Khordha	(SP)AR Plantation (GMM)	Block Plantation	Rameswar Rev Land	10 Ha.			
22	Khordha	AR Plantation (GMM)	Block Plantation	Sampur Rev Land	10 Ha.			
23	Khordha	Bald hill Plantation GMM	Block Plantation	Brahmaunia Rev. Landa	10 Ha.			
24	Khordha	(SP)GMM ANR Plantation	Block Plantation	Kusupangi Rev. Forest	50 Ha.			
25	Khordha	(SP)GMM Bamboo Plantation	Block Plantation	Patugadadharpur Rev. Land	20 Ha.			
26	Khordha	(SP)GMM Avenue Plantation	Avenue Plantation	Karabar Road to Ramachandrapur	1.75 Ha.	7		
27	Khordha	(SP)GMM Avenue Plantation	Avenue Plantation	Kusupungi road to Chakuleswar	0.75 Ha.	3		
28	Khordha	Avenue by IDCO fund	Avenue Plantation	Industrial Estate ,Khordha	2.4 Ha.	9.6		
				Total	**286.525**	**47.6**		
				Grand Total	**1419.92938**	**961.72**		

Abstract

Sl No.	Types of Plantation	Area in Ha.
1	Total Block Plantation	1110.01563
2	Avenue Plantation in no of plants converted to Ha. by dividing 1600 plants per Ha.	188.03875
3	No of plants in urban plan & other areas converted to Ha. by dividing 1600 plants per Ha.	121.875
	Grand Total in Ha.	**1419.92938**

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APPENDIX-XV

Block Wise Stock Table Estimated Volume of Trees

			(Volume in Cu. m)					
			GIRTH CLASS (cm)					Total
RANGE	BLOCK	MAJOR SPECIES	30-60	60-90	90-120	120-150	> 150	
		All Trees	238	277	515	285	731	2,045
	BHANRA		238	277	515	285	731	2,045
BALIPATNA	(all)	(all)	238	277	515	285	731	2,045
		All Trees	13,955	29,302	37,330	33,508	40,026	154,122
	ARANGA	(all)	13,955	29,302	37,330	33,508	40,026	154,122
		All Trees	6,534	12,461	17,631	14,173	20,415	71,214
	BANKARD	(all)	6,534	12,461	17,631	14,173	20,415	71,214
		All Trees	4,614	8,354	10,538	8,048	13,834	45,388
	BHALERI	(all)	4,614	8,354	10,538	8,048	13,834	45,388
		All Trees	1,320	2,700	3,203	3,154	3,689	14,066
	BHATPADA	(all)	1,320	2,700	3,203	3,154	3,689	14,066
		All Trees	2,227	4,624	5,130	4,958	6,179	23,117
	CHAMPAGARH	(all)	2,227	4,624	5,130	4,958	6,179	23,117
		All Trees	2,889	5,939	7,401	6,495	8,496	31,220
	CHULIJHINKA	(all)	2,889	5,939	7,401	6,495	8,496	31,220
		All Trees	9,137	15,528	22,812	18,136	29,529	95,143
	JHARAN	(all)	9,137	15,528	22,812	18,136	29,529	95,143
		All Trees	410	691	939	637	1,271	3,948
	JIRIPADA	(all)	410	691	939	637	1,271	3,948
		All Trees	5,203	10,516	11,333	10,285	14,033	51,369
	KOTWAL	(all)	5,203	10,516	11,333	10,285	14,033	51,369
		All Trees	2,639	5,450	5,856	4,579	8,707	27,232

Block Wise Stock Table Estimated Volume of Trees

			(Volume in Cu. m)					
			GIRTH CLASS (cm)					Total
RANGE	BLOCK	MAJOR SPECIES	30-60	60-90	90-120	120-150	> 150	
	NATHPUR	(all)	2,639	5,450	5,856	4,579	8,707	27,232
		All Trees	33,272	68,733	79,109	72,802	89,598	343,513
	RAJIN	(all)	33,272	68,733	79,109	72,802	89,598	343,513
		All Trees	6,126	9,190	10,625	7,493	8,693	42,127
	SANDHAMAL	(all)	6,126	9,190	10,625	7,493	8,693	42,127
		All Trees	5,653	11,304	15,170	13,434	15,598	61,158
	SOLARI	(all)	5,653	11,304	15,170	13,434	15,598	61,158
		All Trees	19,579	39,432	48,583	42,956	56,096	206,646
	TAMNA		19,579	39,432	48,583	42,956	56,096	206,646
BALUGAON	(all)	(all)	113,558	224,223	275,660	240,659	316,164	1,170,263
		All Trees	142	182	325	221	382	1,253
	BEGUNIAPARA	(all)	142	182	325	221	382	1,253
		All Trees	109	159	227	156	348	999
	JAMUNAJHARHAPARHA	(all)	109	159	227	156	348	999
		All Trees	568	738	1,250	911	1,453	4,920
	KUMUKA	(all)	568	738	1,250	911	1,453	4,920
		All Trees	245	335	460	371	631	2,041
	RENGAL		245	335	460	371	631	2,041
DELANGA	(all)	(all)	1,065	1,414	2,262	1,659	2,814	9,214
		All Trees	2,144	2,802	4,179	2,947	6,033	18,107
	BARUNEI	(all)	2,144	2,802	4,179	2,947	6,033	18,107

Block Wise Stock Table Estimated Volume of Trees

			(Volume in Cu. m)					
			GIRTH CLASS (cm)					Total
RANGE	BLOCK	MAJOR SPECIES	30-60	60-90	90-120	120-150	> 150	
		All Trees	2,445	3,183	4,880	3,632	6,219	20,359
	BRAHMANIDEI	(all)	2,445	3,183	4,880	3,632	6,219	20,359
		All Trees	29	30	66	35	84	245
	DUBURI	(all)	29	30	66	35	84	245
		All Trees	786	999	1,702	1,053	2,372	6,912
	JARIPUT	(all)	786	999	1,702	1,053	2,372	6,912
		All Trees	606	873	1,278	1,082	1,393	5,231
	JAYAMANGAL	(all)	606	873	1,278	1,082	1,393	5,231
		All Trees	186	269	438	355	379	1,627
	KAPILESWARPUR	(all)	186	269	438	355	379	1,627
		All Trees	382	506	939	734	836	3,397
	KERANG	(all)	382	506	939	734	836	3,397
		All Trees	899	1,166	1,661	1,234	2,341	7,301
	MANDALSINGH	(all)	899	1,166	1,661	1,234	2,341	7,301
		All Trees	1,183	1,746	2,622	2,138	2,901	10,590
	MANIBANDHA-AB	(all)	1,183	1,746	2,622	2,138	2,901	10,590
		All Trees	2,742	3,858	5,050	3,984	7,236	22,871
	NAGAPALLI	(all)	2,742	3,858	5,050	3,984	7,236	22,871
		All Trees	1,129	2,116	2,181	1,872	1,989	9,287
	NARGANG	(all)	1,129	2,116	2,181	1,872	1,989	9,287
		All Trees	2,900	3,820	5,674	4,105	7,875	24,375

Block Wise Stock Table Estimated Volume of Trees

			(Volume in Cu. m)					
			GIRTH CLASS (cm)					Total
RANGE	BLOCK	MAJOR SPECIES	30-60	60-90	90-120	120-150	> 150	
	PANCHAGARH	(all)	2,900	3,820	5,674	4,105	7,875	24,375
		All Trees	260	363	595	444	688	2,351
	PANGARSINGH	(all)	260	363	595	444	688	2,351
		All Trees	1,275	2,220	2,286	2,016	2,822	10,619
	PUINCHIA	(all)	1,275	2,220	2,286	2,016	2,822	10,619
		All Trees	548	623	1,246	763	1,480	4,660
	TARTUA		548	623	1,246	763	1,480	4,660
KHORDHA	(all)	(all)	17,516	24,574	34,798	26,397	44,647	147,931
		All Trees	1,312	2,133	3,602	3,233	5,331	15,612
	CHAMPAGARH	(all)	1,312	2,133	3,602	3,233	5,331	15,612
		All Trees	4,661	7,060	9,333	9,596	16,557	47,208
	DHANI (N)	(all)	4,661	7,060	9,333	9,596	16,557	47,208
		All Trees	6,622	9,973	13,759	14,372	20,798	65,523
	MAINAG	(all)	6,622	9,973	13,759	14,372	20,798	65,523
		All Trees	53,488	78,141	85,954	82,811	152,321	452,715
	MALA	(all)	53,488	78,141	85,954	82,811	152,321	452,715
		All Trees	149	231	434	357	534	1,706
	NUAPADA-B	(all)	149	231	434	357	534	1,706
		All Trees	812	1,202	1,937	1,947	2,658	8,556
	SATABHAYA	(all)	812	1,202	1,937	1,947	2,658	8,556
		All Trees	5,853	6,050	10,907	10,517	14,428	47,755

Block Wise Stock Table Estimated Volume of Trees

			(Volume in Cu. m)					
			GIRTH CLASS (cm)					Total
RANGE	BLOCK	MAJOR SPECIES	30-60	60-90	90-120	120-150	> 150	
	SULIA-B		5,853	6,050	10,907	10,517	14,428	47,755
RANPUR	(all)	(all)	72,898	104,790	125,925	122,833	212,628	639,074
		All Trees	1,492	1,804	2,339	1,810	3,526	10,971
	BADAPARI	(all)	1,492	1,804	2,339	1,810	3,526	10,971
		All Trees	309	303	429	287	633	1,961
	BAGHEIPUT	(all)	309	303	429	287	633	1,961
		All Trees	2,706	2,381	4,406	2,654	5,032	17,178
	BHUSANDPUR	(all)	2,706	2,381	4,406	2,654	5,032	17,178
		All Trees	14,222	15,405	19,417	11,790	28,585	89,418
	CHAKADAPATHAR	(all)	14,222	15,405	19,417	11,790	28,585	89,418
		All Trees	4,804	4,970	6,346	3,860	9,495	29,475
	DHANI (S)	(all)	4,804	4,970	6,346	3,860	9,495	29,475
		All Trees	3,218	3,371	6,005	3,807	7,408	23,810
	JALBHAR	(all)	3,218	3,371	6,005	3,807	7,408	23,810
		All Trees	956	875	1,549	900	1,912	6,193
	KADAMBAJHAR	(all)	956	875	1,549	900	1,912	6,193
		All Trees	598	882	899	670	1,259	4,308
	KAITHPALLA	(all)	598	882	899	670	1,259	4,308
		All Trees	1,094	1,240	1,631	1,049	2,394	7,409
	KANDAGADIA	(all)	1,094	1,240	1,631	1,049	2,394	7,409
		All Trees	3,814	3,877	5,004	2,855	8,201	23,751

Block Wise Stock Table Estimated Volume of Trees

			(Volume in Cu. m)					
			GIRTH CLASS (cm)					Total
RANGE	BLOCK	MAJOR SPECIES	30-60	60-90	90-120	120-150	> 150	
	KUHUDI	(all)	3,814	3,877	5,004	2,855	8,201	23,751
		All Trees	1,518	1,671	2,276	1,263	3,349	10,077
	KUNJURI	(all)	1,518	1,671	2,276	1,263	3,349	10,077
		All Trees	3,417	3,592	4,869	3,250	7,421	22,548
	NALSINGH	(all)	3,417	3,592	4,869	3,250	7,421	22,548
		All Trees	2,536	2,224	4,298	2,377	5,251	16,686
	NARGODA	(all)	2,536	2,224	4,298	2,377	5,251	16,686
		All Trees	23,632	28,174	32,203	20,043	51,915	155,966
	PATIA	(all)	23,632	28,174	32,203	20,043	51,915	155,966
		All Trees	2,432	2,376	3,926	2,489	5,038	16,262
	RAMESWAR	(all)	2,432	2,376	3,926	2,489	5,038	16,262
		All Trees	568	636	1,036	752	1,176	4,169
	TANGI		568	636	1,036	752	1,176	4,169
TANGI			67,314	73,781	96,634	59,858	142,596	440,183
(all)	(all)	(all)	272,588	429,058	535,794	451,690	719,579	2,408,710

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APPENDIX-XVI

Area obtained for Compensatory Afforestation under Forest Conservation Act, 1980 has been transferred and mutated in favour of Forest Department.

Sl No.	Name of the Division	Year	Name of the User Agency	Nature of Project	Area	Location & Area stipulated for Comp. Afforestation in Non Forest land transferred and mutated in the name of the Forest Department (in Ha.).	Remark
1	2	3	4	5	6	7	8
2	-do-	2008	Collector, Khordha	Conversion of Forest Village into Revenue Village for regularization of eligible category of Pre-80 Encroachments.	93.14	Mouza Nilapalli of Tahasil- Banapur 93.14 Ha.	The draft proposal of PF Notification under section 33 of Odisha Forest Act, 1972 of CA land has been submitted to Govt. of Odisha,Forest & Environment Department for PF notification by the D.F.O,Khordha Forest Divsion. On receipt of PF notification from government necessary entry will be reflected in the divisional area statement.
1	-do-	2009	Executive Engineer, MI Division, Khordha	Construction of Sulia MIP in Banapur Tahasil.	4.69	Mouza Jibandeipur Shasan of Tahasil- Banapur 4.69 Ha.	
3	-do-	2021	AIIMS,Bhubaneswar under City Forest Division,Bhubaneswar	Construction of Centre of Excellence by AIIMS ,Bhubaneswar	10.58	Badaseipur Dorabada Mouza under Narendrapur GP, 10.58 Ha.	
Total area					**108.41**		

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APPENDIX-XVII

FELLING AND REGENERATION AS PER SUPREME COURT'S ORDER DATED 22.09.2020.

The judgement of Hon'ble Supreme Court of India dated 22.09.2020 ordered to ensure regeneration should be commensurate with the felling of trees, while devising the Working Plans.

In case of Khordha Forest Division, felling of trees as per Working Plan prescriptions and number of trees planted during the last Working Plan period is as furnished below,

Year	No of trees felled	No of plant planted
1	**2**	**3**
2003-04	No work has been taken due to expiry of Working plan	824000
2004-05	No work has been taken due to expiry of Working plan	394700
2005-06	No work has been taken due to expiry of Working plan	926400
2006-07	No work has been taken due to expiry of Working plan	727740
2007-08	567	173000
2008-09	567	465000
2009-10	744	442000
2010-11	725	1848390
2011-12	493	1091920
2012-13	575	975750
2013-14	115	983300
2014-15	127	1115810
2015-16	282	776450
2016-17	681	871100
2017-18	519	593075
2018-19	433	462963
2019-20	485	756800
2020-21	701	313856
2021-22	0	76000
Total	**7014**	**13818254**

From the above discussion, it is evident that the nos. of trees felled as per the Working Plan is much less than proposed regeneration and hence the compliance of the order of the Hon’ble Supreme Court of India has been maintained.

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APPENDIX-XVIII

LABOUR SUPPLY (CATEGORY OF LABOUR & ANALYSIS OF WAGES):

Forestry sector provides a greater avenue in employment generation through engagement of different category of labours in various departmental works like Nursery & Afforestation, Felling and Regeneration, Subsidiary Silvicultural operation, SMC activities, repair and maintenance of forest roads, Construction and maintenance of building, engagement of various supporting staffs / squad etc. Mostly Un-skilled and Semi-skilled labourers are employed in the forestry sector for Protection, Conservation, and Management of forests and wild life. The labourers are paid wages as per prescribed rate under Minimum wage Act declared by the government from time to time which is being revised in different years. The wage rate of different category of labourers of past and present are furnished in the following table,

Sl No.	Notification Date (Month/Year)	Past and Present Wage Rate (in Rs.)			
		Un Skilled	Semi Skilled	Skilled	High Skilled
1	13.12.1995	30.00	36.00	42.00	48.00
2	29.04.1999	40.00	48.00	56.00	64.00
3	14.02.2002	50.00	60.00	70.00	80.00
4	15.02.2006	75.00	85.00	90.00	100.00
5	14.07.2009	90.00	103.00	116.00	129.00
6	06.10.2012	150.00	170.00	190.00	205.00
7	30.04.2015	200.00	220.00	240.00	260.00
8	Apr-17	213.50	233.50	253.50	273.50
9	Nov-18	280.00	320.00	370.00	430.00
10	May-19	286.30	326.30	376.30	436.30
11	Nov-19	298.00	338.00	388.00	448.00
12	Jul-20	303.40	343.40	393.40	453.40
13	Oct-20	308.00	348.00	398.00	458.00
14	May-21	311.00	351.00	401.00	461.00
15	Nov-21	315.00	355.00	405.00	465.00

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APPENDIX-XIX

REWARDS & INCENTIVES TO INFORMERS AND FIELD STAFFS:

Forest protection is one of the important aspects for scientific management and conservation of forests. Due to population explosion and consequential requirements for shelter, food & fodder and other allied activities put tremendous pressure in the forests leading to forest degradation. The forests can be protected from illicit removal forest produces by constant patrolling and monitoring of various threats like forest fire and illegal poaching of wild animals. The collection of information from public, VSS is instrumental in detection of forest offence cases. On the other hand to encourage the morale of the frontline forest staff, they would also be awarded for their contribution in seizure of forest produces including vehicles, equipments etc.

The section 82 of Odisha Forest Act, 1972 and The (Odisha Rewards for Detection of) Forest Offences Rules, 2004 provides provision for awarding any person, VSS and Forest Staff for their contribution in field of forest protection. The payment of reward to informers and staff is governed under Rule 3, 4, 5 & 6 of said aforesaid Rule.

The rewards given to informer and staff in the Division is given below

Incentive to Informers				
Sl No	**Year**	**Name & Address**	**Case involved**	**Amount Paid**
1	2016-17	Sri Arta Parida, Ranpur	-	1800
2	2016-17	Sri Santosh Kumar Jena, Ranpur	-	1800
3	2016-17	Sri Sarat Ku. Nayak, S/O-Ranka Nayak At-Sukala, P.S-Ranpur, Dist-Nayagarh	1. OR No.23 R of 15-16 - Teak furnituree-0.549 cum. 2. OR No.24 R of 15-16-Teak planks-0.136 cum, Acacia Planks-0.136 cum 3. OR No.30 R of 15-16-sal logs-0.482 cum, Mahindra maximo pick up van OR-25-B-1836 4. UD 10 R of 15-16- Saw mill full set 5. UD No.35 R of 15-16-Saw mill full set 6.UD No.55 R of 16-17-1 no. country gun	1600
4	2016-17	Sri Satrughan Parida, S/O-Nakula Parida, At-Bhetabara, P.S-Ranpur, Dist-Nayagarh	1. OR No.15 R of 15-16 Sal logs-0.118 cum. 2. OR No.19 R of 16-17-Sal poles 20nos, 3. UD No.12 R of 15-16-sal dima-0.211 cum 4. UD No, 47 R of 16-17 teak logs-0.211cum. 5. UD No.48 R of 16-17-teak logs-0.130	1600

Sl No	Year	Name & Address	Case involved	Amount Paid
5	2016-17	Sri Laxman Pradhan, S/O-Satia Pradhan, At-Niladriprasad, Via-Banapur, Dist-Khordha	Nil	1600
6	2016-17	Sri Tapan Sabar, S/O-Purna Sabar, At-Niladriprasad, Via-Banapur, Dist-Khordha	Nil	1600
Incentive to Field staff				
Sl.No	**Year**	**Name of the staff**	**Case involved**	**Amount**
1	2010-11	Sri J.K Mohanty, Fr	1.OR No.7 K of 02-03 -KL- 0.62 Qntl	630
2	2010-11	Sri G.C.Sethi, Fr	1.OR No.8 K of 02-03 -KL-1.68 Qntl 2.OR No.9K of 02-03- KL-2.71 Qntl	725
3	2010-11	Sri D.Ransingh, Fr		1514
4	2010-11	Sri B.B Dash	1.OR No.16 K of 04-05- KL-0.60 Qntl 2.OR No.29K of 06-07-KL-8.23 Qntl	530
5	2010-11	Sri S.C Mohapatra, F.G		530
6	2010-11	Sri N. Sahoo, F.G		530
7	2010-11	Sri Somanath Behera, Fr		10000
8	2010-11	Sri Umesh Ch. Mohanty, watcher		10000
9	2010-11	Sri Saroj ku. Mohapatra, Watcher		10000

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APPENDIX-XX YEARWISE RAISING OF CLONAL SAPLINGS:

CHULIJHINKA REASEARCH STATION:

Sl. No.	Name of the species	Origin	Place of trial	Year of trial (Age)	Area In Ha	Treat ment	Spacing adopted	Design	No. of plants planted	Avg. Ht in Cm	Avg Dia in Cm	Sur%
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Tectona grandis	Maharashtra	Chulijhinka	1993 27	3	46	6 x 6	Row planting	11	2000	45	70
2	Tectona grandis	KLS-3	Chulijhinka	1993 27	3	46	6 x 6	Row planting	3	1900	42	45
3	Tectona grandis	MHAL-AT	Chulijhinka	1993 27	3	46	6 x 6	Row planting	3	1600	38	80
4	Tectona grandis	APT-11	Chulijhinka	1993 27	3	46	6 x 6	Row planting	4	2200	63	75
5	Tectona grandis	APT-6	Chulijhinka	1993 27	3	46	6 x 6	Row planting	6	1900	41	16
6	Tectona grandis	APKE-1	Chulijhinka	1993 27	3	46	6 x 6	Row planting	4	1800	50	75
7	Tectona grandis	APT-22	Chulijhinka	1993 27	3	46	6 x 6	Row planting	4	1200	31	50
8	Tectona grandis	APT-7	Chulijhinka	1993 27	3	46	6 x 6	Row planting	7	1100	30	42
9	Tectona grandis	MHAL-P4	Chulijhinka	1993 27	3	46	6 x 6	Row planting	5	1100	28	40
10	Tectona grandis	APNPL-6	Chulijhinka	1993 27	3	46	6 x 6	Row planting	2	825	11.2 9	50
11	Tectona grandis	APNPL-9	Chulijhinka	1993 27	3	46	6 x 6	Row planting	5	1025	40	40
12	Tectona grandis	KLN-3	Chulijhinka	1993 27	3	46	6 x 6	Row planting	2	1000	12	50
13	Tectona grandis	TNT-11	Chulijhinka	1993 27	3	46	6 x 6	Row planting	14	1500	49	42
14	Tectona grandis	TNT-1	Chulijhinka	1993 27	3	46	6 x 6	Row planting	6	1403	45	33.33
15	Tectona grandis	MHAL-A6	Chulijhinka	1993 27	3	46	6 x 6	Row planting	3	1000	42	66.66
16	Tectona grandis	APT-9	Chulijhinka	1993 27	3	46	6 x 6	Row planting	6	1200	45	66.66
17	Tectona grandis	APNPL-7	Chulijhinka	1993 27	3	46	6 x 6	Row planting	5	1703	43	60
18	Tectona grandis	APANPL-5	Chulijhinka	1993 27	3	46	6 x 6	Row planting	8	1202	83	60
19	Tectona grandis	MHAL-P1	Chulijhinka	1993 27	3	46	6 x 6	Row planting	3	1400	42	66.66
20	Tectona grandis	APNPL-7	Chulijhinka	1993 27	3	46	6 x 6	Row planting	10	1200	48	50
21	Tectona grandis	KLE-4	Chulijhinka	1993 27	3	46	6 x 6	Row planting	9	1425	42	50
22	Tectona grandis	APT-13	Chulijhinka	1993 27	3	46	6 x 6	Row planting	7	1100	45	65
23	Tectona grandis	APT-13	Chulijhinka	1993 27	3	46	6 x 6	Row planting	7	1325	62	57
24	Tectona grandis	APT-11	Chulijhinka	1993 27	3	46	6 x 6	Row planting	4	1100	14	70
25	Tectona grandis	TNT-11	Chulijhinka	1993 27	3	46	6 x 6	Row planting	5	1405	39	40
26	Tectona grandis	MHAL-6	Chulijhinka	1993 27	3	46	6 x 6	Row planting	14	1602	54	35
27	Tectona grandis	MHAL-A5	Chulijhinka	1993 27	3	46	6 x 6	Row planting	2	1100	50	50
28	Tectona grandis	APT-5	Chulijhinka	1993 27	3	46	6 x 6	Row planting	7	1325	39	28
29	Tectona grandis	MHAL-3	Chulijhinka	1993 27	3	46	6 x 6	Row planting	9	1100	41	44.44
30	Tectona grandis	MHAL-P1	Chulijhinka	1993 27	3	46	6 x 6	Row planting	7	1600	42	57.14
31	Tectona grandis	MHAL-P2	Chulijhinka	1993 27	3	46	6 x 6	Row planting	3	1300	15	33.33

Sl. No.	Name of the species	Origin	Place of trial	Year of trial (Age)	Area In Ha	Treat ment	Spacing adopted	Design	No. of plants planted	Avg. Ht in Cm	Avg Dia in Cm	Sur%
1	2	3	4	5	6	7	8	9	10	11	12	13
32	Tectona grandis	TNT-1	Chulijhinka	1993 24	3	46	6 x 6	Row planting	6	1400	33	66.66
33	Tectona grandis	APNPL-6	Chulijhinka	1993 27	3	46	6 x 6	Row planting	8	1300	36	50
34	Tectona grandis	APNPL-1	Chulijhinka	1993 27	3	46	6 x 6	Row planting	7	1400	54	57.14
35	Tectona grandis	APNPL-8	Chulijhinka	1993 27	3	46	6 x 6	Row planting	1	1700	52	100
36	Tectona grandis	MHAL-A7	Chulijhinka	1993 27	3	46	6 x 6	Row planting	11	1300	40	27.27
37	Tectona grandis	TNT-8	Chulijhinka	1993 27	3	46	6 x 6	Row planting	5	1200	45	20
38	Tectona grandis	APT-20	Chulijhinka	1993 27	3	46	6 x 6	Row planting	5	900	12.1 1	40
39	Tectona grandis	APT-14	Chulijhinka	1993 27	3	46	6 x 6	Row planting	7	1400	46	42.85
40	Tectona grandis	TNT-12	Chulijhinka	1993 27	3	46	6 x 6	Row planting	3	1100	42	33.33
41	Tectona grandis	TNT-9	Chulijhinka	1993 27	3	46	6 x 6	Row planting	1	1800	45	100
42	Tectona grandis	TNT-6	Chulijhinka	1993 27	3	46	6 x 6	Row planting	1	800	9.25	100
43	Tectona grandis	MHSC-7	Chulijhinka	1993 27	3	46	6 x 6	Row planting	8	1308	43	50
44	Tectona grandis	MHSE-8	Chulijhinka	1993 27	3	46	6 x 6	Row planting	8	1225	42	37.5
45	Tectona grandis	ORPUB-31	Chulijhinka	1993 27	3	46	6 x 6	Row planting	16	1402	49	62.5
46	Tectona grandis	ORPUB-34	Chulijhinka	1993 27	3	46	6 x 6	Row planting	16	1500	45	56.25
47	Tectona grandis	ORPUB-23	Chulijhinka	1993 27	3	46	6 x 6	Row planting	20	1225	44	55
48	Tectona grandis	ORPUB-32	Chulijhinka	1993 27	3	46	6 x 6	Row planting	17	1400	51	58.82
49	Tectona grandis	ORPUB-33	Chulijhinka	1993 27	3	46	6 x 6	Row planting	16	1202	52	62.5
50	Tectona grandis	ORPUB-27	Chulijhinka	1993 27	3	46	6 x 6	Row planting	16	1100	37	62.25
51	Tectona grandis	ORPUB-7	Chulijhinka	1993 27	3	46	6 x 6	Row planting	16	1100	37	62.25
52	Tectona grandis	ORPUB-30	Chulijhinka	1993 27	3	46	6 x 6	Row planting	18	1500	50	55.55
53	Tectona grandis	ORPUB-4	Chulijhinka	1993 27	3	46	6 x 6	Row planting	14	1200	32	35.71
54	Tectona grandis	ORPUB-9	Chulijhinka	1993 27	3	46	6 x 6	Row planting	20	1300	47	55
55	Tectona grandis	ORPUB-5	Chulijhinka	1993 27	3	46	6 x 6	Row planting	9	1200	38	55.55
56	Tectona grandis	ORPUB -20	Chulijhinka	1993 27	3	46	6 x 6	Row planting	20	900	24	70
57	Tectona grandis	ORPUB -10	Chulijhinka	1993 27	3	46	6 x 6	Row planting	6	1500	40	50
58	Tectona grandis	ORPUB-23	Chulijhinka	1993 22	3	46	6 x 6	Row planting	6	1200	41	50
59	Tectona grandis	ORANP-8	Chulijhinka	1993 27	3	46	6 x 6	Row planting	13	1200	39	61.53
60	Tectona grandis	ORANP-9	Chulijhinka	1993 27	3	46	6 x 6	Row planting	7	1200	37	42.85
61	Tectona grandis	ORANP-10	Chulijhinka	1993 27	3	46	6 x 6	Row planting	12	1100	35	58.33
62	Tectona grandis	ORANP-A1	Chulijhinka	1993 27	3	46	6 x 6	Row planting	11	1300	48	54.52
63	Tectona grandis	ORANA-2	Chulijhinka	1993 27	3	46	6 x 6	Row planting	2	1200	32	50
64	Tectona grandis	ORANA-4	Chulijhinka	1993 27	3	46	6 x 6	Row planting	4	1500	48	50
65	Tectona grandis	ORPUB-5	Chulijhinka	1993 27	3	46	6 x 6	Row planting	8	1300	41	62.5
66	Tectona grandis	ORPUB-8	Chulijhinka	1993 27	3	46	6 x 6	Row planting	2	1700	51	50

Sl. No.	Name of the species	Origin	Place of trial	Year of trial (Age)	Area In Ha	Treat ment	Spacing adopted	Design	No. of plants planted	Avg. Ht in Cm	Avg Dia in Cm	Sur%
1	2	3	4	5	6	7	8	9	10	11	12	13
67	Tectona grandis	APT-17	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1700	40	60
68	Tectona grandis	APT-6	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1800	46	68
69	Tectona grandis	APNPL-10	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1400	32	64
70	Tectona grandis	APNPL-1	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1600	33	60
71	Tectona grandis	ORANA-7	Chulijhinka	1994 23	4	25	8 x 8	Row planting	25	1600	32	68
72	Tectona grandis	UP-M	Chulijhinka	1994 23	4	25	8 x 8	Row planting	25	1600	37	72
73	Tectona grandis	APKEC-2	Chulijhinka	1994 23	4	25	8 x 8	Row planting	25	1400	34	68
74	Tectona grandis	ORANP-12	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1300	43	72
75	Tectona grandis	MHAL-P2	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1600	39	80
76	Tectona grandis	MHSC-A2	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1300	41	72
77	Tectona grandis	ORPUB-11	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1200	40	68
78	Tectona grandis	MHAL-P3	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1500	46	68
79	Tectona grandis	ORANR-4	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1500	40	84
80	Tectona grandis	ORANP-13	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1700	41	80
81	Tectona grandis	ORPUB-19	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1600	40	76
82	Tectona grandis	ORPUB-12	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1600	37	80
83	Tectona grandis	ORPUB-34	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1400	36	76
84	Tectona grandis	ORPUB-33	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1300	30	64
85	Tectona grandis	ORPUB-17	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1500	41	64
86	Tectona grandis	ORANR-3	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1600	48	68
87	Tectona grandis	ORANR-5	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1400	41	56
88	Tectona grandis	ORPUB-6	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1300	40	68
89	Tectona grandis	ORPUB-2	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1300	44	68
90	Tectona grandis	ORANR-7	Chulijhinka	1994 26	4	25	8 x 8	Row planting	25	1200	42	64
91	Tectona grandis	ORPUB-12	Chulijhinka	1994 26	4	25	6 x 6	Row planting	2	1600	46	50
92	Tectona grandis	ORANR-1/81	Chulijhinka	1994 26	4	25	6 x 6	Row planting	4	1400	41	50
93	Tectona grandis	ORANR-1/86	Chulijhinka	1994 26	4	25	6 x 6	Row planting	3	1400	38	33
94	Tectona grandis	ORANR-4	Chulijhinka	1994 26	4	25	6 x 6	Row planting	5	2200	47	60
95	Tectona grandis	ORANR-6	Chulijhinka	1994 26	4	25	6 x 6	Row planting	4	2000	38	25
96	Tectona grandis	ORANR-7	Chulijhinka	1994 26	4	25	6 x 6	Row planting	4	700	8	50
97	Tectona grandis	APT-1	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1400	31	80
98	Tectona grandis	APT-22	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1600	31	75
99	Tectona grandis	APKEN-1	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1300	30	80
100	Tectona grandis	TNT-11	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1500	36	80
101	Tectona grandis	TNT-2	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1400	36	75

Sl. No.	Name of the species	Origin	Place of trial	Year of trial (Age)	Area In Ha	Treat ment	Spacing adopted	Design	No. of plants planted	Avg. Ht in Cm	Avg Dia in Cm	Sur%
1	2	3	4	5	6	7	8	9	10	11	12	13
102	Tectona grandis	APNPL-4	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1700	40	75
103	Tectona grandis	KLS-3	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1300	30	75
104	Tectona grandis	UP-M	Chulijhinka	1995 22	3	25	8 x 8	Row planting	20	1600	31	80
105	Tectona grandis	MHAL-A8	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1500	35	70
106	Tectona grandis	MHWY-K1	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1400	33	70
107	Tectona grandis	MHSL-J1	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1600	34	75
108	Tectona grandis	MHWY-K3	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1300	36	70
109	Tectona grandis	MHAL-A9	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1200	45	70
110	Tectona grandis	ORPUB-23	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1100	42	80
111	Tectona grandis	ORANP-4	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1200	44	80
112	Tectona grandis	ORPUB-18	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1400	45	70
113	Tectona grandis	ORPUB-15	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	900	31	55
114	Tectona grandis	MHAL-6	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1000	49	70
115	Tectona grandis	ORANP-11	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1800	53	60
116	Tectona grandis	MHAL-P5	Chulijhinka	1995 25	3	25	8 x 8	Row planting	20	1300	49	60
117	Tectona grandis	NGH-42	Chulijhinka	1997 23	3	25	8 x 8	Row planting	2	1000	44	100
118	Tectona grandis	ORPUB-3	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1200	42	85
119	Tectona grandis	ORPUB-6	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1200	41	85
120	Tectona grandis	ORPUB-8	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1300	42	80
121	Tectona grandis	ORPUB-9	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1100	38	85
122	Tectona grandis	ORPUB-12	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1000	34	80
123	Tectona grandis	ORPUB-18	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1200	30	80
124	Tectona grandis	ORPUB-19	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1200	38	80
125	Tectona grandis	ORPUB-23	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1200	39	80
126	Tectona grandis	ORPUB-24	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	900	41	80
127	Tectona grandis	ORPUB-26	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1000	38	60
128	Tectona grandis	ORPUB-37	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1100	34	85
129	Tectona grandis	ORPUB-41	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1000	32	85
130	Tectona grandis	ORANP-3	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1200	37	60
131	Tectona grandis	ORANP-4	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1100	35	80
132	Tectona grandis	ORANP-7	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1200	46	80
133	Tectona grandis	ORANP-10	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1300	39	55
134	Tectona grandis	ORANP-2	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1100	37	55
135	Tectona grandis	MHAL-A1	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1200	35	55
136	Tectona grandis	MHWY-K3	Chulijhinka	1997 23	3	20	8 x 8	RBD	20	1200	43	75

Sl. No.	Name of the species	Origin	Place of trial	Year of trial (Age)	Area In Ha	Treat ment	Spacing adopted	Design	No. of plants planted	Avg. Ht in Cm	Avg Dia in Cm	Sur%
1	2	3	4	5	6	7	8	9	10	11	12	13
137	Tectona grandis	ORDDH-2	Chulijhinka	1997 23	3	20	8 x 8	RBD	18	1000	36	55.55
138	Tectona grandis	APT-20	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1500	34	80
139	Tectona grandis	MHAL-P4	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1300	32	80
140	Tectona grandis	ORPUB-30	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	2100	33	50
141	Tectona grandis	ORPUB-20	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1400	32	65
142	Tectona grandis	ORANP-4	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1300	31	65
143	Tectona grandis	ORANP-13	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1400	43	60
144	Tectona grandis	ORPUB-22	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1300	39	65
145	Tectona grandis	ORPUB-26	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1500	38	75
146	Tectona grandis	ORPUB-4	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1800	37	70
147	Tectona grandis	ORPUB-3	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1200	35	70
148	Tectona grandis	ORPUB-11	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1300	34	80
149	Tectona grandis	ORPUB-13	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1300	36	80
150	Tectona grandis	ORPUB-35	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1600	37	69
151	Tectona grandis	ORPUB-36	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1400	34	80
152	Tectona grandis	A-16	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1300	35	60
153	Tectona grandis	KLN-1	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1700	43	60
154	Tectona grandis	TNT-1	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1800	44	75
155	Tectona grandis	TNT-7	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1600	36	85
156	Tectona grandis	TNT-11	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1800	35	75
157	Tectona grandis	TNT-6	Chulijhinka	1998 22	3	16	8 x 8	RBD	20	1500	45	60

Trial of Clonal Seeds of *Tectona grandis* of different origin:

D.E. No.	Origin	Place of trial	Area in Ha.	Year of trial	Av. Ht.	Av. Dia	MAI		Sur%
							Ht.	Dia.	
1	2	3	4	5	6	7	8	9	10
/16	ORANP(12)	Tartua Hi-tech Nursery	01	2016	228.57	-	57.14	-	87.37
	ORANP(7)				237.94	-	59.48	-	86
	MHEMR(1)				184.45	-	46.11	-	65
	ORPUB (2)				165.32	-	41.33	-	41

CLONAL SEED ORCHARD OF OTHER SPECIES

TARTUA HI-TECH NURSERY:

Sl No.	Name of the species	Origin	Place of trial	Year of trial (Age)	Area In Ha	Treat ment	Spacing adopted	Design	No. of plants planted	Avg. Ht in cm	Avg. Dia in cm	Sur%
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Terminalia arjuna	Pattanaikia	Tartua HTN	2007 13	0.25	NA	2.5 x 2.5	Row planting	409	361.17	25.49	64.05
2	Gmelina arborea	Berbera	Tartua HTN	2007 13	2.0	NA	2.5 x 2.5	Row planting	3,104	601.8	12.02	55
3	Sapindus emerginatus	Khandagiri	Tartua HTN	2007 13	0.28	NA	2.5 x 2.5	Row planting	300	375.69	9.05	79
4	Casia fistula	Khandagiri	Tartua HTN	2007 13	0.125	NA	2.5 x 2.5	Row planting	200	543.85	9.49	72
5	Alastonia scholaris	Pattanaikia	Tartua HTN	2007 13	0.234	NA	2.5 x 2.5	Row planting	300	599.58	17.09	89
6	Pterocarpus santalinus	Khandagiri	Tartua HTN	2007 13	0.062	NA	2.5 x 2.5	Row planting	100	598.29	13.00	60
7	Simruba glauca	Khandagiri	Tartua HTN	2007 13	0.42	NA	2.5 x 2.5	Row planting	675	449.29	12.22	60
8	Pongamia pinnata	Khandagiri	Tartua HTN	2007 13	0.093	NA	2.5 x 2.5	Row planting	150	424	9.05	64
9	Terminalia belerica	Chandaka RF	Tartua HTN	2007 13	0.4	NA	2.5 x 2.5	Row planting	500	199.05	17.05	86
10	Emblica officinalis	Khandagiri	Tartua HTN	2007 13	0.559	NA	2.5 x 2.5	Row planting	820	892.04	18.81	86
11	Terminalia chebula	Kalinga	Tartua HTN	2007 13	0.2	NA	2.5 x 2.5	Row planting	280	969.01	17.05	39
12	Gmelina arborea	Berbera	Tartua HTN	2007 13	2.42	NA	2.5 x 2.5	Row planting	780	803.25	17.85	30
13	Pongamia pinnata	Khandagiri	Tartua HTN	2007 13	0.96	NA	2.5 x 2.5	Row planting	1386	428.25	10.12	60
14	Simaruba glauca	Khandagiri	Tartua HTN	2007 13	1.45	NA	2.5 x 2.5	Row planting	800	372.10	11.18	51
15	Terminalia arjuna	Pattanaikia	Tartua HTN	2007 13	1.07	NA	2.5 x 2.5	Row planting	1312	572.09	13.30	85
16	Butea monosperma	Chandaka RF	Tartua HTN	2007 13	0.046	NA	2.5 x 2.5	Row planting	75	184	-	50
17	Madhuca indica	Angul	Tartua HTN	2007 13	0.1	NA	2.5 x 2.5	Row planting	175	433.25	6.82	52
18	Terminalia belerica	Khandagiri	Tartua HTN	2007 13	0.093	NA	2.5 x 2.5	Row planting	150	420.85	8.62	47
19	Sapindus emerginatus	Khandagiri	Tartua HTN	2007 13	0.093	NA	2.5 x 2.5	Row planting	150	464.86	7.02	51
20	Emblica officinalis	Khandagiri	Tartua HTN	2007 13	0.046	NA	2.5 x 2.5	Row planting	75	469.37	6.95	57
21	Terminalia chebula	Kalinga	Tartua HTN	2007 13	0.03	NA	2.5 x 2.5	Row planting	50	518.14	7.59	54
22	Pterocarpus marsupium	Begunia	Tartua HTN	2007 13	0.06	NA	2.5 x 2.5	Row planting	100	470.72	6.83	50
23	Dalbergia sissoo	Sambalpur (Badagaon)	Tartua HTN	2007 13	0.06	NA	2.5 x 2.5	Row planting	100	485.25	6.95	50
24	Simaruba glauca		Tartua HTN	2007 13	0.53	NA	2.5 x 2.5	Row planting	850	489.04	35.72	64
25	Buchanania lanzan	Chandaka RF	Tartua HTN	2008 12	0.25	NA	2.5 x 2.5	Row planting	392	508.81	9.09	80
26	Pterocarpus santalinus	Khandagiri	Tartua HTN	2008 12	0.25	NA	2.5 x 2.5	Row planting	392	685	10.32	80.15
27	Aegle marmalos	Angul	Tartua HTN	2008 12	0.125	NA	2.5 x 2.5	Row planting	210	478.01	7.85	80.25

Sl No.	Name of the species	Origin	Place of trial	Year of trial (Age)	Area In Ha	Treat ment	Spacing adopted	Design	No. of plants planted	Avg. Ht in cm	Avg. Dia in cm	Sur%
1	2	3	4	5	6	7	8	9	10	11	12	13
28	Albizia lebbeck	Sambalpur	Tartua HTN	2008 12	0.375	NA	2.5 x 2.5	Row planting	650	804.89	11.20	59
29	Azadirachta indica	Khandagiri	Tartua HTN	2008 12	0.5	NA	2.5 x 2.5	Row planting	780	593	14.09	71.66
30	Pongamia pinnata	Khandagiri	Tartua HTN	2008 12	2.0	NA	2.5 x 2.5	Row planting	3250	585.35	13.95	59
31	Dalbergia latifolia	Athamallik	Tartua HTN	2009 11	1.0	NA	2.5 x 2.5	Row planting	420	408.85	6.08	63
32	Alstonia scholaris	Pattanaikia	Tartua HTN	2007 13	0.046	NA	2.5 x 2.5	Row planting	75	385	5.28	50
33	Spondias pinnata	Khandagiri	Tartua HTN	2007 13	0.031	NA	2.5 x 2.5	Row planting	150	543.09	6.97	17
34	Tectona grandis	Khandagiri	Tartua HTN	2007	2.0	NA	2.5 x 2.5	Row planting	2916	479.75	7.70	66
35	Sapindus emerginatus	Khandagiri	Tartua HTN	2007	0.28	NA	2.5 x 2.5	Row planting	300	375.69	9.05	79
36	Casia fistula	Khandagiri	Tartua HTN	2007	0.125	NA	2.5 x 2.5	Row planting	200	543.85	9.49	72
37	Alastonia scholaris	Pattnikia	Tartua HTN	2007	0.234	NA	2.5 x 2.5	Row planting	300	599.58	17.09	89
38	Pterocarpus santalinus	Khandagiri	Tartua HTN	2007	0.062	NA	2.5 x 2.5	Row planting	100	598.29	13.03	60
39	Simruba glauca	Khandagiri	Tartua HTN	2007	0.42	NA	2.5 x 2.5	Row planting	675	449.29	12.22	60
40	Pongamia pinnata	Khandagiri	Tartua HTN	2007	0.093	NA	2.5 x 2.5	Row planting	150	424	9.05	64
41	Terminalia belerica	Khandagiri	Tartua HTN	2007	0.4	NA	2.5 x 2.5	Row planting	500	799.05	17.05	86
42	Emblica officinalis	Khandagiri	Tartua HTN	2007	0.559	NA	2.5 x 2.5	Row planting	820	892.04	18.81	86
43	Terminalia chebula	Kalinga	Tartua HTN	2007	0.2	NA	2.5 x 2.5	Row planting	280	969.01	17.05	39
44	Gmelina arborea	Berbera	Tartua HTN	2007	2.42	NA	2.5 x 2.5	Row planting	780	803.25	17.85	30
45	Pongamia pinnata	Khandagiri	Tartua HTN	2007	0.96	NA	2.5 x 2.5	Row planting	1386	428.25	10.12	60
46	Simaruba glauca	Khandagiri	Tartua HTN	2007	1.45	NA	2.5 x 2.5	Row planting	800	372.10	11.18	51
47	Tectona grandis	Berbera	Tartua HTN	2007	3.68	NA	2.5 x 2.5	Row planting	1420	384.40	10.44	48.59
48	Tectona grandis	Berbera	Tartua HTN	2007	5.0	NA	2.5 x 2.5	Row planting	800	240.6	7.95	93
49	Terminalia arjuna	Pattnikia	Tartua HTN	2007	1.07	NA	2.5 x 2.5	Row planting	1312	572.09	13.30	85
50	Alstonia scholaris	Pattnikia	Tartua HTN	2007	0.046	NA	2.5 x 2.5	Row planting	75	385	5.28	50
51	Butea monosperma	Chandaka RF	Tartua HTN	2007	0.046	NA	2.5 x 2.5	Row planting	75	184	-	50
52	Madhuca indica	Angul	Tartua HTN	2007	0.1	NA	2.5 x 2.5	Row planting	175	433.25	6.82	52
53	Terminalia belerica	Khandagiri	Tartua HTN	2007	0.093	NA	2.5 x 2.5	Row planting	150	420.85	8.62	47
54	Sapindus emerginatus	Khandagiri	Tartua HTN	2007	0.093	NA	2.5 x 2.5	Row planting	150	150	464.86	51
55	Emblica officinalisq	Khandagiri	Tartua HTN	2007	0.046	NA	2.5 x 2.5	Row planting	75	469.37	6.95	57
56	Spondius pinnata	Khandagiri	Tartua HTN	2007	0.031	NA	2.5 x 2.5	Row planting	150	543.09	6.97	17
57	Terminalia chebula	Kalinga	Tartua HTN	2007	0.03	NA	2.5 x 2.5	Row planting	50	518.14	7.59	54

Sl No.	Name of the species	Origin	Place of trial	Year of trial (Age)	Area In Ha	Treat ment	Spacing adopted	Design	No. of plants planted	Avg. Ht in cm	Avg. Dia in cm	Sur%
1	2	3	4	5	6	7	8	9	10	11	12	13
58	Pterocarpus marsupium	Begunia	Tartua HTN	2007	0.06	NA	2.5 x 2.5	Row planting	100	470.72	6.83	50
59	Dalbergia sissoo	Sambalpur (Badagaon)	Tartua HTN	2007	0.06	NA	2.5 x 2.5	Row planting	100	485.25	6.95	50
60	Simaruba glauca	Khandagiri	Tartua HTN	2007	0.53	NA	2.5 x 2.5	Row planting	850	489.04	35.72	64
61	Buchanania lanzan	Chandaka RF	Tartua HTN	2008	0.25	NA	2.5 x 2.5	Row planting	392	508.81	9.09	80
62	Pterocarpus santalinus	Khandagiri	Tartua HTN	2008	0.25	NA	2.5 x 2.5	Row planting	392	685	10.32	80.15
63	Aegle marmalos	Angul	Tartua HTN	2008	0.125	NA	2.5 x 2.5	Row planting	210	478.01	7.85	80.25
64	Albizia lebbeck	Sambalpur	Tartua HTN	2008	0.375	NA	2.5 x 2.5	Row planting	650	804.89	11.20	59
65	Azadirachta indica	Khandagiri	Tartua HTN	2008	0.5	NA	2.5 x 2.5	Row planting	780	593	14.09	71.66
66	Pongamia pinnata	Khandagiri	Tartua HTN	2008	2.0	NA	2.5 x 2.5	Row planting	3250	585.35	13.95	59
67	Dalbergia latifolia	Athmallick	Tartua HTN	2009	1.0	NA	5 x 5	Row planting	420	408.85	6.08	63
68	Azadirachta indica	Khandagiri	Tartua HTN	2015	1.0	NA	3.5 x 3.5	Row planting	642	396.9	-	27.08

Source: State Silviculture Division, Bhubaneswar

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