GOVERNMENT OF ODISHA

FOREST AND ENVIRONMENT DEPARTMENT

BHUBANESWAR

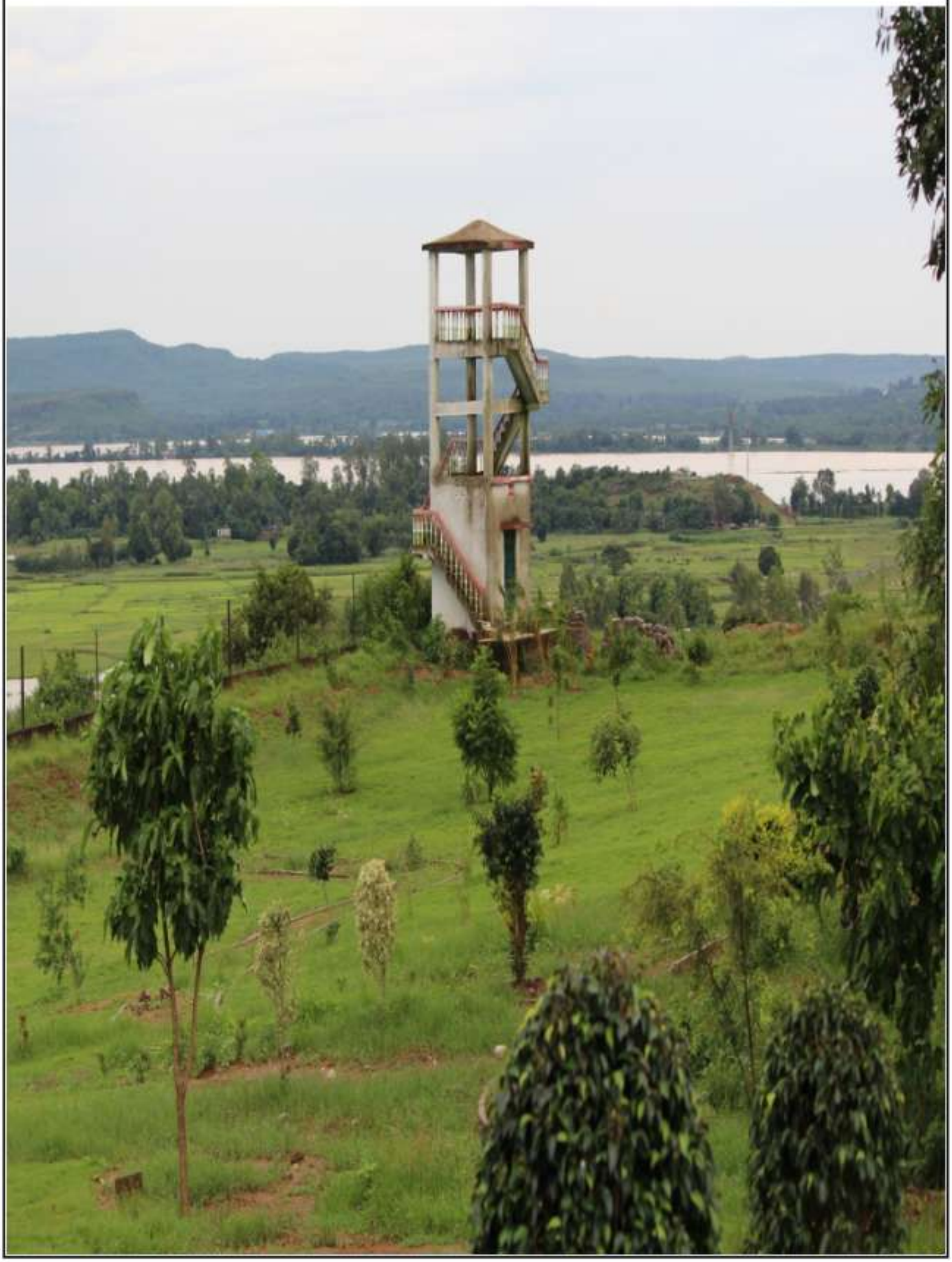
REVISED WORKING PLAN OF ATHAGARH FOREST DIVISION FOR THE YEAR 2022-23 TO 2031-32

PREPARED BY

Sri SudarshanGopinathJadhav,I.F.S
Divisional Forest Officer,
Athgarh Forest Division, Athgarh

Under the guidance of

Dr. Pradeep Raj Karat, IFS
Regional Chief Conservator of Forests,
Angul Circle, Angul.



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भारत सरकार / Government of India
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय / Ministry of Environment, Forest & Climate Change
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LiFE

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No. 8(31)26/2016-FCE

7th November, 2023

To

The Addl. Chief Secretary,
Forest & Environment Department,
Govt. of Odisha,
Bhubaneswar.

Sub: Approval of draft Revised Working Plan of Athagarh Forest Division for the period from 2022-23 to 2031-32 - reg.

Ref: The PCCF & HoFF, Odisha letter No. 21555/ 11F (SFM) 10/2019 dated 26.10.2022 & No. 8446/11F (SFM) 10/2019 dated 02.05.2023.

Sir,

The revised draft Working Plan of Athagarh Forest Division for the period 2022-23 to 2031-32 submitted by the PCCF, Odisha has been examined and accordingly, the Central Government (MoEF&CC) with the powers vested under Forest (Conservation) Act, 1980, has decided to accord approval of the working plan of Athagarh Forest Division for the period **2022-23 to 2031-32**, subject to the following General and Specific conditions:

The formal endorsement / approval from the State Govt. may also be obtained.

General Conditions:

1. The orders of Hon'ble Supreme Court of India in the matter of W.P. No. 202/95 Godaverman Therumulkpad Vs Union of India and related Interlocutory applications shall be strictly complied with. Any prescription or operation at variance with the order of Hon'ble Apex Court shall be kept in abeyance till such order is in force or otherwise not modified.
2. Further, in strict compliance with Hon'ble Supreme Court's order dated 22.09.2000, the State Government of Odisha shall ensure that regeneration of forest is commensurate with fellings, if any, to be carried out under the present working plan.
3. Consequently, no felling should be carried out without making allocation of requisite funds for undertaking regeneration operation in order to ensure regeneration to be commensurate with fellings. In case of failure of regeneration or any shortfall in achieving the target of regeneration, further harvesting shall remain suspended till backlog/ shortfall in regeneration is made up and subsequent formal approval from the Regional Office is to be obtained. **No felling shall be carried out without an approved Annual Timber Operation by the competent authority.**
4. This working plan is approved for the period **2022-23 to 2031-32.**
5. Standing snags/dead or dying trees should not be removed and shall be preserved for wildlife habitat/shelter. In site specific coupes / sections having unduly large no. of such trees needing removal, the State Forest Department may take special permission from Regional Office, MoEF&CC, Bhubaneswar.
6. Deviation statement along with the prescribed documents shall be reported and got endorsed from the competent authority by the end of the year of operation. Accordingly a summary of the report/certificate shall be submitted along with the Annual Action Taken Report to the Regional Office, MoEF&CC, Bhubaneswar for information and record.

7. No new road shall be constructed and no fresh forest area shall be broken for widening / reconstruction of existing roads without obtaining prior approval under Forest (Conservation) Act, 1980.

8. Approval of the working plan does not permit to carry out any non-forestry work including construction of building, for which necessary permission under F(C) Act shall be obtained, as may be required.

9. CF (T) shall submit to the CCF (WP) / PCCF the yearly action taken report against the physical & financial targets of felling & regeneration against each working circle of this W.P. by the end of the year of operation.

10. Immediate action may be taken for repairing of old pillars, if any. Prescriptions may be provided for revisiting all pillars every five years for purpose of maintenance and appropriate action be taken depending on condition of boundary pillars. Staff in charge of beat will verify physically the boundary pillars and shall give a certificate annually to the DFO with copy to the CCF, Working Plan confirming that no fresh encroachments have taken place. Vulnerable areas will be verified by the Range Officers.

11. The detail copy of the PF/RF Notification, if any, may be compiled and a copy of each shall be kept with the DFO/Working Plan Officer and CCF, Working Plan for reference.

12. State Forest Department shall initiate the process for the preservation of old available maps.

Specific Conditions:

The prescriptions under the proposed working circles are approved with observations stated above and with specific condition that:

1. Sporadic, wind fallen / uprooted trees, if any, shall also be allowed to be harvested in addition to the approved working scheme prescriptions for the year 2021-22 after its special approval of the list of enumerated trees by the CF (T) / RCCF (T) forwarding a copy to Regional Office, Bhubaneswar. In case of large scale wind fallen, damaged and epidemic outbreak, special permission for tree felling may be obtained from the Regional Office of MoEF&CC, Bhubaneswar. The volume extracted out of wind fallen/ uprooted trees shall be deducted out of the total volume of yield as calculated and permission for felling is allowed for balance volume only.

2. A mid-term evaluation of the implementation of working plan prescriptions and its impact on the forests may be done after the end of initial five years for which reasonable number of benchmark / sample plots may be maintained.

3. After recording the GPS and checking the records of each planting site DFO to certify that plantation is not taken up in the existing old plantation sites, without the prescribed action required prior to replanting.

4. Plantation details along with current status (conditions of plantation and survival) may also be included along with GPS surveyed boundary locations shown on a map, so that chances of mismanagement, confusion, encroachment and problem of identification of the site are reduced.

5. The Department should prepare a programme for DGPS survey of forest boundaries and prepare geo-referenced maps with important administrative and management details, if not done earlier.

6. Prescriptions must be provided for demarcation of un-demarcated balance forest area. The area details of un-demarcated forest area, number of pillars and funds required to demarcate it and year wise plan for demarcation so as to complete it at the earliest should be provided.

7. No forest, bearing naturally grown trees shall be clear felled for any purpose what so ever.

8. The prescriptions are to enable necessary co-existence of development with nature, and to ensure implementation strictly adhering to the provisions of Indian Forest Act, 1927, Wildlife (Protection) Act, 1972, Forest (Conservation) Act, 1980, Panchayats (Extension to

the Scheduled Areas) Act, 1996 (PESA), Biological Diversity Act, 2002, and Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006. 306

9. Implementation of People Biodiversity Register (PBR) formulation as well as Access of Benefit sharing Regulation has to be implemented and monitored.

10. Listed wetland, defined under the Wetland (Conservation & Management) Rules, 2017 situated in and outside forest to be restored and sustainable managed. Annual target along with riparian restoration will be done strictly in accordance under the provision of aforesaid Rules.

11. Raising of genetically improved seedlings/clonal propagation needs emphasis for timber productivity enhancement for future. Accordingly, year-wise raising of clonal seedlings will be fixed in proportion in the Division.

12. No permanent structure for Eco-Tourism purpose should be allowed. Ecotourism should be focused with identification of sites, traditions, community practice and future management involving local communities. Benefit accrued from eco-tourism to be plowed back to local communities. Number of visitors shall be fixed as per the carrying capacity study. Safety audit to be carried out in all he eco-tourism sites.

Following information shall be submitted to Regional Office, MoEF&CC, Bhubaneswar within 6 months failing which no further proposals relating to Working Plan shall be considered.

a) Compartment wise biodiversity study and people right & access to biodiversity.

b) Milestones for PBR formulation.

c) Chapter on Eco-tourism such as Eco-tourism Plan, Carrying Capacity Study, Site Plan, Zone Plan, Awareness Plan etc. in Ansupa Lake and other destination in Athagarh Forest Division shall be prepared and approved as per MoEF&CC guidelines, 2022 and adhere to the FC Act (Amended).

Central Govt. reserves the right to review, modify or withdraw this approval at any time, if any, of the conditions of approval are not implemented or relevant modifications in the Working Plan, if any, is required so as to keep it in conformity with the orders, circulars and guidelines issued by the Central Govt. under Forest (Conservation) Act, 1980 or any other statute and National Forest Policy.

Yours faithfully,

Padma Mahanti

(Padma Mahanti)
Dy. Inspector General of Forests (Central)

Copy to:

1. The Addl. Director General of Forests (FC), Ministry of Environment, Forest & Climate Change, Indira Paryavaran Bhawan, Agni Wing, Aliganj, Jorbagh Road, New Delhi-110 003 for kind information.
2. The Principal Chief Conservator of Forests, Forest Department, Govt. of Odisha, Aranya Bhawan, Chandrasekharpur, Bhubaneswar for kind information and necessary action.
3. The Addl. PCCF (P&SM), Forest Department, Govt. of Odisha, Aranya Bhawan, Chandrasekharpur, Bhubaneswar for kind information and necessary action.
4. The Managing Director, Odisha Forest Development Corporation Limited, Bhubaneswar for kind information.
5. Guard File.

Dy. Inspector General of Forests (Central)

5F
13/12/23

DIVISIONAL FOREST OFFICE
5112
13-12-23
ATHGARH, DIST.

GOVERNMENT OF ODISHA
FOREST, ENVIRONMENT & CLIMATE CHANGE DEPARTMENT

No. FE-PRO-FPRO-0063-2023 25561 /FE&CC, Date. 11.12./2023

From:

Shri Deben Kumar Pradhan,IAS
Additional Secretary to Government.

To

The PCCF & HoFF,Odisha,Bhubaneswar.

Sub: Approval of draft Revised Working Plan of Athagarh Forest Division for the period from 2022-23 to 2031-2032 -reg.

Sir,

In enclosing here with copy of letter No. 8(3)26/2016-FCE dated 7th November, 2023 of the Dy .Inspector General of Forests (Central), Govt. of India, Ministry of Env.,Forest & CC, Regional Office, Bhubaneswar on the subject cited above, I am directed to say that the draft Revised Working Plan of Athagarh Forest Division has been approved by the Govt. of India, Ministry of Environment, Forest & CC, for the period from 2022-23 to 2031-2032, subject to the specific conditions.

You are therefore, requested to take necessary steps to implement the approved revised working plan of Athagarh Forest Division as per condition/guidelines of the Govt. of India, MoEF&CC under intimation to this Department.

Yours faithfully,

11-12-2023

Additional Secretary to Government.

Memo No. 25562 /FE&CC dated 11.12.23

Copy along with copy of enclosures forwarded to RCCF,Angul Circle/DFO, Athagarh for information and necessary action.

11-12-2023

Additional Secretary to Government.

Memo No. 25563 /FE&CC dated 11.12.23

Copy forwarded to the Dy.Inspector General of Forests (Central), Govt. of India, Ministry of Environment, Forest & CC, Regional Office, Bhubaneswar for information and necessary action with reference to their letter No.8(3)26/2016-FCE dated 7th November, 2023.

11-12-2023

Additional Secretary to Government.

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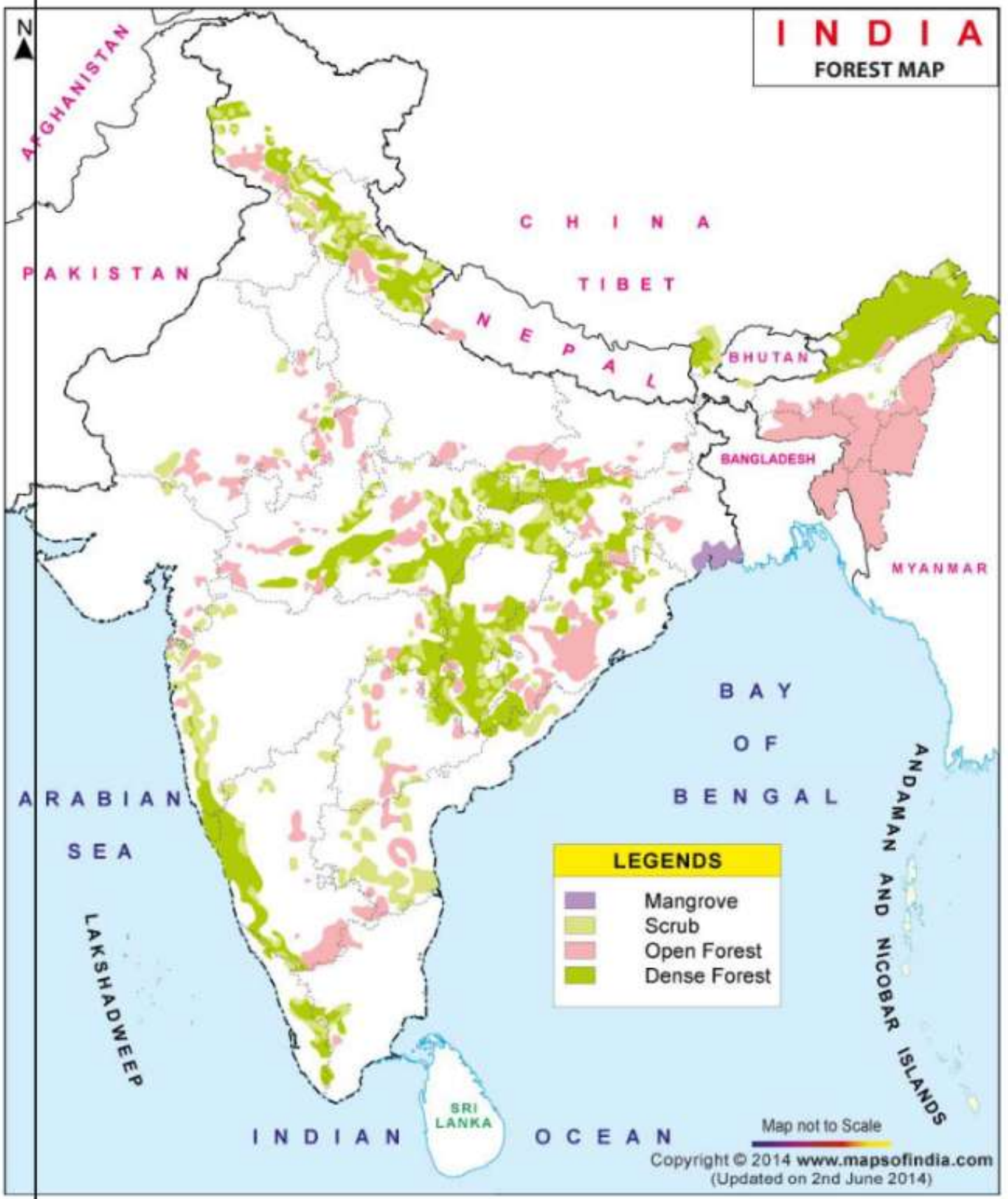
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PAKISTAN
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TIBET
NEPAL
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OF
BENGAL
ARABIAN
SEA
LAKSHADWEEP
ANDAMAN AND NICOBAR ISLANDS
SRI
LANKA
INDIAN
OCEAN
LEGENDS
Mangrove
Scrub
Open Forest
Dense Forest
Map not to Scale
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Map of India
ATHAGARH
JAMMU & KASHMIR
Srinagar
Simla
HIMACHAL PRADESH
Chandigarh
PUNJAB
UTTARANCHAL
Dehradun
DELHI
HARYANA
RAJASTHAN
Jaipur
UTTAR PRADESH
Lucknow
Patna
BIHAR
ARUNACHAL PRADESH
Itanagar
SIKKIM
Gangtok
BHUTAN
ASSAM
Dispur
NAGALAND
Kohima
Shilong
MEGHALAYA
Agartala
TRIPURA
Imphal
MANIPUR
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MIZORAM
MYANMAR
BANGLADESH
GUJARAT
Gandhinagar
Bhopal
MADHYA PRADESH
Ranchi
JHARKHAND
WEST BENGAL
Calcutta
CHHATTISGAR
Raipur
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ARABIAN SEA
Panji
GOA
BAY OF BENGAL
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Bangalore
LAKSHADWEEP
MAHE
(Pondicherry)
Chennai
(Madras)
PONDICHERRY
(Puduchehery)
KARAIKAL
(Pondichery)
KERALA
TAMILNADU
Thiruvananthapuram
Port Blair
ANDAMAN & NICOBAR ISLANDS
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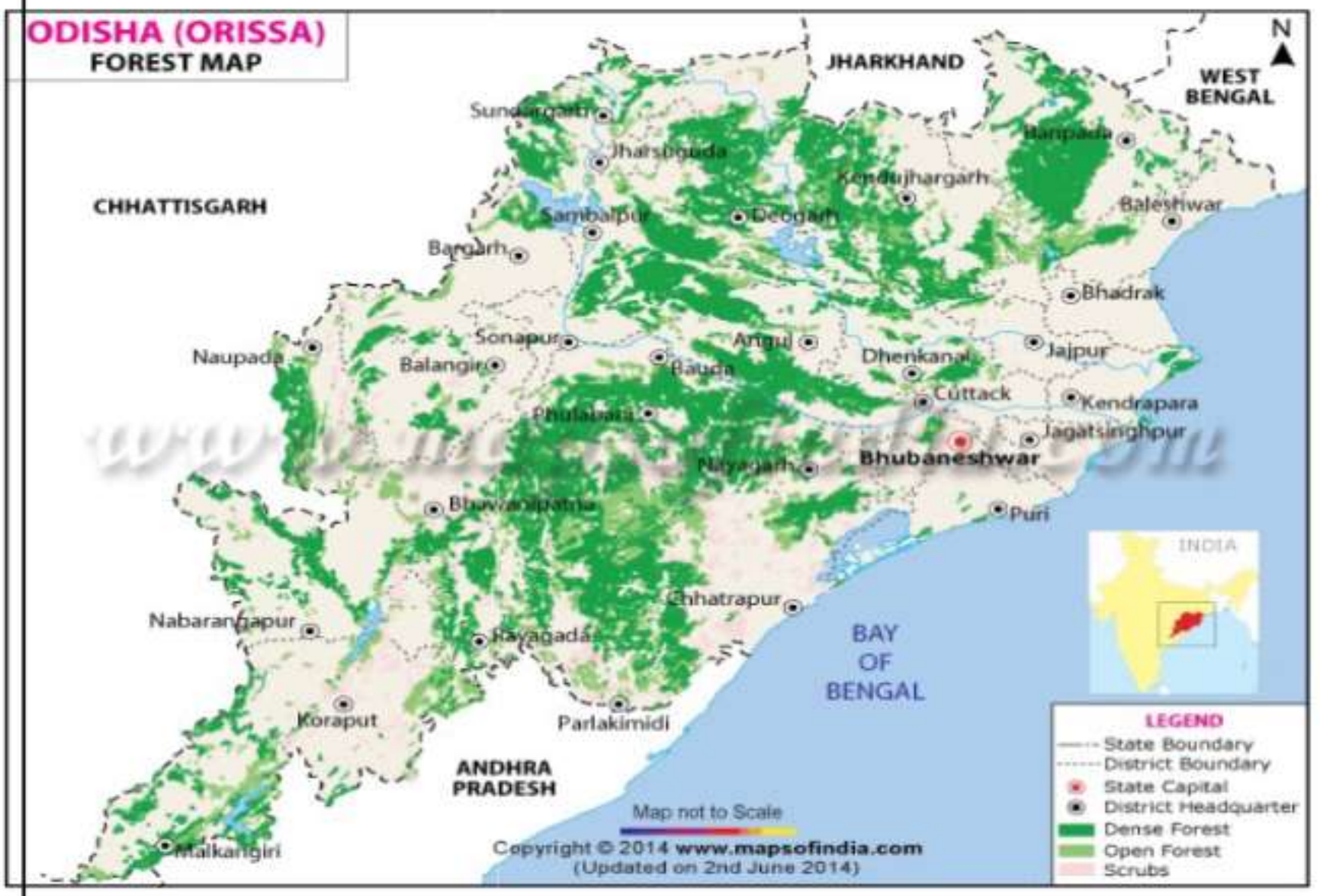
III

ODISHA FOREST MAP



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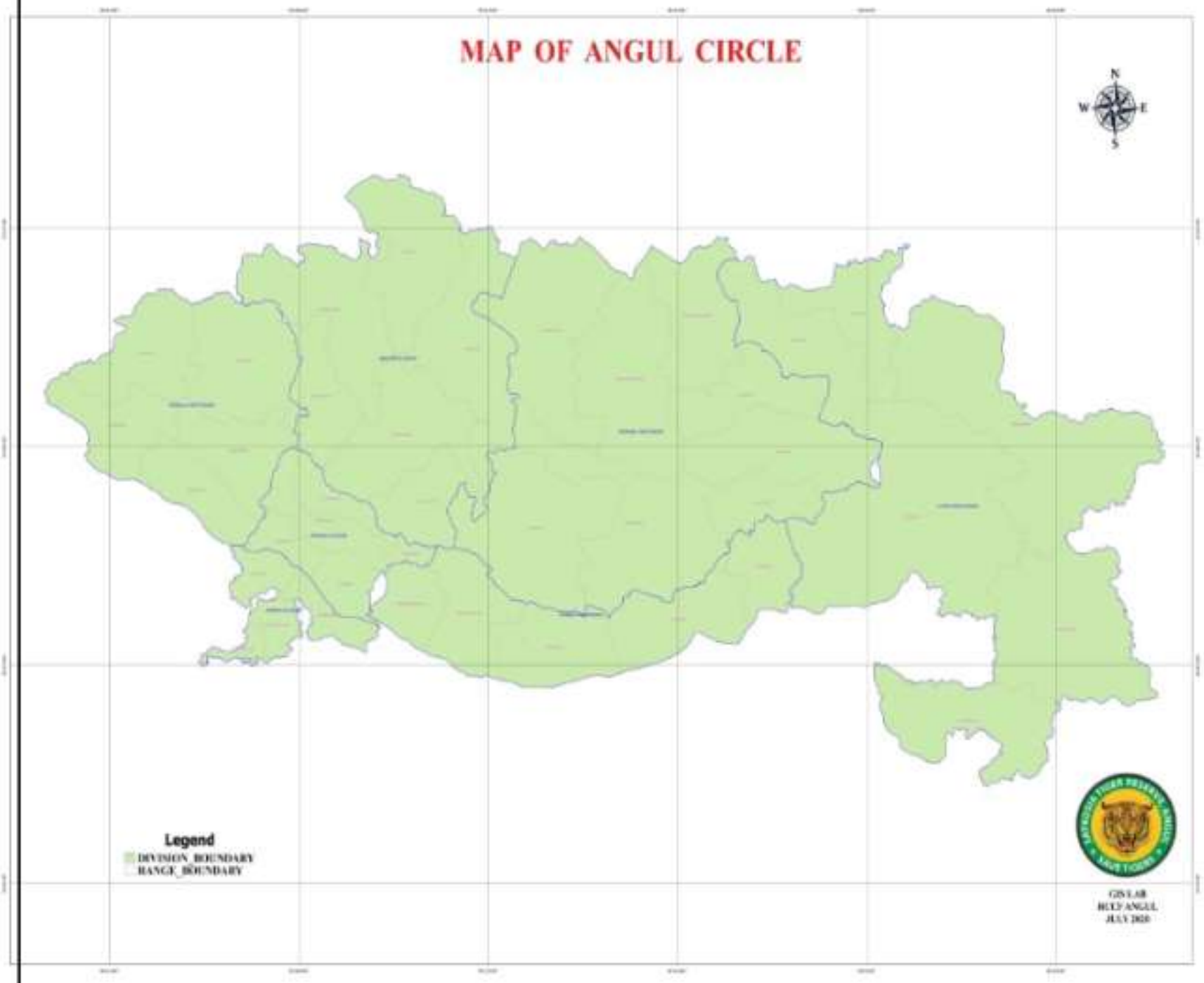

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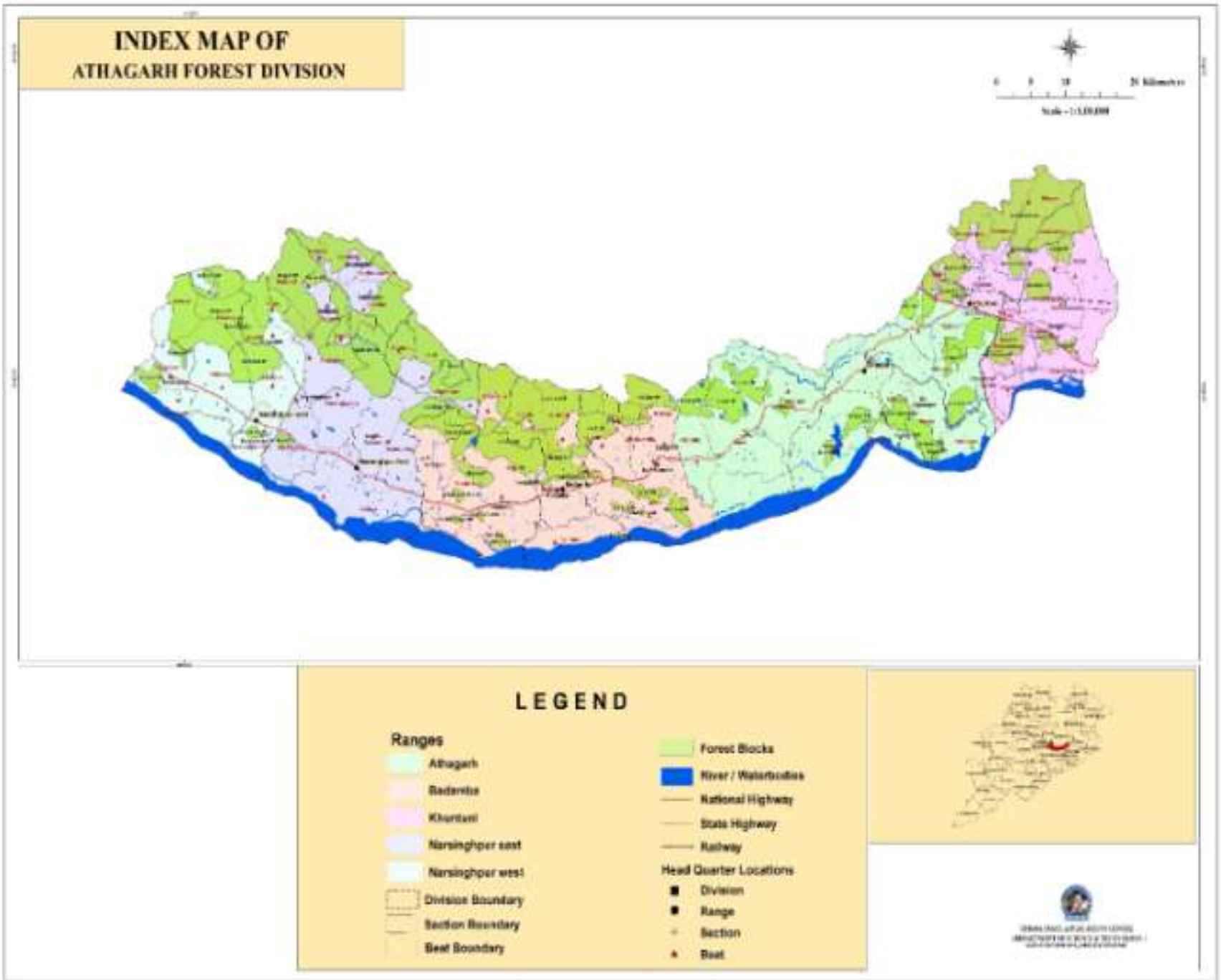
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Administrative Map of Athgarh Division

VIII

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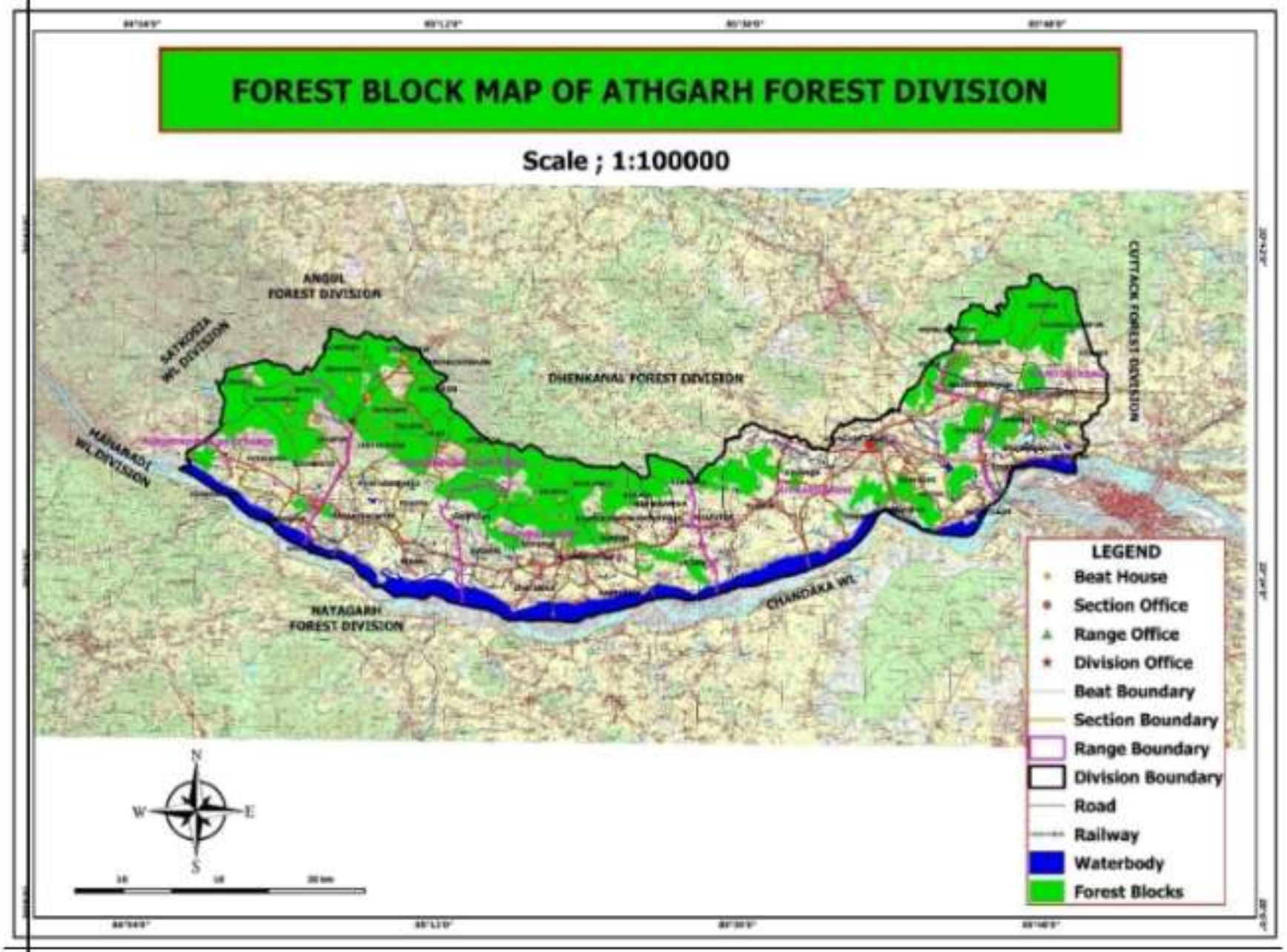

CHAPTER- I

INTRODUCTION

a) Vision statement.

Athagarh Forest Division comprises part of Cuttack District and its geographical area is 152262.00 hectare, It is situated between Longitude - E 84^0 55' 42.8" to E 85^0 52' 0.72" and Latitude N 20^0 21' 19.2" to N 20^0 40' 27.6". There are 35 nos. of Reserve Forests over an area of 36142.321ha, 15 nos. of Proposed Reserve Forests over an area of 1539.9ha, 03 nos. of Protected Forest over an area of 82.89 ha and 149 nos. of Village Forests over an area of 1861.052ha. The Un-classed forest of this Division is 7.492 ha. The GIS Computed Area over 39626.163 ha.of Athgarh Forest Division is considered in this revision. The total length of Reserve Forest and Proposed Reserve Forest boundary is621.23km.

This division has 05 numbers of Ranges viz. Athagarh, Khuntuni, Badamba, Narsinghpur East and Narsinghpur West, comprising with 20 numbers of section and 65 numbers of beats.

b) Goals and objectives of management.

The first Working Plan of this division was prepared by Dr. H.F Mooney, I.F.S from 1941-42 for period of 30 years. For scientific management of forest there is a Working Plan prepared by Smt. Uma Nanduri, IFS, Working Plans Officer, Angul for the period 2007-08 to 2016-17 approved by ministry of Environment & Forest Govt. of India vide their Letter No.13-FCWP/OS-AGR/FCE Dt.29.09.2007. The Forest of Athgarh Division managed by the approved scheme from 2017-18 to 2021-22. The Preliminary Working Plan note was prepared by Sri Arun Kumar Mishra, Divisional Forest Officer, Athagarh Division, and the final PWPR was prepared by Dr. Anup Kumar Nayak, I.F.S, Regional Chief Conservator of Forests, Angul Circle, Angul- Cum- Field Director, Satkosia Tiger Reserve, Angul, which was duly approved by the Working Plan Committee on dt.12.04.2017.

I have completed this revised Working Plan as per the guideline given in the National Working Plan Code, June 2014, Government of India, Ministry of Environment & Forest, New Delhi. The plan has been completed in addition to my own duties and responsibility of Athgarh Forest Division. In this connection I have gone through all the old working plan, discussed with the retired forest official and consulted with the senior forest officers.

c) SWOT (Strengths, weaknesses, opportunities and threats) analysis for prescription of strategies for achieving the goals and objectives.

Management planning aims to provide sustainable management of forests and its biodiversity as enshrined in the National Forest Policy, 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. It also includes ecotourism, enhancement of forest productivity together with establishment of regeneration. It also improves forest health and vitality as per ecological and silvicultural requirements of the species.

It is progressively increasing the growing stock and carbon sequestration potential, maintenance of biological diversity, sustainable yield of forest produce. It also includes prevention of soil erosion and stabilization of the terrain; improvement and regulation of hydrological regime. The people's involvements are in planning and management of forests fulfilling socio-economic and livelihood needs of the people. It also includes simultaneous implementation of Indian 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 harmonies with the environment of the locality.

The revised plan is proposed for the period from 2022-23 to 2031-32.

d) Expected outcome:-

The expected outcome from the year 2022-23 to 2031-32 is given in the table below.

Table No. 3				
Expected Revenue Collected from 2022-23 to 2031-32 in Lakhs (0406 Forest Revenue)				
Year	010 Sale of Timber & other Forest Produce	800 Other receipt	Rent on building	Total in Rs.
2022-23	0.29659	1.03935	1.36920	2.70514
2023-24	0.3025218	1.060137	1.396584	2.7592428
2024-25	0.3085722	1.08134	1.42452	2.8144322
2025-26	0.3147436	1.10297	1.4530104	2.870724
2026-27	0.3210384	1.12503	1.4820706	2.928139
2027-28	0.3274591	1.14753	1.5116222	2.9867113
2028-29	0.3340082	1.16048	1.54196	3.0464482
2029-30	0.3406883	1.19389	1.57280	3.1073783
2030-31	0.3475020	1.2167639	1.60426	3.1695259
2031-32	0.3544520	1.2421200	1.63635	3.232922
Total	3.2475756	11.3806109	14.9924772	29.6206637

e) Abstract of plan prescriptions in following format.

The abstract of plan prescriptions is given in the table below.

Chapter No	Para No. / Sub Para No.	Prescribed activity	Remarks
A	B	C	D
I of Part-Two	1.1	Basis of Proposal	--
	1.3	Constitution of working circles	02 numbers of Working Circle (RWC and PWC) and 05 numbers of Overlapping Working Circle and 08 numbers of Chapter
	1.4	Period of working plan and necessity for intermediate revision	2022-23 to 2031-32
	1.6	The Range wise Working Circle area	Total GIS Computed Area in this revision is 39626.163 ha
II of Part-Two	2.1	RWC	Total GIS Computed Area is 34129.491 ha
	2.4	Rehabilitation Series	08 number of Rehabilitation Series
	2.6 / 2.6	Objectives of Management	12 no of objectives
	2.6 / 2.6.2	Silvicultural system	No formal silvicultural system is prescribed
	2.6 / 2.6.7.1	Sequence of Rehabilitation Cycle	10 year Rehabilitation Cycle
	2.6 / 2.6.9	Table of felling / Rehabilitation	Each series is having 10 coupes

	2.6 / 2.6.11	Subsidiary silvicultural operations cleaning and thinning	There are 06 differentitems of Operation has been prescribed in SSO.
	2.6 / 2.6.12	Regeneration	Natural and Artificial
	2.6 / 2.6.14	Marking Rules	No marking is prescribed
III of Part-Two	3.1	Plantation Working Circle	Total GIS Computed Area is 5496.672 ha
	3.4	Plantation Series	Athgarh (New Plantation), Khuntuni (New Plantation), Deobhuin (Re-Stocking), Kalichaballav (Re-Stocking), Athgarh (Tending Operation), Village Forest planting series
	3.4 / 3.4.1	Old Plantation for tending operation	Like climber cutting, thinning and pruning etc.
	3.5 / 3.5.2	New Plantation	565.00 ha.
	3.5 / 3.5.3	Re-stocking	508.00 ha.
	3.5 / 3.5.4	Tending Operation	2562.62 ha.
	3.5 / 3.5.5	Village Forest	1861.052
	3.6	Objectives of Management	07 nos. of objectives
	3.6 / 3.6.2	Silvicultural system	No formal silvicultural system is prescribed
	3.6 / 3.6.6	Plantation Cycle	10 years
	3.6 / 3.6.9	Table of Plantation	10 coupe
	3.6. / 3.6.12.1	Demarcation of annual plantation coupes	1:25,000 scales
IV of Part-Two	4.1	Bamboo Overlapping Working Circle	Total area is 15239.595 ha
	4.1 /4.5.2	Bamboo Cutting Series	02 numbers of Cutting series such as Narasinghpur East and Badamba
	4.6	Objectives of Management	07 nos. of objectives
	4.6 /4.6.2	Silvicultural system	Culms selection-cum-clump improvement.
	4.6 / 4.6.3	Rotation period	04 years
	4.6 /4.6.6	Cutting Cycle	04 years
	4.6/ 4.6.8	Calculation of the yield	Block wise yield has been calculated.
	4.6 /4.6.9	Table of Cutting /	Each series has been divided into 04 coupes i.e A, B, C & D.
	4.6 / 4.6.9.1	Coupe wise Probable yield	Coupe wise yield has been calculated.
	4.6 / 4.6.13	Cutting Operation	Bamboo cutting shall be done between 1st October and 30th June.
	4.6 / 4.6.17	Treatment Map	Best on 09 items
	4.6 / 4.6.21.	Simultaneous silvicultural operations	02 main points
	4.6 /4.6.35.2.	Cutting Rules	14 numbers of rule
	4.6 / 4.6.39.	Subsidiary Silvicultural Operation	Cleaning, Re-generation etc.
V of Part-Two	5.1	NTFP Overlapping Working Circle	Total area is 39626.163 ha
	5.4.	NTFP Series	NTFP series has not been prescribed
	5.6.	Special Objective management	06 nos. of objectives
	5.6 / 5.6.2.	Silvicultural system	No system prescribed
	5.6 / 5.6.4.	Methods of Execution	06 nos. of main point

	5.6 / 5.6.5.	N.T.F.P Plantation	NTFP plantation has been proposed.
VI of Part-Two	6.1.	JFM Overlapping Working Circle	Total area is 12200.362ha
	6.4.	JFM Series	JFM series has not been prescribed.
	6.6	JFM series has not been prescribed.	11 nos. of objectives
	6.6 / 6.6.2.	Silvicultural System	Micro plan will be prepared.
VII of Part-Two	7.1.	Wildlife Overlapping Working Circle	Total area is 39626.163 ha
	7.4	Wildlife Series	Wildlife series has not been prescribed.
	7.6	Objectives of Management	08 nos. of objectives
	7.6 / 7.6.2.	Silvicultural system	No system prescribed
	7.6 / 7.6.4.	Elephant Census	Elephant census report has been given from 1995-2017
	7.6/ 7.6.10.	Wetland Management	Wetland are given
	7.6 / 7.6.17.	Watershed Development Projects	Common Guidelines are given
	7.6 / 7.6.29.	Development of Eco Tourism	The ecotourism management would focus on conservation, environmental education and community involvement.
	7.6 / 7.6.38	Man-Elephant Conflict	Suggestion has been given.
VIII of Part-Two	8.1.	Eco-Tourism Chapter	Total area is 70.00 ha
	8.4 / 8.4.1	Eco Tourism Series	
	8.6	Objectives of Management	09 nos. of objectives
IX of Part-Two	9.1.	Protection Overlapping Working Circle	Total area is 39626.163 ha.
	9.4	Protection Series	Protection series has not been prescribed.
	9.5 / 9.5.2	Vulnerable areas which need special protection measures	Range wise vulnerable point has been given
	9.6	Objectives of Management	07 nos. of objectives
	9.6 / 9.6.2.	Silvicultural system	No system prescribed
	9.6 / 9.6.8.	Prevention of Forest Fire	Squad and VSS members
X of Part-Two	10.1	WaterResource Management Chapter	Total area is 39626.163ha.
	10.4.	Water Resource ManagementSeries, and JFM areas	Water Resource ManagementSeries has not been constituted in this working circle.
	10.6.	Objectives of Management	08 nos. of objectives
	10.6.2.	Silvicultural system	It does not involve any Silvicultural System
	10.6.8.	Water Body	There are 60 Nos. of Water Body
	10.6.17.	Percolation pits	Size is 1.5 mtr. x 1.5 mtr. x 1.0 mtr.
XI of Part-Two	11.1	REDD+ and Climate change Chapter	Total area is 39626.163 ha.
	11.4	REDD+ and Climate changeSeries, and JFM areas	REDD+ and Climate changeSeries has not been constituted in this working circle

	11.6.	Special Objectives of Management	08 nos. of objectives
	11.6.10.	Forest and Climate Change	The people are not given importance to both direct and indirect benefit of the forest.
XII of Part-Two	12.1	Biodiversity Working Circle.	.The total manage area proposed in this revision over 39626.163 ha.
	12.4.	Biodiversity Series	Biodiversity series has not been prescribed
	12.6 / 12.6.2.	Silvicultural system	It does not involve any Silvicultural System.
	12.6 / 12.6.19.	Biodiversity Assessment	IVI value is 300
	12.6.20 / 12.6.20.2.	Analysis of Biodiversity Assessment	I V I has also been calculated
XIII of Part-Two	13.1.	General Financial Forecast and Financial Plan of Operation	x
	13.1.1.	Cost of the Plan	Total amount spent is 28.53387 Lakhs .
	13.1.2.	Revenue Collected from 2011-12 to 2020-21	Total amountis 201.47980 Lakhs
	13.1.3	Expected Revenue from 2022-23 to 2031-32	Total amount will be 29.6206637 Lakhs
	13.1.4.	Head wise total expenditure from 2022-23 to 2031-32	Total amount is 29658.666 lakhs
	13.1.6.	Chapter Wise Estimation	Chapter wise estimation has been given
XIV of Part-Two	14.1.	Miscellaneous Regulations Working Circle	Total area Un-classed forest included is 7.492 ha
	14.2 / 14.2.1	Petty felling	Petty felling is not prescribed to meet the demand of timber for Departmental use.
	14.5 / 14.5.1.	Miscellaneous Regulations Series	Miscellaneous Regulations Series has not been constituted in this working circle.
	14.7.	Objectives of Management	09 nos. of objectives
XV of Part-Two	15.1.	Science and Research Working Circle	Total area is 100.00 hectare
	15.3	Preservation Plots	There are a 05 no of preservation plot.
	15.4.	Sample Plot	There are a 05 no of Sample plots and each cover an area of 01.00 ha.
	15.5.	Regeneration Plot	There are a 05 no of Regeneration plots and each cover an area of 0.10 ha.
	15.11.	Special Objectives of Chapter	10 nos. of objectives
XVI of Part-Two	16.1.	Summary of Prescription	Summary of Prescription has been given
XVII of Part-Two	17.1.	Tree Outside Forest Working Circle	Total area allotted to Tree Outside Forest Working Circle is93284.8579hectare .
	17.4.	TOF Series / JFM areas	TOF Series has not been constituted in this working circle
	17.5 / 17.5.3.	Plantation under Jagannath vana Prakalpa	Under this programme 460.59 hectares of area have been covered up during 2000-01 to 2005-06
	17.5/ 17.5.5.	Avenue Plantation	Total 584.00 km covered.
	17.6.	Objectives of Management	05 nos. of objectives

f) Works prescribed during the plan period must be given in a tabular form along with annual target in the following format.

The works prescribed from the year 2022-23 to 2031-32 is given in the table below.

Chapter No.	Para No/ Sub Para No	Prescribed activity	Year wise (1 to 10) distribution of physical target in ha.	
			Year	Physical Target
II of Part-Two	2.6 / 2.6.9	Table of felling / Rehabilitation. There are 08 Nos. of Rehabilitation series and each having 10 coupes. Therefore total coupes are 80 Nos.	2022-23	3354.431
			2023-24	3164.94
			2024-25	3257.068
			2025-26	3986.21
			2026-27	4023.14
			2027-28	4063.438
			2028.29	3440.562
			2029-30	3083.54
			2030-31	3361.953
			2031-32	2394.21
	2.6 / 2.6.11	Subsidiary silvicultural operations cleaning and thinning	There are 06 differentitems of Operation has been prescribed in SSO.	
	2.6 / 2.6.12	Regeneration	Natural and Artificial	
	2.6 / 2.6.14	Marking Rules	No marking is prescribed	
III of Part-Two	3.4 / 3.4.1	Old Plantation has been taken up for tending operation. The total is 2562.62ha.	The works prescribed are climber cutting, thinning, pruning etc.	
	3.5 / 3.5.2	New Plantation. The area allotted to New Planting Series is 565.00 ha. There are two planting series prescribed.	2022-23	50
			2023-24	70
			2024-25	50
			2025-26	65
			2026-27	65
			2027-28	45
			2028.29	60

			2029-30	60
			2030-31	45
			2031-32	55
	3.5 /3.5.3	Re-stocking Series. The area allotted to Re-planting series is 508 ha. There are two planting series prescribed.	2022-23	48
			2023-24	33
			2024-25	70
			2025-26	45
			2026-27	50
			2027-28	40
			2028.29	50
			2029-30	72
			2030-31	50
			2031-32	50
	3.5 /3.5.4	Tending Operation. The area allotted to tending operation is 2562.62 ha. There are five Ranges tending operation prescribed.	2022-23	288.98
			2023-24	262
			2024-25	264.4
			2025-26	225
			2026-27	345
			2027-28	280
			2028.29	189.4
			2029-30	194.51
			2030-31	250
			2031-32	263.33
	3.5 / 3.5.5	Village Forest. The area allotted to village forest series is 1861.052 ha. There are Village Forest Woodlot Plantation Series prescribed.	2022-23	190
			2023-24	191
			2024-25	198
			2025-26	186
			2026-27	217
			2027-28	200

			2028.29	175
			2029-30	170
			2030-31	179.052
			2031-32	155
	3.6	Objectives of Management	07 nos. of objectives	
	3.6 / 3.6.2	Silvicultural system	No formal silvicultural system is prescribed	
	3.6. / 3.6.12.1	Demarcation of annual plantation coupes	1:25,000 scales	
IV of Part-Two	4.1	Bamboo Overlapping Working Circle	Total area is 15239.595 ha	
	4.1 / 4.5.2	Bamboo Cutting Series 8031.843	02 numbers of Cutting series such as Narasinghpur East and Badamba	
	4.6/ 4.6.8	Calculation of the yield	Block wise yield has been calculated.	
	4.6 / 4.6.9	Table of Cutting. Each series has been divided into 04 coupes i.e A, B, C & D.	2022-23, 2026-27 & 2030-31	2178.17
			2023-24, 2027-28 & 2031-32	2218.108
			2024-25& 2028-29	1788.66
			2025-26& 2029-30	1846.905
	4.6/ 4.6.9.1	Coupe wise Probable yield	Coupe wise yield has been calculated.	
		Bamboo Rehabilitation Series 7207.752	02 numbers of Rehabilitation series such as Narasinghpur East and Badamba	
	4.6 / 4.6.9	Table of Rehabilitation Each series has been divided into 04 coupes i.e A, B, C & D.	2022-23, 2026-27 & 2030-31	1745.595
			2023-24, 2027-28 & 2031-32	2002.54
			2024-25& 2028-29	1682.56
			2025-26& 2029-30	1777.057
V of Part-Two	5.1	NTFP Overlapping Working Circle	Total area is 39626.163ha	
	5.6/ 5.6.5.	N.T.F.P Plantation	Deobhuin RF	20
			Belapada RF	20
			Sukhasan RF	20
			Raniabania RF	20

VI of Part-Two	6.1.	JFM Overlapping Working Circle	Total area is 12200.362ha	
VII of Part-Two	7.1.	Wildlife Overlapping Working Circle	Total area is 39626.163 ha	
	7.6/ 7.6.10.	Wetland Management	The identified wetlands are Ghodabar, OstiaPata, Nandeillo&Suniamuhanpata, Ansupa is the biggest fresh water lake of the state and has been declared as a wetland of National importance. Other wetlands are Sisupathar, dam (Suhagi Project), Purukutiadam, Sagar Pond, SiariaPata &Ranasinghpur	
	7.6 / 7.6.38	. Man-Elephant Conflict	Short term, middle term and long term strategies need to be drawn up with the elephant experts of national & international fare for management of elephant population in Mahanadi elephant reserve. Maintenance of elephant proof trench, community solar fencing use of chili powder tobacco and engine oil paste on ropes, giving chili smoke, use of bio-acoustics, using alarm bell to assertion intending wild elephants etc. has been prescribed.	
VIII of Part-Two	8.1.	Eco-Tourism Working Circle	Total area is 70 ha	
	8.5.1	Forest Blocks in Eco-Tourism	Name of the Forest Block	Area of Development
			Deobhuin RF Compt. 13	20.00
			Olab RF Compt. 05	
			Olab RF Compt. 03	30.00
			Saranda PRF	10.00
			Outside Forest	10.00
IX of Part-Two	9.1.	Protection Overlapping Working Circle	Total area is 39626.163 ha.	
	9.5 / 9.5.2	Vulnerable areas which need special protection measures	Name of the Range	Name of the Camp

			Narasingh pur East	Naijhari, Brahmani, Kharwani, Guptamanik&jadapa da
			Badamba	Naijhari, Chhanchunia&Galua mada
			Athgarh	Tigiria Camp
			Khuntuni	Oranda, Brahmanbasta & Bhaguas
	9.6/ 9.6.8.	Prevention of Forest Fire	Suggestion has been given for prevention of Forest Fire through Squad and VSS members.	
X of Part-Two	10.1	WaterResource Management Working Circle	Total area is 39626.163 ha.	
	10.6.8.	Water Body	There are 60 Nos. of Water Body	
	10.6.17.	Percolation pits	The Size of Percolation pits is 1.5 mtr. x 1.5 mtr. x 1.0 mtr.	
XI of Part-Two	11.1	REDD+ and Climate change Chapter	Total area is 39626.163ha.	
XII of Part-Two	12.1	Biodiversity Working Circle.	The total manage area proposed in this revision over 39626.163ha.	
	12.6 / 12.6.19.	Biodiversity Assessment	IVI value is 300.00	
XIII of Part-Two	13.1.	General Financial Forecast and Financial Plan of Operation	x	
	13.1.1.	Cost of the Plan	Total amount spent is 28.53387 Lakh.	
	13.1.2.	Revenue Collected from 2011-12 to 2020-21	Total amountis 201.47980 Lakh	
	13.1.3	Expected Revenue from 2022-23 to 2031-32	Total amount will be 29.6206637 Lakh	
	13.1.4.	Head wise total expenditure from 2022-23to 2031-32	Total amount is 31.7489570 Lakh	
	13.1.6.	Chapter Wise Estimation	Chapter wise estimation in Lakh.	
			Chapter	Cost
			RWC	13412.95
			Plant. WC	1574.013
			Protection (O)WC	4754.24
			Bamboo (O)WC	1667.783
			Wildlife (O) WC	578.41
			JFM (O) WC	125.73
XIV of Part-Two	14.1.	Miscellaneous Regulations Working Circle	Total area Un-classed forest included is 7.492 ha	
XV of Part-Two	15.1.	Science and Research Working Circle	Total area is 100.00 hectare	

	15.3	Preservation Plots	Name of the Forest Block	Plot area in ha.
			Kalichaballav RF	20.00
			Baniabandha RF	20.00
			Haladiaseni RF	20.00
			Deobhuin RF	20.00
			Bramhanidei	20.00
	15.4.	Sample Plot	Name of the Forest Block	Plot area in ha.
			Kalichaballav RF	1.00
			Baniabandha RF	1.00
			Haladiaseni RF	1.00
			Deobhuin RF	1.00
			Bramhanidei RF	1.00
	15.5.	Regeneration Plot	Kalichaballav RF	0.10
			Baniabandha RF	0.10
			Haladiaseni RF	0.10
			Deobhuin RF	0.10
			Bramahanidei RF	0.10
XVIII of Part-Two	16.1.	Tree Outside Forest Working Circle	Total area allotted to Tree Outside Forest Working Circle is93284.8579hectare (152262.00 – 39626.163).	

During the outgoing Plan period notification of RF, PRF and VF has not been done.

I have completed this revised Working Plan as per the guideline given in the National Working Plan Code, June 2014, Government of India, Ministry of Environment & Forest, New Delhi.

I am greatly indebted to Dr. Pradeep Raj Karat, I. F. S, Regional Chief Conservator of Forest, Angul Circle for his constant guidance & help during the time of writing this Working Plan & subsequently, reading through the entire final draft & improving it substantially.

I am greatly indebted toDr. Akshya Kumar Patnaik, I. F. S, Regional Chief Conservator of Forest, Angul Circle for his constant guidance & help during the time of writing this Working Plan & subsequently, reading through the entire final draft & improving it substantially

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I would like to thank all Range Officersof AthgarhForest Division for their kind co-operationand writing the compartment history of all Forest Block.

Sri SudarshanGopinathJadhav, I.F.S

Divisional Forest Officer,
Athagarh Forest Division, Athgarh

CHAPTER-II

GLOSSARY OF TERMS

1 . TREE:-

List of trees				
Sl. No.	Oriya Name	Classifications	Botanical Name	Family
1	Amba	Large tree	Mangifera indica	Anacardiaceae
2	Ambada	Medium tree	Spondiasmangifera	-do-
3	Achhu	Small tree	Morindatintoria	Rubiaceae
4	Ankula	-do-	Alangiumsalvifolium	Alangiaceae
5	Amla	-do-	Emblica officinalis	Euphorbiaceae
6	Arjuna	Large tree	Terminalia arjuna	combretaceae
7	Asan / Sahaja	-do-	Terminalia tomentosa	-do-
8	Aswastha	-do-	Ficus religiosa	Moraceae
9	Ata / Ramphal	Small tree	Annona reticulata	Anonaceae
10	Agasti	-do-	Sesbania grandiflora	Papilionaceae
11	Ambthi	-do-	Bauhinia malabarica	Caesalpiniaceae
12	Baula	Medium tree	Mimusopselengi	Sapotaceae
13	Bija / Piasal	Large tree	Pterocarpus marsupium	Fabaceae
14	Badhial/ Sitaphal	Small tree	Annona squamosa	Anonaceae
15	Bandhan	Medium tree	Ougeniaoojeinensis	Fabaceae
16	Bara	Large tree	Ficus benghalensis	Moraceae
17	Babul	Small tree	Acacia nilotica	Mimosaceae
18	Bahada	Large tree	Terminalia belerica	Combretaceae
19	Barabakulia	-do-	Dalbergia paniculata	Fabaceae
20	Buro	Small tree	Zizyphusmauritiana	Rhamnaceae

21	Barun	Medium tree	Crataeva religiosa	Capparidaceae
22	Bela	Small tree	Aegle marmelos	Rutaceae
23	Bhalia	Medium tree	Semicarpus anacardium	Anacardiaceae
24	Bheru	Small tree	Chloroxylon swietenia	Meliaceae
25	Batra	-do-	Melia composita	-do-
26	Bhersunga	Small tree	Murrayakoenigi	Rutaceae
27	Badam (Deshi)	Large tree	Terminalia catappa	Combretaceae
28	Chadeigudi	Medium tree	Vitex peduncularis	Verbenaceae
29	Chakundi	Large tree	Cassia siamea	Ceasalpiniaceae
30	Char	Small tree	Buchananialanzan	Anacardiaceae
31	Chauli	-do-	Elaeodendron glaucum	Celastraceae
32	Chatian	Large tree	Alstoniascholaris	Apocynaceae
33	Choari	Medium tree	Bauhinia retusa	Caesalpiniaceae
34	Champa	Large tree	Micheliachampaca	Magnoliaceae
35	Chaladhua	Small tree	Erythrina suberosa	Papilionaceae
36	Damkurudu	-do-	Gardenia latifolia	Rubiaceae
37	Dhaman	Large tree	Grewia tiliaefolia	Tiliaceae
38	Dhaura	-do-	Anogeissus latifolia	Combretaceae
39	Dimri	Small tree	Ficus glomerata	Moraceae
40	Eucalyptus	Large tree	Eucalyptus species	Myrtaceae
41	Gamhari	Medium tree	Gmelina arborea	Verbenaceae
42	Ghanta	Small tree	Zizyphusxylopyra	Rhamnaceae
43	Ghodalanja	Large tree	Albizzia stipulata	Mimosaceae
44	Genduli	-do-	Sterculia urens	Sterculiaceae
45	Gohira	-do-	Acacia leucophloea	Mimosaceae
46	Giringa	-do-	Pterospermumheyneanum	Sterculiaceae
47	Gua	Small tree	Areca catechu	Palmaceae
48	Harida	Large tree	Terminalia chebula	Combretaceae

49	Hinjal	Medium tree	Baringtoniaacutangula	Lecythidaceae
50	Haldu (kurum)	Large tree	Adina cordifolia	Rubiaceae
51	Jamu	-do-	Syzigiumcumini	Myrtaceae
52	Jari	-do-	Ficus retusa	Moraceae
53	Kadamba	Large tree	Anthocephalus cadamba	Rutaceae
54	Kaitha	-do-	Feronia elephantum	Rutaceae
55	Kamalagundi	Small tree	Mallotusphilipinensis	Euphorbiaceae
56	Karada	-do-	Cleistanthuscollinus	Euphorbiaceae
57	Karanj	Medium tree	Pongamia pinnata	Fabaceae
58	Kasi	Large tree	Bridelia retusa	Euphorbiaceae
59	Kendu	-do-	Diospyros melanoxylon	Ebenaceae
60	Khair	Small tree	Acacia catechu	Mimosaceae
61	Khajuri	Medium tre	Phoenix sylvastris	Palmaceae
62	Kochila	Large tree	Strychnosnuxvomica	Longaniaceae
63	Kangada	-do-	Xylia xylocarpa	Mimosaceae
64	Kodala	-do-	Sterculia villosa	Sterculiaceae
65	Kumbhi	Medium tree	Careya arborea	Lecythidaceae
66	Kusum	Large tree	Scheicheraoleosa	Sapindaceae
67	Lankavalia	Small tree	Anacardium occidentale	Anacardiaceae
68	Lodha	Large tree	Symplocusracemosa	Symplocaceae
69	Mahanimba	-do-	Ailanthus excelsa	Simarubaceae
70	Mahula	-do-	Madhuca indica	Sapotaceae
71	Mankadakendu	-do-	Diospyros embryopteris	Ebenaceae
72	Mai	-do-	Lanneacoromandelica	Anacardiaceae
73	Mundi	-do-	Mitragynaparvifolia	Rubiaceae
74	Neem	-do-	Azadirachta indica	Meliaceae
75	Nadia	-do-	Cocos nucifera	Palmaceae
76	Nageswar	-do-	Messua ferrea	Guttiferaceae

77	Paldhua	Small tree	Erythrina indica	Fabaceae
78	Palas	Small tree	Butea monosperma	-do-
79	Panasa	Medium tree	Artocarpus intigrifolia	Moraceae
80	Panigamhar	-do-	Trewianudiflora	Euphorbiaceae
81	Patuli	-do-	Lagerstroemia speciosa	Lythraceae
82	Phasi	Large tree	Anogeissus acuminata	Combretaceae
83	Rai	-do-	Dilleniapentagyna	Dilleniaceae
84	Rajmohi	-do-	Bursera serrata	Burseraceae
85	Ritha	Medium tree	Sapindusemerginatus	Sapindaceae
86	Rohini	Large tree	Soymidafebrifuga	Meliaceae
87	Sal	Large tree	Shorea robusta	Dipterocarpaceae
88	Salai	-do-	Boswellia serrata	Burseraceae
89	Salapa	-do-	Caryotaurens	Palmaceae
90	Saguan	-do-	Tectona grandis	Verbenaceae
91	Semal	-do-	Bombax ceiba	Bombacaceae
92	Sidha	-do-	Lagerstroemia parviflora	Lythraceae
93	Siris	-do-	Albizzia lebbek	Mimosaceae
94	Sisoo	-do-	Dalbergia latifolia	Fabaceae
95	Sunari	Small tree	Cassia fistula	Caesalpiniaceae
96	Sajana	-do-	Moringa oleifera	Moringaceae
97	Sahada	Small tree	Streblus asper	Moraceae
98	Simakayan	-do-	Pithecolobium dulce	Mimosaceae
99	Tala	Large tree	Borassus flabellifer	Palmaceae
100	Tentuli	-do-	Tamarindus indica	Caesalpinaceae
101	Tangini	Small tree	Xylia dolabriformis	Mimosaceae
102	Telko	-do-	Randia uliginosa	Rubiaceae

2 . SHRUBS:-

List of shrubs			
Sl. No	Oriya Name	Botanical Name	Family
1	Arakha	Calotropis procera	Asclepidaceae
2	Amari	Ipomea fistulosa	Convolvulaceae
3	Aswagandha	Withaniasomnifera	Solanaceae
4	Baincha	Flocourtiasepiaria	Flocourtiaceae
5	Baramasi	Agave american	Amaryllidaceae
6	Basanga	Adhatodavasica	Acanthaceae
7	Bhanga	Cannabis sativa	Cannabinaceae
8	Gila	Caesalpinia decapetala	Ceasalpiniaceae
9	Girili	Indigofera pulchella	Fabaceae
10	Karabir	Nerium indicum	Apocynaceae
11	Kanteikoli	Ziziphus oenoplia	Rhamnaceae
12	Ghurudu	Gardenia gumifera	Rubiaceae
13	Mamuri	Antidesmadiandrum	Euphorbiaceae
14	Nagairi	Lantana camara	Verbenaceae
15	Ranidantakathi	Flemingiachappar	Fabaceae
16	Siju	Euphorbia nivulia	Euphorbiaceae
17	Telkoruan	Ixora parviflora	Rubiaceae
18	Jajangi	Phyllanthus collinus	Euphorbiaceae

CHAPTER-III

LIST OF FLORA

3. HERBS:-

List of herbs			
Sl. No.	Oriya Name	Botanical Name	Family
1	Ankaranti	Solanum xanthocarpum	Solanaceae
2	Anantamula	Hemidesmus indicus	Asclepidaceae
3	Ada (Ambakasi)	Curcuma amada	Zingiberaceae
4	Apamaranga	Achyranthes aspera	Amarantaceae
5	Baghanakhi	Martyniadiandra	Pedaliaceae
6	Bhuinimba	Andrographis paniculata	Acanthaceae
7	Bhurngaraj	Wedeliacalendulacea	Compositae
8	Chitaparu	Plumbago zeylanica	Plumbaginaceae
9	Dudura	Datura stramonium	Solanaceae
10	Ganjei	Cannabis sativa	Cannabinaceae
11	Ghikuari	Aloe vera	Liliaceae
12	Haladi	Curcuma longa	Zingiberaceae
13	Hatisundha	Heliotropicum indicum	Boraginaceae
14	Patalagaruda	Rauwolfia serpentina	Apocynaceae
15	Palua	Curcuma aromatica	Zingiberaceae
16	Salaparni	Desmodiumgangeticum	Fabaceae
17	Saptapheni	Opuntia dillenii	Cactaceae
18	Tulasi (dhala)	Ocimumbasilicum	Labiateae
19	Tulasi (kala)	Ocimum sanctum	-do-
20	Nagapheni	Opuntia vulgaris	Cactaceae

4. GRASSES:-

Table-4			
List of grasses			
Sl. No.	Oriya Name	Botanical Name	Family
1	Baunsa (salia)	Dendrocalamusstrictus	Gramineae
2	-do- (daba)	Bambusaarundinacea	Gramineae
3	-do- (dungi)	Cephalostachyum pergracile	Poaceae
4	Babuli	Pollinidium angustifolium	Gramineae
5	Bena	Vitiveriazizanoides	-do-
6	Broom	Thysalolaena maxima	-do-
7	Duba	Cynodondactylon	-do-
8	Kasatandi	Saccharum spontaneum	-do-
9	Sabai	Pollinidium angustifolium	-do-
10	Sinkula	Hetropoguncontortus	-do-

5 . CLIMBER:-

Table-5			
List of climber			
Sl. No.	Oriya Name	Botanical Name	Family
1	Atundi	Combretum decandrum	Combretaceae
2	Ambalata	Bauhinia racemosa	Caesalpiniaceae
3	Asadhua	Capparis zeylanica	Caparidaceae
4	Anantamuli	Hemidesmus indicus	Asclepiadaceae
5	Arsi / Gila	Entada scandens	Mimosaceae
6	Baidank	Mucuna pruriens	Fabaceae
7	Banamali	Jasminum arborescens	Oleaceae
8	Beta	Calamus tenuis	Palmaceae
9	Dantari	Acacia pennata	Mimosaceae
10	Desialu	Dioscorea alata	Dioscoreaceae
11	Dhudhiali	Cryptolepisbuchanani	Euphorbiaceae
12	Gudmari	Gymnemasylvestre	Asclepiadaceae
13	Gulichi	Tinospora cordifolia	Menispermaceae

14	Kaincha	Abrus precatorius	Fabaceae
15	Kalama	Ipomea aquatica	Convolvulaceae
16	Karaba	Dioscorea pentaphylla	Dioscoreaceae
17	Kankada	Momordica dioica	Cucurbitaceae
18	Lata palas	Butea superba	Fabaceae
19	Malati	Aganosmacaryophyllata	Apocynaceae
20	Mardalai	Milletia auriculata	Fabaceae
21	Muturi	Smilax macrophylla	Liliaceae
22	Modanga	Loranthus longiflorus	Loranthaceae
23	Satabari	Asparagus racemosus	Liliaceae
24	Siali	Bauhinia vahlii	Caesalpiniaceae
25	Hadabhanga	Cissus quadrangularis	Ampelidaceae

CHAPTER-IV

LIST OF FAUNA

1. ANIMALS:-

List of animals					
Sl. No.	Oriya Name	English Name	Latin Name	Family	Schedule No.
1	Bajra kapta	Pangolin	*Manis crassicaudata*	Manidae	I
2	Badudi	Bat	*Rouseltuteschenaulti*	Pteropodidae	V
3	Banabiradi	Wild cat	*Felis chaus affinis*	Felidae	I
4	Barah	Wild boar	*Sus crefacristatus*	Suidae	III
5	Bilua	Jackal	*Canis latranus*	Canidae	V
6	Bhalu	Black bear	*Selenarctos tibetana*	Ursidae	II
7	Chital	Spotted deer	*Axis axis*	Cervidae	III
8	Chemani	House bat	*Cynopterus sphinx*	Pteropodidae	V
9	Gunduchimusa	Squirrel	*Funambuluspenanti*	Sciuridae	V
10	Gurandi	Mouse deer	*Trangulusmeinna*	Tragulidae	I
11	Hati	Elephant	*Elephas maximus*	Elephantidae	I
12	Heta	Hyena	*Hyaena striata*	Hyaenidae	I
13	Jinka	Porcupine	*Hystrixleucura*	Hystricidae	IV
14	Kalarapatriya	Leopard	*Panthera pardus fusca*	Felidae	I
15	Katasa	Big wild cat	*Paradoxurus hermaphrodit*	Felidae	II
16	Khurant	Musk deer	*Moschila menina*	Tragulidae	I
17	Kokisiali	Fox	*Vulpes bengalensis*	Canidae	II
18	Kutura	Barking deer	*Cerrulus muntjac*	Cervidae	III
19	Mankada (hanu)	Black-faced monkey	*Semnopithecus entellus*	Cercopithecidae	II
20	-do- (pati)	Red-faced monkey	*Macaca mulatta*	Cercopithecidae	II

21	Musa	Mouse	*Rattus rattus*	Muridae	V
22	-do- (nepali)	Flying squirrel	*Petauristaphilipinensis*	Muridae	V
23	Nilgai	Blue bull	*Boselaphustragocamelus*	Bovidae	III
24	Neula	Mongoose	*Herpestes bengalensis*	Viverridae	IV
25	Odha	Otter	*Lutralutra*	Mustelidae	III
26	Samber	Deer	*Cervulus unicolor*	Cervidae	I
27	Saliapatini	Civet	*Vivericula indica*	Viverridae	II
28	Thekua	Hare	*Lepus ruficaudatus*	Leporidae	III

2. BIRDS:-

List of birds					
Sl. No.	Oriya Name	English Name	Latin Name	Family	Schedule No.
1	Bani	Common myna	*Acridotheres tristis*	Sturnidae	IV
2	Baya chadhei	Weaver bird	*Ploccusphillipinus*	Ploceidae	IV
3	Bajapakhi	Hawk	*Astur badius*	Accipitridae	I
4	Banakukuda	Jungle fowl	*Gallus gallus*	Phadianidae	IV
5	Baja	Falcon	*Ergettagarzette*	Accipitridae	I
6	Bhadabhadalia	Blue jay bird	*Coracasbengalensis*	Muscicapidae	I
7	Bahadakhai	Grey hornbill	*Tikos birostris*	Bucerotidae	I
8	Bhrungaraj	Black bee	*Dissomurusparadisens*	Dicruridae	IV
9	Gunduri	Bastard gull	*Turnixbuscitotor*	Turnicidae	IV
10	Chatak	Swifty	*Micropusaffinis*	Apodidae	IV
11	Chila	Kite	*Mylvusmigrans*		IV
12	Dahuka	Water hen	*Metopidius indicus*	Jacanidae	IV
13	Gendalia	Grey crane	*Anastromisoseitens*	Ciconidae	IV
14	Gharchatia	Sparrow	*Passer domesticus*	Ploceidae	IV
15	Ghukalika	Raven myna	*Acridatharesginginianus*	Sturnidae	IV
16	Haldibasant	Golden oriole	*Oriolusxanthernus*	Oridídae	IV
17	Hansa	Gander	*Anas poacierhancha*	Podicipedidae	IV
18	Koeli	Cuckoo	*Cuculuscaronus*	Cuculidae	IV
19	Kajalapati	King crow	*Dicrurus maococerus*	Dicruridae	IV
20	Kau	Crow	*Corvus splendens*	Corvidae	V

21	Kochilakhai	Hornbill	*Anthroceceroscoromatus*	Bucerotidae	I
22	Kumbhatua	Red crow	*Centropus sinensis*	Cuculidae	IV
23	Mayura	Peacock	*Pavo cristatus*	Phadianidae	I
24	Macharanka	King-fisher	*Caryle rudis*	Alcedinidae	IV
25	Panikua	Little cormorant	*Phalacrocorax nigar*	Anatidae	IV
26	Pecha	Owl	*Athena brama*	Strigidae	IV
27	Para	Pigeon	*Columba livia*	Columbidae	IV
28	Sua	Parrot	*Pistaculakramerii*	Sturnidae	IV
29	Saguna	King vulture	*Sacrogyps calvus*	Muscicapidae	IV
30	Sankachila	Brahmin kite	*Haliastur Indus*	Muscicapidae	I
31	Kapota	Dove	*Streptopellchinopensis*	Columbidae	IV
32	Bulbul	Persian / Nightingale	*Pyenonotusluteohes*	Pycnonotidae	IV
33	Baga (kanti)	Pond heron	*Ardeolagrayii*	Ardeidae	IV
34	Baga (rani)	Cattle egret	*Bubulcus ibis coromandus*	Ardeidae	IV
35	Baga (rati)	Night heron	*Nycticoraxnydticorax*	Ardeidae	IV
36	Kathahana	Ceylon hoopoe	*Upupa ceylonensis*	Upupidae	IV

3. SNAKES:-

List of snakes					
Sl.No.	Oriya Name	English Name	Latin Name	Family	Scheduled No
1	Ahiraj	King cobra	*Naja hannah*	Elapidae	II
2	Ajagarh	Indian python	*Python molurus*	Boidae	I
3	chiti	Painted krait	*Bungarus coeruleus*	Elapidae	IV
4	Dhamana	Rat snake	*Ptyasmucosus*	Colubridae	II
5	Boda	Rusell's viper	*Viperarusselli*	Viperidae	II
6	Dhulia naga	Sand viper	*Echiscarinatus*	-do-	IV
7	Domundia	John's sandboda	*Eryx conicus*	Boidae	IV
8	Gokhar	Cobra	*Naja naja*	Elapidae	II
9	Kananoli	Grass snake	*Ahetulla species*	Colubridae	IV
10	Laudankia	Arboreal adder	*Dryophisnasutus*	Elapidae	IV
11	Dhanda	Water snake	*Natrix piscator*	Colubridae	IV

12	Rana	Banded krait	*Bungarus fasciatus*	Elapidae	II
13	Tampa	Monocellate cobra	*Naja najakuothia*	-do-	II
14	Telia	Blind snake	*Typhlopsbraminus*	Typhlopidae	IV

4. LIZARDS:-

List of lizards					
Sl. No.	Oriya Name	English Name	Latin Name	Family	Scheduled No.
1	Bahurupi	Indian chamleon	*Chameleon zeylanicus*	Chmaeleonidae	IV
2	Champeineoli	Mabuya	*Mabuyabibro*	Sciencidae	IV
3	Endua	Garden lizard	*Calotes versicolor*	Agamidae	IV
4	Godhi	Guana	*Varanus monitar*	Varanidae	I
5	Jhitipiti	Lizard	*Hemidactylus flaviviridis*	Gekkonidae	IV

5 . TURTLES:-

List of Turtles					
Sl. No.	Oriya Name	English Name	Latin Name	Family	Scheduled No.
1	Pathuria kaincha	Land tortoise	*Testudo elongute*	Trionychidae	IV
2	Panikaincha	Water turtle	*Lissemyspunctaugranosa*	Emydidae	IV

6 . FISHES:-

List of fishes				
Sl. No.	Oriya Name	English Name	Latin Name	Family
1	Balia	Trout / Wallago	*Wallago attu*	Siluridae
2	Baligarada	Sandeel	*Glossogabiusgiziris*	Gobidae
3	Bhakur	Carp	*Catlacatla*	Cyprinidae
4	Chenga	Gilt head	*Ophiocaphalusgachus*	Channidae
5	Chitala	Flat fish	*Notopteruschitala*	Notopteridae
6	Dandikiri	Grig	*Esomusdandrica*	Cyprinidae
7	Gadisa	Gudgeon	*Ophiocephalus punctatus*	Channidae
8	Jalanga	Ground fish	*Panga sius*	Pangasidae
9	Jahlla	Floating fish	*Chela argentea*	Cyprinidae
10	Kantia	Nail fish	*Mystuscavasitus*	Bagridae
11	Karandi	Minnow	*Barbus ambasis*	Cyprinidae
12	Magura	Cat fish	*Clariusbatrachus*	Claridae
13	Mirkali	Mrigal	*Cirrihana mrigal*	Cyprinidae
14	Neuli	Small sand fish	*Gobiopterusohund*	Gobidae
15	Pohala	Water fish	*Cirrhinusreba*	Cyprinidae
16	Pabata	Callichrous	*Callichrousbimaculatus*	Siluridae
17	Phalli	Flounder	*Notopterusnotopterus*	Notopteridae
18	Rohi	Breeding fish	*Labeorohita*	Cyprinidae
19	Serana	Minnows	*Barbus serana*	Cyprinidae
20	Seula	Big gudgeon	*Ophiocephalus striatus*	Channidae
21	Singi	Scorpion fish	*Hetero pneusstesfossilis*	Pneustidae
22	Todi	Eel	*Mastocembelusarmatus*	Cembelidae
23	Chungudi	Shrimp / Prawn	*Palaemon malcolmsonii*	

CHAPTER-V

OTHERS

1. LICHENS

List of Lichens				
Sl. No.	Oriya Name	English Name	Latin Name	Family
1		Arthonia	*Arthoniasp.*	Arthoniaceae
2		Cryptothecia	*Cryptothecia sp.*	Arthoniaceae
3		Lepraria	*LeprarialobificansNyl.*	Stereocaulaceae
4		Heterodermia	*Heterodermia speciosa (Wulfen) Trevis*	Physciaceae
5			*Parmopremaaustrosinenese (Zahlbr) Hale*	Parmeliaceae
6			*Parmopremaaustrosinenese (Zahlbr) hale reticulatum (Taylor) M. Choixy*	Parmeliaceae
7			*Caloplacacupulifera (Vain) zahlbr*	Teloschistaceae
8			*Cryptothecialunulata (Zahlbr)makhija&patwa*	Arthoniaceae
9			*Heterodermiaalbidi flava (Kurok) D.D. awasthi*	Arthoniaceae

2. ALGAE

List of Algae				
Sl. No.	Common Name	English Name	Latin Name	Family
1	Macro algae	Green algae	*Spirulina subtilissimaKiitz. ex Gomont*	Oscillatoriaceae
2	Sailor's eyeball	Green algae	*ChroococcusturgidusNaeg.*	Chroococcaceae
3	Macro algae	Red algae	*Gracilaria verrucosa (Hudson) Papenfuss*	Gracilariaceae
4	Macro algae	Red algae	*Palysiphoniasubtilissima Mont*	Rhodomelaceae
5	Macro algae	Green algae	*Eudorine elegans* Ehrenb	Volvocaceae

3. FUNGI

List of Fungi				
Sl. No.	Common Name	English Name	Latin Name	Family
1	Edible Mushroom	Melon root rot	*Acremonium cucurbitacearum*	Incertaesedis
2	Edible Mushroom	Field Mushroom	*Agaricus campestris*	Agaricaceae
3	Edible Mushroom	White rust	*Albugo candida*	Albuginaceae
4	Meadow mushroom	clustered mushroom	*Agaricus cappellianus*	Agaricaceae
5			*Termitomyces spp.,*	
6		silky rosegill	*Volvariella volvacea*	

4. EPIPHYTES

List of Epiphytes				
Sl. No.	Common Name	English Name	Latin Name	Family
1		Vanda	*Vanda tessellate*	Orcheaceae
2		Vanda	*Vanda testaceae*	Orcheaceae
3			*Habenaviacommeliafolia*	Orcheaceae
4			*Luisiatrichorhiza*	Orcheaceae
5			*Dendrobium herbaceum*	Orcheaceae
6			*Dendrobdummacrostachyum*	Orcheaceae
7			*Aeridesmaculosum*	Orcheaceae
8			*Acampacariuata*	Orcheaceae
9		Fox tail	*Rhynchostylis retusa*	Orcheaceae

PART – I

CHAPTER – 1

THE TRACT DEALT WITH

1.1. NameandSituation:-

Athgarh Forest Division was created on dtd.03.02.1950 vide Revenue Dept. Notification No 1282 amalgating the forests of the Ex-states of Athgarh, Tigiria, Baramba, Narasinghpur and Hindol after merger of these princely states into provincial state of into provincial state of Odisha for systematic and scientific management under the control of State Government. The reafter several alterations have been made in the jurisdiction of this division ending with the last re-organization of Odisha Forest Department on 01st October, 2003 from which date the present Athgarh Forest Division is functioning with five Ranges namely Athgarh, Khuntuni, Badamba, Narasinghpur East & Narasinghpur West confining its jurisdiction to entire Athgarh Sub-division and small portion of both Cuttack Sadar&Banki Sub-division under Cuttack District till date with headquarters at Athgarh. It is one of the oldest Forest Divisions of the state.

1.1.1. Geographical Location:-

The geographical location of presentAthgarh Forest Division is given below.

Latitude	N - 20° 40' 27.6" toN 20° 21' 19.2''
Longitude	E - 84°55' 42.8" toE 85° 52' 0.72''

1.1.2.Topo Sheets:-

TheAthgarh Forest Division area spreads within survey of India Topo Sheets as given in the table below.

Table No-1				
Topo Sheet covering the Division of Scale: 1:50,000				
F45S/14	F45T2	F45T6	F45T10	F45T14
F45S/15	F45T3	F45T7	F45T11	F4ST15
Sources: Survey of India				

1.1.3. The surrounding Forest Division is given below.

North	Dhenkanala Division	East	Cuttack Division
South	Nayagarh Division	West	Satkosia (WL) Division

1.1.4. Geographical Area:-

The total gergraphical area of this Division, which was not reflected in the outgoing Plan is now being calculated to be 1,52,262 Sq. Km. The Division spreads over 06 Tahasils and 06 CD Blocks viz. Narasinghpur, Badamba, Tigiria, Athgarh, Part of Cuttack Sadarand part of Banki and one NAC i.eAthgarh. The Rangewise civil Jurisdiction is given in the table below:

Table No-2

Range wise Civil Jurisdiction

Name of the Division	Name of the Range	Name of the District	Name of C.D Block coming within the Jurisdiction of the Range	Name of Tahasil coming within the Jurisdiction of the Range	Name of NAC/ Municipality
Athgarh	Narasinghpur (W)	Cuttack	Narasinghpur (Part)	Narasinghpur (Part)	
	Narasinghpur (E)	Cuttack	Narasinghpur (Part)	Narasinghpur (Part)	Athgarh NAC
	Badamba	Cuttack	Badamba	Badamba	
	Athgarh	Cuttack	Athgarh Block (Part) Tigiria	Athgarh,Tigiria	
	Khuntuni	Cuttack	Athgarh (P)	Athgarh (P) Cuttack Sadar, Banki	

Sources: Divisional Forest Officer, Athgarh

1.1.5. Demography:-

According to latest 2011 census, the human population residing in the jurisdiction of the division is 547677 the details of its category wise break up is furnished below. Furnish table similarily the lives stock position is as under give table.

Table No.3

Population (BlockWise) as per 2011 Census

Block	SC	ST	General	Total
Athgarh	21028	18918	104196	144142
Badamba	23489	9448	120526	153463
Narsinnghpur	34955	5729	126500	167184
Tigiria	9955	3495	56404	069854
Banki (Part)	2217	0912	9905	13034
Total	91644	38502	417531	547677

Sources: District statisticals hand book

1.1.6.Administrative Details:-

The hierarchy of administrative units of the Division is given in the table below.

Table No.4		
Hierarchy of Administrative Units		
AdminstrativeUnit	Mannedby	No of Units
Division	DFOassistedby03Nos.ofACFsand Ministerialstaff	1
Range	RangeOfficer	5
Section	Forester	20
Beat	ForestGuard	65
ForestCheckGate	ForestGuard	05
Sources: Divisional Forest Officer, Athgarh		

1.1.7. BeatisthebaseunitandalsothecuttingedgeofForestAdministration, but themostcrucialneis Range.Theinformationregardingname&hqsofRange,SectionandBeatisfurnishedin the Annexure Similarity the details of important infrastructures like Buildings and Forest Roads are given in theAppendix.

1.1.8. Forest Road:-

There are 13 nos. of Forest Road exist in this Division. The total length of the Forest Road is 127.20 Km. Further Divisional Forest Officer Athgarh Division has proposed vide his memo No.6676 dtd.21.12.2021 to Regional Chief Conservator of Forests AngulCircelAngulfor notification of 15 number of new forest road over a distance road 69.00 km. Then details of the proposed forest road are given in Appendix-XXIV.

1.1.9. Range, Section and Beat:-

There are 05 Nos. of Ranges, 20 Nos. of Section and 65 Nos. of Beat.

Forest Road

1.2. Configuration ofGround:-

The area of the Division broadly comes under Eastern Coastal Plains according tophysiographicionationofthecountry.Similarity italsomainly formsthepartofCoastalPlains aspermajorcategorizationofthestate.ThetopographyoftheDivisionisvaryingfromflatland alongtherivercoursetohillyterrainwithrollingfoothillaswellasisolatedhill/hillocksinplain area. It is broadly divided into three categories as describedbelow.

1.2.1. Hilly Terrain:-

It is mostly extending alongthenorthensideandpredominantly foundinNarasinghpurEast,NarasingpurWestandBarambaRanges.Thehillregionconsistsof twomainranges.OnerangelocallyknownasBudhabudhiGhatstartsfromBalikiaryblockand runsinnorthwesterndirectionover50.00km.inacontinuouschainuptoKumarangaR.F.throughDeobhuin, Chandragiri, Mandap, Nagatotaforest blocks etc., with small fragmented valleys in between. The hills extending south up to Barakholblock arebroken extensions of this range. TheotherrangecommencesatGhodadianhill,runsintheNorthWesttoSouthEastdirection forabout55KmalongtheborderofCuttackandDhenkanaldistrictsuptoSorispalhillsthroughNuagarh, Haladiaseni, and Karadablocks. The highest peak in this Division is Chhelikuti (750mts)inBalikiaryblock.TheimportantpeaksoftheDivisionaregiveninthe Table.In between these two hill Ranges, the NuagarhPlateau is present comprising parts of Nuagarh and Deobhuinforestblocks.

Table No.5			
Important Peaks in the Division			
S.L No	Forest Block	Name of the Peaks	Peak height in Mtr.
1	Balikiary	Chhelikuthipahad	750
2	Nuagarh	Balikagothapahad	710
3	Barakhol	Rajabandhapahad	460
4	Deobhuin	Deobhuinpahad	630
5	Olab	)anhakholpahad	710
6	Olab	Kanaka	745
7	Mandap	Mandapamundia	221
8	Nagatota	Rangamatiaparbat	383
9	Jhinkal	Jhinkalpahad	200
10	Kumaranga	Kumarangaparbat	370
11	Karada	Gadeipadhanparbat	488
12	Chandragiri	Pechakhaiparbat	220
Sources: Divisional Forest Officer, Athgarh			

It is seen that there is wide attitudinal variation among the hills. So also, the elevation pattern of theDivision as observed from the Elevation Map.

1.2.2. Slope and aspect:-

The hills of this division is gently sloppy. The change of vegetation from one spect to another is not seen in this division. Thesloping pattern is variable. The overall sloping pattern of the Division is furnished in the Slope map.The aspect i.ethedirection towards which the slope faces is mostly southern. Similarity the drainage pattern is mainly south eastern coinciding with the course of river Mahanadi.

1.2.3. Plain land:-

Almost the entireAthogarhForestDivision exists on north side of river Mahanadi. A linear strip of fertile land varying in width from 8- 12 kms, along the Northern bank of river Mahanadi running in west to east direction forms the major chunk of the flat area of the Division covering almost entire Khuntuni&AthagarhRangesand small portions of other ranges including intermingled valleys in hillareas.

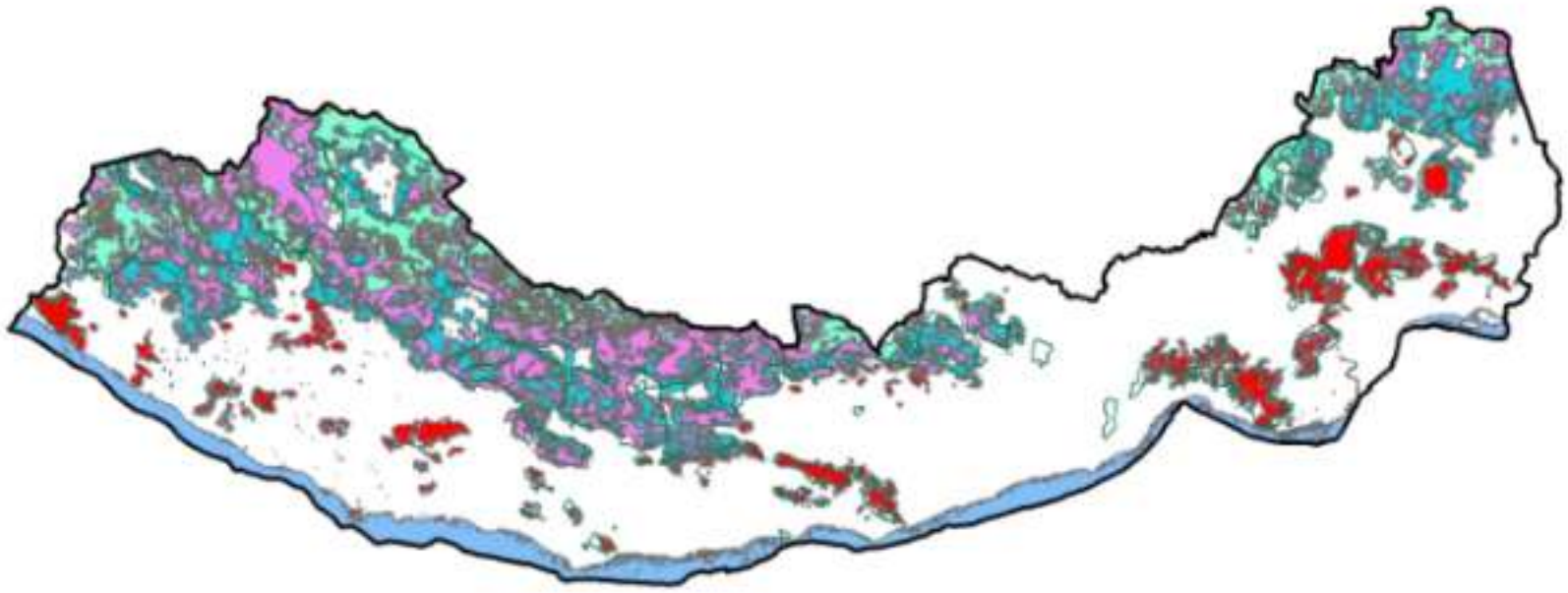
1.2.4. FootHills:-

This is the transitional area descending from the hills to plain land. Part of Baniabandha, Ranibania,Deulia,Adal,Suniamuhan,Baudabanakhandi,Sankhapoi,Brahmanbastablocksformthefoothillofth ehillrangesandarerollinginnature.

Forest Type Map of Athgarh Forest Division

0 5 10 20 K.M.

Scale - 1: 3,60,000



Legend

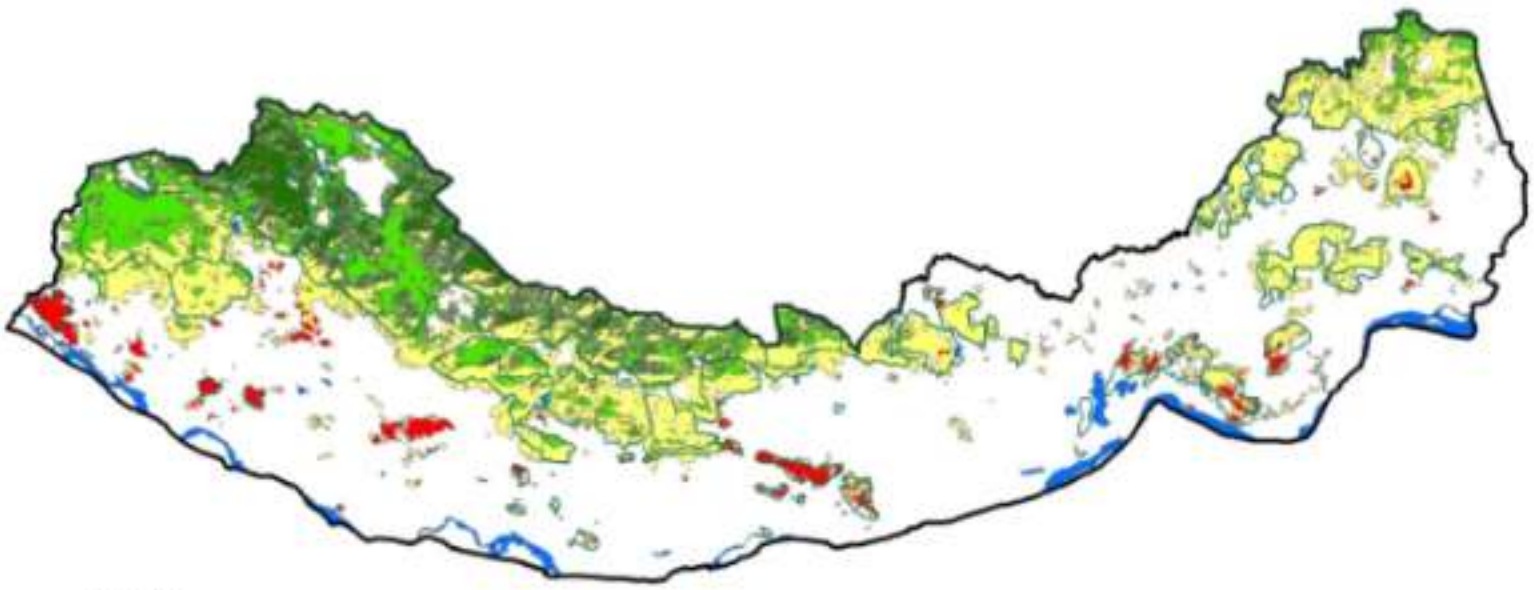
Code	Class	Area in Sq. Km.
1	Litsea Semi Evergreen Forest	0.2
2	Secondary Mixed Bamboo Brakes	247.98
7	Mixed Peninsular Low level Sal Forest	291.24
9	Mixed Sangaric Mixed Mixed Deciduous Forest	0.23
10	Northern Secondary Mixed Mixed Deciduous	106.39
14	Northern Dry Mixed Deciduous Forest	0.38
19	Dry Deciduous Scrub	66.58
30	Plantation/TOF	0.8
31	Non Forest	863.09
32	Water	95.79

Source :FSI,2014

Forest Density Map of Athgarh Forest Division

0 5 10 20 K.M.

Scale - 1: 3,60,000



Legend

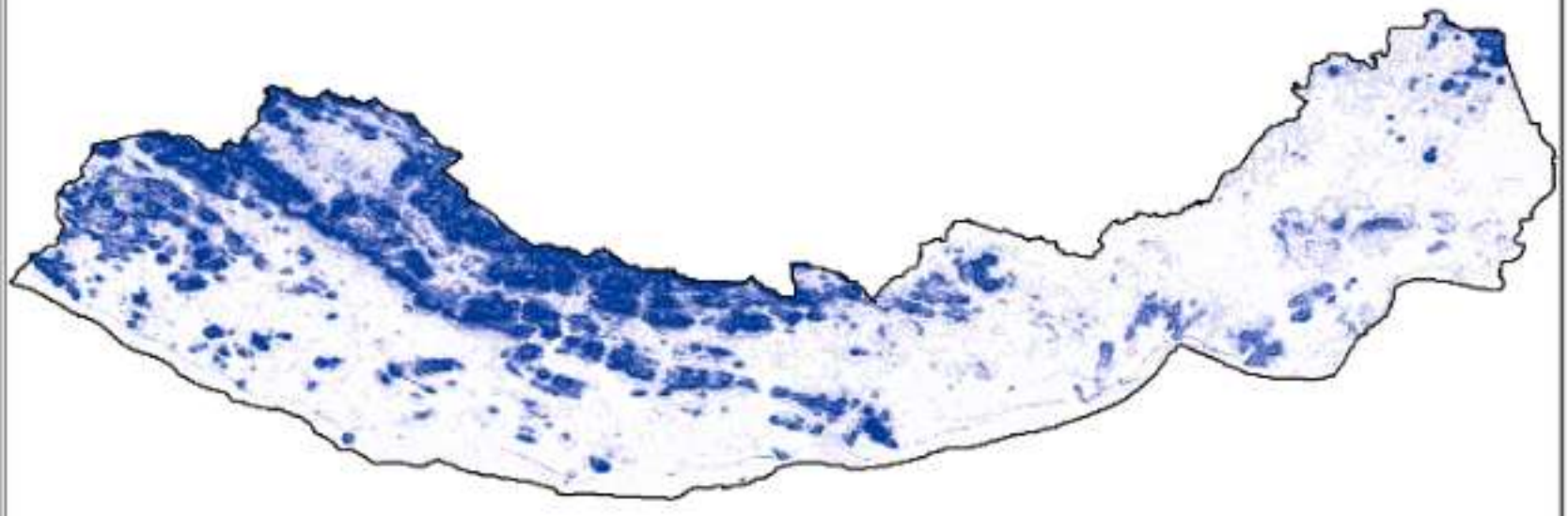
Density Class	Area in Sq. Km.
Dense Forest	51.36
Moderately Dense Forest	168.53
Open Forest	361.74
Scrub Forest	31.72
Non Forest	908.69
Water Bodies	33.93

Block Boundary

Division Boundary

Source : ISFR, FSI, 2015

SLOPE MAP OF ATHGARH FOREST DIVISION



INDEX MAP

LEGEND

DIVISION BOUNDARY

SLOPE CATAGORY:

1.3. Geology, rock and soil

1.3.1. Geology and Rock:-

This Division presents some of the important land marks in the geological history of Orissa. Undivided Cuttack district comprises lithounitsbelonging toEasternghatSupergroup,IronOreSupergroupandUpperGondwanaperiod.TheEasternghat comprises Khondalite, quartzite, Charnockite, Granite gneiss and its variants and basic granulite. They are mainly exposed around Narsinghpurand Barambaareas. The Gondwana comprises Shale, Sandstone, Conglomerate and Fireclay occurs around Megha, Kandarapur,Tigiriaareas. Besides extensive cappingsof laterites belonging to recent period are marked at different localities. The principal river Mahanadi alonwithHadua and Sapuaflowingthrough thisDivisionhavedevelopedfertilealluvialplains,whichistheyoungestformation andcovers themajorportionofthetotallandarea.Accordingtothereport ofGeologicalSurvey ofIndia, thetypeofrockspresentintheforestsisgiveninthefollowingsequenceinorderofincreasing antiquity.

Name	Description
Recent	The Division has large deposits of alluvium along the major river systems of Mahanadi, Hadua and Sapua.
Recent (One million years)	It has mainly lateritic rocks. They occupy a major portion of the Division area. It is yellowish to brown and grey cloured, porous and they have Iron and Aluminum components in them. These lateritic stones are used as building materials by the inhabitants of the area. These rocks mainly occur in Baniabandha, Subasi, Gobarea and Ranibania Forest Blocks.
Jurassic	(150millionyears)ThemainrocksinthisperiodareAthgarhSandstone. This ismainly found in Sukhasan, BaudabanakhandiandKalakalaforestblocks. These rocks form part of upper Gondwanasystem. These sandstones are used in I he building of most of the females of Puri, Bhubaneswnrand in the construction of the historic BarabatiForton the banks of MnhanadiatCuttack.
Archaeans	In 3000 million years the importantrocksofthis period areGneisses,SchistsandCharnock. These rocks are mainly foundinNarsinghpur, BarambaTigiriaareasand also in the blocks adjoining to the Dhenkanal Division.

1.3.2. The disbutrion of rocks in different forest blocks is given in the table below.

Table No.6			
Extent of Distribution of different types of rocks			
S.L No	Period	Type of Rocks	Occurrence
1	Archaean (3000 million years	Khondalite	Forest blocks of Narsinghpur, Badamba,&Tigiria
2	--	Charnokite	Lower hills
3	--	Granite Gneiss	Forest Blocks of Narsinghpur,Badamba&Tigira in association with khondalite.
4	Jurassic (150	AthgarhSandsone	Sukhasan,Baudabanakhandi,Khalakhala,

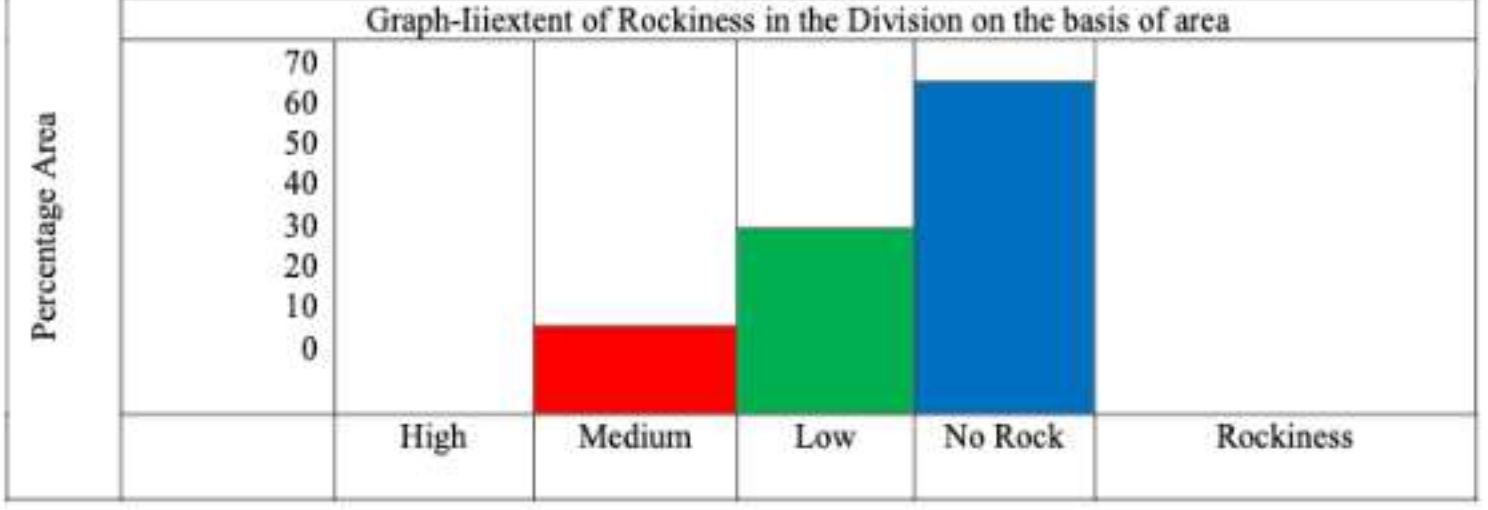
	Million)		Ranibania,Subasi,Deulia,Suniamuhan,Brahmanbasta
5	Pleistocene	Laterite	Baniabandha,Subasi,Ranibania,Gobara,Sankhapoi,Adal,Jenapada,Nizigarh.
6	Recent	Alluvium	North banks of Mahanadi and its tributaries like Hadua, Sapua
Sources: District Mining Officer, Cuttack and Passed Working Plan			

1.3.3. The distribution of Forest area by Rockniess is given in the table below.

Table No. 7		
Distribution of Forest Area by Rockniess		
S.L No	Rockiness	Percentage (%)
1	High	0
2	Medium	3.85
3	Low	30.77
4	No Rock	65.38
	Total	100

Table No.8

Graph-Iiiextent of Rockiness in the Division on the basis of area



1.3.4. MineralResources:-

The import mineral resources present in the Division aregiven in the table below.

Name	Availibility
Fireclay	ItoccursmainlyintheTigiriaareaandatsoinMegha,Ghantikhal&Kandarpurforest blocks of the division.
Graphite	ItoccursinNarsinghpur area.
Quartz &Feldspar	Good quality quartz is presnt near Nuagaon Block associated with pegmatite. High grade feldspar occurs near Balikiary and Barakhola blocks.
Dimension Stone	Itoccursmainly in Chandragiri A, Talachandragiri, Brahmanbasta and Mundagada blocks.

1.3.5. The availability of minerals in different forest blocks is given in the table below.

Table No.9		
Availability of Minerals in different Forest Blocks		
Sl.No.	Mineral	Location
1	Fireclay	Jhinkal, KumarangaSubasi, Or inda, Megha, Sukhasan. Kandarapur
2	Graphite	Deobhuin
3	Dimension Stone	ChandrageriA, Talachandrapiri, Brahmanidei, Mundagada
Source: Joint Director, Geoloy, ZonalSurvey, Dhenkanala		

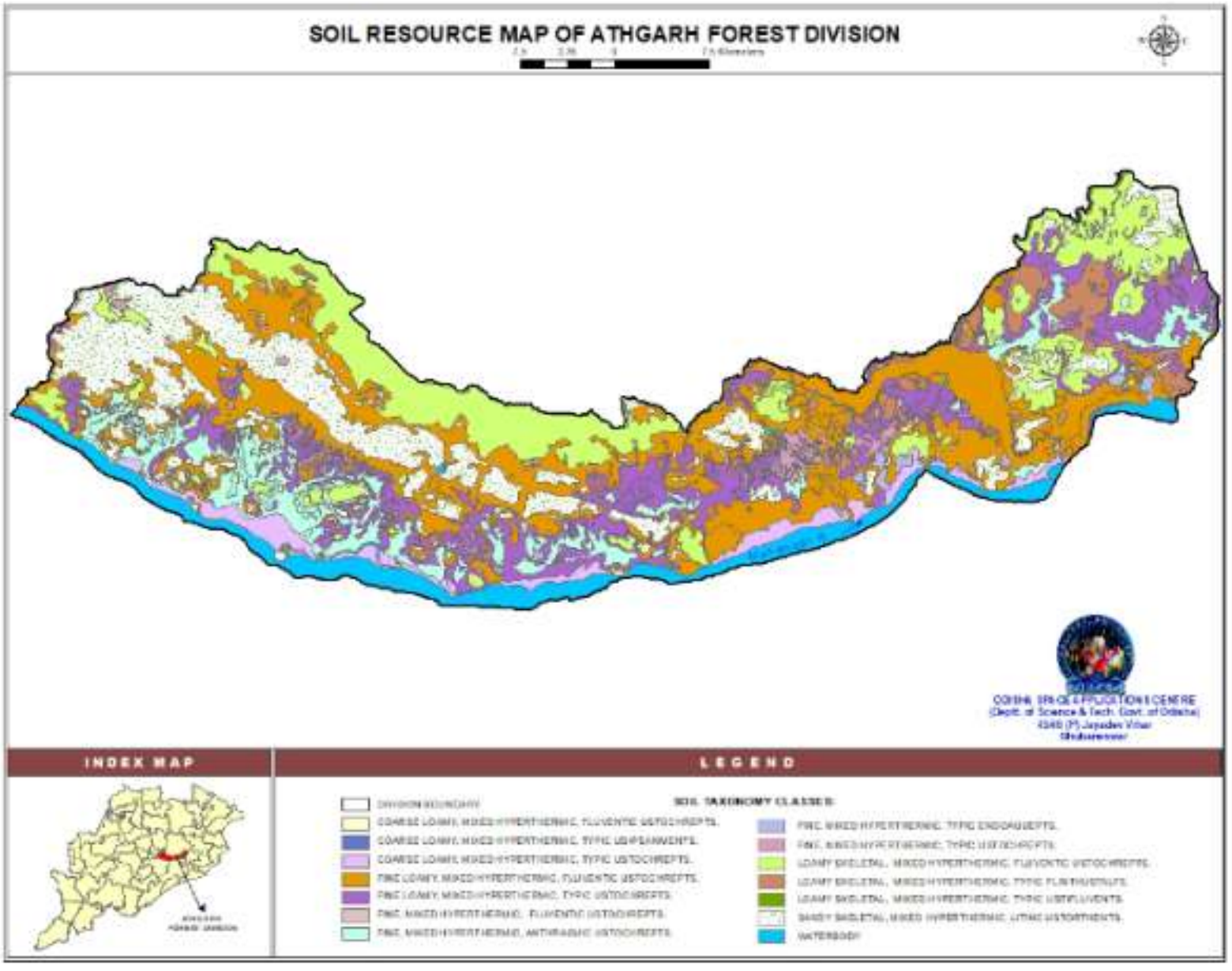
1.3.6. Soils:-

The different types of soils present are broadly classified is given in the table below.

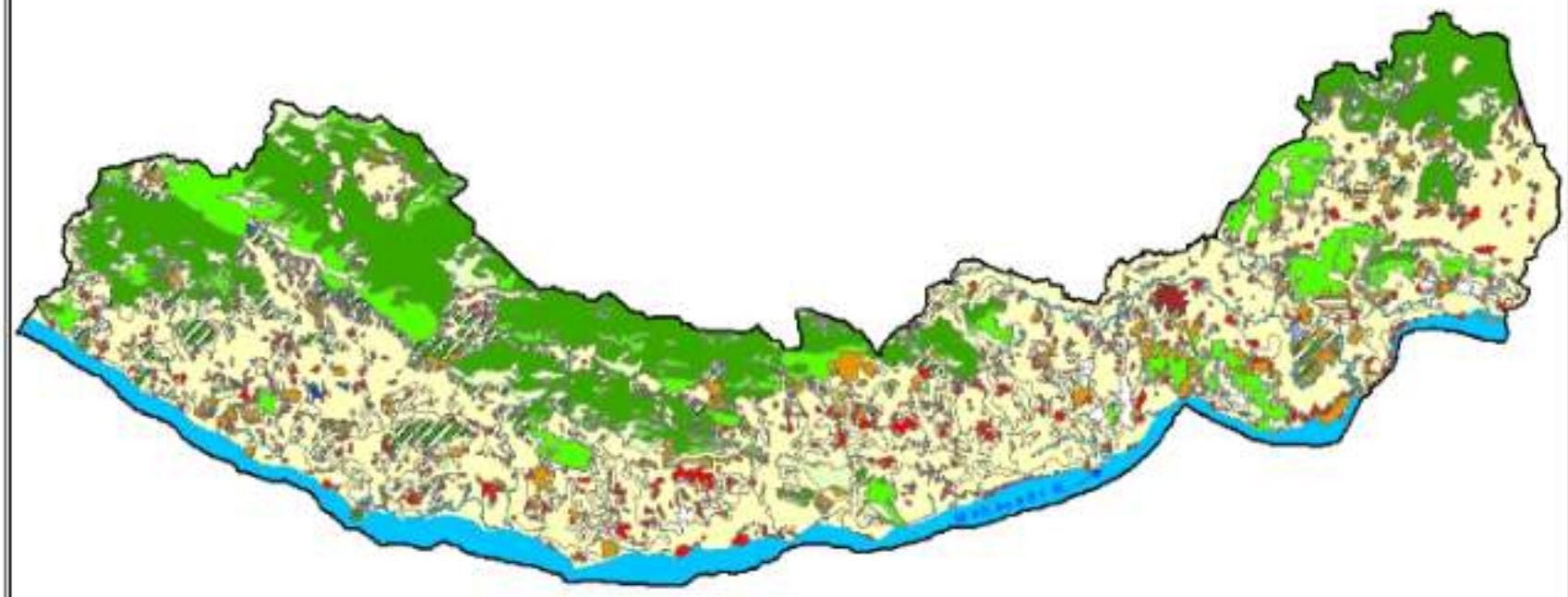
Name	Availibility
Laterite Soil	Extensive areas of Athgarh Division are covered with Laterite soils. Ifthesufficientsoildepthoccurs, itsupportsSalforest,otherwisetheproportionInliscellaneousspeciesespeciallyKangadaincreases,tendingtobepureinsomepatches.Heavyleterisationhastakenplaceinboththeptainsanethillsof Banibandha,Ranibania,Deulia, Adal, Subasi,Suniamuhan,Oringa,andBrahmanbastablocks.Chemically,thesoilischaracterizedbylowsilica-sesquioxideratio,compfeteabsenceofalkaliandalkalineearthmetals.
Redloamysoil	Thevalleysandfoot hills of the mostoftheblocksofNarsinthpurand Barambaranges contain a rich loamy soil derived from weathering of khondalite rocks and have good fores of Sal and kangad. It also supports good proportion of Daba Bamboo. This fertile soil of light brown colour is derived from weathering of Granite Gneisses and is acidic, support good crop. The horn blend schist being a basic rock gives rise to alkaline soils, supports only a poor type of dry miscellaneousforest.
Alluvial Soil	These soils are derived from the deposition of silts brought by the rivers and numerous streams that traverse the forest. The soil shows marked stratification of sand, clay and loam.ThesoilsurveyhasnotbeencarriedoutseparatelyduringtheWorkingPlanreviseon. The data and map obtained fromSoilconservation/Agriculture Deptt,hasbeenutilizedinthisWorkingPlanandtheirreportisgiveninthePlan.

1.3.7. Relationship between Geology, Minerals, Soil and Forests:-

The Relationship between Geology,soils,minerals,anddistributionofforestdependonseveralfactorsthekhonctalterocksgive rise to loamy soil. These soils have high water retniningcapacityand support goodcrop of Sal and miscellaneous forests. These are present in forest blocks of Narsinghpur East and West Ranges. The Charnokites give rise to calcareous rock, as it contains feldspar and the soil derved is reddish in colour due to diffusion of iron in the soil. It gives rise to clayey soils. It supports mixed and bamboo fores like in Barakhol, Balikiary forest blocks. The lateritic soils are derived from Gneisses and sandstone. These soils are hard, stiff and support poor vegetation like in forest blocks of Athgarh and Khuntuni Ranges. The soils in the hilly region are usually shallow, gritty and dry except on gentle slopes, foot hills and valley bottoms.



LANDUSE / LANDCOVER MAP OF ATHGARH FOREST DIVISION (2011 - 12)



INDEX MAP

LEGEND

- DIVISION BOUNDARY
- BUILT UP - URBAN
- BUILT UP - RURAL
- INDUSTRIAL AREA
- CROP LAND
- DENSE FOREST
- OPEN FORES
- SCRUB FOREST
- FOREST PLANTATION
- TREE CLAD AREA
- NATURAL INLAND
- LAKE / POND
- RESERVOIR / TANK
- RIVER
- SCRUB LAND
- SHIFTING CULTIVATION
- GULLIED LAND
- BARREN ROCKY

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(Dept. of Science & Tech. Govt. of Odisha)
434/8 (P) Jayadev Vihar
Bhubaneswar

1.4. ClimaticParameters:-

1.4.1. Climate:-

The climate is the over all weather condition prevailing in an area and is assessed by the patterns of variation in climatic parameters like temperature, rainfall, humidity, atmospheric pressure, wind, light etc. in the said given area over along period of time. The Division experiences Tropical wet and dry climate with very warm humid summer and mild winter. Winter is not severe. Maximum rainfall is received fromsouth -west monsoon and some arealso received from north-east monsoon in the cold moon. As envisaged in National Working Plan Code 2014, the data on Rainfall and Temperature are furnished in succeeding paras. There are three distinct seasons as given below.

Name	Period
Summer	March to June
Rainy	July to October
Winter	November to February

1.4.2. Rainfall:-

The rainfall in this Division is received mainly from monsoon and the cyclonic depressions in the Bay of Bengal. Pre-monsson showers with thunder stroms are experienced in April and May. The normal rain fall is around 1755 mm in a year. The annual rain fall in Athgarh Division from 2005 to 2014 is gibe below.

Table No.10					
C.D BlockwiseRainfallReportforlast14yearsinmm.					
Year	Athgarh	Tigiria	Badamba	Narasinghpur	Average of theDivision
2007	2490	1914	1252	1584	1775
2008	2553	2248	1305	1446	1888
2009	2576	1913	1401	1378	1817
2010	2329	922	1284	1194	1432
2011	1933	1298	1194	1429	1463
2012	2733	1592	1777	1802	1976
2013	1887	1443	1409	1811	1637
2014	1758	1435	1398	1795	1596
2015	1304	1280	1196	1456	1309
2016	1422	1380	1326	1388	1379
2017	1381.2	1310	1022	1198	1227.8
2018	1697	1609	1541	1435	1570.5
2019	1931	1880	1934	1808	1888.25
2020	1716	1608	1569	1650	1635.75
NB: The 14- year average comes to 1766 mm					
Sources: Divisional Forest Officer, Athgarh					

1.4.3. Temperature:-

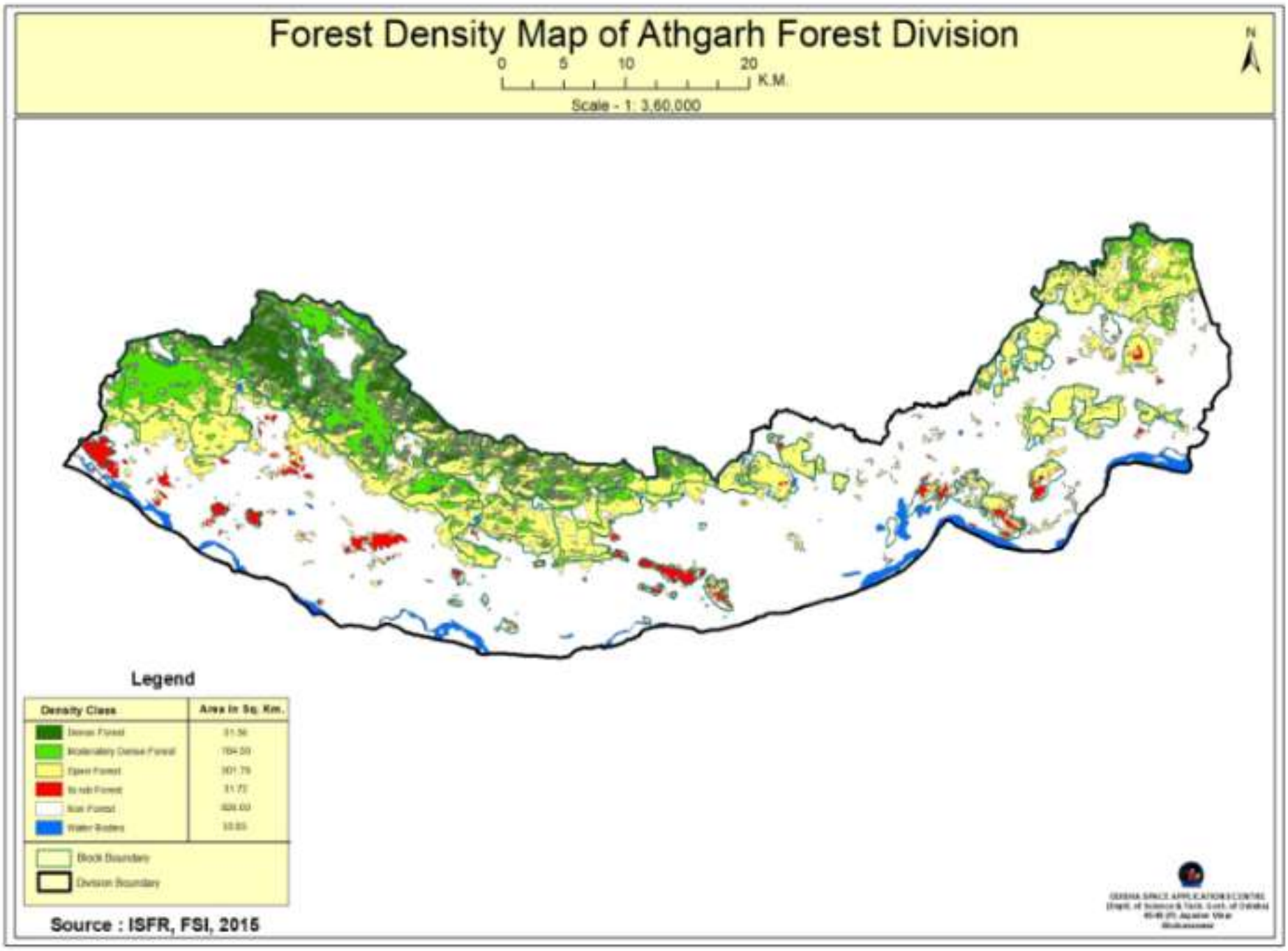
As already narrated earlier summer season pre vailsfrom Marchto June. During this period temperature is quite high and sometimes unbearable. May is the hottest month of the year while December is thecoldestthe temperature recordedatAthgarh, the Division Head Quarters is furnished year wise and montilwisefor last ten years indicating the mean daily minimum and maximum temperature. The maximum temperature is experienced in the month of May – June which ranges from 38-42 degree Celsius. The minimum temperature is in December -January which varies from 12-15 degree Celsius. Nuagarh,Deobhuin and Balikiary R.Fs experience more cold in comparison to other area of the Division. The dates on which maximum temperature more than 45^0 Centigrade and minimum than 5^0 Centigrade recorded at Athgarh has been furnished in Annexure.

1.4.4. Relative Humidity:-

It is a ratio, generally expressed as percentage, of amount of water/ vapour present in the air to the amount required for saturation at the same temperature. Usually it is high throughout the year in this coastal belt of the state. Relative humidity. For last ten years are being collectec. Humidity is very high in the monghs of June, July and August. The lowest humidity is recorded in November and December. The summer months are quite uncomfortable, with higher temperature combined with high humidity.

CHAPTER – 2

Maintenance/Increase in the extent of forest and tree cover



CHAPTER – II

Maintenance/Increase in the extent of forest and tree cover

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

2.1.1. Reserve Forest:-

Table No-1

List of Reserve Forest of Athgarh Division.

Sl. No	Name of Range	Name of R.F	Area as per Notification	Area computed by GIS Computed Area in Ha.	Notification No.& Date
1	Narasinghpur East	Deobhuin	6545.61	6082.23	34016-12F-179(M)-57dt. 09.11.57
2		Olab	2700.15	2288.8	-do-
3		Chandragiri (B)	742.62	738.66	
4		Mundagada 'B'	131.93	136.48	-do-
	Range Total		**10120.31**	**9246.17**	
5	Narasinghpur West	Bramhanidei RF	106.84	99.91	34016-12F-179(M)-57 dt,09.11.57
	Range Total		**106.84**	**99.91**	
6	Baramba	Chandragiri	427.31	321.16	7179 dtd.23.01.79
7		Haladiasein	3866.98	3925.17	9862/D-12F-42(M/2)dt.14.03.59
8		Badajora	1179.13	1063.97	-do-
9		Tareiganda	1043.72	999.39	-do-
10		Kumaranga	410.39	361.36	-do-
11		Talachandragiri (B)	815.71	993.8	-do-
12		Nagatota (B)	2131.96	2228.97	-do-
13		Mandap (B)	430.6	433.48	-do-
14		Jagabeherathali (B)	305.04	224.15	-do-
15		Karada (B)	1273.99	1156.41	-do-
16		Belapada (B)	108.78	91.66	-do-
17		Jhinkal (B)	472.85	436.2	-do-
	Range Total		**12466.46**	**12235.72**	
18	Athgarh	Sukhasan	1036.03	707.28	12F-139(M/2) (59) 41164 dt.28.11.59
19		Khalakhala (B)	562.53	602.99	-do-
20		Baudabanakhandi (B)	446.38	545.03	-do-
21		Oringa (B)	455.28	438.44	-do-

22		Jenapada (B)	171.59	123.24	-do-
23		Subasi {I &II(P)}	790.14	771.83	-do-
24		Ranibania (Part)	283.37	254.99	-do-
25		Adal (B)	252.7	238.61	-do-
26		Nizigarh (B)	789.16	823.1	-do-
27		Kalichaballav (B)	744.64	722.01	6729 dt. 25.02.58
28		Sorispal (B)	713.89	651.29	-do-
	Range Total		**6245.71**	**5878.81**	
29	Khuntuni	Baniabandha	5919.95	5766.71	12F-139(M/2) (59) 41164 dt.28.11.59
30		Gobara "B"	651.56	524.49	-do-
31		Sankhapoi "B"	519.63	496.65	-do-
32		Baula "B"	99.55	95.87	-do-
33		Suniamuhan "B"	214.89	186.97	-do-
34		Bramhanbasta "B"	359.37	320.27	-do-
35		Raniabania (Part)	785.84	776.94	-do-
36		Subasi (II Balance)	600	508.73	-do-
37		Deulia"B"	264.77	288.19	-do-
	Range Total		**9415.56**	**8964.82**	
	Division RF Total		**38354.88**	**36425.43**	

2.1.2. Proposed Reserve Forest:-

Table No-2					
List ofProposedReserve Forest of Athgarh Division.					
Sl. No	Name of Range	Name of P.R.F	Area as per Notification	Area computed by GIS Computed Area in Ha.	Notification No. & Date
1	Narasinghpur East	Bhuska	184.13	248.36	829 dtd.07.02.79
	Range Total		**184.13**	**248.36**	
2	Baramba	Baghamundia	97.43	115.49	5670 dtd.25.01.80
3		KhalidhipJanisahi	23.22	35.58	5682 dtd.25.01.80
4		Kandhamundia	22.09	48.36	5816 dtd.25.01.80
5		Gothamundia	86.73	83.89	5678 dtd.25.01.80
6		Birigadia	47.75	20.32	5674 dtd.25.01.80
7		Kabatbar	60.13	18.33	5666 dtd.25.01.80
8		Ganguari	31.97	30.45	5662 dtd.25.01.80
9		Telunia	18.21	25.01	24739 dtd.02.04.80
	Range Total		**387.53**	**377.43**	
10	Athgarh	Saranda	162.93	129.1	63694 dtd.17.11.70
11		FFubadi	363.42	377.49	63690 dtd.17.11.70
12		Megha	53.82	44.9	30602 dtd.18.04.79
13		Kandarpur	16.59	19.38	49363 dtd06.07.79

	Range Total		**596.76**	**570.87**	
14	Khuntuni	Baniabandha	522.87	269.93	63613 dtd.17.11.70
15		Deulia East	105.62	74.21	30609 dtd.18.04.79
	Range Total		**628.49**	**344.14**	
	Division PRF Total		**1796.91**	**1540.8**	

2.1.3. Protected Forest:-

Table No-3					
List ofProtected Forestof Athgarh Division.					
Sl. No	Name of Range	Name of P.F	Area as per Notification	Area computed by GIS Computed Area in Ha.	Notification No. & Date
1	Narasinghpur West	Kaliapada	--	18.98	--
	Range PF Total		**--**	**18.98**	--
	Athgarh	Gopalprasad	--	29.51	--
	-do-	Kalankpur	--	34.40	--
	Range PF Total		**--**	**63.91**	--
	Divisional PF Total			**82.89**	

2.1.4. Unclassed Forest:-

Table No-4					
List ofUn-classed Forestof Athgarh Division.					
Sl. No	Name of Range	Name of U.F	Area as per Notification	Area computed by GIS Computed Area in Ha.	Notification No. & Date
1	Narasinghpur East	--	2.10	2.10	--
2	Narasinghpur West	--	0.906	0.906	--
3	Baramba	--	0.403	0.403	--
4	Athgarh	--	2.815	2.815	--
5	Khuntuni	--	1.268	1.268	--
	Total U.F		**7.492**	**7.492**	

2.1.5. Village Forest:-

Table No.5					
List of Village Forest and notification No.22555-AFFN. (SIDA)-83/91-F& Edtd. 20.12.1991 published in the Odisha Gazette					
Sl. No	Name of Range	Name of Village Forest	Notified area in ha.	Khata No.	Plot No.
1	Narasinghpur West	Kakudia	5.00	110	1131, 1144 & 1110
		Basantapur	17.00	--	--
		Basantapur	5.00	--	--
		Basantapur	8.00	--	--
		Ghoradia,Mandhota	2.00	--	--
	Range Total		**37.00**		
2	Narasinghpur East	Baghadharia	10	10	745
		Bahali	7	135	61, 71 & 99
		Hatiapalli	5	3	2/1 & 1/1
		Hatiapalli	4	3	1/1
		Bahali	6	135	74, 389
		Ragadisahi	3	46, 97	46, 47
		Bagadharia	5	10	745
		Bagadharia	5	10	745
		Lehenga	5	68, 73, 72, 68, ,72, 73	1324, 1325, 1326, 1329, 1330, 1331 & 331
		Siaria	10	104	193/1714
		Biswanathapur ,Siaria Taila	5	104	193/1714
		Siaria	5	104	193/1714
		Bichanabati	6	61	704
		Bichanabati	5	12, 14, 15, 61	40, 44, 45 & 704
		Siaria	10	104	1151
		Champeswar	5	180	12
		Manpur	5	108	292
		Kalamatia	5	15	1 & 2
		Kalamatia	7	15	2/1
		Gharadia	5	49	230, 254, 234 & 233
		Durgaprasad	5	77	493/1
		Durgaprasad	4	77	1/2
		Durgaprasad	2	77	1/3
		Kandhabereni	5	101	1069/1
		Adheigundi,Trilochanpur	5	249	1351/1
		Taila	5	3	1
		Taila	5	3	1
		Madhubana	5	234	423
		Madhubana	5	234	2789
		Rushipada	8	234	4238
		Rushipada	5	234	2789, 1096

		Rushipada	10	234	2789, 1096
		Bokada	5	179	592
		Sagar(Badabarena)	5	276, 271	365, 366, 364
		Badabareana	4	271	365
		Panchagachhia	4	104 , 53	241, 236
		Padamapur	5	8	443
		Padamapur	5	8	443
		Kamaladeipur	5	71/70	613
		Kamaladeipur	5	71/70	613
		Sagara	5	276	541/1, 78, 80 & 81
		Panchagachhia	50	19	1, 2 & 2
		Panchagachhia	40	19	1, 2 & 2
		Panchagachhia	36	10	1, 2
		Kandhabereni	14	--	--
		Champeswara	15	--	--
		Champeswara	6	--	--
		Godibandha	5	--	--
		Adhigandi(Trilochanpur)	5	--	--
		Bokada	10	--	--
		Kandhabadabhuin	6	--	--
		Jayangamala	5	--	--
		Purukutia	6	--	--
		Odisingha	5	80	1055 & 1039
		Sukat	20	42	
		Kanpur	7	372	9
	Range Total		**455**		
3	Badamba	Budhapanka	10	1	259
		Budhapanka	2	1	1289
		Satagachhia	8	1, 2	26, 239
		Satagachhia	6	2, 2 & 1	31, 239 & 26
		Champeidwar	5	1	16, 818, 819 & 820
		Champeidwar	2	1	926, 927, 928, 816 & 822
		Sanabarsingh	2	1	115
		Kotapalla	5	1, 2, 1	96, 99, 93, 92, 88, 89 &85
		Kuanrapala	10	BirigadiaBRF	
		Kuanrapala	10	Dtto	
		BadakumbiloBanpur	150	Mandap BRF	
		Badakumbilo	20	Ditoo	
		Khairapanga	25	Mandap BRF	
		Khairapanga	20	Ditoo	
		Banapur	20	Ditoo	
		Badakumbilo	10	Ditoo	
		Rampur	20	Karada BRF	

		Banapur	15	Ditoo	
		Banapur	65	Karada BRF	
		Satagachhia	100	Karada BRF	
		Badabarsingh	50	Jagabeherath ali BRF	
		Badabarasingh	30	Jagabeherath ali BRF	
		Sanabarasingh	30	Jagabeherath ali BRF	
		Kotapalla	15	Jagabeherath ali BRF	
		Satagochhia	15	Jagabeherath ali BRF	
		Kotapalla	15	Jagabeherath ali BRF	
		Judum	15	KF	
		Judum	15	KF	
		Talamundali	15	Thinkal BRF	
		Talamundali	5	Thinkal BRF	
		Telikumbilo	90	Nagatota BRF	
		Telikumbilo	15	Thinkal BRF	
		Banapur	20	Thinkal BRF	
		Telikumbilo	30	Thinkal BRF	
		Badabarana	15	Thinkal BRF	
		Mugagahiri	20	TeluniaPRF	
		Badabarana	20	Ganguria PRF	
		Badabarana	10	Ganguria PRF	
		Karadibandha	20	Baghamundia "P" BRF	
		Karadibandha	20	Baghamundia "P" BRF	
		Dhanapalli VWL	6	1	487, 488, 522 & 523
		Dhanapalli VWL	2	1	522
		Dhanapalli VWL	7	1	522 & 523
		Jhajia	4	1	1995 &1637
		Kharod	8	1	2760
		Malati	8	1	444
		Amatia	10	1	679
		Ratapata	10	1	259
		Ratapata	9	1	259
		Badakambilo	6	1	1032 & 675
		Judum	5	Unsurveyed area of judum (KF)	

		Avimanpur	4.5	1	25
		Kankarajori	1	1	2811
		Kadana	7	2, 1	3,1193 (Patch-I)
		Satagochhia	9	1, 2	25, 26, 35 & 36
		Rampur	2	1	9
		Judum	7.5	1	1
		Kadana	4	435	2040, 1890
		Kharod	10	1	2416, 2551, 2452
		Baliapala	9.5	1	2013
		Judum	10	Jhinka	1 BRF
		Nuapada	10	Jhinka	1 BRF
		Talamundali	10	Jhinka	1 BRF
		Kotapalla	10	Jagabeherathali BRF	
		Banapur	5	Jagabeherathali BRF	
		Banapur	5	Jagabeherathali BRF	
		Karadibandha	10	Baghamundia PRF	
		Kuniapala	10	Baghamundia PRF	
		Karadibandha	10	Baghamundia PRF	
		Kasapala	10	Kabatabara PRF	
		Biswanathapur	6	Kandhamundia PRF	
		Khairipanga	5	Kabatabara PRF	
		Khairipanga	4	Kabatabara PRF	
		Gundadwara	5	Nagatota BRF	
		Guradipala	30	Nagatota BRF	
		Kadambpala	10	Nagatota BRF	
		Gurudipala	20	Nagatota BRF	
		Badabarcana	5	1	381, 204, 199 & 1803
		Sasanga	5	--	--
		Sasanga	10	--	--
		Karadibandha	5	--	--
	Total		**1289.052**		
4	Athgarh	Nuaptna	'	--	--
		Radhakrushnapur	20.00	--	--
		Radhakrushnapur	10.00	--	--

		Radhakrushnapur	15.00	--	-
		Radhakrushnapur	10.00	--	--
		Patenigaon	5.00	--	--
		ChhenakhiaNuagaon	10.00	--	--
	Range Total		**80.00**		
	Division Total		**1866.5**		

2.2. Forest area under different working circle/ management plan:-

The total GIS Computed Areaof RF is 36425.43 hectare out of which 210.864 hectare is diverted under F.C, Act and 72.245 hectare is diverted under FRA. Therefore 36142.321 hectare is considered in this revision.

The total GIS Computed Area of PRF is 1540.8hectare out of which 0.9 hectare is diverted under FRA. Therefore 1539.9 hectare is considered in this revision. The total GIS Computed Area of PF is 82.89 hectare. The total GIS Computed Area of Village Forest is 1866.5 hectare out of which 5.448 hectare is diverted under FRA. Therefore 1861.052 hectare is considered in this revision. The details of area statement are given in the table below.

Table No-6				
Statement of area in hectare				
Status	GIS Computed Area	Area diverted under F.C, Act	Area diverted under FRA	Balance area
RF	36425.43	210.864	72.245	36142.321
PRF	1540.8	0	0.9	1539.9
PF	82.89	0	0	82.89
Village Forest	1866.5	0	5.448	1861.052
Total	39915.62	210.864	78.593	39626.163

2.2.1. Range wise entire forest area covered under Working Plan:-

The Range wise distribution of forest area covered under this revised working plan is given in the table below.

Table No-7						
Range wise distribution of forest area in hectare						
Sl No	Name of Range	Name of Forest Block	Area in ha.	Area diverted under		Area available for management in ha.
				FC Act	FRA	

				1980		
Reserve Forest						
1	Narasinghpur East	Deobhuin R.F	6082.23	52.805	0.96	6028.465
2	Narasinghpur East	Olab R.F	2288.8	27.52	0	2261.28
3	Narasinghpur East	Chandragiri RF	738.66	40.34	0	698.32
4	Narasinghpur East	Mundagada RF	136.48	0	0	136.48
	Range Total		9246.17	120.665	0.96	9124.545
5	Narasinghpur West	Bramhanidei RF	99.91	0	0	99.91
	Range Total		99.91	0	0	99.91
6	Baramba	Chandragiri RF	321.16	56.16	0	265
7	Baramba	Haladiasein RF	3925.17	0	0	3925.17
8	Baramba	Badajora RF	1063.97	0	0	1063.97
9	Baramba	Tareiganda RF	999.39	0	2	997.39
10	Baramba	Kumaranga RF	361.36	0	0	361.36
11	Baramba Baramba	Talachandra giri RF	993.8	13.275	0	980.525
12	Baramba	Nagatota RF	2228.97	0	0.6055	2228.3645
13	Baramba	Mandap RF	433.48	0	0	433.48
14	Baramba Baramba	Jagabehera thali RF	224.15	0	0.9712	223.1788
15	Baramba	Karada RF	1156.41	0	0	1156.41
16	Baramba	Belapada (B)RF	91.66	0	0	91.66
17	Baramba	Jhinkal (B)RF	436.2	0	0	436.2
	Range Total		12235.72	69.435	3.5767	12162.7083
18	Athgarh	Sukhasan RF	707.28	0	0	707.28
19	Athgarh	Khalakhala RF	602.99	0	0	602.99
20	Athgarh	Baudabanakhandi RF	545.03	4.352	0	540.678
21	Athgarh	Oringa RF	438.44	0	6.0704	432.3696
22	Athgarh	Jenapada RF	123.24	0	0	123.24
23	Athgarh	Subasi {I &II(P)} RF	771.83	0.26	0	771.57
24	Athgarh	Ranibania (C1) RF	258.6718	0	3.6818	254.99
25	Athgarh	Adal RF	238.61	0	0	238.61
26	Athgarh	Nizigarh RF	823.1	0	0	823.1

27	Athgarh	Kalichaballav RF	722.01	6.9	0	715.11
28	Athgarh	Sorispal RF	651.29	0	0	651.29
	Range Total		5882.4918	11.512	9.7522	5861.2276
29	Khuntuni	Baniabandha RF	5766.71	9.252	42.9327	5714.5253
30	Khuntuni	Gobara RF	524.49	0	13.9417	510.5483
31	Khuntuni	Sankhapoi RF	496.65	0	1.0117	495.6383
32	Khuntuni	Baula RF	95.87	0	0	95.87
33	Khuntuni	Suniamuhan RF	186.97	0	0.07	186.9
34	Khuntuni	Bramhanbasta RF	320.27	0	0	320.27
35	Khuntuni	Raniabania (Part)RF	773.2582	0	0	773.2582
36	Khuntuni	Subasi (II Balance)RF	508.73	0	0	508.73
37	Khuntuni	Deulia RF	288.19	0	0	288.19
	Range Total		8961.1382	9.252	57.9561	8893.9301
Division \Reserved Forest Total			36425.43	210.864	72.245	36142.321
Proposed Reserve Forest						
1	Narasinghpur East	Bhuska PRF	248.36	0	0.9	247.46
	Range Total		248.36	0	0.9	247.46
3	Baramba	Baghamundia PRF	115.49	0	0	115.49
4	Baramba	KhalidhipJanisahi PRF	35.58	0	0	35.58
5	Baramba	Kandhamundia PRF	48.36	0	0	48.36
6	Baramba	Gothamundia PRF	83.89	0	0	83.89
7	Baramba	Birigadia PRF	20.32	0	0	20.32
8	Baramba	Kabatbar PRF	18.33	0	0	18.33
9	Baramba	Ganguari PRF	30.45	0	0	30.45
10	Baramba	Telunia PRF	25.01	0	0	25.01
	Range Total		377.43			377.43
11	Athgarh	Saranda PRF	129.1	0	0	129.1
12	Athgarh	Phulubadi PRF	377.49	0	0	377.49
13	Athgarh	Megha PRF	44.9	0	0	44.9
14	Athgarh	Kandarpur PRF	19.38	0	0	19.38
	Range Total		570.87			570.87

15	Khuntuni	Baniabandha PRF	269.93	0	0	269.93
16	Khuntuni	Deulia East PRF	74.21	0	0	74.21
	Range Total		344.14			344.14
Division PRF Total			1540.8	0	0.9	1539.9
Protected Forest						
1	Narasinghpur West	Kaliapada PF	18.98	0	0	18.98
	Range Total		18.98			18.98
2	Athgarh	Gopalprasad PF	29.51	0	0	29.51
3	Athgarh	Kalankpur PF	34.4	0	0	34.4
	Range Total		63.91			63.91
Division Protected Forest Total			82.89	0	0	82.89
Village Forest						
1	Athgarh	Nuaptna	10	0	0	10
2	Athgarh	Radhakrushnapur	20	0	0	20
3	Athgarh	Radhakrushnapur	10	0	0	10
4	Athgarh	Radhakrushnapur	15	0	0	15
5	Athgarh	Radhakrushnapur	10	0	0	10
6	Athgarh	Patenigaon	5	0	0	5
7	Athgarh	ChhenakhiaNuagaon	10	0	0	10
	Range Total		80	0	0	80
8	Baramba	Budhapanka	10	0	0	10
9	Baramba	Budhapanka	2	0	0	2
10	Baramba	Satagachhia	8	0	0	8
11	Badamba	Satagachhia	6	0	0	6
12	Baramba	Champeidwar	5	0	0	5
13	Baramba	Champeidwar	2	0	0	2
14	Baramba	Sanabarsingh	2	0	0	2
15	Baramba	Kotapalla	5	0	0	5
16	Baramba	Kuanrapala	10	0	0	10
17	Baramba	Kuanrapala	10	0	0	10
18	Baramba	BadakumbiloBanpur	150	0	0	150
19	Baramba	Badakumbilo	20	0	0	20
20	Baramba	Khairapanga	25	0	0	25
21	Baramba	Khairapanga	20	0	0	20
22	Baramba	Banapur	20	0	0	20
23	Baramba	Badakumbilo	10	0	0	10

24	Baramba	Rampur	20	0	0	20
25	Baramba	Banapur	15	0	0	15
26	Baramba	Banapur	65	0	0	65
27	Baramba	Satagachhia	100	0	0	100
28	Baramba	Badabarsingh	50	0	0	50
29	Baramba	Badabarasingh	30	0	0	30
30	Baramba	Sanabarasingh	30	0	0	30
31	Baramba	Kotapalla	15	0	0	15
32	Baramba	Satagochhia	15	0	0	15
33	Baramba	Kotapalla	15	0	0	15
34	Baramba	Judum	15	0	0	15
35	Baramba	Judum	15	0	0	15
36	Baramba	Talamundali	15	0	0	15
37	Baramba	Talamundali	5	0	0	5
38	Baramba	Telikumbilo	90	0	0	90
39	Baramba	Telikumbilo	15	0	0	15
40	Baramba	Banapur	20	0	0	20
41	Baramba	Telikumbilo	30	0	0	30
42	Baramba	Badabarana	15	0	0	15
43	Baramba	Mugagahiri	20	0	0	20
44	Baramba	Badabarana	20	0	0	20
45	Baramba	Badabarana	10	0	0	10
46	Baramba	Karadibandha	20	0	0	20
47	Baramba	Karadibandha	20	0	0	20
48	Baramba	Dhanapalli VWL	6	0	0	6
49	Baramba	Dhanapalli VWL	2	0	0	2
50	Baramba	Dhanapalli VWL	7	0	0	7
51	Baramba	Jhajia	4	0	0	4
52	Baramba	Kharod	8	0	0	8
53	Baramba	Malati	8	0	0	8
54	Baramba	Amatia	10	0	0	10
55	Baramba	Ratapata	10	0	0	10
56	Baramba	Ratapata	9	0	0	9
57	Baramba	Badakambilo	6	0	0	6
58	Baramba	Judum	5	0	0	5
59	Baramba	Avimanpur	4.5	0	0	4.5
60	Baramba	Kankarajori	1	0	0	1
61	Baramba	Kadana	7	0	0	7
62	Baramba	Satagochhia	9	0	0	9
63	Baramba	Rampur	2	0	0	2

64	Baramba	Judum	7.5	0	0	7.5
65	Baramba	Kadana	4	0	0	4
66	Baramba	Kharod	10	0	5.448	4.552
67	Baramba	Baliapala	9.5	0	0	9.5
68	Baramba	Judum	10	0	0	10
69	Baramba	Nuapada	10	0	0	10
70	Baramba	Talamundali	10	0	0	10
71	Baramba	Kotapalla	10	0	0	10
72	Baramba	Banapur	5	0	0	5
73	Baramba	Banapur	5	0	0	5
74	Baramba	Karadibandha	10	0	0	10
75	Baramba	Kuniapala	10	0	0	10
76	Baramba	Karadibandha	10	0	0	10
77	Baramba	Kasapala	10	0	0	10
78	Baramba	Biswanathapur	6	0	0	6
79	Baramba	Khairipanga	5	0	0	5
80	Baramba	Khairipanga	4	0	0	4
81	Baramba	Gundadwara	5	0	0	5
82	Baramba	Guradipala	30	0	0	30
83	Baramba	Kadambpala	10	0	0	10
84	Baramba	Gurudipala	20	0	0	20
85	Baramba	Badabareana	5	0	0	5
86	Baramba	Sasanga	5	0	0	5
87	Baramba	Sasanga	10	0	0	10
88	Baramba	Karadibandha	5	0	0	5
	Range Total		1294.5	0	5.448	1289.052
89	Narasinghpur East Range	Baghadharia	10	0	0	10
90	Narasinghpur East Range	Bahali	7	0	0	7
91	Narasinghpur East Range	Hatiapalli	5	0	0	5
92	Narasinghpur East Range	Hatiapalli	4	0	0	4
93	Narasinghpur East Range	Bahali	6	0	0	6
94	Narasinghpur East Range	Ragadisahi	3	0	0	3
95	Narasinghpur East Range	Bagadharia	5	0	0	5
96	Narasinghpur East Range	Bagadharia	5	0	0	5
97	Narasinghpur East Range	Lehenga	5	0	0	5

98	Narasinghpur East Range	Siaria	10	0	0	10
99	Narasinghpur East Range	Biswanathapur, Siaria Taila	5	0	0	5
100	Narasinghpur East Range	Siaria	5	0	0	5
101	Narasinghpur East Range	Bichanabati	6	0	0	6
102	Narasinghpur East Range	Bichanabati	5	0	0	5
103	Narasinghpur East Range	Siaria	10	0	0	10
104	Narasinghpur East Range	Champeswar	5	0	0	5
105	Narasinghpur East Range	Manpur	5	0	0	5
106	Narasinghpur East Range	Kalamatia	5	0	0	5
107	Narasinghpur East Range	Kalamatia	7	0	0	7
108	Narasinghpur East Range	Gharadia	5	0	0	5
109	Narasinghpur East Range	Durgaprasad	5	0	0	5
110	Narasinghpur East Range	Durgaprasad	4	0	0	4
111	Narasinghpur East Range	Durgaprasad	2	0	0	2
112	Narasinghpur East Range	Kandhabereni	5	0	0	5
113	Narasinghpur East Range	Aleigundi,Trilochanpur	5	0	0	5
114	Narasinghpur East Range	Taila	5	0	0	5
115	Narasinghpur East Range	Taila	5	0	0	5
116	Narasinghpur East Range	Madhubana	5	0	0	5
117	Narasinghpur East Range	Madhubana	5	0	0	5
118	Narasinghpur East Range	Rushipada	8	0	0	8
119	Narasinghpur East Range	Rushipada	5	0	0	5
120	Narasinghpur East Range	Rushipada	10	0	0	10
121	Narasinghpur East Range	Bokada	5	0	0	5
122	Narasinghpur East Range	Sagar(Badabarena)	5	0	0	5

123	Narasinghpur East Range	Badabareana	4	0	0	4
124	Narasinghpur East Range	Panchagachhia	4	0	0	4
125	Narasinghpur East Range	Padamapur	5	0	0	5
126	Narasinghpur East Range	Padamapur	5	0	0	5
127	Narasinghpur East Range	Kamaladeipur	5	0	0	5
128	Narasinghpur East Range	Kamaladeipur	5	0	0	5
129	Narasinghpur East Range	Sagara	5	0	0	5
130	Narasinghpur East Range	Panchagachhia	50	0	0	50
131	Narasinghpur East Range	Panchagachhia	40	0	0	40
132	Narasinghpur East Range	Panchagachhia	36	0	0	36
133	Narasinghpur East Range	Kandhabereni	14	0	0	14
134	Narasinghpur East Range	Champeswara	15	0	0	15
135	Narasinghpur East Range	Champeswara	6	0	0	6
136	Narasinghpur East Range	Godibandha	5	0	0	5
137	Narasinghpur East Range	Adhigandi(Trilochanpur)	5	0	0	5
138	Narasinghpur East Range	Bokada	10	0	0	10
139	Narasinghpur East Range	Kandhabadabhuin	6	0	0	6
140	Narasinghpur East Range	Jayangamala	5	0	0	5
141	Narasinghpur East Range	Purukutia	6	0	0	6
142	Narasinghpur East Range	Odisingha	5	0	0	5
143	Narasinghpur East Range	Sukat	20	0	0	20
144	Narasinghpur East Range	Kanpur	7	0	0	7
	Range Total		455	0	0	455
145	Narasinghpur West Range	Kakudia	5	0	0	5
146	Narasinghpur West Range	Basantapur	17	0	0	17

147	NarasinghpurWest Range	Basantapur	5	0	0	5
148	Narasinghpur West Range	Basantapur	8	0	0	8
149	Narasinghpur West Range	Ghoradia,Mandhota	2	0	0	2
	Range Total		37	0	0	37
Division V.F Total		147 No	1866.5	0	5.448	1861.052
Grand Total			39915.62	210.864	78.593	39626.163

2.2.2. Forest area under different working circle:-

Distribution of forest area into different working circle is given in the table below.

Table No.8

Constitution of working circle of Athgarh Division and distribution of forest area

Statement showing Forest Block areas proposed to assign to different Working Circles. (Areas in ha.)

Sl. No	Name of the Range	Name of Forest Block	Area in ha.	Area diverted under		Area available for management in ha.	Area allotted to different working circle						
				FC Act 1980	FRA		RWC	Plantation	Bamboo (OL) WC	Protection (OL) WC	NTFP (OL) WC	Wild life(OL) WC	JFM (OL) WC
1	2	3	4	5	6	7	9	10	11	12	13	14	15
	Reserve Forest												
1	Narasinghpur East	Deobhata R.F	6082.23	52.805	0.96	6028.465	5853.465	193	6028.465	6028.465	6028.465	6028.465	806.25
2	Narasinghpur East	Olab R.F	2288.8	27.52	0	2261.28	2081.28	180	2261.28	2261.28	2261.28	2261.28	0
3	Narasinghpur East	Chandragiri RF	739.66	40.34	0	698.32	648.32	50	698.32	698.32	698.32	698.32	241
4	Narasinghpur East	Mundagada RF	136.48	0	0	136.48	136.48	0	0	136.48	136.48	136.48	136.48
	Range Total		**9246.17**	**120.665**	**0.96**	**9124.545**	**8701.545**	**423**	**8988.065**	**9124.545**	**9124.545**	**9124.545**	**1183.71**
5	Narasinghpur West	Boambandei RF	99.91	0	0	99.91	99.91	0	0	99.91	99.91	99.91	60
	Range Total		**99.91**	**0**	**0**	**99.91**	**99.91**	**0**	**0**	**99.91**	**99.91**	**99.91**	**60**
6	Banamba	Chandragiri RF	321.16	56.16	0	265	215	50	265	265	265	265	0
7	Banamba	Helabisoree RF	3925.17	0	0	3925.17	3925.17	0	3925.17	3925.17	3925.17	3925.17	115
8	Banamba	Bichitora RF	1063.97	0	0	1063.97	973.97	90	1063.97	1063.97	1063.97	1063.97	56
9	Banamba	Tarigumla RF	999.39	0	2.0	997.39	952.39	45	997.39	997.39	997.39	997.39	100
10	Banamba	Kamarunga RF	361.36	0	0	361.36	286.36	75	0	361.36	361.36	361.36	241.25
11	Banamba Banamba	Talachandragiri RF	993.8	13.275	0	980.525	980.525	0	0	980.525	980.525	980.525	212
12	Banamba	Nagatota RF	2228.97	0	0.6055	2228.3645	2146.3645	82	0	2228.3645	2228.3645	2228.3645	700
13	Banamba	Mandap RF	433.48	0	0	433.48	433.48	0	0	433.48	433.48	433.48	480
14	Banamba	Jagabchena duli RF	224.11	0	0.9712	223.1788	143.1788	80	0	223.1788	223.1788	223.1788	80
15	Banamba	Karada RF	1136.41	0	0	1136.41	1076.41	60	0	1136.41	1136.41	1136.41	545
16	Banamba	Belapada (B)RF	91.66	0	0	91.66	41.66	50	0	91.66	91.66	91.66	
17	Banamba	Jhinkul (B)RF	436.2	0	0	436.2	301.2	135	0	436.2	436.2	436.2	257
	Range Total		**12235.72**	**69.435**	**3.5767**	**12162.7083**	**11475.7083**	**687**	**6251.53**	**12162.7083**	**12162.7083**	**12162.7083**	**2706.25**
18	Athgarh	Sikharam RF	707.28	0	0	707.28	657.28	50	0	707.28	707.28	707.28	60
19	Athgarh	Khalakhala RF	602.99	0	0	602.99	557.99	45	0	602.99	602.99	602.99	70
20	Athgarh	Bandabanakhandi RF	545.03	4.352	0	540.678	285.678	255	0	540.678	540.678	540.678	260

21	Attgarh	Oringa RF	418.44	0	6.0704	432.3696	307.3696	125	0	432.3696	432.3696	432.3696	80
22	Attgarh	Jenajuda RF	123.24	0	0	123.24	123.24	0	0	123.24	123.24	123.24	123.24
23	Attgarh	Sabasi (1&II) P|| RF	771.83	0.26	0	771.57	741.57	30	0	771.57	771.57	771.57	750
24	Attgarh	Ranibanta (C1) RF	258.6718	0	3.6818	254.99	254.99	0	0	254.99	254.99	254.99	200
25	Attgarh	Adal RF	238.61	0	0	238.61	228.61	10	0	238.61	238.61	238.61	238.61
26	Attgarh	Nuagarh RF	823.1	0	0	823.1	783.1	40	0	823.1	823.1	823.1	75
27	Attgarh	Kalichalisilva RF	722.01	6.9	0	715.11	590.11	135	0	715.11	715.11	715.11	650
28	Attgarh	Sarapal RF	651.29	0	0	651.29	501.29	150	0	651.29	651.29	651.29	555
	Range Total		**5082.4918**	**11.512**	**9.7523**	**5861.2276**	**5021.2276**	**840**	**0**	**5861.2276**	**5861.2276**	**5861.2276**	**3061.85**
29	Khurmai	Bamdandia RF	5766.71	9.252	42.9527	5714.5253	5299.5253	415	0	5714.5253	5714.5253	5714.5253	1638
30	Khurmai	Gobara RF	524.49	0	13.9417	510.5483	500.5483	10	0	510.5483	510.5483	510.5483	320
31	Khurmai	Sankhapai RF	496.65	0	1.0117	495.6383	460.6383	35	0	495.6383	495.6383	495.6383	180.5
32	Khurmai	Bisili RF	95.87	0	0	95.87	45.87	50	0	95.87	95.87	95.87	0
33	Khurmai	Sasiamahan RF	186.97	0	0.07	186.9	92.5	94.4	0	186.9	186.9	186.9	127
34	Khurmai	Bramhanbanta RF	320.27	0	0	320.27	215.27	105	0	320.27	320.27	320.27	190
	Khurmai	Ramabanta (Part)RF	773.2582	0	0	773.2582	743.2582	30	0	773.2582	773.2582	773.2582	320
	Khurmai	Sabasi (II Balance)RF	508.73	0	0	508.73	468.73	40	0	508.73	508.73	508.73	183.9
35	Khurmai	Deulia RF	288.19	0	0	288.19	163.19	125	0	288.19	288.19	288.19	175
	Range Total		**8961.1382**	**9.252**	**57.9561**	**8893.9301**	**7969.5301**	**924.4**	**0**	**8893.9301**	**8893.9301**	**8893.9301**	**3035.5**
Division Reserved Forest Total			**36425.43**	**210.864**	**72.245**	**36142.321**	**33267.921**	**2874.4**	**15239.595**	**36142.321**	**36142.321**	**36142.321**	**10047.31**
Proposed Reserve Forest													
1	Narasinghpur East	Bhuska PRF	248.36	0	0.9	247.46	100.46	147	0	247.46	247.46	247.46	200
	Range Total		**248.36**	**0**	**0.9**	**247.46**	**100.46**	**147**	**0**	**247.46**	**247.46**	**247.46**	**200**
2	Banarpa	Baghamunda PRF	115.49	0	0	115.49	72.49	43	0	115.49	115.49	115.49	0
3	Banarpa	Khalidih(Jamuali) PRF	35.58	0	0	35.58	35.58	0	0	35.58	35.58	35.58	0
4	Banarpa	Kandhamunda PRF	48.36	0	0	48.36	48.36	0	0	48.36	48.36	48.36	0
5	Banarpa	Gothamunda PRF	83.89	0	0	83.89	73.89	10	0	83.89	83.89	83.89	32

6	Banamba	Brigadin PRF	20.32	0	0	20.32	10.32	10	0	20.32	20.32	20.32	0
7	Banamba	Kabutbar PRF	18.33	0	0	18.33	0	18.33	0	18.33	18.33	18.33	0
8	Banamba	Gangiari PRF	30.45	0	0	30.45	30.45	0	0	30.45	30.45	30.45	0
9	Banamba	Tribatic PRF	25.01	0	0	25.01	15.01	10	0	25.01	25.01	25.01	0
	Range Total		**377.43**			**377.43**	**286.1**	**91.33**		**377.43**	**377.43**	**377.43**	**32**
10	Athgarh	Sasanda PRF	129.1	0	0	129.1	94.1	35	0	129.1	129.1	129.1	0
11	Athgarh	Phulabadi PRF	377.49	0	0	377.49	287.49	90	0	377.49	377.49	377.49	60
12	Athgarh	Megha PRF	44.9	0	0	44.9	44.9	0	0	44.9	44.9	44.9	0
13	Athgarh	Kankapur PRF	19.38	0	0	19.38	19.38	0	0	19.38	19.38	19.38	0
	Range Total		**570.87**			**570.87**	**445.87**	**125**	**0**	**570.87**	**570.87**	**570.87**	**60**
14	Kharaisi	Barabhandha PRF	269.93	0	0	269.93	4.93	265	0	269.93	269.93	269.93	0
15	Kharaisi	Dosila East PRF	74.21	0	0	74.21	24.21	50	0	74.21	74.21	74.21	0
	Range Total		**344.14**			**344.14**	**29.14**	**315**	**0**	**344.14**	**344.14**	**344.14**	**0**
Division PRF Total			**1540.8**		**0.9**	**1539.9**	**861.57**	**678.33**	**0**	**1539.9**	**1539.9**	**1539.9**	**292**
Protected Forest													
1	Narasinghpur West	Kalingada PF	18.98	0	0	18.98	0	18.98	0	18.98	18.98	18.98	0
	Range Total		**18.98**	0	0	**18.98**	0	**18.98**	0	**18.98**	**18.98**	**18.98**	**0**
2	Athgarh	Gopalprasad PF	29.51	0	0	29.51	0	29.51	0	29.51	29.51	29.51	0
3	Athgarh	Kalankpur PF	34.4	0	0	34.4	0	34.4	0	34.4	34.4	34.4	0
	Range Total		**63.91**	0	0	**63.91**	0	**63.91**	0	**63.91**	**63.91**	**63.91**	**0**
Division Protected Forest Total			**82.89**			**82.89**	0	**82.89**	**0**	**82.89**	**82.89**	**82.89**	**0**
Village Forest													
1	Athgarh	Naapitna	10	0	0	10	0	10	0	10	10	10	10
2	Athgarh	Radhakrushnapur	20	0	0	20	0	20	0	20	20	20	20
3	Athgarh	Radhakrushnapur	10	0	0	10	0	10	0	10	10	10	10
4	Athgarh	Radhakrushnapur	15	0	0	15		15		15	15	15	15
5	Athgarh	Radhakrushnapur	10	0	0	10		10		10	10	10	10
6	Athgarh	Patrapur	5	0	0	5		5		5	5	5	5
7	Athgarh	ChhatikhaNuagaon	10	0	0	10		10		10	10	10	10
	Range Total		**80**	**0**	**0**	**80**		**80**		**80**	**80**	**80**	**80**

8	Basanta	Bidhayaka	10	0	0	10		10		10	10	10	10
9	Basanta	Bidhayaka	2	0	0	2		2		2	2	2	2
10	Basanta	Satapathita	8	0	0	8		8		8	8	8	8
11	Bahanka	Satapathita	6	0	0	6		6		6	6	6	6
12	Basanta	Champaidesar	5	0	0	5		5		5	5	5	5
13	Basanta	Champaidesar	2	0	0	2		2		2	2	2	2
14	Basanta	Sasabarsingh	2	0	0	2		2		2	2	2	2
15	Basanta	Kotapalla	5	0	0	5		5		5	5	5	5
16	Basanta	Kasarapala	10	0	0	10		10		10	10	10	10
17	Basanta	Kasarapala	10	0	0	10		10		10	10	10	10
18	Basanta	Bichikarnbilo/Ran pur	130	0	0	130		130		130	130	130	130
19	Basanta	Bichikarnbilo	20	0	0	20		20		20	20	20	20
20	Basanta	Khaingarga	25	0	0	25		25		25	25	25	25
21	Basanta	Khaingarga	20	0	0	20		20		20	20	20	20
22	Basanta	Rampur	20	0	0	20		20		20	20	20	20
23	Basanta	Bichikarnbilo	10	0	0	10		10		10	10	10	10
24	Basanta	Rampur	20	0	0	20		20		20	20	20	20
25	Basanta	Rampur	15	0	0	15		15		15	15	15	15
26	Basanta	Rampur	65	0	0	65		65		65	65	65	65
27	Basanta	Satapathita	100	0	0	100		100		100	100	100	100
28	Basanta	Bichharsingh	50	0	0	50		50		50	50	50	50
29	Basanta	Bichharsingh	30	0	0	30		30		30	30	30	30
30	Basanta	Sasabarsingh	30	0	0	30		30		30	30	30	30
31	Basanta	Kotapalla	15	0	0	15		15		15	15	15	15
32	Basanta	Satapathita	15	0	0	15		15		15	15	15	15
33	Basanta	Kotapalla	15	0	0	15		15		15	15	15	15
34	Basanta	Jadam	15	0	0	15		15		15	15	15	15
35	Basanta	Jadam	15	0	0	15		15		15	15	15	15
36	Basanta	Talamundali	15	0	0	15		15		15	15	15	15
37	Basanta	Talamundali	5	0	0	5		5		5	5	5	5
38	Basanta	Trikamhila	90	0	0	90		90		90	90	90	90
39	Basanta	Trikamhila	15	0	0	15		15		15	15	15	15
40	Basanta	Rampur	20	0	0	20		20		20	20	20	20
41	Basanta	Trikamhila	30	0	0	30		30		30	30	30	30

42	Basanta	Bakbaruna	15	0	0	15		15		15	15	15	15
43	Basanta	Mugagahri	20	0	0	20		20		20	20	20	20
44	Basanta	Bakbaruna	20	0	0	20		10		10	10	10	20
45	Basanta	Bakbaruna	10	0	0	10		10		10	10	10	10
46	Basanta	Karadhandha	20	0	0	20		150		150	150	150	20
47	Basanta	Karadhandha	20	0	0	20		20		20	20	20	20
48	Basanta	Dhanapalli VWL	6	0	0	6		25		25	25	25	6
49	Basanta	Dhanapalli VWL	2	0	0	2		20		20	20	20	2
50	Basanta	Dhanapalli VWL	7	0	0	7		20		20	20	20	7
51	Basanta	Jhajra	4	0	0	4		10		10	10	10	4
52	Basanta	Khasrol	8	0	0	8		20		20	20	20	8
53	Basanta	Malati	8	0	0	8		15		15	15	15	8
54	Basanta	Amatia	10	0	0	10		65		65	65	65	10
55	Basanta	Ratapata	10	0	0	10		100		100	100	100	10
56	Basanta	Ratapata	9	0	0	9		50		50	50	50	9
57	Basanta	Badakarabilo	6	0	0	6		30		30	30	30	6
58	Basanta	Jadam	5	0	0	5		30		30	30	30	5
59	Basanta	Avinanpur	4.5	0	0	4.5		15		15	15	15	4.5
60	Basanta	Kankanjore	1	0	0	1		15		15	15	15	1
61	Basanta	Kadasa	7	0	0	7		15		15	15	15	7
62	Basanta	Sitapichhia	9	0	0	9		15		15	15	15	9
63	Basanta	Rampur	2	0	0	2		15		15	15	15	2
64	Basanta	Jadam	7.5	0	0	7.5		15		15	15	15	7.5
65	Basanta	Kadasa	4	0	0	4		5		5	5	5	4
66	Basanta	Khasrol	10	0	5.448	4.552		90		90	90	90	4.552
67	Basanta	Baliapala	9.5	0	0	9.5		15		15	15	15	9.5
68	Basanta	Jadam	10	0	0	10		20		20	20	20	10
69	Basanta	Naupala	10	0	0	10		30		30	30	30	10
70	Basanta	Tekmardali	10	0	0	10		15		15	15	15	10
71	Basanta	Kotapala	10	0	0	10		20		20	20	20	10
72	Basanta	Barapur	5	0	0	5		5		5	5	5	5
73	Basanta	Barapur	5	0	0	5		5		5	5	5	5
74	Basanta	Karadhandha	10	0	0	10		10		10	10	10	10
75	Basanta	Kantapala	10	0	0	10		10		10	10	10	10

76	Basanta	Kendibandha	10	0	0	10		10		10	10	10	10
77	Basanta	Kaupala	10	0	0	10		10		10	10	10	10
78	Basanta	Biswanathpur	6	0	0	6		6		6	6	6	6
79	Basanta	Khairpanga	5	0	0	5		5		5	5	5	5
80	Basanta	Khairpanga	4	0	0	4		4		4	4	4	4
81	Basanta	Gundabasta	5	0	0	5		5		5	5	5	5
82	Basanta	Gundipala	30	0	0	30		30		30	30	30	30
83	Basanta	Kadamtipala	10	0	0	10		10		10	10	10	10
84	Basanta	Gundipala	20	0	0	20		20		20	20	20	20
85	Basanta	Bichhuramna	5	0	0	5		5		5	5	5	5
86	Basanta	Sasanga	5	0	0	5		5		5	5	5	5
87	Basanta	Sasanga	10	0	0	10		10		10	10	10	10
88	Basanta	Kendibandha	5	0	0	5		5		5	5	5	5
	Range Total		**1294.5**	**0**	**5.448**	**1289.052**		**1289.052**		**1289.052**	**1289.052**	**1289.052**	**1289.052**
89	Narasinghpur East Range	Baghadhuria	10	0	0	10		10		10	10	10	10
90	Narasinghpur East Range	Boluli	7	0	0	7		7		7	7	7	7
91	Narasinghpur East Range	Hatiapalli	5	0	0	5		5		5	5	5	5
92	Narasinghpur East Range	Hatiapalli	4	0	0	4		4		4	4	4	4
93	Narasinghpur East Range	Baluli	6	0	0	6		6		6	6	6	6
94	Narasinghpur East Range	Bagadisahi	3	0	0	3		3		3	3	3	3
95	Narasinghpur East Range	Bagadharia	5	0	0	5		5		5	5	5	5
96	Narasinghpur East Range	Bagadharia	5	0	0	5		5		5	5	5	5
97	Narasinghpur East Range	Lohanga	5	0	0	5		5		5	5	5	5
98	Narasinghpur East Range	Siuria	10	0	0	10		10		10	10	10	10
99	Narasinghpur East Range	Biswanathpur,Siuria Tala	5	0	0	5		5		5	5	5	5
100	Narasinghpur East Range	Siuria	5	0	0	5		5		5	5	5	5
101	Narasinghpur East Range	Bichanabati	6	0	0	6		6		6	6	6	6
102	Narasinghpur East Range	Bichanabati	5	0	0	5		5		5	5	5	5
103	Narasinghpur East Range	Siuria	10	0	0	10		10		10	10	10	10
104	Narasinghpur East Range	Champeswar	5	0	0	5		5		5	5	5	5
105	Narasinghpur East Range	Manpur	5	0	0	5		5		5	5	5	5

106	Narasinghpur East Range	Kalomatia	5	0	0	5		5		5	5	5	5
107	Narasinghpur East Range	Kalomatia	7	0	0	7		7		7	7	7	7
108	Narasinghpur East Range	Gharadia	3	0	0	3		3		3	3	3	3
109	Narasinghpur East Range	Durgaprasad	5	0	0	5		5		5	5	5	5
110	Narasinghpur East Range	Durgaprasad	4	0	0	4		4		4	4	4	4
111	Narasinghpur East Range	Durgaprasad	2	0	0	2		2		2	2	2	2
112	Narasinghpur East Range	Kandhaberem	5	0	0	5		5		5	5	5	5
113	Narasinghpur East Range	Alrigram, Trilochanpur	5	0	0	5		5		5	5	5	5
114	Narasinghpur East Range	Tulu	5	0	0	5		5		5	5	5	5
115	Narasinghpur East Range	Tulu	3	0	0	3		3		3	3	3	3
116	Narasinghpur East Range	Madhubana	5	0	0	5		5		5	5	5	5
117	Narasinghpur East Range	Madhubana	3	0	0	3		3		3	3	3	3
118	Narasinghpur East Range	Rushipada	8	0	0	8		8		8	8	8	8
119	Narasinghpur East Range	Rushipada	5	0	0	5		5		5	5	5	5
120	Narasinghpur East Range	Rushipada	10	0	0	10		10		10	10	10	10
121	Narasinghpur East Range	Bokada	5	0	0	5		5		5	5	5	5
122	Narasinghpur East Range	Sagar(Badaberena)	3	0	0	3		3		3	3	3	3
123	Narasinghpur East Range	Badaberena	4	0	0	4		4		4	4	4	4
124	Narasinghpur East Range	Panchagachhia	4	0	0	4		4		4	4	4	4
125	Narasinghpur East Range	Padampur	5	0	0	5		5		5	5	5	5
126	Narasinghpur East Range	Padampur	3	0	0	3		3		3	3	3	3
127	Narasinghpur East Range	Kanuladeipur	5	0	0	5		5		5	5	5	5
128	Narasinghpur East Range	Kanuladeipur	5	0	0	5		5		5	5	5	5
129	Narasinghpur East Range	Sagara	5	0	0	5		5		5	5	5	5
130	Narasinghpur East Range	Panchagachhia	50	0	0	50		50		50	50	50	50
131	Narasinghpur East Range	Panchagachhia	40	0	0	40		40		40	40	40	40
132	Narasinghpur East Range	Panchagachhia	36	0	0	36		36		36	36	36	36
133	Narasinghpur East Range	Kandhaberem	14	0	0	14		14		14	14	14	14
134	Narasinghpur East Range	Champeswara	15	0	0	15		15		15	15	15	15

135	Narasinghpur East Range	Champeswara	6	0	0	6		6		6	6	6	6
136	Narasinghpur East Range	Godibandha	5	0	0	5		5		5	5	5	5
137	Narasinghpur East Range	Adhigaon(Tribeni hanpur)	3	0	0	3		3		3	3	3	3
138	Narasinghpur East Range	Bokada	10	0	0	10		10		10	10	10	10
139	Narasinghpur East Range	Kendhalisahi(Hatt	6	0	0	6		6		6	6	6	6
140	Narasinghpur East Range	Jayrampatna	5	0	0	5		5		5	5	5	5
141	Narasinghpur East Range	Purakata	6	0	0	6		6		6	6	6	6
142	Narasinghpur East Range	Odisingha	5	0	0	5		5		5	5	5	5
143	Narasinghpur East Range	Sikai	20	0	0	20		20		20	20	20	20
144	Narasinghpur East Range	Kanpur	7	0	0	7		7		7	7	7	7
	Range Total		455	0	0	455		455		455	455	455	455
145	Narasinghpur West Range	Kakudia	5	0	0	5		5		5	5	5	5
146	Narasinghpur West Range	Basantapur	17	0	0	17		17		17	17	17	17
147	Narasinghpur West Range	Basantipur	5	0	0	5		5		5	5	5	5
148	Narasinghpur West Range	Basantapur	8	0	0	8		8		8	8	8	8
149	Narasinghpur West Range	Ghoradia,Mandhat a	2	0	0	2		2		2	2	2	2
	Range Total		37	0	0	37		37		37	37	37	37
Division V.F Total		**147 No**	**1866.5**	**0**	**5.448**	**1861.052**		**1861.052**		**1861.052**	**1861.052**	**1861.052**	**1861.052**
Grand Total			39915.62	210.864	78.593	39626.163	34129.491	5496.672	15239.595	39626.163	39626.163	39626.163	12200.362

2.3. Percentage of forest with secured boundaries:-

2.3.1. Percentage of forest:-

The total geographical area of this division is 152262.00ha. and the total forest area to be managed in this revision is 39626.163 ha. Therefore 33.33 percentage of forest area is proposed to be managed in this revision.

2.3.2. Boundary of forest block:-

The total boundary length of forest block is 621.23 Km. The details of block wise boundary length is given in the table below.

Table No.9

Boundary of Forest Blocks

Sl. No	Blocks	Boundary Length in Km
1	Deobhuin RF	42.7
2	Olab RF	23
3	Chandragiri 'B'RF	10.48
4	Mundagada B' RF	4.26
5	Brahmandei 'B' RF	3.64
6	Chandragiri (A) RF	16.1
7	Haladiaseni RF	34.96
8	Badajora RF	13.32
9	Tareigonda RF	17.28
10	Kumaranga RF	10.44
11	Talachandragiri (B) RF	10.36
12	Nagatota (B) RF	21.32
13	Mandap (B) RF	11.92
14	Jagabeherathali (B) RF	9.56
15	Karada (B) RF	9.02
16	Belapada (B) RF	5.7
17	Jhinkal (B) RF	15.18
18	Sukhasan RF	12.48
19	Khalakhala (B) RF	10.3
20	Baudabanakhandi(B) RF	10.1
21	Oringa (B) RF	8.92
22	Jenapada RF	8.12
23	Subasi RF (balance)	29.52
24	Ranibania RF (part)	26.9
25	Adal (B)RF	11.2
26	Nizigarh (B) RF	14.18
27	Kalichaballav (B) RF	18.44

28	Sorispal(B) RF	17.2
29	Baniabandha RF	44.38
30	Gobara (B) RF	8.9
31	Sankhapoi (B) RF	7.76
32	Baula (B) RF	4.04
33	Suniamuhan (B) RF	8.3
34	Brahmanbasta (B) RF	4.32
35	Ranibania RF (balance)	25.25
36	Subasi (part) RF	27.75
37	Deulia (B) RF	9.25
38	Bhuska PRF	12
39	Baghamundia PRF	5.7
40	KhalidhipJanisahi PRF	2.5
41	Kandhamundia PRF	3.05
42	Gothamundia PRF	3.55
43	Birigadia PRF	2.1
44	Kabatbar PRF	1.5
45	Ganguari PRF	2.2
46	Telunia PRF	2.1
47	Saranda PRF	3.5
48	Phulbadi PRF	1.75
49	Megha PRF	3.15
50	Kandarapur PRF	1.1
51	Baniabandha PRF	5.1
52	Deulia (East) PRF	5.38
	Total	**621.23**

2.3.3. Forest block's pillars:-

There are 4507number of pillars in all the forest block. The details of pillars of individual forest is given in the table below.

Table No.10

Number of Pillars of Forest Blocks

Sl. No	Blocks & its status	Nos. of Pillars	Condition of the Pillars			No. of Pillar to be repaired / Construction
			Good	Damaged	Missing	
1	Nuagarh RF	247	101	115	31	146
2	Deobhuin RF	260	125	125	10	135
3	Olab RF	114	59	50	5	55
4	Chandragiri 'B'RF	77	15	58	4	62

5	Mundagada B' RF	25	25	0	0	0
6	Balikiary RF	182	42	122	18	140
7	Barakhol 'B'RF	115	56	51	8	59
8	Brahmandei 'B' RF	31	66	31	4	35
9	Chandragiri (A) RF	200	125	68	7	75
10	Haladiaseni RF	178	73	95	10	105
11	Badajora RF	49	16	29	4	33
12	Tareigonda RF	116	40	71	5	76
13	Kumaranga RF	74	0	68	6	74
14	Talachandragiri (B) RF	120	55	59	6	65
15	Nagatota (B) RF	263	103	125	35	160
16	Mandap (B) RF	149	33	108	8	116
17	Jagabcherathali (B) RF	105	65	40	0	40
18	Karada (B) RF	135	33	90	12	102
19	Belapada (B) RF	57	0	57	0	57
20	Jhinkal (B) RF	180	115	58	7	65
21	Sukhasan RF	91	32	55	4	59
22	Khalakhala (B) RF	73	13	49	11	60
23	Baudabanakhandi(B) RF	60	42	18	0	18
24	Oringa (B) RF	94	0	94	0	94
25	Jenapada RF	47	12	29	6	35
26	Subasi RF	161	28	125	8	133
27	Ranibania RF	81	70	11	0	11
28	Adal (B)RF	59	51	8	0	8
29	Nizigarh (B) RF	187	19	158	10	168
30	Kalichaballav (B) RF	158	22	124	12	136
31	Sorispal(B) RF	159	49	98	12	110
32	Baniabandha RF	114	75	31	8	39
33	Gobara (B) RF	73	27	41	5	46
34	Sankhapoi (B) RF	43	25	18	0	18
35	Baula (B) RF	35	28	7	0	7
36	Suniamuhan (B) RF	58	54	4	0	4
37	Brahmanbasta (B) RF	81	15	61	5	66
38	Ranibania RF	81	70	11	0	11
39	Subasi (part) RF	161	16	132	13	145
40	Deulia (B) RF	37	0	37	0	37
41	Bhuska PRF	--	9	--	0	--
42	Balikiary PRF	--	21	--	0	--
43	Baghamundia PRF	25	0	25	0	25
44	KhalidhipJanisahi PRF	13	0	13	0	13
45	Kandhamundia PRF	18	0	18	0	18
46	Gothamundia PRF	31	0	31	0	31

47	Birigadia PRF	21	0	21	0	21
48	Kabatbar PRF	21	0	21	0	21
49	Ganguari PRF	19	0	19	0	19
50	Telunia PRF	--	--	--	--	--
51	Saranda PRF	15	0	15	0	15
52	Phulbadi PRF	92	27	61	4	65
53	Megha PRF	23	23	0	0	0
54	Kandarapur PRF	--	--	--	--	--
55	Baniabandha PRF	8	0	8	0	8
56	Deulia (East) PRF	--	--	--	--	--
	Total	**4507**	**1875**	**2763**	**278**	**3041**

2.3.4. Fresh Demarcation:-

There is no any fresh demarcation is proposed in this division.

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

2.4.1. Area managed during last plan period:-

The last plan period is from 2007-08 to 2016-17. The total GIS Computed Area managed during this period is 50549.34ha. The total area managed in this revision 50339.704 ha. Therefore 209.636 ha. is diverted under FC and FRA during the outgoing plan period. The details of the area managed in the outgoing plan is given in the table below.

Table No-11		
Area managed from 2007-08 to 2016-17		
Sl. No	Name of Working Circle	Area in ha.
i	The selection- cum- Improvement Working Circle	3781.73
ii	The Rehabilitation Working Circle	44901.11 + All VF 1866.50
iii	The Plantation (Overlapping) Working Circle	590
iv	The Protection (Overlapping) Working Circle	46267.32
v	The Bamboo (Overlapping) Working Circle	26142.89
vi	The NTFP (Overlapping) Working Circle	48682.86
vii	The Wildlife (Overlapping) Working Circle	41798.92
viii	The Joint Forest Management (Overlapping) Working Circle	8799.07

2.4.2. Land diverted under FRA:-

The total area diverted under FRA is71.145hectare.

2.4.3. Land diverted under FCA:-

The total area diverted under FCA is231.741hectare.

2.4.4. Tree Outside Forest:-

The total are covered under TOF is 101922.996hectare,

2.4.5. Fresh Encroachments:-

There is no any fresh encroachments during the outgoing plan period.

2.5. Threats to the forest:-

2.5.1. Impact of Climate Change:-

Climate is an active factor in the physical environment of all living 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;

i	They are source of greenhouse gas (GHG) emissions;
ii	They offer mitigation opportunities to stabilize SHG concentrations.
iii	They are impacted by climate change.

2.5.2. Forest Fire:-

Forest fire is common in all the forest blocks of this division. Ground forest fire damages natural regeneration of some species. 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.

2.6. Distribution of different forest types:-

2.6.1. ForestTypes:-

Forest type is defined as a unit of vegetation which possesses similar characteristics of physiognomy, structure, function, floristic composition and physiognomy influenced by climate and topography {Champion& Seth (1968)}. The climatic and edaphic factors coupled with biotic disturbances in Athgarh division have given rise to a rich and varied flora. According to Champion & Seth, 1968 the forest types in the division were categorized into Tropical Moist Mixed Deciduous and Tropical Dry Mixed Deciduous Forests. In the outgoing plan an attempt has been made to derive forest type information with reference to Champion and Seth classification system using multi temporal satellite data and field species data collected from sample points (0.1 ha) distributed over entire division. Using satellite image spectral separable data and ground data following forest types were mapped and equated within standard Champion & Seth's classification scheme and the details of the forest types are given in the table. Champion & Seth's classification at level II is based on phenological pattern (Evergreen, Semi-evergreen, Deciduous) and level III Deciduous forest is divided based on presence or absence of Sal (Shorea robusta). Further level IV categorization is based on regional specific criteria in terms of locality, species composition and topographic factors.

Table No-12

Types of Forests present in Athgarh Division.

Sl. No.	Level - III	Level - IV	Code
1	Northern tropical dry deciduous forests	Dry Peninsular Sal forest	5B/C1 (c)
		Dry Deciduous Scrub	5DS1
2	South Indian moist deciduous forests	Southern Moist mixed deciduous forest	3B/C2

2.6.2. Composition of the forest:-

The main composition of the forests as observed during field visit, detail studies are Shorea robusta, Anogeissus latifolia, Cleistanthuscollinus, Terminalia tomentosa, Buchananialanzan, Diospyros melanoxylon, Lagerstroemia parviflora, and Aeglemarmelos in the top canopy. The ground flora consists of Helicteresisora, Grewia spp, Indigofera cassioides etc. Hemidesmus indicus, Calycopteris floribunda, Combretum decandrum, Butea superba are the important climbers of these forests.

2.6.3. 5B/ C1 (c)-Dry Peninsular Sal Forest:-

The Northern Tropical dry deciduous forests are generally seen in this division. They are broadly classified as Dry Deciduous Peninsular Sal forest and dry Deciduous Scrub Forest. Though in the outgoing plan only scrub forests have been enumerated, due to involvement of VSS in protection of Forests, some Scrub Forests have now developed to Mixed forest type with characteristic associates.

Group, Sub-Group and Type	
Group 5	Tropical Dry Deciduous Forests
Sub Group	5B Northern Tropical Dry Deciduous Forests
Type	5B/C1 (c) Dry Peninsular Sal Forests

This factor will be critically examined during Working Plan Preparation. Shorea robusta (Sal) forms around 10-66% of total crop. The other co-dominant species are Anogeissus latifolia, Cleistanthuscollinus, Terminalia tomentosa, Buchananialanzan, Diospyros melanoxylon, Lagerstroemia parviflora and Aegle marmelos. The ground flora consists of Helicteresisora, Grewia spp, Indigofera cassioides etc. form the shrubby layer. Hemidesmus indicus, Calycopteris floribunda, Combretum decandrum, Butea superba are the important climbers of these forests.

2.6.4. 5B/ DS1 - Dry Deciduous Scrubs:-

Group, Sub-Group and Type	
Group 5	Tropical Dry Deciduous Forests
Sub group	5B Northern Tropical Dry Deciduous Forests
Type	5B/DS1 Dry Deciduous Scrub

2.6.5. Scrub Forest:-

The Scrub forest is generally confined to the foot hills, along the fringes of forests. It is determined by factors like edaphic conditions, climate and biotic pressure in forests. It occupies mainly the drier parts. The vegetation presents a very open appearance and distinctly covered by widely spaced small trees or bushy shrubs and mostly invaded by weeds. The species seen are Acacia catechu, Zizyphusxylocarpus, Zizyphusmauritiana, Boswellia serrata, Terminalia tomentosa, Gardenia sps, Holarrhenaantidysenterica, Woodfordiafructicosa, Carrisa apaca, Lanneacoromandelica, Phoenix sylvestris, Randia malabarica, Cleistanthuscollinus, Diosporyros melanoxylon, Cassia fistula, Lagerstroemia parviflora etc. The lower canopy includes Ageratum conyzoides, Alangiumsalvifolium, Ixora arborea, Gardenia gummifera, and Mimosa rubicaulis. The important climbers are Combretum decandrum, Butea superba etc. Bamboo is also present here and there but it has a bushy growth. Sal also occurs occasionally.

2.6.6. 3B/C2 - Southern moist mixed deciduous forest:-

In Southern Moist mixed deciduous forest, Xylia xylocarpa is a predominant species, which represents 18% of the total crop. The other co-dominant species are Terminalia tomentosa, Pterocarpus marsupium, Cleistanthuscollinus, Terminalia bellirica, Adina cordifolia, Buchananialanzan and Bridelia retusa. The proportion of Sal is scanty and it is rarely goes up to 10% of the area.

Group, Sub-Group and Type	
Group 3	Tropical Moist Deciduous Forest
Sub group 3B	South Indian Moist Deciduous Forest
Type C2	Southern Moist Mixed Deciduous Forest

2.6.7. Shrubs:-

The shrubs occurring here include Canthium parviflorum, Grewia hirsuta and Gardenia gummifera etc. The common herbs include Andrographis paniculata, Crotalaria spp, Geodorumdensiflorum, Habenariaroxburghii, Oldenlandiaspp, Plumbago zeylanica, Tacca leontopetaloides, Adiantum philippense, Thereophonumminutum, Hybanthusenneaspermus and Desmodium spp. The climbers include Ampelocissus latifolia, Argyreiaspp, Cayratia auriculata, Hemidesmus indicus, Bauhinia vahlii, Derris scandens, Combretum ovalifolium, Jasminum auriculatum and Ventilagomadraspantana. The range wise representation of the dominant species in two types of forests, Northern tropical dry deciduous forests and Southern Moist Mixed Deciduous forests Divisions are given below:

Dominant trees in different types of Forests in different Ranges of Athgarh Division		
Narsinghpur East		
SL.No.	Northern tropical dry deciduous forest	South Indian moist deciduous forests
1	Shorea robusta	Xylia xylocarpa
2	Xylia xylocarpa	Aegle marmelos
3	Terminalia tomentosa	Cleistanthuscollinus
4	Buchananialanzan	Schleicheraoleosa
5	Syzigiumcumini	Anogeissus latifolia
6	Cleistanthuscollinus	Lagerstroemia parviflora
Narsinghpur West		
SL.No.	Northern tropical dry deciduous forest	South Indian moist deciduous forests
1	Shorea robusta	Cleistanthuscollinus
2	Anogeissus latifolia	Anogeissus latifolia
3	Cleistanthuscollinus	Aegle marmelos
4	Aegle marmelos	Dalbergia latifolia
5	Terminalia tomentosa	Diospyros melanoxylon
6	Diospyros melanoxylon	Lagerstroemia parviflora
Badamba		
SL.No	Northern tropical dry deciduous forest	South Indian moist deciduous forests
1	Shorea robusta	Albizia lebbeck
2	Terminalia tomentosa	Cleistanthuscollinus
3	Anogeissus latifolia	Lagerstroemia parviflora

4	Albizia lebbeck	Dalbergia latifolia
5	Dalbergia latifolia	Aegle marmelos
6	Diospyros melanoxylon	Anogeissus latifolia
Khuntuni		
SL.No	Northern tropical dry deciduous forest	South Indian moist deciduous forests
1	Shorea robusta	Xylia xylocarpa
2	Terminalia tomentosa	Cleistanthuscollinus
3	Bridelia retusa	Syzigiumcumini
4	Cleistanthuscollinus	Terminalia tomentosa
5	Terminalabellirica	Buchananialanzan
6	Lagerstroemia parviflora	Anogeissus latifolia
Sources: Divisional Forest Officer, Athgarh and Old Working Plan		

2.6.8.Flora of Wet Lands:-

The macrophytes of Ansupa lake are fresh water in nature and dominated by species like Polygonum glabrum, Polygonum barbatum, Limnophila heterophylla, Cyperus platystylis, Aeschynomene aspera, Ludwigiaadscendens, Ludwigiaoctovalvisare are observed in the fringes. The zone with less water depth is dominated by submerged species like Hydrilla verticillata, Ceratophyllumdemersum, Myriophyllumtetrandrum. A few free-floating elements like Nymphoideshydrophylla, Trapa natans var. bispinosa, Eichhornia crassipes etc. are generally found either mixed or in pure formation. Some emergent elements like Sacciolepisinterrupta, Echinochloastagnina etc. are also found as associates. However, along the shorelines gregarious growth of following species Eleocharis dulcis, Scirpusgrossus, Fuirenaciliaris are encountered during dry season. The rooted floating species are represented by Euryale ferox, Nymphaea nouchali, Nelumbo nucifera and free floating elements are Nymphoideshydrophylla, Nymphoids indica, Trapa natans var. bispinosa at a depth of 2-3 meters. The weeds which are in great abundance in the lake are Pistia stratiotes, Eichhornia crassipes, Monochoria hastate and Salvinia cucullata. The submerged species are represented by Potamogetonpectinatus, Najasfoveolata, Hydrilla verticillata, Ceratophyllumdemersum, Utricularia inflexa, Ottelia alismoides.The channel joining the river and Lake is almost defunct but low water lying areas are still marked. Places are rich in species content and dominated by amphibious life forms. In general the emergent species like Typha angustata, Saccharum spontaneum, Scleria terrestris, Scirpusgrossus are found in abundance. During rainy season. Limnophila heterophylla, Setaria pumlla, Enydraflactuans are commonly encountered.In the swamp Limnophilahetrophylla, Eleocharis dulcis, Sphaeranthus indicus, Ecliptaprostrata, Coldenia procumbens, Phyla nodiflora, Oryza rufipogon are mostly found. In addition to this Limnophytonobtusifolium, Sagittariasp.are very common where standing water is found throughout the Year. These plant communities remain in supreme dominance till the rainy season when some other forms make their appearances due to accumulation of water. These life forms are mostly represented by Nymphoideshydrophylla, Ludwigiaadscendens etc.

Table No.13			
Flora of Wet Lands			
Emergent macrophytes	Floating Leaved macrophytes	Submerged macrophytes	Free floating
Aeschynomene aspera Linn.	Aponogetonnatans (Linn.) Engl. & Krause	Ceratophyllumdemersum Linn.	Echhornia crassipes (Mart.) Solms.
Coldenia procumbens Linn.	EuryaleferoxSalisb.	Hydrillaverticillata (Linn.f.) Royle	Pistiastratiotes Linn.
Cyperus cephalotes Vahi	IpomoesaquaticaForsk.	Limnophilaheterophylla (Roxb.) Benth.	SalviniacucullataRoxb.
Cyperus platystylis R.Br.	Nelumbo nuciferaGaertner	MyriophyllumtetrandrumRoxb.	Utricularia inflexa var. stellaris (Linn.f.) P. Taylor
Echinochloastagnina (Retz.) Beauv.	NymphaesnouchaliBurm.f.	Najas foveolata A.Br. Ex Magam.	--
Ecliptaprostrata Linn.	Nymphoideshydrophylla (Lour.) Kuntze	Ottellaalismoides (Linn.) Pers.	--
Eleocharis dulcis (Burm.f.) Hanschel	N.indica (Linn.) Kuntze	Potamogeton crispus Linn.	--
EnydraflactuansLiour.	Trapa natansvar. Bispinosa (Roxb.) Makino	Potamogetonpectinatus Linn.	--
Fuirenaciliaris (Linn.) Roxb.	--	Vallisneria natans (Lour.) Hara	--
Limnophytonobtusifolium (Linn.) Mig.	--	--	--
Ludwigiaadscendens (Linn.) Hara	--	--	--
L.octovalvis (Jacq.) Raven	--	--	--
Monochoria hastate (Linn.) Solms.	--	--	--
Oryza rufipogon Griff.	--	--	--
Panicum repens Linn.	--	--	--
Phyla nodiflora (Linn.) Greene	--	--	--
Polygonum barbatum Linn.	--	--	--
P. glabrum Willd.	--	--	--
Saccharum spontaneum Linn.	--	--	--
Sacciolepisinterrupta (Wild.) Stapf	--	--	--
Sagittariatrifolia Linn.	--	--	--
Scirpusgrossus Linn. f.	--	--	--
Scleria terrestris (Linn.) Fass	--	--	--
Setaria pumila (Poir.) Roem. & Sch.	--	--	--
Sphaeranthus indicus	--	--	--

Linn.			
Typha angustata Bory &Chaub.	--	--	--
Sources: Old Working Plan			

2.6.9. Biodiversity Survey.

2.6.9.1. Biodiversity Assessment:-

The data collected during enumeration such as the number of individuals of each species and the DBH of each tree will be utilized to derive secondary attributes like basal area (BA, m2/ha), density (D, trees per ha) and frequency (F, number of quadrates where trees are present in relation to total plots observed). Relative values 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 a species increases with an increasing importance value and that the species with lowest importance value is the least dominant one. The maximum IVI value is 300 (100 each for RBA, RD and RF). Basal area and density of the tree species will be converted to hectare 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. 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 compartment is homogeneous. 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 many 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 that are dominated by one species are the least diverse (i.e. a community is composed of only a few species, or if only a few species are abundant, then the species diversity is low).

2.6.9.2. Suggested methodology for study of Biodiversity:-

Vegetation type to be interpreted using two season LISS III satellite data using a hybrid approach of satellite spectral signature and ancillary information from knowledge base and systematic sampling design. The Shannon –weaver diversity index formula may be used.

2.6.10. Threatened /critically endangered Species:-

It is alarming that in the outgoing Working Plan two species viz Gloriaosa superba (O: Agnisikha) a climber and Raulfia serpentina (O: Patalagaruda) a herb had been classified as threatened species. Likewise some more species might have approached to this category during the plan period which is to be studied meticulously during the future revision.

2.6.11. Regeneration

2.6.11.1. Assessment of Regeneration status:-

Natural regeneration is moderate in most of the Forest blocks of Narsinghpur East, Narsinghpur West and part of Badamba Range. Sal regeneration is fairly good in Nuagarh RF. After gregarious bamboo flowering, the forests included in Bamboo Working Circle of outgoing plan are very good. Forest blocks coming under Athagarh Range and Khuntuni range is inadequate. Regeneration of Assan, Kasi, Dhaura, Bahada are frequently encountered. The reason of inadequate regeneration may be biotic pressure, lack of deep top soil and suppression by weeds. During the working plan preparation steps will be taken to assess regeneration Status following the guidelines of National Working Plan Code-2014. The lower categories of regeneration such as established, un-established (whippy and sub-whippy), recruits, etc. giving value to each category and calculating total regenerative percentage may be required, in case, above classifications are absent or insufficient to indicate regeneration status.Procedure to be followed can be summarized as follows.

i	Young plants of tree species up to 10 cm diameter will be taken into consideration for assessment of regeneration status of a particular species as practiced in National Forest Inventory by FSI.
ii	Data collected from the square plots of 3mx3m for saplings (2cm to 10 cm collar diameter) and from the square plots of 1mx1m for seedlings will be generally used to assess the regeneration status of species in the management unit (compartment, Block or any other unit). Based on the phyto-sociological data from plot level enumeration,
iii	Data collected from the square plots of 3mx3m for saplings (2cm to 10 cm collar diameter) and from the square plots of 1mx1m for seedlings will be generally used to assess the regeneration status of species in the management unit (compartment, Block or any other unit). Based on the phyto-sociological data from plot level enumeration
iv	the regeneration status of the sampled species will be assessed in the following categories:
a	Good regeneration, if seedlings are more in numbers than the saplings and likewise saplings are more than that of adults.
b	Fair regeneration, if seedlings are more in numbers than the saplings but the saplings are equal or less than that of adults.
c	Poor regeneration, if a species survives in only sapling stage, but not as seedlings (though sapling may be less, more or equal to adults).
d	No regeneration, if a species is absent both in sapling and seedling stage, but present as adult.
e	New regeneration, if a species has no adults but only sapling and/or seedlings.

2.6.11.2. Forest Block wise Regeneration status:-

The details of Regeneration status of forest block is given in the table below.

1.Jenapada RF:-

Status of Regeneration						
Name of the Block –Jenapada RF				Working Circle – Angul		DD/MM/YYYY-
Compartment No-		Section –Tigiria				Beat –Jenapada
Range –Athgarh		Division -Athgarh				ALT – 260 ft
LAT- 20.485746		LONG – 85.555118				Grid No-
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
--	--	Khakada	1	--	--	New regeneration
--	--	Kendu	1	--	--	New regeneration
--	--	Neem	1	--	--	New regeneration
--	--	Anchhu	1	--	--	New regeneration

2. Nizigarh RF:-

Status of Regeneration						
Name of the Block –NIZIGARH RF				Working Circle – Angul		DD/MM/YYYY-
Compartment No-		Section –Tigiria				Beat –Tigiria
Range –Athgarh		Division -Athgarh				ALT – 383 Ft
LAT- 20.49901		LONG – 85.484355				Grid No-
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
Palasa	2	Nil	NIL	NIL	NIL	Good Regeneration

3. Sorisapal RF:-

Status of Regeneration						
Name of the Block –Sorisapal RF				Working Circle – Angul		DD/MM/YYYY-
Compartment No-		Section –Tigiria				Beat –Tigiria
Range –Athgarh		Division -Athgarh				ALT – 713 ft
LAT- 20.500285		LONG- 85.518391				Grid No-
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
Kalich	1					Good regeneration
Chauli	2					Good regeneration
Sunari	1					Good regeneration

4. Adala RF:-

Status of Regeneration						
Name of the Block – Adala RF			Working Circle – Angul		DD/MM/YYYY-	
Compartment No-		Section –Sadar			Beat –Kulailo	
Range –Athgarh		Division -Athgarh			ALT – 183 ft	
LAT- 20.570429		LONG- 85.674287			Grid No-	
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
Neem	2	Neem	1	--	--	New regeneration
Piasal	1	Bela	1	--	--	New regeneration
Kasi	1	Mahula	1	--	--	New regeneration
--	--	Kasi	1	--	--	New regeneration

5. Ranibania RF:-

Status of Regeneration						
Name of the Block –Ranibania RF			Working Circle – Angul		DD/MM/YYYY-	
Compartment No-		Section –Sadar			Beat –Kulailo	
Range –Athgarh		Division -Athgarh			ALT – 162 ft	
LAT- 20.567751		LONG – 85.682451			Grid No-	
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
--	--	Bahada	1	Bahada	1	No regeneration
--	--	Gangasiuli	1	Gangasiuli	1	No regeneration
--	--	Chara	1	Chara	5	No regeneration
--	--	Sal	1	Kasi	1	No regeneration
--	--	--	--	Jaysandha	1	No regeneration
--	--	--	--	Mahula	3	No regeneration
--	----	--	--	Mai	1	No regeneration

6. Subasi RF:-

Status of Regeneration						
Name of the Block – Subasi RF			Working Circle – Angul		DD/MM/YYYY-	
Compartment No-		Section –Sadar			Beat – Sadar	
Range –Athgarh		Division -Athgarh			ALT – 247 ft	
LAT- 20.543404		LONG – 85.734374			Grid No-	
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
--	--	Giringa	2	Chara	1	New regeneration
--	--	Sal	2	--	--	New regeneration

7.Baudabanakhandi RF:-

Status of Regeneration						
Name of the Block –Baudabanakhandi RF			Working Circle – Angul			DD/MM/YYYY-
Compartment No-		Section –Rajnagar				Beat –Rajnagar
Range –Athgarh		Division -Athgarh				ALT – 230 ft
LAT- 20.487578		LONG- 85.657636				Grid No-
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
Kalicha	4			--	--	Good regeneration
Kochila	1			--	--	Good regeneration
Giringa	2			--	--	Good regeneration
Anachara	1			--	--	Good regeneration

8. Khalakhala RF:-

Status of Regeneration						
Name of the Block –Khalakhala RF			Working Circle – Angul			DD/MM/YYYY-
Compartment No-		Section – Sadar				Beat – Sadar
Range –Athgarh		Division -Athgarh				ALT – 210 ft
LAT- 20.490361		LONG – 85.712088				Grid No-
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
Jaysandha	1	Giringa	2	Veru	1	New regeneration
Kangada	2	Katakala	2	--	--	New regeneration
Bela	1	Jaysandha	1	--	--	New regeneration
--	--	Veru	1	--	--	New regeneration

9.Phulabadi PRF:-

Status of Regeneration						
Name of the Block –Phulabadi PRF			Working Circle – Angul			DD/MM/YYYY-
Compartment No-		Section – Sadar				Beat – Kandarpur
Range –Athgarh		Division -Athgarh				ALT – 185 ft
LAT- 20.483204		LONG- 85.628732				Grid No-
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
Giringa	3	Karada	2	--	--	Good regeneration
Kalicha	1	--	--	--	--	Good regeneration
Neem	1	--	--	--	--	Good regeneration
Cashew	2	--	--	--	--	Good regeneration

10. Sukasan RF:-

Status of Regeneration						
Name of the Block –Sukasan RF		Working Circle – Angul				DD/MM/YYYY-
Compartment No-		Section –Rajanagar				Beat –Rajanagar
Range –Athgarh		Division -Athgarh				ALT – 195 ft
LAT- 20.461278		LONG – 85.677138				Grid No-
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
Halada	3	--	--	--	--	New regeneration

11. Saranda PRF:-

Status of Regeneration						
Name of the Block –Saranda PRF		Working Circle – Angul				DD/MM/YYYY-
Compartment No-		Section –Sadar				Beat –Saranda
Range –Athgarh		Division -Athgarh				ALT – 287 ft
LAT- 20.458518		LONG- 85.596335				Grid No-
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
--	--	--	--	Cashew	2	Poor regeneration

12. Oringa RF:-

Status of Regeneration						
Name of the Block –Oringa RF		Working Circle – Angul				DD/MM/YYYY-
Compartment No-		Section –Sadar				Beat –Sadar
Range –Athgarh		Division -Athgarh				ALT – 255 ft
LAT- 20.567751		LONG – 85.682451				Grid No-
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
NIL	NIL	NIL	NIL	NIL	NIL	NIL

13. Kalichaballav RF:-

Status of Regeneration						
Name of the Block –Kalichaballav RF		Working Circle – Angul				DD/MM/YYYY-
Compartment No-		Section –Tigiria				Beat –Nuapatana
Range –Athgarh		Division -Athgarh				ALT – 371 ft
LAT- 20.489254		LONG- 85.462059				Grid No-
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
Nil						

2.6.11.3. Regeneration status of other forest block:-

The details of regeneration status of other forest block is given below.Regeneration Status of Other Forest Block

Regeneration Status of Other Forest Block		
Sl. No	Name of the Forest Block	Regeneration Status
1	Baniabandha R.F	Moderate
2	Deobhuin RF	Moderate
3	Olab RF	Moderate
4	Chandragiri 'B'RF	Moderate
5	Mundagada B' RF	Bamboo, Sal,Giringa,Kuruma,Chara etc.
6	Brahmandei 'B' RF	Moderate
7	Chandragiri (A) RF	Moderate
8	Haladiaseni RF	Moderate
9	Badajora RF	Moderate
10	Taraiganda RF	Moderate
11	Kumaranga RF	Moderate
12	Talachandragiri (B) RF	Mild
13	Nagatota (B) RF	High
14	Mandap (B) RF	Scanty
15	Jagabeherathali (B) RF	Moderate
16	Karada (B) RF	Scanty
17	Belapada (B) RF	Mild
18	Jhinkal (B) RF	Mild
19	Sukhasan RF	Poor
20	Khalakhala (B) RF	Poor
21	Baudabanakhandi(B) RF	Poor
22	Oringa (B) RF	Poor
23	Jenapada (B) RF	Poor
24	Subasi RF	Poor
25	Ranibania RF	Poor
26	Adal (B) RF	Poor
27	Nizigarh (B) RF	Poor
28	Kalichaballabh (B) RF	Poor
29	Sorispal(B) RF	Poor
30	Gobara (B) RF	Poor
31	Sankhapoi (B) RF	Poor
32	Baula (B) RF	Moderate
33	Suniamuhan (B) RF	Moderate
34	Brahmanbasta (B) RF	Moderate
35	Deulia (B) RF	Moderate
36	Bhuska PRF	Moderate

37	Baghamundia PRF	Moderate
38	KhalidhipJanisahi PRF	Moderate
39	Kandhamundia PRF	Moderate
40	Gothamundia PRF	High
41	Birigadia PRF	Moderate
42	Kabatbar PRF	Moderate
43	Ganguari PRF	Moderate
44	Telunia PRF	Moderate
45	Saranda PRF	Poor
46	Phulbadi PRF	Poor
47	Megha PRF	Poor
48	Kandarapur PRF	Poor
49	Baniabandha PRF	Poor
50	Deulia (East) PRF	Moderate
51	Kaliapada PF	Moderate
52	Gopalprasad PF	Moderate
53	Kalankpur PF	Moderate

2.6.12. Suggestion for updating in the revised Working Plan:-

The study of regeneration status to be carried out may be grid based systematic sampling instead of traditional random sampling. The systematic sampling design will provide scope for future re-visit(s) to the particular patch of forest to assess the Species Distribution Models (SDM), regeneration survey at a definite interval. It will also give scope for validation of dynamic vegetation models. The sample plots those will be laid down in the forest by systematic sampling with GPS co-ordinates will help in study of regeneration status, growth and systematic observations on continuous basis.

2.6.13. Assessment of Bamboo/ Cane Regeneration:-

During 2009-10, gregarious bamboo flowering took place in the division. All eight Bamoo Cutting Series area compraising of Balikiary RF, Balikiary PRF, Barakhola RF, Nuagarh RF, Deobhuin RF, Haladiasheni RF, Chandragiri RF etc. Profuse regeneration are noticed in the ground flora.
All culms occurring in the clump would be enumerated as per different classes of National Forest Inventory and these data would be used to assess the availability of bamboo using post stratification for a management unit as per the methodology adopted by FSI.Data from plot enumeration will be used to estimate the number of clumps per management unit (compartment, Block or any other unit) and classify them as:

i	Luxuriant	All healthy, un-congested, undamaged and in good condition
ii	Degraded	Not capable of being rehabilitated and of attaining normal productivity
iii	Culturable	Not included in (i) or (ii)
iv	Non	clump forming bamboos

2.6.14. Estimation of Growing Stock:-

In order to estimate the Growing Stock, the enumeration/field data, species wise distribution of trees in each diameter class will be generated for compartment/village/any other management unit. This data would be used for population structure and to identify the old group forests. The growing stock of trees must be so managed that it regularly provides the greatest possible quantity of the desired products including intangible benefits. Ratio method of estimation will be used for estimating the growing stock of important tree species using local volume tables developed by FRI/FSI or under previous working plans. Fresh local volume tables may be prepared, if required. Adding the growing stock of all compartments, the growing stock of the block will be estimated, which will be again integrated up to range level and further at divisional level. Stratification developed by FSI based on forest type, density, land use using GIS can be used for increasing the precision of the estimates. Any gap in research results with respect to estimation of growing stock must be brought out clearly.

2.6.15. Plantations:-

The plantations raised in the Division from 1983-84 to 2006-07 has been given in the outgoing Working Plan. The plantations raised thereafter from 2007-08 to 2013-14 is given in appendix.

2. 6.16. Plantation survey and assessment:-

Valuable forest resource has been created throughout the country under various schemes of afforestation, social forestry, externally aided projects, etc. An up-to-date and reliable Knowledge of these man-made forest plantations is necessary in respect of species planted, crops harvested and corrective measures taken as required for the plantation. The assessment of growing stock of old plantations, which attains a minimum size of 10 cm DBH or age of 10 years can be done based on plot enumeration data for such plantation areas for sustainable management of plantations and their contributions in enhancing timber production and carbon sequestration. But there is a need for assessing the status of young plantations having less than 10 cm DBH or age of 10 years for maintenance of biodiversity; soil and moisture conservation and other socio-cultural benefits, which should be assessed and recorded. Plantation journals offer the best option for assessing such young plantations. Plantation journals should have provision for suitable sampling strategy for the survey. Results of such survey are to be recorded in the plantation journals. However, to monitor the success and the growth of such trees, high resolution satellite data mapping would be useful that are capable of detecting small size plantation growth. This method will be adopted during preparation of working plan.

2.6.17. Assessment of Non-Timber Forest Products (Including Maps. (Medicinal and Aromatic Plants):-

A comprehensive survey has been taken up during 2012 in the division in order to enlist the NTFP resource potential. The list of available NTFP and its extent has been given at Annexure-XXIV .This may not be sufficient to meet the requirement for working plan purpose. So it may be planed and undertake survey, sampling and assessment for estimation of fewprioritized species of NTFPs to start within the selected grids. In general at the time of working plan preparation the assessment of potential NTFPs is made through available old records, local enquiry, and plot enumeration data. Few NTFP

species have been identified and their estimation of resource.Species can be carried out using plot enumeration, shrubs, herbs and climbers data. Data collected under different studies and/or maintained in the JFM areas may be used. Summarized estimated quantities may be recorded for every compartment /village/any other management unit in terms of their scientific name, local name, type of plants, their part and its utility, area (ha), quantity per hectare, estimated harvest/hectare, etc. for species of trees, shrubs, climbers, grasses, herbs, lichens, fungi, etc. A separate estimation may be done for MAPs. (Medicinal and Aromatic Plants).

2.6.18. Soil Survey and Assessment:-

Proper examination of soil profile leads to understanding the genesis of soil. Analysis of soil reveals its fertility, constraints thereof, if any, the required soil management strategies and suitability of species. Soil properties along with site features like slope, aspect, erosion, climate, etc. brings out information about the land capability class, land suitability, etc. For survey, soil samples may be collected in the selected grids from different horizons i.e. from soil surface up to 2m depth. The soil samples may also be collected from pre-determined depths like 0- 15cm, 16-30cm, 30-60cm, 60-100cm, etc. The sampling may be carried out by excavating a soil profile or by auger method. The soil samples are collected, labeled and carried to laboratory for the analysis of physical properties such as texture, bulk density, moisture, water holding capacity, field capacity, depth and color and chemical properties such as pH, organic matter and nutrients. The nutrients mainly include nitrogen, phosphorus, potassium, calcium, magnesium. In case of soils suffering from salinity/ sodality, the estimation of attributes like exchangeable sodium percentage, sodium absorption ratio and electrical conductivity may also be needed. During working plan preparation information from secondary Sources will be utilized for the assessment of the forest soil.

2.6.19. Socio-Economic Survey and Assessment:-

In the present day forest management Villagers (VSS members) plays an important role. Hence it is necessary to assess the dependence of villagers on the forests for their livelihood needs especially in the perspective of lifestyle change. It is also important in the context of preparation of micro-plans for Joint Forest Management and forest fringe management. Available information on socio-economic status of the people living in forest fringe villages should be collected and assessed to bring forth the role of forest products and ecosystem services in their lifestyle. This is necessary to formulate suitable management strategies to improve their socio-economic status particularly that of tribal and economically backward communities living in fringe villages and partially or wholly dependent on forests for their livelihood. Socio economic survey shall include dependency on timber, fuel wood, fodder, grazing, other NTFPs and livelihood aspects. Since this is also a very important aspect of forestry, it has to be done with all seriousness; and help of sociologist/economists/ socioeconomists / recognized institutes may be taken. These data may be collected from secondary sources.Socio-economic survey shall entail collecting information on socio-economic status of the people living in and around the forest and their dependence on the forests for their livelihood needs. The villages situated within the limit of 3Km from the forests will be considered as forest fringe villages for the assessment. Stratified multistage random sampling will be deployed for the socio-economic survey. The first stage sampling units will be the fringe villages and the second stage sampling units will be the households. The first stage sampling units i.e. fringe villages within the division will be stratified based on the population of the villages, their distance from the road

and market, range, block etc. Representative fringe villages will be randomly selected from each stratum of the division. In the selected fringe villages, methodology provided for micro-plan preparation may be adopted for assessment of socio-economic benefits and dependence on forests.

2.6.20.Dominant Trees:-

The dominant trees in different types of forests in fourRanges of Athgarh Divisionis given in the table below.

Table No.14		
Dominant Trees in different types of Forests in different Ranges of Athgarh Division		
Narasinghpur East		
Sl. No.	Northern tropical drydeciduous forest	South Indian moist deciduous Forests
1	Shorea robusta	Xylia xylocarpa
2	Xylia xylocapa	Aegle marmelos
3	Terminalia tomentosa	Cleistanthuscollinus
4	Buchananialanzan	Schleicheraoleosa
5	SyziginumCumini	Anogeissus latifolia
6	Cleistanthuscollimus	Lagerstroemia parviflora
Narasinghpur West		
Sl. No.	Northern tropical dry deciduous forest	South Indian moist deciduous Forests
1	Shorea robusta	Cleistanthuscollinus
2	Anogeissus latifolia	Anogeissus latifolia
3	Cleistanthuscollimus	Aegle marmelos
4	Aegle marmelos	Dalbergia latifolia
5	Terminalia tomentosa	Diospyros melanoxydon
6	Diospyros melanoxydon	Lagerstroemia parviflora
Badamba		
Sl. No.	Northern tropical dry deciduous forest	South Indian moist deciduous Forests
1	Shorea robusta	Albizia lebbeck
2	Terminalia tomentosa	Cleistanthuscollinus
3	Anogeissus latifolia	Lagerstroemia parviflora
4	Albizia lebbeck	Dalbergia latifolia
5	Dalbergia latifolia	Aegle marmelos
6	Diospyros melanoxydon	Anogeissus latifolia
Khuntuni		
Sl. No.	Northern tropical dry deciduous forest	South Indian moist deciduous Forests
1	Shorea robusta	Xylia xylocapa
2	Terminalia tomentosa	Cleistanthuscollinus
3	Bridelia retusa	SyziginumCumini
4	Cleistanthuscollimus	Terminalia tomentosa
5	Terminalabellirica	Buchananialanzan
6	Lagerstroemia parviflora	Anogeissus latifolia

2.7. Tree Cover outside forest area:-

2.7.1. Area of TOF:-

The total area of Tree Outside Forest 93284.8579 hectare (152262.00 – 39915.62). Trees outside forests (TOF) are located on the lands other than forests, including agricultural lands, 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. They not only contribute to the total growing stock of the division but also have become major source of wood. During 2000 and thereafter trees have been planted on suitable riverbanks to provide timber for construction of Chariots under "Jagannath Van Prakalpa". Under National Afforestation Programme massive plantations have been taken up by VSS under "Forest Development Agency". Free seedlings are distributed to public to plant trees in vacant lands, Back yard and take up agro forestry plantations. Avenue plantations are being taken up on many highways, district Roads, Panchyat Road. Industrial Houses, Mining companies are taking of plantations under green belt, CSR programme. Now it is time to have a basic survey about availability of trees and prescribe a general management practices for guidance of public and for our own assessment.

2.7.2. General characteristics of vegetation:-

The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorea robusta, Anogeissus latifolia, Cleistanthuscollinus, Terminalia tomentosa, Buchananialanzan, Diospyros melanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewia sps., Indigofera cassioides, etc. Hemidesmus indicus, Calycopteris floribunda, Combretum decandrum, Butea superba, Bauhniavahilii etc., are the important climbers present in this forest. The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

2.8. Shifting cultivation (Jhumming):-

In those early days their population being small and the forests over which they practiced shifting cultivation being vast, the forests after clear-felling were getting sufficient rest to recover its pristine glory.The shifting cultivation locally known as jhummu. Consisted of felling the forests leaving a few poles only to support the climbing beams they would grow, burning the felled materials by the stumps, rake up the soil with the axe or with some crude implement and planting seeds of their food crop of bean, yan and coarse millet. In the early days the forest being virgin, the tract chosen for shifting cultivation being rich valleys and undulating grounds, the rich soil fertilized by the ash of the burnt trees was yielding crop in abundance. Consequently less area was needed for their subsistence. The poor crop in

Narasinghpur Range is a direct result of the heavy incidence of shifting cultivation practiced till very recent time. During the regime of Raja administration and in the latter part of the 19th Century endeavors were made to contain Adibasispracticing shifting cultivation. Thereby large tracts of forests got rid of the evil influence and the present day even-aged forests on the plains and low lying hills are a result of this attempt at forest conservancy. As a result of that scheme, a number of Adibasi colonies were started where such Adibasis were given built houses for a fixed abode and cattle, agricultural implements, seeds along with expertise to adapt to permanent agriculture. With the resettlement of those Adibasis, shifting cultivatin came to a stop in the Reserve Forest blocks of Athgarh Forests. The last to escape from the clutches shifting cultivation are the Nuagarh and Barasingha blocks and the present immature crop there is the tell table of the evil effects of shifting cultivation.

2.9. The expired working plan was from 2007-08 to 2016-17 by Smt. Uma Nanduri, IFS.

The details of legal status of division area is given below.

S. N	Status	Area in ha.	Notification No	Plan area of expired WP
Reserve Forest				
1	Nuagarh RF	4269.58	No. 34016-12F-179(M)-57 dt. 09.11.57	3952.34
2	Deobhuin RF	6545.61	-do-	6082.23
3	Olab RF	2700.15	-do-	2288.80
4	Chandragiri RF	742.62	-do-	738.66
5	Mundagada RF	131.93	-do-	136.48
6	Balikiary RF	5524.15	No. 34016-12F-179(M)-57 dt. 09.11.57	5217.87
7	Barakhola RF	1238.38	-do-	1278.56
8	Brahmanidei RF	106.84	-do-	99.91
9	Chandragiri RF	427.31	No. 7179 dtd.23.01.79	321.16
10	Haladiaseni RF	3866.98	No.9862/D-12F-42 (M/2)58 dt. 14.3.59	3925.17
11	Badajora RF	1179.13	-do-	1063.97
12	Taraiganda RF	1043.72	-do-	999.39
13	Kumaranga RF	410.39	-do-	361.36
14	Talachandragiri RF	815.71	-do-	993.80
15	Nagatota RF	2131.96	-do-	2228.97
16	Mandap RF	430.6	-do-	433.48
17	Jagabeherathali RF	305.04	-do-	224.15
18	Karada RF	1273.99	-do-	1156.41
19	Belapada RF	108.78	-do-	91.66
20	Jhinkal RF	472.85	-do-	436.20

21	Sukasan RF	1036.03	12(F)-139(M/2)(59) 41164 dt.28.11.59	707.28
22	Khalakhala RF	562.53	-do-	602.99
23	Baudabanakhandi RF	446.38	-do-	545.03
24	Oringa RF	455.28	-do-	438.44
25	Jenapada RF	171.59	-do-	123.24
26	Subasi (1 & 2) Part RF	1390.14	-do-	1280.83
27	Ranibania RF C-1	1069.21	-do-	1031.99
28	Adala RF	252.7	-do-	238.61
29	Nizigarh RF	789.16	-do-	823.10
30	Kalichaballav RF	744.64	6729 dt.25.2.59	722.01
31	Sorisapala RF	713.89	-do-	651.29
32	Baniabandha RF	5919.95	12F-139 (M/2) 59-4164 dt.28.11.59	5767
33	Gobara RF	651.56	-do-	524
34	Sankhapoi RF	519.63	-do-	497
35	Baula RF	99.55	-do-	96
36	Suniamuhan RF	214.89	-do-	187
37	Brahmanbasta RF	359.37	-do-	320
38	Deulia RF	264.77	-do-	288
	Total RF	49386.99		46874.38
Protected Reserve Forest				
1	Baniabandha PRF	522.87	63613 dt.17.11.70	270
2	Baghamundia PRF	97.43	No.5670 dt.25.01.80	115.49
3	KhalidhipJanisahi PRF	23.22	No.5682 dt.25.01.80	35.58
4	Kandhamundia PRF	22.09	No. 5816 dt.25.01.80	48.36
5	Gothamundia PRF	86.73	No.5678 dt.25.01.80	83.89
6	Birigadia PRF	47.75	No. 5674 dt.25.01.80	20.32
7	Kabatbar PRF	60.13	No.5666 dt.25.01.80	18.33
8	Ganguari PRF	31.97	No.5662 dt.25.01.80	30.45
9	Telunia PRF	18.21	No.24739 dt.02.04.80	25.01
10	Saranda PRF	162.93	No.63694 dt.17.11.70	129.10
11	Phulbadi PRF	363.42	No.63690 dt.17.11.70	377.49
12	Megha PRF	53.82	No.30602 dt. 18.04.79	44.90
13	Kandarpur PRF	16.59	No.49363 dt.06.07.79	19.38
14	Deulia (East) PRF	105.62	No. 30609 dt. 18.04.79	74
15	Bhuska PRF	184.13	No. 8291 dtd.07.02.79	248.36
16	Balikiary -II PRF	248.89	No. 7179 dtd.23.01.79	280.20
	Total PRF	2045.8		1820.86

2.10. The details of compensatory afforestation of expired working plan is given below.

Year	Name of the Forest	Area planted in ha.	Species planted
2002-03	Kaliapada (Non-Forest land)	18.98ssss	Teak,Sisoo,Acasia, Chakunda,Karanja
	Gopalaprasad PF	29.51	Teak,Acasia,Chakunda, Sirisa
2003-04	Kalankipur PF	34.4	Sisoo,Karanja,Sirisa, Acasia
2010-11	Paikapadapatana (Non-Forest Area)	50	Gambhari, Acasia, Karanja, Sirisa, Jamu, Amla,phasi
2011-12	Paikapadapatana (Non-Forest Area)	5	Teak, Gambhari, Acasia, Karanja, Jamu, Sirisa

2.11. As per the provisions of Biological Diversity Act-2002. No study was made component wise in this Division to establish peoples right over their natural resources and their involvement in its conservation and protection. Efforts are been made by state Biodiversity Board for collection of ground level data and its documents.

2.12. The area obtained for compensatory afforestation plantation is 156.69 ha. Out of this 82.89 ha. has been converted to PF and reflected in Divisional area statement. Balance area of 73.8 ha. available with the Division for further compensatory afforestation programme. The details of the area statement is as follows.

1. Total area obtained for compensatory afforestation: - 156.69 ha.
   - i. Kalankipur PF - 34.4 ha.
   - ii. Gopalaprasad PF - 29.51 ha.
   - iii. Kaliapada PF - 18.98 ha.
   - iv. Balance area available - 73.8 ha.
   - **Total** **156.69**

2.13. Status of settlement under Indian Forest Act, 1927 of the non- forest land received in lieu of forest under Forest (Conservation) Act, 1980 is given below.

Sl. No	Non- forest land received in ha.	Present status
1	18.98	Kaliapada PF
2	29.51	Gopalaprasad PF
3	34.4	Kalankipur PF
4	73.8	55.00 ha has been planted

CHAPTER –3

Maintenance, Conservation and Enhancement of Biodiversity

3.1. Forest Composition and Distribution:-

3.1.1. Based on the vegetation survey and forest inventory:-

In this division semi ever green forest type is found in the moderately heavy to very heavy rainfall areas of the Division. Top story consists of deciduous tree species, which remain leafless for short time only but not simultaneously, and the 2nd story mostly remain ever green. These types of forests are widely located in the valleys. The vegetation is supported by fertile fresh soils in the areas having rainfall around 1500 mm. or more and high humidity. The flora consists of Sal (*Shorearobusta*), Champa (*Micheliachampaca*), Asan (*Terminaliaalata*), Asoka (*Saracaindica*), Mango (*Mangiferaindica*), Dhamana (*Grewiatiliaefolia*), *Brideliaretusa*, *Dilleniapentagyna*, *Ficus*spp, *Mesuaferrea*, *Macarangapeltata*, *Glochidions*pp, *Litsea* spp. etc. and many small ever-green shrubs and *Curcuma aromatica*, *Bambusaarundinacea* occur in patches throughout. *Bauhinia vahilii* and *Combretumdecandrum*are found in abundance.

3.1.2. Forest type:-

North Indian Tropical Moist Deciduous 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. Peninsular (Coastal) Sal Forest type of forest is found in plains Sal (*Shorearobusta*) is the dominant species found in abundance in almost (pure) even aged stand conditions and common associates are Asan (*Terminaliaalata*), Haldu (*Adinacordifolia*), Bija (*Pterocarpusmarsupium*), Mundi (*Mitraygynaparviflora*), Kasi (*Brideliaretusa*), Kusuma (*Schleicheratrijuga*), Dhaura (*Anogeissuslatifolia*), Mai (*Lanneagrandis*) and Sidha (*Lagerstroemia parviflora*) in the top storey. The average crown density is 0.5. The second storey consists of Rai (*Dilleniapentagyna*), Kanchana (*Bauhinia purpurea*), Kumbhi (*Careyaarborea*), Chara (*Buchananialanzan*). While ground flora consists of Ramdatani (*Smilax macrophylla*), Sidha (*Lagerstoemiaparviflora*), Sugandhi (*Hemidesmusindicus*), and Atundi (*Combretumdecandrum*), Gaja (*Nyctanthesarbortristis*), Ketaki (*Pandanusfascicularis*); Dantari (*Acacia pinnata*) is common climbers.

3.1.3. Common Grasses:-

Common grasses that occur locally in this type of forests are Sinkulia (*Heteropogoncontortus*), Magarlata (*Cymbopogonmartinii*), 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 should be ensured for progression of regeneration and the establishment of dense evergreen undergrowth including tree species.

3.1.4. Northern Secondary Moist Mixed Deciduous Forests:-

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. In these forest upper canopy consists of Mango (*Mangiferaindica*), Rai (*Dilleniapentagyna*), Jamun (*Sayzigiumcuminii*), Asan (*Terminaliaalata*), Kasi (*Brideliaretusa*), Kusuma (*Schleicheraoleosa*), Lemburamoi (*Burseraserrata*) while middle canopy consists of Gandhapalas (*Miliusavelutina*), *Glochidionlanceolarium*, *Careyaarborea*, *Zizyphusglaerrima*, Kamala gundi (*Malalotusphilippensis*) and lower storey consists of Guakoli (*Mababuxifolia*), Khakusa (*Strobilanthesscaber*) and *Combretumdecandrum* and *Bauhinia vahlii*. In these areas if the protection from fire and smuggling is assured then semi green species will come up fast.

3.1.5. Dry Peninsular Sal Forests:-

Dry Peninsular Sal Foreststype occurs on flat terrain with shallow laterite soils. In these areas soil moisture conditions are unfavorable 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, 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 are Dhaura (*Anogeissislatifolia*), Chara (*Buchananialanzan*), Barabakulia (*Dalbergiapaniculata*), Kasi (*Brideliaretusa*), Amla (*Embicaofficinalis*), Bahada (*Terminaliabelarica*) Kendu (*Diospyrosmelanoxylon*), Salia Bamboo (*Dendrocalamusstrictus*). The undergrowth consists of Keruan

(*Malalorrhenaantidysentrica*), Kuchila (*Strychnosnuxvomica*), Kantaikuli (*Zizyphusoenoplia*), Banakhajuri (*Phoenix acaulis*) and Asan bushes (*Terminaliaalata*).

3.1.6. Dry Deciduous Scrub Forests:-

Dry Deciduous Scrub Forestsoccur in Forest patches of. which is more deficient in vegetation. The natural vegetation has been practically reduced to scrub under the impact of biotic factors like illicit fellings, over-grazing and fire. The species, generally met in such forests rarely attend a height of more than 10 mt and consists of shrubs like Kasi (*Brideliaretusa),* Keruan *(Hollarrhenaantidysenterica),* Kendu *(Diospyrasmelanoxylon),* Veru *(ChloroxylonSwietenia),* Asana *(Terminaliaalata),* andclumps ofSaliabamboos *(Dendrocalamusstrictus*). The soil is shallow, compact and hard lying over limestone 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 Division, has taken up the inventory of NTFP plants species diversity (refer Annexure A). Random sample point survey has been carried out for all the species selecting the sample points on different type of forest vegetation. Keeping baseline survey, biological diversity can be analyzed to compare to the present status.

3.2.1. Biodiversity Survey:-

Biodiversity is of paramount importance to forest ecosystem. The co-existence of different floral and faunal species in an area contributes a lot for long term stability of an eco-system. It is an indicator of the status of crop composition as well as vitality. No systematic survey has been done so far to assess the biodiversity in toto except the assessment of NTFP species taken up during the previous plan period. Similarly the assessment of some important wild animals has also been made through periodic census. However, this will not suffice the very purpose. Similarly, maintenance of People's Biodiversity Register is not in practice. Hence it is suggested for survey of biodiversity, complete in all respect for few representative area/ block/ forest blocks of this division by the DFO with technical support of State Biodiversity Board following the provisions of Biodiversity Act. 2002.

3.2.2. Biodiversity assessment in terms of density, frequency, total basal area cover, dominance, IVI, etc and its analysis:-

The enumeration data have been analyzed and the relative value of Basal area (BA), Density (D) & Frequency (F) has been calculated. The Important Value Index (I V I) has also been calculated. The result of Biodiversity survey is given below.

Table No.1

Analysis of biodiversity survey

			BARHAKHOLA RF							
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2/ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Asan	22	16	100	380.285697	0.038029	0.608464	5.839416058	10.41666667	4.638614892	20.89469762
Bela	19	6	60	283.642844	0.028364	0.170184	2.189781022	6.25	1.297394812	9.737175834
Gambhari	22	6	60	380.285697	0.038029	0.228174	2.189781022	6.25	1.739480585	10.17926161
Halda	19	4	40	283.642844	0.028364	0.113456	1.459854015	4.166666667	0.864929875	6.491450556
Kochila	20	4	40	314.285700	0.031429	0.125716	1.459854015	4.166666667	0.958393775	6.584914456
Kanta	20	4	40	314.285700	0.031429	0.125716	1.459854015	4.166666667	0.958393775	6.584914456
Sal	28	166	80	615.999972	0.061600	10.225600	60.58394161	8.333333333	77.95468663	146.8719616
Kuruna	13	20	80	132.785708	0.013279	0.265580	7.299270073	8.333333333	2.024644586	17.65724799
Sahada	18	4	40	254.571417	0.025457	0.101828	1.45985401	4.166666667	0.77628402	6.402804697
Sidha	21	6	60	346.499984	0.034650	0.207900	2.189781022	6.25	1.584922093	10.02470311
Sunari	20	8	60	314.285700	0.031429	0.251432	2.919708029	6.25	1.91678755	11.08649558
Mahula	15	2	20	176.785706	0.017679	0.035358	0.729927007	2.083333333	0.269551108	3.082811449
Chhatian	20	2	20	314.285700	0.031429	0.062858	0.729927007	2.083333333	0.479196887	3.292457228
Jarul	14	8	40	153.999993	0.015400	0.123200	2.919708029	4.166666667	0.939213092	8.025587788
Bahada	16	2	20	201.142848	0.020114	0.040228	0.729927007	2.083333333	0.30667747	3.11993781
Chara	21	2	40	346.499984	0.034650	0.069300	0.729927007	4.166666667	0.528307364	5.424901038
Patali	11	2	20	95.071424	0.009507	0.019014	0.729927007	2.083333333	0.144952904	2.958213244
Panijama	15	2	20	176.785706	0.017679	0.035358	0.729927007	2.083333333	0.269551108	3.082811449
Kumbhi	19	2	20	283.642844	0.028364	0.056728	0.729927007	2.083333333	0.432464937	3.245725278
Dimiri	11	2	20	95.071424	0.009507	0.019014	0.729927007	2.083333333	0.144952904	2.958213244

PahadiSisoo	25	2	20	415.642838	0.041564	0.083128	0.729927007	2.083333333	0.633724886	3.446985226
L. Mai	18	2	40	254.571417	0.025457	0.050914	0.729927007	4.166666667	0.388142008	5.284735682
Kasi	25	2	20	491.071406	0.049107	0.098214	0.729927007	2.083333333	0.748732748	3.561993089
TOTAL :		**274**	**960**			**13.11736**				

			BALIKIARY RF							
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2/ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Asan	15	18	80	176.785706	0.017679	0.318222	5.421686747	6.451612903	4.40341943	16.27671908
Bela	15	14	80	176.785706	0.017679	0.247506	4.21686747	6.451612903	3.424881779	14.09336215
Chara	21	2	20	346.499984	0.034650	0.069300	0.602409639	1.612903226	0.958943651	3.174256515
Gambhari	23	4	40	415.642838	0.041564	0.166256	1.204819277	3.225806452	2.300579158	6.731204886
Halada	14	26	100	153.999993	0.015400	0.400400	7.831325301	8.064516129	5.540563316	21.43640475
Kansa	21	4	20	346.499984	0.034650	0.138600	1.204819277	1.612903226	1.917887302	4.735609805
Karada	17	16	20	227.071418	0.022707	0.363312	4.819277108	1.612903226	5.027355494	11.45953583
Kasi	23	2	20	415.642838	0.041564	0.083128	0.602409639	1.612903226	1.150289579	3.365602443
Kuruma	20	4	40	314.285700	0.031429	0.125716	1.20481928	3.225806452	1.73960404	6.170229769
Sahada	18	4	40	254.571417	0.025457	0.101828	1.204819277	3.225806452	1.409052151	5.83967788
Kochila	20	4	40	314.285700	0.031429	0.125716	1.204819277	3.225806452	1.739604041	6.170229769
Mitikina	20	4	40	314.285700	0.031429	0.125716	1.204819277	3.225806452	1.739604041	6.170229769
Sal	17	16	60	227.071418	0.022707	0.363312	4.819277108	4.838709677	5.027355494	14.68534228
Sidha	21	8	80	346.499984	0.034650	0.277200	2.409638554	6.451612903	3.835774604	12.69702606
Sunari	20	12	80	314.285700	0.031429	0.377148	3.614457831	6.451612903	5.218812122	15.28488286
Sisoo	19	8	60	283.642844	0.028364	0.226912	2.409638554	4.838709677	3.139910847	10.38825908
Bahada	15	2	20	176.785706	0.017679	0.035358	0.602409639	1.612903226	0.489268826	2.70458169
Barabakuli	20	8	60	314.285700	0.031429	0.251432	2.409638554	4.838709677	3.479208081	10.72755631
Behenta	24	2	20	452.571408	0.045257	0.090514	0.602409639	1.612903226	1.252493876	3.467806741
ChunniPatuli	23	2	20	415.642838	0.041564	0.083128	0.602409639	1.612903226	1.150289579	3.365602443
Gringa	13	20	60	132.785708	0.013279	0.265580	6.024096386	4.838709677	3.674982032	14.53778809
Khirapatuli	19	2	20	283.642844	0.028364	0.056728	0.602409639	1.612903226	0.784977712	3.000290576

Kusuma	14	10	20	153.999993	0.015400	0.154000	3.012048193	1.612903226	2.130985891	6.75593731
Patuli	13	30	40	132.785708	0.013279	0.398370	9.036144578	3.225806452	5.512473048	17.77442408
Ankula	16	20	20	201.142848	0.020114	0.402280	6.024096386	1.612903226	5.568577949	13.20357756
Chadeigudi	17	2	20	227.071418	0.022707	0.045414	0.602409639	1.612903226	0.628419437	2.843732301
Dhaura	10	2	20	78.571425	0.007857	0.015714	0.602409639	1.612903226	0.217443586	2.432756451
Panasa	12	2	20	113.142852	0.011314	0.022628	0.602409639	1.612903226	0.31311655	2.528429415
Sirisa	23	10	20	415.642838	0.041564	0.415640	3.012048193	1.612903226	5.751447894	10.37639931
Jhadpan	15	10	20	176.785706	0.017679	0.176790	3.012048193	1.612903226	2.446344128	7.071295546
Kangada	16	58	20	201.142848	0.020114	1.166612	17.46987952	1.612903226	16.14307605	35.2258588
Kakhada	17	6	20	227.071418	0.022707	0.136242	1.807228916	1.612903226	1.88525851	5.305390452
TOTAL :		**332**	**1240**			**7.22670**				

			OLAB RF							
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2/ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Anchhu	12	4	40	113.142852	0.011314	0.045256	1.5625	2.777777778	0.624806888	4.965084666
Baluda	12	4	20	113.142852	0.011314	0.045256	1.5625	1.388888889	0.624806888	3.576195777
Chara	14	12	60	153.999993	0.015400	0.184800	4.6875	4.166666667	2.55135922	11.40552589
Barabakuli	12	4	20	113.142852	0.011314	0.045256	1.5625	1.388888889	0.624806888	3.576195777
Ghantala	11	4	40	95.071424	0.009507	0.038028	1.5625	2.777777778	0.525016712	4.86529449
Dhaura	19	6	60	283.642844	0.028364	0.170184	2.34375	4.166666667	2.3495699	8.859986567
Kangada	22	34	60	380.285697	0.038029	1.292986	13.28125	4.166666667	17.85103762	35.29895429
Giringa	21	8	60	346.499984	0.034650	0.277200	3.125	4.166666667	3.82703883	11.1187055
Kakhada	12	14	80	113.142852	0.011314	0.158396	5.46875000	5.555555556	2.18682411	13.21112966
L.Mai	14	10	60	153.999993	0.015400	0.154000	3.90625	4.166666667	2.126132683	10.19904935
Tentera	18	4	40	254.571417	0.025457	0.101828	1.5625	2.777777778	1.40584311	5.746120887
Valia	11	2	20	95.071424	0.009507	0.019014	0.78125	1.388888889	0.262508356	2.432647245
Pirasl	14	6	40	153.999993	0.015400	0.092400	2.34375	2.777777778	1.27567961	6.397207388
Dhamana	22	6	40	380.285697	0.038029	0.228174	2.34375	2.777777778	3.15018311	8.271710888
Gambhari	20	2	20	314.285700	0.031429	0.062858	0.78125	1.388888889	0.867821092	3.037959981
jamu	35	4	20	962.499956	0.096250	0.385000	1.5625	1.388888889	5.315331708	8.266720597

Patamasu	20	2	20	314.285700	0.031429	0.062858	0.78125	1.388888889	0.867821092	3.037959981
Patuli	10	2	20	78.571425	0.007857	0.015714	0.78125	1.388888889	0.21694837	2.387087259
Rai	37	10	40	1075.642808	0.107564	1.075640	3.90625	2.777777778	14.85034649	21.53437427
Sal	16	32	60	201.142848	0.020114	0.643648	12.5	4.166666667	8.88624058	25.55290725
Sidha	25	10	80	491.071406	0.049107	0.491070	3.90625	5.555555556	6.779740109	16.24154566
Sisoo	13	8	40	132.785708	0.013279	0.106232	3.125	2.777777778	1.466644982	7.36942276
Sunari	15	14	60	176.785706	0.017679	0.247506	5.46875	4.166666667	3.417081792	13.05248846
Bandhana	15	10	60	176.785706	0.017679	0.176790	3.90625	4.166666667	2.440772708	10.51368938
Bela	15	2	20	176.785706	0.017679	0.035358	0.78125	1.388888889	0.488154542	2.658293431
Halada	17	4	40	227.071418	0.022707	0.090828	1.5625	2.777777778	1.253976489	5.594254267
Gandhapalasa	13	4	40	132.785708	0.013279	0.053116	1.5625	2.777777778	0.733322491	5.073600269
Kasi	14	8	60	153.999993	0.015400	0.123200	3.125	4.166666667	1.700906147	8.992572813
Kalichia	13	4	40	132.785708	0.013279	0.053116	1.5625	2.777777778	0.733322491	5.073600269
Kumbhi	23	6	40	415.642838	0.041564	0.249384	2.34375	2.777777778	3.443009566	8.564537343
Kusuma	22	6	40	380.285697	0.038029	0.228174	2.34375	2.777777778	3.15018311	8.271710888
Mai	24	2	20	452.571408	0.045257	0.090514	0.78125	1.388888889	1.249641388	3.419780277
Gandhi	20	2	20	314.285700	0.031429	0.062858	0.78125	1.388888889	0.867821092	3.037959981
Kendu	10	2	20	78.571425	0.007857	0.015714	0.78125	1.388888889	0.21694837	2.387087259
Patuli	12	2	20	113.142852	0.011314	0.022628	0.78125	1.388888889	0.312403444	2.482542333
Asana	25	2	20	491.071406	0.049107	0.098214	0.78125	1.388888889	1.355948022	3.526086911
TOTAL :		**256**	**1440**			**7.24320**				

				DEOBHUN RF						
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2/ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Sunari	14	10	60	153.999993	0.015400	0.154000	4.545454545	5.128205128	2.33411137	12.00777104
Halada	21	8	60	346.499984	0.034650	0.277200	3.636363636	5.128205128	4.201400467	12.96598923
Kakhada	17	10	60	227.071418	0.022707	0.227070	4.545454545	5.128205128	3.441601746	13.11526142
Tentura	20	2	20	314.285700	0.031429	0.062858	0.909090909	1.709401709	0.95271151	3.571204128
Kuruma	14	10	60	153.999993	0.015400	0.154000	4.545454545	5.128205128	2.33411137	12.00777104
Hinjala	31	2	20	755.071394	0.075507	0.151014	0.909090909	1.709401709	2.28885386	4.907346479

Babada	8	2	20	50.285712	0.005029	0.010058	0.909090909	1.709401709	0.152444754	2.770937373
Bela	25	2	20	491.071406	0.049107	0.098214	0.909090909	1.709401709	1.488587105	4.107079723
Asana	10	6	40	78.571425	0.007857	0.047142	2.727272273	3.418803419	0.71451090	6.860587044
Dhaura	11	28	60	95.071424	0.009507	0.266196	12.72727273	5.128205128	4.0346176	21.89009546
Kangada	23	20	60	415.642838	0.041564	0.831280	9.090909091	5.128205128	12.5993513	26.81846552
Kambhi	25	4	40	491.071406	0.049107	0.196428	1.818181818	3.418803419	2.97717421	8.214159447
Kasuna	29	10	40	660.785684	0.066079	0.660790	4.545454545	3.418803419	10.01536813	17.9795661
Sidha	27	8	60	572.785688	0.057279	0.458232	3.636363636	5.128205128	6.945224166	15.70079293
Sal	21	24	60	346.499984	0.034650	0.831600	10.90909091	5.128205128	12.6042014	28.64149744
Ambada	21	10	10	346.499984	0.034650	0.346500	4.545454545	0.854700855	5.251750584	10.65190598
Amla	27	2	20	572.785688	0.057279	0.114558	0.909090909	1.709401709	1.736306041	4.35479866
Barabakulia	20	6	40	314.285700	0.031429	0.188574	2.727272727	3.418803419	2.85813453	9.004210676
G. Palasa	12	8	40	113.142852	0.011314	0.090512	3.636363636	3.418803419	1.371851223	8.427018278
Jamu	10	2	20	78.571425	0.007857	0.015714	0.909090909	1.709401709	0.238170299	2.856662918
Karada	15	4	20	176.785706	0.017679	0.070716	1.818181818	1.709401709	1.071811816	4.599395344
Babada	11	2	20	132.785708	0.013279	0.026558	0.909090909	1.709401709	0.402528115	3.021020734
Beberta	15	2	20	176.785706	0.017679	0.035358	0.909090909	1.709401709	0.535905908	3.154398527
Chadeigudi	12	2	20	113.142852	0.011314	0.022628	0.909090909	1.709401709	0.342962806	2.961453424
Chauri	28	2	20	615.999972	0.061600	0.123200	0.909090909	1.709401709	1.867289096	4.485781715
Kamalagundi	13	2	20	132.785708	0.013279	0.026558	0.909090909	1.709401709	0.402528115	3.021020734
Kasi	20	4	40	314.285700	0.031429	0.125716	1.818181818	3.418803419	1.90542302	7.142408257
Mahula	14	2	20	153.999993	0.015400	0.030800	0.909090909	1.709401709	0.466822274	3.085314893
Siroo	10	4	40	78.571425	0.007857	0.031428	1.818181818	3.418803419	0.476340598	5.713325835
Piasala	17	4	20	227.071418	0.022707	0.090828	1.818181818	1.709401709	1.376640698	4.904224226
Dhamana	10	2	20	78.571425	0.007857	0.015714	0.909090909	1.709401709	0.238170299	2.856662918
Bandhana	23	4	20	415.642838	0.041564	0.166256	1.818181818	1.709401709	2.51987026	6.047453787
Jani	35	4	20	962.499956	0.096250	0.385000	1.818181818	1.709401709	5.835278426	9.362861954
Kataranga	25	2	20	491.071406	0.049107	0.098214	0.909090909	1.709401709	1.488587105	4.107079723
Rai	17	4	20	227.071418	0.022707	0.090828	1.818181818	1.709401709	1.376640698	4.904224226
Kendu	22	2	20	380.285697	0.038029	0.076058	0.909090909	1.709401709	1.152778199	3.771270817
TOTAL :		**220**	**1170**			**6.59780**				

			NUAGARH RF							
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2/ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Asana	21	6	40	346.499984	0.034650	0.207900	1.45631068	2.631578947	1.327515169	5.415404796
Barabakulia	22	12	80	380.285697	0.038029	0.456348	2.912621359	5.263157895	2.913983686	11.08972294
Behenta	22	4	20	380.285697	0.038029	0.152116	0.970873786	1.315789474	0.971314562	3.257977822
Dhaura	15	26	100	176.785706	0.017679	0.459654	6.310679612	6.578947368	2.933053667	15.82268065
Giringa	19	36	80	283.642844	0.028364	1.021104	8.737864078	5.263157895	6.520110865	20.52113284
Haladi	17	26	100	227.071418	0.022707	0.590382	6.310679612	6.578947368	3.76979827	16.65942525
Kanta	18	6	40	254.571417	0.025457	0.152742	1.45631068	2.631578947	0.975311794	5.063201421
Karanja	31	4	20	755.071394	0.075507	0.302028	0.970873786	1.315789474	1.928555803	4.215219063
Karei	13	2	20	132.785708	0.013279	0.026558	0.48543689	1.315789474	0.16958224	1.970808608
L. Mai	28	44	100	615.999972	0.061600	2.710400	10.67961165	6.578947368	17.30686442	34.56542344
Mitikina	25	6	20	491.071406	0.049107	0.294642	1.45631068	1.315789474	1.881393575	4.653493729
Patamasu	12	10	40	113.142852	0.011314	0.113140	2.427184466	2.631578947	0.722438991	5.781202404
R. Mai	28	10	60	615.999972	0.061600	0.616000	2.427184466	3.947368421	3.933378278	10.30793116
Sal	24	14	40	452.571408	0.045257	0.633598	3.398058252	2.631578947	4.045747744	10.07538494
Telakaruma	14	28	60	153.999993	0.015400	0.431200	6.796116505	3.947368421	2.753364794	13.49684972
Kakhada	16	12	60	201.142848	0.020114	0.241368	2.912621359	3.947368421	1.541220208	8.401209988
Bela	16	28	60	201.142848	0.020114	0.563192	6.796116505	3.947368421	3.596180485	14.33966541
Kasi	18	2	40	254.571417	0.025457	0.050914	0.485436893	2.631578947	0.325103931	3.442119772
Kusuma	34	12	40	908.285673	0.090829	1.089948	2.912621359	2.631578947	6.9597042	12.50390451
Kumbhi	13	4	20	132.785708	0.013279	0.053116	0.970873786	1.315789474	0.339164481	2.625827742
Sunari	17	16	40	227.071418	0.022707	0.363312	3.883495146	2.631578947	2.319875858	8.834949951
Sidha	28	18	80	615.999972	0.061600	1.108800	4.368932039	5.263157895	7.0800809	16.71217083
Bardhara	18	12	40	254.571417	0.025457	0.305484	2.912621359	2.631578947	1.950623587	7.494823894
Chara	19	14	60	283.642844	0.028364	0.397096	3.398058252	3.947368421	2.53559867	9.881025343
Dhamara	19	12	40	283.642844	0.028364	0.340368	2.912621359	2.631578947	2.173370288	7.717570595

G Palasa	27	4	20	572.785688	0.057279	0.229116	0.970873786	1.315789474	1.462986847	3.749650107
Mahula	25	12	20	491.071406	0.049107	0.589284	2.912621359	1.315789474	3.762787151	7.991197984
Rai	38	10	60	1134.571377	0.113457	1.134570	2.427184466	3.947368421	7.244631481	13.61918437
Kendu	20	2	20	314.285700	0.031429	0.062858	0.485436893	1.315789474	0.401378604	2.20259697
Kathasundar	15	2	20	176.785706	0.017679	0.035358	0.485436893	1.315789474	0.225773359	2.026999726
Patudi	13	2	20	132.785708	0.013279	0.026558	0.485436893	1.315789474	0.169582241	1.970808608
Veru	26	12	20	531.142833	0.053114	0.637368	2.912621359	1.315789474	4.069820529	8.298231362
Gandhupalasa	29	4	40	660.785684	0.066079	0.264316	0.970873786	2.631578947	1.68775132	5.290204053
TOTAL :		**412**	**1520**			**15.66084**				

				KARADA RF						
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2/ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Bahada	20	4	20	314.285700	0.031429	0.125716	1.257861635	1.886792453	1.704828077	4.849482165
Barabakulia	14	20	60	153.999993	0.015400	0.308000	6.289308176	5.660377358	4.176771833	16.12645737
Dhamura	14	12	80	153.999993	0.015400	0.184800	3.773584906	7.547169811	2.5066631	13.82681782
Ghantala	16	14	40	201.142848	0.020114	0.281596	4.402515723	3.773584906	3.818708575	11.9948092
Kakhada	16	6	40	201.142848	0.020114	0.120684	1.886792453	3.773584906	1.636589389	7.296966748
Karri	14	4	20	153.999993	0.015400	0.061600	1.257861635	1.886792453	0.835354367	3.980008455
Kasibhi	12	4	20	113.142852	0.011314	0.045256	1.257861635	1.886792453	0.61371424	3.758368329
Kasuma	12	2	20	113.142852	0.011314	0.022628	0.628930818	1.886792453	0.30685712	2.822580301
Sidha	15	8	20	176.785706	0.017679	0.141432	2.51572327	1.886792453	1.91795193	6.320467651
Sunari	25	12	40	491.071406	0.049107	0.589284	3.773584906	3.773584906	7.991249392	15.5384192
Phanaphasa	15	18	40	176.785706	0.017679	0.318222	5.660377358	3.773584906	4.315391858	13.7493541
Kusuma	10	2	20	78.571425	0.007857	0.015714	0.628930818	1.886792453	0.213096729	2.72882
Anbuda	10	2	20	78.571425	0.007857	0.015714	0.628930818	1.886792453	0.213096729	2.72882
Ankula	30	2	20	707.142825	0.070714	0.141428	0.628930818	1.886792453	1.917897684	4.433620955
Dhaura	13	12	40	132.785708	0.013279	0.159348	3.773584906	3.773584906	2.166909864	9.708079675
Kasi	14	6	40	153.999993	0.015400	0.092400	1.886792453	3.773584906	1.25303155	6.913408908
Temura	15	48	40	176.785706	0.017679	0.848592	15.09433962	3.773584906	11.50771157	30.3756361
Anchhu	22	2	20	380.285697	0.038029	0.076058	0.628930818	1.886792453	1.031418546	3.547141816

Bandhana	13	2	20	132.785708	0.013279	0.026558	0.628930818	1.886792453	0.360151644	2.875874914
Bebenta	11	4	20	95.071424	0.009507	0.038028	1.257861635	1.886792453	0.515695712	3.6603498
Halada	10	2	20	78.571425	0.007857	0.015714	0.628930818	1.886792453	0.213096729	2.72882
Jhadapan	22	2	20	380.285697	0.038029	0.076058	0.628930818	1.886792453	1.031418546	3.547141816
L. Mai	15	30	40	176.785706	0.017679	0.530370	9.433962264	3.773584906	7.19231973	20.3998669
Anjarua	23	2	20	415.642838	0.041564	0.083128	0.628930818	1.886792453	1.127294445	3.643017715
BadaSunari	14	8	20	153.999993	0.015400	0.123200	2.51572327	1.886792453	1.670708733	6.073224456
Bankapasia	22	4	20	380.285697	0.038029	0.152116	1.257861635	1.886792453	2.062837091	5.207491179
Giringa	12	2	20	113.142852	0.011314	0.022628	0.628930818	1.886792453	0.30685712	2.822580391
Mai	21	2	20	346.499984	0.034650	0.069300	0.628930818	1.886792453	0.939773662	3.455496953
Sahada	10	2	20	78.571425	0.007857	0.015714	0.628930818	1.886792453	0.213096729	2.72882
Teak	16	10	20	201.142848	0.020114	0.201140	3.144654088	1.886792453	2.727648982	7.759095523
Acasia	11	6	20	95.071424	0.009507	0.057042	1.886792453	1.886792453	0.773543568	4.547128473
Asana	17	4	20	227.071418	0.022707	0.090828	1.257861635	1.886792453	1.23171374	4.376367828
Vera	10	2	20	78.571425	0.007857	0.015714	0.628930818	1.886792453	0.213096729	2.72882
Chara	16	2	20	201.142848	0.020114	0.040228	0.628930818	1.886792453	0.545529796	3.061251067
Kangada	25	20	20	491.071406	0.049107	0.982140	6.289308176	1.886792453	13.31874899	21.49684962
Dimiri	21	4	20	346.499984	0.034650	0.138600	1.257861635	1.886792453	1.879547325	5.024201413
Mahula	12	2	20	113.142852	0.011314	0.022628	0.628930818	1.886792453	0.30685712	2.822580391
Sal	24	22	20	452.571408	0.045257	0.995654	6.918238994	1.886792453	13.56201163	22.30704308
Karada	17	4	20	227.071418	0.022707	0.090828	1.257861635	1.886792453	1.23171374	4.376367828
Bela	11	4	20	95.071424	0.009507	0.038028	1.257861635	1.886792453	0.515695712	3.6603498
TOTAL :		**318**	**1060**			**7.37412**				

				NAGATOTA RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2/ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Anchhu	16	6	60	201.142848	0.020114	0.120684	1.257861635	3.571428571	1.256491388	6.085781595
Amla	11	6	40	95.071424	0.009507	0.057042	1.257861635	2.380952381	0.59388802	4.232702036
Asana	16	12	60	201.142848	0.020114	0.241368	2.51572327	3.571428571	2.512982776	8.600134618
Babfoo	13	4	20	132.785708	0.013279	0.053116	0.838574423	1.19047619	0.553012798	2.582063412
Bahada	17	12	40	227.071418	0.022707	0.272484	2.51572327	2.380952381	2.836944412	7.733620063
Bela	13	26	100	132.785708	0.013279	0.345254	5.450733753	5.952380952	3.59458319	14.99769789
Vera	16	30	80	201.142848	0.020114	0.603420	6.289308176	4.761904762	6.28245694	17.33366988
Chara	15	32	80	176.785706	0.017679	0.565728	6.708595388	4.761904762	5.89002983	17.36052998
Dhaura	14	50	80	153.999993	0.015400	0.770000	10.48218029	4.761904762	8.01679070	23.26087576
Ghantala	18	8	60	254.571417	0.025457	0.203656	1.677148847	3.571428571	2.120347437	7.368924856
Jamo	14	8	40	153.999993	0.015400	0.123200	1.677148847	2.380952381	1.282686512	5.34078774
Karada	15	30	60	176.785706	0.017679	0.530370	6.289308176	3.571428571	5.521902965	15.38263971
Kendo	15	6	20	176.785706	0.017679	0.106074	1.257861635	1.19047619	1.104380593	3.552718419
Karuna	18	10	60	254.571417	0.025457	0.254570	2.096436059	3.571428571	2.650434297	8.318298927
Mahula	12	8	40	113.142852	0.011314	0.090512	1.677148847	2.380952381	0.94235813	5.000459358
Patuli	20	2	20	314.285700	0.031429	0.062858	0.419287212	1.19047619	0.654460818	2.26420422
Piasala	22	6	60	380.285697	0.038029	0.228174	1.257861635	3.571428571	2.375614547	7.204904754
Temera	16	22	80	201.142848	0.020114	0.442508	4.612159329	4.761904762	4.607133089	13.98119918
Sal	21	40	40	346.499984	0.034650	1.386000	8.385744235	2.380952381	14.43022326	25.19691988
Ankula	14	4	20	153.999993	0.015400	0.061600	0.838574423	1.19047619	0.641343256	2.67039387
Giringa	24	6	40	452.571408	0.045257	0.271542	1.257861635	2.380952381	2.827136857	6.465950874
Halada	12	6	40	113.142852	0.011314	0.067884	1.257861635	2.380952381	0.706768597	4.345582613
Kangada	15	54	60	176.785706	0.017679	0.954666	11.32075472	3.571428571	9.939425338	24.83160863
Mitikina	28	2	20	615.999972	0.061600	0.123200	0.419287212	1.19047619	1.282686512	2.892449914
Bandhana	12	4	20	113.142852	0.011314	0.045256	0.838574423	1.19047619	0.471179065	2.500229679

Barabakulia	19	8	40	283.642844	0.028364	0.226912	1.677148847	2.380952381	2.362475359	6.420576567
Valia	13	6	40	132.785708	0.013279	0.079674	1.257861635	2.380952381	0.829519198	4.468333214
Gobira	12	2	20	113.142852	0.011314	0.022628	0.419287212	1.19047619	0.235589532	1.845352935
Kasi	12	4	20	113.142852	0.011314	0.045256	0.838574423	1.19047619	0.471179065	2.500229679
Kataranga	13	2	20	132.785708	0.013279	0.026558	0.419287212	1.19047619	0.276506399	1.886269801
Kasuma	15	6	40	176.785706	0.017679	0.106074	1.257861635	2.380952381	1.104380593	4.743194609
L.Mai	13	8	20	132.785708	0.013279	0.106232	1.677148847	1.19047619	1.106025597	3.973650634
Mai	16	20	40	201.142848	0.020114	0.402280	4.192872117	2.380952381	4.188304627	10.76212913
Salara	11	1	20	95.071424	0.009507	0.009507	0.209643606	1.19047619	0.098981337	1.499101133
Sidha	19	12	40	283.642844	0.028364	0.340368	2.51572327	2.380952381	3.543713009	8.44038866
Sisoo	18	4	40	254.571417	0.025457	0.101828	0.838574423	2.380952381	1.060173719	4.279700523
Barmala	11	2	20	95.071424	0.009507	0.019014	0.419287212	1.19047619	0.197962673	1.807726075
Vendimamidan	22	2	20	380.285697	0.038029	0.076058	0.419287212	1.19047619	0.791871516	2.401634918
Manjari	13	2	20	132.785708	0.013279	0.026558	0.419287212	1.19047619	0.276506399	1.886269801
Rai	11	2	20	95.071424	0.009507	0.019014	0.419287212	1.19047619	0.197962673	1.807726075
Telakuruma	10	2	20	78.571425	0.007857	0.015714	0.419287212	1.19047619	0.163604999	1.773368401
TOTAL :		**477**	**1680**			**9.60484**				

				TALACHANDRAGIRI RF						
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2/ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Asana	25	5	25	491.071406	0.049107	0.147321	1.470588235	2.43902439	3.583840424	7.49345305
Bahada	20	5	25	314.285700	0.031429	0.094287	1.470588235	2.43902439	2.295095821	6.203308447
Behenta	17	3	25	227.071418	0.022707	0.068121	1.470588235	2.43902439	1.657162207	5.566774833
Ghantala	13	5	50	132.785708	0.013279	0.066395	2.450980392	4.87804878	1.615174245	8.944203418
Karri	11	3	25	95.071424	0.009507	0.028521	1.470588235	2.43902439	0.693823099	4.603435724
Karuma	18	3	25	254.571417	0.025457	0.076371	1.470588235	2.43902439	1.857857855	5.76747048
Kasuma	18	13	100	254.571417	0.025457	0.330941	6.37254902	9.756097561	8.050717371	24.17936395
Salara	17	3	25	227.071418	0.022707	0.068121	1.470588235	2.43902439	1.657162207	5.566774833
Sidha	14	15	100	153.999993	0.015400	0.231000	7.35294118	9.756097561	5.61947813	22.72851687
Sisoo	11	3	25	95.071424	0.009507	0.028521	1.470588235	2.43902439	0.693823099	4.603435724

Bela	13	3	25	132.785708	0.013279	0.039837	1.470588235	2.43902439	0.969104547	4.878717173
Bhuincha	13	3	25	132.785708	0.013279	0.039837	1.470588235	2.43902439	0.969104547	4.878717173
Valia	14	5	50	153.999993	0.015400	0.077000	2.450980392	4.87804878	1.873159378	9.20218855
Vendimardan	20	13	25	314.285700	0.031429	0.408577	6.37254902	2.43902439	9.939348559	18.75092197
Chara	12	8	50	113.142852	0.011314	0.090512	3.921568627	4.87804878	2.201862358	11.00147977
Kangoda	14	58	75	153.999993	0.015400	0.893200	28.43137255	7.317073171	21.72864878	57.4770945
Mahula	17	8	25	227.071418	0.022707	0.181656	3.921568627	2.43902439	4.41909922	10.77969224
Mai	14	13	75	153.999993	0.015400	0.200200	6.37254902	7.317073171	4.870214382	18.55983657
Patuli	17	3	25	227.071418	0.022707	0.068121	1.470588235	2.43902439	1.657162207	5.566774833
Temera	17	5	50	227.071418	0.022707	0.113535	2.450980392	4.87804878	2.761937012	10.09096618
Manjari	20	8	25	531.142833	0.053114	0.424912	3.921568627	2.43902439	10.33672594	16.69731896
Anchhu	15	5	50	176.785706	0.017679	0.088395	2.450980392	4.87804878	2.150362639	9.479391811
Kasi	19	5	25	283.642844	0.028364	0.141820	2.450980392	2.43902439	3.450018999	8.340023782
L. Mai	13	5	25	132.785708	0.013279	0.066395	2.450980392	2.43902439	1.615174245	6.505179028
Sal	17	5	25	227.071418	0.022707	0.113535	2.450980392	2.43902439	2.761937012	7.651941795
Harida	10	3	25	78.571425	0.007857	0.023571	1.470588235	2.43902439	0.57340571	4.483018336
TOTAL :		**204**	**1025**			**4.11070**				

				TAREIGANDA RF						
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2/ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Baluda	17	18	100	227.071418	0.022707	0.408726	5.113636364	7.462686567	5.002859294	17.57918223
Bara	14	4	40	153.999993	0.015400	0.061600	1.136363636	2.985074627	0.753991996	4.875430259
Bela	11	16	80	95.071424	0.009507	0.152112	4.545454545	5.970149254	1.861870625	12.37747442
Chara	15	20	80	176.785706	0.017679	0.353580	5.681818182	5.970149254	4.327865096	15.97983253
Dhamura	27	16	80	572.785688	0.057279	0.916464	4.545454545	5.970149254	11.21763832	21.73324212
Dhaura	16	30	100	201.142848	0.020114	0.603420	8.522727273	7.462686567	7.385939126	23.37135297
Ghamala	20	12	60	314.285700	0.031429	0.377148	3.409090909	4.47761194	4.616340475	12.50304332
Haladia	17	16	40	227.071418	0.022707	0.363312	4.545454545	2.985074627	4.446986039	11.97751521
Kangoda	16	16	40	201.142848	0.020114	0.321824	4.54545455	2.985074627	3.93916753	11.46969671
Karada	12	26	60	113.142852	0.011314	0.294164	7.386363636	4.47761194	3.600605544	15.46458112
Koraun	20	18	60	314.285700	0.031429	0.565722	5.113636364	4.47761194	6.924510713	16.51575902

Kusuma	18	4	40	254.571417	0.025457	0.101828	1.136363636	2.985074627	1.246387938	5.367826201
Sunari	19	12	60	283.642844	0.028364	0.340368	3.409090909	4.47761194	4.166148501	12.05285135
Sidha	20	4	40	314.285700	0.031429	0.125716	1.136363636	2.985074627	1.538780158	5.660218422
Asana	16	24	60	201.142848	0.020114	0.482736	6.818181818	4.47761194	5.908751301	17.20454506
Kendu	13	14	60	132.785708	0.013279	0.185906	3.977272727	4.47761194	2.275513571	10.73039824
Karuma	17	10	40	227.071418	0.022707	0.227070	2.840909091	2.985074627	2.779366275	8.605349992
Mahula	14	26	60	153.999993	0.015400	0.400400	7.386363636	4.47761194	4.900947974	16.76492355
Sal	21	40	60	346.499984	0.034650	1.386000	11.36363636	4.47761194	16.96481991	32.80606821
Amla	11	4	20	95.071424	0.009507	0.038028	1.136363636	1.492537313	0.465467656	3.094368606
Bamula	25	2	20	491.071406	0.049107	0.098214	0.568181818	1.492537313	1.202152109	3.26287124
Gambhari	16	2	20	201.142848	0.020114	0.040228	0.568181818	1.492537313	0.492395942	2.553113073
Khaira	5	4	20	19.642856	0.001964	0.007856	1.136363636	1.492537313	0.09615846	2.72505941
Jamu	17	2	20	227.071418	0.022707	0.045414	0.568181818	1.492537313	0.555873255	2.616592387
Kakhada	19	6	20	283.642844	0.028364	0.170184	1.704545455	1.492537313	2.083074251	5.280157019
Pasala	16	2	20	201.142848	0.020114	0.040228	0.568181818	1.492537313	0.492395942	2.553115073
Sirisa	14	2	20	153.999993	0.015400	0.030800	0.568181818	1.492537313	0.376995998	2.43771513
Mai	14	2	20	153.999993	0.015400	0.030800	0.568181818	1.492537313	0.376995998	2.43771513
TOTAL :		**352**	**1540**			**8.16985**				

				BADAJORA RF						
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2/ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Ambada	10	2	20	78.571425	0.007857	0.015714	1.19047619	3.333333333	0.506877391	5.030686915
Asana	13	12	40	132.785708	0.013279	0.159348	7.142857143	6.666666667	5.139996091	18.9495199
Bela	11	2	20	95.071424	0.009507	0.019014	1.19047619	3.333333333	0.613323579	5.137133103
Dhaura	11	2	20	95.071424	0.009507	0.019014	1.19047619	3.333333333	0.613323579	5.137133103
Ghantala	11	6	40	95.071424	0.009507	0.057042	3.571428571	6.666666667	1.839970737	12.07806598
Karuma	20	4	40	314.285700	0.031429	0.125716	2.380952381	6.666666667	4.055148157	13.1027672
Mai	15	2	20	176.785706	0.017679	0.035358	1.19047619	3.333333333	1.140522515	5.664332039
Sal	15	94	80	176.785706	0.017679	1.661826	55.95238095	13.33333333	53.68455822	122.8902725
Vala	16	4	20	201.142848	0.020114	0.080456	2.38095238	3.333333333	2.59522257	8.30950828

Kerum	20	6	20	314.285700	0.031429	0.188574	3.571428571	3.333333333	6.082722235	12.98748414
Mahula	17	6	20	227.071418	0.022707	0.136242	3.571428571	3.333333333	4.394679239	11.29944114
Temru	21	4	20	346.499984	0.034650	0.138600	2.380952381	3.333333333	4.470739878	10.18502559
Jhadapan	10	2	20	78.571425	0.007857	0.015714	1.19047619	3.333333333	0.506877391	5.030686915
Kumbhi	12	4	40	113.142852	0.011314	0.045256	2.380952381	6.666666667	1.459796565	10.50741561
Sidha	19	4	40	283.642844	0.028364	0.113456	2.380952381	6.666666667	3.659684442	12.70730349
Sunari	12	2	20	113.142852	0.011314	0.022628	1.19047619	3.333333333	0.729898283	5.253707806
Chara	13	2	20	132.785708	0.013279	0.026558	1.19047619	3.333333333	0.856666015	5.380475539
Bara	30	2	20	707.142825	0.070714	0.141428	1.19047619	3.333333333	4.561961036	9.085770559
Bahada	16	2	20	201.142848	0.020114	0.040228	1.19047619	3.333333333	1.297611283	5.821420807
Chakunda	10	2	20	78.571425	0.007857	0.015714	1.19047619	3.333333333	0.506877391	5.030686915
Sahada	13	2	20	132.785708	0.013279	0.026558	1.19047619	3.333333333	0.856666015	5.380475539
Behenta	10	2	20	78.571425	0.007857	0.015714	1.19047619	3.333333333	0.506877391	5.030686915
TOTAL :		**168**	**600**			**3.10016**				

				HALADIASENI RF						
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2/ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Anchhu	12	2	20	113.142852	0.011314	0.022628	0.427350427	1.123595506	0.248179345	1.799125278
Ankula	11	4	20	95.071424	0.009507	0.038028	0.854700855	1.123595506	0.417083443	2.395379803
Chara	15	8	40	176.785706	0.017679	0.141432	1.709401709	2.247191011	1.551197684	5.507790404
Dhamana	17	16	100	227.071418	0.022707	0.363312	3.418803419	5.617977528	3.984732824	13.02151377
Giringa	15	24	80	176.785706	0.017679	0.424296	5.128205128	4.494382022	4.653593051	14.2761802
Jandhakhai	13	6	20	132.785708	0.013279	0.079674	1.282051282	1.123595506	0.873848381	3.279495169
Kangada	18	70	100	254.571417	0.025457	1.781990	14.95726496	5.617977528	19.54450733	40.11974981
Kanta	11	2	20	95.071424	0.009507	0.019014	0.427350427	1.123595506	0.208541722	1.759487654
Kasi	12	8	20	113.142852	0.011314	0.090512	1.70940171	1.123595506	0.99271738	3.825714597
Khakhada	16	22	80	201.142848	0.020114	0.442508	4.700854701	4.494382022	4.853338598	14.04857532
Kochila	14	8	60	153.999993	0.015400	0.123200	1.709401709	3.370786517	1.351232781	6.431421007
Mai	14	18	80	153.999993	0.015400	0.277200	3.846153846	4.494382022	3.040273756	11.38080962
Manjari	22	2	20	380.285697	0.038029	0.076058	0.427350427	1.123595506	0.834188822	2.385134755

Mankadakund a	24	2	20	452.571408	0.045257	0.090514	0.427350427	1.123595506	0.992739317	2.54368525
Sidha	13	18	60	132.785708	0.013279	0.239022	3.846153846	3.370786517	2.621545143	9.838485506
Sunari	15	16	60	176.785706	0.017679	0.282864	3.418803419	3.370786517	3.102395367	9.891985303
Tentera	22	10	80	380.285697	0.038029	0.380290	2.136752137	4.494382022	4.170944108	10.80207827
Mahula	13	18	60	132.785708	0.013279	0.239022	3.846153846	3.370786517	2.621545143	9.838485506
L. Mai	15	24	60	176.785706	0.017679	0.424296	5.128205128	3.370786517	4.653593051	13.1525847
Bela	12	28	80	113.142852	0.011314	0.316792	5.982905983	4.494382022	3.474510836	13.95179884
Vendimardan	12	12	40	113.142852	0.011314	0.135768	2.564102564	2.247191011	1.489076073	6.300369648
Dhusra	19	8	60	283.642844	0.028364	0.226912	1.709401709	3.370786517	2.488725103	7.568913329
Kumbhi	15	4	40	176.785706	0.017679	0.070716	0.854700855	2.247191011	0.775598842	3.877490708
Kuruma	16	6	40	201.142848	0.020114	0.120684	1.282051282	2.247191011	1.323637799	4.852880093
Kusuma	17	10	40	227.071418	0.022707	0.227070	2.136752137	2.247191011	2.499458015	6.874401163
Mitikina	11	6	40	95.071424	0.009507	0.057042	1.282051282	2.247191011	0.625625165	4.154867458
Pusal	14	2	20	153.999993	0.015400	0.030800	0.427350427	1.123595506	0.337808195	1.888754128
Patuli	12	6	40	113.142852	0.011314	0.067884	1.282051282	2.247191011	0.744538036	4.27378033
Sal	18	26	60	254.571417	0.025457	0.661882	5.555555556	3.370786517	7.259388436	16.18573051
Salara	12	10	40	113.142852	0.011314	0.113140	2.136752137	2.247191011	1.240896727	5.624839875
Barabakuli	12	2	20	113.142852	0.011314	0.022628	0.427350427	1.123595506	0.248179345	1.799125278
Asana	17	18	40	227.071418	0.022707	0.408726	3.846153846	2.247191011	4.482824427	10.57616928
Baluda	17	16	40	227.071418	0.022707	0.363312	3.418803419	2.247191011	3.984732824	9.650727254
Behenta	14	2	20	153.999993	0.015400	0.030800	0.427350427	1.123595506	0.337808195	1.888754128
Kendu	15	14	40	176.785706	0.017679	0.247506	2.991452991	2.247191011	2.714595946	7.953239949
Korum	20	12	40	314.285700	0.031429	0.377148	2.564102564	2.247191011	4.136483285	8.94777686
Telakeruma	14	2	20	153.999993	0.015400	0.030800	0.427350427	1.123595506	0.337808195	1.888754128
Ghantal	11	2	20	95.071424	0.009507	0.019014	0.427350427	1.123595506	0.208541722	1.759487654
Patamuau	13	4	40	132.785708	0.013279	0.053116	0.854700855	2.247191011	0.582565587	3.684457453
TOTAL :		**468**	**1780**			**9.11760**				

				SUKASANA RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2/ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Cashew	14	70	50	153.999993	0.015400	1.078000	43.47826087	40	28.50703275	111.9852936
Teak	20	83	25	314.285700	0.031429	2.608607	51.55279503	20	68.98297326	140.3357683
Acasia	13	5	25	132.785708	0.013279	0.066395	3.105590062	20	1.755774062	24.86136412
Mai	11	3	25	95.071424	0.009507	0.028521	1.863354037	20	0.754219927	22.61757396
TOTAL :		**161**	**125**			**3.78152**				

				SUBASI RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2/ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Chara	14	50	100	153.999993	0.015400	0.770000	17.48251748	14.38848921	16.17627688	48.04728357
Giringa	11	3	33	95.071424	0.009507	0.028521	1.048951049	4.748201439	0.599173497	6.396325985
Mai	18	3	33	254.571417	0.025457	0.076371	1.048951049	4.748201439	1.604413561	7.401566048
Sal	15	141	66	176.785706	0.017679	2.492739	49.3006993	9.496402878	52.36783929	111.1649415
Temera	16	13	100	201.142848	0.020114	0.261482	4.545454545	14.38848921	5.493253547	24.4271973
Amla	11	7	33	95.071424	0.009507	0.066549	2.447552448	4.748201439	1.398071494	8.59382538
Asana	12	20	33	113.142852	0.011314	0.226280	6.993006993	4.748201439	4.753724588	16.49493302
Bela	13	7	33	132.785708	0.013279	0.092953	2.447552448	4.748201439	1.952770734	9.14852462
Dhamna	19	10	33	283.642844	0.028364	0.283640	3.49650350	4.748201439	5.95875217	14.20345711
Kusuma	12	13	33	113.142852	0.011314	0.147082	4.545454545	4.748201439	3.089920982	12.38357697
Mahula	12	7	66	113.142852	0.011314	0.079198	2.447552448	9.496402878	1.663803606	13.60775893
Rajaballav	13	3	33	132.785708	0.013279	0.039837	1.048951049	4.748201439	0.836901743	6.634054231
Bahada	12	3	33	113.142852	0.011314	0.033942	1.048951049	4.748201439	0.713058688	6.510211176
R. Mai	18	3	33	254.571417	0.025457	0.076371	1.048951049	4.748201439	1.604413561	7.401566048
Neem	19	3	33	283.642844	0.028364	0.085092	1.048951049	4.748201439	1.787625652	7.58477814
TOTAL :		**286**	**695**			**4.76006**				

				SORISAPALA RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2/ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Ankula	21	3	33	346.409984	0.034650	0.103950	1.310043668	3.995157385	2.328363023	7.633564076
DesiSahada	23	10	33	415.642838	0.041564	0.415640	4.366812227	3.995157385	9.309868272	17.67183788
Gaigila	14	3	33	153.999993	0.015400	0.046200	1.310043668	3.995157385	1.03482801	6.340029063
Giringa	11	3	33	95.071424	0.009507	0.028521	1.310043668	3.995157385	0.638838305	5.944039358
Jhadapan	11	3	33	95.071424	0.009507	0.028521	1.310043668	3.995157385	0.638838305	5.944039358
Kasi	13	13	66	132.785708	0.013279	0.172627	5.676855895	7.99031477	3.866650539	17.5338212
Kochila	13	7	33	132.785708	0.013279	0.092953	3.056768559	3.995157385	2.082042598	9.133968542
Pansahada	18	7	33	254.571417	0.025457	0.178199	3.056768559	3.995157385	3.991457069	11.04338301
Piasala	15	20	100	176.785706	0.017679	0.353580	8.73362445	12.10653753	7.91979411	28.75995609
Sanari	15	13	33	176.785706	0.017679	0.229827	5.676855895	3.995157385	5.147866171	14.81987945
Tentera	16	53	66	201.142848	0.020114	1.066042	23.1441048	7.99031477	23.87814116	55.01256074
Vendimardan	14	26	33	153.999993	0.015400	0.400400	11.35371179	3.995157385	8.968509422	24.3173786
Badachakunda	15	17	33	176.785706	0.017679	0.300543	7.423580786	3.995157385	6.731824993	18.15056316
Barabakuli	16	30	33	201.142848	0.020114	0.603420	13.10043668	3.995157385	13.51592896	30.61152303
Neem	23	3	33	415.642838	0.041564	0.124692	1.310043668	3.995157385	2.792960482	8.098161535
Patuli	11	3	33	95.071424	0.009507	0.028521	1.310043668	3.995157385	0.638838305	5.944039358
Anchhu	11	3	33	95.071424	0.009507	0.028521	1.310043668	3.995157385	0.638838305	5.944039358
Halada	12	5	33	113.142852	0.011314	0.033942	1.310043668	3.995157385	0.760262604	6.065863658
Mahula	20	5	33	314.285700	0.031429	0.094287	1.310043668	3.995157385	2.111922697	7.41712375
R. Mai	20	5	33	314.285700	0.031429	0.094287	1.310043668	3.995157385	2.111922697	7.41712375
Sisoo	13	3	33	132.785708	0.013279	0.039837	1.310043668	3.995157385	0.892303971	6.197505024
TOTAL :		**229**	**826**			**4.46451**				

				NIZIGARH RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2/ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Bela	13	13	33	132.785708	0.013279	0.172627	3.359173127	3.225806452	1.642200501	8.22718008
Dhaura	15	10	33	176.785706	0.017679	0.176790	2.583979328	3.225806452	1.681803117	7.491588896
Haladu	21	13	33	346.499984	0.034650	0.450450	3.359173127	3.225806452	4.285130459	10.87011004
Jaisenda	12	3	33	113.142852	0.011314	0.033942	0.775193798	3.225806452	0.322890217	4.323890467
Kasi	22	3	66	380.285697	0.038029	0.114087	0.775193798	6.451612903	1.085309532	8.312116234
Kendu	15	3	66	176.785706	0.017679	0.053037	0.775193798	6.451612903	0.504540935	7.731347637
Kuruma	13	3	33	132.785708	0.013279	0.039837	0.775193798	3.225806452	0.378969346	4.379969597
Kusuma	18	20	66	254.571417	0.025457	0.509140	5.167958656	6.451612903	4.843448378	16.46301994
Mai	25	17	33	491.071406	0.049107	0.834819	4.39276486	3.225806452	7.94163242	15.56020373
Sidha	16	7	33	201.142848	0.020114	0.140798	1.80878553	3.225806452	1.339411252	6.374003233
Simli	15	3	33	176.785706	0.017679	0.053037	0.775193798	3.225806452	0.504540935	4.505541185
Sisoo	14	7	33	153.999993	0.015400	0.107800	1.80878553	3.225806452	1.025501307	6.060093288
Sunari	14	3	33	153.999993	0.015400	0.046200	0.775193798	3.225806452	0.43950056	4.44050081
Valu	22	79	66	380.285697	0.038029	1.004291	20.41343669	6.451612903	28.57981768	55.44486727
Cashew	28	3	33	615.999972	0.061600	0.184800	0.775193798	3.225806452	1.75800224	5.75900249
Tenk	17	125	33	227.071418	0.022707	2.838375	32.2997416	3.225806452	27.00145891	62.52700697
Amla	16	10	33	201.142848	0.020114	0.201140	2.583979328	3.225806452	1.913444646	7.723230425
Chara	18	17	66	254.571417	0.025457	0.432769	4.392764858	6.451612903	4.116931122	14.96130888
Anchhu	15	3	33	176.785706	0.017679	0.053037	0.775193798	3.225806452	0.504540935	4.505541185
Ghantala	18	3	33	254.571417	0.025457	0.076371	0.775193798	3.225806452	0.726517257	4.727517507
Kumbhi	16	10	33	201.142848	0.020114	0.201140	2.583979328	3.225806452	1.913444646	7.723230425
Salara	14	3	33	153.999993	0.015400	0.046200	0.775193798	3.225806452	0.43950056	4.44050081
Telakuruma	13	3	33	132.785708	0.013279	0.039837	0.775193798	3.225806452	0.378969346	4.379969597
Tenera	38	3	33	1134.571377	0.113457	0.340371	0.775193798	3.225806452	3.237949028	7.238949278
Kakhada	15	3	33	176.785706	0.017679	0.053037	0.775193798	3.225806452	0.504540935	4.505541185
Kantakoli	14	20	33	153.999993	0.015400	0.308000	5.167958656	3.225806452	2.930003733	11.32376884
TOTAL :		**387**	**1023**			**10.51193**				

				KALICHABALLAV RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2/ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Mitikina	16	3	33	201.142848	0.020114	0.060342	1.067615658	4.347826087	0.724809239	6.140250985
L. Mai	12	3	33	113.142852	0.011314	0.033942	1.067615658	4.347826087	0.407706693	5.823142438
Kasi	22	3	33	380.285697	0.038029	0.114087	1.067615658	4.347826087	1.370377377	6.785819123
Karada	13	3	33	132.785708	0.013279	0.039837	1.067615658	4.347826087	0.47850959	5.893951335
Jhadapan	14	3	33	153.999993	0.015400	0.046200	1.067615658	4.347826087	0.554039957	5.970381702
Pasal	15	7	33	176.785706	0.017679	0.123753	2.491103203	4.347826087	1.486482347	8.325411637
Bahada	19	7	33	283.642844	0.028364	0.198548	2.491103203	4.347826087	2.384896504	9.223825794
Asana	21	7	33	346.499984	0.034650	0.242550	2.491103203	4.347826087	2.913434772	9.752364062
Kasuma	14	3	33	153.999993	0.015400	0.046200	1.06761566	4.347826087	0.55493996	5.970381702
Tentera	17	7	66	227.071418	0.022707	0.158949	2.491103203	8.695652174	1.909245696	13.09600107
Phasi	15	7	33	176.785706	0.017679	0.123753	2.491103203	4.347826087	1.486482347	8.325411637
Sal	19	178	66	283.642844	0.028364	5.048792	63.34519573	8.695652174	60.64451111	132.685359
Sunari	14	7	33	153.999993	0.015400	0.107800	2.491103203	4.347826087	1.294859899	8.133789188
Simli	67	5	33	3527.071268	0.352707	1.058121	1.067615658	4.347826087	12.70981865	18.1252604
Amboda	25	7	66	491.071406	0.049107	0.343749	2.491103203	8.695652174	4.129005522	15.3157609
Amla	12	3	33	113.142852	0.011314	0.033942	1.067615658	4.347826087	0.407706693	5.823142438
Behanta	13	3	33	132.785708	0.013279	0.039837	1.067615658	4.347826087	0.47850959	5.893951335
Chara	17	10	33	227.071418	0.022707	0.227070	3.558718861	4.347826087	2.727493852	10.6340388
Kantabaula	15	7	33	176.785706	0.017679	0.123753	2.491103203	4.347826087	1.486482347	8.325411637
Kumbhi	14	10	33	153.999993	0.015400	0.154000	3.558718861	4.347826087	1.849799855	9.756344803
TOTAL :		**281**	**759**			**8.32523**				

				KALICHIABALLAV RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2/ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Mitikina	16	3	33	201.142848	0.020114	0.060342	1.067615658	4.347826087	0.724809239	6.140250985
L. Mai	12	3	33	113.142852	0.011314	0.033942	1.067615658	4.347826087	0.407700693	5.823142438
Kasi	22	5	33	380.285697	0.038029	0.114087	1.067615658	4.347826087	1.370377377	6.785819123
Karada	13	3	33	132.785708	0.013279	0.039837	1.067615658	4.347826087	0.47850959	5.893951335
Jhadapan	14	3	33	153.999993	0.015400	0.046200	1.067615658	4.347826087	0.554939957	5.970381702
Piasal	15	7	33	176.785706	0.017679	0.123753	2.491103203	4.347826087	1.486482347	8.325411637
Bahada	19	7	33	283.642844	0.028364	0.198548	2.491103203	4.347826087	2.384896504	9.223825794
Asana	21	7	33	346.499984	0.034650	0.242550	2.491103203	4.347826087	2.913434772	9.752364062
Kasuma	14	5	33	153.999993	0.015400	0.046200	1.06761566	4.347826087	0.55493996	5.970381702
Temiera	17	7	66	227.071418	0.022707	0.158949	2.491103203	8.695652174	1.909245696	13.09680107
Phasi	15	7	33	176.785706	0.017679	0.123753	2.491103203	4.347826087	1.486482347	8.325411637
Sal	19	178	66	283.642844	0.028364	5.048792	63.34519573	8.695652174	60.64451111	132.685359
Sunari	14	7	33	153.999993	0.015400	0.107800	2.491103203	4.347826087	1.294859899	8.133789188
Simili	67	3	33	3527.071268	0.352707	1.058121	1.067615658	4.347826087	12.70981865	18.1252604
Amhada	25	7	66	491.071406	0.049107	0.343749	2.491103203	8.695652174	4.129005522	15.3157609
Amla	12	3	33	113.142852	0.011314	0.033942	1.067615658	4.347826087	0.407700693	5.823142438
Behenta	13	3	33	132.785708	0.013279	0.039837	1.067615658	4.347826087	0.47850959	5.893951335
Chara	17	10	33	227.071418	0.022707	0.227070	3.558718861	4.347826087	2.727493852	10.6340388
Kanabaula	15	7	33	176.785706	0.017679	0.123753	2.491103203	4.347826087	1.486482347	8.325411637
Kanhhi	14	10	33	153.999993	0.015400	0.154000	3.558718861	4.347826087	1.849799855	9.756344803
TOTAL :		**281**	**759**			**8.32523**				

BIODIVERSITY INDEX

Name of the Range	Name of Forest Block	Sample ID	Shannon-Winner Index SDI	e- Evenness	Index of Dominance	Simpson Index (D)	Diversity Index (1-D)
Khuntuni	Baniabandha R.F	UID-1,2,10,12,13	1.83144	1.02215	0.03361	0.89455	0.10545
	Ranibania RF	UID-36,37,42,47	2.00924	1.12138	0.00022	0.87231	0.12769
	Sankhapoi R.F	UID-49,50	1.78412	0.99573	0.11111	0.85985	0.14015
Athgarh	Kalichiaballv R.F	UID-140,148,149	1.70045	0.94904	0.00014	0.60976	0.39024
	Nizigarh R.F	UID-144,159,160	2.41563	1.34819	0.00030	0.85652	0.14348
	Sorisapala R.F	UID-130,150,151	2.56407	1.43104	0.00022	0.93077	0.06923
	Subasi R.F	UID-92,93,94	1.80329	1.00643	0.00211	0.73892	0.26108
	Sukasana R.F	UID-181,182,183,187	0.87650	0.48918	0.26587	0.57760	0.42240
Badamba	Haladiaseni RF	UID-132,135,136,141,157	2.13689	1.19262	0.00327	0.96214	0.03786
	Badjora R.F	UID-138,139,146,156,170	1.89561	1.05796	0.00128	0.71609	0.28391
	Tarciganda R.F	UID-188,190,195,205,206	2.71735	1.51658	0.00207	0.96923	0.03077
	Talachandragiri RF	UID-184,185,199,200,	2.30073	1.28406	0.00015	0.93152	0.06848
	Nagatota R.F	UID-178,180,192,194,235	2.14972	1.19978	0.00058	0.96478	0.03522
	Karada	UID-171,172,175,176,245	1.81622	1.01365	0.00036	0.97141	0.02859
Narasinghpur East	Nuagarh R.F	UID-23,25,28,243,247	2.15837	1.20461	0.00764	0.97145	0.02855
	Deobhuin RF	UID-38,58,68,79,103	2.39828	1.33851	0.00231	0.98563	0.01437
	Olaba R.F	UID-53,82,121,154,233	2.04017	1.13864	0.00026	0.98008	0.01992
Narasinghpur West	Balikiary R.F	UID-61,74,97,231,237	1.70438	0.95123	0.00677	0.95830	0.04170
	Barhakhola R.F	UID-98,99,111,114,241	1.61050	0.89884	0.00021	0.65392	0.34608

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 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 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. Assessment of biodiversity especially the lower forms of life (algae, fungi, lichens, epiphytes, parasites, etc.) of a forest division must be made an on-going programme with the support from state Biodiversity Board by the DFO.The biodiversity speaks the number of species in particular area & number of individual species on that area. The more the diversity in character the forest is more stable. Hence, survey of biodiversity is required to study the character of the forest. This is a small step to study the biodiversity of this Division.

3.3.1. Importance Value Index (IVI):-

The National Working Plan Code 2014 has given more emphasis on the survey of biodiversity. As per the new code, detail enumeration is carried out on the sample plots selected on systematic sampling basis on the selected sample points with specific Latitude & Longitude. The data collected during the enumeration of growing stock such as the number of individual of each species and the DBH of each tree is utilized to derive secondary attributes like basal area (BA, m2/ha), density (D, trees per ha) and frequency (F, number of quadrates where 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 is converted to ha basis. To estimate the stand structure, all tree species are grouped under different DBH classes. The total number of individuals belonging to each DBH class is calculated for each species for each site.

Ds =Total number of individuals of a species &total area of quadrates studied

F_s(%) =Number of quadrates in which a species occurs x 100 &total area of quadrates studied

$RF_s(\%)$ = Density (D_s) of a species x 100 & total density of all species.

$RBAF_s(\%)$ = Total basal area of a species x 100 & total basal area of all species.

$IVI_s = RD_s + RF_s + RBAF_s$

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

3.3.2. Species biodiversity:-

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 homogeneous. 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 as the 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.

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 but has been assessed by the Division during NTFP assessment survey. The timber & bamboo coupe working is being operated by the Orissa Forest Development Corporation Ltd. 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, Asanetc. may be attributed. 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 genetic diversity which 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.

3.5.1. Flora:-

The diversified topography of the hills spreads out a wide range of diverse habitats. The unique geological formation of the hill makes it land of perennial water. All these conditions have favoured in the development of a rich and varies flora. Because of its unique ecosystem, it has housed a large verities of plants and animals. The unique feature of the floral diversity of this Division is having a number of orchids and ferns. Both Epiphytic (tree growing) and Terrestrial (Earth growing) orchids are available. There are rare & endangered orchids in AthgarhForest Division some of which are epiphytic & others are terrestrial.

3.6. Fauna and their Habitats:-

3.6.1. Fauna:-

During ancient period, when the human population was much less and most of the area was full of forest cover, it was housing a good number of wildlife. The increase of human population, rapid urbanization and industrial growth has created tremendous pressure on forest and its wildlife. Once upon a time, this Division was famous for variety of wildlife species starting from small mammals to pachyderms, with good number of small cats and big cats like leopards and tigers etc. Varieties of birds and reptiles also enrich the biodiversity composition of forests. At this changing scenario, lots of changes have occurred in both floral and faunal composition of forest. Many wild life species like Chausinga, wild dog, Black Panther are extinct from forest and some other are on the verge of extinction. To meet the challenges many wildlife conservations projects like project tiger and project elephant have come into Force. For effective protection and management of wildlife, many conservation measures are taken up. Elephant trackers are engaged for regular monitoring of elephants in the area as there is threat to the life of elephant & other Wild animals and to maintain the stable male-female ratio for successful breeding. Elephant protection squads are deployed in different vulnerable places to avoid poaching of this big mammal. Emphasis has been given for conservation and protection of wildlife like Tiger, Elephant, Gaur & the other flagship species. Apart from this the herbivore populations of Sambar, Chital, Barking deer are also equally important for conservation point of view. They constitute the prey base of forest eco-system.

3.6.2. Threats to Flora & Fauna:-

The natural biodiversity should be maintained and developed through sustainable management practices. Increasing human population and change in land management practices have attributed a number of threats to the floral & fauna compositions of the division. Few important threats to flora are

Fire, Frost, Insects, Fungi etc. The growing population and traditional hunting habits of the tribal people are the major factors in dwindling of animal population. Many ground insets and reptiles are the most sufferer of the forest fire which is rarely accidental but almost manual. As far Eco-tourism is concerned, many tourists visit Ansupa Eco-tourism atSaranda PRF. Efforts are being made for development of Eco-tourism sites with provision for better facilities for tourists, utilizing the Govt. funds from time to time.

3.6.3. **Year wise Census Details:-**

1. Bird Census

Table No-2

Bird Census

Year	Name of the Range	No. o f Species	Total No. of Bird found
1	**2**	**3**	**4**
2006	Athgarh **(Only in Ansupa Lake)**	07	22,780
	Khuntuni	--	--
	Baramba	--	--
	Narsinghpur East	--	--
	Narsinghpur West	--	--
	Total-	**07**	**22,780**
2007	Athgarh **(Only in Ansupa Lake)**	13	2,150
	Khuntuni	--	--
	Baramba	--	--
	Narsinghpur East	--	--
	Narsinghpur West	--	--
	Total-	**13**	**2,150**
2008	Athgarh **(Only in Mundali & Ansupa Lake)**	15	3,024
	Khuntuni	--	--
	Baramba	--	--
	Narsinghpur East	--	--
	Narsinghpur West	--	--
	Total-	**15**	**3,024**
2009	Athgarh **(Only in Ansupa Lake)**	21	5,117
	Khuntuni	--	--
	Baramba	--	--
	Narsinghpur East	--	--
	Narsinghpur West	--	--
	Total-	**21**	**5,117**
2010	Athgarh **(Only in Ansupa Lake)**	09	86
	Khuntuni	--	--
	Baramba	--	--
	Narsinghpur East	--	--
	Narsinghpur West	--	--
	Total-	**09**	**86**
	Athgarh **(Only in Mundali & Ansupa**	38	2,318

2011	**Lake)**		
	Khuntuni	--	--
	Baramba	--	--
	Narsinghpur East	--	--
	Narsinghpur West	--	--
	Total-	**38**	**2,318**
2012	Athgarh **(Only in Mundali & Ansupa Lake)**		
	Khuntuni		
	Baramba		
	Narsinghpur East		
	Narsinghpur West		
	Total-	**48**	**62685**
2013	Athgarh	27	5,046
	Khuntuni	13	449
	Baramba	11	5,773
	Narsinghpur East	10	264
	Narsinghpur West	13	2,792
	Total-	**33**	**14324**
2014	Athgarh	40	8,848
	Khuntuni	17	2,529
	Baramba	28	2737
	Narsinghpur East	16	741
	Narsinghpur West	23	7678
	Total-	**50**	**22533**
2015	Athgarh	29	18,573
	Khuntuni	25	28784
	Baramba	27	3376
	Narsinghpur East	14	1257
	Narsinghpur West	18	10695
	Total-	48	62685
2016	Athgarh	19	11286
	Khuntuni	15	2228
	Baramba	17	2221
	Narsinghpur East	28	2857
	Narsinghpur West	15	1086
	Total-	49	19678
2017	Athgarh	20	6222
	Khuntuni	16	1752
	Baramba	11	3761
	Narsinghpur East	28	2107
	Narsinghpur West	17	1235
	Total-	**92**	**15077**
2018	Athgarh	27	5870
	Khuntuni	12	2694
	Baramba	11	4608
	Narsinghpur East	27	1870
	Narsinghpur West	15	1906
	Total-	**92**	**16948**

2019	Athgarh	30	5240
	Khuntuni	14	2591
	Baramba	12	5144
	Narsinghpur East	25	2022
	Narsinghpur West	09	1675
	Total-	**90**	**16672**
2020	Athgarh	25	6223
	Khuntuni	15	5741
	Baramba	14	5340
	Narsinghpur East	26	2500
	Narsinghpur West	12	2020
	Total-	**92**	**21824**
2021	Athgarh	19	6100
	Khuntuni	12	3021
	Baramba	14	3652
	Narsinghpur East	26	2830
	Narsinghpur West	11	2670
	Total-		**18273**

2. Tiger Census

Table No-3

Tiger Census

Sl. No.	Year	Tiger/ Leopard	Nos. of Animal	Census Date
1	1993	Tiger	02	09.05.0193 to 15.05.1993
		Leopard	01	
2	1998	Tiger	03	09.05.1998 to 15.05.1998
		Leopard	02	
3	1999	Tiger	Nil	03.05.2099 to 05.05.2099
		Leopard	Nil	
4	2000	Tiger	Nil	07.05.2000 to 13.05.2000
		Leopard	Nil	
5	2002	Tiger	**01**	06.01.2002 to 12.01.2002
		Leopard	Nil	
6	2004	Tiger	Nil	05.01.2004 to 10.01.2004
		Leopard	Nil	
7	2006	Tiger	Nil	18.01.2006 to 25.01.2006
		Leopard	Nil	
8	2010	Tiger	Nil	07.05.2010 to 17.05.2010
		Leopard	Nil	
9	2015	Tiger	--	1105.2015 to 16.05.2015
		Leopard	Male-01 Female-02	

3. Details of Elephant:-

Table No-4									
Year	**No. of Elephants Category wise**								Total
	Tusker Adult	Adult Cow	Sub-adult Bull	Sub-adult cow	Unknown Sex	Makhna	Juvenile	Calf	
1	2	3	4	5	6	7	8	9	10
1995	--	--	--	--	--	--	--	--	77 Nos.
1997	--	--	--	--	--	--	--	--	96 Nos.
1999	--	--	--	--	--	--	--	--	154 Nos.
2002	12	60	07	43	34	0	0	0	**156 Nos.**
2005	04	50	02	33	0	0	12	13	**114 Nos.**
2007	09	63	04	26	0	0	10	27	**139Nos.**
2010	10	47	06	24	0	0	18	28	**133Nos.**
2012	07	45	13	32	0	0	09	25	**131 Nos.**
2015	10	41	10	19	0	01	12	21	**114 Nos.**
2017	09	40	08	17	--	--	21	20	**115 Nos.**

3.6.4. Mammals, Birds, Reptiles & Fishes:-

The rich & varied Fauna of this Division are due to existence of large stretch of forests in different density available in forest areas with different type of natural habitat in plain and hilly regions. 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, Fishes and other insects, arthropods and micro-organisms as well. Major fauna of this Division are broadly classified into following categories found in varied profiles. They are (a) Mammals, (b) Birds, (c) Reptiles, (d) Fishes.

3.6.5.Details of Elephant Depredation& Compensation Paid:-

Details of Elephant depredation & damages caused to the house property & standing crops of Athgarh Forest Division is given below.

Table No-5

Details of Elephant depredation

Year	Human death	Compassionate amount paid	Human injury Permanent	Compassionate amount paid	Human injury Temporary	Compassionate amount paid	Cattle death	Compassionate amount paid
2004-05	--	--	--	--	--	--	--	--
2005-06	--	--	--	--	--	--	--	--
2006-07	--	--	--	--	--	--	--	--
2007-08	--	--	01	33,330	--	--	--	--
2008-09	1	1,00,000	--	--	03	6,000	--	--
2009-10	1	1,00,000	--	--	--	--	--	--
2010-11	1	1,00,000	--	--	--	--	--	--
2011-12	1	2,00,000	--	--	01	2000	--	--
2012-13	2	4,00,000	--	--	--	--	--	--
2013-14	2	4,00,000.	01	75,000	01	5,000	--	--
2014-15	3	7,00,000	01	75,000	01	2,000	--	--
2015-16	01	3,00,000	02	1,50,000	--	--	02	7,500
2016-17	04	12,00,000	02	2,00,000	--	--	--	--
2017-18	03	9,00,000	--	--	01	5,000	07	22,500
2018-19	03	12,00,000	--	--	01	5,000	09	21,000
2019-20	01		--	-+-	--	--	--	--
2020-21	--		--		--	--		

3.6.5.1. Other Compensation:-

The details of other compensation is given below.

Table No-6

Compensation Paid

Year	House damage				Crop damage in acre		
	Partly		Fully		No. of Victims	Crop in Acre	Amount
	No. of Victims	Amount paid	No. of Victims	Amount paid			
2004-05	--	--	--	--	--	41.34	41,340
2005-06	--	--	--	--	--	10.00	10,000
2006-07	--	--	--	--	--	91.06	91,060
2007-08	--	--	--	--	--	13.623	1,36,230
2008-09	--	--	--	--	--	104.00	1,04,000
2009-10	--	--	--	--	--	198.373	1,98,373

2010-11	--	--	--	--	--	468.903	4,68,903
2011-12	--	--	--	--	--	173.245	08,66,230
2012-13	--	--	--	--	--	665.81	68,78,750
2013-14	--	--	--	--	2809	809.712	80,58,222
2014-15	--	--	--	--	2889	904.4102	1,02,32,670
2015-16	--	--	01	10,000	1288	398.9106	41,37,460
2016-17	--	--	--	--	3776	1097.2135	1,12,89,651
2017-18	--	--	--	--	2617	731.2172	75,36,572
2018-19	--	--	--	--	1371	379.814	39,72,540
2019-20	--	--	--	--	--	--	--

3.6.6. Steps Taken by the Department to Minimize the Loss of Life & Property:-

Following steps have been taken to minimize the incidences of man- elephant conflict which has been in a menacing proportion over the period due to fragmentation & degradation of habitat conditions.

Sl. No	Step taken
1	There are 03 Nos. of Elephant squads have been constituted in this Division. Each Squad is having 05 volunteers in number. The forest staffs of different Ranges have been equipped with spot lights, fire Trackers etc. to guide the movement of elephant during night.
2	VHF network have been strengthened for immediate communication to the Division office during urgency.
3	The history, the periodicity & the movement route chart have been prepared to plan out the drive operation.
4	In all vulnerable villages due publicity has been given not to unnecessarily irritate elephant herds taking refuge in small vegetation close to village & inform nearest staff and patiently wait for the evening for their movement / guided drive.
5	In case of law & order situation, the help of APR force & Magistrate are taken to diffuse the situation.

3.7. Threats and Challenges to Wildlife:-

The details list of animal rescue and relocated to their habitat.

Year of Rescue / Relocation	Name of the species	Rescued from	Place of Released
2019-20	Female Pangolin -01 No	Kharod Village, Dehuri Sahi	Nandankana
2019-20	Pangolin -01 No	Nearby Nuapatan Setu, Nuapatana Village	Bauda Banakhandi RF, Athgarh Range
2019-20	Pangolin -01 No	Nearby Budhiapatana village	Bauda Banakhandi RF, Athgarh Range
2020-21	Pangolin -01 No	Mahulia UGME School	Natural Habitat
2021-22	Pangolin -01 No	In-front of student club Beliapal	Natural Habitat
2021-22	Pangolin -01 No	Rasi field of Maniabandha Beat area	Natural Habitat
2021-22	Peacock Male -01 No	Ragadipada village	Bauda Banakhandi RF, Athgarh Range

3.7.1. Threat to Fauna:-

Forest provides habitats to a large no of fauna ranging from small insects to large pachyderm. The biggest faunal biodiversity found in the forest is prone to a number of threats to its existence. The growing population and traditional hunting habits of the tribal people are the major factors in dwindling of animal population. Many ground insects and reptiles are the most sufferer of the forest fire which is rarely accidental but almost intentional.Occasionally thetribals go for hunting as a part of their rituals. The DFO should analyze this issue critically and prepare routine mobile patrol to contain this menace effectively. Due to biotic interference the wild animals like Elephant, Wild boarare moving towards the human habitats in search of food and water. Human kills are reported by Wild elephant 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 below.

3.7.2. Man-Animal Conflict:-

In this Division the man-animal conflict is primarily due to elephant depredation, the details of which are furnished in Appendix. The fauna of this Division can be classified as follows:

3.7.3.Animals:-

The wild life inhabitating / moving in these forests include the Elephant, Sambar, Barking deer, Cheetal, Mouse deer, Wild boar, Bear, Fruit bats, Rodents like giant squirrel and flying squirrels, Porcupines. The presence of ample number of herbivorous animals support a good variety of carnivorous and predatory animals. The main predatory animals are the tiger, leopard, wolf, jackal and striped hyena, etc.

3.7.4. Birds:-

The waters and shore birds are seen along the river and dams, paddy fields near nallah are stripes, pond herons, cranes, duck and lapwing. The main ground birds include peafowl, red jungle fowl, partridge and quail. Among pilchards some of them are Babbler, barbets, bulbuls, cuckoos, mynas, doves, parakeets & pigeons. A variety of owls, eagles, kites and falcons are the main birds of prey, the scavenging contingent comprising of vulture are not observed now excepting crows.

3.7.5. Reptiles:-

These are represented by the mugger (Crocodyluspalustris) found in Similipal river system. The lizards include well known Chameleon and the Monitor Lizard. The snakes found in this divisions are Chiti (Echicarinatus and Bungaruscearuleus) Krait (Bungarusfaciatus) Dhamana (Ptyasmucosus) Domundia (Eryxstolata) and King cobra (Ophioptagushannat), Ajagara (Phythonmolurus).

3.7.6. Fishes:-

There are varieties of fish fauna in this division available in ponds, streams and rivers. The common fishes are Kau, Singhi, Magura, Rohi, Chenga, etc. Fishing is common in Budhabalanga& Subarnarekha and other streams and ponds.

3.7.7.Roads& Railway Lines:-

This Division is well communicated with very good all weather road systems starting from National High Ways, State High Ways, Major District Roads along with other District Roads. Cuttack-Sambalpur NH-55 passes through this Division over a length of about 20Kms starting from Jharan Central nursery to Kuspangi. The state High ways 64 and 65 runs within this Division from Narasinghpur to Hindol(Picchuli Ghati) over 25Kms and Narasinghpur to Khuntuni over 92Kms respectievely. The Other District roads like Athgarh to Mundali Bridge via Rajanagara -20Kms ,Athgarh to Mundali Bridge via Kandarpur-15kms. The vehicular traffic on these above roads i.e NH/SH/ODR/ passes through the wildlife movement areas creating threats to the smooth movements of wildlife mainly elephant and other herbivores like Spotted Deer, Barking Deer, Sambar.

3.7.7.1. Roads:-

Important Roads of Athgarh Forest Division			
Name of the Road	Status of Road	Length in Km	Problem to Wildlife
Jharana to Kuspangi	NH-55	20	Creates barrier to elephant passage
Narasinghpur to Hindol(Pichhuli Ghati)	SH-64	25	Creates barrier ,fragmentation of extend area of Satakosia Tiger Reserve(Elephant, and other herbivores)
Narasinghpur to Khuntuni	SH-65	92	Intercepting Wildlife movement in the area.(Elephant)
Athgarh to Cuttack via	ODR	20	Accident prone area for Wildlife due

Mundali			to heavy vehicular traffic .(Elephant and Spotted deer)
Athgarh to Mundali via Kandarpur	ODR	15	Accident prone area for Wildlife due to heavy vehicular traffic .(Elephant and Spotted deer)

3.7.7.2. Railway lines :-

Railway lines connecting Bhubaneswar to Talcher via Baranga and Cuttack to Talcher via Naraj covering a distance of 12 and 15kms respectively, passes through this Division mostly through forest areas of Subasi RF, Ranibania RF and Sankhapoi RF creating problems for movement of elephants and other wildlife.

Railway lines in Athgarh Forest Division (East Coast Railway)		
Name of the Railway Line	Distance in Km	Problems to Wildlife
Sarpeswar Jn . to Radhakishorpur	12Km	Creates barrier to elephant movement
Raj-Athgarh jn. to Gurudijhatia	15Km	Creates barrier to elephant movement

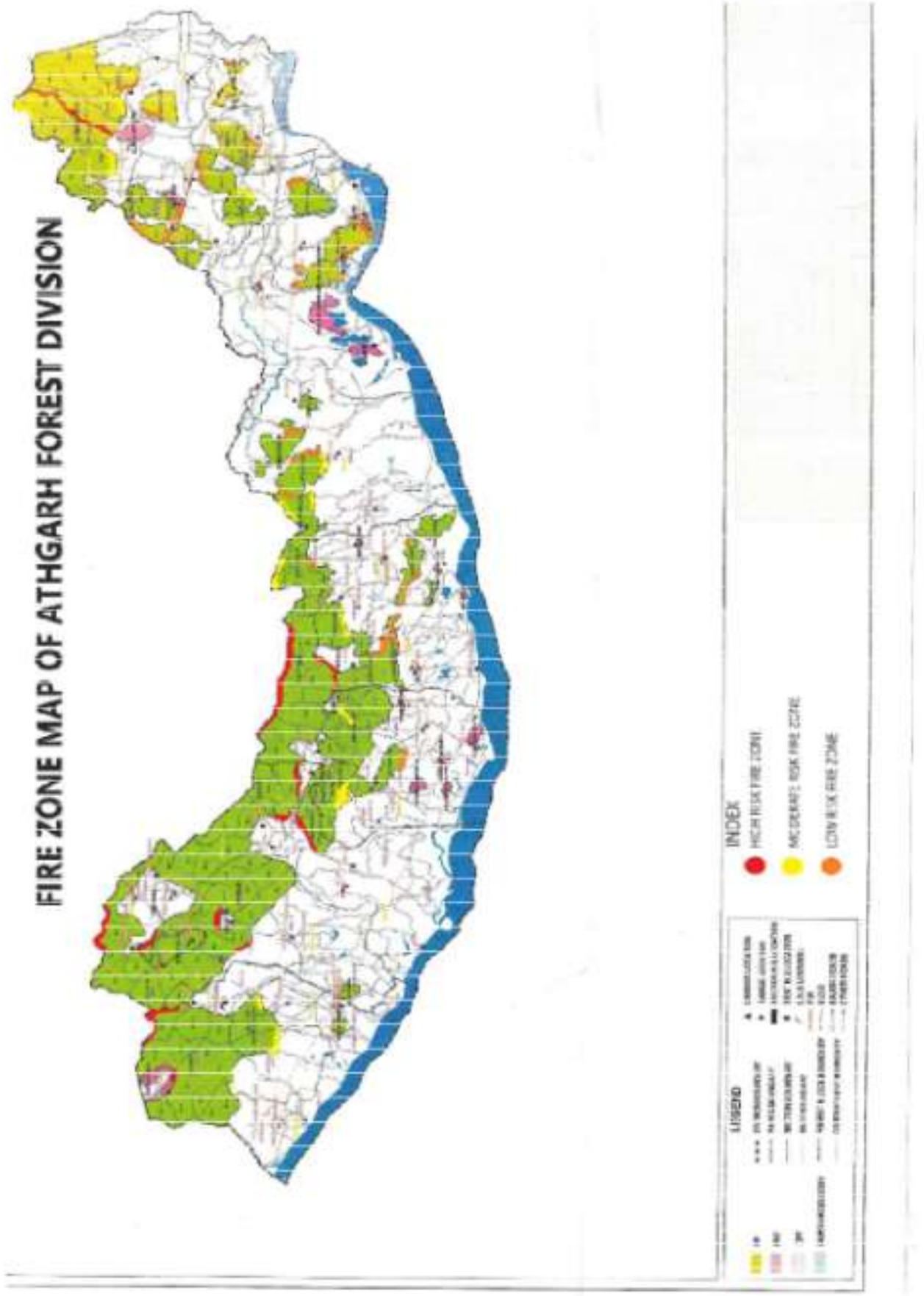
3.8. Protection and Management of Fauna:-

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 forest. Further, the anti-smuggling squads have been formed to protect the wild animals from poaching and illegal trade.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 are 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 given below.

Sl. No	Management
1	To keep the delicate and eco-fragile areas intact by maintaining adequate vegetative cover.
2	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.
3	To protect these forests from fire and provide strict vigil against the same.
4	To arrest the drivers of degradation of forests.

3.8.1. Anti-smuggling, Anti-poaching and fire protection measures implemented:-

Anti-smuggling, Anti-poaching and fire protection measures implemented in Athagarh Forest Division. In Athagarh Division, one section of APR force along with forest staff are deployed for anti-smuggling measures.



3.8.2. Forest Fire Management Plan:-

3.8.2.1. Preparation of fire map:-

Range wise forest fire maps are prepared at Range level with different color-coding showing High, Medium and Low fire prone zones. After obtaining the range level maps, a consolidated divisional forest fire map is prepared.

3.8.3.Awareness Creation:-

The awareness programmes are conducted at regular intervals in VSSs adjoining to forests area of this Division. Staffs try to motivate the village people to take active part in prevention and protection of forest fire. From each VSSs one member is engaged to intimate the local Range officer/staff immediately regarding the outbreak of forest fire in the forest areas being taken care by them.

3.8.4. Clearance of fire line:-

All the roads, footpaths and boundary of the forest area are cleaned properly at regular interval to provide fire line and to avoid accidental forest fire. Besides this, some artificial fire lines are made by cleaning the ground over a width of approximately 3 mtrs. High speed air blower is engaged in every Range for creation of fire line and extinguishing the fire, which has been proved to be a successful over previous year.

3.8.5.Deployment of fire protection squad:-

There are 05 numbers of fire protection squads are engaged and each squad consists of 10 members with a hiring vehicle working round the clock under direct supervision of a forester/ forest guard. Squads are engaged for five months period i.e., from 16th February to 15thJune, the peak summer season. All the squads works round the clock and their day to day activity is checked by the concerned Range officer through VHF, Mobile network, frequent field visits etc.

3.8.6. Firefighting:

All the fire protection squads are well equipped with firefighting equipment especially with fire extinguishing machine (Blower), which plays a vital role in immediate extinguishing fire. As soon as the message regarding forest fire is received at Range level or section level, the

fire protection squads immediately rush to the spot as early as possible and extinguish the fire. Athgarh Forest Division is having 19 nos. of VHF stations through which staffs are able to get report regarding fire incidents from the field. VHF stations generally works for 24 hours. The measures are taken up to check fire in this Division is given below.

Sl. No	Measures taken
1	One firefighting cell is constituted at the Divisional level where one Dy. Ranger, one Forester & two Forest Guards have been deployed for the purposes.
2	One vehicle of Athagarh Division is kept at the Division office to attend the fire protection work.
3	50 numbers of fire watchers are engaged in the field.
4	500 Kms. of old fire lines are maintained.
5	Rewards are disbursed to the informers for providing information on forest fire.

3.8.7. Different Squad:-

Different type of squads engaged in this Division for protection and Conservation of Wildlife and Forest.The details are given in the table below.

Table No. 7

Different Squad of Athgarh Forest Division

Sl. No	Name of the Squad	No. of Squad	No. of Person each Squad	Total No. of Squad Personnels
1	Anti-depredation Squd	5	10	50
2	Forest Protection Squad	1	10	10
3	Elephant Tracker	3	5	15
4	Elephant Squad	3	5	15
5	Fire Protection Squad	5	10	50 (Seasonal)
6	Site specific wildlife protection squad	1	10	10
7	Para Forest Squad	3	10	30

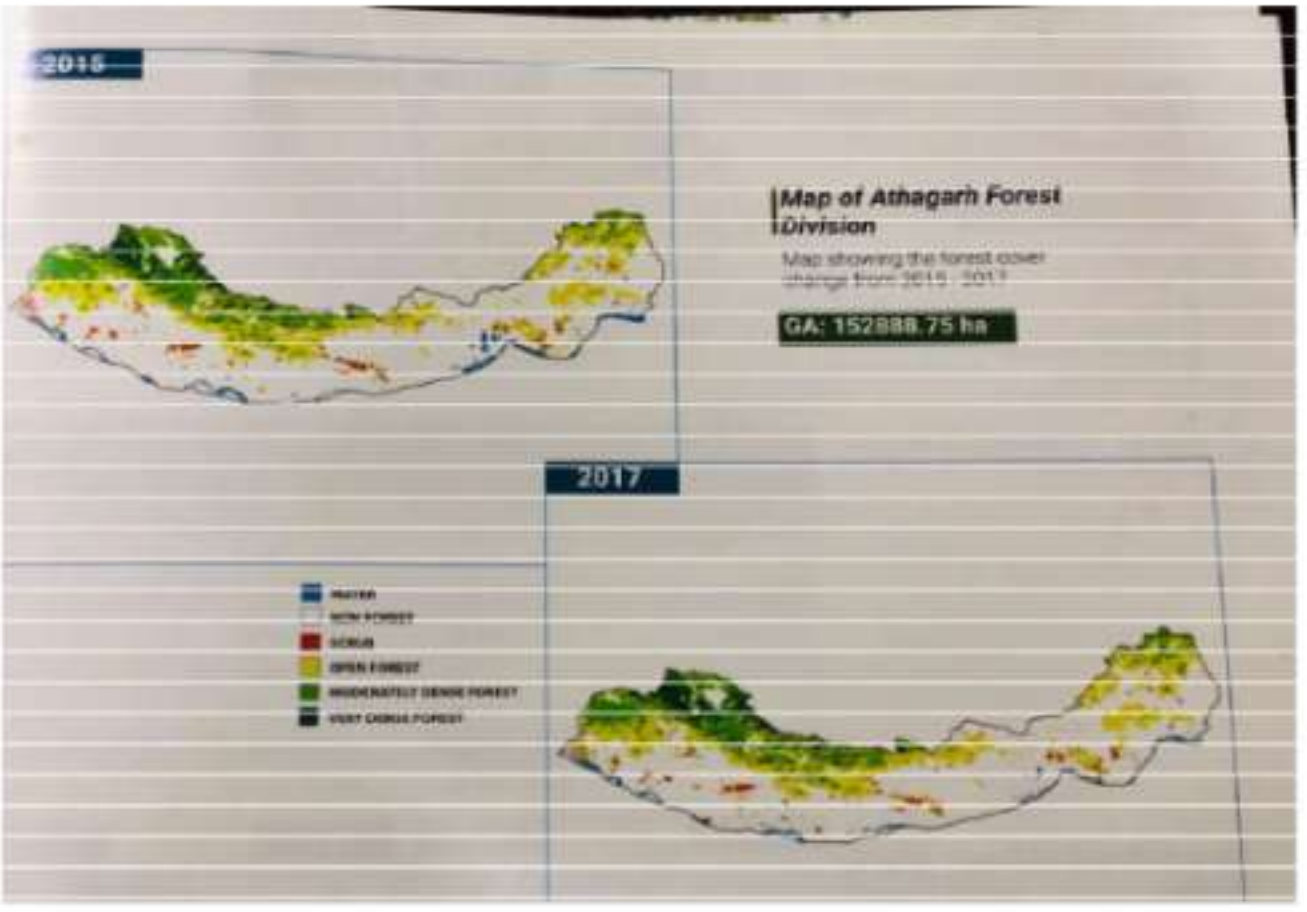
Sources: Divisional Forest Officer, Athgarh Forest Division

3.8.8. The details forest cover change data is given below.

Type of Forest Cover	**FC data – 2015 data area in ha.**	**FC data- 2017 data area in ha.**	**Forest Cover change between 2015 and 2017**
VDF	5139.72	5146.82	7.10
MDF	18540.28	18411.79	-38.49
OF	30187.63	30777.07	589.44
Total	**53777.63**	**54335.68**	**558.05**
% of GA	**35.17**	**35.54**	**0.37**
Scrub	3180.59	2802.81	-377.78
Non-Forest	92564.54	93200.49	635.96
Water	3366.00	2549.77	-816.23

3.8.9. The details Rare Endangered and Threatened (RET) is given below.

Sl. No	Species	Family	Habit	Odia Name
1	Boswellia serrate Roxb.	Burseraceae	Tree	Raj Mai
2	Adian cordifolia	Rubiaceae	Tree	Kuruma
3	Oegenia oogeinensis	Fabaceae	Tree	Bandhan



3.9. The details of road width in meter and type of road data is given below.

Important Roads of Athgarh Forest Division			
Name of the Road	Status of Road	Length in Km	Width in Meter
13 Nos. of Forest Road	Forest Road	127.2 (13 Nos. of Forest Road)	4.00
Jharana to Kuspangi	NH-55	20	25.00
Narasinghpur to Hindol(Pichhuli Ghati)	SH-64	25	20.00
Narasinghpur to Khuntuni	SH-65	92	20.00
Athgarh to Cuttack via Mundali	ODR	20	8.00
Athgarh to Mundali via Kandarpur	ODR	15	8.00

3.10. Milestone for PBR (Peoples Biodiversity Register) formulation is given below.

With the enactment of Biological Diversity Act, 2002, the goal of establishing people's rights over their natural resources and their involvement in its protection and conservation is put in place. Various efforts are being made for documenting the local biodiversity. Although there are defined formats for data collection, a systematic approach for the local community to develop the peoples Biodiversity Register (PBR) was required. Without this there was a lack of ownership. This manual is an attempt to bridge this gap. To execute legal implementation of the Act to empower the local bodies to exercise their right on protection and conservation of bioresources including preparation of PBRs, three statutory bodies were formed through a three –tier system. At National level national Biodiversity Authority (NBA) was established in Chennai under section 8, state biodiversity boards (SBBs) and Union Territory Councils (UT Councils) were formed at state level under section 22 and biodiversity management Committees (BMCs) were formed at local body level under section 41.

Every local bodies life GP, CD Block, District and Urban Bodies i.e Municipality/ NAC shall constitute has to prepared Peoples Biodiversity Register (PBR). PBR, it's a document which contents comprehensive information on local available bioresources including demography and landscape of the area. Necessary informations are to be collected from the village level as detailed below:

- Chronicling the depleting indigenous traditional knowledge at all local bodies across the entire Indian subcontinent.
- Conservations of threatened and endemic plants and animal species of the area falling within its territorial jurisdiction.

- ❖ Declaration of Biodiversity Heritage sites (BHS).
- ❖ Long term strategies for biodiversity conservation.
- ❖ Increasing the livelihoods of the local community who are depending on the biodiversity and assisting in poverty reduction.
- ❖ Effective management promotion and sustainable uses of bioresources.
- ❖ Documentation of potential biodiversity for Access and Benefit sharing (ABS) mechanisms.
- ❖ Protection of rights including IPR over Biological resources and associated knowledge and systems.
- ❖ Restrict the activities which cause genetic erosion affecting the species and ecosystems.
- ❖ Impose restriction /regulations towards access to the flora and fauna which are threatened and endemic.

Athgarh Forest Division comes under Cuttack District. This division covers 04 nos. of C.D Block, 01 no. of NAC and 108 nos. of GP. The Milestone for PBR formulation of this division has not been done. Preparation of PBR for one unit will take one year and the cost involved is approximately a 90,000/- (Ninety Thousand Rupees) only. This Forest Division has 114 nos. of units (PBR). Divisional Forest Officer is advice to submit the proposal allocation of fund. This matter has been discussed with the authority of Biodiversity Board.

3.11. Details of access of benefit sharing Regulation implemented and detailed mechanism included is as follows.

Sl. No	Access of benefit sharing Regulation Implemented	Mechanism included
1	As per the guideline laid in the JFM resolutions of Govt. of Odisha the methodology are being evolved for sharing of benefits between the Forest Department and villagers. It has been duly mentioned in the micro plans prepared for the respective forest committee i.e VSSs	The VSS member are protecting the area assigned to them and in returned they shall be entitled to the usufructuary benefits from the assigned forest area as follows: ❖ Fallen leafs, fodder grass, thatch grass, broom grass, thorny fencing materials, brushwood, fallen lops, tops and twigs to be used as fuel shall be available to the members free of cost. ❖ All intermediate yield in the shape of small wood poles, firewood etc. as may be obtained as a result of silvicultral operations shall be made available to the VSS members in a manner as may be decided by EC including the option of at "a price". The funds so obtained shall be deposited in the VSS account . In case there is substantial quantity of surplus material, the EC may sell the surplus material under intimation to the DFO concerned. ❖ In case of Kendu leaves and specified forest produce, leased items of NTFP, if any the VSS members will have the right to collect the same from the assigned forest but these items shall have to the delivered to the departmental agencies or lessee on payment of prescribed rates for the collection of such items.

		❖ 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 shaired with the VSS/EDC and the produce will be sold / disposed of by the forest department. The VSS/EDC will received 50% share of the sell 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 there bonafied domestic use and they agree to pay the proportionate the 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 equitable among the members of the VSS. Need of the group of 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 Odisha 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.

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 have been taken into consideration for assessment of regeneration status of a particular species as prescribed in National Forest Inventory by FSI. Data collected from the square plot of 3 x 3 m for saplings and the square plot of 1 x 1 m for seedlings has been used to assess the regeneration status of species in the management unit (compartment). Based on the data from plot enumeration, the regeneration status of the sampled species has been 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.

The details of regeneration status of forest blocks has been given in Para No. 2.6.11.1.

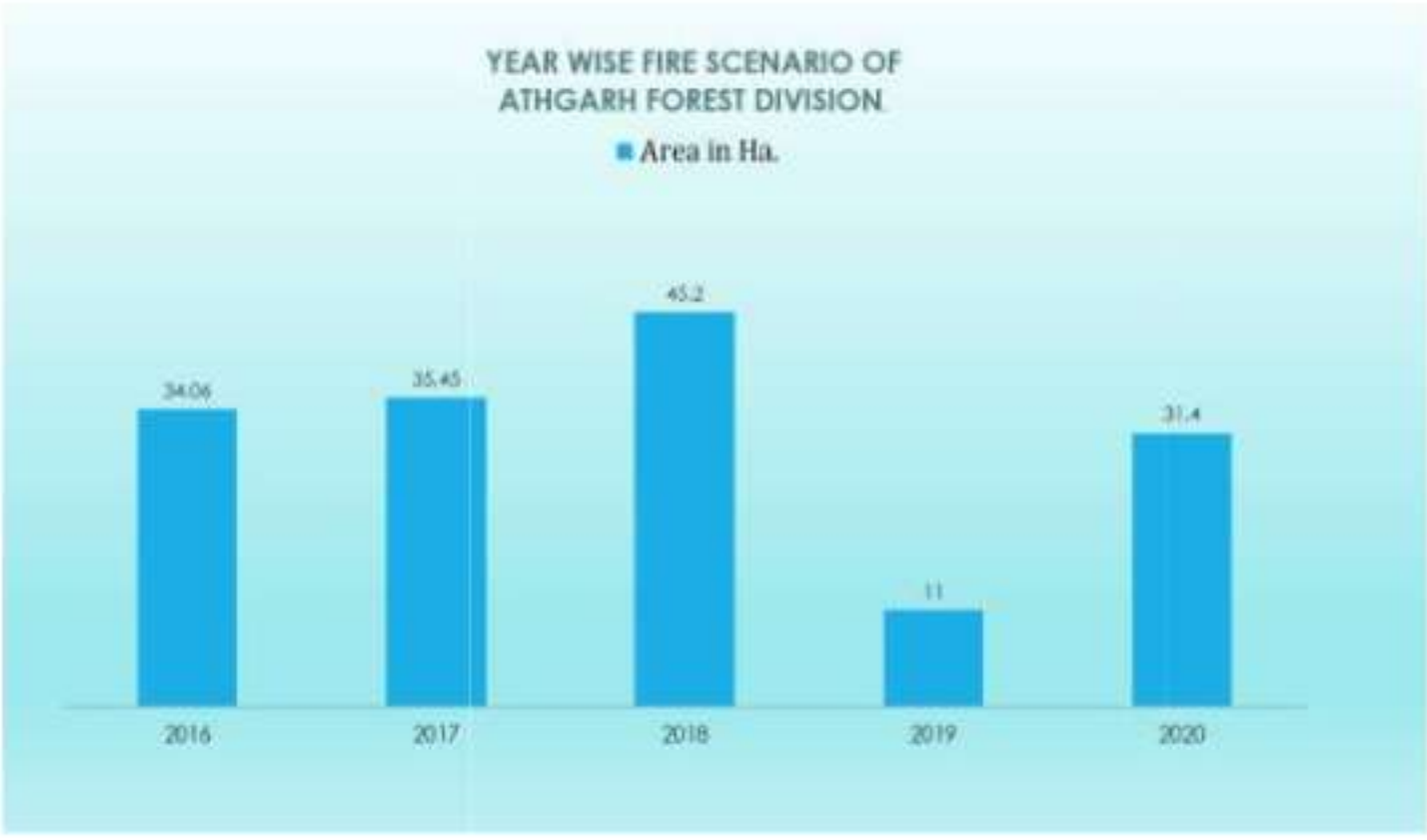
4.1.1. Total regenerative percentage:-

The lower categories of regeneration such as established, un-established (whippy and sub-whippy), recruits, etc. giving value to each category and calculating total regenerative percentage may be required, in case, above classifications are absent or insufficient to indicate regeneration status.

4.2. Area Affected by Forest Fire:-

Forest blocks vulnerable to fire based on satellite imageries need to be protected from forest fire. Protection against fire requires continuous effort of the field staff and the forest fringe dwellers during the period from February to June.Fire continues to be the major threat to forest regeneration and establishment. Firefighting 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 June every year. A Standard Operating Procedure (SOP) has been prepared by the department. However, VSS members would be involved in the whole process with provision of incentive to specific incidence of fire control. There is a need to adopt modern firefighting methods. Firefighting equipments like Fire Blower, Rakes, Fire proof Hand Gloves, Uniforms should be supplied sufficiently to the firefighting squads every year. The year wise Fire scenario of Athgarh Forest Division is given below.



4.2.1. Fire Occurrence of Athgarh Division :-

The Range wise fire incidents of Athgarh Forest Division from the year 2014-15 to 2019-20 is given in the table below.

Table No.1			
Fire Occurrence of Athgarh Division			
Year	Name of the Range	No. of Incidences	Area affected in Ha.
2014-15	Athgarh	--	--
	Khuntuni	03	10
	Badamba	03	9
	Narasinghpur East	01	2
	Narasinghpur West	--	--
	Total	07	21
2015-16	Athgarh	--	--
	Khuntuni	01	2.00
	Badamba	03	5.00
	Narasinghpur East	24	24.56
	Narasinghpur West	01	2.50
	Total	29	34.06
2016-17	Athgarh	02	1.8
	Khuntuni	05	15.00
	Badamba	02	2.1

	Narasinghpur East	16	15.55
	Narasinghpur West	01	1.00
	Total	26	35.45
2017-18	Athgarh	--	--
	Khuntuni	10	9.5
	Badamba	26	18.00
	Narasinghpur East	16	9.5
	Narasinghpur West	13	8.2
	Total	65	45.2
2018-19	Athgarh	--	--
	Khuntuni	--	--
	Badamba	02	3.5
	Narasinghpur East	--	--
	Narasinghpur West	01	1.00
	Total	03	4.5
2019-20	Athgarh	01	0.40
	Khuntuni	02	0.5
	Badamba	07	8.00
	Narasinghpur East	05	20.00
	Narasinghpur West	01	0.5
	Total	16	29.40
Sources: Divisional Forest Officer, Athgarh Forest Division.			

4.3. Area Damaged by Natural Calamities:-

Large scale uprooting of forest trees has been noticed after strong current of wind during sever cyclonic storm. There are 2013 nos. of trees were uprooted during the year 1999 Super Cyclone and 2014 nos. of trees in Phailin,in the year 2013, which were salvaged departmentally. The details of area damaged is given in the table below.

Details of Area Damaged			
Year	Name of the Forest Block	Extent of Area	No. of trees uprooted
1999	Ranibania RF	09.00	850
	Sukasan RF	10.00	400
	Sorisapala RF	05.00	583
	Saranda PRF	02.00	180
Total	--	26.00	2013
2013	Baniabandha RF	06.00	990
	Suniamuhan RF	08.00	850
	Nizigarh RF	03.00	174
Total	--	17.00	2014

4.3.1. Preparedness and Mitigation Strategy Plan for the areas susceptible to natural calamities: -

Preparedness and Mitigation Strategy plan from the year 2022-23 to 2031-32 for natural calamities is given below.

Preparedness for Natural Calamities			
Year	Name of the Forest Block	Extent of Area to be damaged in ha.	Preparedness
2022-23 to 2031-32	Ranibania RF, Sukasan RF, Baniabandha RF & Saranda PRF will be affected by cyclone.	22.0	Concerned Range Officer will intimate the exact fact for taking necessary action
2022-23 to 2031-32	Kandarpur PRF, Phulbadi PRF will be affected by flood.	50.0	The extent of damaged made in the planting area will be replanted.
2022-23 to 2031-32	Narasinghpur East & West, Khuntuni and Badamba Range are prone to drought due to dry spell of hit wave during summer	500.0	Soil moisture measures like check dam, percolation pit, staggered trench etc. has been prescribed in the revised plan.

4.4. Area Protected from Grazing:-

The Forest blocks of Athgarh Forest Division are vulnerable and close to human habitations. There is heavy biotic pressure, particularly due to grazing by the domesticated cattle population of the nearby village areas. Effective control measures should be taken to prevent rampant grazing involving VSS in the forest. Prophylactic immunization of cattle should be ensured in coordination with veterinary officials to prevent contamination of disease from the cattle to the wild animals.

Table No.2						
Livestock population in Athgarh Forest Division						
SL No	Name of the C.D Block	No. of Goat	No. of Sheep	No. of Cattle	No. of Buffalo	Total
1	Athgarh	12680	3453	35917	1565	53615
2	Tigiria	5578	3087	9605	495	18765
3	Badamba	14612	7480	28026	1355	51473
4	Narsinghpur	28326	8285	32219	3078	71908
	Total	47982	20575	98673	4680	171910

4.5. Lopping Practices:-

It is found that, the forest dwellers while collecting NTFP generally lop the trees to get more product. As a result NTFP yield decreases. Due to this practice the NTFP species are prone to

degradation. Further, the people while grazing their animals inside the forest lop the trees to feed cattle, goat and sheep. Such practices are detrimental to the forest growth. Awareness among the NTFP collectors as well as the illegal grazers is necessary to check this practice.

4.6. Area Infested by Invasive Weed Species in Forests:-

The forests of Athgarh Division are mainly dry deciduous forests. Some of the forest areas are infested with invasive weeds like *Lantantacamara*, *Eupatorium*spp,*Ocimumtenuiflorum*. Due to this invasion of weeds the regeneration of the area is affected. Regular removal of these weeds at intervals of 2 to 3 years in such patches is required for healthy growth of forest. Removal by uprooting whole plant with underground root before flowering stage is recommended.

Forest Block and its extent of invasive weeds in ha. (approx.)			
Sl No.	Name of the Forest Block	Invasive Weed	Extent of area in ha.
1	Deobhuin RF	*Eupatorium*spp	115.0
2	Olaba RF	*Eupatorium*spp,*Ocimumtenuiflorum*	80.0
3	Chandragiri RF	*Eupatorium*spp,*Ocimumtenuiflorum*	15.0
4	Haladiaseni RF	*Eupatorium*spp, *Lantantacamara, Ocimumtenuiflorum*	157.0
5	Badjora RF	*Eupatorium*spp	34.0
6	Tareiganda RF	*Eupatorium*spp,*Ocimumtenuiflorum*	40.0
7	Kumaranga RF	*Eupatorium*spp,*Lantantacamara*	12.0
8	Karada RF	*Eupatorium*spp,*Ocimumtenuiflorum*	45.0
9	Sukasana RF	*Eupatorium*spp,*Ocimumtenuiflorum*	28.0
10	Khalakhala RF	*Eupatorium*spp,*Ocimumtenuiflorum*	20.0
11	Baudabankhandi RF	*Eupatorium*spp, *Lantantacamara, Ocimumtenuiflorum*	22.0
12	Nizigarh RF	*Eupatorium*spp,*Lantantacamara*	32.0
13	Sorisapala RF	*Eupatorium*spp,*Ocimumtenuiflorum*	25.0
14	Baniabandha RF	*Eupatorium*spp,*Lantantacamara*	220.0
15	Gobara RF	*Eupatorium*spp	20.0
16	Sankhapoi RF	*Eupatorium*spp,*Lantantacamara*	15.0
17	Ranibania RF	*Eupatorium*spp,*Ocimumtenuiflorum*	30.0
18	Baghamundia PRF	*Eupatorium*spp,*Ocimumtenuiflorum*	5.0
19	Phulbadia PRF	*Eupatorium*spp,	15.0
20	Megha PRF	*Eupatorium*spp,*Ocimumtenuiflorum*	5.0
21	Baniabandha PRF	*Eupatorium*spp,*Lantantacamara*	10.0
22	Saranda PRF	*Eupatorium*spp,*Lantantacamara*	6.0
23	Kalankipur PF	*Eupatorium*spp	2.0
24	Total		953.00

4.6.1. Extent of area infested with invasive weeds and expenditure made:-

The total forest area including RF, PRF, PF comes to 39915.62ha out of which near about 953.00ha of area has been infested with different types of weeds, covering around 3% (three percentage) of the total forest area, which affects regeneration of forest growth.

4.6.2. Expenditure Made:-

An amount of Rs. 171000.00 has been incurred for uprooting invasive weeds over 380.00 ha.during the year 2009-10 under CAMPA.

4.7. Incidences of Pest Attacks and Diseases:-

The disease like dry rot is a fungal disease causing damage to the heart wood of sal and other trees. Leaf spot disease is observed in a wide range of trees. Defoliators damage the leaves of the trees by eating away the chlorophyll pigments. *Loranthus*, which is a parasite, weakens trees. Many fungi and parasitic mushrooms have been found to affect the forest crop adversely. *Loranthus* attacks Sal, Piasal, Kusum etc. and causes unsoundness of host tree. Different types of fungal attack is seen in forest species. Damages due to borers, defoliators, skeletonizers and termite are quite common occurrence in Teak plantation and inferior Quality Sal Forest.

4.8. Forest Degradation and its Drivers:-

Some forests are degraded due to illegal removal of murrom and soil from forest areas. Such types of degradation is noticed in foothills of Baniabandha, Gobara and SnkhapoiRF of the Division. Besides this, the illegal removal of trees from forest for construction purpose and domestic use has resulted in the degradation of the forest. Girdling of trees for theft or encroachment purpose also causes forest degradation. To check these practices, strict protection in these areas is needed.

4.9. Pollution Control and Protection of Environment:-

A number of illegal stone quarry units have been installed by the individuals for commercial supply of chips and boulders for construction of roads and buildings .This results in pollution of streams and cause damage to forest floor, forest growth and wildlife.

4.9.1. Live Stock and Animal Husbandry:

Veterinary Institutions and Personnel in different Blocks and Urban areas of this Division are given in the table below:

Table No.3

No. of Veterinary Institutions and Personnel

S.L No.	Name of the C.D Block	Hospitals & Dispensaries	Livestock Aid Centres	Artificial Insemination Centres	V.A.S & Additional V.A.S	Livestock Inspectors
1	Athgarh	2	19	19	3	13
2	Banki	2	7	16	3	4
3	Badamba	3	7	7	4	7
4	Tigiria	1	7	8	2	6
5	Narsinghpur	3	8	8	3	7
Total		11	48	58	15	37

Sources: District Statistical Hand Book Cuttack-2018.

4.9.2. Incidences and extent of forest land degradation due to pollution is given below.

Forest Degradation	Drivers of Degradation	• Remedial measure
Loss of Tree Cover	Collection of Firewood and timber for local consumption Mining on Forest area	To provide alternate fuel, timber substitute. To have strict enforcement of protection & legal action. Progressive Reclamation of Mined out area. Adequate plantation.
Loss of Ground Flora	Forest Fire	Regulating Picnic party entering in to Forest / Plantations. Maintaining Fire Lines, Strict vigilance on Forest Fire detection & combating. Taking help of nearby Fire Stations/ brigades.
	Heavy Grazing	Regulating Grazing, Practicing Rotational grazing Development of Grass lands.
Reduction in Forest area	River Bank erosion	Planting of soil binding species on River banks. Resorting to construction of structures to prevent bank erosion in extreme cases of importance.
	Land grabbers/ Encroachers	Appropriate legal action, Motivate the encroachers to resort to Agro Forestry.
Biodiversity	Loss of Biodiversity	Introduce/ protect less known species. Educate students/ villagers importance of Bio Diversity. Control use of pesticides in agriculture. Protect Riverine plant succession.

4.10. The Satellite Data of the last plan period i.e from 2007-08 to 2017-18 are available. The Satellite data is given in the table below.

Sl. No	Name of the Range	Year	No. of Case	Area in Ha.
1	Athgarh	2007-08	Nil	Nil
2	Badamba	-do-	1	9.00
3	Narasinghpur East	-do-	1	10.00
4	Narasinghpur West	-do-	Nil	Nil
5	Khuntuni	-do-	1	9.75
	Total		**03**	**28.75**
1	Athgarh	2008-09	Nil	Nil
2	Badamba	-do-	Nil	Nil
3	Narasinghpur East	-do-	1	5.00
4	Narasinghpur West	-do-	Nil	Nil
5	Khuntuni	-do-	Nil	Nil
	Total		**01**	**5.00**
1	Athgarh	2009-10	1	1.4
2	Badamba	-do-	1	1.3
3	Narasinghpur East	-do-	2	3.10
4	Narasinghpur West	-do-	1	2.05
5	Khuntuni	-do-	1	1.2
	Total		**06**	**9.05**
1	Athgarh	2010-11	1	1.5
2	Badamba	-do-	1	1.4
3	Narasinghpur East	-do-	3	2.10
4	Narasinghpur West	-do-	1	2.18
5	Khuntuni	-do-	1	1.27
	Total		**07**	**8.45**
1	Athgarh	2011-12	2	3.7
2	Badamba	-do-	2	2.40
3	Narasinghpur East	-do-	7	4.20
4	Narasinghpur West	-do-	4	4.50
5	Khuntuni	-do-	2	2.5
	Total		**17**	**17.30**
1	Athgarh	2012-13	1	1.0
2	Badamba	-do-	1	1.0
3	Narasinghpur East	-do-	4	2.10
4	Narasinghpur West	-do-	1	2.11
5	Khuntuni	-do-	1	1.20
	Total		**08**	**7.41**
1	Athgarh	2013-14	1	1.4
2	Badamba	-do-	1	1.2
3	Narasinghpur East	-do-	4	3.10
4	Narasinghpur West	-do-	2	2.05
5	Khuntuni	-do-	3	1.51
	Total		**11**	**9.26**

1	Athgarh	2014-15	Nil	Nil
2	Badamba	-do-	3	9.00
3	Narasinghpur East	-do-	1	2.00
4	Narasinghpur West	-do-	Nil	Nil
5	Khuntuni	-do-	3	10.00
	Total		**07**	**21.00**
1	Athgarh	2015-16	Nil	Nil
2	Badamba	-do-	3	5.00
3	Narasinghpur East	-do-	24	24.56
4	Narasinghpur West	-do-	1	2.50
5	Khuntuni	-do-	1	2.00
	Total		**29**	**34.06**
1	Athgarh	2016-17	2	1.8
2	Badamba	-do-	2	2.1
3	Narasinghpur East	-do-	16	15.55
4	Narasinghpur West	-do-	1	1.00
5	Khuntuni	-do-	5	15.00
	Total		**26**	**35.45**
1	Athgarh	207-18	Nil	Nil
2	Badamba	-do-	26	18.00
3	Narasinghpur East	-do-	16	9.5
4	Narasinghpur West	-do-	13	8.2
5	Khuntuni	-do-	10	9.5
	Total		**65**	**45.20**

CHAPTER –5

Conservation and Maintenance of Soil and Water Resource.

5. Conservation and Maintenance of Soil and Water Resource

5.1. AreaTreated Under Soil and Water Conservation Measures:-

Most of the forest areas in the Division are prone to soil erosion. Soil erosion results in poor water retaining capacity of the forest areas. For conservation of soil and moisture, contour trenches, loose boulder structures, check dams have been constructed during the plan period under the funding by State CAMPA. Soil moisture conservation is always initiated from top of the hill towards bottom of the hill. It is divided into three portions- Hilly portion, Valley portion and Sloppy land portion. Hilly portion and valley portion need treatment like soil and moisture conservation activities to retain the soil and enhance moisture retaining capacity. For these activities soil and moisture conservation methods such as loose boulder check dam, contour bonding, contour trenches, percolation tanks, water harvesting structures and plantation of *Agave* and *Vetiver* in contour has been carried out in Athagarh Forest Division. Forest ecosystem productivity and functioning depend on soil and water resources. But the reverse is also true. Forest and land-use management activities can significantly alter forest soils, water quality and associated aquatic habitats. Soil and water resources are protected through the allocation of land for that purpose or through appropriate management regimes and best management practices. Best practices for forest management usually combine soil and water conservation objectives. In the absence of information on land use, management activity, and application of best practices can serve as useful indicators of efforts to conserve soil and water resources.

5.1.1. Soilconservation:-

Refers to the conservation of top soil and preventing soil there is loss from forest due to surface run off of rain water to reduce loss of fertility. Techniques for improved soil conservation include, gulley plugging, construction of loose boulder check dams and plantations for soil conservation with species like *Agave*spp, *Vetiver*etc. Contour bonding should be adopted to reduce surface run-off.

5.2. Duration of Water Flow in the Selected Seasonal Streams:-

Athagarh Forest Division receives average rainfall of 1400 mm to 1800 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 the outgoing plan period and in the past, no periodical monitoring of river flow pattern with reference to rain fall has been done. Periodical monitoring of river flow will be conducted by the DFO. The details of water flow in different streams and nallah are given below.

Table No. 01				
Details of Water Flow				
Sl. No	Name of the Streams / Nalas	Forest Block	Drainage points of Nallah	Flow of Water
1	Hadua Nallah, Kankadakhai Nallah, Purunapani Nallah, Budhikendu Nallah	Deobhuin	Mahanadi	Seasonal
2	Patutaila Nallah, Talpunjee Nallah, Hadua Nallah,	Olab	Mahanadi	Perennial
3	Mahulamada Nallah,	Chandragiri 'A'	Mahanadi	Seasonal
4	Hadua Nallah	Talachandragiri	Mahanadi	Seasonal
5	Karada Nallah, Dhabari Nallah	Karada	Mahanadi	Seasonal
6	Siaria Nallah	Tareigonda	Mahanadi	Seasonal
7	Sorispal Nallah	Sorispal	Sapua Nallah and then Mahanadi River	Seasonal
8	Daleimaru Nallah, Aranda Nallah, Siaria Nallah	Nagatota	Siaria and then Mahanadi	Seasonal
9	Mahulamada Nallah, Hadua Nallah	Chandragiri 'B'	Hadua Nallah then Mahanadi	Perennial
10	Badajora Nallah	Karada	Dhobani Nallah then mahanadi	Seasonal
11	Kutuniakhol Nallah, Barakhol Nallah, Gumpha Nallah Girimkhol Nallah	Haladiaseni	Siaria Nallah and then Mahanadi	Seasonal
12	Kunda Nallah	Jagabeherathali	Mahanadi	Seasonal
13	Kua Nallah, Jankijhar Nallah, Badjhar Nallah	Baniabandha	Mahanadi	Seasonal

5.3. Wetlands in Forest Areas:-

Major portion of BudhideiDam lies in the Northern portion of the Division. Other wetlands include Ansupa, Karada and Nareijani other MIPs located all over Division. The list of wetland and its dimension are given below.

Table No. 02			
Wetlands Dimension			
Sl. No	Name of Wetland& Water Body	Dimension	Name of Forest Block
01	Ansupa	231.00 ha.	Saranda PRF
02	Megha Pata	2,05,0000 Sq.m	Megha PRF
03	KandarpurPata	3,26,000 Sq.m	Sukasana RF
04	RampeiPata	2,12,050 Sq.m	Subasi RF

05	Jaka Pata	1,62,0000 Sq.m	
06	GhantikhalaPata	1,01,250 Sq.m	Brahmanbasta RF
07	Karada MIP	208,043.62 Sq.m	Karada RF
08	Khambeswari MIP	66,728.89 Sq.m	Badajora RF
09	Sunamuhin MIP	21,458.50 Sq.m	Badajora RF
10	Nareijani MIP	367,210.50 Sq.m	Nagatota RF
11	Katarapala MIP	461291.09 Sq.m	Karada RF
12	Gangajala Bandha	71,052.64 Sq.m	Revenue area of Khairipanga Village
13	Kharoda Bandha	55,484.85 Sq.m	Revenue area of Kharod Village
14	Hadua Irrigation Project	2 Km	Revenue area of Ratapata Village
15	Budhidei MIP	300 Sq.m	Balikiary RF

5.3.1. Water Body :-

The details of water body of Athgarh Forest Division is given below.

Table No. 03

Details of Water Body

Year	Range	Scheme	Location	GPS Reading	Amount Expenditure (in Rs.)	Size
2013/14	Khuntuni	CAMPA	Baniabandha RF	N 20 36 54 E 85 45 54	150000	30 X 25
2013/14		CAMPA	Ranibania RF	N 20 35 23 E 85 42 53	150000	30 X 25
2013/14		CAMPA	Suniamuha RF	N 20 32 06 E 85 48 01	150000	30 X 25
2013/14		CAMPA	Gobara RF	N 20 36 29 E 85 47 57	150000	30 X 25
2013/14		CAMPA	Gobara RF	N 20 36 30 E 85 49 02	150000	30 X 25
2014/15		CAMPA	Baula RF	N 20 32 12 E 85 48 42	200000	30 X 25
2014/15		General	Sankhapoi RF	N 20 35 17 E 85 47 36	250000	30 X 25
2014/15		General	Baniabandha RF	N 20 36 39 E 85 47 50	250000	30 X 25
2015/16		CAMPA	Sankhapoi RF	N 20 35 13 E 85 47 04	250000	30 X 25
2015/16		CAMPA	Subasi RF	N 20 31 59 E 85 45 10	250000	30 X 25
2016/17		CAMPA	Suniamuha RF	N 20 32 21 E 85 47 36	320000	30 X 25
2019/20		CAMPA	Baniabandha RF	N 20 36 29 E 85 48 34	560000	40 X 30
2020/21		CAMPA	Baniabandha RF C/11	N 20 61 88 E 85 80 10	596000	40 X 30
2020/21		CAMPA	Baniabandha RF C/8	N 20 63 33 E 85 77 66	596000	40 X 30
2020/21		CAMPA	Baniabandha RF C/9	N 20 39 04 E 85 48 19	596000	40 X 30

2020/21		CAMPA	Suniamuha RF	N 20 32 39 E 85 47 33	600000	40 X 30
2020/21		CAMPA	Subasi RF	N 20 32 36 E 85 446 06	550000	40 X 30
2021/22		CAMPA	Gobara RF	N 20 36 29 E 85 48 34	600000	40 X 30
2021/22		CAMPA	Subasi RF	N 20 31 51 E 85 46 26	596000	40 X 30
2021/22		CAMPA	Ranibania RF	N 20 35 14 E 85 41 32	600000	40 X 30
2011-12	Narasinghpur West	CAMPA	Balikiary RF C-6	N 20 30 51.5 E85 01 43.6	122000	40m x 30m
-Do-		-Do-	Balikiary RF C-2	N 20 30 04.8 E85 00 40.4	150000	40m x 30m
2012-13		-Do-	Barakhola RF-11	N 20 33 27.9 E85 02 10.1	250000	40m x 30m
2012-13		-Do-	Balikiary RF- C-3	N 20 30 54.9 E85 05 05.6	250000	40m x 30m
2013-14		CAMPA	Balikiary RF C-10	N 20 34 58.8 E85 00 58.7	250000	40m x 30m
-Do-		-Do-	Barakhola RF C-1	N 20 32 30.7 E85 03 52.3	250000	40m x 30m
-Do-		-Do-	Balikiary PRF	N 20 29 58.6 E85 03 25.4	250000	40m x 30m
-Do-		-Do-	Balikiary RF C-7	N 20 31 50.7 E85 04 05.7	250000	40m x 30m
-Do-		-Do-	Balikiary RF C-10	N 20 31 11.1 E85 01 42.8	250000	40m x 30m
-Do-		-Do-	Saradhapur PRF	N 20 30 23.0 E85 02 28.8	250000	40m x 30m
-Do-		State Plan	Balikiary RF C-6	N 20 30 43.4 E85 02 08.1	250000	40m x 30m
2014-15		CAMPA	Balikiary RF C-11	N 20 32 18.7 E85 02 33.9	450000	40m x 30m
-Do-		--Do--	Balikiary RF C-3	N 20 32 57.1 E85 03 12.2	250000	40m x 30m
-Do-		--Do--	Barakhola RF C-10	N 20 32 41.1 E85 02 55.8	250000	40m x 30m
-Do-		--Do--	Balikiary RF C-12	N 20 32 05.7 E85 00 39.3	250000	40m x 30m
-Do-		--Do--	Balikiary RF C-7	N 20 30 55.6 E85 05 03.6	250000	40m x 30m

2015-16		State plan	Balikiary RF C-2	N 20 33 45.1 E85 02 08.5	250000	40m x 30m
2015-16		Central Plan	Balikiary PRF	N 20 32 30.8 E85 03 53.1	420000	40m x 30m
2015-16		State plan	Balikiary RF C-13	N 20 30 23.0 E85 03 29.5	250000	40m x 30m
2015-16		Central Plan	Balikiary PRF	N 20 30 58.8 E85 00 58.2	450000	40m x 30m
2015-16		Central Plan	Balikiary RF C-12	N 20 31 50.3 E85 04 05.8	450000	40m x 30m
2017-18		CAMPA	Barakhola RF C-3	N 20 30 12.2 E85 02 41.2	450000	40m x 30m
2019-20		CAMPA	Balikiary RF C-10	N 20 32 10.5 E85 02 22.1	450000	40m x 30m
2020-21		CAMPA	Barakhola RF C-2	N 20 30 33.1 E85 03 45.9	596000	40m x 30m
2020-21		CAMPA	Barakhola RF C-2	N 20 33 53.0 E85 01 42.0	596000	40m x 30m
2020-21		MGNREGS	Balikiary RF C-1	N 20 31 10.3 E85 00 22.3	510000	40m x 30m
2020-21		MGNREGS	Balikiary RF C-5	N 20 30 25.8 E85 05 10.1	510000	40m x 30m
2020-21		MGNREGS	Barakhola RF C-2	N 20 33 11.0 E85 01 22.4	510000	40m x 30m
2020-21		MGNREGS	Barakhola RF C-3	N 20 31 41.1 E85 02 40.8	510000	40m x 30m
2020-21		MGNREGS	Barakhola RF C-2	N 20 32 15.1 E85 02 30.8	510000	
2013-14	Narasinghpur East	CAMPA APO 2012-13	Deobhuin RF C-5	N.20 29 29.0 E85 10 22.3	250000	40m x 30m
2013-14		CAMPA APO 2012-13	Deobhuin RF C-6,NearKanseilo	N.20 29 52.6 E85 11 34.0	250000	40m x 30m
2013-14		CAMPA APO 2012-13	Bhuska PRF Near Bandhanali-1	N.20 34 22.0 E85 07 00.6	250000	40m x 30m
2013-14		CAMPA APO 2012-13	Bhuska PRF Near Bandhanali-2	N.20 34 22.2 E85 06 59.0	250000	40m x 30m
2013-14		CAMPA APO 2012-13	Bhuska PRF Near Bahada Village	N.20 34 53.3 E85 07 24.9	250000	40m x 30m
2014-15		CAMPA APO 13-14	Tareikhola ,Deobhuin RF C-8	N 20 31 56.7 E 85 08 12.2	250000	40m x 30m

2014-15		CAMPA APO 13-14	Kharuani, Nuagarh RF C-8	N20 35 33.3E85 07 23.4	250000	40m x 30m
2014-15		CAMPA APO 13-14	Jadapada, Chandragiri RF C-2	N 20 28 55.1 E85 12 36.4	250000	40m x 30m
2014-15		CAMPA APO 13-14	Deobhuin RF C-2	N20 33 09.7 E 85 08 02.7	250000	40m x 30m
2014-15		CAMPA APO 13-14	Nuagarh RF C-10, Kasimula	N 20 36 09.6 E85 08 25.4	250000	40m x 30m
2014-15		CAMPA APO 13-14	Mochiapani, Nuagarh Rf c-10	N 20 35 53.8 E85 10 10.4	250000	40m x 30m
2014-15		CAMPA APO 13-14	Olab RF c-4	N 20 29 57.5 E85 13 16.8	250000	40m x 30m
2014-15		CAMPA APO 13-14	Deobhuin RF C-16	N20 35 10.6 E85 10 39.2	250000	40m x 30m
2014-15		CAMPA APO 13-14	Nuagarh RF C-9,Isaranali	N 20 35 25.2 E85 07 50.5	250000	40m x 30m
2014-15		CAMPA APO 13-14	Deobhuin RF C-10	N 20 31 12.9 E85 08 23.7	250000	40m x 30m
2014-15		CAMPA APO 13-14	Deobhuin RF C-5,SundhuniKhola	N 20 30 27.4 E85 08 30.1	250000	40m x 30m
2014-15		CAMPA APO 13-14	Deodhar Kholo, Deobhuin RF C-13	N.20 31 06.8 E.85 12 16.2	250000	40m x 30m
2014-15		CAMPA APO 13-14	Deobhuin RF C-3	N 20 31 35.0 E85 07 16.2	250000	40m x 30m
2014-15		CAMPA APO 13-14	Bhuska DPF	N 20 33 22.6 E 85 07 28.0	250000	40m x 30m
2014-15		General 14-15	Kalipoi,Nuagarh Rf C-3	N 20 32 28.3 E85 06 53.1	250000	40m x 30m
2014-15		General 14-15	GuptamanikaVillage,Olab -3	N 20 29 38.8 E85 13 59.2	525000	60m x 42m
2015-16		General 15-16	Deobhuin RF C-12		250000	40m x 30m
2013-14	Athgarh	General	Baudabanakhandi RF	N 20°28'23.2" E0850-39'-37.2"	250000	40m X 30m X 3m
2013-14		General	Phulabadi PRF	N 20°-28'-44.6" E 0850-36'-45.8"	250000	40m X 30m X 3m
2013-14		General	Kalichaballav RF	N 20°-30'-08.0" E 0850-29'-14.5"	250000	40m X 30m X 3m
2013-14		General	Subasi RF	N 20°-31'-57.6" E 0850-43'-38.1"	525000	50m X 50m X 3m
2014-15		CAMPA APO 2012-13	Sorisapal RF	N 20°-29'-57.4" E 0850-30'-49.2"	500000	40m X 30m X 3m
2014-15		CAMPA APO 2013-14	Sukasan RF	N 20°-28'-20.2" E 0850-41'-00.1"	250000	40m X 30m X 3m
2014-15		CAMPA APO 2012-13	Sukasan RF	N 20°-28'-34.2" E 0850-40'-24.1"	250000	40m X 30m X 3m
2014-15		CAMPA APO 2013-14	Nizigarh RF	N 20°-29'-40.9" E 0850-30'-20.5"	250000	40m X 30m X 3m
2014-15		CAMPA APO 2013-14	Subasi RF	N 20°-32'-14.6" E 0850-43'-01.7"	250000	40m X 30m X 3m
2015-16		CAMPA APO 2013-14	Phulabadi PRF	N 20°-28'-29.7" E 0850-37'-52.2"	250000	40m X 30m X 3m
2015-16		CAMPA APO 2013-14	Kalichaballav RF	N 20°-29'-35.8" E 0850-30'-39.1"	250000	40m X 30m X 3m

2015-16		CAMPA APO 2013-14	Kalichaballav RF	N 20°-29'-16.1" E 0850-29'-06.6"	250000	40m X 30m X 3m
2015-16		CAMPA APO 2013-14	Khalakhala RF	N 20°-29'-45.0" E 0850-42'-31.3"	250000	40m X 30m X 3m
2016-17		CAMPA APO 2014-15	Subasi RF	N 20°-32'-48.6" E 0850-43'-55.8"	250000	40m X 30m X 3m
2016-17		CAMPA APO 2014-15	Sorisapal RF	20°30'27.24"N 85°31'28.01"E	250000	40m X 30m X 3m
2017-18		CAMPA APO 2016-17	Subasi RF	20°32'44.2"N 85°44'39.2"E	400000	40m X 30m X 3m
2019-20		CAMPA APO 2019-20	Subasi RF	20°32'32.0"N 85°43'43.0"E	450000	40m X 30m X 3m
2020-21		CAMPA APO 2020-21	Ranibania RF	20°33'40.68"N 85°41'16.98"E	596000	40m X 30m X 3m
2020-21		CAMPA APO 2020-21	Kalichaballav RF	20°29'30.81"N 85°27'41.03"E	596000	40m X 30m X 3m
2011-12	Badamba	General	TareigandaRF,C-1	N-20 27 47.4, E-85 19 42.0	150000	40m X 30m X 3m
2012-13		CAMPA APO 2011-12	HaladiaseniRF,C-1	N-20 29 48.2, E-85 16 52.3	250000	40m X 30m X 3m
2013-14		CAMPA APO 2012-13	HaladiaseniRF,C-5	N-20 28 43.3, E-85 20 45.2	250000	40m X 30m X 3m
2013-14		CAMPA APO 2012-13	Karada RF,C-2	N-20 28 45.8, E-85 22 09.4	250000	40m X 30m X 3m
2014-15		CAMPA APO 2013-14	NagatotaRF,C-4	N-20 27 47.5, E-85 18 20.9	500000	40m X 30m X 3m
2014-15		CAMPA APO 2013-14	TareigandaRF,C-3	N-20 27 43.6, E-85 20 23.6	500000	40m X 30m X 3m
2017-18		General	NagatotaRF,C-7	N-20 2655.2 E-85 1909.1	250000	50m X 50m X 3m
2018-19		CAMPA APO 2017-18	Karada RF,C-2	N-20 28 45.0, E-85 20 10.2	450000	40m X 30m X 3m
2019-20		General	HaladiaseniRF,C-4	N-20 29 02.7, E-85 19 05.6	250000	40m X 30m X 3m
2020-21		CAMPA	NagatotaRF,C-3	N-20 27 34.1, E-85 17 35.2	500000	40m X 30m X 3m
Sources :- Divisional Forest Officer, Athgarh Forest Division						

5.4. Water Level in the Wells in the Vicinity (up to 5.00 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 and taking up plantation in the barren land. The intervention in the forest management should be approached on Water shed basis. Periodic monitoring of water level in the wells in the vicinity of the forest area is required to assess the availability of ground water. At present depth of water table in summer is 10.8mt in Khuntuni, 8.07 mt in Narasinghpur, 7.3mt in Badamba and 7.4mt in Athgarh. The details of water levelof well is given below.

Table No. 04

Water Level of Well

Sl. No	Name of Place	Water Level during summer in meter
1	Adal Beat	10.8
2	Brahmani Beat	8.07
3	Balikiary Beat	8.06
4	BadambaBeat	7.3
5	Athgarh Sadar Beat	7.4
6	Tigiria Section	6.5
7	Brahmanbasta Beat	8.5
8	Chhanchunia Beat	18.0
9	Baresingha Beat	12.5
10	Jenapada Beat	7.0

5.5. Status of aquifers:-

It is a body permeable rock which can contain or transmit groundwater. The aquifers are available in Nuagarh RF, Deobhuin RF, Balikiary RF and Barakhola RF etc. in Narasinghpurarea. The growth of vegetation as well as movement of wildlife is better than other forest area. There is no change of the ground in this area. The sustainability of aquifers is taken care up.

The Odisha is blessed with to less of international significance. One is largest brackish water lagoon of Asia with Espuarine character and a Ramsar site i.eChilika and another one is the largest lacustrine lake of Odisha i.e**Ansupa**. **Ansupa** is the part of river Mahanadi. This lake has got the status of Ramsar site on 13th August 2022.

Weed Management and emergence of Water spread area of the Lake :-

Heavy siltation and agricultural runoff from nearby areas of lake causes eutrophication in the lake. From satellite imagery data of Landsat Multi Spectral Scanner (MSS) taken on 18th January, 1973, it was observed that the lake had good water spread area which gradually covered by Water Hyacinth (Eichhornia sp.) and other aquatic weeds. The past twenty year analysis of the IRS LISS III data shows that the average water spread area of the lake is 205.09 Ha. Chilika Development Authority has been initiated the process of removing of the aquatic weeds manually by engaging local people as well as mechanically by utilizing a Amphibian weed Harvester. This has given good result in reviving the lake.

Restoration and management of wetland are been done by the Chilika Development Authority. Clonal sapling for quality production and better growth has not been done in this division.

5.5.1. Aquifer Parameter:-

The aquifer parameter of shallow and deep aquifers were determined from the pumping test data conducted during the hydrogeological survey and exploratory drilling. Aquifer characteristics of shallow and deeper aquifers are noted below.

5.5.2. Shallow Aquifers:-

Near surface aquifer in which ground water occurs under unconfined (phreatic) condition and is mainly tapped by dug wells for ground water extraction is generally identified as shallow aquifer. The specific capacity and hydraulic conductivity in different formations are stated below.

Table No. 05

Specific Capacity and Hydraulic Conductivity in different formations

Sl. No	Formation	Specific Capacity Index (Ipm/min/m draw down	Hydraulic conductivity (M/ day)
1	Alluvium	1.42-3.61	4.72-13.68
2	Laterite	1.1-2.89	3.66-9.23
3	Athgarh Formation	0.7-2.11	2.78-10.15
4	Granitic rocks	0.60-2.23	1.89-8.21
5	Khondalite and Charnockite etc.	0.41-0.82	1.66-3.62

5.5.3. Deeper Aquifers :-

Aquifers, which occur below the phreatic zone and extends down to a greater depth, are termed as deeper aquifers. Ground water in deeper aquifer occurs under semi-confined to confined conditions.

Deeper aquifers are tapped by tube/bore wells for ground water extraction. Characteristic of deeper aquifers are Consolidated Formation, Semi – Consolidated Formation & Unconsolidated Formation.

5.5.4. Block wise ground water resources:-

The Block wise ground water resources of AthgarhBaramba, Banki&Narasinghpur are given below.

Table No. 06

Block wise ground water resources

Block	Net Annual Ground Water Availability (Ha. m)	No. of existing ground water structure for irrigation use (March -2004)				Annual draft for irrigation use (2004)	Stage of ground water development (%)
		DW with Tenda	DW with pumpset	STW (RIDF)	MDTW		
Athgarh	5365	2257	389	23	-	1421	26.49
Badamba	3882	2042	127	-	-	1034	26.64
Banki	2814	871	77	2	-	602	21.39
Narasinghpur	5973	1983	146	-	-	1038	17.38

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 since 1931-32. Later on, selection-cum- improvement Working Circle was prescribed in place of Conversion Working Circle and this was later prescribed as Selection Working Circle. The Growing Stock of forest improved after the imposition of moratorium on tree felling from 1990 to 2005. The main thrust has been focused in regeneration, cleaning and soil and moisture conservation to improve and harmonize with environment. The details of growing stock of wood is given below.

Table No.1

Details of Growing Stock

Sl. No	Name of the Forest	GIS computed area	Growing Stock of Wood in No.	Growing Stock per ha.
1	Baniabandha R.F	5714.5253	933372	163
2	Deobhuin RF	6028.465	1220042	202
3	Olab RF	2261.28	470346	207
4	Chandragiri 'B'RF	698.32	214384	307
5	Mundagada B' RF	136.48	6824	50
6	Brahmandei 'B' RF	99.91	34968	350
7	Chandragiri (A) RF	265	130380	492
8	Haladiaseni RF	3925.17	1447079	368
9	Badajora RF	1063.97	132996	125
10	Taraiganda RF	997.39	281263	282
11	Kumaranga RF	361.36	97567	270
12	Talachandragiri (B) RF	980.525	205910	210
13	Nagatota (B) RF	2228.3645	857920	384
14	Mandap (B) RF	433.48	206625	476
15	Karada (B) RF	1156.41	358487	309
16	Belapada (B) RF	91.66	10082	109
17	Jhinkal (B) RF	436.2	45801	105
18	Sukhasan RF	707.28	113164	159
19	Khalakhala (B) RF	602.99	90448	149
20	Baudabanakhandi(B) RF	540.678	189237	349
21	Oringa (B) RF	432.3696	38913	90
22	Subasi RF	1280.3	371287	290
23	Ranibania RF	1028.2482	229642	223
24	Nizigarh (B) RF	823.1	238699	290
25	Kalichaballabh (B) RF	715.11	200230	279
26	Sorispal(B) RF	651.29	147625	226

27	Gobara (B) RF	510.5483	214430	419
28	Sankhapoi (B) RF	495.6383	74345	150
29	Baula (B) RF	95.87	5752	60
30	Suniamuhan (B) RF	186.90	97188	520
31	Brahmanbasta (B) RF	320.27	96081	300
32	Deulia (B) RF	288.19	190205	660
33	Saranda PRF	129.1	15492	120
34	Baniabandha PRF	269.93	107972	400

6.2. Growing Stock of Bamboo:-

There is bamboo forest in Athagarh Forest Division. The total Bamboo Forest of this Division 15239.595 ha. The details of Bamboo Stock are given below.

Table No.2

Details of Bamboo Growing Stock

Sl. No	Name of the Forest	GIS computed area	GIS computed area of Bamboo	Growing Stock of Bamboo Culm	Growing Stock per ha.
1	Deobhuin RF	6028.465	2842.810	204682	72
2	Olab RF	2261.28	1180.780	64943	55
3	Chandragiri 'B'RF	698.32	698.320	31424	45
4	Chandragiri (A) RF	265	265.000	8480	32
5	Badajora RF	1063.97	86.073	37011	430
6	Taraiganda RF	997.39	997.387	35906	36
7	Haladiaseni RF	3925.17	1961.470	78459	40

6.3. Increment in Volume of Identified Timber Species:-

The Mean Annual Increment of different timber species has not been calculated in this Division, neither in the outgoing plan nor in the past. During this plan the grid method of enumeration in 0.1ha.was carried out. Sample plots were taken, with geo-coordinates. This data will form the baseline, for calculation of mean annual increment. The Divisional Forest Officer Athgarh Forest Division is advised to measure the dimension of importance species in some of the sample point and maintain the record for calculation mean annual increment.

6.3.1.Mean Annual Increment:-

Owing to the absence of any research activities for assessment of rate of growth of different species and other aforesaid reasons it would be very difficult to assess the mean annual increment as the past enumeration data, year wise for last 20 years are not available. Illicit felling is regular features in most forest blocks. As such illicit removal of timber from the forest would make the calculation of M.A.I. even more difficult task.

6.3.2. Field Trial of different species for mean annual increment:-

The mean annual increment data of different indigenous species furnished below are collected from the silvicultristof Odisha.

Table No.3

Field Trial of different species for mean annual increment (Unity in Cm)

Species	D. No	Place of trial	Year of trial	Av. Ht.	Av. Dia	MAI		Survival %
						Ht.	Dia	
Adina Cordifolia	41 / 81	Koshala	1981(31)	1455	8.8	46.94	0.28	63
Dalbergia	25 / 87	Khandagiri	1987(25)	639	7.1	25.56	0.28	39
	25 / 87	Koshala	1987(25)	1510	8.9	60.4	0.36	20
	5 / 95	Koshala	1995(17)	812	4.8	47.76	0.28	55
	11 / 96	Koshala	1996(16)	649	3.4	40.56	0.21	44
Lannea grandis	25 / 83	Baragaon	1983(29)	796	18.4	27.45	0.63	25
Pterocarpus marsupium	43 / 85	Baragaon	1985(27)	826	13.4	30.59	0.50	31
	41 / 86	Baragaon	1986(26)	791	12.9	30.42	0.50	29
	5 / 95	Koshala	1995(17)	812	4.8	47.76	0.28	55
	11 / 96	Koshala	1996(16)	649	3.4	40.56	0.21	44
Lannea grandis	25 / 83	Baragaon	1983(29)	796	18.4	27.45	0.63	25
Pterocarpus marsupium	43 / 85	Baragaon	1985(27)	826	13.4	30.59	0.50	31
	41 / 86	Baragaon	1986(26)	791	12.9	30.42	0.50	29
	9 / 92	Koshala	1992(20)	980	9.2	49	0.46	49
	15 / 96	Koshala	1996(16)	795	7.3	49.69	0.46	60
Shorearobusta	41 / 87	Khandagiri	1987(25)	858	9.9	34.32	0.40	21
	27 / 91	Khandagiri	1991(21)	616	6.7	29.3	0.32	35
Tectona grandis	33 / 76	Koshala	1976(36)	1917	15.2	53.25	0.42	27
	158 /95	Khandagiri-P1	1985(17)	669	4.8	39.35	0.28	45
		Khandagiri-P2	1995(17)	558	4.4	33.82	0.25	30
	14 / 96	Khandagiri	1996(16)	669	4.5	41.81	0.28	43

Sources: State Silvicultrist, Odisha.

6.3.3. Local Volume Equation:-

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 Catchments (Orissa)

prepared by Forest Survey of India, Dehradun, 1982 has been referred for relevant local volume equation for determination of volume and yield in this Plan. In these equation 'V' denotes under bark round timber volume in cum and "D" denotes over bark diameters in meters at breast height, where D = 7g / 22 and "g" denotes over bark girth in meter at breast height. All other species including fruit bearing species like Mahul, Kendu, Mango, Gambhar, Siris,and Kusum etc. have been categorized as other miscellaneous species. The local volume equations for different species used in this Working Plan are shown in the table below.

Local Volume Equation		
Sl. No.	Species	Local volume regression equation to be adopted
1	Sal	$V = 0.109884 - 1.804754\ D + 10.297714\ D^2$
2	Piasal	$V = 0.058424 - 1.233468\ D + 9.433633\ D^2$
3	Sisoo	$V = 0.00965 + 0.58546\ D - 2.5605\ D^2 + 24.34215\ D^2$
4	Simuli	$V = 0.136196 - 2.076740\ D + 10.156600\ D^2$
5	L.Moi	$V = 0.057424 - 1.153088\ D + 8.542648\ D^2$
6	Mundi	$V = 0.08444 - 1.26801\ D + 8.75274\ D^2$
7	Kasi	$V = 0.035142 - 0.839708\ D + 8.157614\ D^2$
8	Dhaura	$V = 0.015731 - 1.020606\ D + 9.656667\ D^2$
9	Asan	$V = 0.103171 - 1.684599\ D + 10.107586\ D^2$
10	Bandhan	$V = 0.057424 - 1.153088\ D + 8.542648\ D^2$
11	Jamu	$V = 0.08444 - 1.26801\ D + 8.75274\ D^2$
12	Kuruma	$V = 0.08507 - 0.19669\ D + 7.16812\ D^2$
13	Sidha	$V = 0.07199 - 1.25923\ D + 9.28416\ D^2$
14	Mahul	$V = 0.030925 - 0.567067\ D + 5.709471\ D^2$
15	Salai	$V = (-)\ 0.188655 + 3.021335\ D$
16	Bahada	$V = 0.035142 - 0.839708\ D + 10.107586\ D^2$
17	Kendu	$V = 0.06728 + 4.06351\ D - 0.99816\ \square D$
18	Misc.	$V = 0.088074 - 1.449236\ D + 8.760534\ D^2$
Sources - Forest Survey of India, Dehradun		

6.4. Efforts towards Enhancement of Forest Productivity through Quality Plantation Activities:-

In the outgoing plan Plantation (Over Lapping) Working Circle have been constituted. Plantation activities in the Division have been taken up within and outside the Plantation (Over Lapping) Working Circle, where ever plantable area is found. At present old, over matured *Eucalyptus* plantations and old teak plantations exist in several locations. Besides these, new plantations including mixed plantation have been taken up in the Division. The details of quality plantation of this division are given below.

Table No.4				
The details of quality plantation				
Sl. No	Name of Range	Name of Forest Block	Status	Area in ha.
1	Narasinghpur East	Deobhuin	RF	160.00
		Olab	RF	150.00
		Bhuska	PRF	147.00

2	Badamba	Badjora	RF	60.00
		Tareiganda	RF	35.00
		Kumaranga	RF	60.00
		Nagatota	RF	50.00
		Jagabeherathali	RF	50.00
		Karada	RF	40.00
		Jhinnkal	RF	135.00
		Kabatbar	PRF	18.33
3	**Athgarh**	Sukasana	RF	35.00
		Khalakhala	RF	40.00
		Baudabanakhandi	RF	100.00
		Oringa	RF	70.00
		Nizigarh	RF	40.00
		Kalichiaballav	RF	50.00
		Sorisapala	RF	110.00
		Saranda	PRF	35.00
		Phulbadi	PRF	90.00
4	Khuntuni	Baniabandha	RF	350.00
		Baula	RF	50.00
		Suniamunha	RF	159.4
		Deulia	RF	100.00

Restoration and management of wetland are been done by the Chilika Development Authority. Clonal sapling for quality production and better growth has not been done in this division.

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)fromthe 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 center 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 center 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 Biomass 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 200.00gms 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.

6.5.1. Range wise carbon stock:-

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 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.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.

6.6. Carbon Sequestration and Mitigation:-

Forest is 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 offer mitigation opportunity to stabilize GHG concentrations, (iv) 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 life 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 regimes and expanding forest insects infestation. Long observational studies are necessary to 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, notedthat emission from deforestation and forest degradation in developing countries have 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 absorb 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 (C). This carbon remains 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.

6.6.1. Carbon Inventory, sample plots:-

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 and dead wood mass have been measured. Out of the total 484 nos. of sample plots provided by ORSAC 475 nos. of sample plots of 0.1 ha. have been laid the forests of Athagarh Forest Division. From those sample plots laid in the forest 48 nos. of sample plots (PSP) have been identified in the different strata of forest as permanent sample plots. The carbon stock of the permanent sample plots has been estimated by the methods of multiplying the biomass expansion factor (BEF) to the bole mass. The AGB, BGB, and DWB have been estimated and the carbon stock have 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 and the carbon stock of the permanent sample plots will be estimated as per the methodology described in the previous para. 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 butwhen **Δ C** is negativethe forest growths have degraded. The sample enumeration and carbon stock of point no140 is shown in the table below as per ORSAC.

Table No.5		
Form No. II		
Plot Description Form		
Plot No. UID No- 140 (Kalichaballav RF)		
Sl. No	Headings	Remarks
1	Range Name	Athgarh Forest Range, Athgarh
2	Block/Beat	Nuapatana Beat
3	Compartment	01
4	Grid	--
5	Latitude	20.483923
6	Longitude	85.468968
7	Alt.	420 Ft
8	Legal Status	Reserve Forests
9	Land Use	Open Forest.
10	General Topography	Hilly
11	Slope	16^0-40^0
12	Aspect	Northern Aspect
13	Rock & Geology	Undulating ground surface having granite rocks.
14	Soil Data	Clayee soil
15	Soil erosion	Heavy
16	Crop Composition	Bamboo, Kusuma, Phasi
17	Regeneration Status	Poor
18	Injury / Damage to Crop if any	Damage to crop by wildlife, forest fire & cattle grazing.
19	Grazing incidence	Heavy
20	Presence of Bamboo	Yes,
21	Presence of Grass	Yes,
22	Presence of weeds	Yes, heavy weeds are present
23	Plantation Status	ANR with Gap Plantation, 2016-17 over 100 Ha. Plantation Status- Good
24	Water Bodies	Yes. 1 No. WHS is present
25	Drivers of Degradation	Degradation due to grazing, browsing, Forest Fire and collection of firewood by local people.
26	Faunal sighting, if any	Nil
27	Faunal traces of flagship species	Elephant

Table No. 6							
Form No. II							
Plot Enumeration Form-A-1 (31.62M 31.62M)							
Compartment No. 01 Block/Village: Bhejia, Beat: Nuapatana Range: Athgarh Range Athgarh, Division: Athgarh Forest Division, Alt:420 Ft LAT: 20.483923, Long: 85.468968 Grid No.							
Sl No.	Species Name	Local Name	DBH (OB) in CM	Height of Selected dominant trees	NTFP utility		Remarks if any about the tree condition
					Part of the tree	Approx. weight & or NO.	
1	Adina cordifolia	Kusuma	14 CM	500 CM			Good
2		Tantera	10 CM	350 CM			Good
3		Phasi	13 CM	450 CM			Good
4		Phasi	17CM	650 CM			Good

Table No. 7								
Plot Enumeration Form-B (3M X 3M Plot)								
Sl No.	Species Name	Local Name	Collar dia at the base in CM	DBH in CM (if any)	Height	NTFT utility		Remarks if any about the condition of shrubs vegetation
						Part of the plant body	Approx weight & or No.	
Quadrant- 1(NE)								
1	Ziziphusoenotlia	Kanteikoli			120 CM			Good
2	Calycopteris floribunda	Atundi			400 CM			Good
Quadrant- 2(SE)								
1	Tecomaundulata	Suama			500 CM			Good
2	Olaxscandens	Vadali			80 CM			Good
3	Ageratum Conyzoides	Pokasunga			80 CM			Good
Quadrant - 3(SW)								
1	Calycopteris floribunda	Atundi			300 CM			Good
2	Calycopteris floribunda	Kanteikoli			100 CM			Good
Quadrant - 4(NW)								
1	Olaxscandens	Vadali			70 CM			Good
2	Calycopteris floribunda	Kanteikoli			100 CM			Good
3	Ageratum Conyzoides	Pokasunga			110 CM			Good

Table No. 8						
Plot Enumeration Form-C (1M X 1M Plot)						
Sl No.	Species Name	Local Name	Height	Sl No.		Species Name
				Part of the plant body	Approx weight & or No.	
Quadrant- 1						
1	Sidascuta	Bajramuli	30 CM			
2	Asparagus racemosus	Satabari	40 CM			
3	Smilax zuilanica	Muturi	20 CM			
4	Jasminumarborescens	Banamalli	15 CM			
5		Lankamaricha	40 CM			
6	Eleusineaegyptiaca	Kakudia Grass	50 CM			
Quadrant- 2						
Book	Lantana camara	Naguari	40 CM			
2		Lankamaricha	35 CM			
3		Chemerilai	15 CM			
4	Asparagus racemosus	Satabari	33 CM			

Table No. 9		
Enumeration of Biomass for Carbon Stock Estimation		
5m x 5m Plot:		
Q.No.	Dead Wood > 5 CM Diameter	Weight in Kg
NE	7 CM	1.2KG
SW	Nil	Nil
3m x 3m Plot:		
Q. No	Woody Litter Having Branches < 5 CM Diameter	Weight in Kg
NE	Nil	Nil
SE	Nil	Nil
SW	Nil	Nil
NW	Nil	Nil
3m x 3m Plot:		
Q.No	All Shrubs & Climbers	Weight in Kg
NE	All shrubs & climbers	0.35 KG.
SE	All shrubs & climbers	0.7 KG
SW	All shrubs & climbers	0.1 KG
NW	All shrubs & climbers	0.14 KG
1m x 1m Plot:		
Q. No	All Herbs & Grasses	Weight in Kg
NE	All herbs & grasses	Nil
SW	All herbs & grasses	Nil

6.6.2.Carbon Sequestration:-

Carbon sequestration can be enhanced in the forest by adopting suitable silvicultural practices, like regeneration cleaning, climber cutting, eradication of 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. The detail assessment of growing stock of wood and carbon stock coming within working plan area as well as tree outside forest over 252 sample points are annexed herewith in Annexure No-

CHAPTER – 7

Optimization of Forest Resource and Utilization

7. Optimization of Forest Resource and Utilization

7.1.Recorded Removal of Timber:-

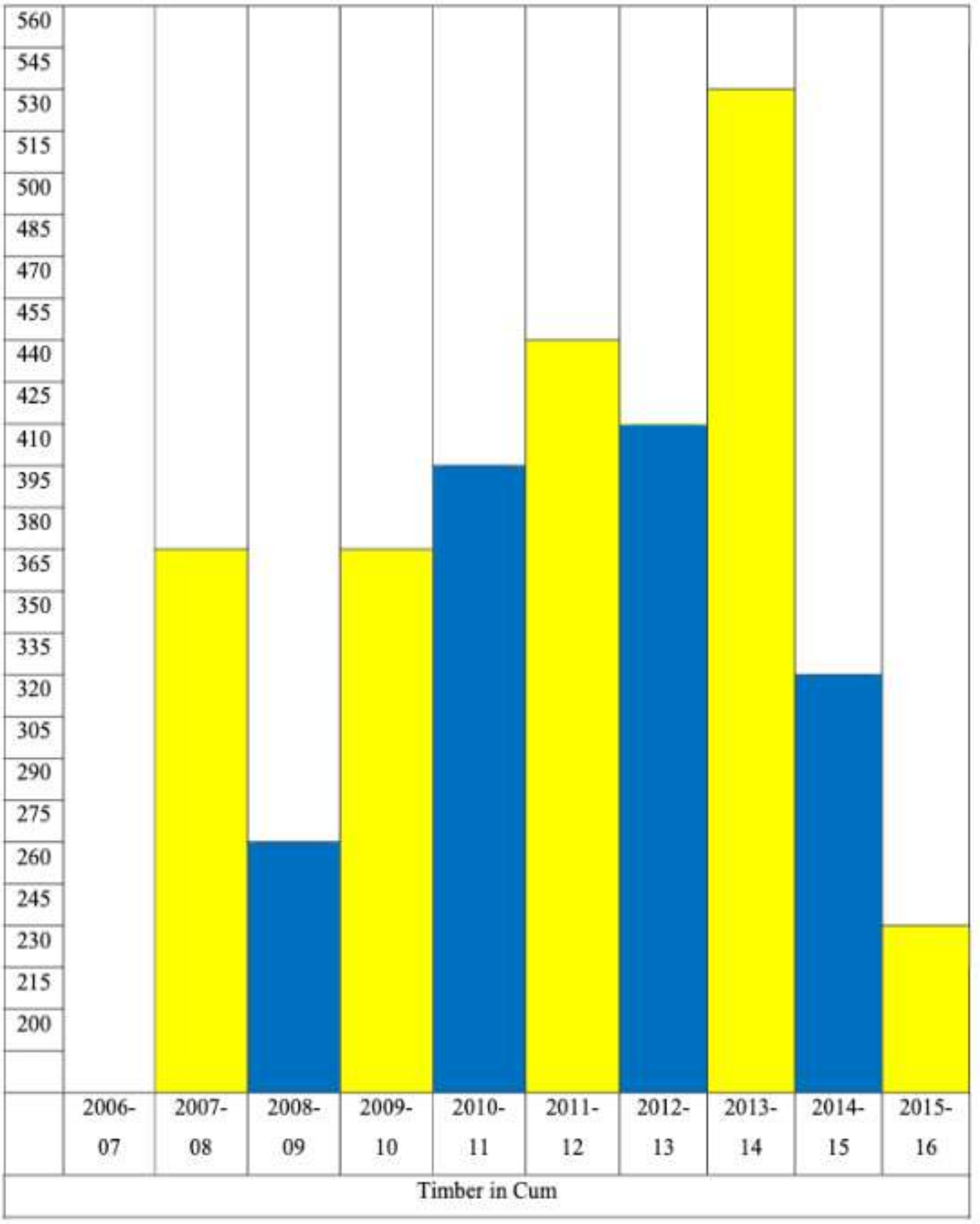
Timber and firewood have been harvested from the timber coupes of Selection Working Circle during the outgoing plan period by the Odisha Forest Development Corporation, Ltd. The details of timber working from 2007-08 to 2015-16 are given below.Further the salvaged and seized materials have also been delivered to OFDC Ltd.

Table No.1

Year wise target & achievement of timber coupe working of last plan period

SL No	Name of Timber Coupe worked	Coupe No	Area in ha.	Year	Total trees marked	Number of trees Marked	
						Sal	Non Sal
1	Brahamani SWC, Coupe No.I,NuagarhRF,Compt No.9	BRA-I	429.26	2007-08	465	11	454
2	Brahamani SWC, Coupe No.II, NuagarhRF,Compt No.8	BRA-II	381.70	2008-09	346	23	323
3	Brahamani SWC, Coupe No.III, NuagarhRF,Compt No.6	BRA-III	434.81	2009-10	471	115	356
4	Brahamani SWC, Coupe No.IV, NuagarhRF,Compt No.7(P)	BRA-IV	258.49	210-11	553	231	322
5	Brahamani SWC, Coupe No.V,Nuagarh RF ,Compt No.5(P) and 7 (B)	BRA-V	264.31	2011-12	508	259	249
6	Brahamani SWC, Coupe No.VI,NuagarhRF,Compt No.5(B)	BRA-VI	355.15	2012-13	632	306	326
7	Brahamani SWC, Coupe No.VII, Bhuska,PRF, ComptNo.Nil,	BRA-VII	248.36	2013-14	697	641	56
8	Brahamani SWC, Coupe No.VIII, NuagarhRF,Compt No.4,	BRA-VIII	445.54	2014-15	520	134	386
9	Brahamani SWC, Coupe No.VI,NuagarhRF,Compt No.3,	BRA-VIII	336.93	2015-16	288	26	262
10	Nuagarh-1	BRA-X	275.33	2016-17			
	Nuagarh-2		351.85				

Table No.2			
Year Wise Production of Timber & Firewood During Last Plan Period			
Year	Total round timber in cum	Fire Wood in Stack 12'x3'x3'	Royalty Paid in Rs.
2006-07	--	--	
2007-08	356.9234	202	663582
2008-09	261.8867	192	427960
2009-10	359.4085	358	738585
2010-11	399.3115	319	1219558
2011-12	446.0995	301	1468500
2012-13	402.1089	270	1140156
2013-14	536.1636	280	1342311
2014-15	321.7619	221	1269996
2015-16	224.9014	130	843109
2016-17	--	--	--
2017-18	--	--	--
2018-19	--	--	--
2019-20	--	--	--
2020-21	--	--	--
Total	3308.565	2273	9113757
Source: Divisional Forest Office, Athgarh			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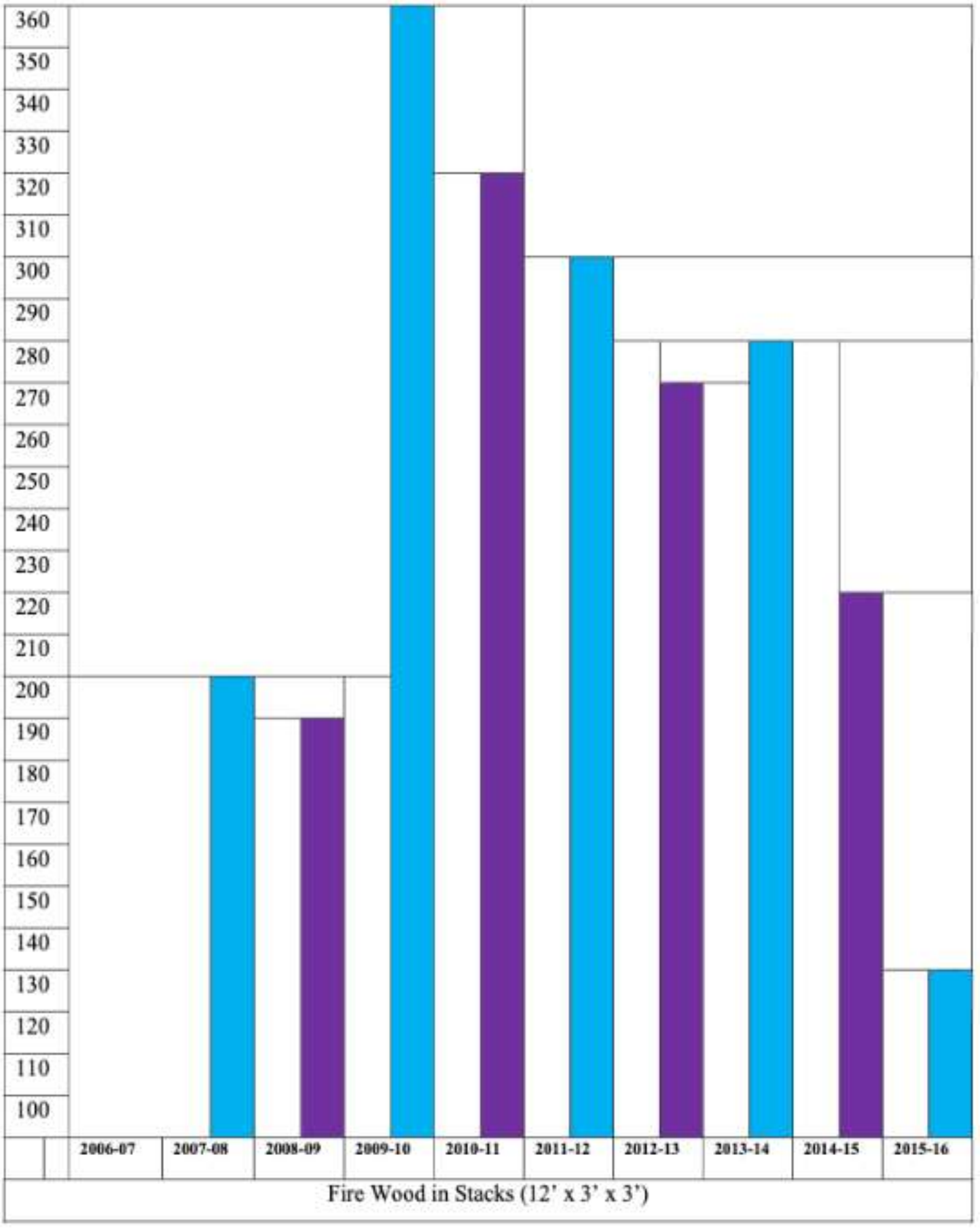
2011-12
2012-13
2013-14
2014-15
2015-16
Timber in Cum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2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
Fire Wood in Stacks (12' x 3' x 3')

7.2. Recorded Removal of Fuel Wood:-

The rural masses mainly depend on the forest to collect fire wood for cooking food. The consumption of fire wood has been assessed by socio-economic survey conducted in Balikiary forest fringe villages during the preparation of working plan.The details of socio-economic survey is given in the table below.

Table No.3		
Socio-economic survey conducted in Balikiary Village		
S l. No.	Item No	Name/ No/ etc.
1	Name of C.D Block	Narasinghpur
2	Name of Forest	Balikiary R.F
3	Total Families	73
4	Total Population	600
5	Total Male	215
6	Total Female	270
7	Total Educated	55
8	Total Employee	1
9	Total Labour	400
10	Total Business Man	7
11	Total Domestic Animal	300
12	Total Cultivated Land	500 Acre
13	Total Tube Well	4
14	Main communication	Balikiary to Sisupathara, Bahguapala to Balikiary
15	Annual requirement of Fire wood	2500 Qntl
16	Annual requirement of Poles	400 Pole
17	Annual requirement of Timbers	350 cft.
18	Annual requirement of Bamboo	2000 Bamboo
19	Annual production of main N.T.F.P	Karanja Seed 20 Qntl
20	Importance of the Village	Collection of NTFP
21	No. of Educational Institution	Balikiary Primary School
22	Any other if any	
Sources: Sri Subhendra Kumar Pradhan, Forester, Range- Narsinghpur West Range Sri SunayakMajhi, F.G Section- Barasingha Beat - Balikiary		

7.3. Recorded Removal of Bamboo / Rattans:-

The total Bamboo area of this Division is15239.595ha. Therefore,the bamboo or rattans in forest areassigned in private holdings bamboo clumps are seen everywhere and this Division.AthagarhForest hasmaximum bamboo producing area.The bamboo production of AthagarhForest Division from in the last plan period is given in the table below.

Table No.4			
Year Wise Achievement of Bamboo Coupe Working and Production in the last Plan			
S l. No	Year of Cutting	Production of Salia and Daba Bamboos Commercial boundless in sale units	Royalty Paid by OFDC Ltd.
1	2006-07	423.39	277270
2	2007-08	788.556	369980
3	2008-09	1071.657	541440
4	2009-10	1147.22	595855
5	2010-11	1366.82	801700
6	2011-12	0	0
7	2012-13	0	0
8	2013-14	0	0
9	2014-15	0	0
10	2015-16	0	0
11	2016-17	0	0
12	2017-18	0	0
13	2018-19	0	0
14	2019-20	0	0
Total		4797.643	2586245
Sources: Divisional Forest Officer, Athgarh Forest Division.			

7.4. Recorded Removal of Locally Important NTFPS including MAPs:-

There are different type of N.T.F.P are available in the Forest and Non-Forest area in this Division. The Potential N.T.F.P are given in the table below.

Table No.5		
N.T.F.P		
S l No	Name of the N.T.F.P	Botanical Name
1	Amla	Phyllanthusemblica (L.)
2	Bahada- Bellericmyrobalan	(Terminaliabellerica, Gaertn.)
3	Harida	Terminaliachebula (Retz.)
4	Siali	Bauhinia bahlii (Siali leaves)
5	Char	Buchananialanzan, Spreng. (Char seed)
6	Mahua	Madhucaindica, Gmel. (Mahul)
7	Kusum -	Schleicheraoleosa (Lour.)
8	Karanja	Pongamiapinnata (L.)
9	Sal seed	Shorearobusta (Roxb. ex Gaertn.)
10	Neem	Azadirachtaindica (A. Juss.)
11	Dhataki	Woodfordiafruticosa (Salisb.)

7.4.1. Implementation& Management Practices Adopted:-

The important NTFP available in the Division area Kendu leaf: (*Diospyrusmelanoxylon),* Sal Seed: Bamboo, Siali Leaves and Fiber, Myrabolans, Char, Kendu, Mahua Flowers and Seeds, Sal

Leaves, Other Important NTFP Items like Jaisandha bark, Katha Chhatu, Suam Creeper, Nuxvomica, Asan, Sidha, Kangada Fruits. Etc.

7.4.2. Kendu Leaf:-

Kendu leaf working is being managed by Kendu leaf wing of the Forest Department. There is Narsinghpur KL Range of Angul KL division coming within Athagarh Division. The last Five year production figure in Quintal is as follows.

Table No.6

Kendu Leaves Collection

Sl. No.	Name of KL Range	No. of Phadies	Year									
			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1	Narsinghpur	20	595.8	328.8	561.0	636.0	543.6	589.8	566.7	576.7	581.5	583.4
	Total	20	595.8	328.8	561.0	636.0	543.6	589.8	566.7	576.7	581.5	583.4

7.4.3. Sal Leaf:-

Sal leaf though under Govt. control, no official target / production is available in the division. People are collecting Sal leaf in two spell i.e. September- November & April- June and mostly consumed in local market. Primary collectors are making Khali and Doona and saling. No fixed price is available for the Division.

7.4.4. Bamboo:-

Bamboo is a vital NTFP and available in the Division. It is also available outside the Forest area. Artisan People are preparing bamboo baskets etc. in different region of the division. The name of the article and there uses are given in the table below.

Sl. No	Name of the Item	Uses
1	Jhudi or Gandua	Used as basket
2	Doli	Container for storing rice
3	Loder	(Cow dung transport, April/May) These two are made men for agricultural purpose in Athgarh Division.
4	Jhampi	Rainy Season
5	Kula	Use for removal of dost
6	Bojha	Transportation of paddy, pulses from field
7	Dala	Puja seasonal –Prepared by dama caste in July/Aug/Sep
8	Hand Fan	It is uses fan during summer

7.4.5. Other NTFP:-

Other NTFP are now under Gram Panchyat as per NTFP policy -2002. It is not regulated with due importance. It is required to systematically study the collection procedure, regeneration status. During 2012 a systematic study has been carried out and its availability / abundance are at table below.

Table No.7

Other NTFP availability/ abundance

Sl. No.	Type of Plants	Local Name	Botanical Name	Family	No. of Stems in total nos. of sample plots of the Division	No. of Stems per Ha.
1	2	3	4	5	6	7
1	Trees	Acacia	*Acacia auriculiformis*	Mimosaceae	97	0.2425
2	Trees	Amba	*Mangiferaindica*	Anacardiaceae	7	0.0175
3	Trees	Ankula	*Alangiumlamarkii*	Alangiaceae	96	0.24
4	Trees	Anla	*Phylanthusemblica*	Euphorbiaceae	145	0.3625
5	Trees	Asana	*Terminaliatomentosa*	Combretaceae	1741	4.3525
6	Trees	Bahada	*Terminaliabelerica*	Combretaceae	327	0.8175
7	Trees	Bela	*Aeglemarmelos*	Rutaceae	494	1.235
8	Trees	Bhalia	*Semicarpusanacardium*	Anacardiaceae	82	0.205
9	Trees	Chara	*Buchnaninalanzan*	Anacardiaceae	664	1.66
10	Trees	Dhaura	*Anogeisuslatifolia*	Combretaceae	735	1.8375
11	Trees	Harida	*Terminaliachebula*	Combretaceae	43	0.1075
12	Trees	Jamu	*Syzygiumcumini*	Myrtaceae	420	1.05
13	Trees	Kamala gundi	*Mallotusphillippinensis*	Fabaceae	43	0.1075
14	Trees	Kendu	*Diospyrosmelanoxylon*	Ebenaceae	1217	3.0425
15	Trees	Khair	*Acacia catechu*	Mimosaceae	7	0.0175
16	Trees	Kochila	*Strychnosnuxvomica*	Loganiaceae	297	0.7425
17	Trees	Mahula	*Madhucaindica*	Sapotaceae	634	1.585
18	Trees	Neem	*Azadiractaindica*	Meliaceae	253	0.6325
19	Trees	Palasa	*Bueteamonosperma*	Fabaceae	43	0.1075
20	Trees	Phanapha na	*Oroxylumindicum*	Bignoniaceae	48	0.12
21	Trees	Rohini	*Soyamidafebrifuga*	Meliaceae	3	0.0075
22	Trees	Sal	*Shorearobusta*	Dipterocarpacea e	9334	23.335
23	Trees	Sidha	*Largestromeaparviflor a*	Lythraceae	354	0.885
24	Trees	Simili	*Bombaxceiba*	Bombacaceae	80	0.2

25	Trees	Sunari	*Casia fistula*	Caesalpiniaceae	92	0.23
26	Shrubs	Banakhajuri	*Phoenix acaulis*	Arecaceae	340	0.85
27	Shrubs	Dhataki	*Woodfordiafruticosa*	Lythraceae	156	0.39
28	Herbs	Anantamula	*Tylophoralongifolia*	Apocynaceae	1	0.0025
29	Herbs	Baghanakhi	*Martyniaannua*	Pedaliaceae	3	0.0075
30	Herbs	Banahaladi	*Curcuma aromatica*	Zingiberacea	109	0.2725
31	Herbs	Banakhajuri	*Phoenix acaulis*	Arecaceae	11	0.0275
32	Herbs	Banatulasi	*Ocimumgratissimum*	Lamiaceae	109	0.2725
33	Herbs	Bena	*Vetiveriazizanoides*	Poaceae	116	0.29
34	Herbs	Bhuinnimba	*Ardrographispaniculata*	Acantaceae	1035	2.5875
35	Herbs	Chana	*Crotolariapallida*	Fabaceae	159	0.3975
36	Herbs	Indrajala	*Lygodiumflexuosum*	Lygodiaceae	18	0.045
37	Herbs	Iswarjata	*Urarialogopoides*	Fabaceae	17	0.0425
38	Herbs	Kaincha	*Abrusprecatorius*	Fabaceae	31	0.0775
39	Herbs	Kolathia	*Tephrosiavilosa*	Fabaceae	102	0.255
40	Herbs	Nandabaguli	*Ocimumbasilicum*	Lamiaceae	25	0.0625
41	Herbs	Talamuli	*Curculigoorchidoies*	Liliaceae	77	0.1925
42	Climbers	Atundi	*Combretumdecandrum*	combretaceae	2959	7.3975
43	Climbers	Baidanka	*Mucunapruriens*	Fabaceae	26	0.065
44	Climbers	Chemirinoi	*Hemidesmusindicus*	Asclepiadaceae	1189	2.9725
45	Climbers	Gila	*Caesalpiniadigyna*	Caesalpiniaceae	34	0.085
46	Climbers	Kaincha	*Abrusprecatorius*	Fabaceae	82	0.205
47	Climbers	Kolathia	*Tephrosiavilosa*	Fabaceae	87	0.2175
48	Climbers	Nirmuli	*Cuscutareflexa*	Convulvulaceae	23	0.0575
49	Climbers	Palasa	*Bueteamonosperma*	Fabaceae	22	0.055
50	Climbers	Satabari	*Asparagus racemosus*	liliaceae	361	0.9025
51	Climbers	Siali	*Bauhinia vahilli*	Fabaceae	270	0.675
52	Climbers	Suamnai	*Ichnocarpusfrutescens*	Apocynaceae	2539	6.3475

7.4.6.Critical Analysis:-

The NTFP has not yet earned its due importance in this division. Besides Kendu leaf, Bamboo, Sal leaf, the potential of other species has not yet been documented. Collection procedure, extent of natural regeneration, training to primary gatherer on harvesting, processing, storing and market intelligence is required to be systematically handled by forest department. Insitu, ex-situ conservation is much needed to spread the actual potential of these items. Regular feedback from local user is required. Destructive collection procedure has already cast its effect on plant population. Moisture stress has reduced the flowering / fruiting ratio to a great extent. Hardly 1% of flower grows to fruit and 50% of the fruit reaches ripening condition. Plants, those are propagated through seeds are becoming rear. Due to Grazing and fire, NTFP of annual nature are losing their vitality. Rhizome, root shockersfind difficult in establishing themselvesdue to hardness of soil and lack of humus layer on ground. The objective set out in the Plan has not been achieved to a desirable level

7.4.7. Focus Species of Locality:-

The removal of important NTFP, except sal leaf has not been assessed during the outgoing plan. Sal leaf collection, processing to leaf plates/cups and its marketing has reached above Rs. 5 crore business per year from Athagarh Forest Division. Mahua flowers and kendu leaves are other major sources of income of local population. Species requiring focused attention for processing, value addition and marketing during the plan period on priority basis locality wise are given in the table below:

Table No.8

Focus Species of Locality

Sl. No.	Name of the NTFP item	Locality	Name of the Range
1	Siali Leaves	Entire Division	Entire Division
2	Sal Leaves	Entire Division	Entire Division
3	Harida/Bahada/Amla	Entire Division	Entire Division
4	Amla	Entire Division	Entire Division
5	Mohua Seeds and Mohua Flowers	Entire Division	Entire Division
6	Neem Seeds	Entire Division	Entire Division
7	Char Seeds	Entire Division	Entire Division
8	Karanja Seeds	Entire Division	Entire Division
9	Kusum	Entire Division	Entire Division

7.5. Demand and Supply of Timber and Important Non-Timber Forest Produce:-

The demand and supply of non-timber forest produce has not been assessed in the outgoing plan. During the plan period, the Odisha Forest Development Corporation Ltd has supplied timber to the local peoples at a concessional rate for their domestic use.

Table No.9

Collection and Marketing of Different NTFP Products in Athagrah Division (Data Collected from NTFP Survey during the year 2005-06)

Sl No	NTFP category	Collection of NTFP (in Qtls)	No. of People Involved	Mandays Generated	Amount Paid
1	Sal seeds	454	--	2952	147605
2	Suam Creeper	500	114	2727	150000
3	Atundi Creeper	750	20	1909	105000
4	Katha Chhatu	17	30	185	10200
5	Asan Fruit	6	30	27	1500
6	Kangad Fruit	6	20	87	4800
7	Kendu Leaf	813.6	1560	17939	941779.65

7.6. Import and Export of wood and wood products:-

The import and export of wood and wood products are timber and firewood only. There is no any authorize factories exists in this division for production wood product.

7.7. Import and Export of NTFPs:-

Mahua flower, bamboo, medicinal herb products, sal seed, char seeds are sometimes taken outside the state in small quantities.

7.8. Removal of Fodder:-

Stall feeding of cattle and goats is done in rare cases by collecting branches of trees from nearby trees / forest.

7.9. Valuation of the Products:-

The valuation of the forest product has not been calculated in the outgoing plan. This will be calculated from the royalty assessed for timber and fire wood from OFDC, Ltd.

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 Committee Area(s) Protected by Them:-

JFM overlapping Working Circle was constituted with the special objective to involve local communities in Forest and Natural Resources Management and make equal partners in forest protection with the forest department. The forest under this overlapping Working Circle was managed through micro-plans prepared by the village committees in consonance with the prescriptions of the main Working Circle to which the forest block was allotted. At present 146 numbers of VSS covering an area of 12200.362ha exists in this Division.The details of VSS list is given in the Annexure.

8.2. Status of Empowerment ofJFMCs:-

Out of the 146 VSS constituted, 102 VSS have been brought under AthgarhForest Development Agency. They have been funded from the Forest Development Agency (FDA) fund of Divisional Forest Office, Athgarh for taking up different developmental activities in their VSS. Every year the General Body Meeting of the FDA is conducted in the Athagarh Forest Division at different places. The members of FDA have been empowered with the objectives of forest management and they have participated in the election of the executive committee.

8.3. Labour Welfare:-

Regular health camps are organized in the fringe villages affected by diseases mainly Malaria by the forest department. The local youths are engaged in anti- smuggling squad, anti-depredation squad and firefighting squad. The local people are also engaged in different forestry activities and due wages are paid to them.

8.4. Use of Indigenous Knowledge:-

The indigenous traditional knowledge of the local people has not been documented properly. Mostly the local people use to manage their livelihood through agriculture and maintain their indigenous live with their prevailing knowledge system. They inherit the knowledge in different sphere of their livelihood from their ancestors. The rural tribal populations, women and economically backward communities are mostly dependant on such indigenous knowledge for their day today livelihood option.

The indigenous knowledge found in the memories of the people and expressed from different stories, songs, dance, beliefs, local language are being implemented in the field of social activities needs to be gathered an accumulate collect information and make documentation of the same for future generation. The Divisional Forest Officer Athgarh Forest Division is advised to prepare documentation of use of indigenous knowledge.

8.5. Extent of Cultural / Sacred Groves:-

AtagarhForest Division has a large population of Santal tribes who worship their deities in sacred groves, present in their villages. The people strictly protect the trees within sacred groves as they believe that God and their associates used to stay in the trees. Cultural and sacred groves have been identified during preparation of Working Plan and interventions have been made to manage and conserve those groves in the Division. The sacred groves of this division is given in the table below.

Table No.01

Extent of Cultural / Sacred Groves

Sl. No	Name of the Sacred Groves	Name of the place	GPS Reading
1	Kala Bauti Temple	Inside Subasi RF	N-20^0 32' 47.33'' E-85^0 44' 36.50''
2	Kali Temple	Inside Subasi RF	N-20^0 32' 56.37'' E-85^0 44' 19.02''
3	Tarini Temple	Inside Jenapada RF	N-20^{0}29' 5.74'' E-85^{0}33' 17.06''
4	Radha Krushna Temple	Inside Jenapada RF	N-20^0 29' 17.98'' E-85^0 33' 10.39''
5	Bauti Mandira	Inside Baudabanakhandi RF	N-20^0 29' 45.54'' E-85^0 39' 36.02''
6	Girigobardhan Temple	Inside Oringa RF	N-20^0 31' 46.94'' E-85^0 41' 52.97''
7	Maa Machhadebi Temple	Inside Khalakhala RF	N-20^{0}29' 4.18'' E-85^0 42' 12.56''
8	Maa AndharaGharaBauti Temple	Inside Subasi RF	N-20^0 33' 18.25'' E-85^0 43' 48.61''
9	Bauti Mandira	Inside Adala RF	N-20^0 33' 25.84'' E-85^0 40' 12.16''
10	Bana Durga Temple	Inside Ranibania RF	N-20^0 32' 56.48'' E-85^0 40' 38.68''
11	Tareswar Mahadev Temple	Inside Subasi RF	N-20^0 33' 25.09'' E-85^0 44' 51.13''
12	Maa Khara KanjeniPitha	Inside Subasi RF	N-20^0 33' 22.52'' E-85^0 44' 22.30''
13	Hanuman Temple	Inside Subasi RF	N-20^0 32' 9.32'' E-85^0 44' 10.15''

14	Maa Bankamundi	Near Village Galuamada	N-20^0 28' 26.4'' E-85^0 21' 18.8''
15	BudhideiThakurani	Near Village Budhapanka	N-20^0 29' 26.8'' E-85^0 26' 0.6''
16	Karada Girigobardhan Pahad	Near Karada MIP	N-20^0 28' 24.6'' E-85^0 23' 51.4''
17	Budhha Vihara	Near Village Maniabandha	N-20^0 42' 38.22'' E-85^0 42' 05.37''
18	ShyamakaliPitha	Near Dhobaninala	N-20.469158 E-85.447324
19	Maa Bankamundi	Near Village Aranda	N-20^0 28' 24.1'' E-85^0 18' 54.9''

8.5.1. The Chapter on Eco-tourism has been revised as follows:

Sl. No	Name of the Eco-tourism Site	Nearby Village	Beat	Range	Nearby RF
1	Dianjhar waterfall	Deobhuin	Deobhuin	Narasinghpur East	DeobhuinRF , Olab RF
2	Dabarkhola Waterfall	Olab	Olab	-do-	Olab RF
3	Ansupa Lake	Saranda	Saranda	Athgarh	Saranda PRF
4	ChampadeiThakurani	Baghera	Kandarpur	Athgarh	Outside Forest

However no specific study has been conducted by Forest Department to ascertain carrying capacity of Tourist spots mentioned above. In light of observation mode a details study on carrying capacity of important eco-tourism spot, infrastructure available, tourist amenities, safety audit, measures to ensure safety of tourists, nature education and interpretation component eco-tourism need to be developed, which will be taken up in collaboration with tourist department. Whatever development will be taken up, it will be within the frame work of Forest (Conservation) Act, 1980. The information in these suggested aspect will be generated and the study and findings will be intimated to MOEF & C.C, FRO, Bhubaneswar in due course.

8.6. Ecotourism Areas and Activities:-

The following Eco-tourism areas have been identified in this Division adjoining to the forest area, where tourists visit. Ansupa Eco-tourism project is situated in Saranda PRF adjoining to river Mahanadi. The extent of area of Ansupa Eco-tourism project is extended over area of 25.00 hectare. The extent of area Ansupalake is 153.78 hectare.

8.7. Social Customs:-

The local people in the fringe villages worship different places in the forest and outside the forest as the places of different Goddess and worship in different seasons.The details are given below.

Table No.02				
Social Customs				
Sl. No	Name	Name of the Community	Name of the Place	Period
01	Durga Puja	All	Athgarh Forest Division	October
02	Ratha Yatra	All	Athgarh Forest Division	July
03	KHANDA PUJA	Kandha	PragalaPithain Narasinghpur	March
04	Bareni	Munda	Bhagua in Khuntuni	August
05	Bana Durga Puja	Munda	Krushnapur&Bhagua in Khuntuni	February and March
06	Jhamu	All	Athgarh Forest Division	April

8.8. Status of Compliance of Forest Right Act, 2006 (FRA):-

After implementation of Forest Rights Act, 2006 the following number of titles have been issued to the individual forest dwellers. In this Division pata has not been given to OTFD.

Table No. 03				
Status of Implementation of Forest Rights Act, 2006 (ST only)				
Sl. No.	Name of Item	Individual	Community	Total
1	Claims filed at Gram Sabha Level	4588	57	4645
2	Claims Recommended by Gram Sabha to SDLC	1955	56	2011
3	Claims Recommended by SDLC to DLC	1373	07	1380
4	Claims approved by DLC for Titles	1277	03	1280
5	Titles Distributed	1270	03	1273
6	Extent of forest land for which Titles Distributed	404.14	2.95	407.09
7	Claims Rejected	3318	54	3372
Sources: Divisional Forest Officer, Athgarh Forest Division.				

8.9. Other Rights and Concessions:-

No right was admitted in the R.Fs. in AthagarhForest Division. After reorganization of the Forest Department, the position remains the same. Certain rights were granted by the Government for sanctions of relief in distress conditions vide letter no. 71057 dt.2.12.72 of Revenue Department, Government of Orissa in the protected Forests, (Khesra Forest or un-Reserved Forests). Concessions were also granted by the Government 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. Earlier during the princely rule, the rights and concessions were granted to the people in accordance with the provisions contained in section-59 to 74 of Athagarh Forest manual published during year 1911. After the merger in the State of Odisha it was governed by the guidelines prescribed by Govt. of Odisha. At present there is no record of any specific rights and concessions or privileges granted to be exercised by any individual village or group of villages over any specific area of forest. This becomes defunct in view of depletion, degradation and disappearance of forest growth of the area, over which those rights were being exercised. As a result of enjoyment of rights, privileges and concessions of over growing population of these villages, over limited forests, most of the protected forests have been depleted and disappeared. Consequently, plain reserve forests suffered the burden of rights, concessions and privileges as protected forests began to become degraded.

8.9.1. Plain Forest:-

The plain forests are now in a very bad state of impoverishment and most of them warrant rehabilitation. A large chunk of Revenue forests have been cleared for extensive agriculture and for grant of land to landless. No rights and concessions have been suggested in the outgoing working plan. Hence, there is no proposal for such right and concession in the current revision. However in order to meet the local needs vis-a-vis enhancement of productivity of forest, efficient development of depleted and degraded forest and effective resource management, Government of Orissa in Forest and Environment Department have formulated the guideline, vide JFM resolution, 2011. The ST and OTFD (RoFR) Act – 2006 has directed recognition of individual & community rights linked with duties for protection of Forests. In addition, 69 items of Non-Timber Forest Produce (NTFP) have been allowed to be collected and marketed as per the guideline laid out vide Govt. notification No.5503/ F&E dated 31st March, 2000 and it is regulated through Panchayati Raj Department.

8.9.2. Concession for Collection of Sal Leaves:-

Sal leaves are usually collected by the women for leaf plates (Khali) and leaf cups (Chauti). These products after processing in machine finds way to the local and outside consumption points on commercial basis. The Government of Odisha has also formulated guideline to regulate the collection and disposal of products.

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 and sell to the middle men. The Sal leaf collection and processing is a cottage industry in Athagarh Forest Division. Sal leaf plates and cups are exported to major cities of India.Mahua flower, mahua seed, char seed, kendu leaves use to give substantial income to local tribal population.

8.11. Other Aspects:-

Athagarh Forest Division is famous for production of bamboo in recorded holding plots and notified forest area.About 52.00 truckloads of bamboo are transported to various places from Athagarh Forest Division annually. Various bamboo crafts centers are present in rural areas, where, bed, sofa, chair and small house hold articles are produced out of bamboo and are marketed. The quantum of bamboo grown in private areas and quantum of whole bamboo or bamboo products marketed will be assessed by Divisional Forest Officer.

8.12. The employment detail of labour welfare data i.e supply of LPG Gas, Unnat Chullah, Solar Light, Gobara Gas etc. are given below.

Supply of LPG Gas, Unnat Chullah & Solar Light System				
Year	Scheme	Activity	Quantity	Location
2016-17	NAP- FDA	Distribution of Kitchen utensils	6	Athgarh
			6	Khuntuni
			6	Badamba
			6	Narasinghpur East
			6	Narasinghpur West
2017-18	NAP- FDA	LPG Gas with Chullah	5	Athgarh
			5	Khuntuni
			5	Badamba
			5	Narasinghpur East
			5	Narasinghpur West
2019-20	NAP- FDA	Distribution of Kitchen utensils	2	Athgarh
			2	Khuntuni
			2	Badamba
			2	Narasinghpur East
			2	Narasinghpur West
2021-22	Management of Elephant Corridor	Installation of Solar Light	06	Kulailo

2021-22	Management of Elephant Corridor	Installation of Solar Light	01	AthgarhCharigharia
2021-22	Management of Elephant Corridor	Installation of Solar Light	01	AthgarhRajangar
2021-22	Management of Elephant Corridor	Installation of Solar Light	02	Athgarh Megha
2021-22	Management of Elephant Corridor	Installation of Solar Light	04	AthgarhTigiria
2021-22	Management of Elephant Corridor	Installation of Solar Light	01	Khuntuni Adala
2021-22	Management of Elephant Corridor	Installation of Solar Light	01	KhuntuniGurudijhatia
2021-22	Management of Elephant Corridor	Installation of Solar Light	02	KhuntuniOranda
2021-22	Management of Elephant Corridor	Installation of Solar Light	01	KhuntuniNuapatana
2021-22	Management of Elephant Corridor	Installation of Solar Light	03	BrahmanbastaKhuntuni
2021-22	Management of Elephant Corridor	Installation of Solar Light	02	BhoguaKhuntuni
2021-22	Management of Elephant Corridor	Installation of Solar Light	01	BarasinghaNarasinghpur West
2021-22	Management of Elephant Corridor	Installation of Solar Light	02	MitikapurNarasinghpur West
2021-22	Management of Elephant Corridor	Installation of Solar Light	02	BadabhuinNarasinghpur West
2021-22	Management of Elephant Corridor	Installation of Solar Light	02	KholaNarasinghpur West
2021-22	Management of Elephant Corridor	Installation of Solar Light	01	JaypurNarasinghpur West
2021-22	Management of Elephant Corridor	Installation of Solar Light	01	DalakNarasinghpur East
2021-22	Management of Elephant Corridor	Installation of Solar Light	01	GuptamanikaNarasinghpur East
2021-22	Management of Elephant Corridor	Installation of Solar Light	01	JadapadaNarasinghpur East
2021-22	Management of Elephant Corridor	Installation of Solar Light	01	KharwaniNarasinghpur East
2021-22	Management of Elephant Corridor	Installation of Solar Light	01	KandhadeobhuinNarasinghpur East
2021-22	Management of Elephant Corridor	Installation of Solar Light	01	NuagarhNarasinghpur East
2021-22	Management of Elephant Corridor	Installation of Solar Light	01	Brahmani Narasinghpur East

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 forests of this Division were managed under the prescription of revised Working plan of the erstwhile State of Athagarhby Smt. Uma Nanduri, IFS, Working Plans Officer, Angul from 2007-08 to 2016-17. ANR, SMC activities are being taken up in the coupes of Rehabilitation Working Circle. Plantation of tree species have been taken up within and outside the Plantation (Over Lapping) Working Circle areas.

9.2. Status of Approved Working Plan and Compliance:-

The summary of prescription of the approved Working Plan is furnished in part 2 of old plan. For deviations made in the working of Timber coupes and implementation of plantation activity in the forest area outside the prescribed area, the Divisional Forest Officer is requested to submit proposal to the Principal Chief Conservator of Forests through Regional Chief Conservator of Forests.

9.3. Number of Forest Offences:-

The total number of 11879 offence cases have been booked and 481 numbers of offenders were arrested for prosecution cases during the outgoing plan period i.e. from 2007-08 to 2016-17. The details of the forest offence cases are furnished in the table below.

Table No.1

Offence Cases in Athgarh Forest Division

Athgarh Range				
Year	UD Case	OR Case	Total	No. of person arrested
2007-08	20	85	105	9
2008-09	31	78	109	15
2009-10	35	90	125	8
2010-11	21	62	83	9
2011-12	18	39	57	3
2012-13	31	74	105	14
2013-14	22	30	52	18
2014-15	10	32	42	7

2015-16	28	63	91	8
2016-17	24	34	58	16
Total	307	807	1114	130
Khuntuni Range				
2007-08	91	161	252	15
2008-09	70	252	322	5
2009-10	100	110	210	1
2010-11	65	108	173	14
2011-12	49	67	116	0
2012-13	51	93	144	13
2013-14	50	182	232	2
2014-15	58	146	204	6
2015-16	49	88	137	5
2016-17	26	62	88	1
2017-18	23	44	67	1
2018-19	46	80	126	2
2019-20	27	62	89	26
Total	705	1455	2160	91
Badamba Range				
2007-08	39	404	443	0
2008-09	26	420	446	4
2009-10	27	318	345	0
2010-11	18	345	363	10
2011-12	26	337	363	2
2012-13	53	263	316	33
2013-14	17	203	220	7
2014-15	22	192	214	7
2015-16	25	234	259	3
2016-17	11	184	195	0
2017-18	32	157	189	3
2018-19	30	105	135	2
2019-20	38	103	141	8
Total	364	3265	3629	79
Narasinghpur East				
2007-08	214	612	826	62
2008-09	106	620	726	8
2009-10	100	370	470	0
2010-11	97	226	323	11
2011-12	68	102	170	25
2012-13	63	109	172	33
2013-14	30	82	112	5
2014-15	23	86	109	12
2015-16	25	65	90	2
2016-17	36	75	111	8
2017-18	54	62	116	0
2018-19	44	56	100	6
2019-20	23	77	100	0
Total	883	2542	3425	172

Narasinghpur West				
2007-08	67	11	78	0
2008-09	48	14	62	0
2009-10	39	267	306	0
2010-11	30	231	261	0
2011-12	13	122	135	2
2012-13	19	136	155	1
2013-14	23	72	95	0
2014-15	37	90	127	4
2015-16	17	27	44	0
2016-17	20	70	90	1
2017-18	26	41	67	0
2018-19	27	27	54	1
2019-20	22	55	77	0
Total	388	1163	1551	9

9.4. Status of Research and Development:-

The Silvicultural Division, Bhubaneswar has not created preservation plots and seed collection plots to study the growth of trees in this division. However in the current plan proposal has been given for research plot.

9.5. Human Resources Capacity Building Efforts:-

The field staffs of this Division are deputed to forestry Schools and Colleges to receive up-to-date management technology for the management of this Division. Besides this various capacity building workshops and meetings are held to build up capacities of field staff in the forest management. Human resource and capacity building i.e., to train at least two-third of the staff, will be planned out in the current plan period of Athagarh Forest Division.The Human Resource capacity building training programmeshas not been organized at Divisional Level.

9.6. Forest Resource Accounting:-

Timber productions from the coupes of Improvement Working Circle have an increasing trend. The density of forest under joint forest management has also in an 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 sample plots in fully stocked forests will be marked for measuring the carbon stock during the Plan period. There is no any record available for tangible and intangible benefits in Athgarh Forest Division.

9.7. Budgetary Allocation to the Forestry Sector:-

The budgetary allocation of fund has been increased during the plan period after the allocation of fund for Forestry in 13th Finance commission grant and CAMPA fund. The details of budgetary allocation during the outgoing plan period are given below.

Table No.2

Allotment and Expenditure of Athgarh Forest Division

Year	Head of Account	Allotment	Expenditure incurred
2007-08	Non Plan	1938713	1938713
	State Plan	567589	567589
2008-09	Non Plan	6715632	6715632
	State Plan	3948700	3948700
	CAMPA	--	--
2009-10	Non Plan	4969783	4969783
	State Plan	3249460	3249460
	CAMPA-APO	22327882	22327882
2010-11	Non Plan	2479127	2479127
	State Plan	7685296	7685296
	CAMPA-APO	26446000	24106388
2011-12	Non Plan	3391220	3391220
	State Plan	10191830	10191830
	CAMPA-APO	21718000	18730626
2012-13	Non Plan	3802975	3802975
	State Plan	29488990	29488990
	CAMPA-APO	28597000	25669900
2013-14	Non Plan	28669860	28669860
	State Plan	32445776	32445776
	CAMPA-APO	42720000	42145000
2015-16	Non Plan	3068000	3068000
	State Plan	43488903	43488903
	CAMPA-APO	82624000	79859513
2016-17	Non-plan	2892000	2892000
	State Plan	19246537	19246537
	N.A.P	2537263	2537263
	CAMPA (General& WL)	96092316	91723761
2017-18	Programme Expenditure	10496393	10496393
	Administrative Expenditure	2120044	2120044
	Central Sponsored Scheme	8270630	8270630
	N.A.P	262237	262237
	CAMPA (General)	54949000	43852552
	CAMPA (WL)	16367842	15552705
2018-19	Programme Expenditure	25501324	25501324
	Administrative Expenditure	3425000	3425000
	Central Sponsored Scheme	665250	665250
	Wildlife Protection (Programme Exp.)	3506620	3506620

	Wildlife Protection (Admin. Exp.)	884240	884240
	Management of Elephant	6196960	6196960
	N.A.P	4354220	4354220
	CAMPA (General & WL)	80803000	63608375
2019-20	Programme Expenditure	18347332	16534975
	Administrative Expenditure	2835000	2835000
	Central Sponsored Scheme	913000	913000
	Wildlife Protection	3230200	3230200
	Management of Elephant	10128020	10128020
	Satkosia Tiger Reserve	8058800	8058800
	N.A.P	8140212	8140212
	CAMPA (General)	62975000	58424966
	CAMPA (WL)	11835000	11835000

9.8. Existence of Monitoring Assessment & Reporting Mechanism:-

Parameters of monitoring and evaluation of the prescriptions of the Working Plan is provided as Control Forms in the prepared plan. As the sample plot enumeration of 0.1ha. area has been carried out in fixed points as per Geo Co-ordinates during the preparation of the plan, the details of growing stock will be calculated for each compartment of the Forest blocks. The removal of forest produce, the regeneration activities including the plantations in the compartment will be maintained and monitored in different intervals of years.

9.9. Public Awareness and Education:-

Public discussions will be organized in the Division level and Range level to explain the impact of Global Warming due to emission of Green House Gas & role of forest in reducing its impact. The increasing frequency of flood and drought due to heavy and irregular rainfall has occurred resulting in heavy loss of life and property. The conservation of forest can mitigate the emission of Green House Gas and check the irregular rain fall. Eco-clubs should be encouraged in different schools and colleges of the Division. The students should be motivated to create awareness among the local people about the impact of forest in the mitigation of effect of climate change.The public awareness and education has been organized in this division the details is given below.

Table No.3			
Awareness and Co-ordination Meeting in Athgarh Forest Division			
Sl. No	Date	Topic	Number of Participants
01	01.12.2012	Executive Body & General Body Meeting under Forest Development Agency	40
02	19.11.2014	General Body Meeting of State Forest Development Agency	70
03	28.02.2015	General Body Meeting & Executive Body meeting to be conducted under Forest Development Agency, Athgarh	13
04	22.04.2015	General Body Meeting & Executive Body meeting to be conducted under Forest Development Agency, Athgarh	39
05	29.05.2015	General Body Meeting & Executive Body meeting to be conducted under Forest Development Agency, Athgarh	09
06	26.12.2015	4th General Body Meeting of State Forest Development Agency.	20
07	18.01.2016	Minutes of the Proceeding of Review meeting.	22
08	20.02.2016	Review Meeting under FDA	25
09	16.03.2016	5th General Body meeting & Executive Body Meeting under FDA	20
10	17.02.2017	5th General Body meeting & Executive Body Meeting under FDA	15
11	03.05.2018	General Body Meeting & Executive Body meeting to be conducted under Forest Development Agency, Athgarh	20
12	28.05.2019	7th General Body and Executive Body Meeting under Forest Development Agency	25
13	07.03.2020	Prevent death of elephant due to train accident, Co-ordination meeting between Forest and Railway Department.	05
14	09.03.2021	Issue on strengthening of electrical infrastructure to prevent death of elephants Co-ordination meeting between Forest and Electrical Department.	12
15	07.10.2021	Causality of elephants on account of electrocution Co-ordination meeting between Forest and Energy Department.	33
16	07.10.2021	Causality of elephants on account of electrocution Co-ordination meeting between Forest and Energy Department.	10
17	06.12.2021	Causality of elephants on account of electrocution Co-ordination meeting between Forest and Energy Department.	16
18	06.11.2021	Prevent death of elephant due to train accident, Co-ordination meeting between Forest and Railway Department.	05
19	04.01.2022	Prevent death of elephant due to train accident, Co-ordination meeting between Forest and Railway Department.	08
20	09.02.2022	Prevent death of elephant due to train accident, Co-ordination meeting between Forest and Railway Department.	07
21	09.02.2022	Causality of elephants on account of electrocution Co-ordination meeting between Forest and Energy Department.	10
22	23.05.2022	Issue for discussion with Energy Department to reduce man elephant conflict.	16

9.9.1. Different training organized in Athgarh Forest Division:-

Table No.4				
Different training organized in Athgarh Forest Division				
Sl. No	Financial Year	No. of Training	Name of the Training	Amount spent
1	2013-14	04 Nos.	Theme based training Division level	89800
2	-do-	10 Nos.	Theme based training Range level	130000
3	2014-15	01 No.	Publicity and training etc.	15000
4	-do-	02 Nos.	Divisional level training (Arm)	10000
5	-do-	02 Nos.	Divisional level training (Computer)	20000
6	-do-	05 Nos.	Range level training (Law)	75000
7	-do-	05 Nos.	Range level training (Forestry operation)	90000
8	-do-	05 Nos.	Conservation and Protection	95000
9	2015-16	01 No.	Training and Capacity Building	4450
10	2016-17	01 No.	Training and Capacity Building	50000
11	-do-	02 Nos.	Training to personnel for fire fighting	15000
12	2017-18	01 No.	Training to personnel for fire fighting	15000
13	2020-21	01 No.	Fire training	60000
14	-do-	01 No.	Publicity Awareness training and capacity building ect/	61400
15	2021-22	01 No.	Law training	50000
16	-do-	01 No.	Fire training	50000
17	-do-	01 No.	Plantation training	50000
18	-do-	01 No.	Wildlife Crime Control	50000

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. The details of sanctioned strength of all staff and vacancy position of the Division are given in Appendix. Besides the permanent staff, Temporary and Contractual staffs, daily wage staff in anti-smuggling squads, anti-depredation squad and nursery watchers have been engaged.The daily wage staffs are getting wages @Rs. 308/- per day on monthly basis. The labour rate for last plan period i.e from 2007-08 to 2016-17 is given below.

Table No.5

Rate of Wages of all category of labour

Category of labour	Rate of wages per day as per notification in Rs.										
	1976	**1981**	**1990**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2012**	**2013**
Unskilled	4.0	6.0	25.0	30.0	32.5	40.0	50.0	52.5	55.0	90.00	150.00
Semi-skilled	5.0	7.5	30.0	36.0	38.5	48.0	60.0	62.5	65.0	103.00	170.00
Skilled	7.5	10.0	40.0	48.0	44.5	56.0	70.0	72.5	75.0	116.00	190.00
Highly skilled	8.0	12.5	40.0	48.0	50.0	64.0	80.0	82.5	85.0	129.00	205.00

Sources - Works Department.

Rate of Wages of all category of labour

Category of labour	**Rate of wages per day as per notification in Rs.**						
	2015	**2016**	**2017**	**2018(As on dt.01.04.2018)**	**2018(As on dt.30.10.2018)**	**2019 (As on dt.01.04.2019)**	**2019 (As on dt.01.10.2019)**
Unskilled	200.00	207.20	213.50	224.30	280.00	286.30	298.00
Semi-skilled	220.00	217.20	233.50	244.30	320.00	326.30	338.00
Skilled	240.00	247.20	253.50	264.30	370.00	376.30	388.00
Highly skilled	260.00	267.20	273.50	284.30	430.00	436.30	448.00

Sources - Works Department.

Rate of Wages of all category of labour

Category of labour	**Rate of wages per day as per notification in Rs.**				
	2020 (As on dt.01.04.2020)	**2020 (As on dt.01.10.2020)**	**2021 (As on dt.01.04.2021)**	**2021 (As on dt.01.10.2021)**	**2022 (As on dt.01.04.2022)**
Unskilled	303.40	308.00	311.00	315.00	326.00
Semi-skilled	343.40	348.00	351.00	355.00	366.00
Skilled	393.40	398.00	401.00	405.00	416.00
Highly skilled	453.40	458.00	461.00	465.00	476.00

Sources - Works Department.

CHAPTER –10

Five Year Plans

10. Five Year Plans

10.1. General View:

10.1.1. Plan Outlay of the Country:-

After Independence, the first five years Plan had been started from the year 1951. As per the outlay in different Plan period, the investment made was to improve the condition of livelihood needs of the people. In every Plan period, the financial allocation in forestry sector is less than 1 % of the total outlay of the country. Rs.85.00 -13824 has been spent in the forestry sector from first to eight five years Plan. Where as financial allocation in first five years Plan to eight years Plan has been increased from Rs.76.00 million to Rs.40820.00 million respectively.

10.1.2. Forestry Sector:-

The investment made in the forestry sector is always linked with the livelihood needs of the people. It requires a long gestation period to receive the outputs from the forestry sector. Always it is not possible to calculate the benefit in monetary term. However, the pressure on the forest is increasing in day by day. Therefore the combined effect of high demand and less financial allocation in every five years Plan period resulted in continuous deterioration of forest resources.

10.1.3. Five Year Plan Period:-

The details of each Plan period in forestry sector are given in the table below.

Table No. 1

Five year Plan Period

Plan's No.	Year of plans	Main objects of the plan periods	Exp'ture in million Rs.
1	1951-52 to 1955-56	In this period the focus was on the rehabilitate of degraded forest and planting of economically important species.	85.00
2	1956-57 to 1960-61	In the second plan period the focus was on the rehabilitate of the degraded forest, planting of valuable trees and the stress was also on the conservation of Wild Life.	212.00
3	1961-62 to 1965-66	This plan laid special emphasis on measure to meet the long-term requirement of the country. This ensured more economical utilization of the natural resources. The main aim was to increase the out put from the existing forest through improve techniques of timber extraction and popularizing the minimum use of timber after seasoning and preservative	459.00

		treatment. Several schemes implemented in this period were oriented towards attending self-sufficiency in industrial timber, fuel wood and other forest products. A new centrally sponsored scheme "Plantation of Quick Growing Species'' was introduced. Improved logging tools have been used to reduce wastage of timber. Training of Forest Officers, Lessees and Forest Contractor in logging and efficiency study were started with the assistance of United Nation special fund.	
Annual	1966-67 to 1968-69	In this period three annual plans year have been implemented, where specific emphasis was laid on plantation of quick growing species, plantation technique and modernizing harvesting.	421.00
4	1969-70 to 1973-74	In this plan period, there were mainly three main objectives such as (i) To increase the productivity of forests. (ii) To link up forestry development with various forests based industries. (iii) To develop forests as a support to rural economy. Emphasis was laid on measurers to meet the immediate and long-term agricultural and industrial requirements. Further efforts were made at creating large-scale plantations of valuable quick growing species and species of economic and industrial Importance. Concerted efforts at regenerating areas, where forest produce was removed for industrial uses, were taken. The object was to achieve save sufficiency in forest products as early as possible, specially for major forest based industries such as pulp, paper, news print, wood panel products and matches so that the import of these items may be replaced and some sizeable exports of pulp of wood panel products built up. In the last two years of the Plan period, several important developments have taken place like promulgation of Wild Life (protection) Act, 1972 and lunching of Project Tiger in 1973.	938.00
5	1974-75 to 1978-79	In this Plan period the main objectives were to take up a dynamic programme of production forestry, aiming at clear felling and creating large scale man made forests with the help of institutional financing and to develop farm forestry, improve degraded forests so as to increase the fuel and timber supply in the rural areas. A network of State Forest Corporations is proposed to crate for the establishment and management of main made forest and forest based industries. Special efforts were	2088.00

		proposed to made to prepare a number of projects in various States, for immediate and long term benefits in term of increased row materials for industries and additional revenues a different levels of investment.	
Annual	1979-80	In this period only one annual plan have been implemented, where emphasis was laid on plantation for rehabilitation of degraded forest.	683.00
6	1980-81 to 1984-85	In this Plan period, the objective was to increase the productivity through proper land and water management, preservation of genetic diversity for the management of the ecosystem and further sustainable utilization of the resources, this helps in a big way for the future survival and development of the people. The necessity for constitution of Biosphere Reserve was also felt.	6924.00
7	1985-86 to 1989-90	In this Plan period the main objectives were to restore the degraded eco-system through proper field schemes, such as land reclamation, forestation, cleaning of water bodies, Research and Training etc. The programme is also geared towards arresting for the damage to ecosystem and the promotion of a conservation based development strategy. It was decided to lay emphasis on the Research and Training aspects also, hence the Botanical Survey of India (BSI), Zoological Survey of India (ZSI) are re-oriented to deal with the lower forms of the like fungi, bacterial invertebrates etc. Man and Biosphere Programme were also oriented towards the ecosystem development. Implementation of the Biosphere Reserve Programme will start in the Seventh Plan with the Department of Environment acting as the nodal agency. The conservation programmes in the Reserves will be supplemented by strong component of research studies on the living and non-living resources, rare and endangered species, socio economic interactions with local /surrounding populations and ethno biological relationship. Eco-development programme like restoration of already degraded ecosystems through practical field schemes such as land reclamation, forestation, cleaning of water bodies etc. would be strengthened in this Plan period.	19759.00

Annual	1990-91 to 1991-92	In this period, the main objectives were to protect the environment, increase productivity, generate employments. Emphasis has been given for plantation in degraded area.	12917.00
8	1992-93 to 1996-97	In this Plan period, the main objectives were to protect the environment, increase productivity, formulate a national policy for environment, make individual and institutions more accountable, regenerate restore degraded ecosystems and increase their productivity and to generate employment through these activities, to decentralize control over nature and natural resources, to develop and share an understanding nature and natural processes, to formulate a national policy for environment an appropriate institutional and legal frame work in support of the policy, to ensure coordinated and integrated Governmental action aimed at conserving nature and sustainable use of natural resources, to make individuals and institutions more accountable to the people for their actions impinging on environment and ecosystem. Further National Park and Sanctuaries would be strengthened. Stress will also be laid on eco-development, especially around protected areas, so that the human population in these areas is not deprived of the basic life support resources and continue to participate in the protection of the environment.	39930.00
9	1997-98 to 2001-02	In this Plan period the main objectives were to empower the people through information generation, involve the industry in both the private and the public sector, involve the right for common property resources, inter-sector co-operation, ensure scientific and technological inputs, participation of people in the forest management through joint forest management, involvement of non Government organization for awareness building etc. The main emphasis is to be given to the participation of people in the management and sharing of usufruct through Joint Forest Management. The involvement of NGOs is also sought for building awareness and acting as an interface. The priority is also to be given to development of villages in and around of the forest areas. It is also decided to take up the survey and demarcation of existing forest area. Efforts will be made to take advantage of various Employment Generation Schemes of Rural Development	68228.00

		Departments to supplements funds for plantation activities. Emphasis is also laid down on the research aspects like tree improvement, non-timber forest produce, agro forestry, alternatives of timber, value addition to the various forest products etc. The efforts will be make to empower the women by ensuring their involvement from micro planning stage to implementation and usufruct sharing.	
10	2002-03 to 2006-07	In this Plan period the main objectives were to bring one third geographical area under the forest cover, adopt watershed approach, extensive implementation of food for work programme in forest activities, bio-diesel formation from Jatropa, merge all afforestation programme under National Afforestation Programme which will be implemented through Forest Development Agency. The livelihood needs of the people leaving adjoining to the forests would be addressed. JFM would be given more thrust for the generation 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 firm lands and degraded lands, efforts would be taken on protecting the natural forest to have a better carbon trading potential to increase the market avenues for forest protection and management, to conservation and protection of the medicinal plants.	x
Sources - Developing Wasteland, Ministry of Environment and Forests			

10.2. Financial Achievements up to 4th Five year Plans:-

Scheme wise details of expenditure incurred on forest development in the country are given in the table below. These figures show that during 1951-69, 23 % has been spent on economic plantation for industrial and commercial uses. The same percentage was maintained in the 4th Plan period. The scheme on firm forestry –cum – fuel wood plantation accounted for 2.2 % of the total expenditure for the period 1951-69.

Table No. 2							
Financial Achievements up to 4th Five year Plans							
Sl. No.	Scheme	1st Plan 1951-56	2nd Plan 1956-61	3dr Plan 1961-66	Annual Plan 1966-69	Total 1951-69	4th Plan 1969-74
I	States Scheme and Centrally Sponsored Scheme						
1	Economic plantation for industrial and commercial uses	111.91	486.88	163.16	934.01	2695.96	2014.99
2	Rehabilitation of degraded forests	16.42	199.23	380.54	229.84	826.06	322.17
3	Farm forestry-cum-fuel wood plantations			109.54	151.93	261.47	361.25
4	Development of minor forest products			151.74	148.09	299.83	107.44
5	Communications	42.27	247.65	555.98	335.5	1181.4	533.01
6	Consolidation of forests (including survey and demarcation)	14.63	61.83	199.3	194.19	469.95	367.75
7	Development of pastures and grazing			52.93	47.13	100.06	77.82
8	Nature conservation		99.52	175.05	125.32	399.91	435.32
9	Training of staff	41.75	74.00	178.43	136.49	430.67	147.83
10	Timber operations			285.77	246.97	532.74	554.19
11	Forest protection			107.03	62.79	169.82	115.25
12	Working plan organization			121.55	100.90	222.45	132.91
13	Forest research			25.61	46.64	72.25	156.27
14	Publicity			14.03	13.44	27.47	47.41
15	Establishment of statistical cell and planning cell				13.55	13.55	38.63
16	Construction of building	43.97	1115.27	247.40	149.94	556.58	405.99
17	Amenities to staff and labour			48.05	14.63	62.68	31.1
18	Intensification of management				20.57	20.57	29.43
19	Cultural operation				42.89	42.89	71.33
20	Plantation of quick growing species			406.48	939.45	1345.93	1685.59
21	Forest Resources Survey			32.11	34.47	66.54	101.92
22	Miscellaneous Schemes NES	478.83	738.28	248.54	95.47	1561.12	821.79

II	Central Scheme						
1	Forest research Institute and colleges		41.85	17.39	27.45	86.69	101.29
2	Delhi Zoological Park		56.2	34.67	6.43	97.3	22.75
3	Pre investment survey of forest resources			8.17	71.54	79.71	143.14
4	Logging training project			3.06	16.19	19.25	35.44
5	Scheme wise details not available	100				100	6.85
	Total	849.78	2120.71	4566.59	4205.82	11742.9	8898.86
Sources - Report of the National Commission on Agriculture –1976, Part-IX, Forestry							

10.3. Review of Seventh Plan:-

Seven Biosphere Reserves have been set up for preserving the genetic diversity in representative ecosystems. Ecological restoration work has been under taken in fragile areas. Schemes have been initiated on breeding of plants and commercial utilization of medicinal plants. A National Environmental Awareness Campaign initiated in 1986 was continued. It has covered a wide spectrum of the population through different media and involving more than 200 Non Governmental Organizations.

10.3.1.Forest and Wild Life policy:-

A "National Forest Policy 1988" was formulated in December1988 with the principal aim of ensuring environmental stability and maintenance of ecological balance. The Forest Conservation Act, 1980 was amended in 1988 to facilitate stricter implementation and to plug certain loopholes. Implementation of 10-point National Wildlife Action Plan (NWAP) has started. The Wildlife Institute of India has published a comprehensive report incorporating a workable biogeographic classification system.

10.3.2. Afforestation programme:-

In the 7th Plan there was considerable increase in the total area brought under afforestation programme. Block plantations, Srtip plantation and firm forestry were carried out. Plan funds were made available through Forest Department in the States. There were further supplemented in 15 States with new projects, which received external assistance. While the total afforestation during the 6th Plan period was only 4.65 million hectors, the coverage in the 7th Plan was 8.87 million hectors. A number of programmes of afforestation were taken up to secure people's participation. Under this scheme, priority was given to different items, which is given below.

Table No.3	
Afforestation programme	
Sl. No.	Items
1	Establishment of decentralized nurseries and school nurseries.
2	Block plantation especially on community land in lands SC/ST and people living bellow the poverty line.
3	Pasture development through people's institution and involvement

4	Assistance in the implementation of the tree patta schemes.
Sources - Developing Wasteland, Ministry of Environment and Forests.	

10.3.2.1. Social forestry projects:-

Social forestry projects that were initiated in 1981-82 for periods ranging from five to eight years continued in the 7th Plan. They envisaged tree planting and afforestation of 19, 84, 600 hectors of wastelands with a total investment of Rs. 911.73 crores. These projects were assisted by several external agencies, including the World Bank, United States Agency for International Development and Overseas Development Agency of United Kingdom, Sweden International Development Agency etc. Under the National rural Employment Programme (NREP) and Rural Landless Employment Guarantee Programme (RLEGP) carried out by the Department of Rural Development, 25% of funds were specifically earmarked for the social forestry component, during the first four years of the 7th Plan. The afforestation components under these programmes were implemented by the State Forest Department mainly on government and community lands, roadsides and canal embankments. Since the availability of community lands was limited, afforestation was also carried out on degraded forestlands. Bulk of the funds for the forestry sector came from the Rural Employment Scheme under the social forestry component. The area afforested in successive five year Plan is given in the table below.

Table No. 4

Afforested area in successive five year Plan

Sl. No.	Five Year Plan period	Area afforested (in Lakh ha.)
1	First	0.52
2	Second	3.11
3	Third	5.83
4	1966-69	4.53
5	Fourth	7.14
6	Fifth	12.21
7	1979-80	2.22
8	Sixth	46.5
9	Seventh	88.7
	Total	170.76
Sources - Developing Wasteland, Ministry of Environment and Forests.		

10.4. Review of Eighth Plan:-

10.4.1. Bio-Diversity Conservation:-

The scheme on Bio-diversity Conservation was initiated during 1991-92 to ensure proper coordination among various agencies concerned with the issues relating to conservation of biological diversity and to review, monitor and evolve adequate policy instruments for the same. During the Reo meetings, 168 countries, including India signed in the convention on Biological Diversity. India has since ratified the convention. During the Eighth plan, considerable attention was given to make the Pollution Control Laws more effective and to bring umbrella legislation for protection of environment. A number of Central and State executive authorities have been delegated powers for effective implementation of the Environment Protection Act. The Air (Prevention and Control of

Pollution) Act-1981 and the Water (Prevention and Control of Pollution) Act- 1974 have been amended to bring certain provisions of the Acts at par with those of the Environment (Protection) Act-1986. During the Eighth plan, a Centrally Sponsored Scheme 'Modern Forest Fire Control Method in India' was introduced. The Scheme was launched during the Seventh plan with UNDP assistance as a pilot project in Uttar Pradesh and Maharashtra mainly to protect forests from fire. The project was implemented in 13 states during Eighth Plan.

10.4.2. Afforestation of Athgarh Forests:-

The National Afforestation and Eco-Development Board was created at the time of the bifurcation of the erstwhile National Wasteland Development Board, under the Ministry of Environment and Forests in July 1992. Areas adjoining to forests and fragile eco-systems were brought under the National Afforestation and Eco-Development Board (NAEB), while other wastelands were covered under the newly created National Wasteland Development Board in the Department of Wasteland Development in the Ministry of Rural Areas and Employment. An outlay of Rs. 461.00 crore was finally allocated to the NAEB for reclaiming degraded forest area adjoining to forests during the Eighth plan. Some of the schemes of NAEB are given in the table below.

Table No. 5

Various scheme for afforestation of Athgarh Forests

Sl. No.	Name of the Scheme
1	Integrated Afforestation and Eco-Development Project (IAEPS)
2	Fuel wood and Fodder Project
3	Non-Timber Forest Produce Scheme
4	Grants-in-Aid
5	Encouraging NGOs for taking of Afforestation and Building upon People's Movement.

Sources - Developing Wasteland, Ministry of Environment and Forests

10.5. Activities of Athgarh Division in Plan Periods:-

The different activities have been taken up in this division during the Plan periods depending on the allocation. The details of the work done and the expenditure made for the purposes are given in the table given below.

Table No.6

Scheme wise Expenditure Incurred on different Forestry Schemes in Athgarh

Sl. No.	Scheme	6th Plan 1980-85(Rs.)	7th Plan 1986-90 (Rs.)	8th Plan 1991-95 (Rs.)	9th Plan 1996-00 (Rs.)	10th Plan 2001-06 (Rs.)	11th Plan 2007 (Rs.)
1	Intensification of	222678	508069	390730	772496	399081	--

	Forest Management						
2	Forest Consolidation, Development & Regeneration	182128	375358	207816	1364021	20000	--
3	Education & Training	85324	--	--	--	--	--
4	Reforestation of Degraded Forests	251463	--	--	--	--	--
5	Mixed Plantation	279899	--	--	--	--	--
6	Development of National Park	39245	--	--	--	--	--
7	Social Farm Forestry	--	--	--	494000	1337563	408750
8	101-Protection Working Circle	--	--	--	--	--	396628
9	02-State Plan	--	--	--	--	--	15470
II	Central Scheme	--	--	--	--	--	
1	Elephant Management	--	--	--	173570	979385	139442
2	Social Farm Forestry	--	--	--	--	4244214	--
3	Eco-Restoration	--	--	--	--	115000	--
4	Modern Forest Fire	--	--	--	--	166500	--
5	2245 RANC (Economic Plantation)	--	--	--	--	885570	--
III	Centrally Sponsored scheme	--	--	--	--	--	--
1	Mixed Plantation	398120	444202	704433	22000	--	--
2	Project Elephant	--	--	--	34064	635475	
3	Total 01-02(CSP)	--	--	--	--	--	103580
	4406 Capital Out Lay	--	--	--	--	--	
1	A-Economic Plantation	334851	880258	934066	1324543	54680	262988
2	Rehabilitation of Degraded Forests	--	--	340800	437814	--	--
3	Compensatory Plantation	--	--	264578	--	--	--
4	Joint Forest Managemen (Micro-Plan)	--	--	--	434120	50000	--
5	Minor Work	--	130000		334013	159998	286918
	5000040-NFCR	--	--	--	--	3659956	
IV	Forest Development	--	--	--	--	14496906	27094
	Total	1793708	2337887	2842423	5390641	27204328	1613776
Sources: Divisional Forest Officer, Athgarh Forest Division.							

Table No.7		
Plan Expenditure in Athgarh Division		
4406-C.O.L-Forest & Wildlife (State Plan)	10th Plan 2003-06	11th Plan 2007
102 Social & Farm Forestry- Economic Plantation	1032393.5	1362000
005120-Forest Research	5000	
12th F.C		444000
D-Centralized Nursery		1000000
Communication and Building		450000

J.F.M		350000
2406- Central Plan		
101-Forest Conservation and Development	43000	
02- Elephant Management	28250	17500
2406-C.S.P		
02 –Environment Forest - Environment Forest (Census)	40520	
01-F.C.D.R	629061.5	
I.F.P		82000
Sources: Divisional Forest Officer, Athgarh Forest Division.		

Plan Expenditure in Athgarh Division		
4406-C.O.L- Forest & Wildlife (State Plan)	10th Plan 2003-2006	11th Plan 2007
102 Social & Farm Forestry	231000	250000
RANC-02-Flood Cyclone	60000	85000
RLTAP (HRD)	320000	
12 FC Award		127940
20002- Other Charges		21400
2406-Central Plan		
110- Wild life preservation Elephant Management	56000	20000
2406- C.S.P		
101 –Forest Conservation, Development & Regeneration	557629	585000
Forest Development Agency	475704	1209945
Source: Divisional Forest Officer, Athgarh Forest Division.		

10.6. Suggestion for Future Five-Year Plan:-

10.6.1. Plantation:-

The total area available for block plantation is 645.00 hectare. This area is allotted to plantation overlapping working circle. In addition to block plantation, it is also proposed for Gap Plantation in Rehabilitation Working Circle. Therefore, it is suggested that the Divisional Forest Officer should encourage Scheme for block plantation during the next Five Year plan. The area allotted to Rehabilitation Working Circle has few open spaces in patches, where maximum up to 200 seedlings can be planted per hector. It is advised to prepare Scheme for gap plantation for Rehabilitation of Degraded Forest. The extent of gap planting area should normally be limited to 1000.0 hectors per year. The annual area should be distributed equally in five Ranges for smooth execution and better supervision.

10.6.2. Climber Cutting:-

Climber cutting had not been done in the last out going Plan period. Also due to ban on tree, felling there was not any operation in most of the annual coupe area due for working in the Plan period. As seen in the field the climbers arrest the growth of the trees. During the revision of this Plan, the girth of climber has attended more than 02 ft at 04 ft height above the ground level. It is necessary to cut all the climbers in the forest area included in this revision. It is advised to the Divisional Forest Officer to prepare a special Scheme for cutting of the climbers within an interval of 03 years. He is also advised to appraise the facts before the Higher Forest Officers and get the Scheme approved for implementation of the programme.

10.6.3. Fire Protection:-

Annual ground fire in the forests of this tract is common since 1938. Fire constitutes a serious menace in almost all blocks included in this revision. It is believed that all the fire is intentional. The people living in this tract are setting fire for collection of non-timber forest produces. The kendu leaf puckers set fire in the forests for production of better quality leaf. The tribals occasionally set fire to the forests in order to drive game. It is very difficult to have a control over the forest fire in this tract. It is suggested that the fire should be detected at an early stage. The Divisional Forest Officer shall engage at least two people in each forest fringe villages to detect and extinguish forest fire before it is spreading extensively. A special Scheme for control of the forests fire shall be prepared in each year during the Plan period.

10.6.4. Wildlife:-

The survival and multiplication of the Wild Life purely depends on the under growth. In every year, the under growth are damaged due to ground fire, which results in poor vegetative growth of herbs and shrubs. It is opined that the total number of Wild Life can be increased to five times to the number presently surviving, if annual ground fire can be stopped continuously over a period of five years. The Divisional Forest Officer is advised to implement properly the Scheme prepared for fire protection over a period of five years. All the field staff shall encourage the villagers to extinguish the forest fire at the early stage by the way of publicity and providing incentive to them.

10.7. Expenditure of Athgarh Forest Division from 2016-17 to 2019-20:-

The Expenditure statement of Athgarh Forest Division from the year 2016-17 to 2019-20 is given in the table below.

Table No.8

Allotment and Expenditure of Athgarh Forest Division

Year	Head of Account	Allotment	Expenditure incurred
2016-17	Non-plan	2892000	2892000
	State Plan	19246537	19246537
	N.A.P	2537263	2537263
	CAMPA (General& WL)	96092316	91723761
2017-18	Programme Expenditure	10496393	10496393
	Administrative Expenditure	2120044	2120044
	Central Sponsored Scheme	8270630	8270630
	N.A.P	262237	262237
	CAMPA (General)	54949000	43852552
	CAMPA (WL)	16367842	15552705
2018-19	Programme Expenditure	25501324	25501324
	Administrative Expenditure	3425000	3425000
	Central Sponsored Scheme	665250	665250
	Wildlife Protection (Programme Exp.)	3506620	3506620
	Wildlife Protection (Admin. Exp.)	884240	884240
	Management of Elephant	6196960	6196960
	N.A.P	4354220	4354220
	CAMPA (General & WL)	80803000	63608375
2019-20	Programme Expenditure	18347332	16534975
	Administrative Expenditure	2835000	2835000
	Central Sponsored Scheme	913000	913000
	Wildlife Protection	3230200	3230200
	Management of Elephant	10128020	10128020
	Satkosia Tiger Reserve	8058800	8058800
	N.A.P	8140212	8140212
	CAMPA (General)	62975000	58424966
	CAMPA (WL)	11835000	11835000

CHAPTER – 11

Past System of Management.

11. Past System of Management

11.1. General history of the Forests:-

The Orissa Feudatory States were merged in the parent province of Orissa in 1948. In the same year Dhenkanal Forest Division was created comprising the Ex-states of Dhenkanal, Badamba, Talcher, Hindol, Athgarh, Tigiria and Narsinghpur. In 1950 the Dhenkanal Division was split into two Divisions namely Athgarh and Dhenkanal. Athgarh Division was constituted with the Ex-States of Athgarh, Tigiria, Baramba, Narsinghpur and Hindol along with the private forests of Dalijora. Subsequently Hindol range was transferred to Dhenkanal Division in 1953. With the abolition of anchals, the management of Ex-Zamindary forests of Dalijora, Sadar, Balarampur, Khalakhala, Madhupur, Darpani, Kanika, Kujang, Harispur, Marichpur, Dhaltangarh and Kaijanga were vested in Athgarh Division in 1957.In 1959 Jorum pragana of Dasapalla Ex-State was added to Narsinghpur range of the Division and three new ranges Kanika, Kujang and Dalijora were constituted. In the year 1980 the Kanika range of the Division with the Ex-Zamindary forests (16,207.01 ha Cuttack Dist. and 1027.48 ha in BalasoreDist) was separated from the Division for constitution of Chandabali Wildlife Conservation Division. In 1988 Kujang range was transferred to Rajnagar Wild Life Division. In 1993 the Sukinda Range of Keonjhar Division was transferred to Athgarh Division. In the process of Re-organization of Orissa Forest Department on 01st October, 2003, Three Ranges viz. Sukinda, Dalijoda and Cuttack were carved out from Athagarh Division and included in Cuttack and City Forest Division respectively.

11.2. Past system of management and their results:-

Prior to the integration of the Ex-States, the forests excluding the Ex-Zamindary portions were being managed under the advice of the Forest Advisor, Eastern States. Excepting for Narsinghpur, no regular working plan or scheme was drawn up. Forests were managed according to the instructions issued from time to time by the Forest Advisors in their inspection notes. No scientific basis was adopted for the management of the Zamindary forests. The history of management of forests in Ex-State and Ex-Zamindary area is described below:

11.2.1. Management in Narsinghpur Ex-State:-

It appears from the records that as early as 1885 steps were taken for forest conservation in this State. Some of the species like Sal, Bandhan, Sissoo, Piasal, Asan, etc. were declared reserved species. The Nuagarh, Deobhuin, Balikiary and Olab blocks were demarcated between 1907 and 1912. In 1912-13 irregular exploitation of around 1700 matured trees took place. Systematic exploitation commenced after 1919 when Mr. G.M. Cooper, I.F.S, the then Agency Forest Officer visited the State. A rough enumeration was carried out and annually 500 Sal trees over 5' girth and 270 trees of miscellaneous species were prescribed for exploitation. In1933 the exploitation girth class for Sal reduced to 4'6" and the number of Sal trees to be exploited were raised to 1500 by Mr. Hart, the then Forest Adviser. In 1938 Sal trees over 4' 6" (135 cm) girth were enumerated in Deobhuin and Nuagarh blocks and the annual

yield was fixed at 4600 Sal trees. This exploitation took place in Deobhuin up to 1941, when an additional number of 4000 Sal tress were felled for war supplies. In Chandragiri block, the enumeration was conducted in 1936 and the annual yield was fixed as 200 trees over 135 cm girths.

11.2.2. Dr. H.F Mooney's Working Plan:-

A regular working plan for the systematic management of the Narsinghpur State forests was prepared by Dr. H.F. Mooney, I. F. S., the then Chief Forest Adviser and that Plan came into force from 1941 – 42 for a period of 30 years with provision for revision at intervals of 10 years. The following four working circles were formed in this Plan. The prescriptions and results of the working as reviewed by Mr. G. G. Das in the last plan are furnished below.

1	High Forest Working Circle.
2	Coppice Working Circle.
3	Bamboo Working Circle.
4	Teak Plantation Working Circle.

11.2.2.1.High Forest Working Circle:-

This working circle included Balikiary, Olab, Deobhuin and Nuagarh blocks having a total area of 47,046 acres (19039.5 ha.). Chandragiri block with 1835 acres (742.6 ha.) was included in this working circle for 10 years only. A felling cycle of 30 years was adopted and the felling series was divided into 3 periodic blocks, each to be covered in a period of 10 years.Exploitable diameter for Sal was fixed at 19" at breast height and for other species it was as follows:

Sal	19"
Simili, Kadam, Arjun	24"
Kurum, Mitikinia, Asan, Piasal	20"
Nemburmoi, Sissoo, Kansa	16"
Bandhan	14"

11.2.2.2. Yield in P.B.I:-

Yield was calculated for P.B.I. only and was fixed by number as follows. In the Chandragiri felling series yield was fixed at 250 Sal over 16" d.b.h. annually. But only two coupes could be worked and felling was discontinued for want of trees.

Sal	3500 of exploitable dia.
Asan	200 of exploitable dia.
Kurum, Mitikinia	100 of exploitable dia
Piasal	50 of exploitable dia
Sisoo	50 of exploitable dia
Bandhan	50 of exploitable dia

11.2.2.3. Results:-

The Working Circle was divided into three periodic blocks and each periodic block was to be worked in 10 years time. The yield was calculated on the number of Sal trees available in P.B.I. only, which came to 3500 Sal trees of 19" d.b.h. annually. There was no yield calculation for P.B. II and III, since the Plan contemplated revision after a period of 10 years. The calculation of the yield for only Periodic Bock I i.e. for a period of 10 years only, though the plan period was 30 years was not correct. Though the Nuagarh block was prescribed to be worked in 10 years, the entire block was actually covered in a period of 9 years and there was no working in the 10th year due to non availability of trees. It, therefore, appears that the enumeration, on which the prescriptions were made, was not correct. Since there was no prescription for P.B.II, the yield was regulated on area basis from 1951. The enumeration carried out during 1960-61 showed that there were 7976 sound and 4781 unsound Sal trees over 18" dia available in Nuagarh block as against 37,111 Sal trees over 18" D.B.H. of the 1938 enumeration. This indicated the dearth of trees in the diameter class below the exploitable size and a safe guard in the yield should have been provided. It also shows that there was high percentage of unsound trees. This was due to the fact that contrary to the prescription only good trees had been taken out and the unsound trees had not been felled. The exploitable diameter of Sal should have been 20" as the area is capable of producing timber of the highest quality. This fact had been admitted in the Plan, but on the consideration of the revenue of the State, it had not been done. Though the exploitable diameter was prescribed to be 19", virtually trees over 18" had been marked and felled. Dr. Mooney had suggested to leave a few thrifty Sal trees that reached exploitable dimension but were likely to remain healthy at the end of the felling cycle, so that, they might increase in size and value. In practice this has not been followed.

11.2.2.4. Coppice Working Circle:-

The Coppice Working Circle covered an area of 4895 acres, made up of two 'B' class Reserved Forest blocks viz. Chandragiri and Barhakhol. Two felling series, one for each block were formed. The system prescribed was coppice with reserves. The reserves or standards were meant for providing seed so as to increase the proportion of valuable species in the crop and to yield some timber for plough heads. A rotation of 40 years was fixed. Five to ten trees per acre of Sal, Piasal, Bandhan, Sisoo, Asan, Dhaura and Kasi were to be retained as standards. The coupes were to be clear felled either by the people themselves, by a contractor or through departmentally. Cleaning, thinning and climber cutting were also prescribed.

11.2.2.5. Results:-

In the Barhakhol felling series, three coupes had already been worked before the plan came into operation. Some coupes had not been worked as there was no produce in the coupes. Practically no attention was paid to the cultural operations. The neglect of the cleanings had resulted in invasion of Bamboo and in some worked out areas in Chandragiri block, Sal had been replaced by miscellaneous species. The retention of standards had not been proper and the prescription to retain 5 to 10 reserves per acre was on the low side because both the blocks were hilly.

11.2.2.6. Bamboo Working Circle:-

The Working Circle covered an area of 47,046 acres and overlapped the entire High Forest Working Circle. There were five felling series and a cutting cycle of 4 years was adopted. The distribution of felling series was as follows:

Table No.1		
Distribution of felling series of Bamboo Working Circle		
Name of F.S.	Name of Block	Area in Ac.
Balikiary	Balikiary	13,650
Nuagarh	Nuagarh (P) &Deobhuin (P)	11,700
Olab	Olab	13,800
Budhabudhi West	Nuagarh (Part)	2,150
Budhabudhi East	Deobhuin (Part)	5,374

11.2.2.7. Results:-

Of the above 5 felling series, Nuagarh and Olab felling series had been leased out to Titagarh Paper Mills from September, 1937 to August, 1949 and this lease was again renewed. In 1951 a separate Daba felling series was formed covering the three blocks with a rotation of 12 years. The Daba bamboos which were found in valleys and foot hills had been worked fully by the company, but, the Salia bamboo areas had not been worked properly because of the hilly nature of the terrain and the poor quality of the crop. The remaining Balikiary, Budhabudhi West and Budhabudhi East felling series were being sold by auction to local contractors. In the year 1962 the Balikiary felling series has been split up into two felling series, viz. Balikiary I and Balikiary II and were leased out to Durga Glass Works, Barang. The working of the local contractors was not very satisfactory. The clumps in accessible areas had been over worked and very high stumps were left. The hilly and inaccessible portions were left unattended.

11.2.2.8.Teak Plantation Working Circle:-

No definite area had been allotted for this working circle but the intention was to prescribe plantation of Teak in all suitable sites, especially those in valleys, where the crop was mixed forest. Two planting series had been formed, one for Balikiary and Nuagarh blocks and the other for Olab and Deobhuin blocks. It was prescribed to plant up 25 acres (10.11 hect.) annually in each of the planting series. But the programme could not be followed due to lack of funds.

11.2.2.9. Badamba Ex-State:-

In the 19th century there used to be irregular exploitation in Baramba ex-state. Mr. Nee during his inspection in 1904 observed that there was heavy exploitation from the forest and hence there should be no felling for any purpose whatsoever for at least next 30 years. But Dr. H.F. Mooney, the then Forest Advisor suggested working of various blocks. He suggested three categories of working.These working patterns were changed subsequently by Dr. H.F. Mooney himself. Selection Working Circle was constituted with Haladiaseni and Badajora blocks and exploitable girth classes for different species was

fixed differently. Prescriptions were also given to raise Sissoo and Teak plantations. In 1941 Badajora felling series was closed and bamboo forests were divided into three felling series on a four year cutting cycle basis.

a	Selection Working	In Haladiaseni block there should be removal of Sal, P.Sal, Jamu. Bandhan, Kangada, Gambharetc and the removal should be only 50 trees.
B	Coppice Working	In Taraiganda, Kumaranga, Nagatota, Talachandragiri&Mandap, Karada, Jhinkal, Belapada, Jagabeherathali blocks there would be coppice working with different rotation periods depending on the crop.
C	Bamboo Working	In Haladiaseni and Chandragiri blocks one felling series would be constituted with three years cutting cycle

11.2.3. Sri S.S Das Scheme:-

He has written a scheme for themanagement of the forests of Baramba ex-state. He prescribed four working circles.

1	The Selection Working Circle
2	The Coppice Working Circle
3	The Bamboo Working Circle
4	The Misc. Working Circle

11.2.3.1.The Selection Working Circle:-

Haladiaseni, Badajora and Chandragiri blocks with a total area of 5473.56 ha was included in this working circle. There was only one felling series and a felling cycle of 30 years was adopted. Yield was regulated by area. Specific rules for cutting were prescribed.

11.2.3.2. Results:

The coupe layout was defective, as the crop composition and the stock maps were not taken into account for laying down the coupes. Cleaning and climber cutting was thoroughly neglected due to paucity of funds. The exploitable diameter of Kangada was a bit high as it developed unsoundness after reaching 16" diameter at breast height.

11.2.3.3. Coppice Working Circle:

The total area of the working circle was 4182.17 ha, with 7 felling series. The rotation period was fixed at 40 years and fifteen trees per acre were to be retained as standards. One coupe was to be auctioned and six coupes were opened for working by tenants.

11.2.3.4. Results:

Mostly the forest areas prescribed in this working circle were degraded, poor in growth. But they were worked to meet the local demand and no work was done for the improvement of crop

composition. Though 15 standards were prescribed to be retained, in practice only 2-3 standards were retained per acre. The cleaning was inadequate and mostly confined to Sal patches.

11.2.3.5. Bamboo Working Circle:

This circle overlapped with Selection and part of Coppice working circles. Three Kanta Bamboo and one Salia Bamboo felling series were constituted. For Salia Bamboo 3 years cutting cycle was to be followed, for Kanta Bamboo it was a clear felling with a rotation of 12 years.

11.2.3.6. Results:

Excepting Chandragiri, all other felling series were for Daba Bamboo. All the Daba Bamboo clumps flowered in 1961 and thereafter the removal of dead clumps was necessary. Titagarh paper Mills Ltd could not remove all the dead clumps and it also could not work the Chandragiri felling series, probably due to poor quality.

11.2.3.7. Miscellaneous Working Circle:

Kumaranga, Taraiganda (part), Belapada, Jagabeherathali, Nagatota (part) were kept in this working circle and in these blocks, emphasis was given on protection with no felling. Soil and moisture conservation measures were prescribed.No attention was paid to these blocks; hence there was no improvement in the crop condition. Soil and moisture conservation measures also could not be taken up, probably due to lack of funds.

11.2.3.8. Tigiria Ex-State:

In this ex-state, the forests were in a degraded state when they were reserved in 1939. Dr. H.F. Mooney suggested in 1939, that there should be 3 coppice felling series with a rotation of 30 years with the retention of 5-8 standards per acre. In addition, it was suggested to cut 50 Sal trees over 5' girth class in Kalichaballav block. 3 Bamboo felling series, namely Sorispal, Nizgarh and Kalichaballav were constituted with 3 year cutting cycle.Bamboo coupes were not worked out separately, but they were clear felled while working for coppice coupes. The production from the coupes was very low, and this was insufficient to meet the demand of the people, hence the forests were subjected to heavy illicit felling.

11.2.3.9.Athgarh Ex-State:

Irregular exploitation was going on in the forests till 1919. Mr. Cooper suggested for coppice working in Baniabandha block. Subsequently other blocks like Adal, Ranibania, Baula, Sankhapoi and Sukhasan were also suggested to work under coppice system. Bamboo areas in Baniabandha block were constituted into one felling series with a cutting cycle of 3 years and it was proposed to work the Daba bamboos on a selection basis. Daba bamboo in Baniabandha block was leased out to Titagarh Paper Mills in 1955-56 for a period of 12 years. All the B class forest blocks were also put under coppice system with 40 year rotation.

11.2.3.10. Results:

The management of forests was aimed at only exploitation and there were no cultural operations in the forest. The fellings had increased at the time of the war and this had led further

degradation. All the B class forests except Gobara, Sankhapoi and Deulia had already been depleted prior to the reservation of the blocks.

11.2.3.11. Ex-Zamindary Forests:-

There were no Plans or Schemes for the management of forests under the control of Zamindars. The main intension was to meet the local tenants demand on payment of royalty as per schedule of rates fixed by the Zamindars. In KujangaZamindary, the tenants were allowed to sell the timber outside on payment of double royalty. In 1927, Mr. R.L. Derry had suggested light selection fellings in Kujanga block in small concentrated patches. He also prescribed to cut all the useless and unserviceable species as firewood. The records were not available to know whether the prescriptions were followed. The total area of Kujang forests was 55,501 acres of which 25,692 acres were leased out to Midnapur settlers as well as to the local people by the Zamindars.With the enforcement of the Orissa Estate Abolition Act 1951, the Zamindaries were vested with the Revenue Department in 1951 and the forest management was transferred to the Forest Department in 1957. In 1957 five forest blocks namely, Hetamundia, Hukitola, Jogidhankund and Bhitarkharanasi were declared as Protected Forests under section 29. In respect of the other ex-zamindary areas, Harispur, Marichpur, Kilipal, Madhupur, Balarampur, Kalakala etc. no records of past management are available. These forests were only exploited by the Zamindars.

11.2.4.Sri G.G Das Plan (1964-65 to 1983-84):-

After integration of ex-states and ex-zamindaries, the first Working Plan covering the ex-states of Narsinghpur, Badamba, Tigiria and Athgarh was prepared by Sri G.G. Das. He included only the Reserved Forests in the Working Plan. The total area covered in the Plan was 471 Sq. Km. He has formed six working circles.

1	Selection working circle
2	Coppice working circle
3	Bamboo overlapping working circle
4	Cane overlapping working circle
5	Plantation working circle
6	Rehabilitation working circle

11.2.4.1. Selection working circle:

The area allotted to Selection Working Circle was 20,548.13 ha. (90,775 acres) comprising seven "A" class Reserve Forest blocks namely Balikiary, Nuagarh, Deobhuin, Olab, Haladiaseni, Chandragiri and Badajora. Three felling series namely Nuagarh, Deobhuin and Haladiaseni were constituted. A felling cycle of 20 years was adopted. The exploitable diameter, for Sal, Kangada and Gambhar was 50 cm. in Nuagarh and Deobhuin Felling Series. Yield was prescribed by area with numerical check by Smithy's Safe-guarding formula. Improvement marking, thinning, subsidiary silvicultural operations were also prescribed. Strip planting of Teak, Gambhar and Semul was prescribed on hill slopes with miscellaneous forests.

11.2.4.2. Results:

All the seventeen coupes in the 3 felling series due for working up to 1980-81 were marked and worked except coupe no. XIII of Haladiaseni felling series. The Orissa Forest Corporation Ltd. was working coupes of this Division since 1964-65 but they were errors in a number of coupes. From the report of the Conservator of Forests, Angul it appears that Coupe No. XVII had not been delivered to the Corporation in time because Coupe No. XII to XVII were still being worked by them through extension of the normal lease period. As a result, the subsidiary cultural operations could not be carried out in time and the sequence of implementation of cultural operations got vitiated. The fellings in different felling series were to be controlled by applying Smithy's Safe-guarding formula, the annual coupes had been made equiproductive. Sri Das had estimated that about 432, 875 and 752 trees of principal species would be available for exploitation annually in Nuagarh, Deobhuin and Haladiaseni felling series respectively. But the marking lists showed that quite a large number of approach class and sub-approach class trees, many of which were sound had been marked, which should not have been marked and this had encroached into the future yield, particularly in Nuagarh and Deobhuin felling series. It was evident that in Deobhuin and Haladiaseni felling series the actual availability of exploitable trees was much less than estimated by Sri Das. On analysis of marking in a few coupes of Nuagarh and Deobhuin felling series, it was observed that in the former felling series, the number of trees marked in the approach and sub-approach class were equal to that marked in the exploitable class, while in case of Deobhuin felling series this proportion worked out 2: 1. In addition to over- exploitation by loose interpretation of the marking rules, a heavy toll was taken by a severe cyclonic storm which hit the Nuagarh Plateau during 1971. The damages were quite extensive in Nuagarh and Deobhuin blocks where some 35,142 and 40, 031 trees respectively had been uprooted. In view of cyclone damage, it would have been expedient to suspend working in the next one or two years in the coupes of both these felling series to avoid erosion of capital which did not appear to have been done.Acomparison of the growing stock revealed that total number of trees per hectare available for exploitation had come down over 20 years which indicates that there has been heavy exploitation during the currency of Das's Plan, besides the loss on account of cyclone. The proportion of unsound trees in the growing stock appeared to have increased in all girth classes as compared to the previous enumeration figures. This suggests that inadequate cleaning and injudicious marking had been done, contributing to concentration of unhealthy crop per unit area of these forests.No strip plantations were raised during the Plan period except a small patch of about 1 Ha in Nuagarh compartment 5, that had failed and another half hectare in Deobhuin compartment 10, which was in good condition. Climber cutting though prescribed appears to have been neglected. In many places climbers and Daba bamboos had gained ground. In such areas regeneration of principal species was totally absent. Deobhuin compartments 3, 4 and 5, portion of Nuagarh compartments 6, 7,8,12 and 13 had been depleted due to repeated irregular cuttings by the people because these areas were adjoining to the villages. Similarly Badajora block had heavily been depleted of forests due to biotic interference.

11.2.4.3. Coppice Working Circle:

An area of 16,998.59 hectare (42,004 Acres) comprising 12 'B' class forest blocks in full and 5 ' A' Class blocks in part were allotted to Coppice Working Circle. The whole area was constituted into 18 felling series. Coppice with standard system with 40 years rotation was adopted. Yield was prescribed on reduced area basis excluding natural blanks, eroded patches, and encroachment. For purposes of equation, 3 Ha of miscellaneous forests was considered equivalent to 1 Ha of Sal forest in computing reduced area.

Standards of 15 to 25 C.M. d. b .h. up to a maximum limit of 25 stems per hectare were prescribed to be retained. Inter-planting of economically valuable species like Teak, Ghambhar, Semul and Bamboo in strips of 10 metre width 30 metres apart in areas containing miscellaneous forests was prescribed. Two thinning at 10th and 25th year were envisaged.

11.2.4.4. Results:

The prescriptions for cleaning and thinning had been totally neglected in almost all the felling series. Strip plantation had also not been done. Plantations however have been raised in Nizgarh, Sorispal, Kalichaballav, Deulia and Jenapada blocks beyond the prescriptions of the plan. The general composition of the crop and condition of the forests in almost all the felling series under this working circle had deteriorated during the Plan period, due to grazing fire, neglect of cultural operations and excessive biotic interference. These blocks are situated in thickly populated areas and therefore, pressure was quite high on them. In the course of coppice fellings, the stumps in many places had been badly cut and split and the entire ground flora were completely swept and removed, resulting in the severe exposure of the soil. Although the retention of standards was prescribed, one rarely comes across standards in worked over areas, since most of them have been illicitly removed. Sale lists of different years reveal that less number of standards per unit area had been retained than the number prescribed in the Plan. Further, the coppice with standard system has exposed the soil very badly due to clear felling of the areas and the site degradation has been accentuated on account of repeated fire and excessive grazing of the 18 Felling Series in this Working Circle, 7 felling series namely Jagabeherathali, Subasi, Sankhapoi, Sorispal, Kalichaballav, Nizgarh and Deulia felling series could not be worked due to absence of exploitable materials. These blocks were badly degraded. Exploitable materials were also not available in Talachandragiri, Karada, Gobara, Ranibania, Taraiganda felling series although coupes are being opened therein. There was hardly any coppiceable material. Only brush wood cutting in annual coupes was being done without any cultural operations following the main felling. Such areas need tending and protection instead of exploitation. Chandragiri and Barhakhol R.F. blocks of Narsinghpur Range contain hilly areas and as such not fit to be managed under a clear-felling system. There had been progressive laterisation in the two-felling series of Baniabandha block due to soil wash following clear felling. The degraded areas needed immediate rehabilitation. The two-felling series of Nagatota block of Baramba Range had equally been degraded by biotic interference and excessive removal of produce by tenants. The degraded portions needed rehabilitation.

11.2.4.5. Bamboo Overlapping Working Circle:

This Overlapping Working Circle extended over 20,548.13 Ha (50,775 acres) and was divided into seven felling series. A four year cutting cycle was adopted. In 1961 Daba bamboos had flowered gregariously and the clumps died. During preparation of the previous Plan such flowered areas had been excluded from bamboo working. It was suggested then to take up intermediate revision which was taken up in 1978 resulting in re-allotment of areas. The seven felling series were constituted, they were Nuagarh, Chandragiri, Balikiary-I, Balikiary-II, East Budhabudhi, West Budhabudhi and Haladiaseni. Three felling series namely Nuagarh, Chandragiri and Haladiaseni were settled with M/s. Titagarh Paper Mills Ltd. on a long term lease and the remaining four felling series were worked on annual lease system initially through private contractors and subsequently by the Forest Corporation.

11.2.4.6. Results:

In operation of the annual lease by the private contractors the bamboo forests were highly mismanaged and considerable deterioration of crop occurred. The working of Corporation in the bamboo coupes was also not better. The working of the Paper Mill had also not yielded the desired results. Considerable over-felling in accessible areas and neglect of inaccessible bamboo forests in hill slopes had been done. Daba bamboo clumps occurring singly or in groups had not been touched by the Paper Mills because of difficulty in working and higher cost involved. Judum block which came from Nayagarh Division had a separate bamboo felling series but no bamboo operation was taken up therein. Some potential bamboo areas like Karada, Barakhol and Nagatota were not included in this working circle at the time of revision of the Plan or during the intermediate revision. Similarly some areas leased out to Titagarh Paper Mills Ltd like Taraiganda, Baniabandha etc. were not covered.

11.2.4.7. Cane Overlapping Working Circle:

An area of 5,837.65 Ha (14,425 acres) extending over portions of Coppice and Plantation Working Circle of Baniabandha blocks were put under this Working Circle and one felling series was constituted. No Working was done although a 5 year cutting cycle was prescribed. Cane was also not available in commercial quantities for exploitation. Formation of this working circle thus became superfluous. Cane working could have been prescribed under miscellaneous regulations in such areas where they were available for exploitation, instead of a separate working circle.

11.2.4.8. Plantation Working Circle:-

This working circle extended over 4,972.83 Ha (12,288 acres) comprising parts of Balikiary, Nuagarh, Deobhuin, Haladiaseni, Taraiganda, Nagatota, Baniabandha, Ranibania and Subasi blocks. Teak, Semul, Khair, Sabai and Cane were recommended for planting in replacement of miscellaneous species of lesser value and in eroded patches Khair and Sabai were to be planted. All old Teak Plantations in Balikiary, Deobhuin, Haladiaseni, Ranibania, Baniabandha and Subasi blocks were also included in this working circle. Nine planting series were visualized; four for Teak, three for Semul, one for Cane and one for Khair and Sabai. The old plantations had also been allotted coupe numbers to regulate the thinning regime.

11.2.4.9. Results:-

The large scale deviations in achievement of annual plantation target were on account of fluctuating budget provision and often owing to raising of plantations outside the prescribed area. The thinning prescribed had most often, been neglected seriously. Use of sub-standard planting stock and non-adherence to the recognized calendar of operations in certain years also resulted in poor performance. Planting of soft wood was being given greater emphasis by the Government of India due to shortage of match wood and this has also been advocated by the National Commission of Agriculture. The plantations raised in Baniabandha, Ranibania and Subasi blocks failed mostly. Pure plantations of Semul raised in portions of Ranibania blocks have not helped in providing adequate soil cover and this was resulted in laterisation owing to soil wash. Prescriptions to raise Khair and Sabai Plantations in Nagatota and Taraiganda blocks have not been followed except some 8 Ha of Khair planted in Taraiganda block which is now practically non-existent. In Deobhuin block no Cane plantation has been attempted although prescribed.

11.2.4.10. Rehabilitation Working Circle:-

This working circle comprised the barren and nearly barren areas extending over 4,580.68 Ha. In 14 Reserve Forests of the Plan, 8 planting series had been formed where plantation of fuel wood species and bamboo was prescribed. Gambhar, Sissoo, Chakunda, Siris, etc. were also recommended for plantation. The prescriptions of the working circle were more or less similar to that of plantation working circle. Rehabilitation did not merely mean artificial regeneration. Suitable prescriptions for adopting soil conservation measures and cultural operations and tending of valuable natural species wherever they occurred within the working circle should have been provided for in the Plan, besides protection of the rehabilitated areas.

11.2.4.11. Results:-

The results of working reveal that only about 600 Ha in 9 blocks were planted up to 1980-81. A variety of species like Teak, Gambhar, Eucalyptus, Cassia siamea, Accacia, and Cashew have been tried. Out of these species, only *Cassia siamea* and *Accaciaauriculiformis* appeared to have thrived better. Cashew has survived wherever planted. In Sal dominant areas coming within this working circle as in Suniamuhan, Baula, Adal and Mandap blocks, no prescriptions had been laid for thinning and cleaning. During the Plan period some of the Sal bearing areas in Baula and Suniamuhan and Ranibania blocks outside this working circle had however been cleaned which showed promising results.

11.2.5. Sri G. Mohapatra Plan (1983-84 to 2002-03)-

Sri G. Mohapatra Plan covered the Reserved Forests of Athgarh Division. He proposed 6 working circles in the Plan. They are as follows:

1	Selection Working Circle.
2	Coppice Working Circle.
3	Teak Plantation Working Circle.
4	Pulp wood Production Working Circle.
5	Bamboo (Overlapping) Working Circle.
6	Rehabilitation Working Circle.

11.2.5.1. Selection Working Circle:

This Working Circle covered a total area of 19,697.31 ha, constituting about 40% of the total forest area covered under the outgoing Working Plan. The forests allotted to this working circle had mostly hilly terrain. Major portion of the forests comprised predominately misc. crop. Sal in pure form was confined to Nuagarh plateau, sheltered valleys of Deobhuin and Balikiary blocks. 4 felling series, namely, Nuagarh, Deobhuin, Haladiaseni and Judum were constituted. The exploitable girth class for different species was fixed differently in different blocks. Felling cycle of 20 years was adopted. Subsidiary silvicultural operations like cleaning, climber cutting and soil conservation measures were prescribed.

11.2.5.2. Results:-

There had been regular selection coupe working from 1984-85 to 1992-93. After the issue of Government order on moratorium on tree felling, no selection coupe had been worked under Selection

Working Circle after 1993-94. The felling rules prescribed in the outgoing Working Plans could not be followed due to moratorium on tree felling and for the same reason the subsidiary silvicultural operations following the main felling were not taken up since 1993. Works of improvement like sowing and planting, soil conservation measures in the above selection coupe, as prescribed in the outgoing working plan, could not be taken up due to paucity of funds.

11.2.5.3.Coppice Working Circle:-

This Working Circle covered only two forest blocks, namely Nagatota and Baniabandha as against 17 blocks of the previous plan. The total area allotted to this working circle was 5905.26 ha. These blocks were located in more or less plain areas, adjoining to thickly populated villages. The forest blocks under this circle contained pole crops of Sal and other associates like Kasi, Asan, Kangada, Kurum and Mitikina etc. The crop has become inferior due to successive working under coppice working circle, resulting in loss of vigour. Heavy laterisation occurred in Baniabandha block. Four felling series have been constituted and the silvicultural system adopted was coppice with reserve system.40 years rotation period was fixed. Sowing and planting of the eroded areas was also prescribed along with the subsidiary silvicultural operations like cleaning, climber cutting. The thinning was prescribed in 11^{th} and 26^{th} years of the crop.

11.2.5.4. Results:

As per the outgoing working plan only once extraction of trees under this working circle had been made in the year 1985-86. Hence there was no working practically under this circle, since the inception of the outgoing plan i.e. 1984-85 till the year of issue of order on moratorium on tree felling i.e. 1993 except 1985-86. No record is available as to why coupe areas allotted under this working circle could not be worked out. The probable reason might be non availability of the exploitable girth class trees on commercial basis. Since no forest blocks were worked out under this circle, subsidiary silvicultural operations such as 1^{st} year 2^{nd} year and 3^{rd} year cleaning, following the main felling year could not be taken up. Moreover, the 11^{th} year and 26^{th} year thinning could not be carried out. The other probable reason is paucity of funds.

11.2.5.5. Teak Plantation working circle:

In outgoing Working Plan, Teak Plantation Working Circle comprised two types of area. One was miscellaneous scrub forests and blanks in plain and moderate slopes and the second was teak plantations of more than 2.5 ha. area raised in various blocks in the past. The area allotted to this working circle comprised 1746.03 ha. of proposed plantation area and 1128.69 ha. of existing teak plantations. The existing plantations in Balikiary, Deobhuin and Haladiaseni blocks were quite successful, at other places not much success has been met with. The silvicultural system prescribed was clear felling with artificial regeneration. The prescriptions given to the existing plantations included tending operations like weeding, cleaning, climber cutting and thinning. Semul was to be planted along with teak. The rotation period of teak was fixed at 80 years. Three weeding, cleanings operations for at least initial 6 years and thinning in 8^{th}, 16^{th} and 41^{st} years were prescribed for the plantation sites.

11.2.5.6. Results:

The plantations raised in the plan period and by **Social** forestry Division, Cuttack are got damaged during the super cyclone in 1999. In the re-organization of the State Forest Department, the Afforestation Division was wound up and hence the details of the plantations raised by this wing could not be obtained. But in most of the cases the target fixed against the different blocks could not be achieved due to paucity of funds.

11.2.5.7.Pulp Wood Production Working Circle:

Four Reserved Forest blocks, namely,Ranibania, Subasi, Sukhasan and Baniabandha were allotted to this working circle with an object to grow fast growing pulp wood species and supply to the paper mill at Chowdwar. The silvicultural system prescribed was clear felling with artificial regeneration. *Eucalyptus tereticornis, Bambusanutans, Bambusa vulgaris, Cassia siamea, Acacia auriculiformis*etc were recommended for plantation. Rotation period was fixed at 10 years.

11.2.5.8. Results:

The plantation of pulpwood species had not been taken up during the outgoing plan period due to paucity of funds. Hence, the prescription under the outgoing plan did not give the desired result.

11.2.5.9. Bamboo (Overlapping) Working Circle:

This Working Circle covered all the Bamboo bearing areas of the Division and overlapped the whole of selection, coppice, teak plantation working circle and parts of pulpwood production and Rehabilitation working circle of the outgoing plan over an area of 35766.91 ha. (Excluding Jodum RF which had been transferred to Satkosia Wild life Division).Salia bamboo was mainly found on the hill tops and steep slopes. In the gentle slopes and flat grounds the proportion of Daba bamboo was more and the quality of Daba bamboo was better than the Salia bamboo. The silvicultural system prescribed for Salia bamboo was culm-selection-cum-clump improvement and for Daba bamboo the system prescribed was clear felling of clumps. Seventeen felling series were formed.

11.2.5.10. Results:

The bamboo coupes were worked out as per the bamboo cutting rules prescribed in the outgoing plan by M/s Titagarh Paper Mill, Orissa Forest Development Corporation Ltd. and M/s BILT. The bamboo cutting rules framed in 1990 had prescribed a minimum no of culms to be retained in a clump on the basis of quality of the clump (quality-I - 20 culms, quality-II 15 culms quality-III, 10 culms). The bamboo forests of this division were subjected to heavy biotic pressure as they were encircled by many villages. The silvicultural operations were not taken up for bamboo coupes till 1994-95 and in the entire plan period, only five years funds are allocated for bamboo silvicultural operations. There was over exploitation of bamboo due to excessive biotic interference. Despite all these adverse factors the bamboo forests in Athgarh Division have still retained vitality.

11.2.5.11. Rehabilitation Working Circle:

In the outgoing Plan this working circle covered all the degraded forest areas of this Division which had become barren or nearly barren due to heavy biotic interference. The total area allotted was 18496.87 ha, distributed over 19 blocks fully and 23 blocks partially, constituting 37.75% of the total

Working Plan area. Most of the area allotted to this working circle was in final stages of degradation due to continuous biotic interference that led to replacement of the natural vegetation with inferior shrubby species. The areas look like stretches of waste land interspersed with rills and gullies. For these areas, protection, tending, reforestation and soil conservation measures were prescribed.

11.2.5.12. Results:

The flow of funds was a constraint to implement the prescriptions of this working circle. The allotment of funds for soil conservation measure was nil. However, reforestation in these areas has been taken up with the funds available under N.R.E.P., R.L.E.G.P and E.A.S. Schemes. The details of various plantations taken up under different schemes are discussed in the Chapter II.

11.2.5.13.Car Timber Overlapping Working Circle:

This circle has been introduced in this Division only during 1999-2000. This Circle is intended to provide timber for the Chariot of Lord Jagannath of Puri. Plantations of Phasi, Neem, etc are mainly taken up in these areas under Jagannath Van Prakalpa and the people are protecting the plantations with religious fervour. The crop is not matured enough to think of fellings and it needs only protection.

11.2.6. Plans by Smt. Uma Nanduri, IFS. (2007-08 to 2016-17):-

Smt. Uma Nanduri, IFS has prepared the plan covering 54 Forest Blocks of Athagarh Division covering an area of 48685.20 hectare (including 12.36 ha area diverted under FC act + 1866.50 ha of Village Forest). According to the plan 8 working circles have been constituted: These are

i	The Selection-cum-Improvement Working Circle	3781.73 hectare
ii	The Rehabilitation Working Circle	44901.11 hectare + All VF 1866.50 ha)
iii	The Plantation (Overlapping) Working Circle	590 hectares
iv	The Protection (Overlapping) Working Circle	46267.32 hectare.
v	The Bamboo (Overlapping) Working Circle	26142.89 hectare
Vi	The NTFP (Overlapping) Working Circle	48682.86 hectare
Vii	The Wildlife (Overlapping) Working Circle	41798.92 hectare.
viii	The Joint Forest Management (Overlapping) Working Circle	8799.07 hectare.

11.2.6.1. The Selection-cum-Improvement Working Circle.(3781.73 hectare)

11.2.6.2. Area of Allotment.

The total area allotted to this Working Circle is 3781.73 ha. There are only two forest blocks included in this circle and one felling series has been constituted.

Table No. 2		
Area of Selection-cum-Improvement Working Circle		
Sl No	Name of the block	Area in SWC in Ha.
1	Nuagarh RF	3533.37
2	Bhuska PRF	248.36
Total		3781.73

11.2.6.3. Special Objectives of Management:-

The special objectives of the management of the Selection Working Circle are within the scope of general objectives of the management of the entire division. These are as follows: -

Sl. No	Special objective of Management
1	To conserve and improve the forest cover by soil and water conservation measures following the principles of watershed development.
2	To maintain and improve the biodiversity of the forest blocks.
3	To build up the growing stock and improve stand structure by silvicultural operations.
4	To establish natural regeneration of indigenous species.
5	To obtain the yield on sustainable basis to cater the need of the people subject to silvicultural availability.

11.2.6.4. Implementation & Management Practices Adopted:-

The Silvicultural system "Selection cum Improvement "has been adopted. In the outgoing plan the exploitable girth has been fixed for various species is based on the silvicultural rotation. The other factors such as site quality, production capacity, growth, yield and market demands etc. have also been taken into account. The exploitable girth class is fixed at 120 cm. The Coupe wise trees that can be marked as per prescription is given below.

Table No. 3					
SWC coupe wise trees that can me marked as per Working Plan.					
Block/ Compt	Coupe	Area	Trees Available in the Coupe for Exploitation	Total no of trees / ha available.	Total No of trees to be marked

			Sal	Other		
Nuagarh-9	BRA-I	429.26	214.66	494	2	709
Nuagarh-8	BRA-II	381.7	134.86	326.5	1	461
Nuagarh-6	BRA-III	434.81	330.84	473	2	804
Nuagarh-7(P)	BRA-IV	258.49	482.27	345.6	3	828
Nuagarh 5(P)		193.37				
Nuagarh 7(B)	BRA-V	70.94	209.34	125.9	2	335
Nuagarh-5(B)	BRA-VI	355.15	430.55	300.2	2	731
Bhuska PRF	BRA-VII	248.36	555.38	194.4	3	750
Nuagarh-4	BRA-VIII	445.55	363.01	473.3	2	836
Nuagarh-3	BRA-IX	336.93	168.49	244.6	1	413
Nuagarh-1	BRA-X	275.33	108.97	136.5	1	245
Nuagarh-2		351.85	22.83	259.8	1	283

11.2.6.5. Trees to be marked:-

In course of coupe working trees that are actually marked is as furnished in **table No 4.3**

Table No. 4

coupe working trees that are actually marked is as furnished

Block/ Compt	Coupe	Area	No of trees actually marked	Total no of trees / ha marked.	% of fall / Rise in marking.
Nuagarh-9	BRA-I	429.26	465	1.1	34
Nuagarh-8	BRA-II	381.7	346	0.9	25
Nuagarh-6	BRA-	434.81	471	1.1	41

	III				
Nuagarh-7(P)	BRA-IV	258.49	553	2.1	33
Nuagarh 5(P)	BRA-V	193.37			
Nuagarh 7(B)		70.94	508	7.2	-52
Nuagarh- 5(B)	BRA-VI	355.15	632	1.8	14
Bhuska PRF	BRA-VII	248.36	647	2.6	14
Nuagarh-4	BRA-VIII	445.55	520	1.2	37
Nuagarh-3	BRA-IX	336.93	288	0.85	30
Nuagarh-1	BRA-X	275.33			
Nuagarh-2		351.85			

11.2.6.6. Impact of Past System of Management:-

The timber working has been carried out as per prescriptions of the Plan. The number of trees that are marked is always less than the prescription due to conservative marking by the marking officer. The shortfall is 14% to 47%. From production point of view the achievement is quite Satisfactory. During the year 2011-12 Coupe No BRA-V, the number of trees marked is slightly more than the prescription. The reason is that more dead / fall trees were marked whose removal was desirable.

11.2.6.7. Critical Analysis:-

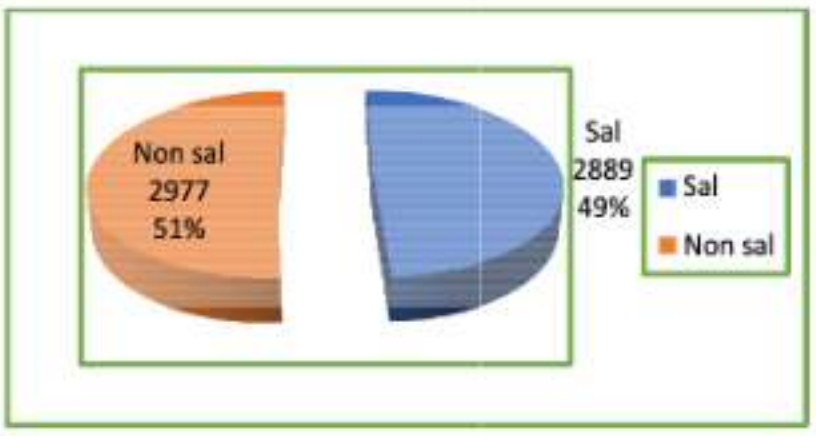
On analysis of Marking list of coupes it is seen that out of 4480 number of trees marked in the series, 1746 number are Sal and 2734 number are Non-sal species. Similarly 3248 (72.5%) number of trees are Sound & 1232 (27.5%) number of trees are unsound. The unit value of trees marked (coupe wise) indicates a medium to fair crop (1 tree = 1.82 unit which is approximately 18 cft.). The number of trees marked, Sal/ Non sal, Sound – unsound and unit value is furnished below.

Table No. 5

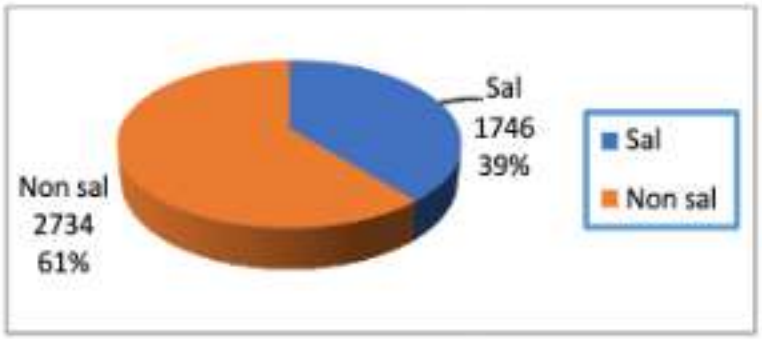
The number of trees marked, Sal/ Non sal, Sound – unsound and unit value

Block/ Comp	Coupe	Area	No of trees actually marked	Trees marked		Trees marked		Unit value calculated	Unit value per tree.
				Sal	Non sal	Sound	Unsound		
Nuagarh-9	BRA-I	429.26	465	11	454	327	138	638.06	1.4
Nuagarh-8	BRA-II	381.7	346	23	323	265	81	411.50	1.2

Nuagarh-6	BRA-III	434.81	471	115	356	288	183	683.875	1.5
Nuagarh-7(P)	BRA-IV	258.49	553	231	322	459	94	1074.50	1.9
Nuagarh 5(P)		193.37							
Nuagarh 7(B)	BRA-V	70.94	508	259	249	398	110	1223.75	2.4
Nuagarh-5(B)	BRA-VI	355.15	632	306	326	520	112	879.75	1.4
Bhuska PRF	BRA-VII	248.36	697	641	56	471	226	1871.505	2.7
Nuagarh-4	BRA-VIII	445.55	520	134	386	287	233	872.25	1.7
Nuagarh-3	BRA-IX	336.93	288	26	262	233	55	633.25	2.1
Nuagarh-1	BRA-X	275.33							
Nuagarh-2		351.85							
Total		**3781.74**	**4480**	**1746**	**2734**	**3248**	**1232**	**8288.44**	**1.85**



Sal- Non Sal Expected for Marking in the Plan Prescription.



Sal/ Non sal actually marked during Coupe working.

In the forests due to canopy opening, regeneration of Sal, Asan, Kuruma and other miscellaneous species are coming up to a reasonable extent. Crop of all age classes are seen in the area. In the outgoing plan it was predicted that about 98153 trees are in approach class and likely to be entering to the next higher girth class i.e. exploitable class. The proportion of Sal and non sal trees in approach class is approximately 50:50. On inspection of forest it is observed that these expected trees are not entering in to next higher girth class. Hardly 10-15% trees have entered to the next higher class. The factors affecting this regression are due to soil productivity. This appears to be due to increase in dryness, spring growth retarded due to moisture stress, lack of humus on forest floor and top soil erosion. The coupe wise trees expected to enter to next higher class as predicted in the outgoing plan is given below.

Block/ Compt	Coupe	Area	No. of Trees Available in Approach Class		
			Sal	Other	Total
Nuagarh-9	BRA-I	429.26	3733	8286	12019
Nuagarh-8	BRA-II	381.7	2185	5156	7341
Nuagarh-6	BRA-III	434.81	5129	7516	12645
Nuagarh-7(P)	BRA-IV	258.49	7653	5551	13204
Nuagarh 5(P)		193.37			
Nuagarh 7(B)	BRA-V	70.94	3294	1948	5242
Nuagarh- 5(B)	BRA-VI	355.15	6787	4678	11465
Bhuska PRF	BRA-VII	248.36	9075	3041	12116
Nuagarh-4	BRA-VIII	445.55	5821	7330	13151
Nuagarh-3	BRA-IX	336.93	2965	3869	6834
Nuagarh-1	BRA-X	275.33	2026	2110	4136
Total		3781.74	48668	49485	98153

11.2.6.8. Deviations, If any.

As per the provisions of the plan prescription, the coupe has been marked and delivered to OFDC Ltd for working in the same year. OFDC has also worked the coupe as per the standard procedure. During

working, no damage has been caused to the growth / regeneration. No deviation has been caused. After main felling, subsidiary silvicultural operation over the entire area has been prescribed. As such there is a shortfall of 28.92% in carrying out of Subsidiary silvicultural Operation. This could not be implemented in letter & Spirit due to lack of budgetary provision against this division. The deviation statement has been given below.

Table No.6

Silvicultral Operation

Year	Improvement WC		Rehabilitation WC		Plantation WC		Bamboo(O)WC	
	Target in Ha	Achievement In Ha	Target in Ha	Achievement In Ha	Target in Ha	Achievement In Ha	Target in Ha	Achievement In Ha
2017-18	0	0	1439.97	0	90	50	3434.0	0
2018-19	0	0	4391.81	1925.0	60	40	3866.57	0
2019-20	0	0	5411.5	50	80	20	4764.43	0
2020-21	0	0	11418.82	0	80	0	7504.21	0

11.2.6.9. Reasons For Not Achieving The Set Out Objectives:-

The objective that has been set out on qualitative terms indicates for conservation of forests, Soil & Moisture Conservation, Biodiversity and increase in productive. The objectives are not fully achieved within this plan period (8 year passed). The reasons are given below.

Sl. No	Reason
1	Lack of resource to implement plan prescription fully
2	Intensity of Soil & Moisture Conservation measures is less.
3	Soil regression due to Grazing, loss of Humus, porosity of soil etc.
4	Climate change i.e. increase in temperature, reduced rainy days, less rainfall are also major reasons.

11.3. Special works of improvement undertaken:-

During the outgoing plan block plantation, gap plantation, avenue plantation has been done. Water resource management, wildlife protection and creation of water body has been done. JFM activities

and awareness camping has been done. Subsidiary silvicultural operations were carried out both in forest and bamboo area.

11.4. Past yield, revenue and expenditure:-

The past yield, revenue and expenditure are given in the table below.

Table No.7

Past yield, revenue and expenditure

Year	Yield				Revenue	Expenditure
	Timber in Cum	Fire Wood in Stack	Pole in Nos.	Bamboo in Nos.		
2007-08	297.9126	202.96	1002	47020	3481111.00	11818943.00
2008-09	342.4307	193.285	368	63900	1786170.00	26283546.00
2009-10	156.0981	469.64	331	68406	23430092.00	17008186.00
2010-11	12623.36	469.00	255	15020	1184633.00	19743590.00
2011-12	497.2029	31.00	173	--	3515754.00	25271522.00
2012-13	462.4147	32	306	--	2731987.00	41013050.00
2013-14	771.7487	423	1138	--	2302877.00	60409636.00
2014-15	575.3702	617	1642	--	3442741.00	77587371.00
2015-16	292.4759	616	484	--	2420362.00	48627803.00
2016-17	25.3447	230	87	--	1421654.00	33682988.00
2017-18	11.4792	206	150	--	1109812.00	11596393.00
2018-19	29.6997	251	546	--	1763755.00	33684867.00
2019-20	36.3869	135	604	--	192643.00	96079603.00
2020-21	65.9218	8.08	563	--	527374.00	163978164.00
2021-22	50.4147	16.50	86	--	147623.00	42111780.00

Sources: Divisional Forest Officer, Athgarh Forest Division.

CHAPTER – 12

Statistics of Growth and Yield

12. Statistics of Growth and Yield:-

The growing stock was assessed by taking up sample point enumeration based on random sampling as per sample point prescribed by GIS Computed Area& ORSAC. Enumeration has been completed and basing on the results, the yield of the growing stock has been calculated. Till date, for yield calculation there is no any research work has been taken up in the Athagarh Forest Division to know the influence of the climatic and adaphic factors on the growth of the forest nor is any local volume table or yield table available to assess the yield. During this sample point enumeration,ideal plots are selected to assess the growth of forest. The statistics of growth and yield has been calculated after completion of enumeration of all the sample plots in different Working Circle.

12.1. Statistics of Forest 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)fromthe 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.The permanent sample plots (PSP) are visited & the carbon stock of the permanent sample plots are estimated as per the methodology. 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. The carbon stock of the 48 nos. of the permanent sample plots in different strata of under different Forest Ranges has been given in the Annexure.

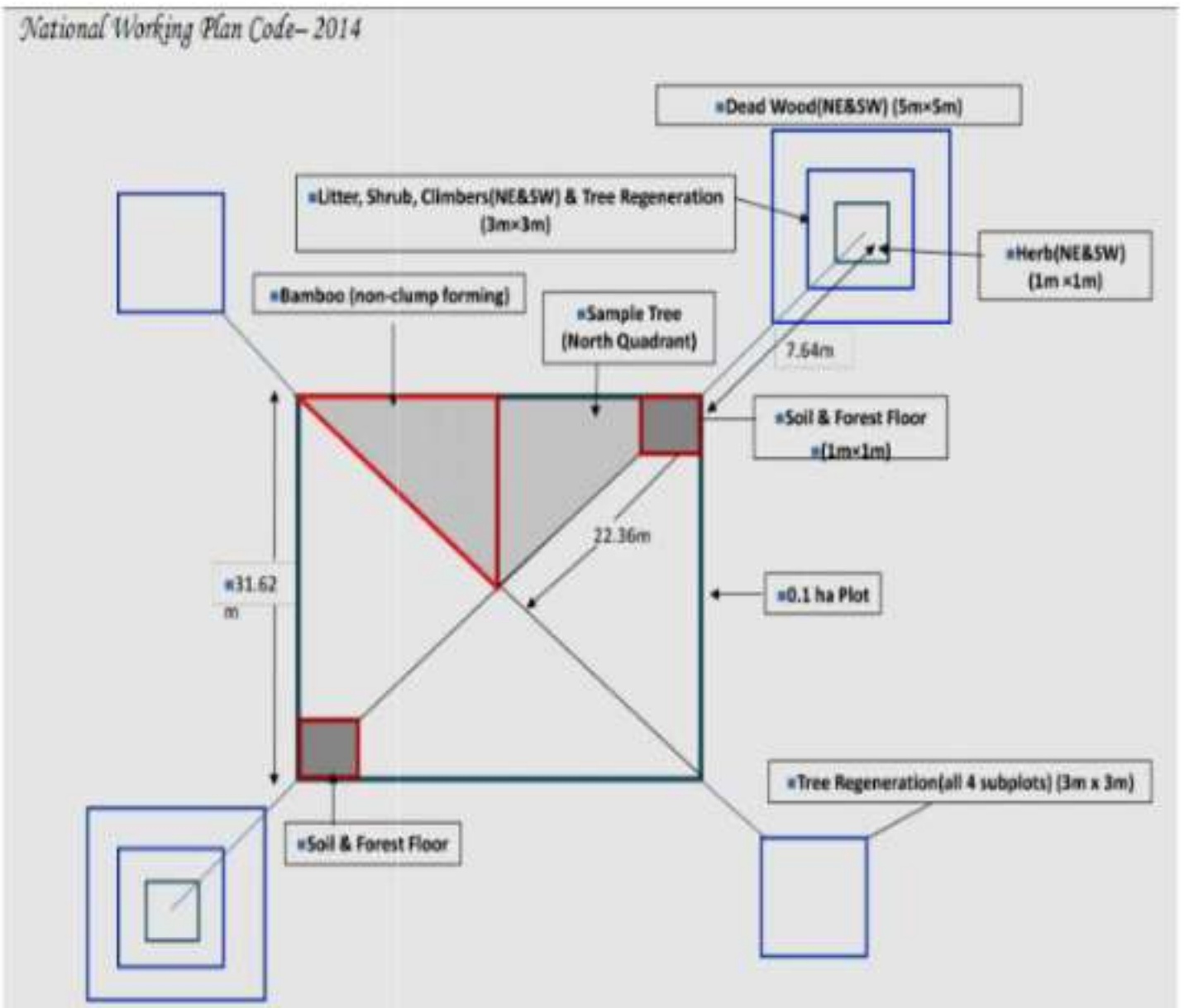
12.1.1.Methodology Adopted:-

For assessment of growing stock as well as carbon stock, the following methodology is adopted:

Sl. No	Methodology to be adopted
1	The Sample point was derived by utilizing satellite imagery by GIS Computed Area. The location lat& long is the centre of the sample point. Four nos. of diagonals are laid at an angle of 45° NE, 135° SE, 225° SW and 315° NW, each diagonal measuring 22.36mtrs, so that a square plot of 1ha. has been formed. Enumeration of 1 sample plot measuring 0.1ha. is taken up for bio-diversity assessment.
2	After marking the grids, the Geo-coordinates of the center of the grid are found out from the digitized toposheet and navigated with the help of GPS. On the center of Sample Plot, one bamboo stick/pole of 1.5mtrs height is fixed. The code of the Sample Plot has been written.
3	Nested quadrates of size 3m x 3m and 1m x 1m are laid at a distance of 30 mtrs from the central point along the four diagonals, one more quadrate of size 5m x 5m at NE and SW direction is laid.
4	While approaching the Sample Plot, stock assessment and mapping (Earmarking the stocked area on the map), ground truthing of remote sensing data is done 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 is 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. GPS tracking facility is used to develop GIS based maps.
5	The general information around the Sample Plot over an area of 2ha. *i.e.* at a radius of 80mtrs from the centre of the Sample Point is recorded.
6	All trees having girth 30 cm and above is enumerated, species wise and girth class wise and recorded.Trees/bamboo clumps touchingnorth and west border lines of the plot is enumerated and trees/bamboo clumps touching the east and south border lines is not enumerated. Enumeration of trees/bamboos starts from NE corner of the plot and proceeds in clock wise direction and recorded. Height of all the trees in North-quadrant should be measured and recorded. The data of shrub, climbers and regeneration status from all four quadrates of 3m x 3m is collected and recorded.The data of herbs from all nested quadrates of 1m x 1m laid within each quadrate of 3mx3m is collected and recorded.
7	Along with nested quadrates of 3m x 3m and 1m x 1m, one more quadrate of size 5m x 5m at NE and SW direction is laid out for the estimation of carbon stock. In 5m x 5m, all the dead wood above 5cm diameter (15cm girth) are collected, weighed and recorded. In 3m x 3m, all the woody litter *i.e.* branches below 5cm diameter (15cm girth), are collected, weighed and recorded. In 3m x 3m, all shrubs and climbers are up-rooted, weighed and recorded. In 1m x 1m plot, all herbs/grasses including leaf litter are collected, weighed and recorded. In 1m x 1m plot, forest floor are swept, collected, recorded and a portion is kept for carbon analysis. After that a pit of 30cm x 30cm x 30cm is dug at the centre of these1m x 1m plots and a composite sample of soil weighing 200gm is kept for organic carbon analysis.

12.1.1. For rejuvenation of rivers different restoration activities are been taken up by this division with consolation with soil conservation department. In order to check soil erogon massive tree plantation shall been taken up under different scheme like Green Mahanadi Mission, Bald Hill Plantation, Block Plantation. Awareness and capacity building programmes are been taken up time to time in the nearby villages of different rivers and wetlands.

12.1.2.The diagram of laying of Sample Plot for inventory of forest resource and carbon stock



Plot configuration of main plot and attached sub-plots

Table No. 1

CARBON STOCKS OF FOREST BLOCKS OF ATHGARH FOREST DIVISION

Forest Range	Forest Block	Area of Forest Block in ha	Name of Species	Total Volume in Cum	Volume of 0.1 Ha. in Cum	Specific gravity	Bole mass (6x7)	Above Ground Biomass (8x1.74)	Below Ground Biomass (9x0.26)	Dead Organic Biomass (9+10)X0.11	Total Biomass (9+10+11)	Carbon Stock in MT (12x0.47)	Total Carbon Stock in MT (0.1Ha)	Total Carbon in Forest Block in MT
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Athgarh	Adal	238.6100	Misc.	2628	1.1013788	0.6	0.6608273	1.1498395	0.2989583	0.1593678	1.6081655	0.7558378	0.7558378	1803.5045
	Baudahanakhandi	540.6780	Misc.	3832	0.7087398	0.6	0.4252439	0.7399243	0.1923803	0.1025535	1.0348582	0.4863833	0.4863833	2629.7677
	Jenapada	123.2400	Misc.	601	0.4876663	0.6	0.2925998	0.5091237	0.1323722	0.0705645	0.7120604	0.3346684	0.3346684	412.4453
	Kalichiabillav	715.1100	Misc.	13261	1.8544	0.6	1.11264	1.9359936	0.5033583	0.2683287	2.7076807	1.2726099	1.2726099	9100.5608
	Khalakhala	602.9900	Misc.	11477	1.9033483	0.6	1.142009	1.9870956	0.5166449	0.2754115	2.779152	1.3062014	1.3062014	7876.2640
	Nizigarh	823.1000	Misc.	24957	3.0320739	0.6	1.8192443	3.1654851	0.8230261	0.4387362	4.4272475	2.0808063	2.0808063	17127.1168
	Oringa	432.3696	Misc.	4233	0.9790235	0.6	0.5874141	1.0221005	0.2657461	0.1416631	1.4295098	0.6718696	0.6718696	2904.9599
	Phulbadi	377.4900	Misc.	5779	1.5309015	0.6	0.9185409	1.5982611	0.4155479	0.221519	2.235328	1.0506042	1.0506042	3965.9257
	Ranibania	1028.2482	Misc.	2651	0.2578171	0.6	0.1546903	0.2691611	0.0699819	0.0373057	0.3764487	0.1769309	0.1769309	1819.2886
	Saranda	129.1000	Misc.	39	0.0302091	0.6	0.0181255	0.0315383	0.0082	0.0043712	0.0441095	0.0207315	0.0207315	26.7643
	Soisapala	651.2900	Misc.	22456	3.4479264	0.6	2.0687559	3.5996352	0.9359051	0.4989094	5.0344498	2.3661914	2.3661914	15410.7679
	Subasi	1280.3000	Misc.	8737	0.6824182	0.6	0.4094509	0.7124446	0.1852356	0.0987448	0.996425	0.4683197	0.4683197	5995.8977
	Sukasana	707.2800	Misc.	8812	1.2458998	0.6	0.7475399	1.3007194	0.338187	0.1802797	1.8191861	0.8550175	0.8550175	6047.3676
Badamba	Badjora	1063.9700	Misc.	45851	4.309426	0.6	2.5856556	4.4990408	1.1697506	0.623567	6.2923584	2.9574085	2.9574085	31465.9387
	Baghamundia	115.4900	Misc.	1388	1.2018357	0.6	0.7211014	1.2547164	0.3262263	0.1739037	1.7548464	0.8247778	0.8247778	952.5359
	Belapada	91.6600	Misc.	2715	2.9620336	0.6	1.7772202	3.0923631	0.8040144	0.4286015	4.324979	2.0327401	2.0327401	1863.2096
	Birigadia	20.3200	Misc.	474	2.3326772	0.6	1.3996063	2.435315	0.6331819	0.3375347	3.4060315	1.6008348	1.6008348	325.2896

	Chandragiri (A)	265.0000	Misc.	11566	4.3645283	0.6	2.618717	4.5565675	1.1847076	0.6315403	6.3728154	2.9952232	2.9952232	7937.3415
	Ganguary	30.4500	Misc.	1177	3.865353	0.6	2.3192118	4.0354286	1.0492114	0.5593104	5.6439504	2.6526567	2.6526567	807.7340
	Gothamundia	83.8900	Misc.	1915	2.2827512	0.6	1.3696507	2.3831923	0.61963	0.3303104	3.3331327	1.5665724	1.5665724	1314.1976
	Haladiaseni	3925.1700	Misc.	159081	4.0528436	0.6	2.4317061	4.2311687	1.1001039	0.58644	5.9177125	2.7813249	2.7813249	109171.7301
	Jagabebarathali	223.1788	Misc.	10331	4.6290239	0.6	2.7774143	4.832701	1.2565022	0.6698124	6.7590156	3.1767373	3.1767373	7089.8042
	Janisahi-khalidhipi	35.5800	Misc.	218	0.6127038	0.6	0.3676223	0.6396627	0.1663123	0.0886573	0.8946323	0.4204772	0.4204772	149.6058
	Jhinkala	436.2000	Misc.	17547	4.022696	0.6	2.4136176	4.1996946	1.0919206	0.5820777	5.8736929	2.7606357	2.7606357	12041.8928
	Kabatabara	18.3300	Misc.	534	2.913257	0.6	1.7479542	3.0414403	0.7907745	0.4215436	4.2537584	1.9992664	1.9992664	366.4655
	Kandhamundia	48.3600	Misc.	753	1.557072	0.6	0.9342432	1.6255831	0.4226516	0.2253058	2.2735406	1.0685641	1.0685641	516.7576
	Karada	1156.4100	Misc.	40557	3.5071471	0.6	2.1042883	3.6614616	0.95198	0.5074786	5.1209202	2.4068325	2.4068325	27832.8516
	Kumaranga	361.3600	Misc.	12970	3.5892185	0.6	2.1535311	3.7471441	0.9742575	0.5193542	5.2407558	2.4631552	2.4631552	8900.8577
	Mandapa	433.3900	Misc.	17899	4.1299984	0.6	2.477999	4.3117183	1.1210468	0.5976042	6.0303692	2.8342735	2.8342735	12283.4581
	Nagatota	2228.3645	Misc.	75915	3.4067586	0.6	2.0440552	3.556656	0.9247306	0.4929525	4.9743391	2.3379394	2.3379394	52097.8111
	Talachandragiri	980.5250	Misc.	33749	3.4419316	0.6	2.065159	3.5933766	0.9342779	0.498042	5.0256965	2.3620774	2.3620774	23160.7591
	Tareiganda	997.3900	Misc.	37430	3.7527948	0.6	2.2516769	3.9179178	1.0186586	0.5430234	5.4795998	2.5754119	2.5754119	25686.9007
	Telunia	25.0100	Misc.	162	0.6477409	0.6	0.3886445	0.6762415	0.1758228	0.0937271	0.9457914	0.4445219	0.4445219	111.1749
Narasinghpur East	Chandragiri(B)	698.3200	Misc.	14860	2.1279643	0.6	1.2767786	2.2215947	0.5776146	0.307913	3.1071223	1.4603475	1.4603475	10197.8986
	Nuagarh	3942.3710	Misc.	19551	0.4959198	0.6	0.2975519	0.5177403	0.1346125	0.0717588	0.7241116	0.3403325	0.3403325	13417.1680
	Bhuska	247.4600	Misc.	8453	3.4159056	0.6	2.0495434	3.5662054	0.9272134	0.4942761	4.9876949	2.3442166	2.3442166	5800.9985
	Deobhui	6028.4650	Misc.	283065	4.6954739	0.6	2.8172843	4.9020747	1.2745394	0.6794276	6.8560417	3.2223396	3.2223396	194257.6158

	n													
	Mundagada	136.4800	Misc.	1500	1.0990621	0.6	0.6594373	1.1474209	0.2983294	0.1590325	1.6047828	0.7542479	0.7542479	1029.3976
	Olaba	2261.2800	Misc.	92877	4.1072755	0.6	2.4643653	4.2879956	1.1148789	0.5943162	5.9971907	2.8186796	2.8186796	63738.2389
Narasinghpur West	Balikiary	5212.4100	Misc.	176377	3.3837898	0.6	2.0302739	3.5326766	0.9184959	0.489629	4.9408015	2.3221767	2.3221767	121041.3704
	Barbakhol	1278.5600	Misc.	31553	2.4678545	0.6	1.4807127	2.5764401	0.6698744	0.3570946	3.6034091	1.6936023	1.6936023	21653.7211
	Bramhanidei	99.9100	Misc.	2668	2.6704034	0.6	1.602242	2.7879011	0.7248543	0.3864031	3.8991585	1.8326045	1.8326045	1830.9551
Khuntuni	Baniabandha	5714.5253	Misc.	142680	2.4967953	0.6	1.4980772	2.6066543	0.6777301	0.3612823	3.6456667	1.7134634	1.7134634	97916.2970
	Baula	95.8700	Misc.	1467	1.5301971	0.6	0.9181183	1.5975258	0.4153567	0.2214171	2.2342996	1.0501208	1.0501208	1006.7508
	Bramhanabasta	320.2700	Misc.	4334	1.3532332	0.6	0.8119399	1.4127755	0.3673216	0.1958107	1.9759078	0.9286767	0.9286767	2974.2727
	Deulia	288.1900	Misc.	5029	1.7450293	0.6	1.0470176	1.8218106	0.4736708	0.252503	2.5479843	1.1975526	1.1975526	3451.2269
	Gobara	510.5483	Misc.	8088	1.5841792	0.6	0.9505075	1.6538831	0.4300096	0.2292282	2.3131209	1.0871668	1.0871668	5550.5117
	Ranibania	1028.2482	Misc.	12996	1.2638972	0.6	0.7583383	1.3195087	0.3430723	0.1828839	1.8454648	0.8673685	0.8673685	8918.7006
	Sankhapoi	495.6383	Misc.	15037	3.0338656	0.6	1.8203194	3.1673557	0.8235125	0.4389955	4.4298637	2.0820359	2.0820359	10319.3675
	Sunianuha	186.9000	Misc.	1320	0.70626	0.6	0.423756	0.7373355	0.1917072	0.1021947	1.0312374	0.4846816	0.4846816	905.8699
														963207.3081

Table No. 2

CARBON STOCKS TREE OUTSIDE OF FOREST ATHGARH FOREST DIVISION(FINAL)

Forest Division	Forest Block	Area in ha/RKM	Name of Species	Total Volume in Cum	Volume of 0.1 Ha.	Specific gravity	Bole mass (6x7)	Above Ground Biomass (8x1.74)	Below Ground Biomass (9x0.26)	Dead Organic Biomass (9+10)X0.1 1	Total Biomass (9+10+11)	Carbon Stock in M/T (12x0.47)	Total Carbon Stock (in 0.1 Ha.)	Total Carbon in Forest Block
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Athgarh	JagannathaVanaPrakalpa	460.5900	Misc.	55847.458	12.1252	0.6	7.2751199	12.658709	3.2912642	1.754497	17.70447	8.3211009	8.3211009	38326.1584
	VanaSarakhyanaSamiti(VSS)	2674.8900	Misc.	540755.7624	20.216	0.6	12.1296	21.105504	5.487431	2.9252229	29.518158	13.873534	13.873534	371101.78
	Avenue Plantation	182.5000	Misc.	7209.18	3.9502356	0.6	2.3701414	4.124046	1.072252	0.5715928	5.7678907	2.7109086	2.7109086	4947.4083
														414375.35

PART-II

CHAPTER-1

Basis of Proposal and Constitution of Working Circles

1.1. Objective of Management:-

Management planning aims to provide sustainable management of forests and its biodiversity as enshrined in the National Forest Policy, 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 Indian 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 harmonies with the environment of the locality.

1.1.1. Dynamic of Forests and Stands:-

The total GIS computed working plan area is 39626.163 hectare.The total GIS computed area of RFis 36142.321 ha, PRF is1539.9 ha, PF is 82.89 & VF is 1861.052 ha.The un-classed forest area is 07.492hectare and this area is not included in working plan area but it is allotted to miscellaneous regulation. The basis of Proposal for this working Plan is based on guidelines issued in National Working Plan Code-2014 and National Forest Policy in force. The details of area of this revision are given in the table below.

Area statement of Revised Plan		
Sl No.	Name	Area in ha.
1	Geographical area of the Division	152262.00
2	Rehabilitation Working Circle	34129.491
3	Plantation Working Circle	5496.672
4	Tree Outside Forest	93284.8579
5	Un-classed Forest	7.492
6	Sanctuary Geographical area	19343.4871

1.1.2. Forests and Soil:-

The soil erosion of this zone is increasing due to less crown density. The thrust has been given on following aspects keeping in view the field condition with respect to crop density, available species, their growth condition, wildlife abundance, and availability of NTFP, water regime of the tract and development of industrial sector in the region.

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 will be formulated to stop forest degradation due to natural causes and calamities. Apart from silvicultural operations, thrust will be given to make appropriate prescriptions for conservation of soil and water in the forest areas. Areas susceptible to soil erosion such as steep slopes and areas in the vicinity of perennial streams, etc. will be focused in appropriate working circle.

1.1.3. Forest and Water:-

The main objective of this revision is to conserve water sources and increasing the water conservation capacity of the forest. Critical observations made in each working circle have been kept in mind while setting objectives in each working circle and silvicultural systems proposed.

The forests are also sources of water (surface, sub-surface and ground water). Over exploitation of the ground water resources results in declining ground water levels; there is an urgent need to augment the ground water resources through suitable management interventions. It is desirable to have forest management practices dovetailed with the principles of watershed based development approach especially in the source areas of water. Such areas should have restrictions on tree felling but there should be operations to improve the water regimes and natural regeneration. As such, special provisions will be made in the revised working plan to sustain water resources and livelihood issues of the people living in and around natural inland water sources.

1.1.4. Forest Biodiversity:-

The total geographical area of this division is 152262.00haoutof which39626.163 ha is forest is plan area. The availability of wildlife in different forest blocks is satisfactory. The availability of micro-organisms is also maximum. The river Mahanadi is flowing in the border area of this division. Therefore objective of this revision is to conserve genetic resources. Forest 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 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 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.Assessment of biodiversity especially the lower forms of life (algae, fungi, lichens, epiphytes, parasites, etc.) of a forest division will be made an on-going programme with the support from state Biodiversity Board. Steps will be taken for updating and enriching the People's Biodiversity Registers (PBRs) as provided in Biodiversity Act, 2002.

1.1.5. Climate and Forests:-

The temperature and rainfall of this zone is changing as per the statistic data. Therefore the objectors of this revision is to increase crown density of the forest. The growing stock will be increasing by adopting artificial and natural regeneration. Basing on critical analysis on prescriptions of outgoing plan, changing management practices the Working Circles area proposed. Climate is an active factor in the physical environment of all living 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 given below.

Sl. No	Climatic Changes
1	They are source of greenhouse gas (GHG) emissions.
2	They offer mitigation opportunities to stabilize GHG concentrations.
3	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.

1.1.6. Socioeconomic considerations and generation of forest based employment opportunities and livelihood options:-

There are many villages situated adjoining to the forest of this division. The villagers are fully depend on forest. Therefore the objective of this revision is to meet the fuel wood, fodder and timber requirement of the local communities. The local people will be engaged in different activities of forest works with their traditional knowledge.

1.1.7. Tool for integrated development:-

The outgoing plan was from 2007-08 to 2016-17. The management plan was act asa tools for integrated development. The growing stock as well as crown density has been increased. But the maximum treeshas not attended exploitable girth. Therefore selection system has not been prescribed in this revision. The working circle prescribed in this revision and its prescription will be act as a tools for integrated development of the forest.

1.2. **Method of treatment to be adopted:-**

Geometrics (Remote sensing, GIS and GPS) has got a wide range of applications in forest management. One can find application of geometrics in almost every forest management practice e.g. forest cover mapping in different canopy density classes, change detection (degradation as well as improvement), forest fire detection, burnt area mapping, biodiversity mapping, afforestation planning, wildlife habitat suitability mapping, boundary demarcation. Appropriate measures will be suggested to make use of modern technology in Forest Management. The method of treatment to be adopted are improvement of the growing stock and plantation in the open forest.

1.3. Constitution of working circles:-

In this revision the main working circles are (1) Rehabilitation Working Circle & (2) Plantation Working Circle. The other Working Circle are Bamboo OWC, Joint Forest Management OWC, Wildlife Management OWC, NTFP OWC, Protection OWC, Bio-diversity Conservation and

Development,Tree Outside Forest, Eco Tourism, Miscellaneous Regulations, Water Resource Management, REDD+ and Climate change&Science and Research.

1.3.1. The name of the Working Circles and its area is given in the table below.

Table No-1		
Working Circle wise area in hectare as per GIS Computed Area		
S.L No.	Name of the Working Circle	GIS Computed Area
1	Rehabilitation Working Circle	34129.491
2	Plantation Working Circle	5496.672
3	Bamboo Over Lapping Working Circle	15239.595
4	NTFP Over Lapping Working Circle.	39626.163
5	Joint Forest Management Over Lapping Working Circle	12200.362
6	Wildlife Management Over Lapping Working Circle.	39626.163
7	Protection Over Lapping Working Circle.	39626.163

1.3.2. The name of the Chapters and its area is given in the table below.

Table No-2		
Chapters wise area in hectare as per GIS Computed Area		
S.L No.	Name of the Chapters	GIS Computed Area
1	Eco Tourism Chapter	70.00
2	Water Resource Management Chapter	39626.163
3	REDD+ and Climate change Chapter.	39626.163
4	Bio-diversity Conservation and Development Chapter	39626.163
5	Miscellaneous Regulations Chapter	7.492
6	Science and Research Chapter	100.00
7	Tree Outside Forest Chapter	93284.8579
8	Summary of Prescription Chapter	--
9	General Financial Forecast and Financial Plan of Operation Chapter	--

1.3.3. The details of Forest Block and its area proposed for different working circle are given in the table below.

Table No.3

Constitution of working circle of Athgarh Division and distribution of forest area

Statement showing Forest Block areas proposed to assign to different Working Circles. (Areas in ha.)

Sl. No	Name of the Range	Name of Forest Block	Area in ha.	Area diverted under		Area available for management in ha.	Area allotted to different working circle						
				FC Act 1980	FRA		RWC	Plantation	Bamboo (OL) WC	Protection (OL) WC	NTFP (OL) WC	Wild life(OL) WC	JFM (OL) WC
1	2	3	4	5	6	7	9	10	11	12	13	14	15
	Reserve Forest												
1	Narasinghpur East	Deobhuin R.F	6092.23	52.805	0.96	6028.465	5835.465	193	6028.465	6028.465	6028.465	6028.465	806.23
2	Narasinghpur East	Olab R.F	2288.8	27.52	0	2261.28	2081.28	180	2261.28	2261.28	2261.28	2261.28	0
3	Narasinghpur East	Chandragiri RF	738.66	40.34	0	698.32	648.32	50	698.32	698.32	698.32	698.32	241
4	Narasinghpur East	Mundagada RF	136.48	0	0	136.48	136.48	0	0	136.48	136.48	136.48	136.48
	Range Total		**9246.17**	**120.665**	**0.96**	**9124.545**	**8701.545**	**423**	**8988.065**	**9124.545**	**9124.545**	**9124.545**	**1183.71**
5	Narasinghpur West	Brambanidevi RF	99.91	0	0	99.91	99.91	0	0	99.91	99.91	99.91	60
	Range Total		**99,91**	**0**	**0**	**99,91**	**99,91**	**0**	**0**	**99,91**	**99,91**	**99,91**	**60**
6	Baramba	Chandragiri RF	321.16	36.16	0	285	235	50	285	285	285	285	0
7	Baramba	Hulahinseria RF	3925.17	0	0	3925.17	3925.17	0	3925.17	3925.17	3925.17	3925.17	115
8	Baramba	Badajore RF	1063.97	0	0	1063.97	971.97	90	1063.97	1063.97	1063.97	1063.97	36
9	Baramba	Tarrigauda RF	999.39	0	2.0	997.39	952.39	45	997.39	997.39	997.39	997.39	100
10	Baramba	Kurmarunga RF	361.36	0	0	361.36	286.36	75	0	361.36	361.36	361.36	241.25
11	Baramba Baramba	Talachandragiri RF	993.8	13.275	0	980.525	980.525	0	0	980.525	980.525	980.525	212
12	Baramba	Nagiteta RF	2228.97	0	0.6055	2228.3645	2146.3645	82	0	2228.3645	2228.3645	2228.3645	700
13	Baramba	Mandap RF	433.48	0	0	433.48	433.48	0	0	433.48	433.48	433.48	480
14	Baramba	Jagidchara Bali RF	224.12	0	0.9712	223.1788	143.1788	80	0	223.1788	223.1788	223.1788	80
15	Baramba	Kanda RF	1156.41	0	0	1156.41	1076.41	80	0	1156.41	1156.41	1156.41	543
16	Baramba	Belapada (B)RF	91.66	0	0	91.66	41.66	50	0	91.66	91.66	91.66	
17	Baramba	Jhinkal (B)RF	436.2	0	0	436.2	301.2	135	0	436.2	436.2	436.2	257
	Range Total		**12235.72**	**49.435**	**3.5767**	**12162.7083**	**11675.7083**	**687**	**6251.83**	**12162.7083**	**12162.7083**	**12162.7083**	**2706.25**

18	Alipath	Sukhasan RF	707.28	0	0	707.28	657.28	50	0	707.28	707.28	707.28	60
19	Alipath	Khalakhala RF	602.99	0	0	602.99	557.99	45	0	602.99	602.99	602.99	70
20	Alipath	Bindabasinichandi RF	540.83	4.332	0	540.678	280.678	255	0	540.678	540.678	540.678	260
21	Alipath	Ovinga RF	438.44	0	6.0704	432.3696	307.3696	125	0	432.3696	432.3696	432.3696	80
22	Alipath	Jenapada RF	123.24	0	0	123.24	123.24	0	0	123.24	123.24	123.24	123.24
23	Alipath	Sabari (LR)(P)) RF	771.83	0.26	0	771.57	741.57	30	0	771.57	771.57	771.57	550
24	Alipath	Ranibasta (C1) RF	258.6718	0	3.6818	254.99	254.99	0	0	254.99	254.99	254.99	200
25	Alipath	Adal RF	238.61	0	0	238.61	228.61	10	0	238.61	238.61	238.61	238.61
26	Alipath	Nuagarh RF	823.1	0	0	823.1	783.1	40	0	823.1	823.1	823.1	75
27	Alipath	Kalebabeller RF	722.61	6.9	0	715.11	580.11	135	0	715.11	715.11	715.11	650
28	Alipath	Sonipal RF	651.29	0	0	651.29	301.29	350	0	651.29	651.29	651.29	551
	Range Total		**5802.4918**	**11.512**	**9.7522**	**5861.2276**	**5021.2276**	**840**	**0**	**5861.2276**	**5861.2276**	**5861.2276**	**3061.85**
29	Khuntuni	Bamabandha RF	5766.71	9.252	42.9327	5714.5253	5299.5253	415	0	5714.5253	5714.5253	5714.5253	3650
30	Khuntuni	Gohara RF	524.49	0	13.9487	510.5483	500.5483	10	0	510.5483	510.5483	510.5483	320
31	Khuntuni	Sankhapuri RF	496.65	0	1.0117	495.6383	440.6383	55	0	495.6383	495.6383	495.6383	180.5
32	Khuntuni	Banda RF	95.87	0	0	95.87	45.87	50	0	95.87	95.87	95.87	0
33	Khuntuni	Sunnamahan RF	186.97	0	0.07	186.9	92.5	94.4	0	186.9	186.9	186.9	127
34	Khuntuni	Bramhanbarna RF	320.27	0	0	320.27	215.27	105	0	320.27	320.27	320.27	100
	Khuntuni	Ranirabeera (Part)RF	773.2582	0	0	773.2582	743.2582	30	0	773.2582	773.2582	773.2582	320
	Khuntuni	Sabari (If Balance)RF	308.73	0	0	308.73	468.73	40	0	308.73	308.73	308.73	183.6
35	Khuntuni	Dudia RF	288.19	0	0	288.19	163.19	125	0	288.19	288.19	288.19	175
	Range Total		**8961.3382**	**9.252**	**57.9561**	**8893.9301**	**7969.5301**	**924.4**	**0**	**8893.9301**	**8893.9301**	**8893.9301**	**5035.5**
Division Reserved Forest Total			**36425.43**	**210.864**	**72.245**	**36142.321**	**33267.921**	**2874.4**	**15239.595**	**36142.321**	**36142.321**	**36142.321**	**10047.31**
Proposed Reserve Forest													
1	Narasinghpur East	Bhaska PRF	248.36	0	0.9	247.46	100.46	147	0	247.46	247.46	247.46	200
	Range Total		**248.36**	**0**	**0.9**	**247.46**	**100.46**	**147**	**0**	**247.46**	**247.46**	**247.46**	**200**

2	Baramba	Baghamundia PRF	115.49	0	0	115.49	72.49	43	0	115.49	115.49	115.49	0
3	Baramba	Khalidhpharasahi PRF	35.58	0	0	35.58	35.58	0	0	35.58	35.58	35.58	0
4	Baramba	Kandhamandia PRF	48.36	0	0	48.36	48.36	0	0	48.36	48.36	48.36	0
5	Baramba	Gothamundia PRF	83.89	0	0	83.89	73.89	10	0	83.89	83.89	83.89	32
6	Baramba	Birgadia PRF	20.32	0	0	20.32	10.32	10	0	20.32	20.32	20.32	0
7	Baramba	Kabathar PRF	18.33	0	0	18.33	0	18.33	0	18.33	18.33	18.33	0
8	Baramba	Gangaari PRF	30.45	0	0	30.45	30.45	0	0	30.45	30.45	30.45	0
9	Baramba	Telisia PRF	25.01	0	0	25.01	15.01	10	0	25.01	25.01	25.01	0
	Range Total		**377.43**			**377.43**	**286.1**	**91.33**		**377.43**	**377.43**	**377.43**	**32**
10	Athgarh	Sasanda PRF	129.1	0	0	129.1	94.1	35	0	129.1	129.1	129.1	0
11	Athgarh	Phiribindi PRF	377.49	0	0	377.49	287.49	90	0	377.49	377.49	377.49	60
12	Athgarh	Megha PRF	44.9	0	0	44.9	44.9	0	0	44.9	44.9	44.9	0
13	Athgarh	Kandarpur PRF	19.38	0	0	19.38	19.38	0	0	19.38	19.38	19.38	0
	Range Total		**570.87**			**570.87**	**445.87**	**125**	**0**	**570.87**	**570.87**	**570.87**	**60**
14	Khurumi	Banishamlha PRF	269.93	0	0	269.93	4.93	265	0	269.93	269.93	269.93	0
15	Khurumi	Dudia East PRF	74.21	0	0	74.21	24.21	50	0	74.21	74.21	74.21	0
	Range Total		**344.14**			**344.14**	**29.14**	**315**	**0**	**344.14**	**344.14**	**344.14**	**0**
Division PRF Total			**1540.8**		**0.9**	**1539.9**	**861.57**	**678.33**	**0**	**1539.9**	**1539.9**	**1539.9**	**292**
Protected Forest													
1	Narasinghpur West	Kaliapada PF	18.98	0	0	18.98	0	18.98	0	18.98	18.98	18.98	0
	Range Total		**18.98**	0	0	**18.98**	0	**18.98**	**0**	**18.98**	**18.98**	**18.98**	**0**
2	Athgarh	Gopalprasad PF	29.51	0	0	29.51	0	29.51	0	29.51	29.51	29.51	0
3	Athgarh	Kulaikpur PF	34.4	0	0	34.4	0	34.4	0	34.4	34.4	34.4	0
	Range Total		**63.91**	0	0	**63.91**	0	**63.91**	0	**63.91**	**63.91**	**63.91**	0
Division Protected Forest Total			**82.89**			**82.89**	0	**82.89**	**0**	**82.89**	**82.89**	**82.89**	**0**

Village Forest													
1	Athgarh	Nuapatna	10	0	0	10	0	10	0	10	10	10	10
2	Athgarh	Radhakrushnapur	20	0	0	20	0	20	0	20	20	20	20
3	Athgarh	Radhakrushnapur	10	0	0	10	0	10	0	10	10	10	10
4	Athgarh	Radhakrushnapur	15	0	0	15		15		15	15	15	15
5	Athgarh	Radhakrushnapur	10	0	0	10		10		10	10	10	10
6	Athgarh	Patrapara	5	0	0	5		5		5	5	5	5
7	Athgarh	ChhotakhuNuagaon	10	0	0	10		10		10	10	10	10
	Range Total		**80**	**0**	**0**	**80**		**80**		**80**	**80**	**80**	**80**
8	Baranba	Badhuparika	10	0	0	10		10		10	10	10	10
9	Baranba	Badhuparika	2	0	0	2		2		2	2	2	2
10	Baranba	Satagachhia	8	0	0	8		8		8	8	8	8
11	Badamba	Satagachhia	6	0	0	6		6		6	6	6	6
12	Baranba	Champeiduar	5	0	0	5		5		5	5	5	5
13	Baranba	Champeiduar	2	0	0	2		2		2	2	2	2
14	Baranba	Sasubaraingh	2	0	0	2		2		2	2	2	2
15	Baranba	Kotipalli	3	0	0	3		3		3	3	3	3
16	Baranba	Kasarapada	10	0	0	10		10		10	10	10	10
17	Baranba	Kasarapada	10	0	0	10		10		10	10	10	10
18	Baranba	Badakandhidhanpur	150	0	0	150		150		150	150	150	150
19	Baranba	Badakandhilo	20	0	0	20		20		20	20	20	20
20	Baranba	Khairapanga	25	0	0	25		25		25	25	25	25
21	Baranba	Khairapanga	20	0	0	20		20		20	20	20	20
22	Baranba	Bamapur	20	0	0	20		20		20	20	20	20
23	Baranba	Badakandhilo	10	0	0	10		10		10	10	10	10
24	Baranba	Bamapur	20	0	0	20		20		20	20	20	20
25	Baranba	Bamapur	15	0	0	15		15		15	15	15	15
26	Baranba	Bamapur	65	0	0	65		65		65	65	65	65
27	Baranba	Satagachhia	100	0	0	100		100		100	100	100	100
28	Baranba	Badaburaingh	50	0	0	50		50		50	50	50	50

29	Baramba	Badabarasingh	30	0	0	30		30		30	30	30	30
30	Baramba	Sambarasingh	30	0	0	30		30		30	30	30	30
31	Baramba	Kotapalla	15	0	0	15		15		15	15	15	15
32	Baramba	Satagochha	15	0	0	15		15		15	15	15	15
33	Baramba	Kotapalla	15	0	0	15		15		15	15	15	15
34	Baramba	Jadam	15	0	0	15		15		15	15	15	15
35	Baramba	Jadam	15	0	0	15		15		15	15	15	15
36	Baramba	Talamundali	15	0	0	15		15		15	15	15	15
37	Baramba	Talamundali	5	0	0	5		5		5	5	5	5
38	Baramba	Telikantilo	90	0	0	90		90		90	90	90	90
39	Baramba	Telikantilo	15	0	0	15		15		15	15	15	15
40	Baramba	Banapur	20	0	0	20		20		20	20	20	20
41	Baramba	Telikantilo	30	0	0	30		30		30	30	30	30
42	Baramba	Badabarasa	15	0	0	15		15		15	15	15	15
43	Baramba	Mupagahar	20	0	0	20		20		20	20	20	20
44	Baramba	Badabarasa	20	0	0	20		10		10	10	10	20
45	Baramba	Badabarasa	10	0	0	10		10		10	10	10	10
46	Baramba	Kuruditundhu	20	0	0	20		150		150	150	150	20
47	Baramba	Kuruditundhu	20	0	0	20		20		20	20	20	20
48	Baramba	Dhanapalli VWL	6	0	0	6		25		25	25	25	6
49	Baramba	Dhanapalli VWL	2	0	0	2		20		20	20	20	2
50	Baramba	Dhanapalli VWL	7	0	0	7		20		20	20	20	7
51	Baramba	Jhajia	4	0	0	4		10		10	10	10	4
52	Baramba	Kharod	8	0	0	8		20		20	20	20	8
53	Baramba	Mulali	8	0	0	8		15		15	15	15	8
54	Baramba	Asnatia	10	0	0	10		65		65	65	65	10
55	Baramba	Ratapata	10	0	0	10		100		100	100	100	10
56	Baramba	Ratapata	9	0	0	9		50		50	50	50	9
57	Baramba	Badakasilo	6	0	0	6		30		30	30	30	6
58	Baramba	Jadam	5	0	0	5		30		30	30	30	5

59	Baramba	Avimanpur	4.5	0	0	4.5		15		15	15	15	4.5
60	Baramba	Kankarajori	1	0	0	1		15		15	15	15	1
61	Baramba	Kadasa	7	0	0	7		15		15	15	15	7
62	Baramba	Satagochhia	9	0	0	9		15		15	15	15	9
63	Baramba	Rampur	2	0	0	2		15		15	15	15	2
64	Baramba	Jadara	7.5	0	0	7.5		15		15	15	15	7.5
65	Baramba	Kadasa	4	0	0	4		5		5	5	5	4
66	Baramba	Kharod	10	0	5.448	4.552		90		90	90	90	4.552
67	Baramba	Balapala	9.5	0	0	9.5		15		15	15	15	9.5
68	Baramba	Jadara	10	0	0	10		20		20	20	20	10
69	Baramba	Nimpada	10	0	0	10		30		30	30	30	10
70	Baramba	Talamundali	10	0	0	10		15		15	15	15	10
71	Baramba	Kotapalla	10	0	0	10		20		20	20	20	10
72	Baramba	Baraspur	5	0	0	5		5		5	5	5	5
73	Baramba	Baraspur	5	0	0	5		5		5	5	5	5
74	Baramba	Kanakbundha	10	0	0	10		10		10	10	10	10
75	Baramba	Kotapada	10	0	0	10		10		10	10	10	10
76	Baramba	Kanakbundha	10	0	0	10		10		10	10	10	10
77	Baramba	Kanapada	10	0	0	10		10		10	10	10	10
78	Baramba	Biswanathapur	6	0	0	6		6		6	6	6	6
79	Baramba	Khairpanga	5	0	0	5		5		5	5	5	5
80	Baramba	Khairpanga	4	0	0	4		4		4	4	4	4
81	Baramba	Gundabura	5	0	0	5		5		5	5	5	5
82	Baramba	Garadipala	30	0	0	30		30		30	30	30	30
83	Baramba	Kadanlapala	10	0	0	10		10		10	10	10	10
84	Baramba	Garadipala	20	0	0	20		20		20	20	20	20
85	Baramba	Badaberena	5	0	0	5		5		5	5	5	5
86	Baramba	Sasanga	5	0	0	5		5		5	5	5	5
87	Baramba	Sasanga	10	0	0	10		10		10	10	10	10
88	Baramba	Kanakbundha	5	0	0	5		5		5	5	5	5
	Range Total		**1294.5**	**0**	**5.448**	**1289.052**		**1289.052**		**1289.052**	**1289.052**	**1289.052**	**1289.052**

89	Narasinghpur East Range	Baghadhuria	10	0	0	10		10		10	10	10	10
90	Narasinghpur East Range	Bahali	7	0	0	7		7		7	7	7	7
91	Narasinghpur East Range	Haliapalli	5	0	0	5		5		5	5	5	5
92	Narasinghpur East Range	Haliapalli	4	0	0	4		4		4	4	4	4
93	Narasinghpur East Range	Bahali	6	0	0	6		6		6	6	6	6
94	Narasinghpur East Range	Bagalisahi	3	0	0	3		3		3	3	3	3
95	Narasinghpur East Range	Bigadhatia	2	0	0	2		2		2	2	2	2
96	Narasinghpur East Range	Bigadhatia	5	0	0	5		5		5	5	5	5
97	Narasinghpur East Range	Lchanga	2	0	0	5		5		5	5	5	5
98	Narasinghpur East Range	Sunia	10	0	0	10		10		10	10	10	10
99	Narasinghpur East Range	Biswanathapur,Sunia Talla	5	0	0	5		5		5	5	5	5
100	Narasinghpur East Range	Sunia	5	0	0	5		5		5	5	5	5
101	Narasinghpur East Range	Bichanduti	6	0	0	6		6		6	6	6	6
102	Narasinghpur East Range	Bichanduti	5	0	0	5		5		5	5	5	5
103	Narasinghpur East Range	Sunia	10	0	0	10		10		10	10	10	10
104	Narasinghpur East Range	Champuswar	5	0	0	5		5		5	5	5	5
105	Narasinghpur East Range	Mangur	5	0	0	5		5		5	5	5	5
106	Narasinghpur East Range	Kalamatia	5	0	0	5		5		5	5	5	5
107	Narasinghpur East Range	Kalamatia	7	0	0	7		7		7	7	7	7
108	Narasinghpur East Range	Gharadia	5	0	0	5		5		5	5	5	5
109	Narasinghpur East Range	Durgaprasad	3	0	0	3		3		3	3	3	3
110	Narasinghpur East Range	Durgaprasad	4	0	0	4		4		4	4	4	4
111	Narasinghpur East Range	Durgaprasad	2	0	0	2		2		2	2	2	2
112	Narasinghpur East Range	Kandhaberani	5	0	0	5		5		5	5	5	5
113	Narasinghpur East Range	Alsiganali,Tulasipur	5	0	0	5		5		5	5	5	5
114	Narasinghpur East Range	Talla	5	0	0	5		5		5	5	5	5

115	Narasinghpur East Range	Tafli	5	0	0	5		5		5	5	5	5
116	Narasinghpur East Range	Madhabana	5	0	0	5		5		5	5	5	5
117	Narasinghpur East Range	Madhabana	5	0	0	5		5		5	5	5	5
118	Narasinghpur East Range	Rashipada	8	0	0	8		8		8	8	8	8
119	Narasinghpur East Range	Rashipada	5	0	0	5		5		5	5	5	5
120	Narasinghpur East Range	Rashipada	10	0	0	10		10		10	10	10	10
121	Narasinghpur East Range	Bokada	5	0	0	5		5		5	5	5	5
122	Narasinghpur East Range	Sagar(Badaburen si)	5	0	0	5		5		5	5	5	5
123	Narasinghpur East Range	Badaburasa	4	0	0	4		4		4	4	4	4
124	Narasinghpur East Range	Panchagachhia	4	0	0	4		4		4	4	4	4
125	Narasinghpur East Range	Padanapur	5	0	0	5		5		5	5	5	5
126	Narasinghpur East Range	Padanapur	5	0	0	5		5		5	5	5	5
127	Narasinghpur East Range	Kamaladeipur	5	0	0	5		5		5	5	5	5
128	Narasinghpur East Range	Kamaladeipur	5	0	0	5		5		5	5	5	5
129	Narasinghpur East Range	Sagara	5	0	0	5		5		5	5	5	5
130	Narasinghpur East Range	Panchagachhia	50	0	0	50		50		50	50	50	50
131	Narasinghpur East Range	Panchagachhia	40	0	0	40		40		40	40	40	40
132	Narasinghpur East Range	Panchagachhia	36	0	0	36		36		36	36	36	36
133	Narasinghpur East Range	Kandhabarani	14	0	0	14		14		14	14	14	14
134	Narasinghpur East Range	Champeswara	15	0	0	15		15		15	15	15	15
135	Narasinghpur East Range	Champeswara	6	0	0	6		6		6	6	6	6
136	Narasinghpur East Range	Godibandha	5	0	0	5		5		5	5	5	5
137	Narasinghpur East Range	Adhigandi(Trilochanpur)	5	0	0	5		5		5	5	5	5
138	Narasinghpur East Range	Bokada	10	0	0	10		10		10	10	10	10
139	Narasinghpur East Range	Kandhabadabhata	6	0	0	6		6		6	6	6	6
140	Narasinghpur East Range	Jayantimala	5	0	0	5		5		5	5	5	5

141	Narasinghpur East Range	Purakuta	6	0	0	6		6		6	6	6	6
142	Narasinghpur East Range	Odisinghi	5	0	0	5		5		5	5	5	5
143	Narasinghpur East Range	Sohat	20	0	0	20		20		20	20	20	20
144	Narasinghpur East Range	Kanpur	7	0	0	7		7		7	7	7	7
	Range Total		455	0	0	455		455		455	455	455	455
145	Narasinghpur West Range	Kakudia	5	0	0	5		5		5	5	5	5
146	Narasinghpur West Range	Basantapur	17	0	0	17		17		17	17	17	17
147	Narasinghpur West Range	Basantapur	5	0	0	5		5		5	5	5	5
148	Narasinghpur West Range	Basantapur	8	0	0	8		8		8	8	8	8
149	Narasinghpur West Range	Ghoradia, Mandhata	2	0	0	2		2		2	2	2	2
	Range Total		37	0	0	37		37		37	37	37	37
Division V.F Total		**147 No**	**1866.5**	**0**	**5.448**	**1861.052**		**1861.052**		**1861.052**	**1861.052**	**1861.052**	**1861.052**
Grand Total			39915.62	210.864	78.593	39626.163	34120.491	5496.672	15239.106	39626.163	39626.163	39626.163	12200.362

1.4. Period of working plan and necessity for intermediate revision:-

Boundary clearance, Pillar repairing, Pillar's GPS reading, Tree enumeration, Bamboo enumeration and Regeneration survey of all blocks and plantation survey of all plantations have been done. As per the decision of the Working Plan Committee, the Revised Working Plan has been prepared for the period of 10 years. The total GIS Computed Area included in this revision is 39626.163 hectare. It will be managed for 35 nos. of Reserve Forests (36142.321 ha), 15 nos. of Proposed Reserve Forests (1539.9 ha), 03 nos. of Protected Forest (82.89 ha), 157 nos. of Village Forests (1861.052 ha) & Un-classed forest over (7.492 ha). The total 206 number of Forest Blocks are included in this revision. The GIS Computed Area of Village Forest over 1861.0520 hectare will be managed under JFM. The area of Un-classed Forest over 7.492 hectare will be managed under miscellaneous regulation.

The period of the plan is proposed for 10 years i.e form 2022-23 to 2031-32. It is also proposed that based on the performance of the Working Plan prescription the plan period may be extended up to 05 years beyond the stipulated plan period by the competent authority. It is also proposed that after 05 years of implementation and wherever necessary the prescription will be modified suitably by the competent authority.

FORREST FIRE OCCURRENCE MAP (2017)

FORREST FIRE OCCURRENCE MAP (2020)

1.5. **Details description of working circle:-**

1.5.1.Rehabilitation Working Circle:-

All blocks bear crop having density less than 40%. These Forest blocks experience intense biotic interference, heavy grazing pressure, subject to medium level of soil erosion but sustain many rivulets coming in the catchment area of many nalla which subsequently joins the Mahanadi River system. The crop is heterogeneous and belongs to all age classes. Due to openness these forest blocks are being invaded by Eupatorium, OdorathumCombretumdecandrum (Atandi climber) etc. These blocks require intensive management and natural regeneration need to be supplemented by artificial regeneration with objectives to enrich the crop with valuable species and enhance the density. Hence it will be highly desirable to maintain these forest blocks under Rehabilitation programme. Aided Natural Regeneration, Protection and silvicultural tending operation and soil & moisture conservation will be the main tools with the foresters to manage these forest blocks. Therefore these blocks will be managed under "Rehabilitation Working Circle"

1.5.2. Plantation Working Circle:-

In some Forest Blocks such as Karada (B)RF,Baudabanakhandi (B)RF ,Kalichaballav (B)RF, Baniabandha PRF, DeuliaBRF,SankhapoiBRF,Oringa RF, Adal BRF and Subasi (II)RF large permanent gaps has been arisen due to soil erosion, biotic interference, heavy grazing pressure and some patches also invaded by weeds like Atandi (Combretumdecandrum), Eupatorium and thorny bushes. It is felt that these areas can be brought under tree cover by resorting to "Artificial Regeneration Method". Economic species those are very hardy to biotic pressure, resist soil moisture stress condition and bear overhead sunlight, grow in a poor soil depth condition can been chosen for planting. Hence it is proposed to constitute "Plantation Working Circle". Besides the blank area as available for planting, the plantations raised during the present plan period will also be included in this working circle and specific silvicultural practices will be prescribed / practiced to manage this newly created plantation in a specific scientific manner.

1.5.3.Joint Forest Management Overlapping Working Circle:-

In accordance with National Forest Policy and Joint Forest Management Resolution 1993 and it subsequent modification, during 2011,11960.05hectares of Forest in different forest blocks have been assigned to nearby villages for its protection, management and usufruct rights there on. It is felt

necessary to manage such forest blocks in "Joint Forest Management Mode" in addition to silvicultural system adopted / prescribed. Hence it is felt to constitute "Joint Forest Management (overlapping) Working Circle" as prescribed in the current outgoing plan. As VSS are mostly concentrating on Forest patches on the fringe area special provisions will be incorporated to manage these assigned area with special care & attention.

1.5.4. Non- Timber Forest Produce Overlapping Working Circle:-

Collection of Sal leaf, Siali Leaf, Dhatki flower, Myrobalance, roots of many annual plants like Aanantamula, Satabari, BhuinKakharu, flowers, vegetative parts of many trees and climbers, resins, gums etc are being collected by local people either for their bonafied use or for trade purpose. Local Baidyas are heavily depending on forests for preparation of medicines. Due to unscientific & unsustainable harvesting practices many medicinal and aromatic plants are not readily available in our forests. It is now high time to manage these aspects standardizing the sustainable Harvesting Practices with innovative suitable silvicultural systems for maintaining and enhancing supply of Medicinal and Aromatic Plants along with other goods and ecosystem services for the benefit of local people.

Non-Timber Forest Produce requires its due attention for its scientific management. Hence it is felt to constitute & manage Non- Timber Forest Produce (over lapping) working Circle.

1.5.5.WildlifeOverlapping Working Circle:-

Due to population growth, demand on forest land for mining & industrial purposes, increase in road network, community development warrants special attention for protection, conservation and development of wildlife habitat. At present most of the forest blocks bear good number of Elephant, Barking Deer, wild pigs, Python etc.

The entire Division comes within Mahanadi Elephant Reserve. Forest blocks like Brahmanidei RF of Narsinghpur West & East Ranges are adjacent to the Satkosia Tiger Reserve and frequent movement of Tiger & leopards are being observed.SimilarlyRanibania RF, Baniabandh RF is adjacent to Kapilash wildlife sanctuary in Khuntuni Range Man- Animal Conflict in entire Athagarh forest division is increasing over the years .Elephants mostly use "Chandka- Kapilas corridor" Hence it is felt to have special management strategy for Wildlife present in entire forested tracts of this division. It is proposed to constitute Wildlife (Overlapping) Working Circle.

1.5.6.Bamboo Overlapping Working Circle:-

Bamboo is an important species found in this division. The quantum of bamboo production is in a declining stage. It is found in Deobhuin R.F, Olab R.F, Chandragiri (B) RF, Chandragiri RF, Haladiaseni RF, Badajora RF and Tareiganda RF of Narsinghpur West Range, Narsingpur East range and Badamba Range. Some area has also been included in Sattkoshia Tiger Land Scape. There was gregarious flowering in Bambusaaurundinasea during 2009-10 and forest floor is now full of bamboo seedlings of seed origin. Dendrocalamus strict we are also abundantly found in hills. To silviculturally manage the bamboo forests it is proposed to have "Bamboo (Overlapping) Working Circle".

1.5.7. Protection Overlapping Working Circle:-

The forests play a critical role in preserving our Bio diversity, Regulate hydrology of the region & act as a sink in Carbon sequestration. It also helps in implementing concept embodied in Reducing Emissions from Deforestation and Forest Degradation (REDD+) Concepts. It includes forest conservation, sustainable management of forests and enhancement of carbon stocks, and has been adopted by the United Nations Framework Convention on Climate Change (UNFCCC) as a tool for climate change mitigation.

Therefore increase of forest cover both in terms of coverage and density is of paramount importance. All the forest Blocks are needed to be protected against fire, soil erosion, illicit felling grazing, deforestation and land encroachment. Hence it is felt to give protection of forest a special attention in this working Plan. Hence it is proposed to have "Protection Overlapping Working Circle.

1.5.8. Miscellaneous Regulation:-

In addition to the above working circle, miscellaneous regulation is prescribed over 7.492 hectare of Un-classed Forest. This area is distributed in small patches in this Division. Any special works to be done in Un-classed Forest has not been prescribed in this current plan. However, the Divisional Forest Officer can do any Forest activities in those area.

1.6. The Range wise Working Circle area:-

The details of Range wise Forest Blocks and Working Circle area isgiven in the table below.

Table No- 4							
Name of WC	Range wise Working Circle area in hectare GIS Computed Area						
	Status	Narasingh pur East	Narasingh pur West	Badamba	Athgarh	Khuntuni	Division Total
RWC	RF	8701.545	99.91	11475.7083	5021.2276	7969.5301	33267.921
	PRF	100.46	0	286.1	445.87	29.14	861.57
	Total	8802.005	99.91	11761.8083	5467.0976	7998.6701	34129.491
Plant. WC	RF	423.00	0	687	840	924.4	2874.4
	PRF	147.00	0	91.33	125	315	678.33
	PF	0	18.98	0	63.91	0	82.89
	VF	455	37	1289.052	80	0	1861.052
	Total	1025.00	55.98	2067.382	1108.91	1239.4	5496.672
	G. Total	9827.005	155.89	13829.1903	6576.0076	9238.0701	39626.163
Prot. OWC	RF	9124.545	99.91	12162.7083	5861.2276	8893.9301	36142.321
	PRF	247.46	0	377.43	570.87	344.14	1539.9
	PF	0	18.98	0	63.91	0	82.89
	VF	455	37	1289.052	80	0	1861.052
	Total	9827.005	155.89	13829.1903	6576.0076	9238.0701	39626.163
N.T.F.P. OWC		9827.005	155.89	13829.1903	6576.0076	9238.0701	39626.163
Bamboo OWC		8988.065	0	6251.53	0	0	15239.595
Wildlife OWC		9827.005	155.89	13829.1903	6576.0076	9238.0701	39626.163
JFM OWC		1838.71	97	4027.302	3201.85	3035.5	12200.362
Miscellaneous Regulation		2.10	0.906	0.403	2.815	1.268	07.492
Bio-diversity conservation and Development		9827.005	155.89	13829.1903	6576.0076	9238.0701	39626.163
Tree outside Forest area		20991.5138	11858.873	22229.5729	23967.5876	14237.3106	93284.8579
Eco-Tourism		50	--	--	20	--	70.00
Water Resource Management, REDD++ and Climate change		9827.005	155.89	13829.1903	6576.0076	9238.0701	39626.163
Science & Research	--		100.00	--	--	--	100.00

1.7. Details are given below.

Working Circle	Age class distribution	Density	Growing Stock	Status of Regeneration	weeds and invasive species growth
Rehabilitation	10 to 25 years	0.10 to 0.40	Shorearobusta, Anogeissuslatifolia, Cleistanthuscollinus, Terminaliatomentosa, Buchananialanzan, Diospyrosmelanoxylon, Lagerstroemia parviflora,	Moderate. Shall regeneration is fairly good in NuagarhRF the regeneration Athgarh and Khunutni Range in adequate the reason being biotic pressure, lack of deep top soil and suppression by weeds	Moderate. Lantancamara ,Upatoriou moderetum
Plantation	10 to 25 years	The new planting area is proposed in open area. The density of old plantation is from 0.1 to 0.6	Gambhari ,Sisoo, Teak, Acasia etc.	Artificial Regeneration	Poor OcimumtenyflorumLantan camara
Bamboo	1 to 4 years	0.10 to 0.40	Dendrocalamusstrictus, Oxytenantheraabyssiniaca, Dendrocalamushamiltonii, Bambusatulda , Bambusapolymorpha and other species Sala, Asana, Halada, Pia-Sala	Good	Upatoriou moderetum , Ocimumtenyflorum

CHAPTER-2

Rehabilitation Working Circle.

CHAPTER-2

Rehabilitation Working Circle

2.1. Rehabilitation Working Circle:-

2.2 General Constitutions of Working Circle:-

The total area allotted to this working circle is 34129.491 ha. Out of 52 (37 RF+ 15 PRF) forest blocksin the division, only 02 blocks contain vegetation with more than 0.40 crop density. Rest 50 forest blocks contain vegetation with varied crop density from 0.10 to less than 0.40. Most of the forest blocks are highly subjected to forces of degradation. The situation so warrants that these forest blocks may not be able to adequately regenerate them shelves to have a dense forest. Though good seed bearing trees are available, germination is fairly good but establishment is extremely poor. Due to heavy biotic pressure, inadequacy of coppice regeneration, frequent fire in many blocks like Bramhandei RF, Olab RF,ChandragiriRF,MundagadaRF,DeobhuinR.F,HaladiaseinRF,Baniabandha RF the crop reaches a varying height of uneven canopy.Many blocks contain root stocks of species having excellent coppicing power. Loss of soil moisture, reduced number of rainy days, and compact soil due to grazing has resulted in regression of soil. Some blocks bear drier tract species. Hence it is proposed to include all 55 forest blocks in Rehabilitation Working Circle. All the Forest Block those are treated under this working Circle in the outgoing plan are included in this Working Circle .

2.3.General characteristics of vegetation:-

The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissuslatifolia, Cleistanthuscollinus, Terminaliatomentosa, Buchananialanzan, Diospyrosmelanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewiasps.,Indigoferacassioides, etc. Hemidesmusindicus, Calycopteris floribunda, Combretumdecandrum, Buteasuperba, Bauhniavahilii etc., are the important climbers present in this forest.

The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

2.4.Rehabilitation Series, cutting sections and JFM areas:-

The total area allotted to this RWC is34129.491hectare.Considering of distribution of RWC area in this Division, it is decided to constitute 08 numbers of RWC Series. To facilitate proper and systematic treatment to the degraded forest, treatment series are proposed to be constituted in all the Ranges. These series have been suggested taking into account spatial and the administrative convenience and homogeneity of crop, stages of degradation. 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 Treatment Area (coupes) to synchronize with the Plan period of 10 years. These Treatment series with annual treatment

area (coupes) will be suggested after field enumeration, stock mapping and observing the detail crop available including plantations raised in various schemes. The tentative area allocation to each treatment series give in Table.

2.5. Blocks, compartments and JFM area (marked on GIS based maps):-

2.5.1. Forest Blocks in RWC:-

The total area allotted to this RWC is34129.491hectare.Considering of distribution of RWC area in this Division, it is decided to constitute 08 numbers of RWC series. To facilitate proper and systematic treatment to the degraded forest, treatment series are proposed to be constituted in all the Ranges. These series have been suggested taking into account spatial and the administrative convenience and homogeneity of crop, stages of degradation. 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 treatment area (coupes) to synchronize with the Plan period of 10 years. The forest block allotted to RWC is given in the table below.

Table-1

Forest Block and its area allotted to RWC.

Sl. No	Name of Range	Name of Forest Block	Status	Area in Hector
1	Narasinghpur East	Deobhuin	R. F	5835.465
2		Olab	R. F	2081.28
3		Chandragiri	R. F	648.32
4		Mundagada	R. F	136.48
5		Bhuska	P.R.F	100.46
	Total			**8802.005**
6		Bramhanidei	R. F	99.91
	Total			**99.91**
7	Baramba	Chandragiri	R. F	215.0
8		Haladiasein	R. F	3925.17
9		Badajora	R. F	973.97
10		Tareiganda	R. F	952.39
11		Kumaranga	R. F	286.36
12		Talachandragiri	R. F	980.525
13		Nagatota	R. F	2146.3645
14		Mandap	R. F	433.48
15		Jagabeherathali	R. F	143.1788
16		Karada	R. F	1076.41
17		Belapada	R. F	41.66
18		Jhinkal	R. F	301.2
19		Baghamundia	P.R. F	72.49
20		KhalidhipJanisahi	P.R. F	35.58
21		Kandhamundia	P.R. F	48.36
22		Gothamundia	P.R. F	73.89

23		Birigadia	P.R. F	10.32
24		Kabatbar	P.R. F	0
25		Ganguari	P.R. F	30.45
26		Telunia	P.R. F	15.01
	Total			**11761.8083**
27		Sukhasan	R. F	657.28
28		Khalakhala	R. F	557.99
29		Baudabanakhandi	R. F	285.678
30		Oringa	R. F	307.3696
31		Jenapada	R. F	123.24
32		Subasi	R. F	741.57
33		Ranibania	R. F	254.99
34	Athgarh	Adal	R. F	228.61
35		Nizigarh	R. F	783.1
36		Kalichaballav	R. F	580.11
37		Sorispal	R. F	501.29
38		Saranda	P.R. F	94.1
39		Phulubadi	P.R. F	287.49
40		Megha	P.R. F	44.9
41		Kandarpur	P.R. F	19.38
	Total			**5467.0976**
42		Baniabandha	R. F	5299.5253
43		Gobara	R. F	500.5483
44		Sankhapoi	R. F	440.6383
45	Khuntuni	Baula	R. F	45.87
46		Suniamuhan	R. F	92.5
47		Bramhanbasta	R. F	215.27
48		Raniabania	R. F	743.2582
49		Subasi	R. F	468.73
50		Deulia	R. F	163.19
51		Baniabandha	P.R. F	4.93
52		Deulia East	P.R. F	24.21
	Total			**7998.6701**
	Division Total			**34129.491**

2.5.2. RWC Treatment Series:-

There are 08 numbers of treatment series have been proposed. The area allotted to each treatment series is given in the table below.

Table No- 2				
R.W.C. Treatment Series				
Sl No.	Name of Range	Name of Treatment Series	Name of Block	Area in hectare
1	Narsinghpur East	Olab	Olaba RF, Chandragiri RF, Mundagada RF	2866.08
2	-do-	Deobhuin	Deobhuin RF, Bramhanidei RF, Bramhanidei RF, Bhuska PRF	6035.835
3	Badamba	Badajora	Badajora RF, Karada RF, Tareigonda RF, Jagabeherathali RF, Belapada RF, Mandap RF, Talachandragiri RFBaghamundia PRF, , JanisahiKhalidhip PRF, Kandhamundia PRF, Gothamundia PRF, , Telunia PRF	4388.2338
4		Haladiaseni	Chandragiri RF, Talachandragiri RF, Haladiaseni RF	4304.18
5		Nagatota	Nagatota RF, Jhinkal RF, Kumaranga RF, Haladiaseni RF, Birigadia PRF, Ganguari PRF	3069.3945
6	Athgarh	Dalakhai	Kalichaballav RF, Nizigarh RF, Sorispal RF, Subasi RF, Sukasana RF, Khalakhala RF, Ranibania RF, Baudabanakhandi RF, Oringa RF, Jenapada RF, Adal RF, Megha PRF, Kandarpur PRF, Saranda PRF, Phulbadi PRF	5467.0976
7	Khuntuni	Baniabandha	Ranibania RF, Deulia RF, Baniabandha RF, Deulia East PRF	3880.6782
8	-do-	Banadurga	Baniabandha RF, Gobara RF, Sankhapoi RF, Subasi RF, Brahmanbasta RF, Suniamuhan RF, Baula RF, Baniabandha PRF	4117.9919
			Total	**34129.491**

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2.6. Objectives of Management:-

The specific objectives of management of forest belonging to this working circle are given in the table below.

Sl. No	Objectives

1	To restock the depleted forests quickly by inducing natural regeneration, supplement through artificial regeneration,
2	To increase the productivity of the forest through various silvicultural methods.
3	To cover the soil with quick growing species to meet local demand and high biomass production per hectare per year
4	To enhance moisture regime through Soil & Moisture Conservation, Checking of accelerated soil erosion.
5	To regulate the surface water runoff for enhance percolation and water availability down the stream.
6	To partner with the local community in protection and management of the forests.
7	To restore and improve the microclimate and micro edaphic condition.
8	To increase the biodiversity and heterogeneity in the forest crop by encouraging natural regeneration
9	Reduce the biotic pressure, grazing and forest fire so as to give a favourable condition to establish the natural regeneration of both seed & coppice origin.
10	To meet bonafiderequi of people for household articles, building materials.
11	To enhance growing of palatable fodder to animals both wild & domestic.
12	Suppression of & eradication obnoxious weeds and improve the habitat quality.

2.6.1. Analysis of the crop:-

The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissuslatifolia, Cleistanthuscollinus, Terminaliatomentosa, Buchananialanzan, Diospyrosmelanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewiasps.,Indigoferacassioides, etc. Hemidesmusindicus, Calycopteris floribunda, Combretumdecandrum, Buteasuperba, Bauhniavahilii etc., are the important climbers present in this forest. The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

2.6.2. 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. However to achieve the major objectives, operations like regeneration cleaning, soil and moisture conservation, gap planting, block planting along with tending will be carried out. In addition, steps will have to be taken to protect the area from grazing, theft and fire with the active support of the people wherever possible.

2.6.3. Rotation period:-

There is no experimental plot in the division to determine exactly the year at which the tree attains exploitable girth. The planned number of years between regeneration and maturity of a crop varies depending on its site quality. Rotation should be a multiplication of the felling cycle. In the case of a selection forest, the rotation will be the average age at which a tree is considered mature for felling. But this chapter is improvement working circle. In general the Rotation of all principal species has been given in the table below.

Table No. 3

Rotation of principal species

Sl. No.	Name of species	Rotation in years	Longevity in years
1	Sal	120	168
2	Bija	100	150
3	Sisoo	130	500
4	Teak	60	456
5	Eucalyptus	15	394
6	Asan	100	200
7	Mundi	60	110
8	Kendu	120	220
9	Bandhan	100	150
10	Kasi	80	120
11	Tentala	120	180

2.6.4. Harvestable diameters:-

The harvestable diameters orgirth of different species have been fixed basing on the size at which the tree develops unsoundness. The other factors such as site quality, production capacity, growth, yield, market demand etc have also been taken into account. The exploitable girth of the species in different forest blocks is given table below.

Table No. 4

Exploitable girth at breast height

Name of the Blocks	Name of the trees	Exploitable g.b.h in cm
All Block	1. Sal (for Quality I & II)	150
	2. Sal ((for Quality III & IV) & all other species	120

2.6.5. Reducing factors and reduced areas:-

Reduce factor:- Reduce factor is used to determine the quality of the trees. But in this revision the quality of sal is assessed based on its girth. Therefore reducing factor has not been used in this revision.

Reduced Area: - Reduced area is used to determine the density of the crop with the help of basal area. The density of the forest managed in this revision has been assessed based on crown cover and ground area. Therefore reduced area have not been used in this revision to determine the density of the crop.

2.6.6. Felling / Rehabilitation Cycle:-

It has been fixed basing on the period of the Working Plan or the number of coupes in each rehabilitation series. As per Para 5 of the Working Plan Code and for complete execution of work in eachrehabilitation series, a rehabilitation cycle of 10 year has been fixed. Therefore the Rehabilitation Cycle has been fixed to 10 years which synchronize with the plan period.

2.6.7. Division into periods and allotment to periodic blocks (PB):-

2.6.7.1. Sequence of Rehabilitation Cycle:-

The annual Rehabilitation area is of homogeneous crop and 10 no of Rehabilitation series have been suggested with a 10 year Rehabilitation Cycle synchronized with the plan period of 10 years. There are 10 Annual Rehabilitation coupehas been laid down comprising area of more or less homogeneous crop. The work will be started from 2022-23 to 2031-32 from Rehabilitation area.

2.6.8. Calculation of the yield:-

There is no need to fix exploitable girth class for rehabilitation felling. However planting and tending operation may be carried out in all girth classes so as to improve the crop and induce regeneration. No regular felling would be taken up. Only thinning would be done to allow diameter growth and therefore surplus trees from all girth classes may be removed. Scattered matures trees would not be harvested. The small wood, poles and firewood obtained from the above operations would be utilized to meet the bonafide requirements of the local people to whom that particular forest area has already been assigned under JFM. The assigned area also comes under Satkosia Tiger Landscape & Tiger Corridor also.

2.6.9. Table of felling / Rehabilitation:-

There are 08 coupes have been suggested in each treatment / rehabilitation series of RWC basing on the plan period. Therefore the table of rehabilitation coupes are given in the table below.

2.6.9.1. Olab treatment / Rehabilitation series:-

Table No. 5					
Year wise rehabilitation Olab treatment series					
Narasinghpur East Range					
Name of RF	**Name of Treatment Series**	**Year**	**Coupe No**	**Compt. No**	**Area in ha.**
Olab	Olab-OLB	2022-23	I	1	380.92
Olab	do	2023-24	II	4	369.8
Olab	do	2024-25	III	2	344.08
Olab	do	2025-26	IV	3	230.6
Olab	do	2026-27	V	5	365.44
Olab	do	2027-28	VI	6	390.44
Chandragiri	do	2028-29	VII	1	115.01
Chandragiri	do	2029-30	VIII	2	176.22
Chandragiri	do	2030-31	IX	3	357.09
Mundagada	do	2031-32	X	--	136.48
			Total		2866.08

2.6.9.2. Deobhuin Treatment / Rehabilitation series:-

Table No.6					
Year wise rehabilitation Deobhuin treatment series					
Narasinghpur East Range					
Name of RF	**Name of Treatment Series**	**Year**	**Coupe No**	**Compt. No & its area in ha.**	**Area in ha**
Deobhuin	Deobhuin	2022-23	I	1 - 203.46	649.455
do	do	do	do	2 - 445.995	
do	do	2023-24	II	3 - 173.75	508.02
do	do	do	do	4 - 334.27	
do	do	2024-25	III	8 - 288.4	648.83
do	do	do	do	9 - 360.43	
do	do	2025-26	IV	5 - 411.43	815.87
do	do	do	do	6 - 404.44	
do	do	2026-27	V	7 - 253.89	698.89
do	do	do	do	10 - 445.0	
do	do	2027-28	VI	11 - 317.84	578.64
do	do	do	do	12 - 260.8	
do	do	2028-29	VII	13 - 474.84	848.1
do	do	do	do	17 - 373.26	
do	do	2029-30	VIII	15 - 415.1	415.1
do	do	2030-31	IX	14 - 332.13	672.56
do	do	do	do	16 - 340.43	

Bhuska	do	2031-32	X	100.46	200.37
Bramhanidei	do	do	do	99.91	
			Total		6035.835

2.6.9.3. Badajora Treatment series:-

Table No. 7						
Year wise rehabilitation Badajora treatment series						
Badamba Range						
Name of RF & PRF	**Name of Treatment Series**	**Year**	**Coupe No**	**Compt. No**	**Compt. area in ha.**	**Total area in ha.**
Badajora RF	Badajora	2022-23	I	1	257.39	515.69
do	do	do	do	2	258.3	
do	do	2023-24	II	3	186.94	458.28
do	do	do	do	4	271.34	
Karada RF	do	2024-25	III	1	268.35	268.35
do	do	2025-26	IV	2	619.61	619.61
Karada RF	do	2026-27	V	3	188.45	608.12
Tareiganda RF	do	do	do	1	141.51	
	do	do	do	2	278.16	
Tareiganda RF	do	2027-28	VI	3	532.72	532.72
Jagabeherathali RF	do	2028-29	VII	--	143.1788	215.6688
Baghamundia PRF	Do	do	do	--	72.49	
Mandapa RF	do	2029-30	VIII	--	433.48	433.48
Talachandragiri	do	2030-31	IX	1	521.815	521.815
Janisahi-Khalidhipa PRF	do	2031-32	X	--	35.58	214.5
Kandhamundia PRF	do	do	do	--	48.36	
Gothamundia PRF	do	do	do	--	73.89	
Belapada RF	do	do	do	--	41.66	
Telunia PRF	do	do	do	--	15.01	
				Total		**4388.2338**

2.6.9.4. Haladiaseni Treatment series:-

Table No. 8						
Year wise rehabilitation Haladiaseni treatment series						
Badamba Range						
Name of RF	**Name of Treatment Series**	**Year**	**Coupe No**	**Compt. No**	**Compt. area in ha.**	**Total area in ha.**
Chandragiri RF	Haladiaseni	2022-23	I	1	42.52	215
	do	do	do	2	172.48	
Talachandragiri RF	do	2023-24	II	2	218.5	218.5
do	do	2024-25	III	3	240.21	240.21
Haladiaseni RF	do	2025-26	IV	1	555.48	555.48
do	do	2026-27	V	2	487.52	487.52
do	do	2027-28	VI	3	504.41	504.41
do	do	2028-29	VII	4	542.12	542.12
do	do	2029-30	VIII	5	550.56	550.56
do	do	2030-31	IX	6	413.95	413.95
do	do	2031-32	X	7	576.43	576.43
				Total		**4304.18**

2.6.9.5. Nagatota Treatment series:-

Table No. 9						
Year wise rehabilitation Nagatota treatment series						
Badamba Range						
Name of RF & PRF	**Name of Treatment Series**	**Year**	**Coupe No**	**Compt. No**	**Compt. area in ha.**	**Total area in ha.**
Nagatota RF	Nagatota	2022-23	I	1	252.11	252.11
do	do	2023-24	II	2	153.73	153.73
do	do	2024-25	III	3	439.38	439.38
do	do	2025-26	IV	4	388.08	388.08
do	do	2026-27	V	5	169.14	169.14
do	do	2027-28	VI	6	420.65	420.65
do	do	2028-29	VII	7	323.2745	323.2745
Jhinkal RF	do	2029-30	VIII		301.2	301.2
Kumaranga R.F	do	2030-31	IX	--	286.36	327.13
Ganguary PRF	do	do	do	--	30.45	
Birigadia PRF	do	do	do	--	10.32	
Haladiaseni R.F	do	2031-32	X	8	294.7	294.7
				Total		**3069.3945**

2.6.9.6. Dalakhai Treatment / Rehabilitation series:-

Table No. 10						
Year wise rehabilitation Dalakhai treatment series						
Athgarh Range						
Name of RF /PRF	Name of Treatment Series	Year	Coupe No	Compt. No	Compt. area in ha.	Total area in ha.
Kalichaballav R.F	Dalakhai	2022-23	I	--	580.11	580.11
Nizigarh R.F	do	2023-24	II	--	783.1	783.1
Sorisapala R.F	do	2024-25	III	--	501.29	501.29
Subasi R.F	do	2025-26	IV	1	600.77	741.57
do	do	do	do	2(P)	140.8	
Saranda PRF	do	2026-27	V	--	94.1	504.83
Jenapada RF	do	do	do	--	123.24	
Phulbadi PRF	do	do	do	--	287.49	
Sukasan R.F	do	2027-28	VI	--	657.28	702.18
Megha PRF	do	do	do	--	44.9	
Khalakhala R.F	do	2028-29	VII	--	557.99	557.99
Ranibania R.F	do	2029-30	VIII	1	254.99	483.6
Adal R.F	do	do	do	--	228.61	
Baudabanakhandi RF	do	2030-31	IX	--	285.678	305.058
KandarapurPRF	do	do	do	--	19.38	
Oringa R.F	do	2031-32	X	--	307.3696	307.3696
						5467.0976

2.6.9.7. Baniabandha Treatment / Rehabilitation series:-

Table No. 11						
Year wise rehabilitation Baniabandha treatment series						
Khuntuni Range						
Name of RF & PRF	**Name of Treatment Series**	**Year**	**Coupe No**	**Compt. No**	**Area in Ha**	**Total Area**
Ranibania R.F	Baniabandha	2022-23	I	2	236.9682	448.3382
do	do	do	do	3	211.37	
do	do	2023-24	II	4	294.92	294.92
Deulia R.F	do	2024-25	III	--	163.19	187.4
Deulia East PRF	do	do	do	--	24.21	
Baniabandha R.F	do	2025-26	IV	1	215.82	215.82
do	do	2026-27	V	2	572.87	572.87
do	do	2027-28	VI	3	433.85	433.85

do	do	2028-29	VII	4	147.66	397.76
do	do	do	do	5	250.1	
do	do	2029-30	VIII	6	254.65	254.65
do	do	2030-31	IX	7	346.54	549.08
do	do	do	do	14	202.54	
do	do	2031-32	X	8	525.99	525.99
				Total		**3880.6782**

2.6.9.8. Banadurga Treatment/ Rehabilitation series:-

Table No. 12						
Year wise rehabilitation Banadurga treatment series						
Khuntuni Range						
Name of RF & PRF	**Name of Treatment Series**	**Year**	**Coupe No**	**Compt. No**	**Compt. area in ha.**	**Total area in ha.**
Baniabandha RF	Banadurga	2022-23	I	9	312.8073	312.8073
do	do	2023-24	II	10	378.59	378.59
do	do	2024-25	III	11	627.528	627.528
Baniabandha RF	do	2025-26	IV	12	414.25	419.18
Baniabandha PRF	do	do	do	--	4.93	
Baniabandha RF	do	2026-27	V	13	616.33	616.33
Gobara RF	do	2027-28	VI	--	500.5483	500.5483
Sankhpoi RF	do	2028-29	VII	--	440.6383	440.6383
Subasi RF	do	2029-30	VIII	2(B)	301.66	468.73
do	do	do	do	3	167.07	
Bramhanabasta RF	do	2030-31	IX	--	215.27	215.27
Suniamunha RF	do	2031-32	X	--	92.5	138.37
Baula RF	do	do	do	--	45.87	
				Total		**4117.9919**

2.6.10. Method of executing the felling / Rehabilitation:-

The annual Rehabilitation area shall be demarcated in the winter season from October to December by a Forest Officer not below the rank of a Forester/Forest Ranger and checked by Asst. Conservator of Forests as per provision of the Orissa Forest Department Code 1979, or as modified by Government from time to time. The Rehabilitation area boundary shall be indicated through natural features, roads, natural streams and boundary line of forest block. Stone cairns will also be placed to demarcate the I.A (Rehabilitation Area) boundary. The site specific annual treatment plan is to be prepared by the Range officer with demarcated area in the year proceeding to year of working. The rehabilitation works will be reflected at signboard, Road, Inspection path and at Boundary lines of Reserved Forest/

Protected Forest. The sign board will contain the treatment series, annual treatment number (coupe), area and year of working.

The various type of operation under this Working Circle will be carried out as per the approved treatment plan. In case of fringe areas VSS association will be ensured. Where VSS are not constituted but felt necessary the same will be constituted under "AmaJungalYojana" now under process of implementation. Management practices to be followed in adjoining Forest Areas outside Sanctuary and Cores areas in the Satkosia Landscape in respect of Athagarh Divisions.

2.6.11. Subsidiary silvicultural operations cleaning and thinning:-

The subsidiary silvicultural operations cleaning and thinning are given in the table below.

	Tending Operation
1	All living high stumps shall be cut flush to the ground and all woody climbers preventing growth of principal species and considered not having NTFP value shall be cut back.
2	If any tree considered for removal in order to create opening in the canopy with an aim to allow establishment of regenerated crop/sapling etc. it may be marked and removed departmentally.
3	The soil moisture conservation measure like contour bonding, gully plugging, dry stone packing, construction of check dam, loose Boulder Check dams etc. shall be carried out.
4	Small pieces of wood lying interior part of forest may be utilized for vegetative check dams.
5	The silvicultural operation is to be carried out in the assigned year. In this operation silvicultural cleaning, climber cutting, decongestion and manipulating the soil for good germination of seeds to be attended to.
6	The operation is to be done departmentally over the entire improvement area, except steep slopes and highly soil erosion prone area, nalla banks.

2.6.12. Regeneration:-

2.6.12.1. Natural Regeneration:-

The Status of natural Regeneration survey is carried out in all sample points. The seedling having height 2.5 mt and above with 10 cm girth at breast height is considered as established. The seedling, which is not established but large and vigorous and so expected to become established early, is considered as woody. Its height varies from 1 mt to less than 2.5 mt but girth is not considered. All un-established seedling whose height varies from 50 cm to less than 1 mt is considered as whippy. The seedling whose height is less than 50 cm but more than one year is considered as sub-whippy. All current year seedlings are considered as recruit. The status of natural regeneration in the area allotted to Improvement Working Circle is found adequate. The regeneration survey carried out in Jenapada RF, Balikiary RF Compt. 02 and Balikiary RF Compt 05 is given below.

Status of Regeneration						
Name of the Block –Jenapada RF		Working Circle – Angul		DD/MM/YYYY-		
Compartment No-		Section –Tigiria		Beat –Jenapada		
Range –Athgarh		Division -Athgarh		ALT – 260 ft		
LAT- 20.485746		LONG – 85.555118		Grid No-		
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
--	--	Khakada	1	--	--	New regeneration
--	--	Kendu	1	--	--	New regeneration
--	--	Neem	1	--	--	New regeneration
--	--	Anchhu	1	--	--	New regeneration

Status of Regeneration						
Name of the Block -Balikiary		Working Circle		DD/MM/YYYY-		
Comptt No-BKC/5		Section –Saradhapur		Beat -Saradhapur		
Range –West Range		Division -Athgarh		ALT -255.5		
LAT- N-20.524604		LONG E-84.996956		Grid No-		
Seedlings		Samplings		Adults		Status of Regeneration
Species	**Nos**	**Species**	**Nos**	**Species**	**Nos**	
Kendu	1	L-mei	2	Dhaura	1	
Halada	3	Ankula	1	Sidha	1	
Damana	2	Jadapan	1	Latakuruma	2	
Dantari	1	Sunari	1	Asana	1	
Sirsia	1			L-mei	1	
				Dantari	1	
				Sisoo	1	

Status of Regeneration						
Name of the Block - Balikiary		Working Circle		DD/MM/YYYY-		
Comptt No-2		Section - Barasingha		Beat-Balikiary		
Range-West Range		Division –Athgarh		ALT		
LAT-20.666388		LONG-85.008004		Grid No		
Seedlings		Samplings		Adults		Status of Regeneration
Species	**Nos**	**Species**	**Nos**	**Species**	**Nos**	
Sal	1	Sal	1	Sal	2	
Sal	1	Sal	1	Sal	1	
Sal	1	Sal	2	Sal	5	
Sunari	1	Asana	1	Sal	1	
Kendu	1	L-mei	1	Mitikina	1	
Halada	3	Dantari	1	Sirisa	5	

Dhamana	2	Sisoo	1	Sisoo	2	
Dantari	1			Sunari	1	
Sirsia	1			Halada	1	
Ankula	1			Ankula	2	
Mei	2			Dhaura	1	
Gambari	1			Giringa	1	

2.6.12.2. Artificial Regeneration:-

Depending upon the soil condition and local factors, the area will be selected for block plantation & gap plantation to restock& improve the forest resources. The fruit bearing species, Bamboo, NTFP species & medicinal & aromatic plant is to be selected for the gap & Block Plantation. Generally species like Asan, Arjun, Bamboo,Teak, Anla,Karanja, etc. are suitable for different areas proposed in this working circle. San Chakunda, Acacia, Bad Chakunda, Sirisa, Neem, Phasi on appropriate site, Simili, Sisoo are also to be planted on suitable site. The renewal of a forest crop by showing, planting or other artificial methods is important in the area included in this Working Circle. At present, the average number of trees of 30 cm girth and above at breast height per hector are 506, which include established trees of all age classes. There are small gaps noticed in all most all blocks allotted to this Working Circle. The extent of area of individual gaps is 01.5 hectors or less. It is advised to adopt artificial regeneration in the permanent gaps of each coupe during the year of coupe working, as per the prescription. The artificial regeneration shall be carried out in two ways. First one is dibbling seeds of indigenous species in the mounds. Second one is planting economical valuable species in the pits. On an average 300 seedlings per hectare will be added with the natural regeneration. The pits and the mounds are of ratio 2:1 in both column and row.

Seeds Dibbling in Mound: -

All the gaps in the coupe of each rehabilitation series are to be surveyed and reflected in the map at the time of marking. Mounds of size 1 ft x 1 ft 6 inches will be formed in the gap at a spacing of 7.5 meters x 7.5 meters. Only 100 mounds will be prepared per ha. At least 02 to 03 seeds of indigenous species existing in the area will be dibbled in the mounds during the first week of June. The Divisional Forest Officer will intimate the amount required for dibbling of the seed during the month of January in the presiding financial year.

Plantation: -

Block plantation is not prescribed due to non-availability of minimum 05.00 ha of land in patches having status either open or scrubby forest. Only gap plantation is prescribed. The plantation areas 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.

Nursery: -

Seedlings will be raised in temporary, permanent or central nurseries. Care shall be taken to raise quality seedlings from certified seeds, superior clonal propagules or from known seed orchards and stands. As far as possible seeds, seedling stock or propagules will be obtained from or through the Silviculturist, Rayagada or Bhubaneswar.

Site Map: -

A site map on 1:50,000 scale toposheet or in an appropriately large scale showing the details of area, direction of slope, nature of erosion, biotic interference, site specific species, aspiration of the people and other factors shall be prepared. Species suitable for the site shall be identified in accordance with the objectives of management.

Treatment Map: -

A treatment map shall be prepared along with a statement showing estimates of financial requirement and calendar of operations. 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 October of the year preceding to the year of plantation.

Plantation Plan: -

Each plantation site shall be taken care for 04 years including the main year of operation. The plantation plan along with the treatment map shall be prepared by the Range Officer, checked by the ACF and approved by the Divisional Forest Officer. The treatment plan and estimates shall be as per the approved cost norms and the instructions of the authorities in vogue. Abstract of approved estimates of all plantations in the divisions will be sent to the Conservator of Forests for information.

Preparation of Planting Area: -

The plantation site will be properly surveyed and demarcated by December. All the dry materials, which are obtained during coupe working will be collected and hipped in the blank area. Control burning of the hipped dry materials will be done in the presence of a Forest Guard. These operations shall be completed by December to January of the pre-planting year.

Stacking and Pitting: -

After the completion of site preparation by the end of January, stacking shall be taken up in the blank area at a spacing of 2.5 mt x 2.5 mt and 200 number of pits per ha have been prescribed. Digging of soil in degraded area is discouraged and thus pitting for plantation in degraded area has not been prescribed. Pitting should be taken up at appropriate spacing. The standard size of pit 45 cm x 45 cm x 45 cm shall be dug in the entire area other than degraded. Stacking and pitting shall be completed by March-April. However, in case of stump planting, crow bar holes shall be done just at the time of planting itself. 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. However, 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. Planting will be done departmentally and plantation journal shall be maintained as per the Orissa Plantation Manual.

Planting: -

Planting shall be taken up immediately after onset of monsoon and completed by second week of July. The number of plants per hectare to be planted varies from 190 to 210 or it should be decided by the DFO if necessary, depending on the site and the species to be planted. Required dosage of insecticides and fertilizers shall be applied during planting process.

Planting Technique: -

The existing central nurseries situated in this division shall be maintained for teak seedling on the mother bed for the division. In addition to central nurseries, other nurseries may be created in Ranges, Section & Beat head quarter. Divisional Forest Officer will decide the extent of area to be planted with stump or seedling with the ten annual Improvement coupes.

Stump Plantation: -

Stump of size of 15 cm (12 cm root and 3 cm stem) shall be prepared at the planting side but not at the nursery. Two years seedling will be uprooted from nursery and will be transported to planting site without root shoot cutting. The stumps shall be planted by making crow bar holes just after second shower during the month of June.

Root Shoot Cutting: -

Any sharp instrument shall be used for cutting the uprooted seedling. All precautionary measures shall be taken at the time of root shoot cutting, so that bark of the stem at the cut end should not be damaged. An inclined cut both at stem and main root along with removal of secondary roots is prescribed. The main root shall not be damaged while removing secondary roots at the time of preparing stumps.

Seedling Plantation: -

Good seeds shall be sown on the mother bed before two years of the plantation. Good seedling shall be uprooted from the mother bed and transplanted to polythene bag of size 20 cm x 15 cm during February or March. All nursery technique shall be maintained for the seedling on the polythene bag so that it will attain height within 1.5 ft to 2 ft at the end of June.

Post Planting Operations: -

Post Planting Operations shall include casualty replacement, weeding, soil working and other operations to be carried out as per calendar of operations. The planting and post-planting operations shall be carried out as per the norm approved by the Government from time to time and in accordance with the prescriptions given in the Orissa Plantation Manual. The plantations shall be fully protected from all sorts of biotic interference. Local villager should be involved in the protection of the plantations. Formation of VSS as

per JFM resolution should be explored. Further, the tending operations in these plantations shall be carried out as per the prescriptions given for the tending series.

Plantation Journal: -

A separate plantation journal shall be maintained at Range level. No separate format is given to maintain the journal. The form prescribed in Orissa forest plantation manual 1977 will be followed. The observation of the inspecting Officer will be written in form No. 4 prescribed in the Manual.

Other Regulation:-

Grazing: -

The coupe shall be closed to grazing for a period of 05 years after the coupe working. Practically it is not easy to maintain this restriction inside the forest over a period of 05 years. It is prescribed to issue notice to all the fringe villages nearer to the working coupe about such restriction. The remaining area is open to grazing subject to the provision of the Orissa Forest (Grazing of Cattle) Rules 1980.

Lopping: -

The local people lop trees of different species to use as leaf fodder for their domestic animals. Repeated lopping year after year weakens the tree and it becomes prone to many diseases. In course of time, such trees die leaving behind no regeneration to take their place. Lopping is discouraged. Any regulation for lopping in not prescribed.

Fire Protection: -

All coupes shall be rigidly protected from forest fire for a minimum period of 05 years after the main working. As per previous record all the forest area were affected by fire in every year. Protection of fire in the working area can be practically possible by watching it from the month of February to June in every year. Provision of watcher has been prescribed and the annual allotment required for fire protection is given in a separate chapter.

Climber Cutting: -

Climbers are a menace not only in the young regeneration area but also in the forest crops as they seriously affect the growth of young plants and trees. Climber cutting shall be done at the time of marking the annual coupe. Thin climbers will be cut at one place on the ground level where as thick one shall be cutat two places (one near the base and other at a height of 1.5 mt). The amount required for climber cutting during the Plan period is given in a separate chapter.

2.6.13. Associated regulation and measures:-

Grazing: -

The coupe shall be closed to grazing for a period of 05 years after the main felling. Practically it is not easy to maintain this restriction inside the forest over a period of 05 years. It is prescribed to issue notice to all the fringe villages nearer to the working coupe about such restriction. The concerned Range Officer will issue the notice with a direction not to enter the herd into the working coupe. The remaining area is open to grazing subject to the provision of the Orissa Forest (Grazing of Cattle) Rules 1980.

Lopping: -

The local people are regularly lopping the trees of different species to use as leaf fodder for their domestic animals. Repeated lopping year after year weakens the tree and it becomes prone to many diseases. In course of time, such trees die leaving behind no regeneration to take their place. Lopping is discouraged. Any regulation for lopping in not prescribed.

Fire Protection: -

All working coupes shall be rigidly protected from forest fire for a minimum period of 05 years after the main felling. As per previous record all the forest area were affected by fire in every year. Protection of fire in the working area can be practically possible by keeping watch and ward it from the month of February to June in every year. Provision of watcher has been prescribed and the annual allotment required for fire protection is given in the Financial Forecast Chapter.

Climber Cutting:-

Climbers are a menace not only in the young regeneration area but also in the forest crops as they seriously affect the growth of young plants and trees. Climber cutting shall be done at the time of marking of the annual coupe. Thin climbers will be cut at one place on the ground level where as thick one shall be cut at two places (one near the base and other at a height of 1.5 mt). In case climber will be heavy after the main felling in the annual coupe area, the Divisional Forest Officer will prepare a special estimate for climber cutting in the worked out coupes.

Soil and Water Conservation Measure: -

The area allotted to this Working Circle varies from gently slope to precipitous. The local people are collecting stones for construction of their houses. Some time contractors are also collecting stones for construction of roads, building and other contracts works. Construction of check dams at an interval of 02 kmt in the Semi-perennial nalas is prescribed for water conservation. Gullies should be checked by construction of small check dams and if required staggered trenches should be dug at regular interval to conserve moisture. The expenditure to be made for construction of check dams during the Plan period will be given in a separate Chapter.

Restriction of Felling Along River, Roads and Hill Slopes: -

Trees of any girth classes standing along the road side (other than forest roads) or rivers and nalas bank at a perpendicular distance of 50.00 mt shall not be felled. Trees standing in hill slopes will be marked for felling provided it satisfy the condition of marking rules as prescribed.

Works of Improvement: -

The area constituted in this working circle constitute mostly hilly slope. The flow of rain water increase suddenly and there by causes heavy soil erosion. The area becomes dry just after the rainy season. Conservation of soil and water in this terrain is very difficult. Construction of check dams in steep slopes,

digging of trench are totally discouraged. Plantation across the smaller Nala and along the bank of the bigger Nala by branch cutting or direct sowing is prescribed. Depending on the site quality, suitable fodder species for the wild animals shall be chosen by the Divisional Forest Officer.

2.6.14. Marking Rules:-

No marking is prescribed.

2.6.15. Rights& Concession:-

The Rights & Concessions shall be regulated as per provision of the Orissa Forest Act & Rules and under provision of relevant Govt. policies.

CHAPTER-3

Plantation Working Circle

CHAPTER-3

Plantation Working Circle

3.1. Plantation Working Circle:-

3.2. General Constitutions of Working Circle:-

The total area allotted to this working circle is 5496.672 ha, which includes 1861.052 ha of village forest. The forest blocks where some permanent gaps have been developed due to removal of over wood but not covered by the regeneration, acute soil erosion, severs biotic pressure and encroachment by land grabbers and subsequently vacated are to be brought under vegetation. Natural regeneration and subsequent covering of area with wood vegetation is quite remote. It is proposed to bring such areas may be as small as 10 hectare under this working circle. Areas invaded with weeds are also to be brought under this Working Circle. In past management clear felling followed by the artificial regeneration with economically superior species was tried. The concept is rapidly changing and more emphasis is laid down on the biodiversity conservation. In this concept, there is no categorization of inferior and superior species, every species is equally important.

Therefore the creation of blank areas to carryout plantations is no more in vogue. The biotic interference is very high in this Division. In the Working Plan field exercise, it is found that there is no existing plantation worth keeping in this Working Circle. In the previous Working Plan, there was mention about the existing teak plantations in Deobhuin, Haladiaseni, Nagatota, Taraiganda, Karada, Ranibania, Subasi, Baniabandha, Nizigarh, Baudabanakhandi, Sukhasan, Khalakhala, Oringa and Brahmanbasta. All these plantations were subjected to heavy illicit felling through organized smuggling; no main crop is in existence. The second and third coppice shoots are also removed. Hence the old plantations are not kept in this Working circle and only blank patches that need to be restocked with block plantations are kept in this Circle.

3.3. General characteristics of vegetation:-

The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissus latifolia, Cleistanthuscollinus, Terminalia tomentosa, Buchananialanzan, Diospyros melanoxylon, Lagerstroemia parviflora, etc. The important shrubs present

are *Helicteres*isora, Grewia sps.Indigoferacassioides, etc. Hemidesmus indicus, Calycopteris floribunda, Combretum decandrum, Butea superba, Bauhniavahilii etc., are the important climbers present in this forest.

The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja,bamboo etc. The crop composition is varied.

3.4. Plantation Series, cutting sections and JFM areas:-

Depending and distribution of area in this Division, the total area assigned to plantation working circle is divided into six planting series. The name of planting series are Athgarh and Khuntuni, where new plantation (AR) will be done during the plan period. The replanting series name are Nuagarh and Kalichaballav, where ANR plantation will be taken up. The tending series name is Athgarh tending series, where only tending operation will be taken up. The village forest planting series includes only the village forest of this division. The area allotted to different planting series is given in the table below.

Table No.1		
Planting series and its area in ha.		
Sl. No	Name of planting series	Area
1	Athgarh (New Plantation)	215.00
2	Khuntuni (New Plantation)	350.00
3	Deobhuin (Re-Stocking)	200.00
4	Kalichaballav(Re-Stocking)	308.00
5	Athgarh (Tending Operation)	2562.62
6	Village Forest planting series	1861.052
	Total	5496.672

3.4.1. Old Plantation for tending operation:-

The biotic interference is very high in this Division. In the working Plan field exercise, it is found that there is no existing plantation worth keeping in this Working Circle. In the previous Working Plan, there was mention about the existing teak plantations in Deobhuin, Haladiaseni, Nagatota, Tareiganda, Karada, Ranibania, Subasi, Baniabandha, Nizigarh, Baudabanakhandi, Sukasana, Khalakhala, Oringa, and Brahmanbast. All these plantations were subjected to heavy illicit felling through organized smuggling, no main crop is in existence. The second and third coppice shoots are also removed. Hence the old plantations are not kept in this working circle and only blank patches that need to be restocked with block plantations are kept in this circle. The total area allotted to this working circle is 590 ha. All the areas allotted to this circle, overlap with the Rehabilitation Working circle. This Division has many existing

Plantations mostly during 20007-08 to 2019-20.The growths of the Plantations are not uniform. Most of the old plantations are being taken care of by the VSS/EDC members. A uniform treatment cannot be prescribed for all plantations raised.The gaps found there in the plantation areas are prescribed for replanting to restock the plantation. The trees those who are established needs tending operations like climber cutting, thinning and pruning.Basing on the statistics taken from field verification total 2729.73ha of area are found to be kept for tending operation.

3.5. Blocks, compartments and JFM area (marked on GIS based maps):-

3.5.1. Forest Blocks in Plantation:-

The total area allotted to this Plantation Working Circle is 5889.672hectare.Considering of distribution of Plantation area in this Division,it is decided to constitute 06 nos. of Plantation Series. To facilitate proper and systematic treatment to the degraded forest, treatment series are proposed to be constituted in all the Ranges. These series have been suggested taking into account spatial and the administrative convenience and homogeneity of crop, stages of degradation. 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 treatment area (coupes) to synchronize with the plan period of 10 years. The forest block allotted to Plantation is given in the table below.

3.5.2. New Plantation:-

The area allotted to new plantation is given in the table below.

Table No.2

Forest Block and its area allotted to Plantation Working Circle (AR).

Sl. No	Name of Range	Name of Forest Block	Status	Area in ha.
1	Badamba	Karada	RF	20.00
2	Athagarh	Baudabanakhandi	RF	105.00
		Oringa	RF	20.00
		Adal	RF	10.00
		Kalichaballav	RF	50.00
		Sorispal	RF	10.00
3	Khuntuni	Sankhapoi	RF	30.00
		Subasi (II Balance)	RF	40.00
		Deulia	RF	25.00
		Baniabandha	PRF	255.00
	Total			565.00

3.5.3. Re-Stocking :-

The area allotted to re-stocking is given in the table below.

Table No.3				
Forest Block and its area allotted to Plantation Working Circle (Re-Stocking)				
Sl. No	Name of Range	Name of Forest Block	Status	Area in ha.
1	Narasinghpur East	Deobhuin	RF	33.00
		Olab	RF	30.00
3	Badamba	Badjora	RF	30.00
		Tareiganda	RF	10.00
		Kumaranga	RF	15.00
		Nagatota	RF	32.00
		Jagabcherathali	RF	30.00
		Karada	RF	20.00
		Belapada	RF	20.00
4	Athgarh	Sukasan	RF	15.00
		Khalakhala	RF	5.00
		Baudabanakhandi	RF	50.00
		Oringa	RF	35.00
		Kalichiabllav	RF	35.00
		Sorisapala	RF	30.00
	Khuntuni	Baniabandha	RF	65.00
		Bramhanabasta	RF	40.00
	Badamba	Baghamundia	PRF	13.00
	Total			**508.00**

3.5.4. Tending Operation:-

The area allotted to tending operation is given in the table below.

Table No.4				
Forest Block and its area allotted to Plantation Working Circle (Tending Operation).				
Sl. No	Name of Range	Name of Forest Block	Status	Area in ha.
1	Narasinghpur West	Kaliapada	PF	18.98
	Total			**18.98**
2	Narasinghpur East	Deobhuin	RF	25.00
		Deobhuin	RF	35.00
		Deobhuin	RF	25.00
		Deobhuin	RF	15.00
		Deobhuin	RF	10.00
		Deobhuin	RF	50.00
		Olab	RF	50.00
		Olab	RF	25.00
		Olab	RF	25.00
		Olab	RF	50.00
		Chandragiri	RF	50.00

		Bhuska	PRF	50.00
		Bhuska	PRF	40.00
		Bhuska	PRF	7.00
		Bhuska	PRF	50.00
	Total			**657.00**
3	**Badamba**	Chandragiri	RF	50.00
		Badjora	RF	20.00
		Badjora	RF	5.00
		Badjora	RF	15.00
		Badjora	RF	20.00
		Tareiganda	RF	20.00
		Tareiganda	RF	15.00
		Kumaranga	RF	10.00
		Kumaranga	RF	10.00
		Kumaranga	RF	20.00
		Kumaranga	RF	20.00
		Nagatota	RF	10.00
		Nagatota	RF	20.00
		Nagatota	RF	20.00
		Jagabcherathali	RF	15.00
		Jagabcherathali	RF	25.00
		Jagabcherathali	RF	10.00
		Karada	RF	10.00
		Karada	RF	20.00
		Karada	RF	10.00
		Belapada	RF	30.00
		Jhinnkal	RF	25.00
		Jhinnkal	RF	40.00
		Jhinnkal	RF	30.00
		Jhinnkal	RF	30.00
		Jhinnkal	RF	10.00
		Baghamundia	PRF	30.00
		Gothamundia	PRF	10.00
		Birigadia	PRF	10.00
		Kabatbar	PRF	10.00
		Kabatbar	PRF	8.33
		Telunia	PRF	10.00
	Total			**588.33**
4	**Athgarh**	Sukasana	RF	10.00
		Sukasana	RF	25.00
		Khalakhala	RF	10.00
		Khalakhala	RF	30.00
		Baudabanakhandi	RF	10.00
		Baudabanakhandi	RF	30.00
		Baudabanakhandi	RF	35.00
		Baudabanakhandi	RF	25.00
		Oringa	RF	40.00
		Oringa	RF	30.00

		Subasi	RF	30.00
		Nizigarh	RF	20.00
		Nizigarh	RF	20.00
		Kalichiaballav	RF	20.00
		Kalichiaballav	RF	30.00
		Sorisapala	RF	35.00
		Sorisapala	RF	25.00
		Sorisapala	RF	25.00
		Sorisapala	RF	25.00
		Saranda	PRF	10.00
		Saranda	PRF	25.00
		Phulbadi	PRF	50.00
		Phulbadi	PRF	20.00
		Phulbadi	PRF	10.00
		Phulbadi	PRF	10.00
		Gopalaprasad	PF	29.51
		Kalankipur	PF	34.4
	Total			**663.91**
	Khuntuni	Baniabandha	RF	50.00
		Baniabandha	RF	50.00
		Baniabandha	RF	60.00
		Baniabandha	RF	40.00
		Baniabandha	RF	30.00
		Baniabandha	RF	30.00
		Baniabandha	RF	40.00
		Baniabandha	RF	30.00
		Baniabandha	RF	30.00
		Baniabandha	RF	20.00
		Gobara	RF	10.00
		Sankhapoi	RF	25.00
		Baula	RF	30.00
		Baula	RF	20.00
		Suniamunha	RF	34.4
		Suniamunha	RF	20.00
		Suniamunha	RF	20.00
		Suniamunha	RF	20.00
		Bramhanabasta	RF	15.00
		Bramhanabasta	RF	40.00
		Bramhanabasta	RF	10.00
		Ranibania	RF	30.00
		Deulia	RF	10.00
		Deulia	RF	50.00
		Deulia	RF	30.00
		Deulia	RF	10.00
		Baniabandha	PRF	10.00
		Deulia East	PRF	50.00
	Total			**784.4**
	Division Total			**2562.62**

3.5.5. Village Forest:-

The area allotted to village forest is given in the table below.

Table No.5				
Village Forest and its area allotted to Plantation Working Circle.				
Sl. No	Name of Range	Name of Village Forest	Status	Area in ha.
1	Narasinghpur West	Kakudia	VF	5.00
		Basantapur	VF	17.00
		Basantapur	VF	5.00
		Basantapur	VF	8.00
		Ghoradia,Mandhota	VF	2.00
	Range Total			**37.00**
2	Narasinghpur East	Baghadharia	VF	10
		Bahali	VF	7
		Hatiapalli	VF	5
		Hatiapalli	VF	4
		Bahali	VF	6
		Ragadisahi	VF	3
		Bagadharia	VF	5
		Bagadharia	VF	5
		Lchenga	VF	5
		Siaria	VF	10
		Biswanathapur,Siaria Taila	VF	5
		Siaria	VF	5
		Bichanabati	VF	6
		Bichanabati	VF	5
		Siaria	VF	10
		Champeswar	VF	5
		Manpur	VF	5
		Kalamatia	VF	5
		Kalamatia	VF	7
		Gharadia	VF	5
		Durgaprasad	VF	5
		Durgaprasad	VF	4
		Durgaprasad	VF	2
		Kandhabereni	VF	5
		Aleigundi,Trilochanpur	VF	5
		Taila	VF	5
		Taila	VF	5
		Madhubana	VF	5
		Madhubana	VF	5
		Rushipada	VF	8
		Rushipada	VF	5
		Rushipada	VF	10
		Bokada	VF	5
		Sagar(Badabarena)	VF	5
		Badabareana	VF	4

		Panchagachhia	VF	4
		Padamapur	VF	5
		Padamapur	VF	5
		Kamaladeipur	VF	5
		Kamaladeipur	VF	5
		Sagara	VF	5
		Panchagachhia	VF	50
		Panchagachhia	VF	40
		Panchagachhia	VF	36
		Kandhabereni	VF	14
		Champeswara	VF	15
		Champeswara	VF	6
		Godibandha	VF	5
		Adhigandi(Trilochanpur)	VF	5
		Bokada	VF	10
		Kandhabadabhuin	VF	6
		Jayangamala	VF	5
		Purukutia	VF	6
		Odisingha	VF	5
		Sukat	VF	20
		Kanpur	VF	7
	Range Total			**455**
3	Badamba	Budhapanka	VF	10
		Budhapanka	VF	2
		Satagachhia	VF	8
		Satagachhia	VF	6
		Champeidwar	VF	5
		Champeidwar	VF	2
		Sanabarsingh	VF	2
		Kotapalla	VF	5
		Kuanrapala	VF	10
		Kuanrapala	VF	10
		BadakumbiloBanpur	VF	150
		Badakumbilo	VF	20
		Khairapanga	VF	25
		Khairapanga	VF	20
		Banapur	VF	20
		Badakumbilo	VF	10
		Rampur	VF	20
		Banapur	VF	15
		Banapur	VF	65
		Satagachhia	VF	100
		Badabarsingh	VF	50
		Badabarasingh	VF	30
		Sanabarasingh	VF	30
		Kotapalla	VF	15
		Satagochhia	VF	15
		Kotapalla	VF	15
		Judum	VF	15

		Judum	VF	15
		Talamundali	VF	15
		Talamundali	VF	5
		Telikumbilo	VF	90
		Telikumbilo	VF	15
		Banapur	VF	20
		Telikumbilo	VF	30
		Badabarana	VF	15
		Mugagahiri	VF	20
		Badabarana	VF	20
		Badabarana	VF	10
		Karadibandha	VF	20
		Karadibandha	VF	20
		Dhanapalli VWL	VF	6
		Dhanapalli VWL	VF	2
		Dhanapalli VWL	VF	7
		Jhajia	VF	4
		Kharod	VF	8
		Malati	VF	8
		Amatia	VF	10
		Ratapata	VF	10
		Ratapata	VF	9
		Badakambilo	VF	6
		Judum	VF	5
		Avimanpur	VF	4.5
		Kankarajori	VF	1
		Kadana	VF	7
		Satagochhia	VF	9
		Rampur	VF	2
		Judum	VF	7.5
		Kadana	VF	4
		Kharod	VF	4.552
		Baliapala	VF	9.5
		Judum	VF	10
		Nuapada	VF	10
		Talamundali	VF	10
		Kotapalla	VF	10
		Banapur	VF	5
		Banapur	VF	5
		Karadibandha	VF	10
		Kuniapala	VF	10
		Karadibandha	VF	10
		Kasapala	VF	10
		Biswanathapur	VF	6
		Khairipanga	VF	5
		Khairipanga	VF	4
		Gundadwara	VF	5
		Guradipala	VF	30
		Kadambpala	VF	10

		Gurudipala	VF	20
		Badabareana	VF	5
		Sasanga	VF	5
		Sasanga	VF	10
		Karadibandha	VF	5
	Total			**1289.052**
4	Athgarh	Nuaptna	VF	10.00
		Radhakrushnapur	VF	20.00
		Radhakrushnapur	VF	10.00
		Radhakrushnapur	VF	15.00
		Radhakrushnapur	VF	10.00
		Patenigaon	VF	5.00
		ChhenakhiaNuagaon	VF	10.00
	Range Total			**80.00**
	Division Total			**1861.052**

3.6.Objectives of Management:-

The special objective of the management of Plantation Overlapping Working Circle is within the scope of general objective of the management for the entire Division. The details of objectives are given below.

Sl. No.	Special objectives of Management
1	To restock the blank areas of forest blocks through artificial regeneration.
2	To rehabilitate the degraded/ eroded sites with green coverage by adopting special site specific method.
3	To increase the biodiversity for improvement of local habitual ecology.
4	To address the biotic pressure with sustainable development of peripheral forest through community participation.
5	To remix the present crop with fodder species for improvement of habitant of Wild life.
6	To enhance the land productivity through soil & moisture conservation measures.
7	Species important from Fodder, Fuel wood and of important NTFP use are to be encouraged.

3.6.1. Analysis of the crop:-

The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissus latifolia, Cleistanthuscollinus, Terminalia tomentosa, Buchananialanzan, Diospyros melanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewia sps., Indigofera cassioides, etc. Hemidesmus indicus, Calycopteris floribunda, Combretum decandrum, Butea superba, Bauhniavahilii etc., are the important climbers present in this forest.

The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

3.6.2. 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. However to achieve the major objectives, operations like regeneration cleaning, soil and moisture conservation, gap planting, block planting along with tending will be carried out. In addition, steps will have to be taken to protect the area from grazing, theft and fire with the active support of the people wherever possible.

3.6.3. Rotation period:-

There is no experimental plot in the division to determine exactly the year at which the tree attains exploitable girth. The planned number of years between regeneration and maturity of a crop varies depending on its site quality. Rotation should be a multiplication of the felling cycle. In the case of a selection forest, the rotation will be the average age at which a tree is considered mature for felling. But this chapter is improvement working circle. In general the Rotation of all principal species has been given in the table below.

Table No. 6

Rotation of principal species

Sl. No.	Name of species	Rotation in years	Longevity in years
1	Sal	120	168
2	Bija	100	150
3	Sisoo	130	500
4	Teak	60	456
5	Eucalyptus	15	394
6	Asan	100	200
7	Mundi	60	110
8	Kendu	120	220
9	Bandhan	100	150
10	Kasi	80	120
11	Tentala	120	180

3.6.4. Harvestable diameters:-

The harvestable diameters or girth of different species have been fixed basing on the size at which the tree develops unsoundness. The other factors such as site quality, production capacity, growth,

yield, market demand etc have also been taken into account. The exploitable girth of the species in different forest blocks is given table below.

Table No. 7		
Exploitable girth at breast height		
Name of the Blocks	Name of the trees	Exploitable g.b.h in cm
All Block	1. Sal (for Quality I & II)	150
	2. Sal ((for Quality III & IV) & all other species	120

3.6.5. Reducing factors and reduced areas:-

Reduce factor:- Reduce factor is used to determine the quality of the trees. But in this revision the quality of sal is assessed based on its girth. Therefore reducing factor has not been used in this revision.

Reduced Area: - Reduced area is used to determine the density of the crop with the help of basal area. The density of the forest managed in this revision has been assessed based on crown cover and ground area. Therefore reduced area have not been used in this revision to determine the density of the crop.

3.6.6. Felling / Plantation Cycle:-

It has been fixed basing on the period of the Working Plan or the number of coupes in each plantation series. As per Para 5 of the Working Plan Code and for complete execution of work in each plantation series, a plantation cycle of 10 year has been fixed. Therefore the Plantation Cycle has been fixed to 10 years which synchronize with the plan period.

3.6.7. Division into periods and allotment to periodic blocks (PB):-

3.6.7.1. Sequence of Plantation Cycle:-

The annual plantation area is of homogeneous crop and 08 numbers ofplantation series have been suggested with a 10 year plantation cycle synchronized with the plan period of 10 years. There are 10 annual plantation coupe has been laid down comprising area of more or less homogeneous crop. The work will be started from 2022-23 to 2031-32 from plantation area.

3.6.8. Calculation of the yield:-

There is no need to fix exploitable girth class for plantation felling. However planting and tending operation may be carried out in all girth classes so as to improve the crop and induce

regeneration. No regular felling would be taken up. Only thinning would be done to allow diameter growth and therefore surplus trees from all girth classes may be removed. Scattered matures trees would not be harvested. The small wood, poles and firewood obtained from the above operations would be utilized to meet the bonafide requirements of the local people to whom that particular forest area has already been assigned under JFM. The assigned area also comes under Satkosia Tiger Landscape & Tiger Corridor also.

3.6.9. Table of felling / Plantation:-

The total area allotted to new plantation is 645.00 ha. There are two plantation series has been proposed in new plantation. The name of the series are Athgarh planting series over an area of 295.00 ha and Khuntuni planting series over an area of 350.00 ha. There are 10 coupes have been suggested in each treatment / plantation series of PWC basing on the plan period. Therefore the table of plantation coupes are given in the table below.

3.6.9.1. Athgarh Planting series:-

The total area allotted to Athgarh Planting series is 215.00 ha. This area is divided in to four annual coupes. The details of annual coupe is given in the table below.

Table No.8				
Annual Coupe area in hectare of Athgarh planting series.				
Year	Name of the Range	Name of the Block	Coupe No	Total Area
2022-23	Badamba Range	Karada R.F	I	20
2023-24	Athgarh Range	Baudabanakhandi R.F	II	30
2024-25	Athgarh Range	Baudabanakhandi R.F	III	25
2025-26	Athgarh Range	Baudabanakhandi R.F	IV	25
2026-27	Athgarh Range	Baudabanakhandi R.F	V	25
2027-28	Athgarh Range	Adal R.F	VI	10
2028-29	Athgarh Range	Kalichiaballav R.F	VII	25
2029-30	Athgarh Range	Kalichiaballav R.F	VIII	25
2030-31	Athgarh Range	Sorisapala R.F	IX	10
2031-32	Athgarh Range	Oringa R.F	X	20
				215

3.6.9.2. Khuntuni Planting series:-

The total area allotted to Khuntuni Planting series is 350.00 ha. This area is divided in to four annual coupes. The details of annual coupe is given in the table below.

Table No. 9				
Annual Coupe area in hectare of Khuntuni planting series.				
Year	Name of the Range	Name of the Block	Coupe No	Total Area
2022-23	Khuntuni Range	Sankhapoi R.F	I	30

2023-24	Khuntuni Range	Subasi R.F	II	40
2024-25	Khuntuni Range	Deulia R.F	III	25
2025-26	Khuntuni Range	Baniabandha PRF	IV	40
2026-27	Khuntuni Range	Baniabandha PRF	V	40
2027-28	Khuntuni Range	Baniabandha PRF	VI	35
2028-29	Khuntuni Range	Baniabandha PRF	VII	35
2029-30	Khuntuni Range	Baniabandha PRF	VIII	35
2030-31	Khuntuni Range	Baniabandha PRF	IX	35
2031-32	Khuntuni Range	Baniabandha PRF	X	35
		Total		350

3.6.9.3. Re-stockingseries:-

The total area allotted to re-stocking series508.00 ha. it is proposed two re-plantation series named as Deobhuin and Kalichaballav.

3.6.9.3.1. Deobhuin Re-stockingseries:-

Table No. 10					
Deobhuin Re-Stocking Series					
Year	Range	Block	Compt. No	Coupe No	Total Area in ha
2022-23	Narasinghpur East	Deobhuin RF	15	I	15
2023-24		Deobhuin RF	15	II	18
2024-25		Olab RF	6	III	30
2025-26	Badamba	Badjora	1	IV	15
2026-27		Badjora	1	V	15
2027-28		Tareiganda RF	3	VI	10
2028-29		Kumaranga	-	VII	15
2029-30		Nagatota	5 & 6	VIII	32
2030-31		Jagabcherathali	-	IX	30
2031-32		Karada	1	X	20
Total					200

3.6.9.3.2. Kalichaballav Re-stocking series:-

Table No. 11						
Kalichaballav Re-Stocking Series						
Year	Range	Block	Compt. No	Coupe No	Area in ha.	Total Area in ha
2022-23	Badamba	Belapada RF	--	I	20	33
		Baghamundia PRF	--	-do-	13	
2023-24	Athgarh	Sukasan RF	--	II	15	15
2024-25		Khalakhala RF	--	III	5	40
		Oringa RF	--	-do-	35	
2025-26		Baudabankhandi	--	IV	30	30
2026-27		Kalichiaballav	--	V	35	35
2027-28		Sorisapala	--	VI	30	30

2028-29		Baniabandha	9	VII	35	35
2029-30		Bramhanbasta	--	VIII	40	40
2030-31		Baudabanakhandi RF	--	IX	20	20
2031-32		Baniabandha	9	X	30	30
Total					308	308

3.6.9.4. Tending Operation:-

The total area allotted to tending operation is 2562.62 ha. The area distributed in all Ranges. The Range wise area is given in the table below.

Table No. 12				
Range wise area in ha. for tending operation				
Sl. No	Name of the Range	Number of Block	Status	Total Area
1	Narasinghpur West	01	01PF	18.98
2	Narasinghpur East	4	3 RF and 1 PRF	507.00
3	Badamba	14	09 RF and 05 PRF	588.33
4	Athgarh	12	08RF , 02 PRF and 02 PF	663.91
5	Khuntuni	10	08 RF and 02 PRF	784.4
Total				2562.62

3.6.9.5. Details of Old Plantation:-

This Division has many existing Plantations mostly during 20007-08 to 2019-20.The growths of the Plantations are not uniform. Most of the old plantations are being taken care of by the VSS/EDC members. A uniform treatment cannot be prescribed for all plantations raised.The gaps found in the plantation areas are prescribed for replanting to restock the plantation. The trees those who are established needs tending operations like climber cutting, thinning, pruning etc.Basing on the statistics taken from field verification total 2562.62 ha of area are found to be kept for trending operation. The Block wise /Range wise existing plantations where tending operations are prescribed are given below.

Table No.13						
Old Plantation Area for Tending						
Sl. No	Name of Range	Name of the Plantation Site	Year of Plantation	Area in ha.	Species Planted	Survival %
1	Athgarh	Sukasana R.F	2010-11	10	Teak, Sisoo	10%
2	-do-	Sukasana R.F	2013-14	25	Teak, Sisoo	40%
3	-do-	Khalakhala R.F	2009-10	10	Teak,Gambhari,Acasia,Karanja,Sirisa	15%
4	-do-	Khalakhala R.F	2011-12	30	Teak,Gambhari,Acasia,Karanja, Sirisa	15%
5	-do-	Baudabanakhandi R.F	2009-10	10	Sisoo, Acasia, Karanja, Jamu, Bara, Amla,phasi	10%

8	-do-	Baudabanakhandi R.F	2011-12	30	Teak,Gambhari,Acasia,Karanja, Sirisa	15%
9	-do-	Baudabanakhandi R.F	2012-13	35	Teak,Gambhari,Acasia,Karanja, Sirisa	20%
10	-do-	Baudabanakhandi R.F	2015-16	25	Teak,Gambhari,Acasia,Karanja, Sirisa	40%
12	-do-	Oringa R.F	2015-16	40	Teak,Gambhari,Acasia,Karanja, Sirisa,phasi	70%
13	-do-	Oringa R.F	2016-17	30	Chhatian, Karanja, Sisoo, Acasia, Amla Simaruba, Jamu,phasi	40%
14	-do-	Subasi R.F	2012-13	30	Teak,Gambhari,Acasia,Karanja, Sirisa	20%
15	-do-	Nizigarh R.F	2011-12	20	Teak,Gambhari,Acasia,Karanja, Sirisa	20%
16	-do-	Nizigarh R.F	2014-15	20	Teak,Gambhari,Acasia,Karanja, Sirisa	40%
17	-do-	Kalichiaballav R.F	2009-10	20	Sisoo, Acasia, Jamu Karanja, Bara, Amla,phasi	10%
18	-do-	Kalichiaballav R.F	2013-14	30	Teak,Gambhari,Acasia,Karanja, Sirisa	20%
20	-do-	Sorisapala R.F	2012-13	35	Teak,Gambhari,Acasia,Karanja, Sirisa	30%
21	-do-	Sorisapala R.F	2013-14	25	Teak,Gambhari,Acasia,Karanja, Sirisa	45%
22	-do-	Sorisapala R.F	2014-15	25	Teak,Gambhari,Acasia,Karanja, Sirisa	60%
23	-do-	Sorisapala R.F	2015-16	25	Teak,Gambhari,Acasia,Karanja, Sirisa	60%
24	-do-	Saranda PRF	2010-11	10	Gambhari, Acasia, Karanja, Sirisa, Jamu, Amla,phasi	20%
25	-do-	Saranda PRF	2015-16	25	Teak,Gambhari,Acasia,Karanja, Sirisa	60%
26	-do-	Phulbadi PRF	2009-10	50	Gambhari, Acasia, Karanja, Sirisa, Jamu, Amla,phasi	32%
27	-do-	Phulbadi PRF	2014-15	20	Teak,Gambhari,Acasia,Karanja, Sirisa	60%
28	-do-	Phulbadi PRF	2016-17	10	Sisoo, Acasia, Jamu Karanja, Bara, Amla,phasi	50%
29	-do-	Phulbadi PRF	2020-21	10	Teak,Gambhari,Acasia, Karanja, Sirisa	79%
30		Gopalaprasad PF	2002-03	29.51	Teak,Acasia,Chakunda, Sirisa	65%
31		Kalankipur PF	2003-04	34.4	Sisoo,Karanja,Sirisa, Acasia	60%
			Total	**663.91**		

32	Khuntuni	Baniabandha R.F	2008-09	50	Teak, Sisoo.	40%
33	-do-	Baniabandha R.F	2008-09	50	Teak,Sisoo.	35%
34	-do-	Baniabandha R.F	2012-13	60	Teak	30%
35	-do-	Baniabandha R.F	2012-13	40	Teak,Gambhari,Acasia,Karanja, Sirisa,phasi	50%
36	-do-	Baniabandha R.F	2012-13	30	Bamboo	35%
37	-do-	Baniabandha R.F	2013-14	30	Teak,Sisoo	45%
38	-do-	Baniabandha R.F	2013-14	40	Teak,Gambhari,Acasia,Karanja, Sirisa	55%
39	-do-	Baniabandha R.F	2014-15	30	Bamboo	40%
40	-do-	Baniabandha R.F	2015-16	20	Teak,Gambhari,Acasia,Karanja, Sirisa	40%
41	-do-	Gobara R.F	2009-10	10	Bamboo	25%
42	-do-	Sankhapoi R.F	2008-09	25	Teak	25%
43	-do-	Baula R.F	2014-15	30	Chhatian, Karanja, Sisoo, Acasia, Jamu Simaruba, Amla, phasi	75%
44	-do-	Baula R.F	2014-15	20	Bamboo	15%
45	-do-	Suniamunha R.F	2007-08	34.4	Teak,Gambhari,Acasia,Karanja, Sirisa	20%
46	-do-	Suniamunha R.F	2011-12	20	Teak,Gambhari,Acasia,Karanja, Sirisa	30%
47	-do-	Suniamunha R.F	2012-13	20	Bamboo	35%
48	-do-	Suniamunha R.F	2019-20	20	Chhatian, Karanja, Sisoo, Acasia, Amla Simaruba, Jamu	79%
49	-do-	Bramhanabasta R.F	2011-12	15	Teak, Sisoo	45%
50	-do-	Bramhanabasta R.F	2019-20	40	Bamboo	70%
51	-do-	Bramhanabasta R.F	2020-21	10	Bamboo	30%
52	-do-	Ranibania R.F	2019-20	30	Teak	75%
53	-do-	Deulia R.F	2014-15	10	Sisoo, Acasia,phasi Karanja, Jamu, Bara, Amla,	45%
54	-do-	Deulia R.F	2019-20	50	Karanja, Sisoo, Acasia, Simaruba, Amla, Jamu	30%
55	-do-	Deulia R.F	2019-20	30	Sisoo, Acasia,Amla Karanja, Jamu, Bara,	75%
56	-do-	Deulia R.F	2020-21	10	Chhatian, Karanja, Sisoo, Acasia, Simaruba, Amla, Jamu	35%
57	-do-	Baniabandha PRF	2019-20	10	Chhatian, Karanja, Sisoo, Acasia, Simaruba, Amla, Jamu	80%
58	-do-	Deulia East PRF	2014-15	50	Karanja, Sisoo, Acasia, Simaruba, Amla, Jamu,phasi	45%
			Total	**784.4**		

59	Badamba	Chandragiri RF	2020-21	50	Gambhari, Sisoo, Chhatian, Karanja, Amla, Jamu etc.	80%
60	-do-	Badjora R.F	2008-09	20	Teak, Sisoo	30%
61	-do-	Badjora R.F	2010-11	5	Teak, Gambhari, Acasia, Karanja, Jamu, Sirisa	35%
62	-do-	Badjora R.F	2010-11	15	Teak, Gambhari, Acasia, Karanja, Jamu, Sirisa	45%
63	-do-	Badjora R.F	2014-15	20	Teak, Gambhari, Acasia, Karanja, Jamu, Sirisa,phasi	40%
64	-do-	Tareiganda R.F	2011-12	20	Bamboo	45%
65	-do-	Tareiganda R.F	2011-12	15	Teak, Sisoo	35%
66	-do-	Kumaranga R.F	2008-09	10	Bamboo	30%
67	-do-	Kumaranga R.F	2008-09	10	Teak, Sisoo	30%
68	-do-	Kumaranga R.F	2012-13	20	Bamboo	35%
69	-do-	Kumaranga R.F	2014-15	20	Bamboo	45%
70	-do-	Nagatota R.F	2010-11	10	Teak, Acasia, Karanja, Jamu, Amla	39%
71	-do-	Nagatota R.F	2010-11	20	Teak, Acasia, Karanja, Jamu, Amla	30%
72	-do-	Nagatota R.F	2010-11	20	Teak, Acasia, Karanja, Jamu, Amla	45%
74	-do-	Jagabeherathali R.F	2011-12	15	Teak, Gambhari, Acasia, Karanja, Jamu, Sirisa	50%
75	-do-	Jagabeherathali R.F	2011-12	25	Teak, Gambhari, Acasia, Karanja, Jamu, Sirisa	45%
76	-do-	Jagabeherathali R.F	2020-21	10	Bamboo	89%
77	-do-	Karada R.F	2010-11	10	Teak, Acasia, Karanja, Jamu, Amla,phasi	30%
78	-do-	Karada R.F	2010-11	20	Teak, Acasia, Karanja, Jamu, Amla	40%
79	-do-	Karada R.F	2010-11	10	Teak, Acasia, Karanja, Jamu, Amla	35%
80	-do-	Belapada R.F	2014-15	30	Teak, Acasia, Karanja, Jamu, Amla	45%
81	-do-	Jhinnkal R.F	2010-11	25	Teak, Sisoo	35%
82	-do-	Jhinnkal R.F	2010-11	40	Teak, Gambhari, Acasia, Karanja, Jamu, Sirisa	35%
83	-do-	Jhinnkal R.F	2012-13	30	Teak, Sisoo	40%
84	-do-	Jhinnkal R.F	2012-13	30	Bamboo	40%
85	-do-	Jhinnkal R.F	2016-17	10	Bamboo	60%
86	-do-	Baghamundia PRF	2014-15	30	Bamboo	55%
87	-do-	Gothamundia PRF	2020-21	10	Bamboo	81%
88	-do-	Birigadia PRF	2020-21	10	Bamboo	87%
89	-do-	Kabatbar PRF	2018-19	10	Gambhari, Amla Jamu, Sisoo, Chhatian, etc.	79%

90	-do-	Kabatbar PRF	2020-21	8.33	Gambhari, Jamu Sisoo, Chhatian, Amla, etc.	81%
91	-do-	Telunia PRF	2020-21	10	Gambhari, Jamu Sisoo, Chhatian, Amla, etc.	86%
			Total	**588.33**		
94	Narasing hpur East	Deobhuin R.F	2010-11	25	Teak, Sisoo	30%
95	-do-	Deobhuin R.F	2011-12	35	Teak, Sisoo	35%
96	-do-	Deobhuin R.F	2015-16	25	Teak, Acasia, Karanja, Jamu, Amla	45%
97	-do-	Deobhuin R.F	2015-16	15	Bamboo	51%
98	-do-	Deobhuin R.F	2015-16	10	Teak, Acasia, Karanja, Jamu, Amla	45%
99	-do-	Deobhuin R.F	2020-21	50	Gambhari, Jamu Sisoo, Chhatian, Karanja, Amla,	82%
100	-do-	Olab R.F	2012-13	50	Gambhari,Jamu, Sisoo, Chhatian, Amla, Sirisa,	35%
101	-do-	Olab R.F	2013-14	25	Teak, Sisoo	53%
102	-do-	Olab R.F	2013-14	25	Gambhari, jamu Sisoo, Chhatian, Amla, , Sirisa	43%
103	-do-	Olab R.F	2020-21	50	Gambhari,Amal,Sisoo, Karanja, Jamu ,Chhatian,	83%
104	-do-	Chandragiri R.F	2020-21	50	Gambhari,Amal, Sisoo, Chhatian,Karanja, Jamu	85%
105	-do-	Bhuska PRF	2007-08	50	Teak, Sisoo	25%
106	-do-	Bhuska PRF	2008-09	40	Gambhari, Jamu Sisoo, Chhatian, Karanja, Amla,	28%
107	-do-	Bhuska PRF	2008-09	7	Bamboo	26%
108	-do-	Bhuska PRF	2020-21	50	Gambhari, Jamu Sisoo, Chhatian, Karanja, Amla,	89%
			Total	**507**		
112	Nara singhpur West	Kaliapada P.F	2002-03	18.98	Teak,Sisoo,Acasia, Chakunda,Karanja	70%
			Total	**18.98**		
			G.Total	2562.62		

3.6.10. Tending series:-

It is proposed to have one tending series named as Athgarhin this revision covering an area of 2562.62 ha. The Divisional Forest Officer, Athgarh is advised to complete the tending operation within the plan period. The item of works in the tending operation are climber Cutting, Removal of lops, Cutting of high stump, Pruning, Removal of dead, dry broken branches ,thinning etc.The details of tending operation area given in the table below.

Table No.14						
Details of Tending Operation						
Year of Working	Name of the Series	Range	Coupe	Name of Forest Block	Area in ha	Total Area in ha
2022-23	Athgarh	Athgarh	TS -I	Kalichiaballav RF	20	
-do-	-do-	-do-	-do-	Khalakhala RF	40	
-do-	-do-	Khuntuni	-do-	Baniabandha RF	100	
-do-	-do-	Badamba	-do-	Badjora RF	40	288.98
-do-	-do-	-do-	-do-	Kumaranga RF	20	
-do-	-do-	Narasinghpur East	-do-	Bhuska P.R.F	50	
-do-	-do-	Narasinghpur West	-do-	Kaliapada PF	18.98	
2023-24	-do-	Athgarh	TS - II	Baudabana khandi RF	75	
-do-	-do-	Khuntuni	-do-	Baniabandha RF	60	
-do-	-do-	Badamba	-do-	Badjora RF	20	262
-do-	-do-	-do-	-do-	Tareiganda	35	
-do-	-do-	Narasinghpur East	-do-	Bhuska PRF	47	
-do-	-do-	-do-	-do-	Deobhuin RF	25	
2024-25	-do-	Athgarh	TS III	Sukasana RF	35	
-do-	-do-	-do-	-do-	Phulbadi PRF	50	
-do-	-do-	Khuntuni	-do-	Suniamunha RF	34.4	
-do-	-do-	-do-	-do-	Sankhapoi RF	25	264.4
-do-	-do-	Badamba	-do-	Nagatota RF	50	
-do-	-do-	-do-	-do-	Karada RF	10	
-do-	-do-	Narasinghpur East	-do-	Deobhuin RF	60	
2025-26	-do-	Athgarh	TS IV	Subasi RF	30	
-do-	-do-	-do-	-do-	Nizigarh RF	20	
-do-	-do-	-do-	-do-	Sorisapala RF	35	
-do-	-do-	Khuntuni	-do-	Gobara RF	10	225
-do-	-do-	Badamba	-do-	Kumaranga RF	40	
-do-	-do-	-do-	-do-	Jagabeherathali RF	40	
-do-	-do-	Narasinghpur East	-do-	Olaba RF	50	
2026-27	-do-	Athgarh	TS V	Saranda PRF	10	
-do-	-do-	-do-	-do-	Kalichiaballav RF	30	
-do-	-do-	-do-	-do-	Sorisapala RF	50	
-do-	-do-	Khuntuni	-do-	Baniabandha RF	100	345
-do-	-do-	Badamba	-do-	Karada RF	30	
-do-	-do-	-do-	-do-	Jhinkala RF	25	
-do-	-do-	Narasinghpur East	-do-	Olaba RF	100	
2027-28	-do-	Athgarh	TS VI	Nizigarh	20	
-do-	-do-	-do-	-do-	Phulbadi PRF	20	
-do-	-do-	-do-	-do-	Sorisapala RF	25	
-do-	-do-	Khuntuni	-do-	Suniamunha RF	40	280
-do-	-do-	-do-	-do-	Bramhanabasta RF	15	
-do-	-do-	-do-	-do-	Baniabandha RF	30	
-do-	-do-	Badamba	-do-	Jhinkala RF	70	

-do-	-do-	Narasinghpur East	-do-	Deobhuin RF	60	
2028-29	-do-	Athgarh	TS VII	Baudabanakhandi RF	25	189.4
-do-	-do-	-do-	-do-	Kalankipur PF	34.4	
-do-	-do-	Khuntuni	-do-	Baniabndha RF	60	
-do-	-do-	-do-	-do-	Baula RF	30	
-do-	-do-	Badamba	-do-	Jhinkal RF	40	
2029-30	-do-	Athgarh	TS VIII	Oringa RF	40	194.51
-do-	-do-	-do-	-do-	Gopalaprasad PF	29.51	
-do-	-do-	Khuntuni	-do-	Suniamunha RF	20	
-do-	-do-	-do-	-do-	Deulia RF	20	
-do-	-do-	-do-	-do-	Baula RF	20	
-do-	-do-	Badamba		Belapada RF	30	
-do-	-do-	-do-	-do-	Kabatbara PRF	10	
-do-	-do-	-do-	-do-	Birigadia PRF	10	
-do-	-do-	Narasinghpur East	-do-	Deobhuin RF	15	
2030-31	-do-	Athgarh	TS IX	Oringa RF	30	250
-do-	-do-	Khuntuni	-do-	Deulia East PRF	50	
-do-	-do-	-do-	-do-	Baniabandha PRF	10	
-do-	-do-	-do-	-do-	Ranibania RF	30	
-do-	-do-	-do-	-do-	Deulia RF	30	
-do-	-do-	Badamba	-do-	Chandragiri RF	50	
-do-	-do-	Narasinghpur East	-do-	Chandragiri RF	50	
2031-32	-do-	Athgarh	TS X	Saranda PRF	25	263.33
-do-	-do-	-do-	-do-	Phulabadi PRF	20	
-do-	-do-	Khuntuni	-do-	Bramhanabasta RF	50	
-do-	-do-	-do-	-do-	Deulia RF	50	
-do-	-do-	Badamba	-do-	Jagabeherathali RF	10	
-do-	-do-	-do-	-do-	Baghamundia PRF	30	
-do-	-do-	-do-	-do-	Gothamundia PRF	10	
-do-	-do-	-do-	-do-	Kabatabara PRF	8.33	
-do-	-do-	-do-	-do-	Telunia PRF	10	
-do-	-do-	Narasinghpur East	-do-	Bhuska PRF	50	
Total					**2562.62**	**2562.62**

3.6.11. Village Forest series:-

The total area allotted to village forest series 1861.052 ha. it is proposed one village forest series the name is village woodlot plantation series.

Table No. 15					
Village Forest Woodlot Plantation Series and its area in ha.					
Year	Name of the Range	Name of the Block	Coupe No	Area	Total Area
2022-23	Athgarh	Nuapatana	VWPS -I	10	190
	-do-	Radhakrushnapur	-do-	20	
	-do-	Radhakrushnapur	-do-	10	
	Badamba	Badakumbilo	-do-	150	
2023-24	Athgarh	Radha	VWPS - II	15	191

		krushnapur			
	-do-	Radha krushnapur	-do-	10	
	-do-	Patenigaon	-do-	5	
	-do-	Chhenakhia Nuagaon	-do-	10	
	Badamba	Budhapanka	-do-	10	
	-do-	Budhapanka	-do-	2	
	-do-	Satagachhia	-do-	8	
	-do-	Satagachhia	-do-	6	
	-do-	Champeidwar	-do-	5	
	-do-	Champeidwar	-do-	2	
	-do-	Sanabarsingh	-do-	2	
	-do-	Kotapalla	-do-	5	
	-do-	Kuanrapala	-do-	10	
	-do-	Kuanrapala	-do-	10	
	Narasinghpur East	Baghadharia	-do-	10	
	-do-	Bahali	-do-	7	
	-do-	Hatiapalli	-do-	5	
	-do-	Hatiapalli	-do-	4	
	-do-	Bahali	-do-	6	
	-do-	Ragadisahi	-do-	3	
	-do-	Baghadharia	-do-	5	
	-do-	Baghadharia	-do-	5	
	-do-	Lehenga	-do-	5	
	-do-	Siaria	-do-	10	
	-do-	Biswanathapur Siaria Taila	-do-	5	
	-do-	Siaria	-do-	5	
	-do-	Binchanabati	-do-	6	
	-do-	Binchanabati	-do-	5	
	-do-	Siaria	-do-	10	
2024-25	Badamba	Badakumbilo	VWPS - III	20	198
	Narasinghpur East	Khairapanga	-do-	25	
	-do-	Khairapanga	-do-	20	
	-do-	Banapur	-do-	20	
	-do-	Banapur	-do-	65	
	-do-	Champeswar	-do-	5	
	-do-	Manpur	-do-	5	
	-do-	Kalamatia	-do-	5	
	-do-	Kalamatia	-do-	7	
	-do-	Gharradia	-do-	5	
	-do-	Durgaprasad	-do-	5	
	-do-	Durgaprasad	-do-	4	
	-do-	Durgaprasad	-do-	2	
	-do-	Khndhabereni	-do-	5	
	-do-	Aleigundi,Trilochanpur	-do-	5	
2025-26	Badamba	Satagachhia	VWPS - IV	100	186
	Narasinghpur East	Taila	-do-	5	

	-do-	Taila	-do-	5	
	-do-	Madhubana	-do-	5	
	-do-	Madhubana	-do-	5	
	-do-	Rushipada	-do-	8	
	-do-	Rushipada	-do-	5	
	-do-	Rushipada	-do-	10	
	-do-	Bokada	-do-	5	
	-do-	Sagar(Badabarena)	-do-	5	
	-do-	Badabareana	-do-	4	
	-do-	Panchagachhia	-do-	4	
	-do-	Padamapur	-do-	5	
	-do-	Padamapur	-do-	5	
	-do-	Kamaladeipur	-do-	5	
	-do-	Kamaladeipur	-do-	5	
	-do-	Sagara	-do-	5	
2026-27	Narasinghpur East	Panchagachhia	VWPS - V	40	217
	-do-	Panchagachhia	-do-	36	
	-do-	Kandhabereni	-do-	14	
	-do-	Champeswara	-do-	15	
	-do-	Champeswara	-do-	6	
	-do-	Godibandha	-do-	5	
	-do-	Adhigandi, (Trilochanpur)	-do-	5	
	-do-	Bokada	-do-	10	
	-do-	Kandha, badabhuin	-do-	6	
	-do-	Jayangamala	-do-	5	
	-do-	Purukutia	-do-	6	
	-do-	Odisingha	-do-	5	
	-do-	Sukat	-do-	20	
	-do-	Kanpur	-do-	7	
	Narasinghpur West	Kakudia	-do-	5	
	-do-	Basantapur	-do-	17	
	-do-	Basantapur	-do-	5	
	-do-	Basantapur	-do-	8	
	-do-	Ghoradia, Mandhota	-do-	2	
2027-28	Badamba	Badakumbilo	VWPS - VI	10	200
	-do-	Rampur	-do-	20	
	-do-	Banpur	-do-	15	
	-do-	Badabarsingh	-do-	50	
	-do-	Badabarasingh	-do-	30	
	-do-	Sanabarasingh	-do-	30	
	-do-	Kotapalla	-do-	15	
	-do-	Satagochhia	-do-	15	
	-do-	Kotapalla	-do-	15	
2028-29	Badamba	Judum	VWPS - VII	15	175
	-do-	Judum	-do-	15	
	-do-	Talamundali	-do-	15	
	-do-	Talamundali	-do-	5	

	-do-	Telikumbilo	-do-	90	
	-do-	Telikumbilo	-do-	15	
	-do-	Banapur	-do-	20	
2029-30	Badamba	Telikumbilo	VWPS - VIII	30	170
	-do-	Badabarana	-do-	15	
	-do-	Mugagahiri	-do-	20	
	-do-	Badabarana	-do-	20	
	-do-	Badabarana	-do-	10	
	-do-	Karadibandha	-do-	20	
	-do-	Karadibandha	-do-	20	
	-do-	Dhanapalli VWL	-do-	6	
	-do-	Dhanapalli VWL	-do-	2	
	-do-	Dhanapalli VWL	-do-	7	
	-do-	Jhajia	-do-	4	
	-do-	Kharod	-do-	8	
	-do-	Malati	-do-	8	
2030-31	Badamba	Amatia	VWPS -IX	10	179.052
	-do-	Ratapata	-do-	10	
	-do-	Ratapata	-do-	9	
	-do-	Badakambilo	-do-	6	
	-do-	Judum	-do-	5	
	-do-	Avimanpur	-do-	4.5	
	-do-	Kankarajori	-do-	1	
	-do-	Kadana	-do-	7	
	-do-	Satagochhia	-do-	9	
	-do-	Rampur	-do-	2	
	-do-	Judum	-do-	7.5	
	-do-	Kadana	-do-	4	
	-do-	Kharod	-do-	4.552	
	-do-	Baliapala	-do-	9.5	
	-do-	Judum	-do-	10	
	-do-	Nuapada	-do-	10	
	-do-	Talamundali	-do-	10	
	-do-	Kotapalla	-do-	10	
	-do-	Banapur	-do-	5	
	-do-	Banapur	-do-	5	
	-do-	Karadibandha	-do-	10	
	-do-	Kuniapala	-do-	10	
	-do-	Karadibandha	-do-	10	
	-do-	Kasapala	-do-	10	
2031-32	Badamba	Biswanathapur	VWPS -X	6	155
	-do-	Khairipanga	-do-	5	
	-do-	Khairipanga	-do-	4	
	-do-	Gundadwara	-do-	5	
	-do-	Guradipala	-do-	30	
	-do-	Kadambpala	-do-	10	
	-do-	Gurudipala	-do-	20	
	-do-	Badabareana	-do-	5	
	-do-	Sasanga	-do-	5	

	-do-	Sasanga	-do-	10	
	-do-	Karadibandha	-do-	5	
	Narasinghpur East	Panchagochhia	-do-	50	
Total				1861.052	1861.052

3.6.12. Method of executing the felling / Plantation:-

Prescription given in the forest plantation manual, 1977 shall be followed meticulously in addition to the following guideline. The guidelines are as follows.

3.6.12.1. Demarcation of annual plantation coupes:-

Annual plantation areas which will shown in management maps in 1:25,000 scales shall be demarcated in winter season (Oct-Dec) preceding to the year of plantation. Small stone cairns of half meter height are erected and coal tarring on trees standing on boundary is to be made for demarcation. Plantations areas shall be indicated fixing sign boards at strategic points.

3.6.12.2. Preparation of site, Treatment map and plan:-

A site map in the scale of 1:25,000 showing details of area, slope, nature of erosion, biotic interference, species, of plant, aspiration of public etc. is prepared. Treatment map shall be prepared with financial projections. The plantations shall be taken care of for 4 years. The plantation plan along with treatment map in 1:25,000 scales shall be prepared by the Range Officer, checked by the Divisional Forest Officer and approved by the Regional Chief Conservator of Forest. Maps to be generated through GPS / Map source software.

3.6.12.3. Raising of Nursery:-

Sufficient planting stocked seedlings are to be raised in permanent and temporary nursery and kept ready for plantation before onset of monsoon.

3.6.12.4. Stacking, Pitting and Planting:-

Site preparations should be completed by the end of January. Alignment and pitting should be completed within February for better weathering of pits before planting. Planting should be done after onset of monsoon immediately.

3.6.12.5. Post planting operations:-

Post planting operations include casualty replacement, weeding, mulching, soil working, fertilizer application etc. The schedule of planting operations is given in table below.

Table No-16	
Schedule of Planting Operations.	
Operations	Period of Completion
Advance preparation of site	End of October
Digging of pits	End of February

Stacking	End of February
Soil & moisture Conservation activities if any	Nov- December.
Plantation and Post Plantation Operation in 1st Year	
Pre-sprouted poly potted stump planting	1st week of July
Casualty replacement	End of July
1st Soil working, weeding &manuring	End of August
2nd soil working and weeding	During October
3rd soil working	During December
Post Plantation Operation in 2nd Year	
Casualty replacement, 1st weeding, soil working &manuring	End of July
2nd weeding and soil working	During October
Post Plantation Operation in 3rd and subsequent year	
Soil working and causality replacement	End of July
Pruning and singling	September

3.6.13. Control Forms:-

Each plantation shall be documented by maintenance of nursery journal, plantations journal, photographs etc. in accordance with the provisions of the Orissa Forest Plantation Manual 1977 indicating the physical and financial achievements. PRA activities should also be carried out in the villages, if wherever VSS members are involved. All the plantations done shall be shown on the Topo maps of 1:25,000scale.

3.6.14. Miscellaneous regulation:-

All the annual planting area under different planting series shall be strictly protected from grazing and fires. Suitable areas adjacent to these plantation areas may be developed into fodder plantation and even encourage stall feeding thereby diverting the grazing pressure from the planting area. The people in the adjoining areas of the plantations should be formally or informally associated in the plantation works and they should be asked to prevent their cattle entering the plantation area by setting up future awareness campaigns. Wherever necessary involvement of people should be made for protection of the plantations in a participatory mode.

Plantation journal and Nursery journal shall be maintained for every plantation as per Orissa Plantation Manual, 1977. The PRA exercise shall be undertaken before executing the activities under the planting series to assess felt-need of people and their willingness vis-à-vis choice of species so as to ensure their continued support in the entire process of regeneration.

There are a lot of plantations raised at outside the working circle area under CAMPA Scheme, 13th FC grant and Bald Hill Plantation, Block Plantation under MGNREGS, Urban plantation Schemes. It is suggested for doing consolidation work of the above patches and steps should be taken for processing for declaration of Reserve Forest / Protected Forest and brought under forest management.

3.6.15. Annual Cost of Operations and Working Norm:-

Plantations will be raised as per the norms approved by the competent authority. In case of site specific schemes drawn up as is being done in diversion of forestland proposals. It should be approved by the competent authority.

3.6.16. Rights & Concession:-

The Rights & Concessions shall be regulated as per provision of the Orissa Forest Act & Rules and under provision of relevant Govt. policies.

CHAPTER-4

Bamboo (Overlapping) Working Circle.

CHAPTER-4

Bamboo (Overlapping) Working Circle

4.1. Bamboo Overlapping Working Circle

4.2. General Constitutions of Bamboo Overlapping Working Circle:-

The total GIS computed area of Bamboo Overlapping Working Circle is 15239.595 hectare. In cutting series the total area included is 8031.843 hectare and in Bamboo Rehabilitation series the total area included is 7207.752 hectare. This Working Circle includes most of the bamboo bearing areas of the Division and overlaps with Improvement and Rehabilitation Working Circles. The main forest blocks included in this Working Circle are Deobhuin, Olab, Chandragiri "B", Badajora, Haladiaseni, Taraiganda, Chandragiri A, etc.

4.3. General characteristics of vegetation:-

The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissuslatifolia, Cleistanthuscollinus, Terminaliatomentosa, Buchananialanzan, Diospyrosmelanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewiasps.,Indigoferacassioides, etc. Hemidesmusindicus, Calycopteris floribunda, Combretumdecandrum, Buteasuperba, Bauhniavahilii etc., are the important climbers present in this forest. The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

4.4. Bamboo Cutting Series, cutting sections and JFM areas:-

The total area included in this Overlapping Working Circle is 8031.843 hectare coming within two Ranges. Considering distribution of Bamboo, it is proposed to have two cutting series. The name of cutting series are (1). Narsinghpur East(2). Badamba.

4.5.Blocks, compartments and JFM area (marked on GIS based maps):-

4.5.1. Forest Blocks in Bamboo OWC Cutting Series :-

Most of the blocks included in this circle are part of the Bamboo Working Circle of the outgoing plan as well as the Special bamboo scheme currently in vogue. The bamboo is the major NTFP item collected by the people in this Division. In this Working Circle, cutting of bamboo for industrial purpose is possible in only few blocks like Olab, Deobhuin, Haladiaseni, etc. In the rest of the blocks bamboo need to be rehabilitated on priority basis. Hence the blocks like Badajora, Taraiganda, Chandragiri, etc. are also included in this Working Circle. The details area of Bamboo overlapping circle is given in the table below.

Table No-1				
The GIS computed area of BOWC (Cutting Series) in hectare				
SL No	Name of Range	Name of Forest Block	Area of Forest Block	Bamboo area
1	Narasinghpur East	Deobhuin R.F	6028.465	2842.810
2	do	Olab R.F	2261.28	1180.780
3	do	Chandragiri (B) RF	698.32	698.320
		Total	8988.065	4721.91
4	Baramba	Chandragiri RF	265	265.000
5	do	Haladiasein RF	3925.17	1961.470
6	do	Badajora RF	1063.97	86.073
7	do	Tareiganda RF	997.39	997.39
		Total	6251.527	3309.933
		G.T	15239.595	8031.843
NB: In this revision total area of Bamboo is taken 8031.843 ha.				

4.6. Bamboo Rehabilitation Series, and JFM areas:-

The total area included in this Rehabilitation series is 7207.752 hectare. Considering distribution of Bamboo, it is proposed to have 02 Rehabilitation series. The name of the Rehabilitation series are (1). Narasinghpur East (2) Badamba

4.6.1. Forest Blocks in Bamboo OWC (Rehabilitation Series):-

Table No- 2				
The GIS computed area of BOWC(Rehabilitation Series) in hectare,				
SL No	Name of Range	Name of Forest Block	Area of Forest Block	Bamboo area
1	Narasinghpur East	Deobhuin RF	6028.465	3185.655

2	-do-	Olab RF	2261.28	1080.5
3	Badamba	Badajora RF	1063.97	977.897
4	-do-	Haladiaseni RF	3925.17	1963.70
		Total	13278.885	7207.752

4.6.2. Bamboo OWC Cutting Series:-

The area allocation to each cutting series is given in the table below.

Table No-3				
Bamboo Cutting Series and its area in hectare				
Sl No.	Name of Range	Name of Cutting Series	Name of Forest Block	Bamboo area
1	Narsinghpur East	Narsinghpur East	Deobhuin R.F	2842.810
2			Olab R.F	1180.780
3			Chandragiri (B) RF	698.320
			Total	4721.910
4	Badamba	Badamba	Chandragiri RF	265.000
5			Haladiasein RF	1961.470
6			Badajora RF	86.073
7			Tareiganda RF	997.387
			Total	3309.930
			G.T	8031.843

4.7. Objectives of Management:-

The special objectives of management of this Working Circle are as follows.

Sl.No.	Special objectives of Management
1	To encourage and obtained maximum natural regeneration in all clumps.
2	To improve the size and vigor of the retaining culms by silvicultural operation.
3	To improve the condition of forest cover on the hill terrain by subsidiary silvicultural operation.
4	To reduce the extent of fire by proper scientific management and maintain the middle story for the interest of soil conservation and ecological stability.
5	To increase revenue and provide works to the local people.
6	To remove dead, dry and top broken culms in all treatment type area to derive maximum sustained yield.
7	To increase the clumps per hector by artificial regeneration and minimizing the demand of bamboo of the local people.

4.7.1. Analysis and Valuation of the Crop:-

4.7.1.1. Range and Quality:-

The range of the quality of bamboo is varying from III to I, whereas the mean quality is II. The numbers of culms in each clump have been considered for measure of relative productive capacity of this tract. The relationship of quality classes of bamboo with his height and the minimum number of culms to be retained in each quality clump is given in the table below.

Table No- 4

Relationship of quality classes, height and culms to be retained per clump

Name of species	Quality class	Height of culms in meter	Number of culms to be retained in one clump	Age in year
Bamboo	I	> 09.00	20	All
	II	06.00 to 09.00	15	All
	III	< 06.00	10	All

4.7.2.Silvicultural System:-

The silvicultural system prescribed is called 'Culms selection-cum-clump improvement'. In this systems two complimentary operations shall be carried out simultaneously. The first one is to select the matured culms for cutting followed by some principle and the second one is to improve each clump condition by adopting tending and other cultural operation.

4.7.3.Rotation Period:-

There is no any experimental plot in this division to determine exactly the year at which an individual culm lives. The planned number of years between regeneration and maturity of a crop will vary depending on its site quality. Rotation should be a multiplication of the cutting cycle. A cutting cycle of 04 years has been fixed for all cutting series in this Working Circle. As per Sri Harry G. Champion and Sri S. K Seth an individual culm lives for above 07 to 14 years. The life period of bamboo species have been given in the table below.

Table No-5

Life period of bamboo

Sl. No.	Name of species	Life period in year
1	Dendrocalamusstrictus	07
2	Oxytenantheraabyssiniaca	07
3	Dendrocalamushamiltonii	10

4	Bambusatulda	12
5	Bambusapolymorpha	14
Sources - Sri Harry G. Champion and Sri S. K Seth		

4.7.4. Harvestable /Exploitable diameters:-

The exploitable girth of different species has been fixed basing on the size to which it cannot developed unsoundness and give maximum financial return. Bamboo attends maximum size at the end of 1st year and it is found suitable for cutting at the age of 04 years. Exploitable diameter in case of bamboo has not been fixed.

4.7.5. Reducing factors and reduced areas:-

4.7.5.1. Reduce factor:-

Reduce factor is used to determine the quality of the trees. But in this revision the quality of sal is assessed based on its girth. Therefore reducing factor has not been used in this revision.

4.7.5.2.Reduced Area: -

Reduced area is used to determine the density of the crop with the help of basal area. The density of the forest managed in this revision has been assessed based on crown cover and ground area. Therefore reduced area have not been used in this revision to determine the density of the crop.

4.7.6.Felling / Cutting Cycle:-

Bamboo is usually harvested in every 04 years. The cutting cycle is fixed basing on two consecutive cutting of one coupe. Therefore the cutting cycle is fixed to 04 years.

4.7.7.Division into periods and allotment to periodic blocks (PB):-

4.7.7.1. Sequence of Cutting Cycle:-

The annual Bamboo area allotted to is cutting series is divided into 04 annual coupes i.e A, B, C and D. The cutting cycle of Bamboo is 04 years. The work will be started from 2022-23 to 2031-32 from Improvement area.

4.7.8. Calculation of the yield:-

During bamboo working in the year 2006-07, 2007-08, 2008-09, 2009-10 and 2010-11 the production is irregular. The lowest being 423.39 SU during 2006-07 and highest during 2010-11. There is

gregarious flowering during 2009-10. Maximum Production that can be expected is approximately 0.4 SU per hectare. Details has been worked out in this plan.

Bamboo Inventory Data								
Block / Compt.	Area in ha.	Inventory area	1st year	2nd year	3rd year	Damaged twisted	Total	Culm to be cut
Deobhuin / 01	246.46	--	--	--	--	--	--	--
Deobhuin / 03	243.75	0.1	3	4	0	10	17	0
-do-	-do-	0.1	5	1	3	12	21	0
-do-	-do-	0.1	3	3	3	6	15	0
-do-	-do-	0.1	3	3	1	7	14	0
-do-	-do-	0.1	3	5	2	7	17	0
-do-	-do-	0.1	8	2	0	12	22	0
-do-	-do-	0.1	4	1	4	7	16	0
Deobhuin / 05	411.43	0.1	7	4	2	6	19	0
-do-	-do-	0.1	5	2	1	4	12	0
-do-	-do-	0.1	3	6	1	3	13	0
-do-	-do-	0.1	6	3	2	3	14	0
Deobhuin / 04	234.27	0.1	7	4	3	8	22	0
-do-	-do-	0.1	5	2	1	4	12	0
-do-	-do-	0.1	3	6	3	3	15	0
-do-	-do-	0.1	6	3	2	5	16	0
-do-	-do-	0.1	7	3	7	5	22	0
-do-	-do-	0.1	7	2	4	6	19	0
-do-	-do-	0.1	5	8	6	2	21	1
-do-	-do-	0.1	6	8	4	2	20	0
-do-	-do-	0.1	4	4	7	6	21	3
-do-	-do-	0.1	7	3	4	2	16	0
-do-	-do-	0.1	1	8	7	4	20	5
-do-	-do-	0.1	4	5	2	1	12	0
-do-	-do-	0.1	7	6	5	12	30	0
-do-	-do-	0.1	6	5	1	1	13	0
Deobhuin / 02	445.995	0.1	5	4	3	6	18	0
-do-	-do-	0.1	4	2	1	4	11	0
-do-	-do-	0.1	4	11	3	3	21	0
-do-	-do-	0.1	3	3	2	5	13	0
Deobhuin / 06	404.44	0.1	6	8	4	2	20	0
-do-	-do-	0.1	4	1	0	4	9	0
-do-	-do-	0.1	1	7	4	3	15	1
-do-	-do-	0.1	4	5	4	5	18	0
-do-	-do-	0.1	8	6	7	5	26	0
-do-	-do-	0.1	10	5	5	6	26	0

-do-	-do-	0.1	4	8	9	2	23	5
-do-	-do-	0.1	7	6	8	2	23	0
-do-	-do-	0.1	7	8	6	2	23	0
-do-	-do-	0.1	5	9	4	2	20	0
-do-	-do-	0.1	7	4	8	2	21	1
Deobhuin / 07	253.89	0.1	3	3	1	6	13	0
-do-	-do-	0.1	3	2	0	2	7	0
-do-	-do-	0.1	5	1	1	2	9	0
-do-	-do-	0.1	2	2	1	5	10	0
-do-	-do-	0.1	4	1	0	1	6	0
-do-	-do-	0.1	2	3	1	1	7	0
Deobhuin / 08	288.4	0.1	3	3	1	6	13	0
-do-	-do-	0.1	3	2	0	2	7	0
-do-	-do-	0.1	5	1	1	2	9	0
-do-	-do-	0.1	2	2	1	0	5	0
-do-	-do-	0.1	4	1	0	1	6	0
-do-	-do-	0.1	2	3	1	4	10	0
Deobhuin / 10	314.175	0.1	5	5	5	8	23	0
-do-	-do-	0.1	3	8	5	4	20	2
-do-	-do-	0.1	7	8	4	3	22	0
-do-	-do-	0.1	7	4	7	5	23	0
-do-	-do-	0.1	7	4	4	5	20	0
-do-	-do-	0.1	1	7	9	6	23	6
Olab/ 1	380.92	0.1	3	4	0	3	10	0
-do-	-do-	0.1	5	6	12	11	34	7
-do-	-do-	0.1	5	9	9	7	30	4
-do-	-do-	0.1	1	24	14	6	45	13
-do-	-do-	0.1	8	33	11	3	55	3
-do-	-do-	0.1	5	8	13	3	29	8
-do-	-do-	0.1	12	25	20	4	61	8
-do-	-do-	0.1	3	23	3	5	34	0
Olab/ 1	380.92	0.1	3	4	0	3	10	0
-do-	-do-	0.1	9	1	12	11	33	3
-do-	-do-	0.1	5	1	9	7	22	3
-do-	-do-	0.1	6	8	8	6	28	2
-do-	-do-	0.1	12	6	15	9	42	3
-do-	-do-	0.1	13	8	10	12	43	0
-do-	-do-	0.1	12	5	2	4	23	0
-do-	-do-	0.1	3	8	3	5	19	0
Olab/ 2	344.08	0.1	1	3	1	3	8	0
-do-	-do-	0.1	2	7	7	7	23	4
-do-	-do-	0.1	3	21	4	12	40	1
-do-	-do-	0.1	1	6	2	6	15	1
Olab/ 3	230.6	0.1	3	3	3	2	11	0
-do-	-do-	0.1	6	4	3	4	17	0
-do-	-do-	0.1	3	1	3	3	10	0

-do-	-do-	0.1	7	1	8	6	22	1
-do-	-do-	0.1	1	3	10	4	18	3
-do-	-do-	0.1	9	10	3	4	26	0
Olab / 4	225.18	0.1	10	11	7	21	49	0
-do-	-do-	0.1	12	9	8	12	41	0
-do-	-do-	0.1	13	12	11	16	52	0
-do-	-do-	0.1	13	9	9	17	48	0
Olab / 4	225.18	0.1	10	7	7	17	41	0
-do-	-do-	0.1	4	6	9	21	40	5
-do-	-do-	0.1	10	10	6	21	47	0
Chandragiri/1	115.01	0.1	1	3	6	6	16	2
Chandragiri/2	176.22	0.1	3	4	0	3	10	0
-do-	-do-	0.1	5	6	7	12	30	2
-do-	-do-	0.1	5	9	9	9	32	4
-do-	-do-	0.1	6	21	8	6	41	2
-do-	-do-	0.1	7	11	2	4	24	0
-do-	-do-	0.1	3	8	3	5	19	0
Chandragiri/2	176.22	0.1	1	3	6	6	16	5
Chandragiri/3	407.09	0.1	5	15	3	8	31	0
-do-	-do-	0.1	4	3	5	4	16	1
-do-	-do-	0.1	5	6	2	5	18	0
-do-	-do-	0.1	3	10	4	3	20	1
-do-	-do-	0.1	5	6	1	3	15	0
Taraiganda/ 1	141.51	0.1	3	2	4	4	13	0
-do-	-do-	0.1	4	5	2	2	13	0
-do-	-do-	0.1	4	3	5	2	14	1
Taraiganda/ 2	278.16	0.1	5	13	5	11	34	0
-do-	-do-	0.1	4	3	6	9	22	2
-do-	-do-	0.1	6	4	9	9	28	3
-do-	-do-	0.1	6	6	6	7	25	0
Taraiganda/ 3	577.72	0.1	5	3	5	11	24	0
-do-	-do-	0.1	4	3	6	9	22	2
-do-	-do-	0.1	6	4	5	9	24	0
-do-	-do-	0.1	6	3	6	7	22	0
Chandragiri/1	42.52	0.1	0	0	0	24	24	0
-do-	-do-	0.1	5	7	11	28	51	6
-do-	-do-	0.1	0	7	7	6	20	2
-do-	-do-	0.1	0	0	0	16	16	0
-do-	-do-	0.1	4	6	0	21	31	0
Chandragiri/2	222.48	0.1	0	9	23	16	48	5
-do-	-do-	0.1	0	7	15	25	47	5
-do-	-do-	0.1	6	11	18	26	61	12
-do-	-do-	0.1	0	2	12	11	25	4
Badajora / 1	86.07	0.1	8	5	7	6	26	0
-do-	-do-	0.1	9	6	11	0	26	2
-do-	-do-	0.1	1	2	1	4	8	0
-do-	-do-	0.1	0	1	0	2	3	0
-do-	-do-	0.1	0	0	1	4	5	0
-do-	-do-	0.1	1	1	2	1	5	0

-do-	-do-	0.1	0	0	0	4	4	0
-do-	-do-	0.1	3	2	2	2	9	0
-do-	-do-	0.1	0	0	0	3	3	0
-do-	-do-	0.1	0	0	0	2	2	0
-do-	-do-	0.1	0	0	0	6	6	0
-do-	-do-	0.1	0	0	0	4	4	0
-do-	-do-	0.1	1	1	0	4	6	0
-do-	-do-	0.1	0	0	0	6	6	0
-do-	-do-	0.1	0	0	0	4	4	0
-do-	-do-	0.1	0	0	0	2	2	0
-do-	-do-	0.1	0	0	0	2	2	0
-do-	-do-	0.1	2	0	3	5	10	0
-do-	-do-	0.1	2	2	0	3	7	0
-do-	-do-	0.1	1	1	0	4	6	0
-do-	-do-	0.1	1	2	1	4	8	0
-do-	-do-	0.1	1	2	0	4	7	0
-do-	-do-	0.1	1	1	1	4	7	0
-do-	-do-	0.1	2	2	0	5	9	0
-do-	-do-	0.1	2	2	6	0	10	0
-do-	-do-	0.1	4	5	6	8	23	2
-do-	-do-	0.1	1	1	1	3	6	0
-do-	-do-	0.1	2	2	0	3	7	0
-do-	-do-	0.1	0	0	3	4	7	0
-do-	-do-	0.1	0	1	0	6	7	0
-do-	-do-	0.1	0	0	1	2	3	0
-do-	-do-	0.1	0	1	0	3	4	0
-do-	-do-	0.1	0	4	0	2	6	0
-do-	-do-	0.1	1	2	3	1	7	0
-do-	-do-	0.1	1	0	1	7	9	0
-do-	-do-	0.1	2	0	3	1	6	0
-do-	-do-	0.1	0	1	0	2	3	0
-do-	-do-	0.1	1	0	0	4	5	0
-do-	-do-	0.1	0	0	0	4	4	0
-do-	-do-	0.1	0	1	0	6	7	0
-do-	-do-	0.1	0	0	0	3	3	0
-do-	-do-	0.1	4	4	5	0	13	1
-do-	-do-	0.1	0	0	0	7	7	0
Haladiaseni/4	125.83	0.1	7	8	8	12	35	1
-do-	-do-	0.1	6	8	10	6	30	4
-do-	-do-	0.1	8	4	8	10	30	0
-do-	-do-	0.1	6	7	10	12	35	4
Haladiaseni/4	125.83	0.1	5	7	6	7	25	1
-do-	-do-	0.1	4	5	4	7	20	0
-do-	-do-	0.1	7	4	3	8	22	0
-do-	-do-	0.1	5	7	6	10	28	1
Haladiaseni/4	125.83	0.1	4	5	6	5	19	2
		0.1	6	8	3	7	24	0
		0.1	7	8	6	7	28	0
		0.1	5	4	7	9	25	2

		0.1	6	8	5	12	31	0
		0.1	3	6	6	11	26	3
		0.1	7	8	8	14	37	1
		0.1	6	5	4	12	27	0
Haladiaseni/5	550.56	0.1	5	6	4	8	23	0
		0.1	3	7	9	12	31	6
		0.1	4	5	4	8	21	0
		0.1	5	6	2	9	22	0
Haladiaseni/6	413.95	0.1	4	5	6	9	24	2
		0.1	3	9	9	15	36	6
Haladiaseni/7	576.43	0.1	4	5	6	9	24	2
		0.1	3	9	9	15	36	6
Haladiaseni/8	294.7	--	--	--	--	--	--	--

4.7.8.1. Calculation of culms to be cut per ha:-

The culm to be cut in each compartment is given in the table below.

Table No.6

Culms to be cut per ha.

Block	Compt	GIS Computed Areain ha	Inventory area in ha.	Average clumps dia in cm	Total clump per ha.	Culms to be cut per ha.
Deobhuin R.F	1	246.46	--	--	--	--
-do-	2	445.995	0.1	132.5	40	0
-do-	3	243.75	0.1	401	70	0
-do-	4	234.27	0.1	202.92	140	6
-do-	5	411.43	0.1	178	40	0
-do-	6	404.44	0.1	228.90	110	6
-do-	7	253.89	0.1	85.83	60	0
-do-	8	288.4	0.1	85.83	60	0
-do-	10 (P)	314.175	0.1	221.66	60	13
Olab RF	1	380.92	0.1	1031.12	160	34
-do-	2	344.08	0.1	201.25	40	15
-do-	3	230.6	0.1	472.66	60	7
-do-	4 (P)	225.18	0.1	276.33	70	7
Chandragiri RF	1	115.01	0.1	120	10	20
-do-	2	176.22	0.1	396.66	70	18
-do-	3	407.09	0.1	201	60	4
Taraiganda RF	1	141.51	0.1	118	30	3
-do-	2	278.16	0.1	144.25	40	12
-do-	3	577.72	0.1	144.25	40	5
Chandragiri	1	42.52	0.1	83.4	50	16
-do-	2	222.48	0.1	98.25	40	65
Badjora R.F	1(P)-	86.07	0.1	47.69	430	1
Haladiaseni R.F	4 (P)	125.83	0.1	936.625	160	12
-do-	5	550.56	0.1	196	40	15

-do-	6	413.95	0.1	344	20	40
-do-	7	576.43	0.1	180.5	20	40
-do-	8	294.7	0.1		0	

4.7.9.Table of Cutting Series:-

Basing on the period of the Plan, each cutting series has been divided into 04 number of coupes such as A, B, C and D. All coupes in each cutting series have been shown on the topo sheet 1~ 50000 scale. The working year of each coupe in different cutting cycle is given in the table below.

Table No. 7

Annual coupe and year of working of Cutting Series

Name of cutting Series	Name of Block	Compt. No. and its area in ha.	Coupe No.	Coupe area in ha. (GIS Computed Area)	Year of working
Narasinghpur East Range					
Narasinghpur East	Olab R.F	1-380.92, 2-344.08 ,3-230.6, 4(P)-225.18	A	1180.780	2022-23, 2026-27 & 2030-31
	Deobhuin R.F	6-404.44 7-253.89 8-288.4 10(P)-314.175	B	1260.905	2023-24, 2027-28& 2031-32
	Chandragiri R.F	1-115.01 2-176.22 3-407.09	C	698.320	2024-25 & 2028-29
	Deobhuin R.F	1-246.46 2-445.995 3-243.75 4-234.27 5-411.43	D	1581.905	2025-26 & 2029-30
			Total	4721.91	
Badamba Range					
Badamba	Tareiganda RF	1-141.51 2-278.16 3-577.72	A	997.390	2022-23, 2026-27 & 2030-31
	Badjora R.F Haladiaseni R.F	1(P)-86.073 8-294.7 7-576.43	B	957.203	2023-24, 2027-28& 2031-32
	Haladiaseni R.F	6-413.95 5-550.56 4(P)-125.83	C	1090.340	2024-25 & 2028-29
	Chandragiri R.F	1-42.52	D	265.0	2025-26 &

		2-222.48			2029-30
--	--	--	Total	3309.933	--
--	--	8031.843	G.T	8031.843	--

4.7.9.1.Coupe wise Probable yield:-

During bamboo working in the year 2006-07, 2007-08, 2008-09, 2009-10 and 2010-11 the production is irregular. The lowest being 423.39SU during 2006-07 and highest during 2010-11. There is gregarious flowering during 2009-10. Maximum Production that can be expected is approximately 0.4 SU per hectare. Details has been worked out in this plan.

4.7.9.2. Yield of Narasinghpur East Cutting Series:-

The yield of Narasinghpur East cutting series is given in the table below.

Table No.8			
Coupe wise probable yield of Narasinghpur East Cutting Series			
Coupe No	Area in ha.	No. of culm to be cut	SU
A	1180.780	74389	472.3
B	1260.905	22696	504.3
C	698.320	29329	279.3
D	1581.905	9491	632.7

4.7.9.3. Yield of Badamba Cutting Series:-

The yield of Badamba cutting series is given in the table below.

Table No.9			
Coupe wise probable yield of Badamba Cutting Series			
Coupe No	Area in ha.	No. of culm to be cut	SU
A	997.390	19947	398.9
B	957.20	39245	382.8
C	1090.340	73052	436.1
D	265.0	21465	106

4.7.10. Table of Rehabilitation Series :-

The total area allotted to rehabilitation series is 7207.752 hectare. Basing on the period of the Plan, each rehabilitation series has been divided into 04 number of coupes such as A, B, C and D. All coupes in each rehabilitationseries have been shown on the topo sheet 1~ 50000 scale. The working year of each coupe in different cutting cycle is given in the table below

Table No. 10					
Annual coupe and year of working of Rehabilitation Series					
Name of Rehabilitation Series	Name of Block	Compt. No. and its area in ha.	Coupe No.	Coupe area in ha. (GIS Computed Area)	Year of working
Narasinghpur East Range					
Deobhuin	Deobhuin	1-7.86 2-2.691 4-100.00 9-349.559 10-130.825 11-317.84	A	908.775	2022-23, 2026-27, 2030-31
Deobhuin	Deobhuin	12-290.80 13-475.80 14-332.13	B	1098.73	2023-24, 2027-28, 2031-32
Deobhuin	Deobhuin	15-465.10 16-339.79 17-373.26	C	1178.15	2024-25, 2028-29,
Deobhuin	Olab	4-144.62 5-365.44 6-570.44	D	1080.5	2025-26, 2029-30
		Total-4266.155		**4266.155**	
Badamba Range					
Haladiaseni	Badajora Haladiaseni	4-281.34 1-555.48	A	836.82	2022-23, 2026-27, 2030-31
Haladiaseni	Haladiaseni	2-487.52 4-416.29	B	903.81	2023-24, 2027-28, 2031-32
Haladiaseni	Haladiaseni	3-504.41	C	504.41	2024-25, 2028-29,
Haladiaseni	Badajora	1-201.317 2-258.30 3-236.94	D	696.557	2025-26, 2029-30
		Total		**2941.597**	
		G.Total		**7207.752**	

4.7.11. Bamboo Cutting Operation:-

Coupe will be opened for working from October to June. The sequence of cutting cycle will be enumerated after potential study. In the outgoing planperiod all the Bamboo coupe were not worked out due to availability of Bamboo.

4.7.12. Method of Execution of Operation: -

The details of execution of operation of Bamboo are as follows.

4.7.13. Demarcation of Annual Coupes:-

The details of demarcation of Annual Bamboo Coupes have been given in the below.

S. No.	Demarcation Procedure
1	Coupes have been formed in such way that coupe boundaries generally coincide with compartment or sub-compartment boundaries. Natural features like nallahs, extraction paths or ridges have also been taken as coupe lines. Coupe lines shall be demarcated by double coal tar ring at breast height on trees along the boundary at visible distance.
2	The bamboo coupe shall be indicated by signboards at corners or at points of intersection with roads, inspection paths and boundary lines of the forest blocks. The signboard should contain the name of the cutting series, the sequence of the coupe, its area, year of working and compartment number etc.

4.7.14 Cutting Operation: -

Bamboo cutting shall be done between 1st October and 30th June. It should be done strictly as per the cutting rules. The coupe shall be divided into four sections running along the contours. The section from top shall be worked first. The first section shall be completed in all respects before commencement of work in second section and so on.

4.7.15. Obligation of working agency: -

The agency working out the bamboo coupes shall be responsible to supply bamboo to the local tenants.

4.7.16. Working Bamboo: -

Bamboo shall be worked by a definite rule that has been prescribed by the Chief Conservator of Forests (Central), Eastern Regional Office, MOEF, Government of India, Bhubaneswar communicated vide Principal Chief Conservator of Forests, Orissa's Memo No. 26951 (40) dated, 28th December 1990.

4.7.17.Preparation of treatment map and cutting rules: -

4.7.17.1. TreatmentMap: -

The details of treatment map areas follows.

Sl. No.	Treatment Map
1	Having completed the demarcation of bamboo coupes and before taking it up for working, Treatment map will be prepared by the Agency for working on a copy of available

	management map in 1: 25,000 scale indicating Salia and Daba bamboo areas respectively.
2	Treatment types to be distinguished shall be based on the assessment of the standard Salia bamboo quality classes and actual clump condition. In both these cases areas less than 4 ha in extent will not be separated out as distinct Treatment types.
3	Treatment types of Salia Bamboos:- The following Treatment types have been identified for Salia bamboo areas.
4	Treatment type A: - Area with healthy and well stocked bamboo clumps consisting of
5	Clump quality – I :- Culm height of bamboos 9 mt and up
6	Clump quality – II :- Culm height of bamboo between 6 to 9 mt
7	Clump quality – III :- Culm height of bamboos below 6 mt
8	Treatment type B:-Areas with well stocked but degraded, damaged, congested and / or fire burnt clumps.
9	Treatment Type C: - Areas where in bamboo clumps are sparse and scattered. If necessary the Treatment Types B & C may be further classified into the above three clump quality classes.

4.7.18. Cutting rules for salia Bamboos (Dendrocalamusstrictus):-

Salia bamboo (*Dendrocalamusstrictus*) will be worked out as per the following prescriptions.Rules which are uniformly applicable to all the treatment types are as follows.

Sl. No.	Cutting rules
i	Karadi (culm up to one year of age) and the bamboo culm over one year but under two years of age will not be cut under any circumstances. Such more than one year old culms and the culms which are older than 2 years but less than 3 years of age are to be retained in 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 follow
	Clump Quality - I 20 culms
	Clump Quality - II 15 culms
	Clump Quality - III 10 culms
ii	Clumps having the minimum or less than the minimum prescribed number of culms shall not be commercially exploited. Only broken, dead, dried, badly damaged and malformed bamboos will be felled.

iii	A clump will be distinguished as an independent clump where it's periphery is easily discernible from others. Only where such a distinction is not possible, two clumps within one-meter distance will be regarded as one.
iv	While retaining Culm against felling in a clump they should remain well spaced and preferable at the periphery and in the order of preference as follows:-
	a. Karadi bamboos.
	b. Kasi bamboos (older than one year but less than 2 years).
	c. Pakala bamboo (Young green bamboos).
	d. Older live Bamboos.
	e. Others as may be available.
v	Rhizomes will not be dug.
vi	The height above which culms are cut shall not be less than 15 cm or more than 45 cm from the ground level and in no case below the first prominent node from the ground.
vii	The cut shall be made with sharp instrument to ensure that the stump does not split.
viii	Lops and tops of bamboos will be simultaneously cleared to avoid fire hazard at least to a distance of one meter away from the periphery of the worked out clumps.
ix	Climbers shall be cut from all the bamboo clumps during working of the coupe.
x	Bamboo strips will not be used in making bamboo bundles.
xi	Bamboo felling will not be done from 1st July to 30th September each year. However, all fellings and transport of bamboos in the sanctuaries shall be completed by the end of March positively. In case of gregarious flowering in sanctuary areas, working period will be extended up to end of June.
xii	If sporadic flowering of bamboo culms is observed, such clumps will be clear felled once the seeds from such culms have fallen.
xiii	In case of gregarious flowering of bamboos, upon the shedding of ripen seeds, the clear felled and extracted early, so that bamboos may not dry or deteriorate or become prone to fire hazard. 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.
xiv	Lopping of bamboo either for feeding livestock or otherwise is strictly prohibited.
xv	As far as possible, bamboo felling should be completed by the end of May (except in buffer area of sanctuaries where it should be completed by March).
xvi	Bamboo forests should be rigidly protected from fire and in any case forest fire should not occur during the year of working and the year following it.
xvii	No grazing shall be permitted during rains in bamboo forests, which have been worked out in the previous seasons.

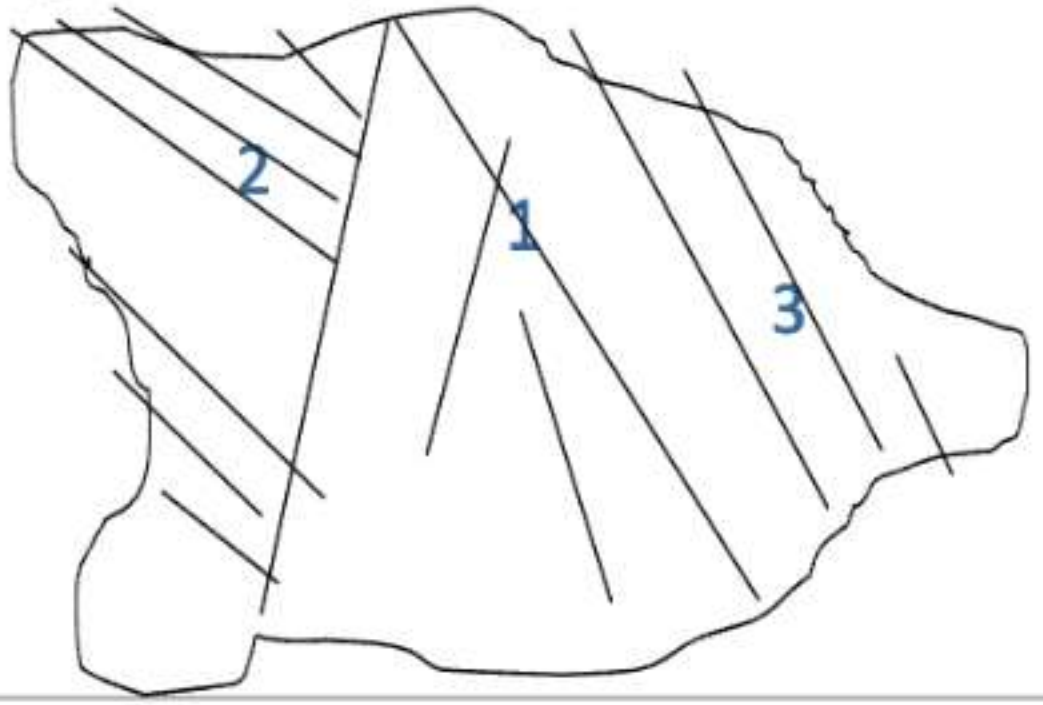
4.7.19. Rules applicable to specific treatment types:-

The details of rules applicable to specific treatment types are as follows.

A	Treatment type-A
i	Commercial felling will be done in those clumps, which have more than the prescribed minimum number of culms.The prescribed culms to be retain in each culms is 10 nos.
ii	Cultural operations will be carried out in clumps having less than the prescribed minimum number of culms in each.
B	Treatment type – B
i	There will be no commercial felling in any clump.
ii	Only cultural operations will be carried out which will include:
iii	Felling of all dead, dried, over matured, burnt, broken and grossly damaged bamboos.
iv	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.
v	The minimum number of culms to be retained per clump as prescribed in foregoing paras for various quality classes may not be strictly followed if necessity so arises.
vi	The congested bamboo clumps should be clear felled by forming segments. The maximum number of segments under which a congested clump should be worked out, will be three and at each working not more than one segment will be worked out. 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 should be felled at the first working. In subsequent cycles, sides segments should be felled.
C	Treatment type - C
i	Only cultural operations will be carried out in the existing bamboos clumps.
ii	Bamboo plantation will be raised. The minimum area to be planted annually will be 40 hectares or one third of the area under this type.
iii	Tending and cultural operations in the areas planted with bamboo will be done as per the standard practice.

First Preference

Diagram showing divisions of the clump.

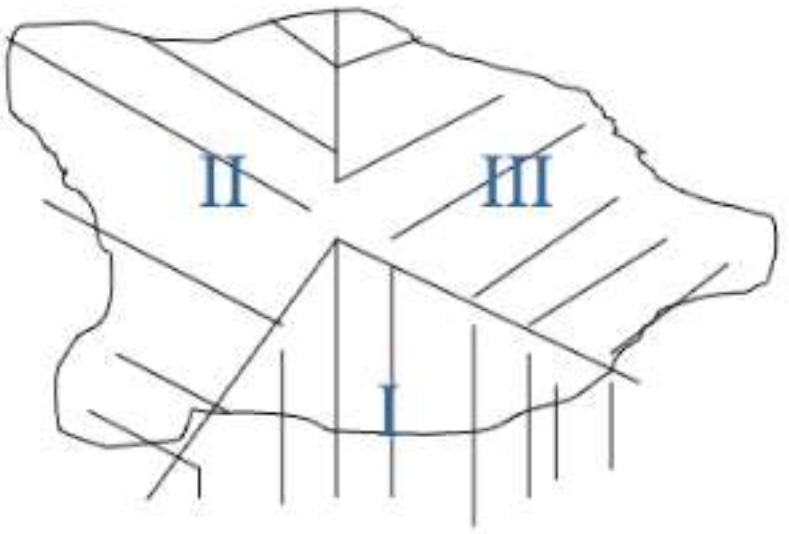


4.7.20. Cutting Rules for Daba Bamboos (Bambusaarundinacea):-

The Cutting Rules for Daba Bamboos (Bambusaarundinacea) is as follows.

Sl. No.	Cutting Rules
1	All bamboo culms in a clump, which are more than 3 years old, shall be harvested on culm selection basis provided the number of culms left uniformly distributed in a clump shall not be less than 10.
2	In case of congested clumps where culm selection is not possible, the clump should be carefully felled by forming segments as per any of the two diagrams given below and depending on the interlacing of the bamboo with a view to provide support to the remaining segments against wind damage. The maximum number of segments under which a congested clump should be worked out 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 (I) will be in the shape of triangle. Only the middle segment (I) should be felled at the first working. Two diagrams showing divisions of the clump in three segments are given below:-

Second preference



4.7.21. Simultaneous silvicultural operations:-

The Simultaneous silvicultural operations is as follows.

Sl. No.	Simultaneous silvicultural operations
1	All cutting debris shall be removed from the clump and the clump shall be left cleaned, wherever possible. The exposed rhizomes shall be covered with soil scrapped from the surrounding plain areas and preferably from uphill side of a hilly or undulated terrain. Both these operations shall have to be done along with the main cutting operation or in the following year.
2	No damage shall be caused to rhizomes and root stock.

4.7.22. Treatment of Gregariously flowered areas:-

The Treatment of Gregariously flowered areas is as follows.

Sl. No.	Treatment of Gregariously flowering
1	Bamboo seedlings at a spacement of about 4m x 4m are to be adopted and regained and the rest are to be thinned out.
2	Clearing, soil working and weeding are to be done around the adopted bamboo seedlings up to a radius of 50 cm.
3	To maintain the continuity, planting up of bamboo rhizomes is also to be resorted to especially in big gaps.
4	All the flowered clumps are to be worked out as per the prescriptions of the Working Plan.
5	The area should be closed for grazing.
6	Elaborate fire protection measures are also to be taken.

4.7.23. Flowering in Bamboo:-

In selection forest, the age of clump varies and accordingly varies the intensity of gregarious / sporadic flowering. The delay in flowering in poor sites is due to the effect of site quality, which is related to the growth and storage of starch, sugar and other substances in the clump, which help flowering. In a well-managed forest, intensity of flowering is less in comparison to a un worked forest consisting congested clumps. Intensity of flowering is more in area having more biotic interference in form of grazing and fire in comparison to protected area. It is important to identify the characters of flowering in Salia bamboo to decide appropriate management technique. The details of flowering of the bamboo is given in the table below.

Flowering in Bamboo		
S L No	Sporadic flowering	Gregarious Flowering
1	Scattered nature of flowering. Only few clumps are involved in flowering.	Flowering occurs almost in the entire area.
2	Only a few culms flower in a clump.	It involves almost all or some proportion of clumps. Flowering takes place in all the culms in clump.
3	The culm may or may not die after flowering.	All the culms of a clump die after flowering.
4	The clump does not die.	Flowering is followed by the death of the clump.
5	It takes place usually irregularly almost every alternate year.	It follows a cycle of long interval of 20 to 65 years.
6	--	It progresses in a definite direction like an epidemic wave.
7	--	It takes 2 to 4 years to complete the flowering in the area.

4.7.24. Distinguishing Morphological Characters of the Culms of Different Age:-

The Distinguishing morphological characters of the culms of different age are as follows.

Culm age	Morphological character
Kardi (The first year culm)	Culm sheath present on lower half of culm. Branches present through-out the length of culm. Culm green uniformly, bloom is abundantly present and comes off easily on finger. A fresh cut just under the node shows the same fresh colouration even after one or two minutes.
Kasi (The 2nd year culm)	Culm sheath mostly absent except some reminisces. Culm dark in color. Branches present particularly at all nodes. Bloom is patchy, greyish white in color and comes off less easily on finger. A fresh cut just under the node shows the same fresh coloration even after one or two minutes.
Pakala (The 3rd & 4th year culm)	Culm sheath absent. White bloom absent. Blackish grey or dark blotches appear which come off on finger slightly on rubbing. A reddish brown coloration after one or two minutes.

4.7.25. ControlForm: -

Necessary entries with regard to works undertaken in bamboo coupes must be entered in the compartment histories.

4.6.26. Miscellaneous Regulations: -

The main threats to the management of bamboo forest areas follows.

Sl. No.	Main threats
i	Indiscriminate cutting of bamboo by tenants and artisans;
ii	Annual Forest fire;
iii	Excessive grazing and
iv	Clear felling of Daba Bamboo.

These factors require to be checked on one hand and techniques are to be developed to improve the quality and quantity of the clumps in order to conserve the deterioration of bamboo forests. Decreasing trend in production of bamboo has already indicated the deterioration of bamboo forest. Appropriate silvicultural techniques to manage the bamboo forest will, therefore, be essential in restoring the valuable bamboo forest of the Division.

4.7.27. Area treatment: -

All clumps in worked out coupes shall be mounded with soil to induce regeneration growth of culms. Stone packing and making of half-moon trenches shall be done in the uphill of the clump to conserve water. This shall be done in the year following the coupe work.

4.7.28. Grazing: -

The regeneration coupe shall be protected from grazing.

4.7.29. Fire Protection: -

Fire protection is recommended for the coupes already worked out.

4.7.30. Analysis and Valuation of the Crop:-

4.7.31. Range and Mean of Quality:-

The range of the quality of bamboo is varying from III to I, whereas the mean quality is II. The numbers of culms in each clump have been considered for measure of relative productive capacity of this tract. The relationship of quality classes of bamboo with his height and the minimum number of culms to be retained in each quality clump is given in the table below.

Table No-11				
Relationship of quality classes, height and culms to be retained per clump				
Name of species	Quality class	Height of culms in meter	Number of culms to be retained in one clump	Age in year
Bamboo	I	> 09.00	20	All
	II	06.00 to 09.00	15	All
	III	< 06.00	10	All

4.7.32. Status of Regeneration:-

All first year bamboo is called Karadi. Branches have not been developed and culms sheath is present in between two nodes of Karadi. The data collected in regeneration survey have been analyzed in Chapter II-A of Part-I. The status of regeneration in the area allotted to Bamboo (overlapping) Working Circle is found moderate. The regeneration status of bamboo in different blocks is as per the enumeration data.

4.7.33. Special Feature:-

There are significant changes observed in the forest area managed during the outgoing Plan period. Bamboo demand of the inhabitant of this locality is not full filled from the forest of this zone. The number of clump in considerable reduced in part of the coupes area, which was previously managed for extraction of bamboo. Therefore, the extent of yield has been reduced. Forest fire is an important tragedy to the forest of this tract.

4.7.34. Sale Unit:-

The prescribed sale unit, which is the yardstick to calculate volume of production of the bamboo, is given in the table below.

Table No-12				
Sale Unit and length of bamboo				
Name of bamboo	Nos. of sale unit	Nos. of full bundle	Nos. of pieces	Total length in meter
Salia	01	50.0	x	2400.0
Daba	01	150.0	x	2400.0
C.S.B	01	x	350	x
C.D.B	01	x	175	x

4.7.35. Method of Executing the Cutting: -

4.7.35.1. Demarcation:-

All annual coupes will be demarcated and inspected during the end of preceding year in which the coupe is due for working. As far as possible coupes line has been made to coincide with the block or compartment boundary and natural features. At the time of demarcation, double coal tar rings at the breast height shall be given on the trees standing at a visible distance along the line or renewed, which were earlier painted. The coupe number shall be shown in the displayed signboard of the compartment.

4.7.35.2. Cutting Rules:-

The cutting rules is as follows.

Sl. No.	Cutting Rules
1	Cutting will be done soon after receipt of the inspection report for completion of demarcation from Range Officer or Assistant Conservator of Forest. The accessible area of the coupe had been heavily exploited by the leaseholder. Bamboo occurs in inaccessible area was remaining untouched. Bamboo area is also under pressure of illegal removal by local people. These resulted clumps in many patches have very few culms and in other patches clumps have become congested. Considering the field position, the following cutting Rules are prescribed.
2	All culms of 1st year (Karadi) and 2nd year (Mahila) shall not be cut under any circumstances. Culms of 3rd and 4th year (Pakia) will be retained in a clump such that their number shall not be less than the number of Karadi in the same clump. The minimum number of culms shall be retained in a clump on the basis of culms qualities I, II and III are 20, 15 and 10 respectively.
3	Clumps having the minimum or less than minimum prescribed number of culms shall not be commercially exploited. Only broken, dead, dry, badly damaged and malformed bamboo will be cut.
4	A clump will be distinguished as an independent one, where its periphery is easily discernible from others. Only where such a distinction is not possible, two clumps within 01 meter distance will be regarded as one clump.
5	While retaining culms against cutting in a clump they should be well spaced and preferable in the periphery and in the order of preference as (i) Karadi, (ii) Mahila, (iii) Pakia and (iv) Older live.
6	The culms shall be cut above 15 cm and below 45 cm height from the ground level. But in no case it will be cut below the first prominent node from the ground.
7	The cut shall be made with a sharp instrument to ensure that the stump remains intact without splitting.
8	Lops and tops of bamboo will be simultaneously cleared at least to a distance of one meter away from the periphery of the worked clump to avoid fire hazard.
9	Rhizomes shall not be dug. Climber shall be cut from all the bamboo clumps during working of the coupe.

10	Bamboo cutting shall not be done from 1st July to 30th September. Bamboo strips will not be used in tying the bamboo bundles.
11	If sporadic flowering of the bamboo is observed, such clumps in a zone or culms in a clump will be clear felled after they have shed their seeds.
12	If gregarious flowering of bamboo is observed, all clumps will be clear felled in the zone after they have shed their seeds. Clear felling and extraction will be done early so that bamboo shall not be dried or deteriorated or become prone to fire damaged.
13	Lopping of bamboo either for feeding of livestock or otherwise is strictly prohibited if sporadic flowering is observed in the locality.
14	Bamboo cutting shall be completed by the end of May and the area shall be rigidly protected from fire and grazing in the year of working and the year following it if sporadic flowering is observed in the zone.

4.7.36. MorphologicalCharacteristic: -

Several restrictions have been prescribed in bamboo cutting rules. In order to identify the bamboo at their different ages, the morphological characteristic is highly essential for executing agent. To determine the age of bamboo, the following distinguishing characteristics of bamboo have been prescribed in the table below.

Table No-13

Morphological Characteristic of Bamboo

Age in year	Name	Colour	Name of it's part		
			Culms sheath	Branches	Bloom
1	Kardi	Green	Present	Present at each node	White and come off easily on finger
2	Mahila	Pale green	Absent	Present at upper node	Grayish white, seen in patches and do not come off on finger
3	Pakia	Pale green	Absent	Present at upper node	Blackish and do not come off on finger
4	Old	Pale green and red	Absent	Present at upper node	Black and do not come off on finger

4.7.37. Treatment Type: -

The bamboo zones are classified into tree treatment types such as A, B and C. The specific treatment shall be carried out in the bamboo bearing area depending on its treatment type. The principles basing on which the delineation of bamboo area into different treatment type and the works to be carried out in each type are given in the table below.

Treatment Type and its description	
Treatment type	Description
A	Commercial cutting will be done in those clumps, which have more than the prescribed minimum number of culms as per its quality. Otherwise only cultural operation will be carried out in the clumps.
B	There will be no commercial cutting in any clump. Only cultural operation will be carried out which include cutting of all dead, dried, over-mature, burnt, broken and grossly damaged bamboo. 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. The minimum number of culms to be retained per clumps as prescribed for various quality classes may not be strictly followed if necessity so arises. The congested bamboo clumps shall be clear-cut 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 shall be cut at the first working. In subsequent cycles, side segments should be cut.
C	Only cultural operations will be carried out in the existing bamboo clumps. The bamboo potentiality of such forests augmented by raising bamboo. The minimum area to be planted annually will be the area under this type in each coupe due for working. Tending and cultural operations in the area planted with bamboo will be done as per the standard practice.

4.7.38. Execution of Cutting and Extraction: -

Bamboo shall be cut as per the cutting Rules. Cutting shall be started from one end and preceded in the systematic way so that area will not remain un work. The agent will decide the direction of cutting. At the time of cutting, retaining crops should not be damaged. The working agent will take all precautionary measure against forest fire in and around the annual working coups. All converted bamboo shall be lifted with the time limit. Cutting, bundling and lifting will be carried on simultaneously. Extension of time against different works shall not be allowed, however under unavoidable circumstances Conservator of Forest may extend the time to minimum days.

4.7.39. Subsidiary Silvicultural Operation: -

4.7.39.1. Cleaning:-

Retaining bamboos need special care for its establishment in the cutting area. It has been prescribed to take up cleaning in the year following the main cutting to help Karadi for its establishment. It also creates favorable condition for optimum growth of the promising culms. Cleaning shall be done departmentally.

4.7.39.2. Items of Operation in Cleaning:-

(i) Cutting and extraction of bamboo in the un worked clumps. (ii) Extraction of balance felled materials if any. (iii) All cutting debris shall be removed and the clump shall be left cleaned. (iv) Cutting

of climbers to be anticipated to climb in the clump. (v) Stone and boulder packing around the clump so that no damaged shall be caused to the rhizomes and the rootstock. (vi) Soil filling in the clump so that the exposed rhizomes shall be covered with soil scarped from the uphill side on a hilly or undulating terrain.

4.7.40.Artificial Regeneration: -

The renewal of a bamboo clumps by planting in B and C treatment type area has been prescribed, where less than 100 number of clumps per ha are exist. There are some small gaps noticed in this area. Bamboo should be planted in the permanent gaps of each coupe, just after annual cutting.

4.7.40.1. Plantation:-

All the gaps in the treatment type B and C coupe of each cutting series are to be surveyed and reflected in the map at the time of demarcation. An average of 50 number of bamboo seedling will be planted per hector. The Divisional Forest Officer will intimate the amount required for the plantation in time as per the cost norm given in the financial forecast chapter.

4.7.41. Other Regulation:-

4.7.41.1. Grazing:-

The coupe shall be closed to grazing for a period of 01 years after the working year. Practically it is not easy to maintain this restriction inside the forest over a period of 01 year. It is prescribed to issue notice to all the fringe villages nearer to the working coupe about such restriction. The remaining area is open to grazing subject to the provision of the Orissa forest (Grazing of the cattle) Rules 1980.

4.7.41.2. Lopping:-

The local people lop bamboo of different species to use as leaf fodder for their domestic animals regularly. Repeated lopping year after year weakens the bamboo and it becomes prone to many diseases. In course of time, such bamboo dies leaving behind no new rhizome to take their place. Lopping is discouraged. Any regulation for lopping in not prescribed.

4.7.42.3. Fire protection:-

All working coupes shall be rigidly protected from forest fire for a minimum period of 01 years after the coupe working. As per previous record all the forest area were affected by fire in every year. Protection of fire in the working area can be practically possible by watching it from the month of February to June in every year. Provision of watcher has been prescribed and the annual allotment required for fire protection is given in the separate chapter.

4.7.42.4. Restriction of Cutting along River, Roads and Hill Slopes:-

Bamboo clumps exist along the roadside, rivers and nalas bank at a perpendicular distance of 20 mt shall not be cut.

4.7.42.5. Works of improvement:-

The area constituted in this working circle is a mostly hilly slope. The flow of rain water increase suddenly and thereby causing heavy soil erosion. The area becomes dry just after the rainy season. Conservation of soil and water in this terrain is very difficult. Plantation across the smaller Nala and along the bank of the bigger Nala is prescribed. Depending on the site quality, suitable fodder species for the Wild animals shall be chosen for plantation by the Divisional Forest Officer.

4.7.43. Rights and Concessions: -

Rights and concessions shall be regulated as laid down in Chapter I and JFM policy of Government of Orissa.

CHAPTER-5

Non Timber Forest Produce Overlapping Working Circle.

5.1. NTFP Overlapping Working Circle:-

5.2 General Constitutions of Working Circle:-

The area of the working Circle is 39626.163hectare. The forests of Athgarh Division were once rich in various Non-Timber Forest Products like Sabai grass, Broom grass, Cane, Sunari, Khair, Nuxvomica, Mahua flower & seeds, Siali leaves and fibres, Mango fruit, Kusum, Karanji, Neem, Sal seed, Myrobolans, Honey, Wax, Bamboo, etc. Some of these items used to fetch sizable revenue to the State Government and livelihood to the people, particularly the people living in the forest fringe villages. The degradation of the forest had affected the availability of the NTFP items also. No proper rescued keeping is being maintained by Gram Panchayats with regard to collection & disposal of various NTFP products. There is no any restriction for collection and transportation of NTFP items in the proposed area of sanctuary for that bonafied use.

5.2.1. Demand of NTFP:-

In the last decade the demand for various varieties of NTFPs as a raw material for many industries like herbal cosmetics, herbal dyes, ayurvedic drugs etc has increased tremendously. This massive demand for a few varieties of NTFPs is resulting in unsustainable and destructive exploitation of these NTFPs by the primary collectors, which is abetted by traders and middlemen. Continued exploitation at this rate and manner will endanger the resource itself. Sustainable use of the NTFP resource is further set back by other adverse biotic factors like excessive grazing, illegal felling of trees, frequent forest fires, invasion of weeds which in many cases is leading to loss of natural regeneration of these species in the forest.

5.2.2. NTFP use, value addition and commercialization:-

The non-availability of these NTFP in large enough quantities, exploitation of the primary collectors by agents and middle men and the adulteration of the NTFP product has resulted in the increased interest in NTFPs amongst all sections of the society. This has prompted numerous initiatives aimed at promoting NTFPs use, value addition and commercialization as a means of improving the well being of rural populations and at the same time, conserving the existing forests. Keeping in view of this consideration, the Government of Orissa formulated the Policyon procurement and trade of Non Timber Forest Producesduring March 2000 and the Gram Panchayat (Minor Forest Produce) Rules'2002.

5.2.3. Special efforts:-

Under the present scenario, special efforts are required to strike a balance between the protection of the interests of the primary gatherers, thereby enhancing their subsistence and side by side the protection and conservation of the natural resources, thereby increasing the productivity and making the forests sustainable. This Working Circle attempts to address the above difficulties. To address the issues mentioned in the foregoing paragraphs including the felt needs to ensure long term

sustenance of this varied forest resource, the Non Timber Forest Produce (overlapping) Working Circle has been prescribed overlapping the entire Working Plan area of the division.

5.3. General characteristics of vegetation:-

The NTFP species are available in all types of forests. Generally, most commonly NTFP Species are available like Kendu, Mahula, Chara, Harida, Bahada, Amla, Dhatki, Siali, Kochila,Bela, BanaHaldi, Baula, Jammu, Asan, Arjuna, Loda, Karanja, Simul, Tentuli, Neem, Palas, Sal, Sahada, Kaintha, Gangasiuli, Genduli etc. NTFP resource survey was conducted in the division during 2012. The species found are given in the table below:

Table No- 1

Species found in sample point

Sl. No.	Type of Plants	Local Name	Botanical Name	Family	Total Stems in sample points	No. of Stems per Ha.
1	Trees	Acacia	*Acacia auriculiformis*	Mimosaceae	97	0.2425
2	Trees	Amba	*Mangiferaindica*	Anacardiaceae	7	0.0175
3	Trees	Ankula	*Alangiumlamarkii*	Alangiaceae	96	0.24
4	Trees	Anla	*Phylanthusembllica*	Euphorbiaceae	145	0.3625
5	Trees	Asana	*Terminaliatomentosa*	Combretaceae	1741	4.3525
6	Trees	Bahada	*Terminaliabelerica*	Combretaceae	327	0.8175
7	Trees	Bela	*Aeglemarmelos*	Rutaceae	494	1.235
8	Trees	Bhalia	*Semicarpusanacardium*	Anacardiaceae	82	0.205
9	Trees	Chara	*Buchnaninalanzan*	Anacardiaceae	664	1.66
10	Trees	Dhaura	*Anogeisuslatifolia*	Combretaceae	735	1.8375
11	Trees	Harida	*Terminaliachebula*	Combretaceae	43	0.1075
12	Trees	Jamu	*Syzygiumcumini*	Myrtaceae	420	1.05
13	Trees	Kamala gundi	*Mallotusphillippinensis*	Fabaceae	43	0.1075
14	Trees	Kendu	*Diospyrosmelanoxylon*	Ebenaceae	1217	3.0425
15	Trees	Khair	*Acacia catechu*	Mimosaceae	7	0.0175
16	Trees	Kochila	*Strychnosnuxvomica*	Loganiaceae	297	0.7425
17	Trees	Mahula	*Madhucaindica*	Sapotaceae	634	1.585
18	Trees	Neem	*Azadiractaindica*	Meliaceae	253	0.6325
19	Trees	Palasa	*Bueteamonosperma*	Fabaceae	43	0.1075
20	Trees	Phanaphana	*Oroxylumindicum*	Bignoniaceae	48	0.12

21	Trees	Rohini	*Soyamidafebrifuga*	Meliaceae	3	0.0075
22	Trees	Sal	*Shorearobusta*	Dipterocarpaceae	9334	23.335
23	Trees	Sidha	*Largestromeaparviflora*	Lythraceae	354	0.885
24	Trees	Simili	*Bombaxceiba*	Bombacaceae	80	0.2
25	Trees	Sunari	*Casia fistula*	Caesalpiniaceae	92	0.23
26	Shrubs	Banakhajuri	*Phoenix acaulis*	Arecaceae	340	0.85
27	Shrubs	Dhataki	*Woodfordiafruticosa*	Lythraceae	156	0.39
28	Herbs	Anantamula	*Tylophoralongifolia*	Apocynaceae	1	0.0025
29	Herbs	Baghanakhi	*Martyniaannua*	Pedaliaceae	3	0.0075
30	Herbs	Banahaladi	*Curcuma aromatica*	Zingiberacea	109	0.2725
31	Herbs	Banakhajuri	*Phoenix acaulis*	Arecaceae	11	0.0275
32	Herbs	Banatulasi	*Ocimumgratissimum*	Lamiaceae	109	0.2725
33	Herbs	Bena	*Vetiveriazizanoides*	Poaceae	116	0.29
34	Herbs	Bhuinnimba	*Ardrographispaniculata*	Acantaceae	1035	2.5875
35	Herbs	Chana	*Crotolariapallida*	Fabaceae	159	0.3975
36	Herbs	Indrajala	*Lygodiumflexuosum*	Lygodiaceae	18	0.045
37	Herbs	Iswarjata	*Urarialogopoides*	Fabaceae	17	0.0425
38	Herbs	Kaincha	*Abrusprecatorius*	Fabaceae	31	0.0775
39	Herbs	Kolathia	*Tephrosiavilosa*	Fabaceae	102	0.255
40	Herbs	Nandabaguli	*Ocimumbasilicum*	Lamiaceae	25	0.0625
41	Herbs	Talamuli	*Curculigoorchidoies*	Liliaceae	77	0.1925
42	Climbers	Atundi	*Combretumdecandrum*	combretaceae	2959	7.3975
43	Climbers	Baidanka	*Mucunapruriens*	Fabaceae	26	0.065
44	Climbers	Chemirinoi	*Hemidesmusindicus*	Asclepiadaceae	1189	2.9725
45	Climbers	Gila	*Caesalpiniadigyna*	Caesalpiniaceae	34	0.085
46	Climbers	Kaincha	*Abrusprecatorius*	Fabaceae	82	0.205
47	Climbers	Kolathia	*Tephrosiavilosa*	Fabaceae	87	0.2175
48	Climbers	Nirmuli	*Cuscutareflexa*	Convulvulaceae	23	0.0575
49	Climbers	Palasa	*Bueteamonosperma*	Fabaceae	22	0.055
50	Climbers	Satabari	*Asparagus racemosus*	liliaceae	361	0.9025
51	Climbers	Siali	*Bauhinia vahilli*	Fabaceae	270	0.675
52	Climbers	Suamnai	*Ichnocarpusfrutescens*	Apocynaceae	2539	6.3475

5.3.1. Composition: -

In most of the hills, sal ascends to the top, either pre -dominantly or mixed with it's other associates like Bija, Ashan, Bandhan, Kurum, Kasi, Bamboo, Dhaura, Sisoo, Kendu, Haldu, Gambhari etc. The regeneration is purely natural and distributed adequately all over the area. The forest types are mainly moist and dry peninsular sal, Northern dry mixed deciduous and Tropical hill valley swampy forest.

5.3.2. List of NTFPs to be managed: -

The area allotted to this overlapping Working Circle is distributed in all Ranges, which comprises 100 % of the total managed area of the Working Plan. The NTFPs items are distributed in all Ranges. The NTFPs available in the forest of this tract are given below. The availability of the different NTFPS in the different blocks in the division is given in Figures in this chapter.

Table No. 2

List of NTFPs

Sl. No.	Name of NTFP	Sl No.	Name of NTFP	Sl. No.	Name of NTFP
1	Kendu leaf	8	Siali leaf	15	Broom stick
2	Genduli gum	9	Siali fiber	16	Chhatu
3	Sal seed	10	Myrabolam		
4	Sal resin	11	Kusum seed		
5	Mahua flower	12	Honey		
6	Mahua seed	13	Sabai grass		
7	Chara seed	14	Tamarind		

5.3.3 Analysis and Valuation of the Crop:-

5.3.3.1. Stock Map: -

The entire area covered by this Working Circle have been shown on the stock map. Sample points enumeration in the managed area have been done covering an area of 0.1 ha, keeping point as the center of the plot. Above 30 cm girth at breast height of all trees along with it's clear bole and top height have been recorded for each plot.

5.3.3.2. Potential production of various NTFPs:-

Systematic study has not been done in the past in this division to assess the potential production of various NTFPs and to ascertain impact of collection of such NTFPs on sustainability of the forest. However, an attempt has been made by the Forest Resources Division (FRS), Cuttack by carrying out the forest resource survey in different parts of the State, to assess and estimate the availability of some NTFPs. Though such estimation does not report about sustainability of extraction but it gives some idea about their availability in the different parts of the State. This assessment by the FRS Division was carried out with regard to tannin materials like Dhaura leaves, fruits of

myrobalans and barks of Sunari and Karada. The assessment data is not related to this division, however to gather a common statistic the same is given in the table below.

Table No. 3						
Estimation of tannin material of Rayagada Division						
	Estimation of tannin material in quintals per hectare					
Name of Range	Dhaura leaves	Anla Fruit	Harida fruit	Bahada fruit	Sunari bark	Karada bark
Lamptaput	1.1	0.8	2.1	3.3	0.2	1.2
Balda	1.2	1.0	2.5	3.7	0.2	1.4
Koraput	0.8	0.4	0.4	1.3	0.1	0.1
Semiliguda	0.6	0.6	0.6	1.5	0.1	0.1
Npatna	3.3	0.4	1.2	1.7	0.3	1.5
Laxmipur	2.9	0.6	1.4	1.5	0.3	1.1
Total	9.9	3.8	8.2	13.0	1.2	5.4
Average	1.65	0.63	1.36	2.16	0.2	0.9
Sources - Forest Resources and Survey (Reports 2002 of Rayagada Division)						

5.3.4. Important trees producing NTFPs:-

Details of a bio-diversity study for the State by Forest and Ecology Division, GIS Computed Area, Hyderabad has been undertaken for the first time to have a better understanding of the biodiversity composition. It has also been ascertained that the local people use large number of NTFPs. The estimated quantity of NTFPs in the above paragraph provides an overview of various products that are available and, are collected, regularly by the local people. This list is, however, only indicative but not exhaustive. The important trees producing NTFPs are given in the table below.

Table No. 4			
List of important trees producing NTFPs			
Species	Uses	Species	Uses
Bara	Rope making, fruits eaten by birds, animal	Karanja	Oil and medicine
Neem	Medicine and oil	Kendu	Edible fruit
Sal	Edible oil, manufacture of varnish and paint	Kochila	Fruit for medicineand birds
Palasa	Rope making	Kusum	Edible oil and fruit
Amba	Fruit is edible	Mahula	Edible oil and fruit
Anla	Medicinal,leather	Gambhar	Fruits for animals
Simal	Cotton yield	Barkoli	Fruit is edible
Siali	Binding of kendu leaves and Rope making	Aswastha	Fruit for animals, rope making
Bahada	Medicinal and edible for animal, leather	Tentuli	Edible fruit for man
Dhaura	Sizing paper and in printing, leather	Chara	Edible fruit
Jamu	Edible fruit	Champa	Perfumes
Baula	Fruit is edible, leather	Eucalyptus	Medicines
Bela	Edible fruit	Sunari	Medicinal
Bhalia	Medicinal use	Arjuna	Leather
Genduli	Gum is edible and used in preparation of confectionaries	Kusum	Cooking, and soap making
Dimiri	Fruits eaten by birds and animals	Mohula	Edible
Panas	Edible fruit	Jaisanda	Medicinal value
Harida	Fruit for medicine, leather	Polanga	Soap making

Babool	Calico-printing, dyeing and as a sizing material for silk, cotton	Khaira	Pan making industry
Salai	Pleasant smell when burnt		

5.4. NTFP Series / JFM areas:-

All the Forest Blocks are allotted to this working Circle. The total GIS Computed Area included in this revision is 39626.163hectare. It will be managed for Reserve Forests, Proposed Reserve Forests, Protected Forest, Village Forests & Un-classed Forest. NTFP Series has not been constituted in this overlapping working circle. Therefore NTFP of the managed area is a continues process at every time during the plan period.

5.5. Blocks, compartments and JFM area (marked on GIS based maps):-

5.5.1. Forest Blocks in NTFP Overlapping Working Circle:-

The total area allotted to this Protection overlapping working circle is 39626.163hectare. It covers all forest blocks of this Division. The area those are vulnerable from protection point of view is given in the table below.

Table No-5		
Vulnerable		
Sl. No	Vulnerable	Name of the Forest Block
1	Extremely Vulnerable	
	-do-	
	-do-	Deobhuin RF
	-do-	
	Moderately Vulnerable	Haladiaseni RF
	-do-	Baldiabandha RF
	-do-	Olab RF

5.6. Special Objectives of Management:-

In view of guidelines outlined under section 51 of NWPC-2014, the PWPR should focus on sustainable management of forest through existing of suitable innovative silvicultural system for maintaining and enhancing supply of MAPs, NTFP etc. required for eco system services for the benefit of local people. Hence the following objectives is as follows.

Sl. No.	Objective of Management
i	To implement Government Policy to give freedom to Tribal/SC people to access in to forest to collect NTFP to augment their live hood.
ii	To conserve flora and fauna in the NTFP collection areas to keep ecological balance.
iii	To regulate extraction of NTFP from the allotted area to maintain sustainable yield on long term basis.
iv	To have innovative silvicultural practices to boost production and supply of Medicinal and Aromatic plants on sustainable basis along with other goods and ecosystem services for benefit of local people.
v	To develop new skills and impart a training to tribal for sustainable collection and utilization of various NTFP so as to improve their economic condition.

vi	To protect NTFP trees by promoting their regeneration and enhancing productivity by adopting appropriate silvicultural operation.

5.6.1. Analysis of the crop:-

The detailed potentiality / availability of NTFP and its collection / marketing are to be ascertained from detailed study. The collection / extraction will be made in sustainable basis without any harm to future forest growth.

The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissuslatifolia, Cleistanthuscollinus, Terminaliatomentosa, Buchananialanzan, Diospyrosmelanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewiasps.,Indigoferacassioides, etc. Hemidesmusindicus, Calycopteris floribunda, Combretumdecandrum, Buteasuperba, Bauhniavahilii etc., are the important climbers present in this forest.

The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

5.6.2. Silvicultural system:-

It does not involve any Silvicultural System. Therefore only NTFP protection is proposed in this revision. Also protection against wild life poaching is proposed.

5.6.3. Exploitation of NTFP:-

At present the exploitation of NTFP is limited to only Bamboo, Sal seed, Kendu Leaves, Suam creeper, Atundi, Katha Chhatu, Asan fruit, Sidha fruit, Kandagafruit,jack fruit, Jaisandha bark, Nuxvomica, etc. But still, the livelihood security of the people in and around the forests depends largely on the collection of the various NTFP items. The collection practices of majority of the items are not scientific and sustainable. The investment on NTFP development is also very nominal. This Working Circle is constituted with an aim to address the problems with regard to scientific management of NTFPs and the problems involving means of livelihood of the rural poor of the locality and increasing the investments. This Working Circle overlaps the entire Working Plan area of the Division. The area of the working Circle is 48208.722 hectare.

5.6.4. Methods of Execution:-

The methods of execution is given in the table below:

Sl. No	Methods of Execution
1	Latest technique of collection, drying and storage to be imparted to the primary collections in the vicinity area of NTFP collection.
2	Area in some potential RF/ PRF will be identified and propagation through seed, Rhizome, cuttings will be taken up.
3	10 hectares per year for such plantation for 10 years i.e. 100 ha will be implemented.

4	Tentative forest blocks identified for NTFP plantation.
5	Suggested indicative species area Amla, Bela, Ashok, Satabari, Anantamula, Dhataki, Ghee kumari, Swetakaincha, Sunari etc. It is suggested to plant in a pure form at least over an area of 0.5 acre for species specific management and silvicultural treatment. Climbers may be planted in mixed form.
6	To assist VSS members / SHG groups to have market facilities, Value addition and semi processing of NTFP.

5.6.5. N.T.F.P Plantation:-

As per existing vegetation and availability of N.T.F.P Plants, the following blocks has been proposed for N.T.F.P Plantation during the plan period. The Range wise N.T.F.P plantation to be considered during the plan period is given in the table below.

Table No-6

Tentative forest blocks identified for NTFP plantation

Name of Range	Name of Forest Block	Tentative area in ha	Remark
Narsingpur East	Deobhuin RF	20	Site and species to be selected after Field survey during Plan preparation.
Badamba	Belapada RF	20	
Athagarh	Sukhasan RF	20	
Khuntuni	Raniabania RF	20	

5.6.6. Development major and suggestion for their improvement:-

The detailed survey conducted during 2012 reveals that various parts of 25 numbers of tree species, 2 shrubs, 16 numbers of herbs and 11 numbers of climbers are being collected and utilized by local people. A systematic study on availability, marketing potential need to be studied.

5.6.7. Calendar operations:-

All NTFP are collected annually. Therefore Collection cycle is one year. Collection time is mostly from 1st October to 31st September. Collection period is given in the table below:

Table No-7

Collection time N.T.F.P

NTFP	Collection Time	N.T.F.P	Collection Time
Sal Seed	May-June	Semul Cotton	March-May
Siali Leaf	Oct-Feb	Sunari	Sept-April
Siali fiber	Oct-Feb	Tentuli	March-April
Harida	Nov-Jan	Neem seed	June-July
Bahada	Jan-April	Genduli gum	Oct-May
Cashewnut	April-May	Kurei fruit	Dec- Feb
Aonla	Jan-April	Khair	October-May
Char seed	April-May	Sialifibre	Oct-May

Bel	May-June	Banatulsi seeds	Nov-March
Kochila seed	Dec-Jan	Lodha bark	Oct-May
Mahua flower	April-May	Dantari bark	Oct-May
Mahua seed	May-June	Phenphena bark	Oct-May
Dhakti flower	Jan to April	Gum	Sept-June
Karanja seed	Dec-Jan	Kendu fruits	April to May
Kusum seed	May-June		

5.6.8. Method of Treatment for Major NTFPs and their Improvements:-

Tamarind, Siali leaf &Siali fiber, Sal Seed & leaf, Myrobalans, Mahua flower & seed, Char seed, Genduli gum and other medicinal roots, leaves & bark etc. are the major NTFPs collected.

5.6.9.Tamarind:-

Tamarind is used mainly as preservative and an important ingredient in pickles, juices and tamarind concentrates. Tamarind Kernel powder which is becoming increasingly popular in textile & paper industries as a sizing material in view of environmental cost being attached to such units. Its seed is also used as cattle feed and poultry feed. It is collected during March- April.

5.6.10.Siali leaves and Fiber:-

These are obtained from Siali or Bauhinia Vahli climber. The climbers thrive well in loose rocky soil particular in the hilly areas and ravines. However being a strong light demander, it is less available in dense forest.

5.6.11.Leaves & Fiber:-

Large leaves of Sialiare used in making leaf plates, Donas, food rapper and Siali leaves have high market potential throughout India. Leaves are better available between Oct & Feb, both in term of quality and quantity. It is the peak period of collection. Siali leaves are the major source of income for the tribals. Most of the tribal families are engaged in collection of leaves. They dry the collected leaves in sun for about two to three days and then stitch five to six leaves into a plate with the help of bamboo straws and then sell them in bundles, each containing 80 plates.

5.6.12. Fiber:-

The fibers obtained from the climbers are used for making ropes for domestic purpose. However, major use is by the KL organization for the purpose of binding.For extraction of the fiber, the climbers shall have at least two feet girth. The climber has to be cut flush to the ground and carefully pulled out from the host plant. The cutting cycle of five years may be adopted to work out this climber. The purpose 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 and allowing fermentation to take place resulting in removal of gummy material by water and subsequently beating & scrapping of the softened tissue to get the fiber

5.6.13.Sal Leaves:-

The fresh leaves appear in March after defoliation. Collection of tender leaves from such coppices shoot has harmful effect on the growth of plants. Hence, collection should not be allowed during March to May and even in the rainy season. The idle time of collection is between Sept to January.The Sal leaves are used for making cup and plates locally in the tribal areas. It is better if collection is done through VSS, and the forest department jointly with organization like TDCC and TRIFED may organize training camp to impart knowledge of sustainable collection practices to the primary collectors.

5.6.14.Myrobalans:-

The fruits of Terminaliachebula, T. bellarica and Emblicaofficinalis (collectively known as Myrobalans) are used for tanning and also for medicinal purposes. The best time for collection is March. Generally, the primary collectors dry the fruits using simple sun drying techniques, which blackens the produce thus fetching lower price. Pulverizing and selling Anla powder either individual or collectively as triphala mixture can also add value to the produce.

5.6.15.Mahua Flower and Seeds:-

Mohua flower is available during April-May. The ideal time for collection is the early morning when maximum floor dropping occurs. The value addition identified for mohua have been grading of flowers as well as drying. Proper drying should be ensured to increase its value. The dried flower with reddish in color has more market value than the blackish flowers.The tree Mohua or Madhucaindica plant is very popular among the tribal for its flowers and seeds, in tribal culture, Mohua tree occupies a special position and they do not cut it unless compelled by circumstances.The tribals traditionally using Mahua as major food items and making country liquor. It even used as cattle feed.

5.6.16.Bahada Gum:-

It is another important gum which is extracted from Terminaliabellerica. The methodology adopted for its extraction is also same as that of Genduli gum. However, the tree where extraction is to be done should be of at least 1.20 meter girth.

5.6.17.Honey:-

It is known for its food and medicinal value. The tribals should be taught improved techniques of collection. Introduction of bee hives in the forest areas may be tried as bee fauna is decreasing day by .day due to massive use of pesticides in Agriculture.

5.6.18. Medicinal Plant & their Development:-

5.6.18.1. he Medicinal Plant & their objective of managementare given in the table below:-

Sl. No.	Objective of Management
1	Indigenous knowledge system to be developed in the NTFP area collection centers.
2	Peoples biodiversity register shall be maintained as per Biodiversity Act.
3	Inventive / innovative practices and development of key medicinal plants required to be documented.

4	Constitution of Bio-diversity Management Committees at the local level under the provision of the Bio-diversity Act/Rules and prepare Bio-diversity Conservation action plan are essential.
5	The conservation measures should be both 'In-situ' & 'Ex-situ'. Importance is to be given on in-situ conservation.

5.6.18.2. Some medicinal plants are available in this division and purchase rate of medicinal plant in the locality are given below.

Table No-8

Market rate of Medicinal Plants.

Common Name	Botanical Name	Rate/K.G. in Rs.
Atashi/Alashi	*Linumusitatissimum*	100
Ashwagandha	*WithaniaSomnifera*	100
Amla	*Emblicaofficinalis*	30
Ajmoda	*Apiumgraveolens*	25
Koo/Kudha	*Costusspeciosus*	150
Kurubeli	*Pavoniaodorate*	80
Koileksha	*Asteracanthalongifolia*	125
Prishnaparni	*Urarialagopoides*	60
Gajapipali	*Sundapsusofficinalis*	50
Gugul	*Commiferamukul*	400
Gandhasunthi	*Kaempferiagalang*	80
Gudmari	*Gymnemasylvestre*	60
Gokchura	*Tribulusterrestris*	60
Indrajava/Kurein (Seed)	*Holarrhaenaanidysenterica*	100
Chirata	*Swertiachirata*	180
Cheminiloi/Anantmul	*Hemidesmusindicus*	90
Chitaparu	*Plumbagozeylanica*	30
Chainkath	*Erycibepaniculata*	50
Kaphal	*Gareiuiacowa*	65
Jamu	*Syzygiumcumini (seed)*	25
Talmuli	*Curculigoorchioides*	70
Tihudi	*Ipomoea turpethum*	110
Priyangu	*CallicarpaMacrophylla*	150
Balshimuli	*Bombaxceiba*	25
Bakuchi	*Psoraleacorylifolia (Seed)*	20
Bajramuli	*Sidaacuta (Seed)*	40
Bach	*AcorusCalamus*	180
Aghor Bach	*Acoruscalamus*	70
Bahada	*Terminaliabelerica*	7
Bidang	*Embeliaribes*	80

Bena/Khaskhas(Root)	*Vetiveviazizanioides*	150
Bidhaduruk (Seed)	*Argeyria nervosa*	72
Baidank (Seed)	*Mucunapruriens*	75
Brahmanijhata	*Plesmoniummangaritiferum*	25
Banbana/Dhataki	*Woodfordiafruticosa (flower)*	28
Bansalochana	*Bambusaarundinacea (Root)*	60
Danti (Root)	*Baliospermum Montana*	30
BhuinKakharu	*Ipomoea digitata*	20
Manjistha	*Rubiacsordifolia*	80
Muraphal	*Helecteresisora*	30
Nageswar	*Mesuaferrea*	80
Harida	*Terminaliachebula*	10
Lodha (Bark)	*Symplocosracemosus*	22
Shanharaj/ Somaraj (Seed)	*Centrantherumantehelmiaticum*	85

5.6.19. Someother NTFP items are available in this Division and its local market rate is given below.

Table No-9		
Other NTFP items are available in this Division and its local market rate		
Sl. No	Item	Rate/ Per Qntl. in Rs.
1	Mahul Flower	1000.00
2	Mahua Seed	2000.00
3	Kendu	1000.00
4	Kusuma	1000.00
5	Sal Seed	1000.00
6	Sal Leaves	2000.00
7	SialiFibre	3000.00
8	Tentuli	2000.00
9	Bghuin Limba	5000.00
10	Masrum	5000.00
11	Charkoli	5000.00
12	Siali Leaves	2000.00

5.6.20. Some of the Medicinal Plants available & their use are given in the table below:-

Table No-10				
Medicinal Plants available & their use.				
Sl. No	Local Name	Botanical Name	Parts used	Uses
1	Arjuna	Terminaliaarjuna	Bark & Fruits	Tannin for leather and Medicinal
2	Asan	Terminaliatomentosa	Bark	Tassar cocoons, Medicinal
3	Amba	Mangiferaindica	Roots, bark, seed and kernel	Fruit is edible, Medicinal

4	Ambada	Spondiaspinnata	Roots, bark, leaves and fruits	Medicinal
5	Anla	Emblicaofficinalis	Root, bark, leaves and fruits	Fruit is edible, Medicinal
6	Arakha	Calotropisgigantea	Whole plant	Medicinal
7	Aswasthha	Ficusreligiosa	Bark, shoots, fruits and seeds	Medicinal, Rope making, Fruits for animals.
8	Anchhu	Morindatinctoria	Roots and leaves	Medicinal
9	Bandhan	Ougeiniaoojeinensis	Bark	Medicinal
10	Bara	Ficusbengalensis	Root, bark, leaves, buds latex	Rope making, Medicinal, Fruits for birds and animals.
11	Bela	Aeglemarmelos	Roots, leaves & fruits	Fruit is edible, Medicinal
12	Bhalia	Semecarpusanacardium	Fruits	Medicinal
13	Bichhuati	Tragia involucrate	Roots and leaves	Medicinal
14	Baidanka	Mucunapruriens	Roots, leaves, seeds and hair	Medicinal
15	Banahaladi	Curcuma aromatic	Rhizomes	Medicinal
16	Baula	Mimusopselengi	Bark, flowers, fruits, seeds	Fruit is edible, Medicinal
17	Begunia	Vitexnegundo	Whole plant	Medicinal
18	Babul	Acaccianilotica	Bark, Gum, Fruits	Calico-printing, dyeing sizing material for silk, cotton, Medicinal, Tanning for leather.
19	Bahada	Terminaliabellirica	Bark and Fruits	Fruit edible for animals, Medicinal, Tanning for leather.
20	Bhuinanla	Phyllanthusniruri	Whole plant	Medicinal
21	Bhuinnimba	Andrographispanicul	Whole plant	Medicinal
22	Banakhajuri	Phoenix sylvestris	Fruits	Medicinal
23	Bara Koli	Ziziphusmauritiana	Whole plant	Fruit is edible, Medicinal
24	Bhersunga	Murrayakoenigii	Roots, bark and leaves	Medicinal
25	Banatulasi	Ocimumamericanum	Leaves and seeds	Medicinal
26	Char	Buchnanialanzan	Roots and fruits	Fruit is edible, Medicinal
27	Chhatian	Alstoniascholaris	Barks and leaves	Medicinal
28	Chakunda	Cassia tora	Leaves and seeds	Medicinal
29	Champa	Micheliachampaca	Whole plant	Perfumes, Medicinal
30	Dubaghassa	Cynodondactylon	Whole plant	Medicinal
31	Dimiri	Ficushispida	Bark and Fruit	Fruit is edible, Medicinal
32	Dudura	Daturafastusa	Whole plant	Tanning for leather, Medicinal
33	Dhanan-twari	Cymbopogoncitratus	Whole plant	Medicinal
34	Dhatki	Woodfordiafruticosa	Flowers	Medicinal

35	Dhaura	Anogeissuslatifolia	Roots, bark, leaves, seeds and Gum	Medicinal, Sizing paper printing
36	Eucalyptus	Eucalyptus indica	Leaf	Oil, Medicinal
37	Genduli	Sterculiaurens	Gums	Gum is edible Confectionaries.
38	Gohira	Acacia leucophloea	Barks	Medicinal
39	Gayasha	Leucasaspera	Leaves, flowers	Medicinal
40	Guluchi	Tinosporacordifolia	Stem and seeds	Medicinal
41	Gambhari	Gmelinaarborea	Whole plant	Fruits for animals, Medicinal
42	Gangasiuli	Nyctanthesarbortristi	Leaves, flowers and seeds	Medicinal
43	Ghikuanari	Aloe vera	Leaf juice	Medicinal
44	Harida	Terminaliachebula	Fruits	Tanning for leather, Medicinal
45	Hinjala	Barringtoniaacutangula	Roots, leaves and fruits	Medicinal
46	Hadabhanga	Vitisquadrangularis	Whole plant	Medicinal
47	Jamu	Syzygiumcumini	Bark, leaves and fruits	Medicinal
48	Jayasanda	Litsiaglutiness	Fiber	Medicinal
49	Jari	Ficusmicrocarpa	Roots, bark & leaves	Medicinal
50	Karanja	Pongamiapinnata	Whole plant	Oil & Medicinal
51	Kathiachampa	Plumeriarubra	Root, leaves & latex	Medicinal
52	Kochila	Strychnosnuxvomika	Bark, leaves and seeds	Fruit is edible –birds medicinal
53	Kendu	Dyospyrosmelanoxylom	Fruits and leaves	Fruit is edible, leaves for bidi making
54	Kaincha	Abrusprecatorious	Roots, leaves & seeds	Medicinal
55	Kaintha	Limoniaferonia	Bark, fruits & gums	Medicinal
56	Kamala-gundi	Mallotusphilippensis	Clndular hairs of the fruits	Medicinal
57	Khair	Acacia catechu	Bark & heart wood	Ingredient of pan masala, medicinal
58	Kurein	Holarrhenaantidysent	Bark, seeds and leaves	Medicinal
59	Kusum	Schleichara-olesa	Bark and oil	Fruit edible, oil, Medicinal soap
60	Kumbhi	Careyaarburea	Bark leaves and fruits	Medicinal
61	Kunkum	Bixaorellana	Roots, bark , and seeds	Medicinal

62	Lantana	Lantana camara	Whole plant	Medicinal
63	Lajkuli	Mimosa pudica	Roots and leaves	Medicinal
64	Lodha	Symplocusracemosa	Bark	Medicinal
65	Mahula	MadhucaIndica	Flower and fruits	Edible oil , fruits , country liquor
66	Mohalimba	Meliacomposita	Whole plant	Medicinal
67	Mai	Lanneacoromondelica	Bark and leaves	Medicinal
68	Mohakal	Trichosanthesanguin	Roots and fruits	Medicinal
69	Mundi	Mitragyanaparvifolia	Roots , barks , and leaves	Medicinal
70	Mohul	Madhucaindica	Bark , fruits , seeds	Medicinal
71	Neem	Azadirachtaindica	Bark , leaves , seeds	Oil and medicinal
72	Nageswar	Mesuaferrea	Flowers	Oil and medicinal
73	Palasa	Buteamonosperma	Root	Rope making
74	Piasal	Pterocarpusmarsupium	Heartwood and gum	Medicinal
75	Panasa	Artocarpusheterophyla	Roots , leaves fruits and seeds	Edible fruit , Medicinal
76	Poksungha	Ageratum conyzoides	Roots and leaves	Medicinal
77	Palas	Buteamonosperma	Bark,seeds and gums	Medicinal
78	Phanaphana	Oroxylumindicum	Roots ,leaves, fruits and seeds	Medicinal
79	Raktachita	Plumbagorosea	Roots	Medicinal
80	Ritha	Sapinduslaurifolia	Roots, bark and fruits	Herbal Sampoo , soap, medicinal
81	Sal	Shorearobusta	Leaves, bark, fruits resin	Tannin, Medicinal, Edible Oil , Leaf plates, Agarbati, varnish
82	Siris	Albizialebbek	Bark, Flowers and seeds	Medicinal
83	Sissoo	Dalbergiasissoo	Roots,m leaves, bark heart wood	Medicinal
84	Sunari	Cassia fistula	Whole plant	Medicinal
85	Satabari	Asparagus racemosus	Tubarous roots	Medicinal
86	Semul	Bombaxceiba	Roots, gum, bark, and fruit	Cotton , Medicinal
87	Salai	Boswelliaserrata	Bark, gum and resin	Pleasant smell-burnt Medicinal
88	Sahada	Steblusasper	Roots, bark, leaves, latex	Medicinal
89	Siali	Bauhinia vahlii	Fiber	Rope making
90	Siju	Euphorbia antiquor	Roots juice	Medicinal

91	Tentuli	Tamarindusindica	Roots, fruits and seeds	Fruit is edible, Medicinal

5.6.21. Regulation:-

All forests shall be strictly protected against forest fire, unauthorized grazing and illicit-feeling. Effective measures shall also be taken to collect NTFP in a scientific manner and their propagation will be ensured.

5.6.22. Rights& Concessions:-

Right and concessions of local people shall be regulated in accordance with the provision of the Orissa forest Act and relevant Rules in force besides the Govt. policy in vogue.

CHAPTER-6

Joint Forest Management Overlapping Working Circle

CHAPTER-6

JFM Overlapping Working Circle

6.1.JFM Overlapping Working Circle:-

6.2. General Constitutions of Working Circle:-

The plan area allotted to J.F.M Overlapping Working Circle is 12200.362hectare, it includes 115 numbers of VSS.The area under Khesera Forest is over 2599.09 hectare which covers 31 nos. of VSS.Over the past few decades, the forests of Orissa are under heavy biotic pressure. The rich bio-diversity of the state faces the risk of depletion. Hence conservation and development of forest are badly necessary. Hence the Joint Forest Management is viewed as a successful venture to improve the valuable forest. The National Forest Policy, 1988 formulate for active involvement of people in protection, conservation & management of forests. To make the involvement of Villagers more effective, the Govt. of Odisha issued Resolution No. 10-F (pron.) 20/93 -16700 F & E dt. 03.07.1993, which dealt in an extensive manner the involvement of local communities in protection of forest, Formation of V.S.S, preparation of JFM, usufruct benefits for the V.S.S & provision of MOU etc. As per the resolution VanaSurakhyaSamities (VSS) are being constituted and degraded government forests mostly fringe area of forest blocks are being allotted to them for Protection and Management. Govt. of Odisha has also modifying the JFM resolution from time to time to accommodate the people's aspiration. The last modification came on 9th September'2011.

6.3. General characteristics of vegetation

The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissuslatifolia, Cleistanthuscollinus, Terminaliatomentosa, Buchananialanzan, Diospyrosmelanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewiasps., Indigoferacassioides, etc. Hemidesmusindicus, Calycopteris floribunda, Combretumdecandrum, Buteasuperba, Bauhniavahilii etc., are the important climbers present in this forest.

The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

6.4. JFM Series / JFM areas:-

JFM Series has not been constituted in this overlapping working circle. Therefore JFM of the managed area is a continues process at every time during the plan period.

6.5. Blocks, compartments and JFM area (marked on GIS based maps):-

6.5.1. Forest Blocks in JFM Overlapping Working Circle:-

The total area allotted to this JFM overlapping working circle is 12200.362hectare. It covers all forest blocks of this Division. In the Division there are 146 numbers of VSS constituted under the provisions of JFM resolution. Out of these VSS, Forest Blocks have been allotted to 115 VSS the area comes to 12200.362 ha. The Revenue Forest is allotted to 31 VSS and the area involve is 2599.09 ha.The list of VSS and area allotted are as given in Table below.

Table No-01

Sl. No.	Name of the V.S.S	Name of the forest Block	Type of Forest		Total area in ha.
			PRF	R.F	
	Narsinghpur (East)				
1	MaaMangala	Debabhumi RF	--	150	150
2	Bahali	Debabhumi RF	--	120	120
3	BudhaBudhi	Debabhumi RF	--	80	80
4	MaaBrahamanidei	Debabhumi RF	--	16.23	16.23
5	MaaBauti	Debabhumi RF	--	100	100
6	MaaMagaramuhini	Debabhumi RF	--	25	25
7	Purukutia	Debabhumi RF	--	100	100
8	Nehuri	Chandragiri RF	--	46	46
9	MaaSaurani	Chandragiri RF	--	95	95
10	NewPhulapada	Mundagada RF	--	20	20
11	Kendupalli	Mundagada RF	--	20	20
12	RaghunathJew	Mundagada RF	--	27.07	27.07
13	Paikapadapatna	Mundagada RF	--	21.41	21.41
14	MaaMagareswari	Bhuska PRF	200		200
15	MaaMagarmunhi VSS , Guptamanik	Chandragiri RF	--	100	100
16	Pitabali VSS, Kansailo	Deobhuin RF	--	145	145
17	Deobhuin VSS, Debhuin	Deobhuin RF	--	70	70
18	Paikapadapatna(Tanalasahi) VSS,Paikapadapatna	Mundagada RF	--	48	48
	Village Forest -58 Nos.		--	--	455
	Range Total		--	--	**1838.71**
Range	Narsinghpur (West)			--	
19	Maa Brahmanidei	Brahmanidei RF	--	60	60
	Village Forest -05 nos.		--		37.0
	Range Total				**97.0**
	Baramba			--	
20	Gujapada	Badjora RF	--	56	56
21	Raghunathjew	Jhinkal RF	--	50	50
22	MaaMangala	Jhinkal RF	--	50	50
23	MaaBauti	Jhinkal RF	--	70	70
24	MaaDurga	Jhinkal RF	--	87	87
25	Badabarsingh	Jagabeherathali RF	--	80	80

26	Telikambilo	Nagatota RF	--	100	100
27	Jaganath	Nagatota RF	--	200	200
28	Badakambilo	Mandap RF	--	80	80
29	Kundeswar	Mandap RF	--	20	20
30	MaaBanadurga	Mandap RF	--	100	100
31	Khambeswari	Karada RF	--	100	100
32	MaaBrahmanidei	Karada RF	--	200	200
33	Kaduapada	Karada RF	--	150	150
34	Shyamsundarpur	Karada RF	--	50	50
35	Galuamada	Haladiaseni RF	--	30	30
36	Soruan	Haladiaseni RF	--	35	35
37	Bauti	Haladiaseni RF	--	50	50
38	Mahatabandha	Talachandragiri RF	--	12	12
39	Ramlila	Talachandragiri RF	--	100	100
40	Kadana	Kumarnga RF	--	40	40
41	Manpur	Kumarnga RF	--	55	55
42	Gobindpur	Kumarnga RF	--	60	60
43	Gopalpur	Gothamundia PRF	32		32
44	MaaAnantakumari VSS, Bangerisinga	Kumaranga RF	--	86.25	86.25
45	Shibasakti VSS, Guhalsahi	Nagatota RF	--	100	100
46	MaaSauruni VSS, Khairpanga	Mandap RF	--	200	200
47	MaaDakhinakali VSS, Padmanavapur	Nagatota RF	--	200	200
48	Jogamaya VSS, Budhiabereni	Talachandragiri RF	--	50	50
49	MaaBanadurga VSS, Narayanprasad	Nagatota RF	--	100	100
50	MaaBrahmanidevi VSS, Malati	Talachandragiri RF	--	50	50
51	Baba Biswanath VSS, Biswambharpur	Tareiganda RF	--	40	40
52	Gopamathura VSS, Gopamathura	Tareiganda RF	--	60	60
53	Sri Raghunathjew VSS, Jemadeipur	Karada RF	--	45	45
	Village Forest-81 Nos.		--		1289.052
	Range Total				**4027.302**
	Athagarh			--	
54	Madhapur	Oringa RF	--	80	80
55	Totapada	Ranibania RF	--	100	100
56	Kulailo	Ranibania RF	--	100	100
57	Gundichapur, Tarsingh	AdalaRF	--	200	200
58	Haridapasi (1)	Sorispal RF	--	40	40
59	Godijharia	Sorispal RF	--	120	120
60	MaaPanthaDevi	Sorispal RF	--	55	55
61	AchalakotSabarsahi	Sorispal RF	--	40	40
62	Banadurga	Sorispal RF	--	40	40
63	MangalaManasi	Sorispal RF	--	60	60
64	Panchagaon	Sorispal RF	--	200	200

65	Haridapasi (2)	Kalichabllav RF	--	100	100
66	Gokhankhal	Kalichabllav RF	--	100	100
67	Bhejia	Kalichabllav RF	--	100	100
68	Kalapata	Kalichabllav RF	--	50	50
69	Baliput	Kalichabllav RF	--	100	100
70	Kundaladei	Kalichabllav RF	--	100	100
71	Haridapasi (3)	Kalichabllav RF	--	100	100
72	Kandarpur	Bauda.Banakhandi RF	--	60	60
73	BentapadaBanakhadi	Bauda.Banakhandi RF	--	200	200
74	Jenapada	Jenapada RF	--	123.24	123.24
75	Rajnagar	Sukasan RF	--	60	60
76	JayMaaMangala (Dalabhag)	Subasi RF	--	200	200
77	Chhenakhianuagoan	Subasi RF	--	88	88
78	Ghantikhal	Subasi RF	--	90	90
79	Ahamadia	Nizigarh RF	--	75	75
80	Kadalibadi	Fulubadi PRF	60	--	60
81	Jaysitaram	Subasi RF	--	50	50
82	Balunkeswar	Subasi RF	--	100	100
83	Jaya Hanuman	Subasi RF	--	52	52
84	MaaKanakdurga	Subasi RF	--	100	100
85	MaaMangala	Subasi RF	--	70	70
86	Radhakrishnapur	Adala RF	--	38.61	38.61
87	Jenapur	Khalakhala RF	--	70	70
	Village Forest-07 Nos.		--		80.0
	Range Total				**3201.85**
	Khuntuni			--	
88	Gobara	Gobara RF	--	200	200
89	Rajbalabhapur	Gobara RF	--	120	120
90	Sabujaprema	Subasi RF	--	113	113
91	Sarpeswar	Khalakhala RF	--	70	70
92	Radharamanpur	Ranibania RF	--	40	40
93	MaaBautiAdala	Ranibania RF	--	80	80
94	JandaputBauti	Ranibania RF	--	100	100
95	ChatriBadajena	Ranibania RF	--	100	100
96	Mahalaxmipur	Baniabandha RF	--	80	80
97	Bhagua	Baniabandha RF	--	200	200
98	Krishnapur	Baniabandha RF	--	100	100
99	Charideshkrushiunnayanparisada	Baniabandha RF	--	200	200
100	KalimukhiBayaniMaaMangala	Baniabandha RF	--	100	100
101	Saraswatipur	Baniabandha RF	--	30	30
102	Banadurga	Baniabandha RF	--	120	120
103	Brahmanabasta	Brahmanbasta RF	--	100	100
104	Sauria	Sankhapoi RF	--	121	121
105	MaaKhambeswari	Deulia RF	--	50	50
106	Adisakti	Deulia RF	--	50	50

107	MaaBanadurga/ Bhogra	Deulia RF	--	75	75
108	Oranda	Suniamuhan RF	--	127	127
109	Madanmuhan VSS, Gurudijhatia	Sankapoi RF	--	59.5	59.5
110	MaaSaradhabauti, Rahangul	Baniabandha RF	--	120	120
111	MaaJatiabauti VSS, Bauinstangar	Baniabandha RF	--	50	50
112	Mahadev VSS, Kansara	Baniabandha RF		100	100
113	MaaBhanaranga VSS, Khirikhia ,Oringabadi ,Badakhamana	Baniabandha RF	--	190	190
114	MaaBudhalingeswar VSS, Khaksa	Baniabandha RF	--	140	140
115	Laxminarayan VSS, Musuliapadapathara	Baniabandha RF	--	200	200
	Range Total				**3035.5**
Total		--			
Total]	Village Forest	--	--	--	1861.052
G.T	--	--	--	--	12200.362

Sl. No	Name of the VSS	Name of the Revenue Forest (KF)	Area in ha.
1	BarapatanaSampur VSS, Badanauput	Badanauput	12.95
2	Kalapata VSS, Kalapata	Kalichaballav	50.00
3	Green Heaven VSS, Kantapada	Kantapada	8.0
4	Maa Nakadei VSS, Amantia	Amantia	15.62
5	Mahaveer VSS, Bhelei (Kharod)	Bhelei (Kharod)	25.4
6	Bajarangi VSS, Mahulamada(Kharod)	Mahulamada(Kharod)	13.8
7	Purukutia VSS, Purukutia	Baradabania	46.00
8	Bahali VSS, Bahali	Bahali	80.00
9	Maa Brahmanidevi VSS, Panchagochhia	Panchagochhia	183.77
10	Mahaveer VSS, Mansinghpatana	Mitikina	100.00
11	Maa Bauti VSS, Khajuria	Khajuria	20.00
12	Brahmanidevi VSS, Dumalborei	Mitikina	100.00
13	Bhagabatia Pragati VSS, Champeswar	Bokada	165.00
14	Ramachandrapur VSS, Ramachandrapur	Kuladiha&jamukhola	44.00
15	Maa Malakei VSS, Kandhabareni	Mitikina	36.57
16	Maa Mangala VSS, Bandhahuda	Panchagochhia	200.00
17	Nehuri VSS, Jenapala	Jenapala	15.45
18	Maa Saurani VSS, Godibandha	Chandragiri	41.32
19	Ambadhoba VSS, New Ransinghpur	Alara	51.82
20	Maa Magaramuhin VSS, Guptamanika	Chandragiri	30.00
21	Satabhauni VSS, Nuagaon	Kandhal	17.00
22	Maa Malkei VSS, Bichhanabati	Mitikina	94.00
23	OmmBudhabudhi VSS, Nuagarh	Nuagarh	100.00
24	Deobhuin VSS, Deobhuin	Deobhuin	130.00
25	Pitabali VSS, Odasingha	Saradhapur	247.95

26	Jagannatha VSS, Jagannathaprasad	Saradhapur	200.00
27	Bramhani Devi VSS, Sukata	Saradhapur	68.44
28	Maa Brahmani Devi VSS, Jantaria	Bhagatpur	72.00
29	Maa Mangala VSS, Mahulasahi	Saradhapur	180.00
30	Hanumantia VSS, Nukhapada	Saradhapur	150.00
31	Trinathadev VSS, Badabhuin	Barakhola	100.00
		Total area	**2599.09**

6.5.2. Abstract of VSS:-

There are 146 VSS out of which 115 VSS constituted in assigning the forest area and 31 VSS constituted in Revenue Forest area locally call Khesera Forest (KF). The total area of 115 VSS is 12200.362ha. and rest 31 VSS area is 2599.09 ha, which totally comes to 14799.452 ha.

6.6. Objectives of Management:-

The special objectives of future management is given in the table below.

Sl. No	Objective
1	Mass Awareness campaign and motivation to the villagers is to be spread to every forest fringe village.
2	To make the people and Forest Department equal partners in management process. Demarcation and Survey of the area allotted under V.S.S.
3	Artificial regeneration in the degraded forest area is to be taken up to restore the barren and blank area.
4	Soil and Moisture Conservation Measures have to be adopted in the VSS assigned area and preparation of micro-plan to each VSS.
5	Total people should be involved for collection and trade of NTFP item.
6	To reduce the dependency on forest, income generating activities are to be created.
7	To study the scope of enhancing the network VSS protection area.
8	Mass awareness camp, Entry Point Activities, Exposure Visit have to be organized spread the massage of JFM to every forest fringe village.
9	The other Department involve in peoples participatory aspects like Agriculture, Horticulture, Soil Conservation, veterinary; Health, mass education etc. have to be involved to achieve all-round socio- economic development of the village.
10	To develop institution at community level to manage " Community Forest".
11	To have special thrust on " Fringe Forest Management".

6.6.1. Analysis of the crop:-

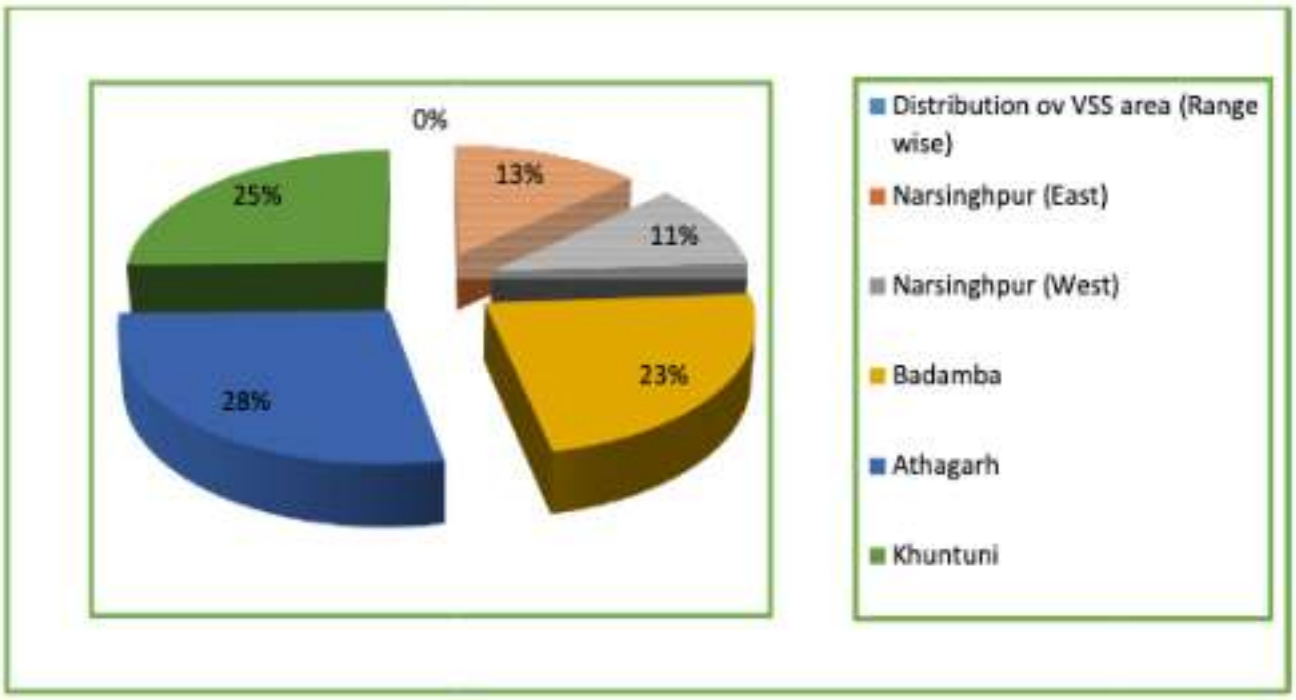
The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissuslatifolia, Cleistanthuscollinus, Terminaliatomentosa, Buchananialanzan, Diospyrosmelanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewiasps., Indigoferacassioides, etc. Hemidesmusindicus, Calycopteris floribunda, Combretumdecandrum, Buteasuperba, Bauhniavahilii etc., are the important climbers present in this forest.

The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

6.6.2. Silvicultural System:-

As this is an overlapping working circle. There is provision in the JFM resolution to prepare Micro Plan of each VSS. In accordance with the Micro plan the assigned area will be managed. Generally the main feature of Working Plan Prescription remains unchanged. Harvesting of NTFP which is mostly annual should be regulated by VSS as per their need and without depleting the resource. Mostly the area comes under Rehabilitation Working Circle, NTFP Working Circle and Wildlife Working circle. The prescriptions applicable to these working circles are also applicable *mutatis- mutandis*.

6.6.3. Distribution of area (Range wise) is depicted below:-



6.6.4. Method of Execution:-

6.6.4.1. Demarcation of VSS Area:-

Demarcation of area assigned to VSS is very important task. The demarcation 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.

6.6.4.2. Preparation of Micro-Plan:-

Micro-plans should be prepared for each VSS irrespective of whether money for implementation is available or not. The micro-plan should be prepared keeping in view the overall prescription of the concerned Working Circle. Prescription 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.

6.6.5. Plantation & Choice of Species:-

In many of the VSS assigned area due to rigid protection by villagers, coppice shoots of Sal and other seed origin seedlings are now attending a pole stage. The crop density has increased. Plant up area has also exhibiting a good crop. In future in if planting activities will be taken up thrust on choice of species will be decided keep villagers need in mind and soil character. Whenever plantation exist in VSS allotted area, these plantation should be thinned and pruned as per requirements. Sweeping of floor of the plantations and twigs should be avoided since it affects the cycling of nutrients. 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.

6.6.6. 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.

6.6.7. Entry Point Activities (E.P.A.):-

Entry Point Activities (E.P.A.) 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. The JFM Committee is required to collect user's fee for the assets provided by the CDW. EPAs are part of the community mobilization process taken up in the respective villages at the initial stage of project implementation. EPA will be selected in a well facilitated participator manner. The examples of EPA is as under.

Renovation of school/temple	Cement platform
Water harvesting pond	Cement platform/shock pit around a well
Communal fish pond	Solar light, Compost pit
Tube well	Bathing ghat, a set of farming tools etc.

6.6.8. Income Generation Activities (I.G.A.):-

Income Generation Activities (I.G.A.) 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.

6.6.9. The Basic Livelihood Improvement Activities:-

The Basic 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. The basis livelihood improvement activities is as follows.

Sl. No	Objective
1	Medical & Health Camps in convergence with the Govt. PHC/Hospitals.
2	Prevention and Control of Vector & Water Borned Diseases.
3	Reproductive and Child Health Care through providing seeds to VSS for kitchen garden.
4	Non Formal Education Centres in the VSS for drop outs to school going.
5	Promotion of Fuel Efficient Devices in convergence with OREDA.

6.6.10. Capacity Building Programmes:-

The 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 different trainings modules also to be prepared by the consultant agencies for imparting trainings to the JFM Committee in the following thematic areas is as follows.

Sl. No	Objective
1	Maintenance and submission of records, reports and bills to forest departments at VSS level
2	Financial Management, budgeting and book keeping
3	Duties and responsibilities of the General Body and Executive Body.
4	Conflict resolution mechanism.
5	Forest protection and management arrangements
6	Sustainable harvesting management for different forest products.
7	Beneficiary management within the community.
8	Exposure trips exchange visits.

6.6.11. VFDF (Village Forest Development Fund):-

A financial establishment is essential for the VSS activities to be sustained. Provisions of budget for EPA, Revolving Fund for Income Generation Activities and Basic Livelihood Improvement Activities should be made under the Forest Department for implementation of a scheme. VSS will contribute to a Village Forest Development Fund by raising money from user fees for the asset created under EPA, penalty for illegal actions, interest from bank savings and sales for the forest products. The budget provided by the Forest Department for EPA, IGA & Livelihood Improvement Activities should be utilized only for the original designed objectives of a scheme while VFDF could be flexibly used according to the needs of the VSS. Provision of Corpus Fund may also be arranged under a scheme for strengthening of the JFM, VFDF. It suggested that at least 50% of the savings of the VFDF should be allocated for maintenance of the forest area after completion of the scheme.

6.6.12. Formulation of Micro Planning:-

A Micro Planning is a comprehensive document to guide the VSS in pursuing all forest management for its JFM area, community development and 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 for ensuring their participation at different levels of implementation of a scheme.

6.6.13. Engagement of specialized agencies for input support to JFM is as follows.

Sl. No	Objective
1	For Micro Planning preparation –Local NGOs.
2	For capacity building of JFMC-Local NGOs.
3	For IGAs- Specialized IGA support agencies.

6.6.14. The Views of VSS:-

During interaction with the VSS members, the outcome of the interaction are as follows.

Sl. No.	Important Points
1	Due to implementation of JFM resolution the tree cover of nearby forest has increased.
2	Their pretty needs on Forest produce are being fulfilled.
3	Due to Control of Grazing and protection against fire have induced natural regeneration and ground flora has substantially increased.
4	Birds and small reptiles, small animals are now making their natural home in VSS assigned area.
5	Collection of NTFP product has increased.
6	Regeneration of Bamboo and its establishment has been noticed.
7	Sharing of Final harvest in some VSS area has remunerated the VSS and now they have the capital as revolving fund at their hand.
8	Institutionalization of VSS as a decision making body has helped social coordination and harmony in village.
9	Participatory approach in problem solving has developed not only for forest sector but has spread to other social aspect.

6.6.15. Financial Benefits:-

The benefits in terms of cash from department is furnished in the table below.

Table No-2

Benefits to VSS in financial terms.

Sl No.	Name of VSS/Village/Range	Usufactory VSS share in Rs
1	Ananta Prasad VSS, Anant Prasad of Narsinghpur (W)	53,831/-(Cheque No.518807, dt.31.03.2015)
2	Odasinga VSS, Odasinga of Narsinghpur (W)	5,890/-(Cheque No.746499, dt.31.03.2015)
3	Nuagarh VSS, Nuagarh, Narsinghpur (E)	12,231/-(Cheque No.746500, dt.31.03.2015)
		26,934/-(Cheque No.518806, dt.31.03.2015)
4	Kantapada VSS, Kantapada of Baramba	18,255/-(Cheque No.746498, dt.31.03.2015)
5	Green Heaven VSS, Kantapada, of Baramba	7,321/-(Cheque No.518801, dt.31.03.2015)
		5,082/-(Cheque No.518802, dt.31.03.2015)
6	MaaBrahmanidei VSS, Karada of Baramba	6,806/-(Cheque No.518803, dt.31.03.2015)
		9,177/-Cheque No.518804, dt.31.03.2015)
		6,244/-(Cheque No.518805, dt.31.03.2015)
7	Bhuska VSS of Narsinghpur (E)	15,99,746/-(Cheque No.518477, dt.23.02.2015 issued by OFDC, Ltd. Dhenkanal)
	Total-	Rs. 17,51,517/-

6.6.16. Result:-

Villagers have expressed their overall happiness to words this venture. BudhaBudhi VSS, BrahmaniDei VSS, Bhimakrushna VSS, Ghantapada have achieved excellency in their activities.

6.6.17. Rights and Concessions:-

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 honored.

6.6.18. There are 146 numbers of Joint Forest Management Committee has been constituted in this division comely called as Vana Sangrakhyana Samiti (VSS). Out of this 115 numbers of JFM / VSS committee has been constituted in forest blocks and 15 numbers are from in Revenue forest. The details of the list JFM committee has been furnished in JFM Overlapping Working Circle.

The Micro plans all JFM committee have been prepared. The Micro plan of respective JFM committee has been duly prepared and copy of which is at Divisional a copy of which is kept at concerned VSS and Division office. Copy of 146 numbers of Micro Plans are quite voluminous and can be perused separately for kind reference.

CHAPTER-7

Wildlife Overlapping Working Circle

7.1. Wildlife Overlapping Working Circle:-

7.2 General Constitutions of Working Circle:-

The total area allotted to this working circle is 39626.163 ha. The Athgarh Division is rich in wild life. The management of forest without management of wildlife cannot be treated as complete. In the past during pre-independence era the then ex- state rulers were imposing strict policy on wildlife aspect. After independence due attention was not given for wildlife management aspect till the 42nd amendment to the Constitution which laid down stress on "protection of the wildlife' as one of the fundamental duties. The National Forest Policy 1988 has emphasized the need to conserve wildlife and their habitat. But, the investment in the wildlife management has always remained meager. Therefore, to provide protection to existing wildlife, to improve their habitat and to conserve bio-diversity, the Wildlife (Overlapping) Working Circle which was prescribed in the ongoing plan will continue in the revised plan.

7.3. General characteristics of vegetation:-

The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissuslatifolia, Cleistanthuscollinus, Terminaliatomentosa, Buchananialanzan, Diospyrosmelanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewiasps, Indigoferacassioides, etc. Hemidesmusindicus, Calycopteris floribunda, Combretumdecandrum, Buteasuperba, Bauhniavahilii etc., are the important climbers present in this forest.

The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

7.4. Wildlife Series / JFM areas:-

Wildlife Series has not been constituted in this overlapping working circle. Therefore Wildlife of the managed area is a continues process at every time during the plan period.

7.5. Blocks, compartments and JFM area (marked on GIS based maps):-

7.5.1. Forest Blocks in Wildlife Overlapping Working Circle:-

All the Forest Blocks of the Division are included in this Overlapping Working Circle. The Forest Blocks which need special thrust are Nuagarh, Deobhuin, Olab, Balikiary, Barhakhol, Chandragiri, Haladiseni etc.

7.6. Objectives of Management:-

The special objectives of Management set for this Working Circle aiming to conserve and protect the existing Flora and Fauna. Other objectives is given in the table below.

Table No. 1	
Special objectives for management	
Sl. No	Objective
1	To create awareness among the local people to conserve and protect the Wildlife and their habitat.
2	Special emphasis is to be given to prevent Wild Life crimes and rescue of Wildlife in critical areas.
3	To protect Wild Life in general and endangered species in particular.
4	To address the issue related to man and animal conflict for safety and protection of both wildlife and human beings outside the Forest Area.
5	To conserve and develop some important wild life habitats of the division for the purpose of conserve and develop some important wild life habitats of the division for the purpose of eco-tourism.
6	To prevent wild life accidents caused by electrocution and Railways.
7	To conserve and protect the important Wild life habitat with emphasis on the proposed tiger corridors.
8	Being adjacent to Satkosia Tiger Reserve and Satkosia Gorge sanctuary specific thrust to be provided to forest blocks adjacent to tiger reserve and taking into consideration the extension of Satkosia tiger landscape & Tiger Corridor.

7.6.1. Analysis of the crop:-

The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissuslatifolia, Cleistanthuscollinus, Terminaliatomentosa, Buchananialanzan, Diospyrosmelanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewiasps.,Indigoferacassioides, etc. Hemidesmusindicus, Calycopteris floribunda, Combretumdecandrum, Buteasuperba, Bauhniavahilii etc., are the important climbers present in this forest.

The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

7.6.2. Silvicultural system:-

It does not involve any Silvicultural System. Therefore only wildlife protection is proposed in this revision. Also protection against wild life poaching is proposed.

7.6.3. Status of Wildlife:-

The entire division comes under notified Mahanadi Elephant reserve and forms part of Satkosia Tiger Reserve Extension. Satkosia Gorge sanctuary extension & tiger corridor. Elephant Census is given in the table below.

7.6.4. Elephant Census:-

Table No-2									
Year wise Elephant Census									
Year	Tusker Adult	Adult Cow	Sub-adult Bull	Sub-adult cow	Unknown Sex	Makhna	Juvenile	Calf	Total Nos.
1995	--	--	--	--	--	--	--	--	77
1997	--	--	--	--	--	--	--	--	96
1999	--	--	--	--	--	--	--	--	154
2002	12	60	07	43	34	0	0	0	156
2005	04	50	02	33	0	0	12	13	114
2007	09	63	04	26	0	0	10	27	139
2010	10	47	06	24	0	0	18	28	133
2012	07	45	13	32	0	0	09	25	131
2015	10	41	10	19	0	01	12	21	114
2017	09	40	08	17	--	--	21	20	115

7.6.5. Tiger Census:-

Tiger census was also conducted during 2015 and one RBT and threeleopards were counted. Water bird census was also conducted during January every year. The entire census data are at Annexure- All the census data indicates that the division is quite important from wildlife management point of view. The tiger census data is given below.

Year wise Tiger Census								
Year	Tiger				Leopard			
	Male	Female	Un-known	Cub	Male	Female	Un-known	Cub
2002	01	-	-	-	-	-	-	-
2015	-	-	-	-	01	02	-	-

7.6.6. Maintenance of special habitat: -

7.6.7. Mahanadi Elephant Reserve:-

The entire Athgarh Forest Division comes under notified Mahanadi Elephant Reserve. Elephant populations are spreads over in all Ranges. The elephants from Chandaka Sanctuary cross over the Mahanadi River near Devidwar of Chandaka Wild Life Division and enter into Athgarh Division near

Baghera village of Athgarh Range. Thus they move from Sukasan RF to Boudabanakhandi RF, Khalakhala RF, Oringa RF, Subasi RF, Brahmanabasta RF, Suniamunha RF, Boula RF, uptoSankhapoi RF. These 25 elephants from Chandaka Sanctuary have already established themselves in Athgarh Forest Division permanently since 2012. However occasionally they cross over Mahanadi River and stays around 15days to one month in Chandaka Wildlife Division annually.

7.6.8.Satkosia Tiger Reserve: -

The Regional Chief Conservator of Forests-cum-Field Director, Satkosia Tiger Reserve, Angul has given guidelines for management practices in forest areas ofSatkosia Tiger Landscape outside the Sanctuary and core area in Satkosia Tiger Reserve vide his Memo No.1681 dt.27.04.2015 with copy to Principal Chief Conservator of Forests, Odisha vide his next memo of even date. Further proposal has been submitted by Regional Chief Conservator of Forests-cum-Field Director, Satkosia Gorge Sanctuary / Satkosia Tiger Reserve, Angul regarding rationalization of the boundary of Satkosia Gorge Wild Life Sanctuary vide his Memo No.2348 dt.19.06.2015 wherein 111.6264 Sq.Km. area of Athgarh Forest Division has been proposed to be included in Satkosia Tiger Reserve and Satkosia Tiger Reserve sanctuary as extension area. This comprises of entire Balikiary R.F., Barakhola R.F., Balikiary P.R.F., Sisupathar P.F., Sardhapur P.F. of Narsinghpur West Range and Nuagarh R.F. of Narsinghpur East Range. Therefore Nuagarh R.F. is coming within the proposed Improvement Working Circle and other R.Fs. P.Fs. of Narsinghpur West Range is coming within Rehabilitation Working Circle of the proposed revised PWPR of Athgarh Forest Division.

7.6.9. Satkosia Tiger Corridor:-

The following area of Athgarh Forest Division has been proposed to be included in proposed Satkosia Tiger Corridor linking Kapilash Wild Life Sanctuary. The details of Forest Block its area coming in the satkosia Tiger Corridor is given in the table below.

Table No-3		
Satkosia Tiger Corridor linking Kapilash Wild Life Sanctuary		
Sl. No	Name of Reserve Forests	Area in Sq. Km.
1	Badajora	9.779
2	Deobhuin	32.186
3	Haladiaseni	19.637
4	Kalichiaballav	5.565
5	Nizigarh	6.28
6	Nuagarh	18.209
7	Olab	10.805
8	Sorispal	4.444
	Total	106.905

7.6.10. WetlandManagement: -

As per the decision of Odisha Wetland Development Authority (OWDA) as well as Government of Odisha Forest &Environment department and water resources department, there is urgent need to formulate Management Action Plan of the wetland of Athgarh Forest Division. The identified wetlands are near Ghodabar of Banki Block, Ostia Pata of Banki Block, wetlands near Nandeillo – Kandarpur of Athgarh Block, Suniamuhanpata of Athgarh Block. Ansupa is the biggest fresh water lake of the state and has been declared as a wetland of National importance. Other wetlands of significance are Sisupathar dam (Suhagi Project) of Narasinghpur Block, Purukutia dam of Narasinghpur Block, Sagar Pond, SiariaPata, Ranasinghpur wetland of Narasinghpur Block.

7.6.11. Sustainable Management and Wise-Use of Natural Resources of Wetlands

7.6.12. Interventions Proposed:-

The proposed action plan is comprehensive in nature and covers wide range of activities for ameliorating the lake environment and improving the socio-economic condition of local communities. The major physical activities envisaged in the present project are catchment treatment on micro-watershed basis prioritizing the erosion prone areas, bio-diversity conservation, environment education & eco-tourism. The component wise detail is furnished as below.

7.6.13. Component No. 01- Catchment Treatment:-

Siltation is considered as one of the major problems responsible for degradation of the lake and other wetlands.Mahanadi River & rivulets drain into Ansupalake and deposit huge volume of sediments every year. It is therefore essential to reduce the silt flow by appropriate catchment treatment measures. A

good portion of the catchment is lying in severely degraded condition and needs to be treated with appropriate soil & moisture conservation measures. Some of the most vulnerable & erosion prone areas of catchment has already been treated through afforestation with soil & moisture conservation measures though implementation of different schemes under state plan/ CAMPAetc.It is proposed to treat the severely erosion prone area of the lake catchment during the Project period on the basis of micro-watershed projects through community participation. The treatment will be carried out with active involvement of the State Forest Department and the local communities.

7.6.14. Participatory micro Watershed Management:-

7.6.15. Drainage:-

The drainage basin plays a vital role in the management of lake eco-system and proper treatment of the drainage basin is one of the most important components of lake management as siltation is identified as one of the major threats to the lake eco-system. The catchment area of Ansupa spreads over 5231 Hectare, out of which 400 hectare has been treated. The basic approach is to create an enabling environment, by capacity building at community level for integrated and holistic management of natural resources. The participatory approach facilitated the communities to formulate site-specific micro-plans with a major input in the form of indigenous knowledge & skills supplemented through learning from various trainings.

7.6.16. Self-sustainable:-

The main goal of the action plan is to inculcate participatory self-sustainable watershed management practices so as to enable the community to reverse the degradation of land & water resources and to produce biomass in a sustainable manner.

7.6.17. Watershed Development Projects:-

The Planning Commission, in order to have a unified perspective by all ministries, took an initiative for formulation of Common Guidelines for Watershed Development Projects. These guidelines are applicable to all watershed development projects in all Departments/ Ministries of Govt. of India concerned with Watershed Development Projects. The Common Guidelines broadly indicate a fresh framework for the next generation watershed programmes. The key features of this new unified approach is based on productivity enhancement and livelihood development along with conservation measures, broader vision of geo-hydrological units of clusters of micro-watersheds(1000 to 5000 ha), scientific planning to utilize the information technology and remote sensing inputs in planning monitoring and evaluation, capacity building and training of all stakeholders and functionaries involved, and a multitier ridge to valley sequenced approach for development of watershed projects. The Common Guidelines 2008 is the modified version of Hariyali Guidelines of 2003 in which the cost norm for watershed development has been enhanced from Rs.6000.00 / ha to Rs.12000.00 / ha. It is proposed to follow the norm and the guidelines issued by the MoRD i.e. Common Guidelines-2008 which is followed throughout the country for participatory management of the watershed.

7.6.18. Capacity Building:-

The basic approach has been to create an enabling environment, by capacity building at community level for integrated and holistic management natural resources. The participatory approach facilitated the communities to formulate site-specific micro-plans with a major input in the form of indigenous knowledge & skills supplemented through learning from various trainings. The main goal of

the action plan is to inculcate participatory self sustainable watershed management practices so as enable the community to reverse the degradation of land & water resources and to produce biomass is a sustainable manner. The action plan proposes to introduce appropriate land management practices through development of the cost-effective & sustainable technologies, which are simple, convenient to implement and maintain by the stakeholders themselves.

7.6.19. Livelihood and Socio-Economic Development (BCD):-

7.6.19.1. Community Development:-

7.6.19.2. Ansupa Lake:-

Ansupalake being a highly productive eco-system with its rich fishery resources sustains livelihood of over 400 fisher-folk. The socio- economic conditions of the people inhabiting in the peripheral villages is mostly guided by the fisheries resources of the lake. For the community inhabiting in 14 nos. of villages, situated in the vicinity of lake, fishing is the principal source of livelihood.

7.6.19.3. Complexity of Resources:-

The complexity of resources in and around the lake has an interrelated effect on the communities. The communities, with very different socio-economic backgrounds, are in one way or another linked to the resources in and around the Lake. Three distinct communities having crucial linkages to the Lake and its resource management can be identified such as the fishermen (traditional & non-traditional), agricultural farmers who live around the lake and people inhabiting in interior catchments whose economy is guided by forest resources for their livelihood. The present socio-economic condition of the villages in and around the lake is not encouraging. Poor infrastructure facilities in the village's viz inadequate drinking water facilities, poor or lack of health and education facilities, poor and unhygienic sanitation in the villages etc. add to the miseries of local communities. Waterborne diseases are quite prevalent, so through this action plan, it is proposed to provide drinking water facilities by digging of tube wells / dug wells in the needy fishermen villages. These proposed works will be executed with active participation of the local communities.

7.6.20. Biodiversity Conservation:-

Ansupa is well known for congregations of migratory avifauna in Athagarh subdivision. It is an avian grandeur which hosts over 48 species of birds during the peak migratory season, out of which at least 6 species are migrants. Ansupa is an important waterfowl habitat and is a wetland of national importance. Many varieties of dragon flies, damsel flies and butter flies have been documented during 2014-15. Altogether 33 species of fishes and 3 species of fresh water prawns have been documented from Ansupa Lake. It is proposed to maintain people's bio-diversity register with the active participation of local people.

7.6.21. Awareness and Environmental Education:-

7.6.21.1. Sustainable Development:-

For sustainable development of the lake resources and to safeguard the interest of local communities; wise use of the resources needs to be ensured. To achieve this, adequate awareness among the local community about the values & functions of wetland ecosystem and wise use of its resources to maintain the ecological integrity of the wetland is essential. Thus, the action plan envisages initiatives for environmental education, awareness & eco-tourism.

7.6.21.2. Wetland Education Center:-

It is proposed to develop one Wetland Education Center and Visitor Center near Ansupa Lake. It is envisaged under this component to make use of this excellent infrastructure facility for running the customized awareness programme for the local inhabitants and the school going children through distribution of booklets, printed magazines highlighting the burning issues on conservation of birds and other aquatic flora and fauna.

7.6.21.3. Sustainable Fisheries Resources Management:-

It is also proposed to educate the fishermen folk of the locality on sustainable fisheries resources management and safe use of boats inside the lake without disturbing / affecting the movement of water birds. For the purpose, it is proposed to provide signages and hoardings at important junctions and places of tourist's interest and to provide the fishermen / boatmen with guideline booklets/ printed materials on safe use of pedal boats etc. It is proposed to organize the annual country Boat Sailing Festival and celebration of World Wetland Day with involvement of local community, specially the fishermen / boatmen to create awareness on conservation of the lake. The local non-government organizations and village level institutions will be actively involved in the awareness and environmental education programmes. Necessary kits & materials i.e. posters, pamphlets, brochures, video strips, documentary on various traditional method of fishing, traditional fishing gears, wise use practices and other resource use will be developed. Emphasis would be laid on the capacity building of stakeholders, school children and NGOs.

7.6.22. Proposed Fisheries Development Plan: -

Both short term and long-term strategies may be contemplated to restore the ecosystem and to develop the fisheries of Lake.

7.6.23. Development of Habitat: -

7.6.23.1. Important wildlife:-

Athagarh Forest Division has important wildlife like Elephant, Tiger, Leopard and water birds to a sizable extent. Habitat development keeping varied needs of these animals is complex and requires thorough study of present habitat, use tiger corridor from Satkosia to Kapilas covering more than 100 villages and most of the important forest blocks. The prescriptions for improvement of habitat in outgoing

plan stressed on checking of Illicit *Felling*, control of Forest *Fire, checking of Encroachments, regulating Grazing and reducing Man-Elephant Conflict*.Besides the above Regional CCF cum Field Director Satkosia Tiger reserve, Angul has suggested the following management practices, which are as follows.

Sl. No	Management Practices
1	In the timber coupe no felling in the riparian zones along stream, river, lake to be allowed.
2	Some old trees of dominant species area to be retained as seed bearers within coupe area.
3	Clear felling is not permitted in uneven- aged stand condition with heterogeneous composition will be maintained
4	Status of regeneration will be used as an over-arching condition for allowing for allowing for tree felling if regeneration status is below 20% under the tree, felling will not be undertaken.
5	Operation like climber cutting will be retained.
6	Snags / dead trees @ 2 trees per acre will be retained.
7	In Wildlife context, the cover values are important for food and shelter to ensure a vertical stratification, mix of levels as mentioned below are to be maintained.
--	Wood Land- Over 5mt height.
--	Scrub level – Over 2mt to 5mt height.
--	Field level – over 5mt to 2mt height.
--	Ground level – less 5mt in height.

7.6.24. Age Difference:-

It is essential to maintain considerable age difference between stands as different plant and animal species have association with different successional stages.

7.6.25. Maintenance of Critical Micro Habitats: -

Besides the forest areas there are some critical micro habitats of wild animals and birds having immense importance in this division. These will be identified during field survey and the site-specific management will be prescribed to conserve the critical micro habitats of the critically endangered area and mining areas of this Division.

7.6.26. Special protection measures:-

Special protection measures for conservation of striped hyena and Indian peafowl in the Kandarpurarea has to be taken up by the Divisional Forest Officer, Athgarh Forest Division. Around 10 to 15 striped hyenas are staying in the rocky outcrop of Baudabanakhandi R.F. near Kandarpur along Athgarh-Kandarpur-Megha road. The terrain is the best habitat for striped hyena population with rocky outcrops and scruby forest growth. It is proposed to protect the striped hyena population with the help of local people. Similarly they said area is rich in peafowl population sughting is frequent and the habitat is quite suitable for sustaining a good population of Indian Peafowl. The local people have been motivated and awareness campaigns have been made for the conservation of Indian peafowl in that area. The area comes under Athgarh Range and is located nearer to Mahanadi River bank.

7.6.27. Conservation of Fruit Bats: -

Fruit bats/Flying foxes are found in Joranda Village area of Athgarh Range, Dhabaleswar temple island area in Khuntuni Range, Singhanath temple area and Bhattarika temple area of Baramba Range, PurunaKanjiapada area of Kanpur Police Station in Narsinghpur East Range. These tourist places require special habitat management and protection measures due to their important role in dispersal of seeds. Formation of bat clubs has been done in Joranda School with the help of local people. The local people have been sensitized to plant fruit bearing trees such as Ficus, Guava, Mango, Jamun etc. in these areas. During summer season special measures to spray water has been carried out during pinch simmer with the help of local Fire Brigade.

7.6.28. Conservation of fresh water Turtles in ChampanathTemple: -

Fresh water Turtles (Nilssoniagangeticus) are found in plenty in the temple pond near Champanath temple of Champeswar village in Kanpur P.S. area of Narsinghpur East Range. Specialconservationmeasuresneeds to be provided for the long-term survival of fresh water turtles by developing sandy areas tofacilitate egg lying. The temple trust and the Debottar officials have been requested to take up the work in near future. Lot of tourists visit the spot throughout the year.

7.6.29. Development of Eco Tourism: -

The ecotourism management would focus on conservation, environmental education and community involvement. The assessment would capture the ecotourism potential areas, attributes (landscape/ waterscape/wildlife, etc.), activities (camping, trekking, bird watching, adventure activities like rock climbing, rappelling, water sports, botanization, nature interpretation), products (traditional handicrafts, arts – painting, dance, ethnic cuisine, tribal culture), ecotourism charter, regulation of tourism influx with respect to biotic pressure and carrying capacity and suggested measures for better ecotourism management to achieve effective conservation.

7.6.30. Suggestion for revision of the Working Plan: -

While revising the Working Plan focus would be given on wet lands bird conservation, environmental awareness specifically the role of fresh water lakes with community involvement and development, aspects of land scape, Water scape , bird watching , camping & water sports, need to be studied and assessed at the time of revision. Phase wise removal of aquatic weeds and de- siltation in Ansupa Lake would be dealt with an integrated wetland conservation & development Action Plan.

7.6.31. Maintenance of the Cultural Landscape:-

Mahanadi River bank, Ansupa fresh water lake, fringe area of Satkosia Tiger Reserve Dianjher waterfall near Olab in Narsinghpur East range are important landscape of this division. Detailed suggestions would be possible after field study and evaluation of potential found of these wildlife areas.

7.6.32.Miscellaneous Regulation: -

The details of Miscellaneous Regulation as follows.

Sl. No	Miscellaneous Regulation
1	Capacity building training to be organized in a regular manner for the field staffs and the Anti-degradation squads to address issues related to issues & rehabilitation of problematic assess.
2	Regular awareness comprises to organize through celebration of important days holding competitions and debates at every school & colleges and near forest fringe villages.
3	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 payment amount.
4	Signages to be displayed in the elephant movement areas and corridor and leaflets, posters to be distributed in forest fringe villages and the benefits of wildlife conservation should be explained through electronic media & print media.
5	Exposure visits to be organized for the staff to different Wild Life areas inside and outside state. So as to learn more about wildlife habitat management.
6	Special training to be imported to field staff to address man & wild animal conflict saved as man-elephant conflict in protection.

7.6.33. Infrastructure Development: -

To conserve and protect the wild lives infrastructure development is highly essential for the field functionaries is as follows.

Sl. No	Field Functionaries
1	Construction of Staff Quarter and protection Barracks, establishment of Anti-poaching camps in vulnerable area, erection in watch to Anti-poaching sides etc.
2	Development of communication facilities like roads and maintenances of old road, cause ways, VHF equipments etc.
3	Movement of four wheeler vehicles at each Wildlife abundant forest areas for protection purpose with sufficient allocation of funds for fuel round the year.
4	Engagement of different squad like anti- poaching squad, anti-depredation squad, protection squads in critically endangered area and elephant trackers.
5	Purchase of tranquilization equipments, binoculars, digital cameras search lights, camera tapes, night vision equipments, range fields, Taser guns etc.
6	Sufficient funds to be provided for purchase of crackers, search lights, spot light, torches and vero light projectors, drums, mega phones etc.
7	Purchase of modern Fire fightingequipments, Wildlife rescue equipments like Rescue vehicles, cage, ropes, tackles, ladders, nets, public address systems, flare guns, very light pistol etc.

7.6.34. Information network and record keeping: -

The information network and record keeping is as follows.

Sl. No	Information Network and Record Keeping
1	VHF Network born fixed sets and hand held sets connecting to all the Range, Section and Beats and in vulnerable pockets of forest need be strengthened .Vehicles mounted VHF sets used to be provided to all the patrolling vehicles.
2	One technical person must be engaged for maintenance of the VHF sets and handsets and the sets must be synchronized with the prescribed frequency of the nearest Railway stations to present death of elephants due to train accidents
3	A control room should function at each Range and it should be alert round the clock and the records of instant Wildlife cases, rescues problems elephant movements, man & animal conflict must be maintained.
4	Supply of mobile phones to all the field staffs to develop strong information network of the informers from the locality.
5	All the information regarding the wild animals, census, wildlife crime, death of wild animals, human kill should be maintained up-to-date.
6	The wildlife case records should be maintained properly and forwarded to the court. The legal advice must be taken by inquiry officer and advocate having good knowledge about wildlife protection act & expertise on wildlife crime.
7	Establishment of GIS cell & wildlife crime cell.

7.6.35. WildlifeDepredation: -

In general, the history, periodicity, intensity of movements, the movement routes and the corridors should be mapped to prepare action plan for anti-depredation. This exercise is required to be taken up every year. Elephant Movement Register should be maintained in Range level in day today basisis as follows.

Sl. No	Depredation Problem
1	The depredation problem will be effectively tackled with the participation of the people, building, identifying the Village level leaders and keeping the communication channels open with villagers.
2	Sufficient number of Elephant tracking Squads is to be engaged round the year. They must be given specialized training people crowd control, elephant drive, communication skills etc.
3	Implementing standard quality opening procedure to deal with staying of wild animals into human dominated landscapes.

7.6.36. Control of grazing: -

The wild life rich area shall be banned for grazing to avoid the destruction of the habitat and contamination of diseases from the domestic cattle. 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 against foot and mouth disease, hemorrhagic septicemia, Black quarter, etc. Therefore peripheral vacillation is urgently required in forest fringe villages adjacent to protectoral areas viz. Satkosia Tiger reserve , Kapilash wildlife sanctuary However stall feeding may be encouraged by developing fodder forms.

7.6.37.Fire Protection Measures: -

To prevent fire, engagement of fire watchers, supply of firefightingequipment, training to staffs in controlling forest fire by specialized persons, regular maintenance of fire lines in the forest blocks are some of the special activities to be practiced in the Division. As most of the forest fire is man-made, the VSS and eco-clubs are to be motivated to protect the forest from fire.

The forest fringe Villages, where there is high fire vulnerability, incentives need to be given to the member of VSS to be involved in extinguishing fire. Special awareness campaign need to be organized to aware people for controlled burning at the time of NTFP collection. Regular training need to be imparted to forest staffs, VSS members and fire watchers. Real time monitoring of fire by using modern technologies need to be provided so that field staff can get some alert immediately so as to control field fire.

7.6.38. Man-Elephant Conflict: -

At present man elephant conflict is very acute in Athgarh forest division. In order to address this issue. Short term, middle term and long term strategies need to be drawn up with the elephant experts of national & international fare for management of elephant population in Mahanadi elephant reserve. Innovative methods used in various states need to be implemented in elephant landscape as no method will give permanent solution. Maintenance of elephant proof trench, community solar fencing use of chili powder tobacco and engine oil paste on ropes, giving chili smoke, use of bio-acoustics, using alarm bell to assertion intending wild elephants etc. need to be prescribed. The information of man animal conflict is given below.

Table No. 4

Man Animal Conflict

Year	No. of person died	No. of person injured	Crop damaged in Acre	Compensation paid in Rs.	
				Paid for Human Killed/ Injured	Paid for Crop Damaged
2008-09	02	--	--	200000	--
2009-10	01	--	--	100000	--
2010-11	02	--	--	300000	--
2011-12	01	--	--	200000	--
2012-13	02	--	--	400000	--
2013-14	01	--	--	100000	--

2014-15	03	--	--	700000	--
2015-16	01	01	904.4102	375000	10232670
2016-17	04	02	398.9106	1400000	4137460
2017-18	03	01	1097.2135	950000	11289651
2018-19	03	01	731.2172	1250000	7536572
2019-20	01	--	379.814	400000	3972540
2022-21	01	--	1148.71	400000	12982900
2021-22	01	06	887.698	525000	8844880

7.6.39.Incentive and rewards: -

The Incentive and rewards should be given to the efficient workers, staffs, the informers and VSS members whose efforts lead to detection of wildlife crime and arrest of the offender.To win confidence of the local people, compassionate payment for the crop damage, house damage and injury or death of human life will be disbursed in quick possible time.There shall be inventory of all the licensed guns within 10km radius of protected areas. The efforts should be made to recover all the unlicensed guns of the forest fringe villages with the help of local police.The incentive and rewards paid in Athgarh Forest Division is given below.

Table No. 5

Incentive and Rewards Paid

Year	Incentive and Rewards Paid in Rs.			
	Crop Damaged	Human Injury	Human Death	Others
2008-09	--	--	02	--
2009-10	--	--	01	--
2010-11	--	--	02	--
2011-12	--	--	01	--
2012-13	--	--	02	--
2013-14	--	--	01	--
2014-15	--	--	03	--
2015-16	904.4102	01	01	--
2016-17	398.9106	02	04	--
2017-18	1097.2135	01	03	--
2018-19	731.2172	01	03	--
2019-20	379.814	--	01	--
2022-21	1148.71	--	01	--
2021-22	887.698	06	01	--

7.6.40. Elephant - The Nature's unique gift:-

The beautiful mysterious and powerful animal, the elephant, is threatened with extinction due to depletion of habitat and loss of inter connectivity of protected area at least region wise. As history says the elephants are distributed more or less all over the Indian subcontinent. It is along ranging animal, do not confine them self to a particular habitat for long time, rather they migrate from one habitat to another through connected natural wooded path called corridor. Taking the above facts in to consideration the conservation practices of elephant cannot be restricted in the protected area alone. In order to prevent isolation, the potential habitat outside the PA'S needs extensive protection and conservation. All sorts of attempts to be made to prevent activities like raising of commercial plantation (monoculture) by replacing natural forest, extensive agricultural practices by using toxic pesticides and fertilizers, extension of mining activities, infrastructure development like roads, dams, etc. Causing loss of Bio-Diversity resources and habitat loss.

7.6.40.1. Establishment of Connectivity:-

Thus establishment of connectivity among potential elephant reserves can facilitate flow of gene among the population by reducing inbreeding co-efficient effectively. The habitat linkage is therefore most essential for this large ranging animal for survival of its existence. They use the corridors for their seasonal movements among the protected areas to meet their physiological and biological requirement. Their natural habitats are in a process of depletion of forest growth, which is one of the reasons for their increase in frequency of migration. It so happens that in most of the cases their movements are not confined to the corridors. In many cases it is noticed that the elephants, even follow the non-conventional routes where there is heavy loss occurs to life and properties of human being creating conflict among the man and elephant. This is the classical Human Elephant Conflict (HEC) a phenomenon in which both sides suffers huge losses but there can only be one winner – man. Due to agricultural encroachment, habitat loss, increasing mining activities the natural corridors are fragmented, which forced the elephant to come out of forest and enter to human habitation causing conflict between man and elephant resulting in loss of cultivated crop and death of human being as well as killing of elephant,Athagarh Forest Division is worst sufferer of this conflict.

7.6.40.2. Migration of Elephant:-

Apart from the migration of elephant from the neighbouringdivisions, the residential elephants of this division also create concern for the forest officials during their local migration to the agricultural field and human habitation. Crop raiding by elephant is as old as human civilisation. Mainly agricultural lands are situated around the elephant habitation. During winter from November to January when the grasses and leaves of browsing species become brown and woody, elephant came out of forest for search of their food. On their way of search they usually come across the paddy field with crop cultivation which is essential for the livelihood of farmer and sometimes it is an attraction for the elephants. Hence, the reasons for migration reasons are (1) Search of Food (2) Water (3) Exchange of gene pool with other elephant community.

7.6.41. Preventive measures taken to address these problems:-

7.6.41.1. Awareness:-

The awareness are (1) Meeting (2) Through public address system (3) Poster, signage

7.6.41.2. Monitoring of their movement:-

The Monitoring of their movementare (1) Deployment of elephant squad (2) Use of masal (3) Crackers (4) Engagement of horse to restrict their entry to human habitation. (5) Physical barriers to prevent elephants from crop raiding and entry to human settlements.

7.6.41.3. Mitigation measures:-

The mitigation measures are (1) All that elephants needs for their survival is human love and compassion (2) Prompt payment of compassionate amount (3) To educate the farmers for change of their crop pattern. Traditional crop pattern like cultivation of paddy, sugarcane, banana etc. Can be replaced with the following Cotton, Niger, Turmeric, Sunflower, Chilli and Insurance coverage to crop damage.

7.6.41.4. Analysis:-

On analysis of causes of confrontation between man and elephant it is found that the reason is very sentimental and emotional as people's crop and properties are destroyed and sometimes human life is lost. The one and only successful mitigation measure, which can resolves the issues, is creating sufficient awareness among the people regarding assurance of payment of compensation amount to their damage instead of compassionate payment which can made people more compassionate towards elephant, because man is the one and only enemy of elephant.Now it is a question before everybody to decide whether elephant is a culprit or a victim of the conflict between man and elephant.

CHAPTER-8

Eco Tourism Chapter

CHAPTER – 8

Eco-Tourism Chapter

8.1. Eco-Tourism Chapter :-

8.2.General Constitution of Chapter:-

The totalarea allotted to Eco-Tourism Chapter is 70.00 hector. The growing segment of State Tourism Industry that is making significant positive contribution to Environmental, Cultural and Economic wellbeing of destination and local communities around the State. It is a part of environmental conservation and understanding what the needs of local people who are local to area. It is the responsible travel to nature areas that conserves the environment, sustains the wellbeing of the local people and involves interpretation and education. Considering the importance of the segment it feel proper to constitute a separate chapter to give proper justice to participatory management of forest through forest conservation.

8.3. General characteristics of vegetation:-

It consists mostly of hardy species. The soil is highly eroded and susceptible to sheet and gully erosion. In some patches the topsoil has been washed away and transformed into hard morrum soil and rocky surface. The area is dominated by miscellaneous vegetation like Rohini, Karla, Aoinla, Jamu, Kurei, Dhaura, Dhatuki, Kanteikoli etc. except valley and plain areas where sal predominates. The crop standing over this area conforms to Northern Dry Deciduous Forest and Dry Peninsular Sal Forest. The detailed description of these forest types and their regeneration has already been discussed in separate chapters.

8.4.Eco Tourism Series and Sections:-

8.4.1. Eco Tourism Series: -

This Chapter constitutes 01 Eco tourism series namely Athgarh. The total area allotted to Athgarh Eco-Tourism series is 70.0 hectare. There are 04 numbers of Eco-Tourism spot exist in this Division.

8.4.2.Reason for Constitution of Eco Tourism Series: -

The number of Eco Tourism series formed for convenience of working, availability of labour, distribution of area etc.

8.5. Blocks, compartments and JFM area (marked on GIS based maps):-

8.5.1. Forest Blocks in Eco-Tourism:-

The Range wise distribution of forest blocks, and its area allotted to this Chapter is given in the table below.

Table No. 1				
Range wise distribution of Eco Tourism Area in ha				
Sl. No.	Name of the Range	Name of the Forest Block	Name of the Site	Area for development
1	Narasinghpur East	Deobhuin RF Compt. 13 Olab RF Compt. 05	Dianjhar waterfall	20.0
	-do-	Olab RF Compt. 03	Dabarkhola Waterfall	30.0
2	Athgarh	Saranda PRF	Ansupa Lake	10.0
	-do-	Outside Forest	ChampadeiThakurani	10.0
Total:-				70.00
Sources -DFO, Athgarh Division				

8.6. Objectives of Management:-

The special objectives of management of Eco tourism Chapter have been given in the table below, without violating the provisions laid there in the forest conservation Act 1980.

Table No. 2	
Objectives of management of ETWC area	
Sl No.	Special objectives of management
1	To improve the Eco-tourism area by planting flower plants, construction of check dam, steps, railing and tower for attraction of the visitors.
2	To restock the barren area by artificial regeneration.
3	To extend soil and moisture conservation measure in a watershed approach to enrich the micro-edaphic condition for making the forests more productive in the near future.
4	To protect the area and minimize its further degradation.
5	To supply the firewood, poles and timber in a systematic manner to the local peoples and there by discouraging illicit felling.
12	To remove the miscellaneous thorny bushes to favour the growth of principal and secondary species.
7	To encourage natural regeneration through fire protection and closure from grazing by involving local communities.
8	To create favorable condition for the habitat and multiplication of the Wild Life.
9	Construction of bath room and toilet adjoining to fall area, improvement of roads and creation of parking area will attract the tourists.

8.7.Distribution of Area:-

The part of forest blocks that are adjoining to natural waterfall, lake and worship place are allotted to this Chapter. An area over 70.0 ha, has been allotted to Eco Tourism Chapter. On an average 01 exploitable tree exists per 2.5 hectare but silviculturally the trees are not available for felling. This area is under continuous pressure for removal of pole crops and firewood by the local inhabitants. Proper protection of the area against grazing and fire could not be ensured for which the existing crops and the site condition have deteriorated further and the rate of soil erosion has accelerated.

8.7.1. Distribution: -

The area allotted to this Chapter is distributed inathgarh, Khuntuni, Badamba, Narasinghpur East &Narasinghpur West Range, which comprises 0.22 % of the total managed area of the Working Plan. Sal occurs in pure form in plain and valley area, where as it is sporadically distributed in mixed forest in the hill portion, dominated by other miscellaneous species.

8.7.2. Density: -

The crown density of the crops standing over the area varies from 10 % to 25 %. The density varies from >10 % to 25 % in plain and valley area, where as it varies from 5 % to 10 % in hilly area. The variation of density is due to various climatic and edaphic factors as well as the fertility of the area.

8.7.3.Growing Stock: -

The crop standing over the area is open and consists mostly of inferior hardy species. The actual established trees in each forest block included in this Chapter have been estimated in this revision. This has been done based on inventory data. The estimated number of trees in different girth classes will be given.

8.7.4. Status of Regeneration: -

The area included in Eco Tourism Chapter does not have sufficient stock. The renewal of forest crop purely depends on nature. The regeneration survey over an area of 1.0 mt x 1.0 mt has been conducted simultaneously with the inventory of each sample point. The regeneration data have been analysed and the status of regeneration is found to be moderate to deficient in majority of blocks. However, the young shoots are affected due to frequent fires.

8.7.5.Climber Menace: -

During the outgoing Plan period all annual Eco tourism area have not been worked out due to paucity of funds. At present approx. 15 % of existing trees are affected by climber. Climber is affecting the growth of trees and quality of timber. Sometime trees are either uprooted or died due to climber attack. The growth of the climber is very fast and within one to two years it covers whole crown of the tree. The climbers are to be cut twice within the Plan period to avoid its menace.

8.7.6.Weed Growth: -

Unwanted plants are common in the forest floor. During rainy season vast number of weeds grows in the forest floor of this tract. Weeds tend to interfere with the growth of individuals of favoured species. Annual weeds die during the month of February. Dry weeds invite forest fire, which causes damage to seedling.

8.7.7. Grass Invasion: -

Different grasses are seen in patches on the forest floor. Grasses grow faster in small gap or in open space, which causes heavy grazing. Recruits are either suppressed by grasses or damaged by grazing.

8.7.8. Special Feature: -

There is not any significant observed in the forest area managed during the outgoing Plan period. Firewood and small timber demand of the inhabitant of the locality are fulfilled from the forest, which are not managed in this revision. Forest fire is an important tragedy to the forest of this tract. Soil fertility reduces due to forest fire and subsequently has a negative impact on the overall quality of the tree growth.

8.7.9.Eco Tourism Cycle:-

It has been fixed based on the period of the Working Plan or the number of coupes in each Eco Tourism series. As perthe National Working Plan Code 2014 and for complete execution of work in each Eco Tourism series, a Eco-Tourism cycle of 01year has been fixed.

8.8.Table of Eco Tourism:-

8.8.1. Coupe: -

It is decided to work all Eco Tourism spot in every year. Therefore the total area that is 70.0 hectare is allotted to one coupe and the said area is repeated in every year. All coupes in each Eco Tourism series have been shown on the toposheet 1~ 50000 scale. The working year of each coupe in one Eco Tourism series is given in the table below.

Table No-3

Eco-Tourism Coupe area in hectare.

Year	Coupe No.	Name of the Eco-Tourism Spot	Name of the Range	Area	Total area
2021-22	I	Dianjhar Waterfall	Narasinghpur East	20	70.0
-do-	-do-	Dabarkhola Waterfall	-do-	30	
-do-	-do-	Ansupa Lake	Athgarh	10	
-do-	-do-	ChampadeiThakurani	Athgarh	10	
2022-23	II	Dianjhar Waterfall	Narasinghpur East	20	70.0
-do-	-do-	Dabarkhola Waterfall	-do-	30	
-do-	-do-	Ansupa Lake	Athgarh	10	
-do-	-do-	ChampadeiThakurani	Athgarh	10	
2023-24	III	Dianjhar Waterfall	Narasinghpur East	20	70.0
-do-	-do-	Dabarkhola Waterfall	-do-	30	
-do-	-do-	Ansupa Lake	Athgarh	10	
-do-	-do-	ChampadeiThakurani	Athgarh	10	
2024-25	IV	Dianjhar Waterfall	Narasinghpur East	20	70.0
-do-	-do-	Dabarkhola Waterfall	-do-	30	
-do-	-do-	Ansupa Lake	Athgarh	10	
-do-	-do-	ChampadeiThakurani	Athgarh	10	
2025-26	V	Dianjhar Waterfall	Narasinghpur East	20	70.0
-do-	-do-	Dabarkhola Waterfall	-do-	30	
-do-	-do-	Ansupa Lake	Athgarh	10	
-do-	-do-	ChampadeiThakurani	Athgarh	10	
2026-27	VI	Dianjhar Waterfall	Narasinghpur East	20	70.0
-do-	-do-	Dabarkhola Waterfall	-do-	30	
-do-	-do-	Ansupa Lake	Athgarh	10	

-do-	-do-	ChampadeiThakurani	Athgarh	10	
2027-28	VII	Dianjhar Waterfall	Narasinghpur East	20	70.0
-do-	-do-	Dabarkhola Waterfall	-do-	30	
-do-	-do-	Ansupa Lake	Athgarh	10	
-do-	-do-	ChampadeiThakurani	Athgarh	10	
2028-29	VIII	Dianjhar Waterfall	Narasinghpur East	20	70.0
-do-	-do-	Dabarkhola Waterfall	-do-	30	
-do-	-do-	Ansupa Lake	Athgarh	10	
-do-	-do-	ChampadeiThakurani	Athgarh	10	
2029-30	IX	Dianjhar Waterfall	Narasinghpur East	20	70.0
-do-	-do-	Dabarkhola Waterfall	-do-	30	
-do-	-do-	Ansupa Lake	Athgarh	10	
-do-	-do-	ChampadeiThakurani	Athgarh	10	
2030-31	X	Dianjhar Waterfall	Narasinghpur East	20	70.0
-do-	-do-	Dabarkhola Waterfall	-do-	30	
-do-	-do-	Ansupa Lake	Athgarh	10	
-do-	-do-	ChampadeiThakurani	Athgarh	10	

8.9.Method of Executing the Eco Tourism:-

8.9.1. Demarcation: -

All area will be demarcated and inspected during winter season (October to December) previous to the year in which it falls due for working. At the time of demarcation, the white paint ring shall be given or renewed on the trees standing at a visible distance along the coupe line. The coupe shall be displayed prominently through a signboard at prominent place. The signboard should contain the name of Eco - tourism series, coupe number, its area, block/compartment and year of working.

8.9.2. Other Regulation:-

8.9.2.1 Grazing: -

The coupe shall be closed to grazing for a period of 10 years. Practically it is not easy to maintain this restriction inside the forest over a period of 10 years. It is prescribed to issue notice to all the fringe villages nearer to the working coupe about such restriction.

8.9.2.2. Lopping: -

The local people lop trees of different species to use as leaf fodder for their domestic animals. Repeated lopping year after year weakens the tree and it becomes prone to many diseases. In course of time, such trees die leaving behind no regeneration to take their place. Lopping is discouraged. Any regulation for lopping is not prescribed.

8.9.2.3. Fire Protection: -

All coupes shall be rigidly protected from forest fire for a minimum period of 10 years. As per previous record all the forest area were affected by fire in every year. Protection of fire in the working area can be practically possible by watching it from the month of February to June in every year. Provision of watcher has been prescribed and the annual allotment required for fire protection is given in a separate chapter.

8.9.2.4. Climber Cutting:-

Climbers are a menace not only in the young regeneration area but also in the forest crops as they seriously affect the growth of young plants and trees. Climber cutting shall be done if necessary. The climbers will be cut at one place on the ground level where as thick one shall be cut at two places (one near the base and other at a height of 1.5 mt). The amount required for climber cutting during the Plan period is given in a separate chapter.

8.10.Soil and Water Conservation Measure:-

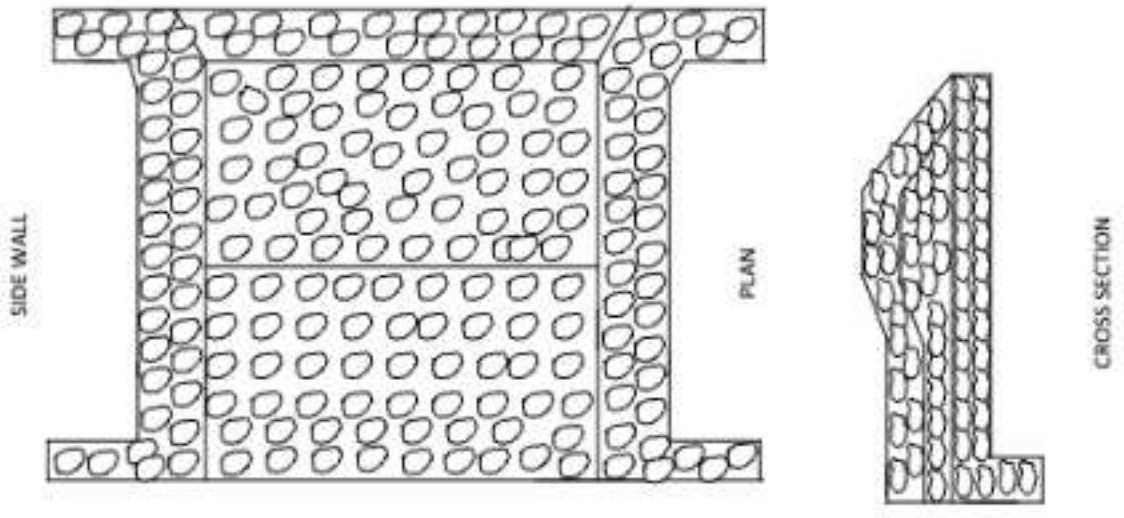
The area allotted to this Chapter varies from gently slope to precipitous. The local people are collecting stones for construction of their houses. Sometime contractors are also collecting stones for construction of roads, building and other contracts works. Collection of stones in this Chapter is not allowed. Construction of check dams at a interval of 0.5 kmt in the nalas flowing in almost all block is prescribed for water conservation. The expenditure to be made for construction of check dams during the Plan period will be given in a separate Chapter. The area allotted to each coupe are to be grouped in two broad categories. (i) The degraded areas having sufficient rootstock with little gaps, which requires mostly cleaning and conservation measures. (ii) The degraded areas having deficient root stock with eroded soil, which require special treatment under artificial regeneration works to fill up the gaps as well as extensive soil conservation measures and light cultural operations.

Depending on the treatment of the coupe, a treatment Plan for 05 years shall be prepared by the Range Officer, which shall include forest block and it's Compartment, Eco tourism series, Coupe number and it's area. Also category, terrain, slope, drainage, soil type and depth, vegetation and extent of regeneration, degradation, year-wise activities, major operations to be undertaken, cost norms and a calendar of operations shall be given. The plan shall also include provisions for monitoring and evaluation. The treatment Plan shall be checked by the ACF and approved by DFO, who shall be responsible for the implementation of the approved Plan. Once the treatment Plan has been prepared and finalized, the work shall be carried out without any major deviation. All the operations shall be undertaken departmentally and the assistance of VSS need be taken where ever feasible and necessary.

8.11. 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. Rough stones of size of 0.15 to 0.3 cum are required for the construction of these structures. Earthen bunds should be provided in both sides of the structure. The cost of construction of these check dams are provided in the Chapter- Financial forecast and cost of the Plan. Height of the check dam should be regulated 1/3 to 1/2 of the gully depth. These check dams should be constructed at regular intervals depending on the gradient, steeper the slope, more check dams are required. More number of check Dams are required in category-II areas since the slopes are steep and the velocity of runoff is high.

DESIGN OF A LOOSE BOULDER CHECK DAM



Gully plugging can also be done with brushwood depending on the availability of material, requirements of sites and cost norms. The gully beds should be planted with soil-binders like Sabai grass, Amari and Agave. Generally for brushwood check dams, the height of the fall taken into consideration is 1 mt, the maximum width of the gully is 03 mt, and depth is 0.12mts. The cost of brushwood check dam is given in the Chapter- Financial forecast and cost of the Plan.

8.12. Palisading, Agave Planting and Vegetative Bunding: -

With the available materials palisading with the interval of 10 to 20 meter has to be prepared along the contours to counteract the force of water movement. Depending on the slope, grass like KhusKhus, Napier, Sachrum, etc. should be planted along with Agave.

8.12.1. 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 02 mt. x 02 mt. x 0.5 mt. The width and the depth can vary depending on the availability of the flat surface. The earth dugout from the tanks should be placed in an inverted trapezium and the soil should be compacted. No inlet and outlet to be provided from the percolation tank. The bunds should be treated with seeds Dhanicha (Sesbaniaaculeala), Sun hemp or even Horse gram.The areas where the VSS is active will be managed as per principle ofJFM within the ambit of prescriptions outlined for this Chapter. The planting of grasses shall be taken up in eroded areas. The efficacy of grasses in checking soil erosion is researched and the findings are well known. However, a list of some species of grasses suitable for planting is given in table below.

Table No. 4			
List of grasses suitable for plantation			
Sl. No.	Grasses	Soil and other factors	Use
1	Arundinellabengalensis	Yellowish brown, sandy loan and slightly acidic	Fodder
2	Arundinellanepalensis	Slopes with good drainage and permeability, soil sandy loam and neutral acidic reaction.	Fodder
3	Chrysopogonfulvus	Hilly gravely soils, black cotton soils, red soils (best growth) low level of moisture.	Fodder
4	Chrysopogongryllus	Strong acidic soil on high hills, p^H 4.2	Fodder
5	Themedatriendra	Gravelly soil on hills, p^H acidic to neutral, Rainfall 1000 mm and above.	
6	Cynodondactylon	All type of soil on level land, prefers moist area and stands moderate grazing and trampling.	Fodder
7	Eragrostiscoarctata	A xerophytic grass	Fodder
8	Eulaliopsis binate	Can grow in slopes up to 50%, hot dry localities withstand forest fire.	Non-fodder
9	Heteropogoncontortus	Shallow eroded, black or red soil, p^H 12.8 to 7.0	Non-fodder
10	Cymbopogonjwarancusa	Level to hilly topography, sandy and rocky soil, p^H 12.5 to 7.5	Non-fodder
11	Veriveriazizaniodes	Low lying ill drained land where water table is high. Soil sandy loam to clay, p^H 4.0 to 7.5, prefers neutral soil.	Non-fodder
Source- The grass cover of India' by P.N Dabadghao and R.A Shankar Narayan. ICAR			

8.13. Indigenous hardy species:-

The indigenous hardy species will be planted. A general checklist with suggestive measures proposed and species suitable for plantations on different sites in this Chapter is provided in the table below. This is in addition to the above prescriptions and only indicative. Hence, many more Eco tourism activities and species can also be added by the DFO concerned depending on the field requirements. The suggestive measures proposed and species suitable for plantations is given in the table below.

Table No. 5		
Suggestive measures proposed and species suitable for plantations		
Site	Measures to be taken	Species to be planted
Ravine	Soil and water conservation measures, Full protection from grazing and fire, Safe disposal of run-off, Grassland development, Afforestation	Dalbergiasisoo, Albizzialebbek, Acacia catechu, Acacia nilotica, Azadirachtaindica, Agave sisalana and Eulaliopsisbinata besides soil binding grasses.
Laterite soil	Soil and water conservation measures, Full protection from grazing and fire, Application of fertilizer, Afforestation	Eucalyptus hybrid, Dendrocalamusstrictus, Acacia auriculiformis, Madhucaindica, Bombaxceiba, Soymidafebrifuga, Cleistanthuscollinus, Albizzialebbek, Anacardiumoccidentale, Agave species and soil binding grasses.
Skeletal soil	Contour bunding trenching, Afforestation, Other Soil and water conservation measures, Protection from grazing and fire, Sowing grasses, Seed dibbling.	Albizzialebbek, Cassia siamea, Hardwickiabinata, Azadirachtaindica, Acacia nilotica, Acacia leucophloea, Derris indica, Eucalyptus hybrid, DalbergiaSisoo, Teak, Tamarindusindica, Agave species, Eulaliopsisbinata, Ailanthus excelsa, Acacia catechu.
Water logged areas	Preparation of mounds, Planting of tall plants, Application of anti termite chemicals, Early planting, Drainage system treatment and other such measures.	Eucalyptus robusta, Anthocephaluschinensis, Syzygiumcumini, Terminaliaarjuna, Bombaxceiba, Lagerstroemia speciosa, Sisoo, Derris indica, Acacia nilotica.

8.14. Works of Improvement:

The area constituted in this chapter is a mostly hilly slope. The flow of rain water increase suddenly and thereby causing high soil erosion. The area becomes dry just after the rainy season. Conservation of soil and water in this terrain is very difficult. Construction of check dams in the slopes and nalas, improvement of natural water holes in the perennial and semi perennial nalas for the propose of soil and water conservation is prescribed. Plantation across the smaller nala and along the bank of the bigger nala by branch cutting is prescribed. Depending on the site quality, suitable fodder species for the wild animals shall be chosen by the Divisional Forest Officer for plantation.

8.15. Sacred Grooves:-

The worship places of tribal people are called "Jahira" the sacred groove. There are quite good population of tribal peoples distributed mostly in Narasinghpur East and West Range. Apart from this their presence is also notice in Khuntuni and Athgarh Range. Invariably most of the tribal villages have their own worship place where they performs, the community puja and cultural programmes attached with tribal culture and heritage.There are 10 numbers of sacred groves in Athgarh division.

8.16. Cultural elements of the local area:-

People do not enter in the grove in a regular basis. Only the male deity worships there. Women are not allowed to enter on to the grove. During the festival time which are celebrated at the shrine and at the time of paying bali at the shrine the male members gather at the shrine.

8.17. Community:-

The major community of this village belongs to tribal cast like Munda, Kisan. People from farmer community are also residing in the village (locally known as Chasa).

8.18. Location of sacred grove: -

The sacred grove is nearly about 01 K.M. away from the village end. IT is adjacent to agriculture land there is no perennial spring present in the sacred grove. The village road is present at a close proximity to the grove.

8.19.Folklore:-

According to the village shrine has been established by their forefather for more than 100 years ago. The goddess will protect their village from any shorts of trouble and protect their cattle from being lost. That was their belief to worship at the shrine at that period of time and this practice continued in the next generations till now.

8.20. Practices associated with the grove: -

People do not down from this sacred grove. They also do not collect any dead branches from the grove. Only dry leaves are being collected by the villagers for fuel purpose and that also from the periphery of the grove. People pay bali of animals at the shrine in the name of offerings when their wishes come true.

8.21. Use of grove by community: -

The villagers only collect the dry leaves from the periphery of the grove for fuel purpose.

8.22. History and practices of conservation: -

Since the shrine has been established at the present location cutting down of trees were prohibited here. From that period of time no cutting of trees are being done here. The fear of being punished by the goddess also restricts the people not to cut down any trees. Now after the formation of the VSS the conservation practices have become more intense.

8.23. Present status: -

The sacred grove is adjacent to agriculture lands. In future there may be a possibility of cutting down of trees of sacred grove to create more crop land for the population of the village. This is one of the major threats prevailing around the sacred grove. The potential of this the no of trees can be increased by executing extensive plantation in the barren land near the grove. If that will be done then the soil and fertility conservation can be done. The adjacent agricultural lands get fertile with the liters of the trees fallen in the agricultural lands. This site can also act as a habitant for the birds and other small organisms. The main stakeholders of this grove are the villagers themselves.

8.24. Conclusion: -

The villagers have conserved the vegetation of this grove which can be known by seeing the density of the trees species in the grove. However no sacred grove committee has been formed. In our village meeting where the president of the VSS and some other villagers were present, had some of their own suggestion such as a boundary should be made around the sacred grove to check the entry of the cattle entirely. A particular place should be made where the goddess is being worshiped.

CHAPTER-9

Protection Overlapping Working Circle

CHAPTER-9

Protection Overlapping Working Circle

9.1. Protection Overlapping Working Circle:-

9.2 General Constitutions of Working Circle:-

The total area allotted to Protection Overlapping Working Circle is 39626.163hectare. The forests of Athagarh Division are subjected to various factors causing damage to forest as well as wild animals. Burgeoning in population, rapid urbanization, construction of dwelling houses etc. have cast its effect on the forests. Lacks of grazing ground in and around the villages exert heavy grazing pressure on nearby forest for fodder. Goat population is tremendously increasing in all forest fringe villages. As most our forests are deciduous in nature and leaf litters accumulate on forest floor during winter thereby creating, fire hazard is all most seen in all forests. Due to lack of vegetative ground cover, heavy soil erosion is prevalent. Natural calamities like Storm & Cyclones are recurrent feature frequent visitor to this costal tract of the state. As such forests of this division are subject to natural calamities, annual forest fire, flood, illicit felling, poaching of animals, land encroachment etc. Due to increase of road network, removal of boulders from forest is also a concern. Collection of Sal leaf, Siali leaf is also prevalent and causes damage to growing stock. Increase of industrial houses in and around Athagarh&Khuntuni Town also put pressure on limited natural forest resources. As such protection against all such aversion factors is highly required. All forest blocks are subjected to damage as enumerated above. All the Forest Blocks are included under this Working Circle.

9.3. General characteristics of vegetation:-

The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissuslatifolia, Cleistanthuscollinus, Terminaliatomentosa, Buchananialanzan, Diospyrosmelanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewiasps.,Indigoferacassioides, etc. Hemidesmusindicus, Calycopteris floribunda, Combretumdecandrum, Buteasuperba, Bauhniavahilii etc., are the important climbers present in this forest.

The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

9.4. Blocks, compartments and JFM area (marked on GIS based maps):-

9.4.1. Forest Blocks in Protection Overlapping Working Circle:-

The total area allotted to thisProtection overlapping working circle is 39626.163hectare. It covers all forest blocks of thisDivision. The area those are vulnerable from protection point of view is given in the table below.

Table No-1		
Vulnerable		
Sl. No	Vulnerable	Name of the Forest Block
1	Extremely Vulnerable	
	-do-	
	-do-	Deobhuin RF
	-do-	
	Moderately Vulnerable	Haladiaseni RF
	-do-	Baldiabandha RF
	-do-	Olab RF

9.4.2. Vulnerable areas which need special protection measures:-

9.4.3.Narsinghpur West Range: -

The details of vulnerable camp of Narasinghpur West Range isas follows.

Sl. No	Name of Camp	Description
1	Sisupathar camp	It is near Sisupathar R.F. One special protection camp has been established to prevent illicit felling and poaching. This is quite vulnerable from poaching and illicit point of view. Therefore one vulnerable squad has already been deployed with facilitating including protection barrack.
2	Baresingha Camp	This is quite vulnerable from illicit felling and poaching for which one special protection squad has been deployed. Frequent movement of Tiger and Leopard is being observed in these areas and prey base is quite good including good population sambar.
3	Suiliabanka camp	The area is rich in elephant population and is the entry point of timber smugglers of Narsinghpur area.
4	Nuabhuin and Khola camp	The Protection camp need to be established here. Frequent movement of elephants, Leopard is being observed in this area.
5	Upporkota camp	One protection camp has already been established in Sardhapur P.R.F. This is the entry point to Sankrida area. It is quite vulnerable from poaching and illicit felling point of view.
6	Murujanala Camp	This is also quite vulnerable area where protection camp need to be

		established as this is the entry point both to Satkosia Tiger Reserve of Sankrida area of Sardhapur Section. Elephant movement is quite frequent in this area.

9.4.4. Narsinghpur East Range: -

The details of vulnerable camp of Narasinghpur East Range isas follows.

Sl. No	Name of Camp	Description
1	Naijhari camp	The protection camp has already been established in Deobhuin R.F. Compartment No.13.This is the entry point to Vejia area of Kanaka Section of Hindol Range of Dhenkanal Division. It is quite vulnerable for illicit felling and poaching point of view. The protection squad has already been deployed here. The area in rich in elephant population and also Leopard are also moving in that area.
2	Brahmani camp	One joint patrolling camp has already been established with the staff of Satkosia Tiger Reserve. The area is also rich in elephant with occasional movement of tiger and frequent movement of leopard.
3	Kharuani camp	This has been established in the strategic location adjoining to Karabirakhol of Dhenkanal Division, Kanja area of Angul Division and Raiguda of Satkosia Tiger Reserve. One protection camp has already been established here. Elephant population is quite high in that area. There is a report regarding the movement of one tiger in that area.
4	Guptamanik	This is a critical area close to Olab R.F. and the entry point of timber smugglers and poachers of Baramba area leading towards Vejia area of Dhenkanal Division. Two staff have been deployed here but need to be strengthened as the area is strategically located.
5	Jadapada Camp	One protection camp has already been established since this is entry point of timber smugglers and poachers of Narasinghpur area.

9.4.5. Badamba Range: -

The details of vulnerable camp of BadambaRange isas follows.

Sl. No	Name of Camp	Description
1	Naijhari camp	The protection camp has already been established in Deobhuin R.F. Compartment No.13.This is the entry point to Vejia area of Kanaka Section of Hindol Range of Dhenkanal Division. It is quite vulnerable for illicit felling and poaching point of view. The protection squad has already been deployed here. The area in rich in elephant population and also Leopard are also moving in that area.
2	Chhachuniacamp	This is quite vulnerable from timber smuggling and poaching point of

		view. This is a strategic location in Gopapur Section covering Nagatota R.F., Talachandragiri R.F. and Haladiaseni R.F. compartment No.1 and 2. One protection squad needs to be deployed here urgently.
3	Galuamada camp	This is Crucial location in BarambaSadar Section covering Haladiaseni R.F. compartment No.5, 6 and 7. One protection squad need to be deployed in this area as the timber smugglers and poachers enter into Dhenkanal Division through this route.

9.4.6. Athgarh Range: -

The details of vulnerable camp of AthgarhRange is given in the table below.

Sl. No	Name of Camp	Description
1	Tigiria camp	One protection squad needs to be deployed in Tigiria covering vulnerable areas like Achalakote and Haridaposi located nearby. The existing staff is not adequate to manage the situation.

9.4.7. Khuntuni Range: -

The details of vulnerable camp of AthgarhRange isas follows.

Sl. No	Name of Camp	Description
1	Oranda camp	One elephant squad has already been deployed. This is most vulnerable area from elephant point of view and man-elephant conflict in this area is very acute.
2	Brahmanbasta camp	This is also critical for elephant movement point of view. One squad needs to be deployed in this area.
3	Bhagua camp	In order to curb wood Charcoal in Baniabandha R.F. and on the foot of Kapilas Wildlife Sanctuary one squad need to be deployed at Bhagua. Elephants are frequently entering into these area from Kapilas Sanctuary.

9.5. Objectives of Management: -

The Special objectives of management of Protection Working Circle is given in the table below.

Objective of Management	
SL. No	Objective of Management
i	To enhance possibility of establishment of regeneration by taking preventing measures against all hazards.
ii	To minimize biotic pressures like illicit felling, fire, grazing, etc.

iii	The forest protection is to be improved by developing forest road network, constitution of protection unit, improving VHF network, infrastructure developments and communication network & with people's participation.
iv	To protect the area from massive quarrying of granite and laterite stones, removal of boulders, morums and soil which is vital in reality.
v	To evict the persons from encroached forest area and restock the encroached area by massive plantation with strong administrative measures.
vi	To devolve infrastructure in the remote areas to provide shelter to forest protection staff.
vii	To strengthen the striking force by providing arms and ammunitions with adequate training and legal power.

9.6. Sequence of Operation:-

The Sequence of Operation of Protection Working Circle is as follows.

Sequence of Operation		
Sl. No	Operation Measure	Description
1	Against Illicit Felling	There will be protection squad at each Range headquarters and camps noted above with adequate mobility and communication network. They will conduct regular patrolling in the vulnerable forest areas as per their intelligence. Infrastructures like Staff barrack, emergency light, vehicle fitted with VHF are to be kept ready. All Forest Check gates are to be modernized with CCTV camera systems etc. village community force to be associated for better result.
2	Against Fire menace.	For protection against fire the following activities are suggested.
		Fire line maintenance all along the forest boundary, Compartment Boundary Line, Road sides are to be maintained as per working plan prescriptions.
		To extinguish fire modern equipments like fire blower, firefighting dress to be used
		Satellite fire data to be utilized.
		Villagers to be trained to handle emergency fire situation.
		Multipurpose watch towers are to be erected.
		Incentives to informant, Fire extinguisher to be provided.
		To take the help of the fire service, District administration, disaster management etc.

3	Against Wind / Cyclone	This is a natural calamity against which little can be done. It is suggested to retain woody climbers in dense forests which will act as a binding force. Staff should be equipped with Power Chain Saw, Lifting Hooks to clear all forest Roads within a short period to facilitate movement so as to assess the realities for further immediate action.
4	Against Soil Erosion	It is suggested to have vegetative check dams on small nalla, contour bonding, loose boulder check dams, Cross drainage on roads and rills to break the velocity.
5	Against Grazing.	Though Grazing is completely prohibited, but in practice, cattle, goat etc. are entering the forest in search of fodder. It is suggested.
		To accept this reality and formulate rotational grazing, grazing closre, desired grazing methods.
		Develop alternate grazing ground
		Train people on stall feeding
		Adopt plantations on Silvi pasture method
		Educate people on adverse impact of heavy grazing.
		Alternate grazing may be created in NFL
6	Against Land Encroachment	"Prevention is better than cure" is the cardinal principle. Constant patrolling in forest area mostly in plain tract, near habitation is suggested to curb this problem, Annual maintenance of forest boundaries, boundary pillars must be done rigidly. Eviction or encroachers need to be taken up seriously with the help of district administration.

9.7. Grazing: -

The forest blocks to be protected against grazing specially planted up area and newly regenerated area. Rotational Closing to grazing needs to be adopted. People should be motivated to practice stall feeding, have their community grass land.

9.8. Protection against Illicit Felling: -

The Protection against illicit Felling Protection Operation Working Circle is as follows.

Sl. No	Protection against Illicit Felling
1	Illicit felling of timber is mainly concentrated in Khuntuni route,particulars for preparing charcoal in Baniabandh RF adjoining the Kapilash WL sanctuary. Similarly some illicit felling is done for fire wood, poles and agriculture purpose. All the forest blocks shall be strictly protected against illicit felling by strengthening the enforcement mechanism, frequent patrolling, engaging anti-smuggling squad at vulnerable points, by deploying man power from less important areas to vulnerable points and providing ample arms and ammunition to the field staffs. Better results are expected to involve people of locality their help & cooperation to curtail the scenario.
2	All the Forest Check Gates shall be strengthened with sufficient squad members.
3	To stop transit of smuggled timber and detect smugglers with vehicles, strong incentive based intelligence system has to be built in the Division. Further 2 to 3 special teams should be formed and always be in state of readiness to move within a short notice to the spot of forest offence.
4	For better effectiveness of detection of forest cases co-ordination among the field staffs of Forest Department, Police Department and Revenue Department is highly essential. DFO is to monitor this co-ordination activity.
5	Another measure area of concern in protection matters is the low conviction rates. The training inputs to staff regularly and coordinating trial of cases for quick disposal of the cases desirable.
6	These forest roads should be improved for transportation of forest produce, for supervision of forestry operation and to check smuggling, illicit felling and poaching.

9.9. Encroachments: -

Land encroachment is in declined trend. Regular patrolling, inspection of forests by authority will prevent encroachment.

9.10. Prevention of ForestFire: -

The procedure of prevention of Forest Fire is as follows.

Sl. No	Prevention of Forest Fire
1	The fire incidents at most of the forests have been effectively controlled during the plan period. However, to prevent fire, more number of fire protection squads required to be provided in these areas. The villagers of forest fringe villages and the VSS members should be motivated and provide incentives to support the field staffs and participate to control the forest fire.
2	People participation is an accepted way in forest protection. Hence, the local people shall be increasingly involved in forest protection and management by constituting more number of VSS in vulnerable pocket.

9.11. Communication System and Mobility:-

The communication system and mobility is as follows.

Sl. No	Communication System and Mobility
1	For quick communication and detection of cases frequent training should be imparted to the staff for operation of VHF and fire fighting equipments. The permanent VHF operator should be engaged in Divisional Control Room and Range Offices.
2	The fast moving vehicles is to be provided to each protection unit.

9.12.Miscellaneous Regulation: -

All staffs are required to be well equipped with maps/ rules/ regulations and strong legal matters. Periodic workshops are to be organized to boost the morale of the potential grass root level staff.

9.13. People's Participation: -

The local people and VSS members are to be motivated to protect the forest resources. More VSS in forest fringe villages are required to be constituted. For this, quarterly/half years meeting with them to gain their confidence for the purpose are to be organized.

CHAPTER – 10

Water Resource Management

Water Resource Management

10.1. WaterResource Management Chapter:-

10.2. General Constitution of WaterResource Management Chapter:-

The totalarea allotted to Water Resource ManagementWorking Circle is 39626.163hectare. The total geographical area of this division is 152262.00 hectare and totalGIS Computed Area forest area is39626.163hectare. There are many waterfall existing in this division. The main waterfalls are Dianjhara, Dabarakhola, Hadua etc. The management of the water resource existing in this division is necessary for the wildlife, forest and local inhabitant.

10.3. Plain land:-

Almost the entire AthgarhForest Division exists on north side of river Mahanadi. A linear strip of fertile land varying in width from 8- 12 kms, along the Northern bank of river Mahanadi running in west to east direction forms the major chunk of the flat area of the Division covering almost entire Khuntuni&AthagarhRanges and small portions of other ranges including intermingled valleys in hillareas. The percentage of distribution of forest area by rockiness is given in the table below.

Table No. 1

Distribution of Forest Area by Rockniess

S.L No	Rockiness	Percentage (%)
1	High	0
2	Medium	3.85
3	Low	30.77
4	No Rock	65.38
Total		100

Sources:- Divisional Forest Officer, Athgarh Forest Division.

10.4. Drainage & Water Supply:-

There are numbers of nallahs inside the forest blocks which are tributaries draining directly or indirectly to river "Mahanadi", the overall drainage is from West to East. The name of nallah and forest block through which it flows is given in the table below.

Table No.2			
Different Nallahs Passing through Various Forest Blocks			
Sl No.	Forest Block	Name of the Nallah	Drainage point of Nallah
1	Nuagarh	Hadua Nallah, Bichhuati Nallah	Mahanadi
2	Deobhuin	Hadua Nallah, Kankadakhai Nallah, Purunapani Nallah, Budhikendu Nallah	Mahanadi
3	Balikiary	Katurighasa Nallah, Ambakhol Nallah, Mahainshamada Nallah	Mahanadi
4	Barakhol	Hatibari Nallah and Mitikapur Nallah, Badabhuin Nallah	Mahanadi
5	Olab	Patutaila Nallah, Talpunjee Nallah, Hadua Nallah,	Mahanadi
6	Chandragiri 'A'	Mahulamada Nallah, Hadua Nallah	Mahanadi
7	Talachandragiri	Hadua Nallah	Mahanadi
8	Karada	Karada Nallah, Dhabari Nallah	Mahanadi
9	Tareigonda	Siaria Nallah	Mahanadi
10	Sorispal	Sorispal Nallah	Sapua Nallah and then Mahanadi River
11	Nagatota	Daleimaru Nallah, Aranda Nallah, Siaria Nallah	Siaria and then Mahanadi
12	Chandragiri 'B'	Mahulamada Nallah, Hadua Nallah	Hadua Nallah then Mahanadi
13	Karada	Badajora Nallah	Dhobani Nallah then mahanadi
14	Haladiaseni	Kutuniakhol Nallah, Barakhol Nallah, Gumpha Nallah Girimkhol Nallah	Siaria Nallah and then Mahanadi
15	Jagabeherathali	Kunda Nallah	Mahanadi
16	Baniabandha	Kua Nallah, Jankijhar Nallah, Badjhar Nallah	Mahanadi

10.5. Water Resources:-

The nallahs / streams in the forests dry up in summer season causing scarcity of water for human as well as wild animals. The ground water level in the adjoining areas of river 'The Mahanadi' is comparatively higher than other areas of the Division. The rivulets *viz* HaduaChhaturajor and Sapua give high discharge of rain water into river Mahanadi. There are important water bodies / wet lands in the division they are as under.

Table No. 3	
Natural Water Resources	
Sl. No.	Name
1	Ansupa Lake -382 Acre.
2	Mahanadi River & nallas joining it.
3	Suniamuhanpata of Athgarh Block
4	Wetlands near Nandeillo – Kandarpur of Athgarh Block
5	Ostia Pata of Banki Block

6	Wet land near Ghodabar of Banki Block.
7	Siaria kata in Narsingpur Block.
8	Ranasingpurpata of narsingpur Block.
9	PurkotiaPata of Narsinhgpur block.
10	Sagar Pata of narsinghpur Block.
11	Kanta paharapata of Athagarh Block.
12	DhurusiaPata of Athagarh block.
Sources;- Divisional Forest Officer, Athgarh Forest Division.	

10.6. Water Body:-

There are many water bodies created by the Department the list of such water bodies is given in the table below.

Table No.4

Artificial Water Bodies

Sl No.	Location	Type of Water Body	Geo-coordinates	Remarks Departmental/ Natural
Khuntuni Range				
1	Ranibania RF	Game Tank	N 20 35 01.9 E 85 41 11.0	Departmental
2	Baniabandha RF	-do-	N 20 36 56.7 E 85 44 00.3	-do-
3	Baniabandha RF	-do-	N 20 39 06.0 E 85 46 36.4	-do-
4	Baniabandha RF	-do-	N 20 38 59.7 E 85 48 19.9	-do-
5	Gobara RF	-do-	N 20 37 03.4 E 85 49 03.3	-do-
6	Sankhapoi RF	-do-	N 20 35 09.0 E 85 46 44.7	-do-
7	Baula RF	-do-	N 20 31 59.4 E 85 49 03.7	-do-
8	Suniamuhan RF	-do-	N 20 32 24.2 E 85 47 22.9	-do-
9	Suniamuhan RF	-do-	N 20 32 23.3 E 85 47 27.0	-do-
10	Suniamuhan RF	-do-	N 20 32 13.4 E 85 47 35.6	-do-
11	Subasi RF	-do-	N 20 32 38.0 E 85 46 27.0	-do-
12	Subasi RF	-do-	N 20 32 36.9 E 85 45 32.0	-do-
13	Baniabandha RF	-do-	N 20 39 03.7 E 85 48 19.3	-do-
14	Baniabandha RF	-do-	N 20 37 58.8 E 85 46 35.6	-do-

15	Baniabandha RF	-do-	N 20 37 6.8 E 85 48 04.3	-do-
16	Suniamuhan RF	-do-	N 20 32 17.0 E 85 47 55.0	-do-
17	Brahmanbasta RF	-do-	N 20 31 36.3 E 85 44 46.6	-do-
Narsinghpur West Range				
18	Mitikapur, Hatibari field	-do-	N 20 33 45.1 E085 02 08.5	-do-
19	Balikiary RF C-12	-do-	N 20 32 30.8 E085 03 52.4	-do-
20	Barakhola RF	-do-	N 20 32 30.7 E085 03 52.3	-do-
21	Balikiary PRF	-do-	N 20 32 58.8 E085 00 58.2	-do-
22	Balikiary RF	-do-	N 20 32 41.1 E085 02 55.8	-do-
23	Barsingha C-8	-do-	N 20 30 54.9 E085 05 05.6	-do-
24	Barakhola RF, Kharapada	-do-	N 20 30 51.5 E085 01 43.6	-do-
25	Balikiary RF C-10	-do-	N 20 34 58.8 E085 00 58.2	-do-
26	Uparakata, Saradhapur PRF	-do-	N 20 31 10.0 E085 01 42.4	-do-
27	Barakhola RF	-do-	N 20 30 33.1 E085 03 45.9	-do-
28	Balikiary RF	Game Tank	N 20 31 50.3 E085 04 05.8	Departmental
29	Balikiary C-11	-do-	N 20 32 58.0 E 85 03 13.0	-do-
30	Tamera (Khola)	-do-	N 20 32 39.3 E 85 05 12.3	-do-
31	Barakhola C-2	-do-	N 20 31 39.9 E 85 03 45.7	-do-
32	Barakhola C-2	-do-	N 20. 511071 E 85.073091	-do-
33	Barakhola C-2	-do-	N 20. 51065 E 85.073952	-do-
34	Saradhapur PRF	-do-	N 20 30 23.0 E 85 02 28.8	-do-
Narsinghpur East Range				
35	Deobhuin RF C-8	-do-	N 20 31 37.1 E085 09 01.3	-do-
36	Bhuska PRF	-do-	N 20 33 22.5 E085 07 28.8	-do-
37	Nuagarh RF C-3	-do-	N 20 32 27.6 E085 06 51.9	-do-
38	Nuagarh RF C-5	-do-	N 20 34 39.8 E085 06 22.2	-do-
39	Nuagarh RF C-9	-do-	N 20 36 10.5 E085 08 25.0	-do-

40	Nuagarh RF C-10	-do-	N 20 32 41.1 E085 02 55.8	-do-
41	Deobhuin RF C-12	-do-	N 2031 19.0 E085 11 38.4	-do-
42	Deobhuin RF C-13	-do-	N 20 31 07.5 E085 12 15.2	-do-
Athgarh Range				
43	Khalakhala RF	-do-	N 20 29 49.5 E 85 42 27.6	-do-
44	Baudabanakhandi RF	-do-	N 20 28 34.0 E85 40 24.0	-do-
45	Baudabanakhandi RF	-do-	N20 28 23.2 E85 39 37.2	-do-
46	Phulbadi PRF	-do-	N20 28 44.6 E85 36 45.8	-do-
47	Khalakhala RF	-do-	N20 29 45.0 E85 42 31.3	-do-
48	Sukasan RF	-do-	N20 28 34.2 E85 40 24.1	-do-
49	Ranibania RF	-do-	N20 33 42.0 E85 41 18.0	-do-
50	Kochilaballav RF	-do-	N20 29 32.6 E85 27 41.7	-do-
Badamba Range				
51	Tareiganda RF,C-1	-do-	N-20 27 47.4, E- 85 19 42.0	-do-
52	Haladiaseni RF,C-1	-do-	N-20 29 48.2, E- 85 15 52.3	-do-
53	Haladiaseni RF,C-5	-do-	N-20 28 43.3, E- 85 20 45.2	-do-
54	Karada RF,C-2	-do-	N-20 28 45.8, E- 85 22 09.4	-do-
55	Nagatota RF,C-4	-do-	N-20 27 47.5, E- 85 18 20.9	-do-
56	Tareiganda RF,C-3	-do-	N-20 27 43.6, E- 85 20 23.6	-do-
57	Nagatota RF,C-7	-do-	N-20 2655.2, E- 85 1909.1	-do-
58	Karada RF,C-2	-do-	N-20 28 45.0, E- 85 20 10.2	-do-
59	Haladiaseni RF,C-4	-do-	N-20 29 02.7, E- 85 19 05.6	-do-
60	Nagatota RF,C-3	-do-	N-20 27 34.1, E- 85 17 35.2	-do-

10.7. Building & well: -

Many buildings have been constructed for Official and residential purpose since inception of this division. Some of the buildings had been collapsed, as proper maintenance could not be done in time. The present habitable buildings need maintenance but it could not be done due to sufficient allotment.

10.8. Rest House and Shed:-

This division is very poor in camping facilities. There is no any rest house in this division. Some rest sheds have been constructed in the interior area of this division. The improvement of those rest sheds can attract tourist in future. The list of those camping spot are given in Annexure.

10.9. Carbon Stocks & Mitigation: -

The VSS areas as well as the adjoining forest area are protected from forest fire by the VSS members. Therefore carbon stock is increased in the forest area.

10.10. Demography:-

According to latest census2011, the human population residing in the jurisdiction of the division is 547677 numbers.The details of its category wise break up is furnished below. Furnish table similarily the lives stock position is as under give table.

Table No.5				
Population (BlockWise) as per 2011 Census				
Block	SC	ST	General	Total
Athgarh	21028	18918	104196	144142
Badamba	23489	9448	120526	153463
Narsinnghpur	34955	5729	126500	157184
Tigiria	9955	3495	56404	069854
Banki (Part)	2217	0912	9905	13034
Total	91544	38502	417531	547677
Sources: District statisticals hand book				

10.11.Hilly Terrain:-

It is mostly extending alongthenorthensideandpredominantly foundinNarasinghpurEast,NarasingpurWestandBarambaRanges.Thehillregionconsistsof twomainranges.OnerangelocallyknownasBudhabudhiGhatstartsfromBalikiaryblockand runsinnorthwesterndirectionover50km. InacontinuouschainuptoKumarangaR.F.throughDeobhuin, Chandragiri, Mandap, Nagatotaforest blocks etc., with small fragmented valleys in between. The

hills extending south up to Barakhol block arebroken extensions of this range. TheotherrangecommentesatGhodadianhill,runsintheNorthWesttoSouthEastdirection forabout55KmalongtheborderofCuttackandDhenkanaldistrictsuptoSorispalhillsthroughNuagarh, Haladiaseni, and Karada blocks. The highest peak in this Division is Chhelikuti (750mts)inBalikiaryblock.TheimportantpeaksoftheDivisionaregiveninthe Table.In between these two hill Ranges, the NuagarhPlateau is present comprising parts of Nuagarh and Deobhuinforestblocks.

Table No.6			
Important Peaks in the Division			
S.L No	Forest Block	Name of the Peaks	Peak height in Mtr.
1	Deobhuin	Deobhuinpahad	630
2	Olab	)anhakholpahad	710
3	Olab	Kanaka	745
4	Mandap	Mandapamundia	221
5	Nagatota	Rangamatiaparbat	383
6	Jhinkal	Jhinkalpahad	200
7	Kumaranga	Kumarangaparbat	370
8	Karada	Gadeipadhanparbat	488
9	Chandragiri	Pechakhaiparbat	220
Sources: Divisional Forest Officer, Athgarh			

10.12. Sequence of Water Resource Management:-

The annual Water Resource Management areais in the existing water resource area of this division. It is proposed for 10 years.The work will be started from 2022-23 to 2031-32 in the managed area. The year wise work to be taken up is given in the table below.

Table No- 7			
Sequence of Water Resource Management			
Year	Name of the Site	Type of Work	Proposed amount in Rs.
2022-23	Game tank in Ranibania RF ,Mitikapur Beat, Deobhuin RF &Khalakhala RF	Renovation	8,00,000/-
2023-24	Dianjhara Waterfall	02 Nos. of Check Dam	8,00,000/-
2024-25	Dabarakhola Waterfall	02 Nos. of Check Dam	8,00,000/-
2025-26	Hadua Waterfall	02 Nos. of Check Dam	8,00,000/-
2026-27	Game tack in Baniabandha RF, Balikiary RF, Bhuska PRF &Baudabanakhandi RF	Renovation	8,00,000/-
2027-28	Game tack in Gobara RF, Barsingha RF, Nuagarh RF &Phulbadi PRF	Renovation	8,00,000/-
2028-29	Game tack in Sankhapoi RF, Barakhola RF, Deobhuin RF &Khalakhala RF	Renovation	8,00,000/-

2029-30	Game tack in Baula RF, Saradhapur PRF, Nuagarh RF &Sukasan RF	Renovation	8,00,000/-
2030-31	Game tack in Suniamuhan RF, Tamera (Khola), Nuagarh RF &Khalakhala	Renovation	8,00,000/-
2031-32	Game tack in Subasi, Saradhapur PRF, Nuagarh RF &Baudabanakhandi RF	Renovation	8,00,000/-

10.13. Percolation pits:-

Percolation pits of size 1.5 mtr. x 1.5 mtr. x 1.0 mtr.hasto be done in the planting and natural forest area.The distance between two percolation pits 10.0 mtrs. The Divisional Forest Officer, Athgarh Division is advised to select the site both in natural forest and planting area and submit the proposal in every year.

10.14. Rainfall:-

The rainfall in this Division is received mainly from monsoon and the cyclonic depressions in the Bay of Bengal. Pre-monsson showers with thunder stroms are experienced in April and May. The normal rain fall is around 1755 mm in a year. The annual rain fall in Athgarh Division from 2005 to 2014 is gibe below.

C.D BlockwiseRainfallReportforlast14yearsinmm.					
Year	Athgarh	Tigiria	Badamba	Narasinghpur	Average of theDivision
2007	2490	1914	1252	1584	1775
2008	2553	2248	1305	1446	1888
2009	2576	1913	1401	1378	1817
2010	2329	922	1284	1194	1432
2011	1933	1298	1194	1429	1463
2012	2733	1592	1777	1802	1976
2013	1887	1443	1409	1811	1537
2014	1758	1435	1398	1795	1596
2015	1304	1280	1196	1456	1309
2015	1422	1380	1326	1388	1379
2017	1381.2	1310	1022	1198	1227.8
2018	1597	1509	1541	1435	1570.5
2019	1931	1880	1934	1808	1888.25
2020	1715	1508	1569	1550	1535.75
NB: The 14- year average comes to 1766 mm					
Sources: Divisional Forest Officer, Athgarh					

CHAPTER – 11

REDD+ and Climate change chapter

11.1. REDD+ and Climate changeChapter:-

11.2. General Constitution of REDD+ and Climate change Chapter:-

The totalarea allotted to REDD+ and Climate changeChapteris 39626.163hectare. The total geographical area of this division is 152262.00 hectare. There are many waterfall existing in this division. The main waterfalls are Dianjhara, Dabarakhola, Hadua etc. The management of theREDD+ and Climate change existing in this division is necessary for the wildlife, forest and local inhabitant.

11.3. General Character of Vegetation:-

The forest blocks included in this chapter are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissus latifolia, Cleistanthuscollinus, Terminalia tomentosa, Buchananialanzan, Diospyros melanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewia sps., Indigofera cassioides, etc. Hemidesmus indicus, Calycopteris floribunda, Combretum decandrum, Butea superba, Bauhniavahilii etc., are the important climbers present in this forest. The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

11.4. REDD+ and Climate changeSeries, and JFM areas:-

REDD+ and Climate changeSeries has not been constituted in this chapter.

11.5. Blocks, compartments and JFM area (marked on GIS based maps):-

11.5.1. Forest Blocks in REDD+ and Climate change.

The area allotted to this REDD+ and Climate changeis distributed in all Ranges, which comprises the total manage area of this plan. The detail is given in the table below.

Details of GIS Computed Area in hectare			
Sl. No	Status of Forest	Total No.	Area in ha.
1	RF	38	36142.321
2	PRF	16	1539.9
3	PF	03	82.89
4	VF	149	1861.052
		Total	39626.163

11.6. Special Objectives of Management:-

The special objectives of REDD+ and Climate changehave been given in the table below.

Objectives of Management of MR area	
Sl. No.	Special Objective of Management
1	To regenerate the degraded forest by appropriate REDD+ and Climate change.
2	To restock the barren area by artificial regeneration.
3	To extend soil and moisture conservation measure in a watershed approach to enrich the micro- edaphic condition for making the forests more productive in the near future.
4	To protect the area and minimize its further degradation.
5	To supply the firewood, poles and timber in systematic manner to the local peoples and there by discouraging illicit felling.
6	To increase the water level in the locality.
7	To encourage natural regeneration through fire protection and closure from grazing by involving local communities.
8	To create favourable condition for the habitat and multiplication of the wild life.

11.7. Analysis of the crop:-

The forest blocks included in this chapter are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissus latifolia, Cleistanthuscollinus, Terminalia tomentosa, Buchananialanzan, Diospyros melanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewia sps., Indigofera cassioides, etc. Hemidesmus indicus, Calycopteris floribunda, Combretum decandrum, Butea superba, Bauhniavahilii etc., are the important climbers present in this forest. The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

11.8. Plain land:-

Almost the entire AthgarhForest Division exists on north side of river Mahanadi. A linear strip of fertile land varying in width from 8- 12 kms, along the Northern bank of river Mahanadi running in west to east direction forms the major chunk of the flat area of the Division covering almost entire Khuntuni&AthagarhRanges and small portions of other ranges including intermingled valleys in hillareas. The percentage of distribution of forest area by rockiness is given in the table below.

Distribution of Forest Area by Rockniess		
S.L No	Rockiness	Percentage (%)
1	High	0
2	Medium	3.85
3	Low	30.77
4	No Rock	65.38
Total		100
Sources:- Divisional Forest Officer, Athgarh Forest Division.		

11.9. Special Grant: -

In exceptional circumstances, this division may receive special grant for development of REDD+ and Climate change. The Divisional Forest Officer Athgarh Division is advised to submit proposal for special grant for REDD+ and Climate changethe existing in the waterfall area.

11.10. REDD+:-

REDD+ stands for reducing emissions from deforestation and forest degradation. REDD+ (Plus) includes forest conservation, sustainable management of forests and enhancement of carbon stocks, and has been adopted by the United Nations Framework Convention on Climate Change (UNFCCC) as a tool for climate change mitigation. Deforestation happens when forests are cleared and such land is put to other than forest land use. Forest degradation implies a gradual depletion of forests driven by demand for biomass and disturbances like fire and soil erosion, which, result in dwindling carbon density and ultimately leading to complete loss of forests. Implementation of REDD+, therefore requires efforts/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 the JFM system the people are cooperating with the forest department in forest protection. Forest area are allotted to the VSS and the VSS members and protecting the forest. Therefore the deforestation and the forest degradation are reducing.

12.10.1.Pursuant to various decisions taken at the Conference of Parties of UNFECCC on REDD+, following actions are required to be initiated at National level in India.

Sl. No	Prescription
1	To develop National REDD+ strategy and results based action that should b e fully measured, reported and verified.
2	To identify drivers of deforestation and forest degradation and also activities that result inreduced emissions and increased removals and stabilization of forest carbon stocks.
3	To estimate anthropogenic forest related Green house gas emissions by sources and removals by sinks, forest carbon stocks and forest area changes.
4	To estimate anthropogenic forest related Green house gas emissions by sources and removals by sinks, forest carbon stocks and forest area changes.
5	To protect safeguards, ensuring the full participation of indigenous peoples and local communities and conserving biodiversity.To implement specific REDD+ action in the AthgarhForest Division following interventions are required to be taken for Forest management.

11.11. Carbon Stocks & Mitigation: -

The VSS areas as well as the adjoining forest area are protected from forest fire by the VSS members. Therefore carbon stock is increased in the forest area.

11.12. Forest and Climate Change: -

The people are not given importance to both direct and indirect benefit of the forest. They are felling forest growth without considering future effects. After constitution of the VSS and involvement of the VSS members the illegal felling of trees and its removal has been stopped. Therefore the forest covered and its crown density is increased. The climatic change and multiplication of Wildlife is noticed in the locality.

11.13. Demography:-

According to latest 2011 census, the human population residing in the jurisdiction of the division is 547677 the details of its category wise break up is furnished below. Furnish table similarily the lives stock position is as under give table.

Population (BlockWise) as per 2011 Census				
Block	SC	ST	General	Total
Athgarh	21028	18918	104196	144142
Badamba	23489	9448	120526	153463
Narsinnghpur	34955	5729	126500	157184
Tigiria	9955	3495	56404	069854
Banki (Part)	2217	0912	9905	13034
Total	91544	38502	417531	547677
Sources: District statisticals hand book				

11.14.Hilly Terrain:-

It is mostly extending alongthenorthensideandpredominantly foundinNarasinghpurEast,NarasingpurWestandBarambaRanges.Thehillregionconsistsof twomainranges.OnerangelocallyknownasBudhabudhiGhatstartsfromBalikiaryblockand runsinnorthwesterndirectionover50km. InacontinuouschainuptoKumarangaR.F.throughDeobhuin, Chandragiri, Mandap, Nagatotaforest blocks etc., with small fragmented valleys in between. The hills extending south up to Barakhol block arebroken extensions of this range. Theotherrangecomment esatGhodadianhill,runsintheNorthWesttoSouthEastdirection forabout55KmalongtheborderofCuttackandDhenkanaldistrictsuptoSorispalhillsthroughNuagarh, Haladiaseni, and Karada blocks. The highest peak in this Division is Chhelikuti (750mts)inBalikiaryblock.TheimportantpeaksoftheDivisionaregiveninthe Table.In between these two hill Ranges, the NuagarhPlateau is present comprising parts of Nuagarh and Deobhuinforestblocks.

Important Peaks in the Division			
S.L No	Forest Block	Name of the Peaks	Peak height in Mtr.
1	Balikiary	Chhelikuthipahad	750
2	Nuagarh	Balikagothapahad	710
3	Barakhol	Rajabandhapahad	460
4	Deobhuin	Deobhuinpahad	630
5	Olab	)anhakholpahad	710
6	Olab	Kanaka	745
7	Mandap	Mandapamundia	221
8	Nagatota	Rangamatiaparbat	383
9	Jhinkal	Jhinkalpahad	200
10	Kumaranga	Kumarangaparbat	370
11	Karada	Gadeipadhanparbat	488
12	Chandragiri	Pechakhaiparbat	220
Sources: Divisional Forest Officer, Athgarh			

11.15. ClimaticParameters:-

11.151. Climate:-

The climate is the overall weather condition prevailing in an area and is assessed by the patterns of variation in climatic parameters like temperature, rainfall, humidity, atmospheric pressure, wind, light etc. in the said given area over along period of time. The Division experiences Tropical wet and dry climate with very warm humid summer and mild winter. There are three distinct seasons as given below.

Summer- March to June
Rainy- July to October
Winter- November to February

Winter is not severe. Maximum rainfall is received fromsouth-west monsoon and some arealso received from north-east monsoon in the cold moon. As envisaged in National Working Plan Code 2014, the data on Rainfall and Temperature are furnished in succeeding paras.

11.15.2. Rainfall:-

The rainfall in this Division is received mainly from monsoon and the cyclonic depressions in the Bay of Bengal. Pre-monsson showers with thunder stroms are experienced in April and May. The normal rain fall is around 1755 mm in a year. The annual rain fall in Athgarh Division from 2005 to 2014 is gibe below.

Table No-01

C.D BlockwiseRainfallReportforlast14yearsinmm.

Year	Athgarh	Tigiria	Badamba	Narasinghpur	Average of theDivision
2007	2490	1914	1252	1584	1775
2008	2553	2248	1305	1446	1888
2009	2576	1913	1401	1378	1817
2010	2329	922	1284	1194	1432
2011	1933	1298	1194	1429	1463
2012	2733	1592	1777	1802	1976
2013	1887	1443	1409	1811	1537
2014	1758	1435	1398	1795	1596
2015	1304	1280	1196	1456	1309
2015	1422	1380	1326	1388	1379
2017	1381.2	1310	1022	1198	1227.8
2018	1597	1509	1541	1435	1570.5
2019	1931	1880	1934	1808	1888.25
2020	1715	1508	1569	1550	1535.75

NB: The 14- year average comes to 1766 mm

Sources: Divisional Forest Officer, Athgarh

11.16 Climate Change:-

Climate is nothing but the weather at a location over a long time. Within a span of 30 years normal variation may occur. Climate change means more that changes in the weather. The United Nations Framework Conservation on Climate Change (UNFCCC) defines climate change as a change of climate which is attributed directly or indirectly to human activity and alters the composition of global atmosphere so which is in addition to natural climate variability observed over comparable time periods.Evidence of Global Warming can be observed in global average air and ocean temperatures widespread melting of snow and ice for rising the Sea level. Causes of Global Warming is many dominant effect is the increased emission of green house gases with Carbon dioxide (CO_2) being the main one.

11.17.1. Human activities that contribute to global warming:-

Sl. No	Description
1	Increasing atmospheric concentrations of green house gases for warming effect.
2	Global changes to land surface such as deforestation for a warming effect.

11.17.2 Importance of Forest for Climate change:

Forests linked to climate change in the following waysare given in the table below:

Sl. No	Description
1	They are source of green house gas (GHC) emissions.
2	They offer mitigation opportunities to stabilize GHC concentration because they act as both Sink & Pools are forest biomass and forest can act as sink through the Tree growth and resultant biological carbon sequestration.
3	They are impacted by climate change.Changing biodiversity, pattern of growth of species, physiological changes in plant life cycles, changes boundaries of eco-systems and other biotic and abiotic response. As Global community is increasingly concerned about Climate change, attention has been drawn to the role of Forest in this regard. Forest plays an important role in the Global carbon Cycle because they store larger quantities of Carbon in vegetation and soil.Studies reveals that 17% of global green house gas emission is only contributed by deforestation. The increase in green house gases is projected to lead 1-3.5^0 in Global Mean surface temperature by the year 2100

11.18. Addressing Drivers of Deforestation and Degradation:-

Due to dependency of local people on the forests, the forests are in various stages of degradation. As per report of ORSAC and NRSC, degradation in the form of high density forest converting to low density forest. Following inverventions need to be implemented to manage the situation.

11.19. Provision of alternative Energy Sources :

In VSS meetings, the forest personnel should persuade the villagers to use of LPG instead of fuelwood.Energy efficient chullahs should be provided to the households of Forest fringe villages.

11.20. Enhancement of fodder availability :-

Almost all the cattle of villagers of nearby forest areas are dependent on forest for their fodder. Hence, livestock grasing in forests should be effectively addressed by securing enhanced fodder availability beyond across forests, grasslands/ agro ecosystem. For this interdepartmental co-ordination is necessary.

11.21. Conservation and Enhancement of Forest Carbon Stocks :-

There is a wide scope in this Division for enhancing Carbon stocks.

(a) Enhancing forest carbon stocks in Moderately Dense Forests. Better protection, Fire protection and control, regulated grazing, eradication of invasive species, management of insects and other pathogens required soil moisture conservation are the key intervention to increase the density, enhance biomass and carbon stocks.

(b) Restoration of Open Forests:-Areas available as Open Forests are subjected to intese biotic and abiotic pressure and biomass removal.

11.22. Following interventions are required to be carried out which has already been discussed in concerned Working Circle.

(a). ANR Plantation of indigenous species.

(b). Plantation of grasses in Gochar/ non-forest lands.

(c). Construction of soil-moisture conservation measures or rain water harvesting structures.

(d). Protection from Fire-

(e). Restoration of Scrub Forests by planting scrub species with palatable grasses and intensive soil moisture conservation methods need to be implemented.

(f) Enhancing Carbon stocks in trees of Urban areas. Trees in urban areas have been providing environmental services with supply of fuel wood to Urban poor people. Urban Forests emerge as an existing opportunity to mitigate Climate change, ameliorate air pollution, and help in improving water regime and biodiversity in Urban environment.

(g). Agro Forestry for creation of carbon sinks outside forests- To cater the need of growing population, planting of trees or creation of forest outside traditional forest areas is necessary. Trees on non-agriculture rural lands like homesteads, school yards, compounds of various offices, Private/ Public establishments, Road side, Canal side etc. can be planted.

11.23. Sustainable Management of Forests

Sustainable management is the management which is economically feasible, socially acceptable and Environmentally sound. If the drivers of REDD would be addressed then it is expected to bring positive change in Environment and Climate Change.

11.24. Safeguards under REDD+ :-

As per Cancun agreement, there is a need to ensure social and environmental safeguard for successful implementation of REDD+.

(a) Environmental safeguard.

(b) In no case natural forests converted to plantations.

(c)Land Use change should be arrested.

(d) Native species should be conserved and restored.

(e) Social Safeguard

Committees have already been engaged in protection of forest through JFM. Total 299 numbers of VSS have been formed and there is wide scope to increase this number.

CHAPTER-12

Biodiversity Conservation and Development Chapter

12.1. Biodiversity Chapter
12.2. General Constitution of Chapter:-

The forest area that is in various stages of degradation is included in this regulation. The total manage area proposed in this revision over 39626.163 hectare has been included in this Chapter. This area is under continuous pressure for removal of metals, Murums, pole crops and firewood by the local inhabitants. Proper protection of the area against grazing and fire could not be ensured for which the existing crops and the site condition have deteriorated further and the rate of soil erosion has accelerated.

12.3. General characteristics of vegetation:-

The forest blocks included in this Chapter are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissuslatifolia, Cleistanthuscollinus, Terminaliatomentosa, Buchananialanzan, Diospyrosmelanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewiasps.,Indigoferacassioides, etc. Hemidesmusindicus, Calycopteris floribunda, Combretumdecandrum, Buteasuperba, Bauhniavahilii etc., are the important climbers present in this forest. The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

12.4. Biodiversity Seriesand JFM areas:-

The total GIS Computed Area included in this revision is 39626.163 hectare. It will be managed for Reserve Forests, Proposed Reserve Forests, Protected Forest, and Village Forests & Un-classed Forest. Biodiversity Series has not been constituted in this Chapter. Therefore Biodiversity of the managed area is a continues process at every time during the plan period.

12.5. Blocks, compartments and JFM area (marked on GIS based maps):-

12.5.1. Forest Blocks in BiodiversityChapter:-

The total area allotted to this Biodiversity Chapter is 39626.163hectare. It covers all forest blocks of this Division. The area those are vulnerable from Biodiversity point of view is included in this Chapter. The Range wise distribution of forest area allotted to this Chapteris given in the table below.

12.6 Objectives of Management:-

The special objectives of Biodiversity Conservation and Development Chapter have been given in the table below.

Objectives of management of B,C& D area	
Sl No.	Special objectives of management
1	To regenerate the degraded forest by appropriate silvicultural operation and protection measure for the principal species to achieve quick apical growth with active participation of the people.
2	To restock the barren area by artificial regeneration.
3	To extend soil and moisture conservation measure in a watershed approach to enrich the micro-edaphic condition for making the forests more productive in the near future.
4	To protect the area and minimize its further degradation.
5	To supply the firewood, poles and timber in a systematic manner to the local peoples and there by discouraging illicit felling.
6	To remove the miscellaneous thorny bushes to favour the growth of principal and secondary species.
7	To encourage natural regeneration through fire protection and closure from grazing by involving local communities.
8	To create favourable condition for the habitat and multiplication of the Wild Life.
9	To stop illegal removal of metal and illegal work in mining area.
10	To calculate importance vale index.

12.7. Distribution: -

The area allotted to this Chapter is distributed in all Ranges, which comprises 33.06 % of the total geographical area of the division. Sal occurs in pure form in plain and valley area, where as it is sporadically distributed in mixed forest in the hill portion, dominated by other miscellaneous species.

12.8. Density: -

The crown density of the crops standing over the area varies from0.4 to0.8. The variation of density is due to various climatic and edaphic factors as well as the fertility of the area.

12.9. Growing Stock: -

The crop standing over the area is open and consists mostly of inferior hardy species. The actual established trees in each forest block included in this Chapter have been estimated in this revision. This has been done based on inventory data. The plot enumeration has been done in the area over 0.1 hectare. The plot size is 31.62 mt. x 31.62 mt.All trees with 10.0.0 and above diameter at breast height are measured and recorded. The situation of one point of Ranibania RF is Lat-N 20. 598866 and Long- E 85.703743. The enumeration list of the above point is given in the table below.

Table No.1				
Enumeration of Tree				
Sl. No	Name of the Species	Local Name	DBH (OB) in .0	Heights dominant trees in mtr.
1	*Shorearobusta*	Sal	12.0	04.0
2	*Shorearobusta*	Sal	10.0	04.0
3	*Shorearobusta*	Sal	13.0	05.0
4	*Buchamanialanzan*	chara	10.0	03.0
5	*Shorearobusta*	Sal	10.0	03.0
6	*Shorearobusta*	Sal	12.0	03.0
7	*Emblicaoffcinalia*	Amla	12.0	03.0
8	*chloroxylonswetenia*	Bheru	12.0	04.0
9	*Shorearobusta*	Sal	14.0	05.0
10	*Shorearobusta*	Sal	10.0	03.0
11	*Shorearobusta*	Sal	12.0	05.0
12	*Shorearobusta*	Sal	12.0	05.0
13	*Shorearobusta*	Sal	14.0	06.0
14	*Shorearobusta*	Sal	12.0	04.0
15	*Shorearobusta*	Sal	12.0	05.0
16	*Shorearobusta*	Sal	14.0	05.0
17	*Shorearobusta*	Sal	16.0	06.0
18	*Shorearobusta*	Sal	11.0	03.0
19	*Shorearobusta*	Sal	12.0	05.0
20	*Shorearobusta*	Sal	10.0	03.0
21	--	Jasanda	10.0	03.0
22	*Shorearobusta*	Sal	10.0	04.0
23	*Shorearobusta*	Sal	10.0	03.0

12.10. Status of Regeneration: -

The area included in Biodiversity Conservation and Development Chapter does not have sufficient stock. The renewal of forest crop purely depends on nature. The young shoots are affected due to frequent fires.

12.11. Climber Menace: -

At present approximately 12 % of existing trees are affected by climber. Climber is affecting the growth of trees and quality of timber. Sometime trees are either uprooted or died due to climber attack. The growth of the climber is very fast and within one to two years it covers whole crown of the tree. The climbers are to be cut to avoid its menace.

12.12. Weed Growth: -

Unwanted plants are common in the forest floor. During rainy season vast numbers of weeds grow in the forest floor of this tract. Weeds tend to interfere with the growth of individuals of

favoured species. Annual weeds die during the month of February. Dry weeds invite forest fire, which causes damage to seedling.

12.13. Grass Invasion: -

Different grasses are seen in patches on the forest floor. Grasses grow faster in small gap or in open space, which causes heavy grazing. Recruits are either suppressed by grasses or damaged by grazing.

12.14.Prescriptions Prescribed:-

All prescriptions prescribed in different Chapter shall be strictly followed with in time, so that any deviation with reference to harvesting of the forest produce will not arise. Any harvesting of the forest produce out of the prescription is not prescribed. But due to unavoidable circumstances if it is necessary to harvest the forest produces out of the prescriptions then the Head of the Forest Department shall order for such harvest based on sufficient reasons.

12.15. Biodiversity Assessment: -

The data collected during enumeration such as the number of individuals of each species and the DBH of each tree are utilized to derive secondary attributes like basal area (BA, m^2 / ha), density (D, trees per ha) and frequency (F, number of quadrates where trees are present in relation to total plots observed). Relative values 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 a species increases with an increasing importance value and that the species with lowest importance value is the least dominant one. The maximum IVI value is 300 (110 each for RBA, RD and RF). Basal area and density of the tree species should be converted to hectare 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.

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

$$F_s(\%) = \frac{\text{Number of quadrants in which a species occurs}}{\text{Total number of quadrants studied}} \times 110$$

$$RD_s = \frac{\text{Density } (D_s) \text{ of a species}}{\text{Total density of all species}} \times 110$$

$$RF_s = \frac{\text{Frequency } (F_{si}) \text{ of a species}}{\text{Sum of frequencies of all species}} \times 110$$

$$RBAF_s = \frac{\text{Total basal area of a species}}{\text{Total basal area of all species}} \times 110$$

$$I V I_s = RD_s + RF_s + RBAF_s$$

(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 compartment is homogeneous. 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 many 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 that are dominated by one species are the least diverse (i.e. a community is composed of only a 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 as their individuals differ in size and are sampled differently. Similarity index (community coefficient) is calculated for determining the number of species which are shared among the sites to assess the extent of variation in the species composition.

12.16. Analysis of Biodiversity Assessment: -

12.16.1. Enumeration Data:-

The enumeration data of Jenapada RF is given below.

Table No. **2**						
Biodiversity Survey						
Name of the Block- Jenapada RF		Chapter- Angul			DD/MM/YYYY-	
Comptt No-		Section – Tigiria			Beat- Jenapada	
Range- Athgarh		Division-Athgarh			ALT- 260 ft	
LAT- 20.485746		LONG- 85.555118			Grid No	
Sl No	*Name of the Species*	*Quadrant*				
		31.62 x31.62	*NE*	*SE*	*SW*	*NW*
1.	Sal	--	6	--	--	--
2.	Bhaincha	--	7	3	3	--
3.	Khakada	--	1	--	--	--
4	Kendu	--	--	1	--	--
5	Neem	--	--	1	--	--
6	Anchhu	--	--	--	1	--

12.17. Analysis of Biodiversity Assessment: -

The enumeration data have been analyzed and the relative value of Basal area (BA), Density (D) & Frequency (F) has been calculated. The Important Value Index (I V I) has also been calculated. The result of Biodiversity survey is given below.

Table No. 3

BARHAKHOLA RF

Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2 / ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Asan	22	16	100	380.285697	0.038029	0.608464	5.839416058	10.41666667	4.638614892	20.89469762
Bela	19	6	60	283.642844	0.028364	0.170184	2.189781022	6.25	1.297394812	9.737175834
Gambhari	22	6	60	380.285697	0.038029	0.228174	2.189781022	6.25	1.739480585	10.17926161
Halda	19	4	40	283.642844	0.028364	0.113456	1.459854015	4.166666667	0.864929875	6.491450556
Kochila	20	4	40	314.285700	0.031429	0.125716	1.459854015	4.166666667	0.958393775	6.584914456
Kansa	20	4	40	314.285700	0.031429	0.125716	1.459854015	4.166666667	0.958393775	6.584914456
Sal	28	166	80	615.999972	0.061600	10.225600	60.58394161	8.333333333	77.95468663	146.8719616
Kuruma	13	20	80	132.785708	0.013279	0.265580	7.299270073	8.333333333	2.024644586	17.65724799
Sahada	18	4	40	254.571417	0.025457	0.101828	1.45985401	4.166666667	0.77628402	6.402804697
Sidha	21	6	60	346.499984	0.034650	0.207900	2.189781022	6.25	1.584922093	10.02470311
Sunari	20	8	60	314.285700	0.031429	0.251432	2.919708029	6.25	1.91678755	11.08649558
Mahula	15	2	20	176.785706	0.017679	0.035358	0.729927007	2.083333333	0.269551108	3.082811449
Chhatian	20	2	20	314.285700	0.031429	0.062858	0.729927007	2.083333333	0.479196887	3.292457228
Jamu	14	8	40	153.999993	0.015400	0.123200	2.919708029	4.166666667	0.939213092	8.025587788
Bahada	16	2	20	201.142848	0.020114	0.040228	0.729927007	2.083333333	0.30667747	3.11993781
Chara	21	2	40	346.499984	0.034650	0.069300	0.729927007	4.166666667	0.528307364	5.424901038
Patuli	11	2	20	95.071424	0.009507	0.019014	0.729927007	2.083333333	0.144952904	2.958213244
PaniJamu	15	2	20	176.785706	0.017679	0.035358	0.729927007	2.083333333	0.269551108	3.082811449
Kumbhi	19	2	20	283.642844	0.028364	0.056728	0.729927007	2.083333333	0.432464937	3.245725278
Dimiri	11	2	20	95.071424	0.009507	0.019014	0.729927007	2.083333333	0.144952904	2.958213244

PahadiSisoo	23	2	20	415.642838	0.041564	0.083128	0.729927007	2.083333333	0.633724886	3.446985226
L. Mai	18	2	40	254.571417	0.025457	0.050914	0.729927007	4.166666667	0.388142008	5.284735682
Kasi	25	2	20	491.071406	0.049107	0.098214	0.729927007	2.083333333	0.748732748	3.561993089
TOTAL :		**274**	**960**			**13.11736**				
			BALIKIARY RF							
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2 / ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Asan	15	18	80	176.785706	0.017679	0.318222	5.421686747	6.451612903	4.40341943	16.27671908
Bela	15	14	80	176.785706	0.017679	0.247506	4.21686747	6.451612903	3.424881779	14.09336215
Chara	21	2	20	346.499984	0.034650	0.069300	0.602409639	1.612903226	0.958943651	3.174256515
Gambhari	23	4	40	415.642838	0.041564	0.166256	1.204819277	3.225806452	2.300579158	6.731204886
Halada	14	26	100	153.999993	0.015400	0.400400	7.831325301	8.064516129	5.540563316	21.43640475
Kansa	21	4	20	346.499984	0.034650	0.138600	1.204819277	1.612903226	1.917887302	4.735609805
Karada	17	16	20	227.071418	0.022707	0.363312	4.819277108	1.612903226	5.027355494	11.45953583
Kasi	23	2	20	415.642838	0.041564	0.083128	0.602409639	1.612903226	1.150289579	3.365602443
Kuruma	20	4	40	314.285700	0.031429	0.125716	1.20481928	3.225806452	1.73960404	6.170229769
Sahada	18	4	40	254.571417	0.025457	0.101828	1.204819277	3.225806452	1.409052151	5.83967788
Kochila	20	4	40	314.285700	0.031429	0.125716	1.204819277	3.225806452	1.739604041	6.170229769
Mitikina	20	4	40	314.285700	0.031429	0.125716	1.204819277	3.225806452	1.739604041	6.170229769
Sal	17	16	60	227.071418	0.022707	0.363312	4.819277108	4.838709677	5.027355494	14.68534228
Sidha	21	8	80	346.499984	0.034650	0.277200	2.409638554	6.451612903	3.835774604	12.69702606
Sunari	20	12	80	314.285700	0.031429	0.377148	3.614457831	6.451612903	5.218812122	15.28488286
Sisoo	19	8	60	283.642844	0.028364	0.226912	2.409638554	4.838709677	3.139910847	10.38825908
Baluda	15	2	20	176.785706	0.017679	0.035358	0.602409639	1.612903226	0.489268826	2.70458169
Barabakuli	20	8	60	314.285700	0.031429	0.251432	2.409638554	4.838709677	3.479208081	10.72755631
Behenta	24	2	20	452.571408	0.045257	0.090514	0.602409639	1.612903226	1.252493876	3.467806741
ChuinnPatul i	23	2	20	415.642838	0.041564	0.083128	0.602409639	1.612903226	1.150289579	3.365602443

Giringa	13	20	60	132.785708	0.013279	0.265580	6.024096386	4.838709677	3.674982032	14.53778809
Khirapatuli	19	2	20	283.642844	0.028364	0.056728	0.602409639	1.612903226	0.784977712	3.000290576
Kusuma	14	10	20	153.999993	0.015400	0.154000	3.012048193	1.612903226	2.130985891	6.75593731
Patuli	13	30	40	132.785708	0.013279	0.398370	9.036144578	3.225806452	5.512473048	17.77442408
Ankula	16	20	20	201.142848	0.020114	0.402280	6.024096386	1.612903226	5.566577949	13.20357756
Chadeigudi	17	2	20	227.071418	0.022707	0.045414	0.602409639	1.612903226	0.628419437	2.843732301
Dhaura	10	2	20	78.571425	0.007857	0.015714	0.602409639	1.612903226	0.217443586	2.432756451
Panasa	12	2	20	113.142852	0.011314	0.022628	0.602409639	1.612903226	0.31311655	2.528429415
Sirisa	23	10	20	415.642838	0.041564	0.415640	3.012048193	1.612903226	5.751447894	10.37639931
Jhadpan	15	10	20	176.785706	0.017679	0.176790	3.012048193	1.612903226	2.446344128	7.071295546
Kangada	16	58	20	201.142848	0.020114	1.166612	17.46987952	1.612903226	16.14307605	35.2258588
Kakhada	17	6	20	227.071418	0.022707	0.136242	1.807228916	1.612903226	1.88525831	5.305390452
TOTAL :		**332**	**1240**			**7.22670**				

			OLAB RF							
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2 / ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Anchhu	12	4	40	113.142852	0.011314	0.045256	1.5625	2.777777778	0.624806888	4.965084666
Bahada	12	4	20	113.142852	0.011314	0.045256	1.5625	1.388888889	0.624806888	3.576195777
Chara	14	12	60	153.999993	0.015400	0.184800	4.6875	4.166666667	2.55135922	11.40552589
Barabokuli	12	4	20	113.142852	0.011314	0.045256	1.5625	1.388888889	0.624806888	3.576195777
Ghantala	11	4	40	95.071424	0.009507	0.038028	1.5625	2.777777778	0.525016712	4.86529449
Dhaura	19	6	60	283.642844	0.028364	0.170184	2.34375	4.166666667	2.3495699	8.859986567
Kangada	22	34	60	380.285697	0.038029	1.292986	13.28125	4.166666667	17.85103762	35.29895429
Giringa	21	8	60	346.499984	0.034650	0.277200	3.125	4.166666667	3.82703883	11.1187055
Kakhada	12	14	80	113.142852	0.011314	0.158396	5.46875000	5.555555556	2.18682411	13.21112966

L.Mai	14	10	60	153.999993	0.015400	0.154000	3.90625	4.166666667	2.126132683	10.19904935
Tentera	18	4	40	254.571417	0.025457	0.101828	1.5625	2.777777778	1.40584311	5.746120887
Valia	11	2	20	95.071424	0.009507	0.019014	0.78125	1.388888889	0.262508356	2.432647245
Piasal	14	6	40	153.999993	0.015400	0.092400	2.34375	2.777777778	1.27567961	6.397207388
Dharmana	22	6	40	380.285697	0.038029	0.228174	2.34375	2.777777778	3.15018311	8.271710888
Gambhari	20	2	20	314.285700	0.031429	0.062858	0.78125	1.388888889	0.867821092	3.037959981
jamu	35	4	20	962.499956	0.096250	0.385000	1.5625	1.388888889	5.315331708	8.266720597
Patamasu	20	2	20	314.285700	0.031429	0.062858	0.78125	1.388888889	0.867821092	3.037959981
Patuli	10	2	20	78.571425	0.007857	0.015714	0.78125	1.388888889	0.21694837	2.387087259
Rai	37	10	40	1075.642808	0.107564	1.075640	3.90625	2.777777778	14.85034649	21.53437427
Sal	16	32	60	201.142848	0.020114	0.643648	12.5	4.166666667	8.88624058	25.55290725
Sidha	25	10	80	491.071406	0.049107	0.491070	3.90625	5.555555556	6.779740109	16.24154566
Siseo	13	8	40	132.785708	0.013279	0.106232	3.125	2.777777778	1.466644982	7.36942276
Sunari	15	14	60	176.785706	0.017679	0.247506	5.46875	4.166666667	3.417081792	13.05249846
Bandhana	15	10	60	176.785706	0.017679	0.176790	3.90625	4.166666667	2.440772708	10.51368938
Bela	15	2	20	176.785706	0.017679	0.035358	0.78125	1.388888889	0.488154542	2.658293431
Halada	17	4	40	227.071418	0.022707	0.090828	1.5625	2.777777778	1.253976489	5.594254267
Gandhapalasa	13	4	40	132.785708	0.013279	0.053116	1.5625	2.777777778	0.733322491	5.073600269
Kasi	14	8	60	153.999993	0.015400	0.123200	3.125	4.166666667	1.700906147	8.992572813
Kalichia	13	4	40	132.785708	0.013279	0.053116	1.5625	2.777777778	0.733322491	5.073600269
Kumbhi	23	6	40	415.642838	0.041564	0.249384	2.34375	2.777777778	3.443009566	8.564537343
Kusuma	22	6	40	380.285697	0.038029	0.228174	2.34375	2.777777778	3.15018311	8.271710888
Mai	24	2	20	452.571408	0.045257	0.090514	0.78125	1.388888889	1.249641388	3.419780277
Ganthi	20	2	20	314.285700	0.031429	0.062858	0.78125	1.388888889	0.867821092	3.037959981
Kenda	10	2	20	78.571425	0.007857	0.015714	0.78125	1.388888889	0.21694837	2.387087259
Patuli	12	2	20	113.142852	0.011314	0.022628	0.78125	1.388888889	0.312403444	2.482542333
Asana	25	2	20	491.071406	0.049107	0.098214	0.78125	1.388888889	1.355948022	3.526086911
TOTAL :		**256**	**1440**			**7.24320**				

				DEOBHUIN RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2 / ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Sunari	14	10	60	153.999993	0.015400	0.154000	4.545454545	5.128205128	2.33411137	12.00777104
Halada	21	8	60	346.499984	0.034650	0.277200	3.636363636	5.128205128	4.201400467	12.96596023
Kakhada	17	10	60	227.071418	0.022707	0.227070	4.545454545	5.128205128	3.441601746	13.11526142
Tentera	20	2	20	314.285700	0.031429	0.062858	0.909090909	1.709401709	0.95271151	3.571204128
Kuruma	14	10	60	153.999993	0.015400	0.154000	4.545454545	5.128205128	2.33411137	12.00777104
Hinjala	31	2	20	755.071394	0.075507	0.151014	0.909090909	1.709401709	2.28885386	4.907346479
Baluda	8	2	20	50.285712	0.005029	0.010058	0.909090909	1.709401709	0.152444754	2.770937373
Bela	25	2	20	491.071406	0.049107	0.098214	0.909090909	1.709401709	1.488587105	4.107079723
Asana	10	6	40	78.571425	0.007857	0.047142	2.72727273	3.418803419	0.71451090	6.860587044
Dhaura	11	28	60	95.071424	0.009507	0.266196	12.72727273	5.128205128	4.0346176	21.89009546
Kangada	23	20	60	415.642838	0.041564	0.831280	9.090909091	5.128205128	12.5993513	26.81846552
Kumbhi	25	4	40	491.071406	0.049107	0.196428	1.818181818	3.418803419	2.97717421	8.214159447
Kusuma	29	10	40	660.785684	0.066079	0.660790	4.545454545	3.418803419	10.01530813	17.9795661
Sidha	27	8	60	572.785688	0.057279	0.458232	3.636363636	5.128205128	6.945224166	15.70979293
Sal	21	24	60	346.499984	0.034650	0.831600	10.90909091	5.128205128	12.6042014	28.64149744
Ambada	21	10	10	346.499984	0.034650	0.346500	4.545454545	0.854700855	5.251750584	10.65190598
Amla	27	2	20	572.785688	0.057279	0.114558	0.909090909	1.709401709	1.736306041	4.35479866
Barabukulia	20	6	40	314.285700	0.031429	0.188574	2.727272727	3.418803419	2.85813453	9.004210676
G. Palasa	12	8	40	113.142852	0.011314	0.090512	3.636363636	3.418803419	1.371851223	8.427018278
Jamu	10	2	20	78.571425	0.007857	0.015714	0.909090909	1.709401709	0.238170299	2.856662918
Karada	15	4	20	176.785706	0.017679	0.070716	1.818181818	1.709401709	1.071811816	4.599395344
Baluda	13	2	20	132.785708	0.013279	0.026558	0.909090909	1.709401709	0.402528115	3.021020734
Behenta	15	2	20	176.785706	0.017679	0.035358	0.909090909	1.709401709	0.535905908	3.154398527

Chadeigudi	12	2	20	113.142852	0.011314	0.022628	0.909090909	1.709401709	0.342962806	2.961455424
Chauri	28	2	20	615.999972	0.061600	0.123200	0.909090909	1.709401709	1.867289096	4.485781715
Kamalagund i	13	2	20	132.785708	0.013279	0.026558	0.909090909	1.709401709	0.402528115	3.021020734
Kasi	20	4	40	314.285700	0.031429	0.125716	1.818181818	3.418803419	1.90542302	7.142408257
Mahula	14	2	20	153.999993	0.015400	0.030800	0.909090909	1.709401709	0.466822274	3.085314893
Sisoo	10	4	40	78.571425	0.007857	0.031428	1.818181818	3.418803419	0.476340598	5.713325835
Piasala	17	4	20	227.071418	0.022707	0.090828	1.818181818	1.709401709	1.376640698	4.904224226
Dharnasa	10	2	20	78.571425	0.007857	0.015714	0.909090909	1.709401709	0.238170299	2.856662918
Bandhana	23	4	20	415.642838	0.041564	0.166256	1.818181818	1.709401709	2.51987026	6.047453787
Jari	35	4	20	962.499956	0.096250	0.385000	1.818181818	1.709401709	5.835278426	9.362861954
Kataranga	25	2	20	491.071406	0.049107	0.098214	0.909090909	1.709401709	1.488587105	4.107079723
Rai	17	4	20	227.071418	0.022707	0.090828	1.818181818	1.709401709	1.376640698	4.904224226
Kendu	22	2	20	380.285697	0.038029	0.076058	0.909090909	1.709401709	1.152778199	3.771270817
TOTAL :		**220**	**1170**			**6.59780**				

			NUAGARH RF							
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2 / ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Asana	21	6	40	346.499984	0.034650	0.207900	1.45631068	2.631578947	1.327515169	5.415404796
Barabakulia	22	12	80	380.285697	0.038029	0.456348	2.912621359	5.263157895	2.913943686	11.08972294
Behenta	22	4	20	380.285697	0.038029	0.152116	0.970873786	1.315789474	0.971314562	3.257977822
Dhauru	15	26	100	176.785706	0.017679	0.459654	6.310679612	6.578947368	2.935053667	15.82468065
Giringa	19	36	80	283.642844	0.028364	1.021104	8.737864078	5.263157895	6.520110865	20.52113284
Haladu	17	26	100	227.071418	0.022707	0.590382	6.310679612	6.578947368	3.76979827	16.65942525
Kansa	18	6	40	254.571417	0.025457	0.152742	1.45631068	2.631578947	0.975311794	5.063201421

Karanja	31	4	20	755.071394	0.075507	0.302028	0.970873786	1.315789474	1.928555803	4.215219063
Kurei	13	2	20	132.785708	0.013279	0.026558	0.48543689	1.315789474	0.16958224	1.970808608
L. Mai	28	44	100	615.999972	0.061600	2.710400	10.67961165	6.578947368	17.30686442	34.56542344
Mitikina	25	6	20	491.071406	0.049107	0.294642	1.45631068	1.315789474	1.881393575	4.653493729
Patamasu	12	10	40	113.142852	0.011314	0.113140	2.427184466	2.631578947	0.722438991	5.781202404
R. Mai	28	10	60	615.999972	0.061600	0.616000	2.427184466	3.947368421	3.933378278	10.30793116
Sul	24	14	40	452.571408	0.045257	0.633598	3.398058252	2.631578947	4.045747744	10.07538494
Telakuruma	14	28	60	153.999993	0.015400	0.431200	6.796116505	3.947368421	2.753364794	13.49684972
Kakhada	16	12	60	201.142848	0.020114	0.241368	2.912621359	3.947368421	1.541220208	8.401209988
Bela	16	28	60	201.142848	0.020114	0.563192	6.796116505	3.947368421	3.596180485	14.33966541
Kasi	18	2	40	254.571417	0.025457	0.050914	0.485436893	2.631578947	0.325103931	3.442119772
Kusuma	34	12	40	908.285673	0.090829	1.089948	2.912621359	2.631578947	6.9597042	12.50390451
Kumbhi	13	4	20	132.785708	0.013279	0.053116	0.970873786	1.315789474	0.339164481	2.625827742
Sunari	17	16	40	227.071418	0.022707	0.363312	3.883495146	2.631578947	2.319875858	8.834949951
Sidha	28	18	80	615.999972	0.061600	1.108800	4.368932039	5.263157895	7.0800809	16.71217083
Bandhana	18	12	40	254.571417	0.025457	0.305484	2.912621359	2.631578947	1.950623587	7.494823894
Chara	19	14	60	283.642844	0.028364	0.397096	3.398058252	3.947368421	2.53559867	9.881025343
Dharnana	19	12	40	283.642844	0.028364	0.340368	2.912621359	2.631578947	2.173370288	7.717570595
G Palasa	27	4	20	572.785688	0.057279	0.229116	0.970873786	1.315789474	1.462986847	3.749650107
Mahula	25	12	20	491.071406	0.049107	0.589284	2.912621359	1.315789474	3.762787151	7.991197984
Rai	38	10	60	1134.571377	0.113457	1.134570	2.427184466	3.947368421	7.244631481	13.61918437
Kendu	20	2	20	314.285700	0.031429	0.062858	0.485436893	1.315789474	0.401370604	2.20259697
Kathasundar	15	2	20	176.785706	0.017679	0.035358	0.485436893	1.315789474	0.225773359	2.026999726
Patuli	13	2	20	132.785708	0.013279	0.026558	0.485436893	1.315789474	0.169582241	1.970808608
Veru	26	12	20	531.142833	0.053114	0.637368	2.912621359	1.315789474	4.069820529	8.298231362
Gandhapalas a	29	4	40	660.785684	0.066079	0.264316	0.970873786	2.631578947	1.68775132	5.290204053
TOTAL :		**412**	**1520**			**15.66084**				

				KARADA RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2 / ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Bahada	20	4	20	314.285700	0.031429	0.125716	1.257861635	1.886792453	1.704828077	4.849482165
Barabakulia	14	20	60	153.999993	0.015400	0.308000	6.289308176	5.660377358	4.176771833	16.12645737
Dharuna	14	12	80	153.999993	0.015400	0.184800	3.773584906	7.547169811	2.5060631	13.82681782
Ghantala	16	14	40	201.142848	0.020114	0.281596	4.402515723	3.773584906	3.818708575	11.9948092
Kakhada	16	6	40	201.142848	0.020114	0.120684	1.886792453	3.773584906	1.636589389	7.296966748
Kurei	14	4	20	153.999993	0.015400	0.061600	1.257861635	1.886792453	0.835354367	3.980008455
Kumbhi	12	4	20	113.142852	0.011314	0.045256	1.257861635	1.886792453	0.61371424	3.758368329
Kuruma	12	2	20	113.142852	0.011314	0.022628	0.628930818	1.886792453	0.30685712	2.822580391
Sidha	15	8	20	176.785706	0.017679	0.141432	2.51572327	1.886792453	1.91795193	6.320467651
Sunari	25	12	40	491.071406	0.049107	0.589284	3.773584906	3.773584906	7.991249392	15.5384192
Phanaphana	15	18	40	176.785706	0.017679	0.318222	5.660377358	3.773584906	4.315391838	13.7493541
Kusuma	10	2	20	78.571425	0.007857	0.015714	0.628930818	1.886792453	0.213096729	2.72882
Ambada	10	2	20	78.571425	0.007857	0.015714	0.628930818	1.886792453	0.213096729	2.72882
Ankula	30	2	20	707.142825	0.070714	0.141428	0.628930818	1.886792453	1.917897684	4.433620955
Dhaura	13	12	40	132.785708	0.013279	0.159348	3.773584906	3.773584906	2.160909864	9.708079675
Kasi	14	6	40	153.999993	0.015400	0.092400	1.886792453	3.773584906	1.25303155	6.913408908
Tentera	15	48	40	176.785706	0.017679	0.848592	15.09433962	3.773584906	11.50771157	30.3756361
Anchhu	22	2	20	380.285697	0.038029	0.076058	0.628930818	1.886792453	1.031418546	3.547141816
Bandhana	13	2	20	132.785708	0.013279	0.026558	0.628930818	1.886792453	0.360151644	2.875874914
Behenta	11	4	20	95.071424	0.009507	0.038028	1.257861635	1.886792453	0.515695712	3.6603498
Halada	10	2	20	78.571425	0.007857	0.015714	0.628930818	1.886792453	0.213096729	2.72882
Jhadapan	22	2	20	380.285697	0.038029	0.076058	0.628930818	1.886792453	1.031418546	3.547141816
L. Mai	15	30	40	176.785706	0.017679	0.530370	9.433962264	3.773584906	7.19231973	20.3998669
Angarua	23	2	20	415.642838	0.041564	0.083128	0.628930818	1.886792453	1.127294445	3.643017715
BadaSunari	14	8	20	153.999993	0.015400	0.123200	2.51572327	1.886792453	1.670708733	6.073224456

Bankapuisa	22	4	20	380.285697	0.038029	0.152116	1.257861635	1.886792453	2.062837091	5.207491179
Geringa	12	2	20	113.142852	0.011314	0.022628	0.628930818	1.886792453	0.30685712	2.822580391
Mai	21	2	20	346.499984	0.034650	0.069300	0.628930818	1.886792453	0.939773662	3.455496933
Sahada	10	2	20	78.571425	0.007857	0.015714	0.628930818	1.886792453	0.213096729	2.72882
Teak	16	10	20	201.142848	0.020114	0.201140	3.144654088	1.886792453	2.727648982	7.759095523
Acasia	11	6	20	95.071424	0.009507	0.057042	1.886792453	1.886792453	0.773543568	4.547128473
Asana	17	4	20	227.071418	0.022707	0.090828	1.257861635	1.886792453	1.23171374	4.376367828
Veru	10	2	20	78.571425	0.007857	0.015714	0.628930818	1.886792453	0.213096729	2.72882
Charu	16	2	20	201.142848	0.020114	0.040228	0.628930818	1.886792453	0.545529796	3.061253067
Kangada	25	20	20	491.071406	0.049107	0.982140	6.289308176	1.886792453	13.31874899	21.49484962
Dimiri	21	4	20	346.499984	0.034650	0.138600	1.257861635	1.886792453	1.879547325	5.024201413
Mahula	12	2	20	113.142852	0.011314	0.022628	0.628930818	1.886792453	0.30685712	2.822580391
Sal	24	22	20	452.571408	0.045257	0.995654	6.918238994	1.886792453	13.50201163	22.30704308
Karada	17	4	20	227.071418	0.022707	0.090828	1.257861635	1.886792453	1.23171374	4.376367828
Bela	11	4	20	95.071424	0.009507	0.038028	1.257861635	1.886792453	0.515695712	3.6603498
TOTAL :		**318**	**1060**			**7.37412**				

				NAGATOTA RF						
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2 / ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Aachhu	16	6	60	201.142848	0.020114	0.120684	1.257861635	3.571428571	1.256491388	6.085781595
Amla	11	6	40	95.071424	0.009507	0.057042	1.257861635	2.380952381	0.59388802	4.232702036
Asana	16	12	60	201.142848	0.020114	0.241368	2.51572327	3.571428571	2.512982776	8.600134618
Babloo	13	4	20	132.785708	0.013279	0.053116	0.838574423	1.19047619	0.553012798	2.582063412
Behada	17	12	40	227.071418	0.022707	0.272484	2.51572327	2.380952381	2.836944412	7.733620063
Bela	13	26	100	132.785708	0.013279	0.345254	5.450733753	5.952380952	3.59458319	14.99769789

Vera	16	30	80	201.142848	0.020114	0.603420	6.289308176	4.761904762	6.28245694	17.33366988
Chara	15	32	80	176.785706	0.017679	0.565728	6.708595388	4.761904762	5.89002983	17.36052998
Dhaura	14	50	80	153.999993	0.015400	0.770000	10.48218029	4.761904762	8.01679070	23.26087576
Ghantala	18	8	60	254.571417	0.025457	0.203656	1.677148847	3.571428571	2.120347437	7.368924856
Jamu	14	8	40	153.999993	0.015400	0.123200	1.677148847	2.380952381	1.282686512	5.34078774
Karada	15	30	60	176.785706	0.017679	0.530370	6.289308176	3.571428571	5.521902965	15.38263971
Kendu	15	6	20	176.785706	0.017679	0.106074	1.257861635	1.19047619	1.104380593	3.552718419
Kuruma	18	10	60	254.571417	0.025457	0.254570	2.096436059	3.571428571	2.650434297	8.318298927
Mahula	12	8	40	113.142852	0.011314	0.090512	1.677148847	2.380952381	0.94235813	5.000459358
Patuli	20	2	20	314.285700	0.031429	0.062858	0.419287212	1.19047619	0.654440818	2.26420422
Piasula	22	6	60	380.285697	0.038029	0.228174	1.257861635	3.571428571	2.375614547	7.204904754
Tentera	16	22	80	201.142848	0.020114	0.442508	4.612159329	4.761904762	4.607135089	13.98119918
Sal	21	40	40	346.499984	0.034650	1.386000	8.385744235	2.380952381	14.43022326	25.19691988
Aakula	14	4	20	153.999993	0.015400	0.061600	0.838574423	1.19047619	0.641343256	2.67039387
Giringa	24	6	40	452.571408	0.045257	0.271542	1.257861635	2.380952381	2.827136857	6.465950874
Halada	12	6	40	113.142852	0.011314	0.067884	1.257861635	2.380952381	0.706768597	4.345582613
Kangada	15	54	60	176.785706	0.017679	0.954666	11.32075472	3.571428571	9.939425338	24.83160863
Mitikina	28	2	20	615.999972	0.061600	0.123200	0.419287212	1.19047619	1.282686512	2.892449914
Bandhana	12	4	20	113.142852	0.011314	0.045256	0.838574423	1.19047619	0.471179065	2.500229679
Barabakulia	19	8	40	283.642844	0.028364	0.226912	1.677148847	2.380952381	2.362475339	6.420576567
Valia	13	6	40	132.785708	0.013279	0.079674	1.257861635	2.380952381	0.829519198	4.468333214
Gobira	12	2	20	113.142852	0.011314	0.022628	0.419287212	1.19047619	0.235589532	1.845352935
Kasi	12	4	20	113.142852	0.011314	0.045256	0.838574423	1.19047619	0.471179065	2.500229679
Kataranga	13	2	20	132.785708	0.013279	0.026558	0.419287212	1.19047619	0.276506399	1.886269801
Kusuma	15	6	40	176.785706	0.017679	0.106074	1.257861635	2.380952381	1.104380593	4.743194609
L.Mai	13	8	20	132.785708	0.013279	0.106232	1.677148847	1.19047619	1.106025597	3.973650634
Mai	16	20	40	201.142848	0.020114	0.402280	4.192872117	2.380952381	4.188304627	10.76212913
Salara	11	1	20	95.071424	0.009507	0.009507	0.209643606	1.19047619	0.098981337	1.499101133
Sidha	19	12	40	283.642844	0.028364	0.340368	2.51572327	2.380952381	3.543713009	8.44038866

Sisoo	18	4	40	254.571417	0.025457	0.101828	0.838574423	2.380952381	1.060173719	4.279700523
Bastala	11	2	20	95.071424	0.009507	0.019014	0.419287212	1.19047619	0.197962673	1.807726075
Vendimarda n	22	2	20	380.285697	0.038029	0.076058	0.419287212	1.19047619	0.791871516	2.401634918
Manjari	13	2	20	132.785708	0.013279	0.026558	0.419287212	1.19047619	0.276506399	1.886269801
Rai	11	2	20	95.071424	0.009507	0.019014	0.419287212	1.19047619	0.197962673	1.807726075
Telakuruma	10	2	20	78.571425	0.007857	0.015714	0.419287212	1.19047619	0.163604999	1.773368401
TOTAL :		**477**	**1680**			**9.60484**				

				TALACHANDRAGIRI RF						
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2 / ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Asana	25	3	25	491.071406	0.049107	0.147321	1.470588235	2.43902439	3.583840424	7.49345305
Baluda	20	3	25	314.285700	0.031429	0.094287	1.470588235	2.43902439	2.293695821	6.203308447
Bchenta	17	3	25	227.071418	0.022707	0.068121	1.470588235	2.43902439	1.657162207	5.566774833
Ghantala	13	5	50	132.785708	0.013279	0.066395	2.450980392	4.87804878	1.615174245	8.944203418
Kurei	11	3	25	95.071424	0.009507	0.028521	1.470588235	2.43902439	0.693823099	4.603435724
Kuruma	18	3	25	254.571417	0.025457	0.076371	1.470588235	2.43902439	1.857857855	5.76747048
Kusuma	18	13	100	254.571417	0.025457	0.330941	6.37254902	9.756097561	8.050717371	24.17936395
Salara	17	3	25	227.071418	0.022707	0.068121	1.470588235	2.43902439	1.657162207	5.566774833
Sidha	14	15	100	153.999993	0.015400	0.231000	7.35294118	9.756097561	5.61947813	22.72851687
Sisoo	11	3	25	95.071424	0.009507	0.028521	1.470588235	2.43902439	0.693823099	4.603435724
Bela	13	3	25	132.785708	0.013279	0.039837	1.470588235	2.43902439	0.969104547	4.878717173
Bhaincha	13	3	25	132.785708	0.013279	0.039837	1.470588235	2.43902439	0.969104547	4.878717173
Valia	14	5	50	153.999993	0.015400	0.077000	2.450980392	4.87804878	1.873159378	9.20218855
Vendimarda n	20	13	25	314.285700	0.031429	0.408577	6.37254902	2.43902439	9.939348559	18.75092197

Chara	12	8	50	113.142852	0.011314	0.090512	3.921568627	4.87804878	2.201862358	11.00147977
Kangada	14	58	75	153.999993	0.015400	0.893200	28.43137255	7.317073171	21.72864878	57.4770945
Mahula	17	8	25	227.071418	0.022707	0.181656	3.921568627	2.43902439	4.41909922	10.77969224
Mai	14	13	75	153.999993	0.015400	0.200200	6.37254902	7.317073171	4.870214382	18.55983657
Patuli	17	3	25	227.071418	0.022707	0.068121	1.470588235	2.43902439	1.657162207	5.566774833
Tentera	17	5	50	227.071418	0.022707	0.113535	2.450980392	4.87804878	2.761937012	10.09096618
Manjari	26	8	25	531.142833	0.053114	0.424912	3.921568627	2.43902439	10.33672594	16.69731896
Anchhu	15	5	50	176.785706	0.017679	0.088395	2.450980392	4.87804878	2.150362639	9.479391811
Kasi	19	5	25	283.642844	0.028364	0.141820	2.450980392	2.43902439	3.450018999	8.340027782
L. Mai	13	5	25	132.785708	0.013279	0.066395	2.450980392	2.43902439	1.615174245	6.505179028
Sal	17	5	25	227.071418	0.022707	0.113535	2.450980392	2.43902439	2.761937012	7.651941795
Harida	10	3	25	78.571425	0.007857	0.023571	1.470588235	2.43902439	0.57340571	4.483018336
TOTAL :		**204**	**1025**			**4.11070**				

				TAREIGANDA RF						
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2 / ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Baluda	17	18	100	227.071418	0.022707	0.408726	5.113636364	7.462686567	5.002859294	17.57918223
Bara	14	4	40	153.999993	0.015400	0.061600	1.136363636	2.985074627	0.753991996	4.875430259
Bela	11	16	80	95.071424	0.009507	0.152112	4.545454545	5.970149254	1.861870625	12.37747442
Chara	15	20	80	176.785706	0.017679	0.353580	5.681818182	5.970149254	4.327865096	15.97983253
Dharmana	27	16	80	572.785688	0.057279	0.916464	4.545454545	5.970149254	11.21763832	21.73324212
Dhaura	16	30	100	201.142848	0.020114	0.603420	8.522727273	7.462686567	7.385939126	23.37135297
Ghartala	20	12	60	314.285700	0.031429	0.377148	3.409090909	4.47761194	4.616340475	12.50304332
Haladia	17	16	40	227.071418	0.022707	0.363312	4.545454545	2.985074627	4.446986039	11.97751521

Kangada	16	16	40	201.142848	0.020114	0.321824	4.54545455	2.985074627	3.93916753	11.46969671
Karada	12	26	60	113.142852	0.011314	0.294164	7.386363636	4.47761194	3.600605544	15.46458112
Koruan	20	18	60	314.285700	0.031429	0.565722	5.113636364	4.47761194	6.924510713	16.51575902
Kusuma	18	4	40	254.571417	0.025457	0.101828	1.136363636	2.985074627	1.246387938	5.367826201
Sunari	19	12	60	283.642844	0.028364	0.340368	3.409090909	4.47761194	4.166148501	12.05285135
Sidha	20	4	40	314.285700	0.031429	0.125716	1.136363636	2.985074627	1.538780158	5.660218422
Asana	16	24	60	201.142848	0.020114	0.482736	6.818181818	4.47761194	5.908751301	17.20454506
Kendu	13	14	60	132.785708	0.013279	0.185906	3.977272727	4.47761194	2.275513571	10.73039824
Kuruma	17	10	40	227.071418	0.022707	0.227070	2.840909091	2.985074627	2.779366275	8.605349992
Mahula	14	26	60	153.999993	0.015400	0.400400	7.386363636	4.47761194	4.900947974	16.76492355
Sal	21	40	60	346.499984	0.034650	1.386000	11.36363636	4.47761194	16.96481991	32.80606821
Amla	11	4	20	95.071424	0.009507	0.038028	1.136363636	1.492537313	0.465467656	3.094368606
Bantala	25	2	20	491.071406	0.049107	0.098214	0.568181818	1.492537313	1.202152109	3.26287124
Gambhari	16	2	20	201.142848	0.020114	0.040228	0.568181818	1.492537313	0.492395942	2.553115073
Khaira	5	4	20	19.642856	0.001964	0.007856	1.136363636	1.492537313	0.09615846	2.72505941
Jamu	17	2	20	227.071418	0.022707	0.045414	0.568181818	1.492537313	0.555873255	2.616592387
Kakhada	19	6	20	283.642844	0.028364	0.170184	1.704545455	1.492537313	2.083074251	5.280157019
Piasala	16	2	20	201.142848	0.020114	0.040228	0.568181818	1.492537313	0.492395942	2.553115073
Sirisa	14	2	20	153.999993	0.015400	0.030800	0.568181818	1.492537313	0.376995998	2.43771513
Mai	14	2	20	153.999993	0.015400	0.030800	0.568181818	1.492537313	0.376995998	2.43771513
TOTAL :		**352**	**1340**			**8.16985**				

				BADAJORA RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2 / ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Ambada	10	2	20	78.571425	0.007857	0.015714	1.19047619	3.333333333	0.506877391	5.030686915
Asana	13	12	40	132.785708	0.013279	0.159348	7.142857143	6.666666667	5.139996091	18.9495199
Bela	11	2	20	95.071424	0.009507	0.019014	1.19047619	3.333333333	0.613323579	5.137133103
Dhaura	11	2	20	95.071424	0.009507	0.019014	1.19047619	3.333333333	0.613323579	5.137133103
Ghantala	11	6	40	95.071424	0.009507	0.057042	3.571428571	6.666666667	1.839970737	12.07806598
Kuruma	20	4	40	314.285700	0.031429	0.125716	2.380952381	6.666666667	4.055148157	13.1027672
Mai	15	2	20	176.785706	0.017679	0.035358	1.19047619	3.333333333	1.140522515	5.664332039
Sal	15	94	80	176.785706	0.017679	1.661826	55.95238095	13.33333333	53.60455822	122.8902725
Valia	16	4	20	201.142848	0.020114	0.080456	2.38095238	3.333333333	2.59522257	8.30950828
Koruan	20	6	20	314.285700	0.031429	0.188574	3.571428571	3.333333333	6.082722235	12.98748414
Mahula	17	6	20	227.071418	0.022707	0.136242	3.571428571	3.333333333	4.394679239	11.29944114
Tentera	21	4	20	346.409984	0.034650	0.138600	2.380952381	3.333333333	4.47039878	10.18502559
Jhadapan	10	2	20	78.571425	0.007857	0.015714	1.19047619	3.333333333	0.506877391	5.030686915
Kumbhi	12	4	40	113.142852	0.011314	0.045256	2.380952381	6.666666667	1.459796565	10.50741561
Sidha	19	4	40	283.642844	0.028364	0.113456	2.380952381	6.666666667	3.659684442	12.70730349
Sunari	12	2	20	113.142852	0.011314	0.022628	1.19047619	3.333333333	0.729898283	5.253707806
Chara	13	2	20	132.785708	0.013279	0.026558	1.19047619	3.333333333	0.856666015	5.380475539
Bara	30	2	20	707.142825	0.070714	0.141428	1.19047619	3.333333333	4.561961036	9.085770559
Bahada	16	2	20	201.142848	0.020114	0.040228	1.19047619	3.333333333	1.297611283	5.821420807
Chakunda	10	2	20	78.571425	0.007857	0.015714	1.19047619	3.333333333	0.506877391	5.030686915
Sahada	13	2	20	132.785708	0.013279	0.026558	1.19047619	3.333333333	0.856666015	5.380475539
Behenta	10	2	20	78.571425	0.007857	0.015714	1.19047619	3.333333333	0.506877391	5.030686915
TOTAL :		**168**	**600**			**3.10016**				

				HALADIASENI RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2 / ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Anchhu	12	2	20	113.142852	0.011314	0.022628	0.427350427	1.123595506	0.248179345	1.799125278
Ankula	11	4	20	95.071424	0.009507	0.038028	0.854700855	1.123595506	0.417083443	2.395379803
Chara	15	8	40	176.785706	0.017679	0.141432	1.709401709	2.247191011	1.551197684	5.507790404
Dhamana	17	16	100	227.071418	0.022707	0.363312	3.418803419	5.617977528	3.984732824	13.02151377
Giringa	15	24	80	176.785706	0.017679	0.424296	5.128205128	4.494382022	4.653593051	14.2761802
Jandhakhai	13	6	20	132.785708	0.013279	0.079674	1.282051282	1.123595506	0.873848381	3.279495169
Kangada	18	70	100	254.571417	0.025457	1.781990	14.95726496	5.617977528	19.54450733	40.11974981
Kansa	11	2	20	95.071424	0.009507	0.019014	0.427350427	1.123595506	0.208541722	1.759487654
Kasi	12	8	20	113.142852	0.011314	0.090512	1.70940171	1.123595506	0.99271738	3.825714597
Khakhada	16	22	80	201.142848	0.020114	0.442508	4.700854701	4.494382022	4.853338598	14.04857532
Kochila	14	8	60	153.999993	0.015400	0.123200	1.709401709	3.370786517	1.351232781	6.431421007
Mai	14	18	80	153.999993	0.015400	0.277200	3.846153846	4.494382022	3.040273756	11.38080962
Manjari	22	2	20	380.285697	0.038029	0.076058	0.427350427	1.123595506	0.834188822	2.385134755
Mankadakendu	24	2	20	452.571408	0.045257	0.090514	0.427350427	1.123595506	0.992739317	2.54368525
Sidha	13	18	60	132.785708	0.013279	0.239022	3.846153846	3.370786517	2.621545143	9.838485506
Sunari	15	16	60	176.785706	0.017679	0.282864	3.418803419	3.370786517	3.102395367	9.891985303
Tentera	22	10	80	380.285697	0.038029	0.380290	2.136752137	4.494382022	4.170944108	10.80207827
Mahula	13	18	60	132.785708	0.013279	0.239022	3.846153846	3.370786517	2.621545143	9.838485506
L. Mai	15	24	60	176.785706	0.017679	0.424296	5.128205128	3.370786517	4.653593051	13.1525847
Bela	12	28	80	113.142852	0.011314	0.316792	5.982905983	4.494382022	3.474510836	13.95179884
Vendimardan	12	12	40	113.142852	0.011314	0.135768	2.564102564	2.247191011	1.489076073	6.300369648
Dhaura	19	8	60	283.642844	0.028364	0.226912	1.709401709	3.370786517	2.488725103	7.568913329

Kumbha	15	4	40	176.785706	0.017679	0.070716	0.854700855	2.247191011	0.775598842	3.877490708
Kuruma	16	6	40	201.142848	0.020114	0.120684	1.282051282	2.247191011	1.323637799	4.852880093
Kusuma	17	10	40	227.071418	0.022707	0.227070	2.136752137	2.247191011	2.490458015	6.874401163
Mitikina	11	6	40	95.071424	0.009507	0.057042	1.282051282	2.247191011	0.625625165	4.154867458
Piasal	14	2	20	153.999993	0.015400	0.030800	0.427350427	1.123595506	0.337808195	1.888754128
Patuli	12	6	40	113.142852	0.011314	0.067884	1.282051282	2.247191011	0.744538036	4.27378033
Sal	18	26	60	254.571417	0.025457	0.661882	5.555555556	3.370786517	7.259388436	16.18573051
Salara	12	10	40	113.142852	0.011314	0.113140	2.136752137	2.247191011	1.240896727	5.624839875
Barabakuli	12	2	20	113.142852	0.011314	0.022628	0.427350427	1.123595506	0.248179345	1.799125278
Asana	17	18	40	227.071418	0.022707	0.408726	3.846153846	2.247191011	4.482824427	10.57616928
Bahada	17	16	40	227.071418	0.022707	0.363312	3.418803419	2.247191011	3.984732824	9.650727254
Behenta	14	2	20	153.999993	0.015400	0.030800	0.427350427	1.123595506	0.337808195	1.888754128
Kendu	15	14	40	176.785706	0.017679	0.247506	2.991452991	2.247191011	2.714595946	7.953239949
Koruan	20	12	40	314.285700	0.031429	0.377148	2.564102564	2.247191011	4.136483285	8.94777686
Telakuruma	14	2	20	153.999993	0.015400	0.030800	0.427350427	1.123595506	0.337808195	1.888754128
Ghantal	11	2	20	95.071424	0.009507	0.019014	0.427350427	1.123595506	0.208541722	1.759487654
Patamasu	13	4	40	132.785708	0.013279	0.053116	0.854700855	2.247191011	0.582565587	3.684457453
TOTAL :		**468**	**1780**			**9.11760**				

				SUKASANA RF						
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2 / ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Cashew	14	70	50	153.999993	0.015400	1.078000	43.47826087	40	28.50703275	111.9852936
Teak	20	83	25	314.285700	0.031429	2.608607	51.55279503	20	68.98297326	140.5357683
Acasia	13	5	25	132.785708	0.013279	0.066395	3.105590062	20	1.755774062	24.86136412
Mai	11	3	25	95.071424	0.009507	0.028521	1.863354037	20	0.754219927	22.61757396
TOTAL :		**161**	**125**			**3.78152**				

				SUBASI RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2 / ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Chara	14	50	100	153.999993	0.015400	0.770000	17.48251748	14.38848921	16.17627688	48.04728357
Giringa	11	3	33	95.071424	0.009507	0.028521	1.048951049	4.748201439	0.399173497	6.396325985
Mai	18	3	33	254.571417	0.025457	0.076371	1.048951049	4.748201439	1.604413561	7.401566048
Sal	15	141	66	176.785706	0.017679	2.492739	49.3006993	9.496402878	52.36783929	111.1649415
Tentera	16	13	100	201.142848	0.020114	0.261482	4.545454545	14.38848921	5.493253547	24.4271973
Amla	11	7	33	95.071424	0.009507	0.066549	2.447552448	4.748201439	1.398071494	8.59382538
Asana	12	20	33	113.142852	0.011314	0.226280	6.993006993	4.748201439	4.753724588	16.49493302
Bela	13	7	33	132.785708	0.013279	0.092953	2.447552448	4.748201439	1.952770734	9.14852462
Dharmana	19	10	33	283.642844	0.028364	0.283640	3.49650350	4.748201439	5.95875217	14.20345711
Kusuma	12	13	33	113.142852	0.011314	0.147082	4.545454545	4.748201439	3.089920982	12.38357697
Mahula	12	7	66	113.142852	0.011314	0.079198	2.447552448	9.496402878	1.663803606	13.60775893
Rajaballav	13	3	33	132.785708	0.013279	0.039837	1.048951049	4.748201439	0.836901743	6.634054231
Bahada	12	3	33	113.142852	0.011314	0.033942	1.048951049	4.748201439	0.713058688	6.510211176
R. Mai	18	3	33	254.571417	0.025457	0.076371	1.048951049	4.748201439	1.604413561	7.401566048
Neem	19	3	33	283.642844	0.028364	0.085092	1.048951049	4.748201439	1.787625652	7.58477814
TOTAL :		**286**	**695**			**4.76006**				

				SORISAPALA RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2 / ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Ankula	21	3	33	346.499984	0.034650	0.103950	1.310043668	3.995157385	2.328363023	7.633564076
DeuSahada	23	10	33	415.642838	0.041564	0.415640	4.366812227	3.995157385	9.309868272	17.67183788
Gaigila	14	3	33	153.999993	0.015400	0.046200	1.310043668	3.995157385	1.03482801	6.340029063
Giringa	11	3	33	95.071424	0.009507	0.028521	1.310043668	3.995157385	0.638838305	5.944039358
Jhadapan	11	3	33	95.071424	0.009507	0.028521	1.310043668	3.995157385	0.638838305	5.944039358
Kasi	13	13	66	132.785708	0.013279	0.172627	5.676855895	7.99031477	3.866650539	17.5338212
Kochila	13	7	33	132.785708	0.013279	0.092953	3.056768559	3.995157385	2.082042598	9.133968542
Panisahada	18	7	33	254.571417	0.025457	0.178199	3.056768559	3.995157385	3.991457069	11.04338301
Piasala	15	20	100	176.785706	0.017679	0.353580	8.73362445	12.10653753	7.91979411	28.75995609
Sunari	15	13	33	176.785706	0.017679	0.229827	5.676855895	3.995157385	5.147866171	14.81987945
Tentera	16	53	66	201.142848	0.020114	1.066042	23.1441048	7.99031477	23.87814116	55.01256074
Vendimarda n	14	26	33	153.999993	0.015400	0.400400	11.35371179	3.995157385	8.968509422	24.3173786
Badachakun da	15	17	33	176.785706	0.017679	0.300543	7.423580786	3.995157385	6.731824993	18.15056316
Barabakuli	16	30	33	201.142848	0.020114	0.603420	13.10043668	3.995157385	13.51592896	30.61152303
Neem	23	3	33	415.642838	0.041564	0.124692	1.310043668	3.995157385	2.792960482	8.098161535
Patuli	11	3	33	95.071424	0.009507	0.028521	1.310043668	3.995157385	0.638838305	5.944039358
Anchha	11	3	33	95.071424	0.009507	0.028521	1.310043668	3.995157385	0.638838305	5.944039358
Haladu	12	3	33	113.142852	0.011314	0.033942	1.310043668	3.995157385	0.760262604	6.065463658
Mahula	20	3	33	314.285700	0.031429	0.094287	1.310043668	3.995157385	2.111922697	7.41712375
R. Mai	20	3	33	314.285700	0.031429	0.094287	1.310043668	3.995157385	2.111922697	7.41712375
Sisoo	13	3	33	132.785708	0.013279	0.039837	1.310043668	3.995157385	0.892303971	6.197505024

TOTAL :		229	826			4.46451				

				NIZIGARH RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2 / ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Bela	13	13	33	132.785708	0.013279	0.172627	3.359173127	3.225806452	1.642200501	8.22718008
Dhaura	15	10	33	176.785706	0.017679	0.176790	2.583979328	3.225806452	1.681803117	7.491588896
Halada	21	13	33	346.499984	0.034650	0.450450	3.359173127	3.225806452	4.285130459	10.87011004
Jaisanda	12	3	33	113.142852	0.011314	0.033942	0.775193798	3.225806452	0.322890217	4.323890467
Kasi	22	3	66	380.285697	0.038029	0.114087	0.775193798	6.451612903	1.085309532	8.312116234
Kendu	15	3	66	176.785706	0.017679	0.053037	0.775193798	6.451612903	0.504540935	7.731347637
Kuruma	13	3	33	132.785708	0.013279	0.039837	0.775193798	3.225806452	0.378969346	4.379969597
Kusuma	18	20	66	254.571417	0.025457	0.509140	5.167958656	6.451612903	4.843448378	16.46301994
Mai	25	17	33	491.071406	0.049107	0.834819	4.39276486	3.225806452	7.94163242	15.56020373
Sidha	16	7	33	201.142848	0.020114	0.140798	1.80878553	3.225806452	1.339411252	6.374003233
Simili	15	3	33	176.785706	0.017679	0.053037	0.775193798	3.225806452	0.504540935	4.505541185
Sisso	14	7	33	153.999993	0.015400	0.107800	1.80878553	3.225806452	1.025501307	6.060093288
Sunari	14	3	33	153.999993	0.015400	0.046200	0.775193798	3.225806452	0.43950056	4.44050081
Valia	22	79	66	380.285697	0.038029	3.004291	20.41343669	6.451612903	28.57981768	55.44486727
Cashew	28	3	33	615.999972	0.061600	0.184800	0.775193798	3.225806452	1.75800224	5.75900249
Teak	17	125	33	227.071418	0.022707	2.838375	32.2997416	3.225806452	27.00145891	62.52700697
Amla	16	10	33	201.142848	0.020114	0.201140	2.583979328	3.225806452	1.913444646	7.723230425
Chara	18	17	66	254.571417	0.025457	0.432769	4.392764858	6.451612903	4.116931122	14.96130888
Anchhu	15	3	33	176.785706	0.017679	0.053037	0.775193798	3.225806452	0.504540935	4.505541185
Ghantala	18	3	33	254.571417	0.025457	0.076371	0.775193798	3.225806452	0.726517257	4.727517507
Kumbhi	16	10	33	201.142848	0.020114	0.201140	2.583979328	3.225806452	1.913444646	7.723230425
Salara	14	3	33	153.999993	0.015400	0.046200	0.775193798	3.225806452	0.43950056	4.44050081
Telakuruma	13	3	33	132.785708	0.013279	0.039837	0.775193798	3.225806452	0.378969346	4.379969597
Tentera	38	3	33	1134.571377	0.113457	0.340371	0.775193798	3.225806452	3.237949028	7.238949278
Kakhada	15	3	33	176.785706	0.017679	0.053037	0.775193798	3.225806452	0.504540935	4.505541185

Kantakoli	14	20	33	153.999993	0.015400	0.308000	5.167958656	3.225806452	2.930003733	11.32376884
TOTAL :		**387**	**1023**			**10.51193**				

				KALICHIABALLAV RF						
Name of the species	**Average dia of the species in cm**	**Density (No. of Trees/ Unit area)**	**Frequency (%)**	**Basal area (in cm^2)**	**Basal area (m^2)**	**Total Basal area (m^2 / ha.)**	**Relative Density**	**Relative Frequency**	**Relative Dominance (RBAF)**	**IVI**
Mitikina	16	3	33	201.142848	0.020114	0.060342	1.067615658	4.347826087	0.724809239	6.140250985
L. Mai	12	3	33	113.142852	0.011314	0.033942	1.067615658	4.347826087	0.407700693	5.823142438
Kasi	22	3	33	380.285697	0.038029	0.114087	1.067615658	4.347826087	1.370377377	6.785819123
Karada	13	3	33	132.785708	0.013279	0.039837	1.067615658	4.347826087	0.47850959	5.893951335
Jhadapan	14	3	33	153.999993	0.015400	0.046200	1.067615658	4.347826087	0.554939957	5.970381702
Piasal	15	7	33	176.785706	0.017679	0.123753	2.491103203	4.347826087	1.486482347	8.325411637
Bahada	19	7	33	283.642844	0.028364	0.198548	2.491103203	4.347826087	2.384896504	9.223825794
Asana	21	7	33	346.499984	0.034650	0.242550	2.491103203	4.347826087	2.913434772	9.752364062
Kusuma	14	3	33	153.999993	0.015400	0.046200	1.06761566	4.347826087	0.55493996	5.970381702
Tentera	17	7	66	227.071418	0.022707	0.158949	2.491103203	8.695652174	1.909245696	13.09600107
Phasi	15	7	33	176.785706	0.017679	0.123753	2.491103203	4.347826087	1.486482347	8.325411637
Sal	19	178	66	283.642844	0.028364	5.048792	63.34519573	8.695652174	60.64451111	132.685359
Sunari	14	7	33	153.999993	0.015400	0.107800	2.491103203	4.347826087	1.294859899	8.133789188
Simili	67	3	33	3527.071268	0.352707	1.058121	1.067615658	4.347826087	12.70981865	18.1252604
Ambada	25	7	66	491.071406	0.049107	0.343749	2.491103203	8.695652174	4.129005522	15.3157609
Amla	12	3	33	113.142852	0.011314	0.033942	1.067615658	4.347826087	0.407700693	5.823142438
Behenta	13	3	33	132.785708	0.013279	0.039837	1.067615658	4.347826087	0.47850959	5.893951335
Chara	17	10	33	227.071418	0.022707	0.227070	3.558718861	4.347826087	2.727493852	10.6340388
Kantabaula	15	7	33	176.785706	0.017679	0.123753	2.491103203	4.347826087	1.486482347	8.325411637
Kumbhi	14	10	33	153.999993	0.015400	0.154000	3.558718861	4.347826087	1.849799855	9.756344803
TOTAL :		**281**	**759**			**8.32523**				

				KALICHIABALLAV RF						
Name of the species	Average dia of the species in cm	Density (No. of Trees/ Unit area)	Frequency (%)	Basal area (in cm^2)	Basal area (m^2)	Total Basal area (m^2 / ha.)	Relative Density	Relative Frequency	Relative Dominance (RBAF)	IVI
Mitikina	16	3	33	201.142848	0.020114	0.060342	1.067615658	4.347826087	0.724809239	6.140250985
L. Mai	12	3	33	113.142852	0.011314	0.033942	1.067615658	4.347826087	0.407700693	5.823142438
Kasi	22	3	33	380.285697	0.038029	0.114087	1.067615658	4.347826087	1.370377377	6.785819123
Karada	13	3	33	132.785708	0.013279	0.039837	1.067615658	4.347826087	0.47850959	5.893951335
Jhadapan	14	3	33	153.999993	0.015400	0.046200	1.067615658	4.347826087	0.554939957	5.970381702
Piasal	15	7	33	176.785706	0.017679	0.123753	2.491103203	4.347826087	1.486482347	8.325411637
Bahada	19	7	33	283.642844	0.028364	0.198548	2.491103203	4.347826087	2.384896504	9.223825794
Asana	21	7	33	346.499984	0.034650	0.242550	2.491103203	4.347826087	2.913434772	9.752364062
Kusuma	14	3	33	153.999993	0.015400	0.046200	1.06761566	4.347826087	0.55493996	5.970381702
Tentera	17	7	66	227.071418	0.022707	0.158949	2.491103203	8.695652174	1.909245696	13.09600107
Phasi	15	7	33	176.785706	0.017679	0.123753	2.491103203	4.347826087	1.486482347	8.325411637
Sal	19	178	66	283.642844	0.028364	5.048792	63.34519573	8.695652174	60.64451111	132.685359
Sunari	14	7	33	153.999993	0.015400	0.107800	2.491103203	4.347826087	1.294859899	8.133789188
Simili	67	3	33	3527.071268	0.352707	1.058121	1.067615658	4.347826087	12.70981865	18.1252604
Ambada	25	7	66	491.071406	0.049107	0.343749	2.491103203	8.695652174	4.129005522	15.3157609
Amla	12	3	33	113.142852	0.011314	0.033942	1.067615658	4.347826087	0.407700693	5.823142438
Behenta	13	3	33	132.785708	0.013279	0.039837	1.067615658	4.347826087	0.47850959	5.893951335
Chara	17	10	33	227.071418	0.022707	0.227070	3.558718861	4.347826087	2.727493852	10.6340388
Kantabaula	15	7	33	176.785706	0.017679	0.123753	2.491103203	4.347826087	1.486482347	8.325411637
Kumbhi	14	10	33	153.999993	0.015400	0.154000	3.558718861	4.347826087	1.849799855	9.756344803
TOTAL :		**281**	**759**			**8.32523**				

Table No. 4							
BIODIVERSITY INDEX							
Name of the Range	**Name of Forest Block**	**Sample ID**	**Shannon-Winner Index SDI**	**e- Evenness**	**Index of Dominance**	**Simpson Index (D)**	**Diversity Index (1-D)**
Khuntuni	Baniabandha R.F	UID-1,2,10,12,13	1.83144	1.02215	0.03361	0.89455	0.10545
	Ranibania RF	UID-36,37,42,47	2.00924	1.12138	0.00022	0.87231	0.12769
	Sankhapoi R.F	UID-49,50	1.78412	0.99573	0.11111	0.85985	0.14015
Athgarh	Kalichiaballv R.F	UID-140,148,149	1.70045	0.94904	0.00014	0.60976	0.39024
	Nizigarh R.F	UID-144,159,160	2.41563	1.34819	0.00030	0.85652	0.14348
	Sorisapala R.F	UID-130,150,151	2.56407	1.43104	0.00022	0.93077	0.06923
	Subasi R.F	UID-92,93,94	1.80329	1.00643	0.00211	0.73892	0.26108
	Sukasana R.F	UID-181,182,183,187	0.87650	0.48918	0.26587	0.57760	0.42240
Badamba	Haladiaseni RF	UID-132,135,136,141,157	2.13689	1.19262	0.00327	0.96214	0.03786
	Badjora R.F	UID-138,139,146,156,170	1.89561	1.05796	0.00128	0.71609	0.28391
	Tareiganda R.F	UID-188,190,195,205,206	2.71735	1.51658	0.00207	0.96923	0.03077
	Talachandragin RF	UID-184,185,199,200,	2.30073	1.28406	0.00015	0.93152	0.06848
	Nagatota R.F	UID-178,180,192,194,235	2.14972	1.19978	0.00058	0.96478	0.03522
	Karada	UID-171,172,175,176,245	1.81622	1.01365	0.00036	0.97141	0.02859
Narasinghpur East	Nuagarh R.F	UID-23,25,28,243,247	2.15837	1.20461	0.00764	0.97145	0.02855
	Deobhuin RF	UID-38,58,68,79,103	2.39828	1.33851	0.00231	0.98563	0.01437
	Olaba R.F	UID-53,82,121,154,233	2.04017	1.13864	0.00026	0.98008	0.01992
Narasinghpur West	Balikiary R.F	UID-61,74,97,231,237	1.70438	0.95123	0.00677	0.95830	0.04170
	Barbakhola R.F	UID-98,99,111,114,241	1.61050	0.89884	0.00021	0.65392	0.34608

12.18. Regeneration Survey: -

Tree enumeration has been done in 16 patches which is extended over 14 Reserve Forest and 02 Proposed Reserve Forest of the tract. The plot size is 40 .0 x 25 .0 over an area of 0.1 ha. Data ollected for sapling in the plot size of 03 .0 x 03 .0 in the middle of the above patches. In the square plot of 1 .0 x 1 .0 the above patches establish, woody, whippy, sub-whippy and recruit are counted. The GPS reading has been recorded for the above 16 patches in the middle. The field exercises have been done by the staffs of Athgarh Forest Division. The enumeration data is as follows.

Regeneration Survey						
Name of the Block –Jenapada RF		Chapter – Angul		DD/MM/YYYY-		
Compartment No-		Section –Tigiria		Beat –Jenapada		
Range –Athgarh		Division -Athgarh		ALT – 260 ft		
LAT- 20.485746		LONG – 85.555118		Grid No-		
Seedlings		Sapling		Adults		Status of Regeneration
Species	Nos.	Species	Nos.	Species	Nos.	
--	--	Khakada	1	--	--	New regeneration
--	--	Kendu	1	--	--	New regeneration
--	--	Neem	1	--	--	New regeneration
--	--	Anchhu	1	--	--	New regeneration

12.19. Assessment of Regeneration Status: -

Young plants of tree species up to 11.0 diameter are taken into consideration for assessment of regeneration status of a particular species as practiced in National Forest Inventory by FSI. Data collected from the square plots of 3x3 m^2 for saplings (2.0 to 11.0 collar diameter) and from the square plots of 1x1m for seedlings will be generally used to assess the regeneration status of species in the management unit (compartment, village or any other unit). Based on the phytosociological data from plot level enumeration, the regeneration status of the sampled species may be assessed in the following categories as follows.

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

12.20. Value of Regeneration:-

The lower categories of regeneration such as established, un-established (whippy and Sub whippy), recruits, etc. giving value to each category and calculating total regenerative percentage may be required, in case, above classifications are absent or insufficient to indicate regeneration status.

12.21. Regeneration Data: -

During enumeration, regeneration status has been recorded in the plot size of 1 mt x 1 mt. The regeneration data is given in the table below.

Table No. 5						
Regeneration Data						
Block	E	W	U	S	R	Total
Balikiari RF	0	0	1	2	4	7
Nuagarh RF	0	0	3	4	6	13
Haladiaseni RF	0	0	1	2	2	5
Sources - Field Staff of Athgarh Forest Division.						

12.22. Analysis of Regeneration Survey: -

The enumeration data have been analyzed. The regeneration status is assessed. The assessed values of regeneration for 16 blocks are given in the table below.

Table No.6						
Analysis of Regeneration Survey						
Block	Seedling		Sapling		Adult in 0.1 ha	Status
	1 mt x 1 mt	0.1 ha	3 mt x 3 mt	0.1 ha		
Balikiari RF	07	7000	02	222	58	Good
Nuagarh RF	13	13000	01	111	112	Fair
Haladiaseni RF	05	5000	02	222	33	Good
Sources - Field Staff of Athgarh Forest Division.						

C H A P T E R - 13

General Financial Forecast and Financial Plan of Operation

13.1. General Financial Forecast and Financial Plan of Operation:-

13.1.1. Cost of the Plan:-

The Divisional Forest Officer, Athgarh Forest Division prepared the Preliminary Working Plan Report. The Preliminary Working Plan Report has been prepared and submitted to Principal Chief Conservator of Forest, Odisha, Bhubaneswar on dated 20.02.2016. The PWPR was approved by the Standing Consultative Committee and communicated to Divisional Forest Officer, Athgarh vide memo No. 9557 dt. 12.04.2016 of Principal Chief Conservator of Forest, Odis with a direction to prepare and submit the Working Plan. An amount of Rs.304263.00 has been spent for preparation of the Preliminary Working Plan Report and an amount of Rs.2549124.00 has been spent for preparation of the Working Plan. Therefore the total amount is Rs.2853387.00. The actual expenditure incurred for preparation of revised Working Plan of Athgarh Division is given in the table below.

Table No-1

Expenditure incurred for preparation of revised Working Plan

Sl. No.	Items of work	Expenditure incurred in Lakhs
1	Preliminary Working Plan Report	3.04263
2	Final Revision of the Plan	25.49124
	Total	28.53387

13.1.2. Revenue Collected from 2011-12 to 2020-21:-

The Revenue collected in Athgarh Forest Division from the year 2011-12 to 2021-21 is given in the table below.

Table No. 2

Revenue Collected from 2011-12 to 2020-21 in Lakhs (0406 Forest Revenue)

Year	010 Sale of Timber & other Forest Produce	800 Other receipt	Rent on building	Total
2011-12	31.69003	2.96251	1.35000	36.00254
2012-13	23.93613	2.09814	1.35200	27.38627
2013-14	21.59357	1.43520	1.35400	24.38277
2014-15	32.95630	1.42061	1.35600	35.73291
2015-16	21.94512	2.21850	1.35800	25.52162
2016-16	3.67554	10.54100.	1.36000	15.57654
2016-18	2.86734	8.23078	1.36200	12.46012

2018-19	10.01908	7.61847	1.36920	19.00675
2019-20	19673.00	1.56470	1.36920	3.13063
2020-21	39645.00	51400.00	1.36920	2.27965
Total	149.27629	38.60391.	13.59960	201.47980

13.1.3. Expected Revenue:-

There will be a step rise in the rate of forest produce within the Plan period of 10 years (2022-23 to 2031-32). The year wise expected revenue in different items of forest produce and other sources within the Plan period for Athgarh Division is calculated and displayed in the table below.

Table No. 3				
Expected Revenue Collected from 2022-23 to 2031-32 in Lakhs (0406 Forest Revenue)				
Year	010 Sale of Timber & other Forest Produce	800 Other receipt	Rent on building	Total in Rs.
2022-23	0.29659	1.03935	1.36920	2.70514
2023-24	0.3025218	1.060137	1.396584	2.7592428
2024-25	0.3085722	1.08134	1.42452	2.8144322
2025-26	0.3147436	1.10297	1.4530104	2.870724
2026-27	0.3210384	1.12503	1.4820706	2.928139
2027-28	0.3274591	1.14753	1.5116222	2.9867113
2028-29	0.3340082	1.16048	1.54196	3.0464482
2029-30	0.3406883	1.19389	1.57280	3.1073783
2030-31	0.3475020	1.2167639	1.60426	3.1695259
2031-32	0.3544520	1.2421200	1.63635	3.232922
Total	3.2475756	11.3806109	14.9924772	29.6206637

13.1.4. Estimated Expenditure:-

13.1.4.1. Expenditure from 2022-23 to 2026-27:-

The estimated expenditure of Athgarh Forest Division from the year 2022-23 to 2026-27 is given in the table below.

Table No.4					
Expected Expenditure in lakhs from 2022-23 to 2026-27					
Budget Head	2022-23	2023-24	2024-25	2025-26	2026-27
Establishment	452.58	461.63	470.86	480.27	489.87
Rehabilitation WC	1061.57	1191.81	1283.17	1506.95	1577.28
Protection WC(O)	378.00	396.9	416.74	437.57	459.44
Plantation WC	131.79	144.82	167.233	165.35	174.216
NTFP WC(O)	10.00	10.50	11.00	11.57	12.15
Bamboo WC(O)	185.678	194.959	134.671	128.265	185.678
WL WC(O)	46.00	48.3	50.71	53.24	55.90

JFM WC(O)	10.00	10.50	11.00	11.57	12.15
Timber Collection	10.00	10.50	11.00	11.57	12.15
Forest Consolidation	10.00	10.50	11.00	11.57	12.15
Forest Roads	25.40	26.67	28.00	29.40	30.87
Building (Maint.)	19.8	20.19	20.59	21.00	21.42
Building (New Const.)	40.00	40.00	0	0	0
Boundary	27.6	28.98	29.55	30.15	31.65
Fire Protection	35.00	36.75	38.58	40.50	42.52
Infrastructure dev.	10.00	10.50	11.00	11.57	12.15
Eco-tourism (Maint.)	19.0	19.95	20.95	22.00	23.10
Library, tools ,etc	3.00	3.15	3.30	3.46	3.63
Creation of research plot	16.0	16.85	18.74	19.68	20.66
Capacity Building	12.0	12.6	13.23	13.90	14.60
Misc. Contingency	5.0	5.25	5.5	5.77	6.00
Total	2508.418	2701.309	2756.824	3015.355	3197.584

13.1.4.2. Expenditure from 2027-28 to 2031-32:-

The estimated expenditure of Athgarh Forest Division from the year 2027-28 to 2031-32 is given in the table below.

Table No. 5						
Excepted Expenditure in lakhs from 2026-27 to 2030-31						
Budget Head	2027-28	2028-29	2029-30	2030-31	2031-32	Total
Establishment	499.66	509.65	519.84	530.23	540.83	4955.42
Rehabilitation WC	1617.32	1456.46	1309.15	1336.47	1072.77	13412.95
Protection WC(O)	482.41	506.53	531.85	558.44	586.36	4754.24
Plantation(O)	146.164	157.08	177.34	156.03	153.99	1574.013
NTFP WC(O)	12.76	13.40	14.07	14.77	15.51	125.73
Bamboo WC(O)	194.959	134.671	128.265	185.678	194.959	1667.783
WL WC(O)	58.69	61.62	64.70	67.93	71.32	578.41
JFM WC(O)	12.76	13.40	14.07	14.77	15.51	125.73
Timber Collection	12.76	13.40	14.07	14.77	15.51	125.73
Forest Consolidation	12.76	13.40	14.07	14.77	15.51	125.73
Forest Roads	32.40	34.00	35.70	37.50	39.40	319.34
Buildings (Maint.)	21.85	22.28	22.72	23.16	23.63	216.64
Buildings (New)	0	0	0	0	0	80
Boundary	33.23	34.90	36.64	38.47	40.40	331.57
Fire Protection	44.64	46.87	49.21	51.67	54.25	439.99
Infrastructure dev.	12.76	13.40	14.07	14.77	15.51	125.73
Eco-tourism (maint.)	24.25	25.46	26.70	28.00	29.4	238.81
Library, tools ,etc	3.81	4.00	4.20	4.41	4.76	37.72
Creation of research plot	21.7	22.8	23.94	24.82	26.00	211.19
Capacity Building	15.33	16.00	16.8	16.64	18.50	149.6
Misc. Contingency	6.3	6.61	6.95	7.30	7.66	62.34
Total	3266.513	3105.931	3024.355	3140.598	2941.779	29658.666
NB:- The head wise total expenditure from 2022-23 to 2031-32 is given in this table.						

13.1.5. Possible Sources of Funding:-

The estimated expenditure to be spent during the Plan period is depend on the budget provision. The possible sources of funding during the Plan period taking cognizance of present system of Five-Year Plan is given in the table below.

Table No-6				
Possible sources of funding in Five Year Plan				
Budget head	Sources of funding	Amount to be spent in Lakhs		
		2022-23 to 2026-27	2027-28 to 2031-32	Total Amount
Plan & Non Plan	PCCF(WL)	2000.00	2200.00	4200.00
Plan & Non plan	PCCF	12179.49	13279.176	25458.666
Total		14179.49	15479.176	29658.666

13.1.6. Chapter Wise Estimation:-

13.1.6.3. Rehabilitation Working Circle:-

The total GIS Computed Area under this Working Circle is 34129.491 ha. Block plantation has not been prescribed due to non-availability of blank area in patches over an extent of 10.00 hectors or more. Only gap plantations has been prescribed for rehabilitation of the degraded forest. The year and treatment series wise area in hectare in Rehabilitation Working Circle is given in the table below.

Table No. 7				
Year and treatment series wise area in hectare in Rehabilitation Working Circle				
Year	Name of the Treatment Series with area in ha.			
	Olab	Deobhuin	Badajora	Haladiaseni
2022-23	380.92	649.455	515.69	215.0
2023-24	369.8	508.02	458.28	218.5
2024-25	344.08	648.83	268.35	240.21
2025-26	230.6	815.87	619.61	555.48
2026-27	365.44	698.89	608.12	487.52
2027-28	390.44	578.64	532.72	504.41
2028-29	115.01	848.1	215.6688	542.12
2029-30	176.22	415.1	433.48	550.56
2030-31	357.09	672.56	521.815	413.95
2031-32	136.48	200.37	214.5	576.43
Total	2866.08	6035.835	4388.2338	4304.18

Year and treatment series wise area in hectare in Rehabilitation Working Circle					
Year	Name of the Treatment Series with area in .				
	Nagatota	Dalakhai	Baniabandha	B.Banadurga	Total
2022-23	252.11	580.11	448.3382	312.8073	3354.4305
2023-24	153.73	783.1	294.92	378.59	3164.94
2024-25	439.38	501.29	187.4	627.528	3257.068
2025-26	388.08	741.57	215.82	419.18	3986.21
2026-27	169.14	504.83	572.87	616.33	4023.14
2027-28	420.65	702.18	433.85	500.5483	4063.4383
2028-29	323.2745	557.99	397.76	440.6383	3440.5616
2029-30	301.2	483.6	254.65	468.73	3083.54
2030-31	327.13	305.058	549.08	215.27	3361.953
2031-32	294.7	307.3696	525.99	138.37	2394.2096
Total	3069.3945	5467.0976	3880.6782	4117.9919	34129.491

13.1.6.4. Expenditure in Rehabilitation Working Circle:-

The year wise expenditure and the type of work in each Rehabilitation series is given in the table below.

Table No. 8					
Year	Year wise Expenditure in lakh. of Rehabilitation Working Circle				
	1st Year	2nd Year	3rd Year	4th Year	Total
2022-23	928.53	95.13	17.15	20.76	1061.57
2023-24	876.08	270.43	40.47	4.83	1191.81
2024-25	901.58	255.15	115.05	11.39	1283.17
2025-26	1103.42	262.58	108.55	32.40	1506.95
2026-27	1113.64	321.36	111.71	30.57	1577.28
2027-28	1124.80	324.34	136.72	31.46	1617.32
2028-29	952.38	327.59	137.99	38.50	1456.46
2029-30	853.55	277.37	139.37	38.86	1309.15
2030-31	930.62	248.59	118.01	39.25	1336.47
2031-32	662.74	271.04	105.76	33.23	1072.77
Total	9447.34	2653.58	1030.78	281.25	13412.95

13.1.6.5. Cost Norm of RWC:-

The cost norm of gap plantation in RWC area is given in the table below.

Table No. 9	
Cost norm of gap plantation in RWC area	
Year	Norm per hectare in Rs.
1st year	27681.00
2nd year	8062.00
3rd year	3430.00
4th year	966.00

13.1.6.6. Detail analysis of Rehabilitation Working Circle:-

The detail analysis of cost norm of Rehabilitation Working Circle is as follows:-

Cost Norm for ANR @200 plants per ha. Wage rate Rs. 308/-day.					
1st Year of operation					
Sl. No	Items of Work	Labour in Mandays	Labour Cost (in Rs.)	Material Cost (In Rs.)	Total Cost (In Rs.)
1	Survey Demarcation pillar posting	02	616.00	--	616.00
2	Site preparation	02	616.00	--	616.00
3	Clearance of weeds, climber cutting, high stump cutting, singling of shoots	05	1540.00	--	1540.00
4	Cost of nursery for 220 seedlings (200+20)	08	2464.00	390.00	2854.00
5	Pitting 30 cm cube size	06	1848.00	--	1848.00
6	Carriage and planting including casualty replacement	05	1540.00	--	1540.00
7	Weeding, soil working, manuring	06	1848.00	--	1848.00
8	Cost of vermin compost @ 200gm/plant @20 per kg=Rs. 800/- and granular insecticide 5gm. Per plant @ Rs. 80/- plant per kg= Rs. 80/-	--	--	880.00	880.00
9	Cost of chemical fertilizer	--	--	324.00	324.00
10	Silvicultural Operation involving weeding, climber cutting, singling of shoots	15	4620.00	--	4620.00
11	Soil conservation measure	20	6160.00	--	6160.00
12	Fire line tracing and inspection path	03	924.00	--	924.00
13	Watch and ward	07	2156.00	--	2156.00

14	Contingency	0	0	437.00	437.00
	Sub-total	79	24332.00	2031.00	26363.00
15	Monitoring and supervision charge 5%				1318.00
	Grand Total	79	24332.00	2031.00	27681.00
	2nd Year Operation				
1	Casually replacement including cost of seedling carriage and planting	01	308.00	230.00	538.00
2	Weeding and cultural operation	02	616.00	--	616.00
3	Soil working manuring	02	616.00	--	616.00
4	Cost of fertilizer and insecticide	--	--	800.00	800.00
5	Soil conservation measures	08	2464.00	--	2464.00
6	Fire line tracing and inspection path	01	308.00	--	308.00
7	Watch and ward (whole year)	07	2156.00	--	2156.00
8	Contingency	--	--	180.00	180.00
	Sub-total	21	6468.00	1210.00	7678.00
9	Monitoring and supervision charge 5%				384.00
	Grand Total	21	6468.00	1210.00	8062.00
	3rd Year Operation				
1	Complete weeding and cultural operations	01	308.00	--	308.00
2	Soil Working	01	308.00	--	308.00
3	Fire line tracing and inspection path	01	308.00	--	308.00
4	Watch and ward (whole year)	07	2156.00	--	2156.00
5	Contingency	--	--	187.00	187.00
	Sub-total	10	3080.00	187.00	3267.00
6	Monitoring and supervision charge 5%				163.00
	Grand Total	10	3080.00	187.00	3430.00
	4th Year Operation				
1	Fire line tracing and inspection path	01	308.00	--	308.00
2	Watch and ward (whole year)	02	616.00	--	616.00
	Sub-Total	03	924.00	--	924.00
3	Monitoring and supervision charge				42.00
	Grand Total	03	924.00	--	966.00

13.1.6.7. Protection Overlapping Working Circle:-

This Protection overlapping working circle s an area of 39626.163 spreading over all the five ranges of this division .The average annual area requires the activities to be taken like maintenance and construction of boundary pillar , repairing of road ,engagement of protection squad ,strengthening of communication network and other protection activities such as intelligence collection and surveillance over the timber and other forest produce smuggling activities .The cost norm calculated for implementation of the prescriptions made in this working circle s been calculated as follows. The annual plan area is 3962.6163 @Rs 9548 per ha, the cost amount is Rs 378.35 or Rs 378.0(in lakh), annually with subsequent rise of 5% every year keeping the enhancement of wage rate in view.

13.1.6.8. Cost Norm of Protection Overlapping Working Circle:-

The Cost Norm of Protection Overlapping Working Circle is given in the table below.

Table No. 10

Cost Norm of Protection Overlapping Working Circle

Sl. No	Item of Work	Man days @308/-	Total Cost in RS.
1	Watch & Ward Anti-depredation Squad with provision of mobility	15	4620.00
2	Purchase of arms & ammunition VHF, Cell phones etc.	2	616.00
3	Fire Protection measure(Engagement of fire watcher with vehicle)	5	1540.00
4	Creation of awareness ,publicity and inceptive	2	616.00
5	Maintenance of boundary	5	1540.00
6	Construction and repairing of boundary Pillar	2	616.00
	Total	31	9548.00

13.1.6.9. Plantation Working Circle:-

The total area Plantation Overlapping working circle is 565.00 hectare , spreading over 3 Ranges of this division like Athgarh, Badamba and Khuntuni for effective execution of the work the areas are distributed in two treatment series namely Athgarh and Khuntuni treatment series. The planting area assigned to different annual coupes varies from 10 to 15.The detailed of which is given below. Along with the maintenance of 200 of old plantations are also prescribed.

13.1.6.10. Cost Norm of Plantation Working Circle:-

The Cost Norm of Plantation Working Circle is given in the table below.

Table No. 11						
Detailed year wise analysis of cost norm for block plantation(AR) in Rs.						
Sl No	Year	Man days	Labour cost @308/-	Material Cost	Monitoring and Supervision Charge 5% of the total cost	Total Cost in Rs
1	1st year	224.5	69146.00	15324.00	3909.00	88379.00
2	2nd year	59	18162.00	9821.00	1316.00	29310.00
3	3rd year	52	16016.00	2920.00	874.00	19810.00
4	4th year	18	5544.00	00	252.00	5796.00

13.1.6.11. Year wise cost norm of Planting series:-

The year wise cost norm of two planting series is given in the table below.

Table No. 12									
Plantation cost of Plantation Working Circle in Lakhs.									
Year	1st year		2nd year		3rd year		4th year		Total cost in lakhs
	Area	Cost	Area	Cost	Area	Cost	Area	Cost	
2022-23	50	44.18	60	16.58	90	16.82	50	2.89	80.47
2023-24	70	61.86	50	14.65	60	11.88	90	5.21	93.6
2024-25	50	44.18	70	20.51	50	9.90	60	3.47	78.06
2025-26	65	57.44	50	14.65	70	13.86	50	2.89	88.84
2026-27	65	57.44	65	19.05	50	9.90	70	4.05	90.44
2027-28	45	39.77	65	19.05	65	12.87	50	2.89	74.58
2028-29	60	53.02	45	13.18	65	12.87	65	3.76	82.83
2029-30	60	53.02	60	16.58	45	8.91	65	3.76	82.27
2030-31	45	39.77	60	16.58	60	11.88	45	2.60	70.83
2031-32	55	48.60	45	13.18	60	11.88	60	3.47	77.13
Total	--	499.28	--	164.01	--	120.77	--	34.99	819.05

Table No. 13									
Plantation cost of Re-Stocking Series in PWC in Lakhs									
Year	1st year		2nd year		3rd year		4th year		Total cost in lakhs
	Area	Cost	Area	Cost	Area	Cost	Area	Cost	
2022-23	48	42.42	-	-	-	-	-	-	42.42
2023-24	33	29.16	48	14.00	-	-	-	-	43.16
2024-25	70	61.86	33	9.67	48	9.50	-	-	81.03
2025-26	45	39.77	70	20.50	33	6.53	48	2.78	69.58
2026-27	50	44.20	45	13.18	70	13.86	33	1.91	73.15
2027-28	40	35.35	50	14.65	45	8.91	70	4.05	62.96
2028-29	50	44.20	40	11.72	50	9.90	45	2.60	68.42
2029-30	72	63.63	50	14.65	40	7.90	50	2.90	89.08
2030-31	50	44.20	72	21.10	50	9.90	40	2.30	77.5
2031-32	50	44.20	50	14.65	72	7.00	50	2.90	68.75
Total	--	448.99	--	134.12	--	73.5	--	19.44	676.05

13.1.6.12. The cost norms for tending operation of old plantations are as follows:-

Cost Norm foe Tending Operation per Ha			
Sl No	Item of Work	Mandays@308/-	Total Cost in Rs.
1	Climber Cutting, Removal of lops, Cutting of high stump, Pruning, Removal of dead, dry broken branches ,thinning etc.	10	3080.00

13.1.6.13. Financial forecast of Tending Series:-

Table No. 14		
Financial forecast of Tending Series in Lakhs		
Year	Area in ha	Amount in lakh
2022-23	288.98	8.90
2023-24	262	8.06
2024-25	264.4	8.143
2025-26	225	6.93
2026-27	345	10.626
2027-28	280	8.624
2028-29	189.4	5.83
2029-30	194.51	5.99
2031-31	250	7.700
2031-32	263.33	8.11
Total	2562.62	78.913

13.1.6.14. Abstract of Financial Forecast of Plantation Working Circle:-

Table No-15				
Abstract of Financial Forecast of Plantation Working Circle				
Year	Name of the Planting Series			
	New Planting Series	Re-Stocking Series	Tending Series	Total
2022-23	80.47	42.42	8.90	131.79
2023-24	93.6	43.16	8.06	144.82
2024-25	78.06	81.03	8.143	167.233
2025-26	88.84	69.58	6.93	165.35
2026-27	90.44	73.15	10.626	174.216
2027-28	74.58	62.96	8.624	146.164
2028-29	82.83	68.42	5.83	157.08
2029-30	82.27	89.08	5.99	177.34
2030-31	70.83	77.5	7.700	156.03
2031-32	77.13	68.75	8.11	153.99
				1574.013

13.1.6.15. Cost of N.T.F.P Overlapping Working Circle:-

This overlapping working circle mostly covers all the forest areas under this plan. Forest blocks NTFP items are being proposed to continue in this working circle for effective management of NTFP species like its collection, marketing and value addition. The total area of this working circle comes to 39626.163. Therefore the average annual area to be worked out is approximately 3962.6163.

The activities need to be work out under this Working Circle.	
Sl. No	Activities
1	NTFP survey of this division done during 2012-13
2	Necessary documentation of NTFP items available
3	Preparation of micro plan of all VSS
4	Training programmes of sustainable collection and value addition
5	Capacity building of VSS members
6	Creation of infrastructure and financial support for processing and marketing
7	Opening of marketing centers of villages, blocks, and district level and establishment linkage with buyers.
8	Afforestation of NTFP species on suitable site to maintain the potentiality of forest.
Taking the above activities in to consideration the annual expenditure on NTFP (O) working circle is kept Rs 10 lakhs lump-sum with subsequent annual rise of 5% per year. The year wise detail of the expenditure forecast has been furnished in table No.	

13.1.6.16. Cost of Bamboo Cutting Series:-

The total area of Bamboo overlapping working circle is 8031.843. The estimated cost of Bamboo Overlapping Working Circle is given in the table below.

Table No. 16

Cost of Bamboo Cutting Series in Rs.

Sl. No.	Items of Works	Person-days per	Cost Norm @ Rs 308/- per day	Total Cost in Rs.
1	Demarcation of Coupe	0.1	30.80	30.80
2	Bamboo working	4 (Average No. of clumps to be worked out by one person is 5 clumps per day)	1232.00	1232.00
3	Silvicultural Operation	10	3080.00	3080.00
4	Fire Protection measures	1	308.00	308.00
	Total	15.1	4650.80 or	4651.00

13.1.6.17. Cost norm of Bamboo Rehabilitation Series:-

Table No. 17				
Cost norm of Bamboo Rehabilitation Series in Rs.				
Sl. No.	Items of Works	Person-days per /ha.	Cost Norm @ Rs 308/- per day	Total Cost in Rs.
1	Silvicultural Operation	6	1848.00	1848.00
2	Cost of Gap Plantation of Bamboo per ha. (100 Seedlings per ha.)	Cost includes Pre planting, Post planting and Nursery Cost for Gap planting of 100 Bamboo Seedlings.	14767.00	14767.00
3	Protection of rehabilitation area	0.1	30.80	30.80
	Total		16645.8 or	16646.0

13.1.6.18. The year wise financial forecast of bamboo coupe area is given in the table below.

Table No. 18				
Year cost of Bamboo Cutting Series in Lakhs.				
Year	Narasinghpur East C.S		Badamba C.S	
	Area in ha. (Coupe Wise)	Cost in	Area in ha.	Cost in Lakhs
2022-23	1180.78(A)	54.918	997.39(A)	46.388
2023-24	1260.905(B)	58.644	957.203(B)	44.519
2024-25	698.32(C)	32.478	1090.34(C)	50.711
2025-26	1581.905(D)	73.574	265.0 (D)	12.325
2026-27	1180.78(A)	54.918	997.39(A)	46.388
2027-28	1260.905(B)	58.644	957.203(B)	44.519
2028-29	698.32(C)	32.478	1090.34(C)	50.711
2029-30	1581.905(D)	73.574	265.0 (D)	12.325
2030-31	1180.78(A)	54.918	997.39(A)	46.388
2031-32	1260.905(B)	58.644	957.203(B)	44.519
Total	4721.91	552.79	3309.933	398.793

Table No. 19				
Year cost of Bamboo Rehabilitation Series in Lakhs.				
Year	Narasinghpur East C.S		Badamba C.S	
	Area in ha. (Coupe Wise)	Cost in	Area in ha.	Cost in
2022-23	908.775(A)	151.27	836.82(A)	139.29
2023-24	1098.73(B)	182.89	903.81(B)	150.44
2024-25	1178.15(C)	196.11	504.41(C)	83.96

2025-26	1080.5(D)	179.86	696.557 (D)	115.94
2026-27	908.775(A)	151.27	836.82(A)	139.29
2027-28	1098.73(B)	182.89	903.81(B)	150.44
2028-29	1178.15(C)	196.11	504.41(C)	83.96
2029-30	1080.5(D)	179.86	696.557 (D)	115.94
2030-31	908.775(A)	151.27	836.82(A)	139.29
2031-32	1098.73(B)	182.89	903.81(B)	150.44
Total	4266.155	1754.42	2941.597	1268.99

13.1.6.18. Cost of Wildlife Overlapping Working Circle:-

The cost of area of this working circle is 39626.163 ha. Thus the average annual area of this working circle is 3962.6163 ha, The different wildlife conservation and protection activities like creation of saltlick ,digging of water holes, development of meadow, raising of fodder plantation ,engagement of anti-depredation squad and other conservation activities are taken up with a cost of rupees 1160.00 per ha. hence total cost for implementation of prescriptions of this working plan 45.96 lakh or 46.0 lakh annually with subsequent rise of 5% every year keeping the enhancement of wage rate in view.

13.1.6.19. Cost Norm of wildlife overlapping working circle:-

The cost norm of wildlife overlapping working circle is given in the table below.

Table No. 20			
Cost Norm Break-up per ha for treatment of wildlife(O) Circle			
Sl. No	Item of Work	Cost Norm per ha @ 308 per person days	Cost involved in Rs.
1	Saltlick	0.1	30.80
2	Game tank ,Watch Tower	1	308.00
3	10nos of Water hole/year	2	616.00
4	Fodder & Fruit bearing tree Plantation	0.1	30.80
5	Protection	0.5	154.00
6	Meadow Development	0.1	30.80
Total		3.8	1160.40
Therefore the total amount required in wildlife overlapping working circle per year each 58.00 lakh			

13.1.6.20. Joint Forest Management Overlapping Working Circle:-

The joint forest management activity have been dealt with under a separate over lapping working circle called JFM Overlapping Working Circle in the proposed working plan. In this forest division there are 146 nos. of VSS involved for protection of forest assigned to them. Out of this 115 nos. of VSS are assigned with 12200.362 ha forest areas like R.F, PRF and VF. Prescriptions are made for strengthening of VSS through different income generating programmes, conflict resolutions of inter disputes of VSS, creation of awareness, capacity

building through different trainings, exposure visit, preparation of micro-plan and other forest conservation and protection activities. The total area of this working circle comes to 12200.362 ha. An expenditure of Rs 10.00 lakhs lump-sum is taken to carry out different activities as above with escalation of 5% per year.

13.1.6.21. Water Resource Management, REDD+ and Climate change:-

In this Water Resource Management, REDD+ and Climate change chapter, it is proposed for 8.00 lakhs in every year for the maintenance the Water Resource Management.

13.1.6.22. Eco Tourism Working Circle, Biodiversity Conservation and Development Working Circle and Miscellaneous Regulations:-

13.1.6.23. Collection of Timber, Fire wood and Irregular Exploitation:-

Expenditure expected in to be cord in connection of timber firewood etc is kept on lump-sum basis of Rs 10 lakhs with subsequent escalation of 5% every year.

13.1.6.24. Forest Consolidation:-

On review of the previous working plan it is noticed that prescriptions were made for final notification of 9 nos. of PRFs on prioritized basis under section 21 of Odisha Forest Act 1972 out of 16 nos. of blocks pending for final notification. The consolidation work should be taken up in the Proposed Reserve Forest during the plan period for final notification to Reserve Forest. The expenditure required for forest consolidation is kept Rs. 10.0 s per annum with subsequent rise of 5% every year.

13.1.6.25. Maintenance of Forest boundary:-

The total boundary length of forest blocks of this division is 715 Km and no of pillars along with Forest boundary comes to 4288 nos. During the last plan period 4511 pillars and a boundary length over 545.99km have been maintained. The annual length of maintenance is 71.5Km. On detail field survey it is ascertained 2583nos of pillars have missing which needs to be constructed in 30 forest blocks .Hence an average 300nos of pillars requires to be constructed annually. The pillars are to be made out of cement concrete as per the specification given by PCCF Odisha. The average cost of one pillar will be amounting to Rs. Repairing cost of the existing pillars is kept Rs 600/- each. An average of 195 pillars needs to be repaired every year. The cost involved and the boundary maintenance work is as follows.

Item of works	Expected expenditure in Lakhs
Construction of boundary pillars per annum-300 nos pillars @6500each	19.50000
Repair of boundary pillars per annum-195nos pillars@3000each	5.85000
Cost of clearance of boundary line =71.5kmX10MDX308	2.20220
Total	27.55220

13.1.6.26. Fire Protection:-

For control of forest fire the following activities needs to be taken on fire prone areas on priority basis from 15th February to 15th June for a period of four months. The item of works are (1) Creation of awareness through meetings, printing of posters, street play (2) Clearance of fire line (3) Control burning (4) Deployment of firefighting squad with vehicle (5) Use of high speed air blower (6) Incentives to villagers and VSS members. A minimum of Rs 7.00 s per Range is essential for firefighting measure. For five Ranges around 35.00 s will be spent in every year with 5% increase annually.

13.1.6.27. Infrastructure development and maintenance:-

For installation of new VHF Stations, Maintenance and replacement of VHF sets, Procurement of Arms and ammunitions and maintenance of old once, Purchase of new vehicles, other miscellaneous work an amount of Rs 10.0 s kept with an escalation of 5% annually.

13.1.6.28. Forest Road:-

For better protection and management of forest there should be good network of forest roads. This division has 13 nos. of Forest roads spreading over a length of 127Kms distributed in different Ranges. The present norm for repairing of road is 69000.00 per Km which is quite nominal. An amount of Rs 2.00 lakhs to be kept for better maintenance of the road. An average of 12.7 Km of roads needs to be repaired every year. The total amount required for annual maintenance is 25.4 with a rise of 5% every year.

13.1.6.29. Building:-

This Forest Division has quite good no of buildings for functioning of different offices and housing accommodation for staff. These buildings are quite old and their repairing is quite expensive. New constructions of buildings requires for conducting authorized officers court, GIS cell is required. Last five year maintenance cost of the buildings are as detailed below. The average of annual expenditure for maintenance of building from the year 2015-16 to 2019-20 is Rs. 19.8 lakhs. For new construction of Authorized officers court and GIS Cell an approx. cost of Rs 80.00 lakhs kept for construction. DFO is advised to prepare plan and estimate for the purpose.

13.1.6.30. Eco-tourism:-

This division has several existing Eco-tourism spots along with scope for creation and development of new spots for nature tour. For creation, development and maintenance of tourism spots for serious type of nature lovers, an annual project wise expenditure are as follows, without violating the provisions of forest conservation Act 1980

Eco-tourism spot	Area in ha.	Creation in	Maintenance in
Deojhara Water fall	20.00	5.00	4.00
Dabarkhola Water fall	30.00	10.00	3.00
Ansupa Lake	10.00	--	10.00
Champadei Thakurani	10.00	7.46	2.00
Total	70.00	22.46	19.00

13.1.6.31. Capacity Building:-

For better and effective management of forest resources skill development of forest personals is highly essential. Different trainings and workshop are to be conducted along with deputation of staff to different professional management schools under this programme. An expenditure of Rs 12.0 lakhs is kept for the purpose with annual rise of 5% over the estimated cost.

13.1.6.32. Creation of Research Plot:-

There is no research plot year marks for conducting different research activities on forest management view. Keeping the forest growth of Narasinghpur West Range an area of 100 ha has been selected in compt. no-1 of Barhakhola R.F. Therefore it is proposed to create one research plot with an estimated cost of Rs 12.0 lakhs, further annual provision of Rs 5.0 lakhs for improvement of research activities with escalation of 5% per year. Hence the annual expenditure is kept to 16.0 with enhancement of 5% per year.

13.1.6.33. Library, Equipment's, Map and Tools:-

An amount of Rs 3.0 lakhs is kept for purchase of Maps, Library Books, Journals, Tools and equipment's is kept on lump-sum basis with an escalation of 5% annually.

14.1.6.34. Miscellaneous Contingency:-

To meet the unforeseen expenses of the division an amount of Rs. 5.0 lakhs kept with 5% escalation every year.

13.1.6.35. Comparison of Revenue and Expenditure from 2022-23 to 2031-32:-

The Comparison of Revenue and Expenditure from 2022-23 to 2031-32 is given in the table below.

Table No.21		
Revenue & Expenditure statement in Lakhs		
Year	Revenue	Expenditure
2022-23	2.70514	2508.418
2023-24	2.7592428	2701.309
2024-25	2.8144322	2756.824
2025-26	2.870724	3015.355
2026-27	2.928139	3197.584
2027-28	2.9867113	3266.513
2028-29	3.0464482	3105.931
2029-30	3.1073783	3024.355
2030-31	3.1695259	3140.598
2031-32	3.232922	2941.779
Total	29.6206637	29658.666

CHAPTER – 14

Miscellaneous Regulations

14.1. Miscellaneous Regulations Chapter :-

14.1.1. General Constitution of Chapter:-:

The forest area that are in various stages of degradation are included in this regulation. An area over 7.492 ha, which are not included in any chapter has been included in Miscellaneous Regulation.

14.2.1.1. Special Grant: -

In exceptional circumstances, this division may receive special grant for development of infrastructures. The Divisional Forest Officer Athgarh Division is advised to submit proposal for special grant for developmental activities in the Un-classed forest area.

14.2.2.3. Domestic requirements:-

The domestic requirements of fuel wood, timber and bamboos by the local people will be considered first. Supply of such forest produce to industrial units will however be considered only in case of surplus availability. The tenants may collect edible roots, fruits, leaves, and creepers for their personal consumption without permission and free of charges.

14.3. Grass Invasion: -

Different grasses are seen in patches on the forest floor. Grasses grow faster in small gap or in open space, which causes heavy grazing. Recruits are either suppressed by grasses or damaged by grazing.

14.4. Blocks, compartments and JFM area (marked on GIS based maps):-

14.4.1. Forest Blocks in Miscellaneous Regulations Chapter:-

The Range wise distribution of forest blocks, compartment and its area allotted to all Chapter including Miscellaneous Regulation is given in the table below.

Table No- 1

Name of Chapter	Range wise Chapter area in hectare GIS Computed Area					
	Narasingh pur East	Narasinghpur West	Badamba	Athgarh	Khunutni	Total
Miscellaneous Regulation	2.10	0.906	0.403	2.815	1.268	07.492

CHAPTER – 15

Science and Research

15.1. Science and Research Chapter.

15.2. General Constitution of Science and Research Chapter:-

15.2.1. Forest area:-

An area over 100.00 hectare have been identified for Science and Research. The forest area that is in various stages of degradation is included in this Chapter. This area is in Kalichaballav RF, Baniabandha RF, Haladiaseni RF, Deobhuin RF &Brahmanidei RF. This area is proposed in RWC of this revision. This area is under continuous pressure for removal of metals, Murums, pole crops and firewood by the local inhabitants. Proper protection of the area against grazing and fire could not be ensured for which the existing crops and the site condition have deteriorated further and the rate of soil erosion has accelerated.

15.3. Preservation Plots:-

An area of 20.00 hectare has been marked as preservation plot in each Range. The area will be surveyed and boundary line will be marked has preservation plot. A separate record will be maintainedwith detail of vegetation, change of the vegetation and impact the climatic variation. The details of search plot is given in the table below.

Table No. 1		
Preservation plot		
Name of the Range	Name of the Forest Block	Plot area in ha.
Athgarh	KalichaballavRF	20.00
Khuntuni	Baniabandha RF	20.00
Badamba	Haladiasein RF	20.00
Narasinghpur East	Deobhuin R.F	20.00
Narasinghpur West	BrahmanideiRF	20.00

15.4. Sample Plot:-

An area of 01.00 hectare is proposed for sample plot in different Ranges. This is proposed for growth studies of different species. Separate record will be maintained for NTFP. It will help for suitable management of forests in future. The details of search sample plot is given in the table below.

Table No.2		
Sample plot		
Name of the Range	Name of the Forest Block	Plot area in ha.
Athgarh	KalichaballavRF	1.00
Khuntuni	Baniabandha RF	1.00
Badamba	Haladiasein RF	1.00
Narasinghpur East	Deobhuin R.F	1.00
Narasinghpur West	BrahmanideiRF	1.00

15.5. Regeneration Plot:-

It is proposed to identify the regeneration plot over an area of 0.10 hectare in different Ranges. A separate record will be maintained for seedling, sampling and young trees. The data will be collected and recorded in every year. This will help to study the regeneration status in future prescription of the Working Plan. The details is given in the table below.

Table No.3		
Regeneration plot		
Name of the Range	Name of the Forest Block	Plot area in ha.
Athgarh	KalichaballavRF	0.10
Khuntuni	Baniabandha RF	0.10
Badamba	Haladiasein RF	0.10
Narasinghpur East	Deobhuin R.F	0.10
Narasinghpur West	BrahmanideiRF	0.10

15.6. NTFP Plot:-

The details of NTFP available in this division and its prescription has been given in the chapter No. VI. A separate record will be maintained for NTFP. The preservation plot is proposed for collection of the NTFP data.

15.7. Other research and experimental plot:-

The preservation plot will be used as other research and experimental plot. A separate record will be maintained for seed orchards, clonal seed orchards and general quality seeds. All existing permanent nursery will be managed for seedling and planting stock. It is proposed to keep the record for growing stock and silvicultural system etc.

15.8. General Character of Vegetation:-

15.8.1. Composition: -

It consists mostly of hardy species. The soil is highly eroded and susceptible to sheet and gully erosion. In some patches the topsoil has been washed away and transformed into hard morrum soil and rocky surface. The area is dominated by miscellaneous vegetation like Rohini, Karla, Aoinla, Jamu, Kurei, Dhaura, Dhatuki, Kanteikoli, Sal etc.

15.8.2. Distribution: -

The area selected to this Chapter is distributed in Narasinghpur West Range, which comprises 0.19 % of the total managed area of the Working Plan. Sal occurs in pure form in plain and valley area, where as it is sporadically distributed in mixed forest in the hill portion, dominated by other miscellaneous species.

15.8.3. Density: -

The crown density of the crops standing over the area varies from 01 % to 10 %. The density varies from > 05 % to 10 % in plain and valley area, where as it varies from 01 % to 05 % in hilly

area. The variation of density is due to various climatic and edaphic factors as well as the fertility of the area. The distribution of area will be given.

15.8.4. Growing Stock:-

The crop standing over the area is open and consists mostly of inferior hardy species. The actual established trees in each forest block included in this chapter have been estimated in this revision. This has been done based on inventory data. The estimated number of trees in different girth classes will be given.

15.8.5. Status of Regeneration: -

The area included in Science and Research Chapter does not have sufficient stock. The renewal of forest crop purely depends on nature. The young shoots are affected due to frequent fires.

15.8.6. Climber Menace:-

At present approximately 20 % of existing trees are affected by climber. Climber is affecting the growth of trees and quality of timber. Sometime trees are either uprooted or died due to climber attack. The growth of the climber is very fast and within one to two years it covers whole crown of the tree. The climbers are to be cut to avoid its menace.

15.8.7. Weed Growth: -

Unwanted plants are common in the forest floor. During rainy season vast numbers of weeds grow in the forest floor of this tract. Weeds tend to interfere with the growth of individuals of favoured species. Annual weeds die during the month of February. Dry weeds invite forest fire, which causes damage to seedling.

15.8.8. Grass Invasion: -

Different grasses are seen in patches on the forest floor. Grasses grow faster in small gap or in open space, which causes heavy grazing. Recruits are either suppressed by grasses or damaged by grazing.

15.9. Special Objectives of Chapter:-

The special objectives of Science and Research Chapterhave been given in the table below.

Objectives of management of Science and Research area	
Sl No.	Special objectives of management
1	To regenerate the degraded forest by appropriate silvicultural operation and protection measure for the principal species to achieve quick apical growth with active participation of the people.
2	To restock the barren area by artificial regeneration.
3	To extend soil and moisture conservation measure in a watershed approach to enrich the micro-edaphic condition for making the forests more productive in the near future.
4	To protect the area and minimize its further degradation.
5	To remove the miscellaneous thorny bushes to favour the growth of principal and secondary species

6	To record natural regeneration and its survival.
7	To identify different insects affective the wood.
8	To create favourable condition for the habitat and multiplication of the Wild Life.
9	To stop illegal removal of metal and illegal work in mining area.
10	To record growth rate for next revision of the plan.

15.10. Research Needs: -

At present there is no any research plot exists in this division. The present scenarios of forest management needs research plot in this belt of natural forest, which is extended towards the high forest zone of Angul and Dhenkanal Division. An area extended up to 100.00 ha is in BarakholaRFof Narasinghpur West Range. This area is suitable for research plot. The area is about 15.00 km from the Head Quarter of Narasinghpur West Range. The research will be based on natural species. Petty felling is not prescribed for formation of research plot.

15.11. Research Plot:-

15.11.1. Experimental Plot: -

Any preservation plot is not exist in this division. In this revision experimental plot of 02 patches over an area 10.0 ha each has been identified for experimental plot. The accurate relationship between height and diameter with respect to time period of principal species can be prepared from the experimental plot. Systematic study on growth in different site quality of any species has not so far been made in this division. The most predominant species sporadically distributed in this area of revision are Sal, Bija, Asan, Kurum, Dhaura and Mai. In absence of any statistical data for the area of this revision, the following Indian forest records for sal and other species can be referred to, which has been given in the table below.

Table No.4

List of Indian forest records for sal

Sl No.	Name of the book	Name of the author	Topic
1	Indian forest record. (New series) Vol. 4 (a) No.4 19.3	A.L.Griffith and BaskhiSanth Ram	Yield and stand table for sal high forest
2	Indian forest records. Vol. XII, part IV, 1926	H.S.Haward	Yield table for cleared felled sal coppice.
3	Indian forest recods,Vol-X, part-VI, 1924	Howard	General volume table for sal
4	Bija standard and commercial volume table	S.N. Debraj, P.K. Bhattacharya, Tarlok Singh and D.S. Rawat	x
5	Indian forest records (New series) Vil-4A, No.5, 1947	Griffith and Santh Ram	Asan General standard and commercial volume table for Asan
6	General standard volume table for Haldu	Chatuvedi, Bhattacharya and Rawat	x
7	I.F.R. (New series) Silviculture 14 (7), 1973	Chaturvedi	General standard Volume Tables for Semul

CHAPTER - 16

Summary of Prescription

16.1. General constitution:-

Athgarh Forest Division was created on dtd.03.02.1950 vide Revenue Dept. Notification No 1282 amalgating the forests of the Ex-states of Athgarh, Tigiria, Baramba, Narasinghpur and Hindol after merger of these princely states into provincial state of into provincial state of Odisha for systematic and scientific management under the control of State Government. The reafter several alterations have been made in the jurisdiction of this division ending with the last re-organization of Odisha Forest Department on 01st October, 2003 from which date the present Athgarh Forest Division is functioning with five Ranges namely Athgarh, Khuntuni, Badamba, Narasinghpur East &Narasinghpur West confining its jurisdiction to entire Athgarh Sub-division and small portion of both Cuttack Sadar&Banki Sub-division under Cuttack District till date with headquarters at Athgarh. It is one of the oldest Forest Divisions of the state.The total working plan area is 39626.163 hectare (RF = 36142.321ha, PRF = 1539.9 ha, PF = 82.89 & VF = 1861.052 ha.), which excludes 7.492hectare of un-classed forest. The Un-classed forest area is allotted to Miscellanies regulation. Basing on the Forest cover of the Division and for scientific management of Forest , it is suggested to manage the Forest under different Independent Working Circles like Rehabilitation working circle (34129.491 ha.) and Plantation Working Circle (5496.672 ha.) based on guidelines issued in National Working Plan Code-2014 and National Forest Policy in force.

16.1.1.Brief resumes of Chapters of Part - I and part – II:-

Brief resumes of Chapters of Part - I and part – II have been given in tabular form indicating respective page numbers. Summary of main prescriptions of the Working Plan are given under this chapter, including that of miscellaneous regulations Working Circle in a tabular form to act as a ready reckoner for quick references. The totalGIS Computed Area to be managed of the division is 39626.163 hectare.

16.1.2. Part I: -

The chapter wise important discussion of part - I of this revised Working Plan is given in the table below.

Table No. 1		
Chapters of Part – I		
Chapter No.	Brief resume of Chapters of Part – I	Page No.
x	India Forest Map	I
x	Athgarh Forest Division in India Map	II
x	Odisha Forest Map	III
x	Athgarh Forest Division in Odisha	IV
x	Map of Angul Circle	V
x	Index Map of Athgarh Division	VI
x	Administrative Map of Athgarh Division	VII
x	Forest Block Map of Athgarh Division	VIII
x	Introduction	IX
x	Volume - I	X
x	Glossary of Terms	XI
x	List of Flora	XII
x	List of Fauna	XIII
x	Others	XIV
x	**PART-I**	XV
1	**The tract dealt with** The Geographical area of Athgarh Forest Division is calculated to be 152262.00 hectare, out of which 39626.163 hectare is to be managed in this revision. The Division consists of 05 nos. of Forest Ranges spreading over 06 nos. of Tahasils and Forests Blocks viz. Narasinghpur, Badamba,Tigiria,Athgarh,Part of Cuttack Sadar&Banki Sub-division. One number of NACAthgarh.According to last 2011 census the human population residing in jurisdiction of this Division is 547677 nos. This Division presents some of the important land marks in the geological history of Orissa. Undivided Cuttack district comprises litho units belonging to Eastern ghat Super group, Iron Ore Super group and Upper Gondwana period. The important mineral resources present in this division are Graphite, Quartz, Dimension Stone and Fire Clay. The different types of soil present are broadly classified as laterite soil, red loamy soil and alluvial soil. The Division experience Tropical weight and dry climate with very warm humid summer and mild winter. The three distinct seasons are summer, rainy and winter. The annual rain fall of this division varies from 2005mm to 2014mm. The temperature scales from 12degree Celsius (during December to January) to 42degree Celsius (in May to June). The Relative humidity for last ten years are being collected. Humidity is very high in the months of June, July and August. The lowest humidity is recorded in November and December. The summer months are quite uncomfortable, with higher temperature combined with high humidity.	1-16

2	**Maintenance/Increase in the extent of forest and tree cover.** According to Champion & Seth, 1968 the forest types in the division were categorized into tropical moist mixed deciduous and tropical dry mixed deciduous Forests. In the outgoing plan an attempt has been made to derive forest type information with reference to Champion and Seth classification system using multi temporal satellite data and field species data collected from sample points (0.1 ha) distributed over entire division. The Forest type of this Division is categories in to Tropical Moist Mixed deciduous and tropical dry mix deciduous.	17 - 64
3	**Maintenance, Conservation and Enhancement of Biodiversity.** North Indian Tropical Moist Deciduous 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 peninsular(costal) Sal Forest , Northern Secondary moist mixed deciduous forest, Dry peninsular Sal Forest, Dry deciduous scrub forest. 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 Division, has taken up the inventory of NTFP plants species diversity (refer Annexure A). Random sample point survey has been carried out for all the species selecting the sample points on different type of forest vegetation. Keeping baseline survey, biological diversity can be analyzed to compare to the present status. No systematic survey has been done so far to access the bio-diversity in to except the assessment of NTFE species taken up during the previous plan period.	65 - 102
4	**Maintenance and Enhancement of Forest Health and Vitality.** Young plants of tree species up to 10 cm diameter have been taken into consideration for assessment of regeneration status of a particular species as prescribed in National Forest Inventory by FSI. Data collected from the square plot of 3 x 3 m for saplings and the square plot of 1 x 1 m for seedlings has been used to assess the regeneration status of species in the management unit (compartment). Based on the data from plot enumeration, the regeneration status of the sampled species has been 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. The lower categories of regeneration such as established, un-established (whippy and sub-whippy), recruits, etc. giving value to each category and calculating total regenerative percentage may be required, in case, above classifications are absent or insufficient to indicate regeneration status. Fire continues to be the major threat to forest regeneration and establishment. Fire fighting system needs to be strengthen in the identify vulnerable areas depending upon requirement and availability of funds for fire watchers from February to June every year.	103 - 110

5	**Conservation and Maintenance of Soil and Water Resource.** Most of the forest areas in the Division are prone to soil erosion. Soil erosion results in poor water retaining capacity of the forest areas. For conservation of soil and moisture, contour trenches, loose boulder structures, check dams have been constructed during the plan period under the funding by State CAMPA. Soil moisture conservation is always initiated from top of the hill towards bottom of the hill. It is divided into three portions- Hilly portion, Valley portion and Sloppy land portion. Hilly portion and valley portion need treatment like soil and moisture conservation activities to retain the soil and enhance moisture retaining capacity. For these activities soil and moisture conservation methods such as loose boulder check dam, contour bonding, contour trenches, percolation tanks, water harvesting structures and plantation of *Agave* and *Vetiver* in contour has been carried out in Athagarh Forest Division.	111 - 119
6	**Maintenance and Enhancement of Forest Resource Productivity** In the outgoing plan Plantation (Over Lapping) Working Circle have been constituted. Plantation activities in the Division have been taken up within and outside the Plantation (Over Lapping) Working Circle, where ever plantable area is found. At present old, over matured *Eucalyptus* plantations and old teak plantations exist in several locations. Besides these, new plantations including mixed plantation have been taken up in the Division. 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 center 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. From enumeration data of the tree 30cm girth, the volume of individual species is calculated from the volume table for the species.	120 - 130
7	**Optimization of Forest Resource and Utilization.** Timber and firewood have been harvested from the timber coupes of Selection Working Circle during the outgoing plan period by the Odisha Forest Development Corporation, Ltd. The details of timber working from 2007-08 to 2015-16 are given in the chapter. Further the salvaged and seized materials have also been delivered to OFDC Ltd.	131 -141

8	**Maintenance and Enhancement of Social, Economic Cultural and Spiritual Benefits.** JFM overlapping Working Circle was constituted with the special objective to involve local communities in Forest and Natural Resources Management and make equal partners in forest protection with the forest department. The forest under this overlapping Working Circle was managed through micro-plans prepared by the village committees in consonance with the prescriptions of the main Working Circle to which the forest block was allotted. During the plan period 36 number of VSS have been constituted covering 8799 ha of forest area. At present 157 numbers of VSS covering an area of 15478.44 ha exists in this Division. The details of VSS list is given in the Annexure. 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 and sell to the middle men. The Sal leaf collection and processing is a cottage industry in Athagarh Forest Division. Sal leaf plates and cups are exported to major cities of India.Mahua flower, mahua seed, char seed, kendu leaves use to give substantial income to local tribal population. However in order to meet the local needs vis-a-vis enhancement of productivity of forest, efficient development of depleted and degraded forest and effective resource management, Government of Orissa in Forest and Environment Department have formulated the guideline, vide JFM resolution, 2011. The ST and OTFD (RoFR) Act – 2006 has directed recognition of individual & community rights linked with duties for protection of Forests.	142 - 146
9	**Adequacy of Policy, Legal and Institutional Frame Work.** The forests of this Division were managed under the prescription of revised Working plan of the erstwhile State of Athagarh by Smt. Uma Nanduri, IFS, Working Plans Officer, Angul from 2007-08 to 2016-17. ANR, SMC activities are being taken up in the coupes of Rehabilitation Working Circle. Plantation of tree species have been taken up within and outside the Plantation (Over Lapping) Working Circle areas. Timber productions from the coupes of Improvement Working Circle have an increasing trend. The density of forest under joint forest management has also in an 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 sample plots in fully stocked forests will be marked for measuring the carbon stock during the Plan period.	147 - 154

10	**Five Year Plans.** After Independence, the first five years Plan had been started from the year 1951. As per the outlay in different Plan period, the investment made was to improve the condition of livelihood needs of the people. In every Plan period, the financial allocation in forestry sector is less than 1 % of the total outlay of the country. Rs.85.00 -13824 has been spent in the forestry sector from first to eight five years Plan. Whereas financial allocation in first five years Plan to eight years Plan has been increased from Rs.76.00 million to Rs.40820.00 million respectively. The investment made in the forestry sector is always linked with the livelihood needs of the people. It requires a long gestation period to receive the outputs from the forestry sector. Always it is not possible to calculate the benefit in monetary term. However, the pressure on the forest is increasing in day by day. Therefore the combined effect of high demand and less financial allocation in every five years Plan period resulted in continuous deterioration of forest resources. The different activities have been taken up in this division during the plan periods depending on the allocations of funds. The major forestry activities done are integrated afforestation and Eco-development project (IAEPS),Fuel wood and fodder project, NTFP Scheme.	155 - 167
11	**Past System of Management**. The Orissa Feudatory States were merged in the parent province of Orissa in 1948.In the same year Dhenkanal Forest Division was created comprising the Ex-states of Dhenkanal, Badamba, Talcher, Hindol, Athgarh, Tigiria and Narsinghpur. In 1950 the Dhenkanal Division was split into two Divisions namely Athgarh and Dhenkanal. Athgarh Division was constituted with the Ex-States of Athgarh,Tigiria,Baramba,Narsinghpur and Hindol along with the private forests of Dalijora. Subsequently Hindol range was transferred to Dhenkanal Division in 1953 Prior to the integration of the Ex-States, the forests excluding the Ex-Zamindary portions were being managed under the advice of the Forest Advisor, Eastern States. Excepting for Narsinghpur, no regular working plan or scheme was drawn up. Forests were managed according to the instructions issued from time to time by the Forest Advisors in their inspection notes. No scientific basis was adopted for the management of the Zamindary forests.A regular Working Plan for the systemic management of the state forest has prepared by Dr.H. F. Mooney the then Chief Forest advisor & plan, so on. Dr.H. F. Mooney Working Plan -1941-42 to 1963-64 Sri S.S Das IFS Scheme - Sri G.G Das IFS Working Plan -1964-65 to 1983-84 Sri G.Mohapatra IFS Working Plan -1983-84 to 2002-03 Smt. Uma Nanduri IFS Working Plan-2007-08 to 2016-17	168 - 188

12	**Statistics of Growth and Yield.** The growing stock was assessed by taking up sample point enumeration based on random sampling as per sample point prescribed by GIS Computed Area& ORSAC. Enumeration has been completed and basing on the results, the yield of the growing stock has been calculated. Till date, for yield calculation there is no any research work has been taken up in the Athagarh Forest Division to know the influence of the climatic and adaphic factors on the growth of the forest nor is any local volume table or yield table available to assess the yield. During this sample point enumeration, ideal plots are selected to assess the growth of forest. The statistics of growth and yield has been calculated after completion of enumeration of all the sample plots in different Working Circle. 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)fromthe 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.	189 - 195
x	**PART-II**	XV
	Brief resume of Chapters of Part – II	
1	**Basis of Proposal and Constitution of Working Circles.** The total working plan area is 39626.163 hectare (RF = 36142.321 ha, PRF = 1539.9 ha, PF = 82.89 & VF = 1861.052 ha.), whichexcludes 7.492hectare ofun-classedforest. The Un-classed forest area is allotted to Miscellanies regulation. Therefore area over 39626.163 hectare is allotted to Rehabilitation working circle (34129.491 ha.)and Plantation Working Circle (5496.672 ha.)in this revision. The basis of Proposal for this working Plan is based on guidelines issued in National Working Plan Code-2014 and National Forest Policy in force. In this revision the main working circles are (1) Rehabilitation Working Circle & (2) Plantation Working Circle. The other Working Circle are Bamboo OWC, Joint Forest Management OWC, Wildlife Management OWC, NTFP OWC, Protection OWC	196 - 217

2	**Rehabilitation Working Circle:** The total area allotted to this working circle is 34129.491 ha. Out of 53 (35 RF+ 15 PRF+ 3PF) forest blocksin the division, only two blocks contain vegetation with more than 0.40 crop density. Rest 51 forest blocks contain vegetation with varied crop density from 0.10 to less than 0.40. **Silvicultural System Prescribed:** 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. However to achieve the major objectives, operations like regeneration cleaning, soil and moisture conservation, gap planting, block planting along with tending will be carried out. In addition, steps will have to be taken to protect the area from grazing, theft and fire with the active support of the people wherever possible. **Rotation Period:** During these ten years plan period no crops to be harvested hence there is no prescription of rotation. The allotted areas to this circle will be traded in ten year treatment cycle. **Silvicultural Treatment:** 1. All high stumps along with climber shall be cut flush to the ground. 2. Removal of invasive weeds. 3. Cleaning operation shall be carried out to avoid congestion in order to encourage local valuable species. 4. Singling out of coppice shoots to be retained to allow for growth of promising one. 5. Planting of suitable species in blanks. 6. Planting of fodder and fruit bearing species with consultation to concern VSS. **Objectives of Management:** 1. To restock the depleted forests by inducing natural regeneration, supplement through artificial regeneration. 2. To increase the productivity of the forest through various silvicultural methods. 3. To cover the soil with quick growing species to meet local demand and high biomass production per hectare per year. 4. To enhance moisture regime through Soil & Moisture Conservation. 5. To regulate the surface water runoff by enhancing percolation and water availability down the stream. 6. To partner with the local community in protection and management of the forests. 7. To restore and improve the microclimate and micro edaphic condition. 8. To increase the biodiversity and heterogeneity in the forest crop by encouraging natural regeneration. 9. Reduce the biotic pressure, grazing and forest fire so as to give a favourable condition to establish the natural regeneration of both seed & coppice origin. 10. To meet bonafide required of people for household articles, building materials. 11. To enhance growing of palatable fodder to animals both wild & domestic. 12. Suppression of & eradication obnoxious weeds and improve the habitat quality. **Annual treatment coupe:** The Working Circle is divided into ten treatment series. Each of the treatment series is divided in to ten nos. of annual treatment coupes.	218 - 237

3	**Plantation Working Circle:** The total area allotted to this working circle is 5496.672 ha, which includes 1861.052 ha of village forest. Depending and distribution of area in this Division, the total area assigned to plantation working circle is divided into six planting series. The name of planting series are Athgarh and Khuntuni, where new plantation (AR) will be done during the plan period. The replanting series names are Deobhuin and Kalichaballav, where ANR plantation will be taken up. The tending series name is Athgarh tending series, where only tending operation will be taken up. The village forest planting series includes only the village forest of this division. **Silvicultural System:** The silvicultural system prescribed for the pure plantation is by **"Artificial regeneration with planting of seedlings"** and the village woodlots raised by social forestry wing will be done by "**clear felling with standard followed by artificial regeneration"** by planting of seedlings. The number of mother trees required to be retain per ha. will vary from 25 numbers to 75 numbers depending upon the biotic interference of the area. **Rotation Period:** There is no rotation period is prescribed for the old village woodlots. The plantations are to be harvested by clear felling during the plan period and subsequent planting of the area leaving the mother trees untouched. **Exploitable Girth:** No exploitable girth is prescribed for the trees of the village woodlots of erstwhile social forestry wing since the plantation needs to be clear felled followed by artificial regeneration. **Marking of Mother Trees:** The silviculturally sound and healthy trees are to be selected as mother trees basing on the criteria detailed below:- • Fruit bearing trees like Mango, Jamun, Jack-fruit , Kendu. • Trees having religious and cultural attachments of the local peoples. • Trees having high economic value. • Trees for collection of seeds required for raising of Nursery for supply of planting materials.	238 - 265
	Planting technique: Standard site specific planting procedure is followed as per the approved cost norm prescribed for different planting schemes like AR ,ANR , Bald-Hill ,MGNREGA .	

4	**Bamboo Overlapping Working Circle:** The total area of Bamboo Overlapping Working Circle is 15239.595 ha. This Working Circle includes most of the bamboo bearing areas of the Division and overlaps with Selection and Rehabilitation Working Circles. Some of bamboo potential areas are coming under Satkosia Tiger Reserve Extension. For that reason lot of bamboo bearing areas are not included in this plan. it is proposed to have two cutting series. The name of cutting series are (1). NarasinghpurEast (2). Badamba, it is also proposed to have two Rehabilitation Series. The name of the series are (1) Narasinghpur East (2) Badamba. **Silvicultural system:** The silvicultural system prescribed is called 'Culms selection-cum-clump improvement'. In these systems two complimentary operations shall be carried out simultaneously. **Rotation period:** There is no any experimental plot in this division to determine exactly the year at which an individual culm lives. The planned number of years between regeneration and maturity of a crop will vary depending on its site quality. Rotation should be a multiplication of the cutting cycle. A cutting cycle of 04 years has been fixed for all cutting series in this Working Circle. **Felling / Cutting Cycle:** Bamboo is usually harvested in every 04 years. The cutting cycle is fixed basing on two consecutive cutting of one coupe. Therefore the cutting cycle is fixed to 04 years. **Cutting rules for salia Bamboos (Dendrocalamusstrictus):** Salia bamboo (*Dendrocalamusstrictus*) will be worked out as per the following prescriptions.Rules which are uniformly applicable to all the treatment types. **Flowering in Bamboo:** In selection forest, the age of clump varies and accordingly varies the intensity of gregarious / sporadic flowering. The delay in flowering in poor sites is due to the effect of site quality, which is related to the growth and storage of starch, sugar and other substances in the clump.	266 - 293

5	**Non Timber Forest Produce Overlapping Working Circle:** **General Constitutions of Working Circle:-** The area of the working Circle is 39626.163 hectare. The forests of Athgarh Division were once rich in various Non-Timber Forest Products like Sabai grass, Broom grass, Cane, Sunari, Khair, Nuxvomica, Mahua flower & seeds, Siali leaves and fibres, Mango fruit, Kusum, Karanji, Neem, Sal seed, Myrobolans, Honey, Wax, Bamboo, etc. Some of these items used to fetch sizable revenue to the State Government and livelihood to the people, particularly the people living in the forest fringe villages. **Special efforts:-** Under the present scenario, special efforts are required to strike a balance between the protection of the interests of the primary gatherers, thereby enhancing their subsistence and side by side the protection and conservation of the natural resources, thereby increasing the productivity and making the forests sustainable. **Important trees producing NTFPs:-** Details of a bio-diversity study for the State by Forest and Ecology Division, GIS Computed Area, Hyderabad has been undertaken for the first time to have a better undrstanding of the biodiversity composition. It has also been ascertained that the local people use large number of NTFPs. The estimated quantity of NTFPs in the above paragraph provides an overview of various products that are available and, are collected, regularly by the local people like Sabai grass, Broom grass, Cane, Sunari, Khair, Nuxvomica, Mahua flower & seeds, Siali leaves and fibres, Mango fruit, Kusum, Karanji, Neem, Sal seed, Myrobolans, Honey, Wax, Bamboo, etc. **Marketing of NTFP Product:** With a objective of improvement marketing, necessary importance to be given for scientific collection and value addition of the NTFP commodities. **Rights& Concessions:-** Right and concessions of local people shall be regulated in accordance with the provision of the Orissa forest Act and relevant Rules in force besides the Govt. policy in vogue.	294 - 309

6	Joint Forest Management Overlapping Working Circle. General Constitutions of Working Circle:- The total area allotted to J.F.M Overlapping Working Circle is 12200.362 hectare. Over the past few decades, the forests of Orissa are under heavy biotic pressure. The rich bio-diversity of the state faces the risk of depletion. Hence the Joint Forest Management is viewed as a successful venture to improve the valuable forest. In the Division there are 153 numbers of VSS constituted under the provisions of JFM resolution. Out of these VSS, Forest Blocks have been allotted to 115 VSS the area comes to 12200.362 ha. The balance 31 numbers of VSS have been allotted Revenue Forests / Keshera Forests which comes to an area of 2599.09 ha. **Method of Execution:** For execution of this Working Circle the following points are to be followed:- ▪ Creation of VSS with due consultation of Villagers. ▪ Assignment of area. ▪ Preparation of Micro Plan. ▪ Capacity building training of VSS members . ▪ Mass Awareness campaign. ▪ Joint Forest Management in coordination among forest staffs and local villagers. ▪ Creation of income generating activities to reduce the dependency on forest. ▪ To develop institution at community level to manage " Community Forest". **Rights and Concessions:-** 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.	310 - 322

7	**Wildlife Overlapping Working Circle**: The total area allotted to this working circle is 39626.163 ha. The Athagarh Division is rich in wild life biodiversity. The management of forest without management of wildlife cannot be treated as complete. The entire division comes under notified Mahanadi Elephant reserve and forms part of Satkosia Tiger Reserve Extension, Satkosia Gorge sanctuary extension & tiger corridor, hence Athgarh Division plays a significant role in management of Wildlife and its habitat. **Objectives of Management:** The special objectives of Management set for this Working Circle aiming to conserve and protect the existing Flora and Fauna. ▪ To create awareness among the local people for conservation and protection of the Wildlife and their habitat. ▪ To prevent Wild Life crimes and rescue of Wildlife in critical areas. ▪ To address the issue related to man and animal conflict. ▪ To conserve and develop some important wild life habitats of the division for the purpose of eco-tourism. ▪ To prevent wild life accidents caused by electrocution and Railways. ▪ Being adjacent to Satkosia Tiger Reserve and Satkosia Gorge sanctuary specific thrust to be provided to forest blocks adjacent to tiger reserve and taking into consideration the extension of Satkosia tiger landscape & Tiger Corridor. **Mahanadi Elephant Reserve:** The entire Athgarh Forest Division comes under notified Mahanadi Elephant Reserve.Regular migration of elephant occurs to this division from Chandka and Kapilash wildlife sanctuary. **Satkosia Tiger Reserve:** The Regional Chief Conservator of Forests-cum-Field Director, Satkosia Tiger Reserve, Angul has given guidelines for management practices in forest areas of Satkosia Tiger Landscape outside the Sanctuary and core area in Satkosia Tiger Reserve. **Threats and Remedial Measures:** The major threats to Wildlife habitats are – ▪ Forest Fire ,Biotic interference ,Intrusion of domestic animal , Poaching ,Man animal conflict ,loss of water bodies ,fragmentation of corridor. **How to address the issues:** ▪ Well equipped Fire fighting squad. ▪ Creation of awareness among the local people regarding prevention of Forest fire and protection to Wild life. ▪ Change of crop pattern. ▪ Implant of source for collection of intelligence on wildlife crime. ▪ Mass immunization of cattle and other domestic animals in forest fringe villages. **Prescriptions for effective Wildlife Management:** ▪ Creation of Water bodies in animal density areas. ▪ Development of meadows. ▪ Fodder cultivation. 452 ▪ Creation of public awareness and their participation in Management.	323 - 339

	▪ Creation of artificial salt licks. ▪ Creation of public awareness and their participation in Management. ▪ Linkage of corridor by planting locally available species.	
8	**Eco Tourism Working Circle:** **General Constitution of Working Circle:-** The total area allotted to Eco-Tourism Working Circle is 70 hector. The growing segment of State Tourism Industry that is making significant positive contribution to Environmental, Cultural and Economic wellbeing of destination and local communities around the State. It is a part of environmental conservation and understanding what the needs of local people who are local to area. **Objectives of Management:-** The special objectives of management of Eco tourism Working Circle have been given in the table below, without violating the provisions laid there in the forest conservation Act 1980. ▪ To improve the Eco-tourism area by planting flower plants, construction of check dam, steps, railing and tower for attraction of the visitors. ▪ To restock the barren area by artificial regeneration. ▪ To extend soil and moisture conservation measure. ▪ To protect the area and minimize its further degradation. ▪ To remove the miscellaneous thorny bushes to favour the growth of principal and secondary species. ▪ To encourage natural regeneration involving local communities. ▪ To create favorable condition for the habitat and multiplication of the Wildlife. ▪ Construction of infrastructure to provide better facilities to tourists. **Distribution: -** The area allotted to this Working Circle is distributed in Athgarh, Khuntuni, Badamba, Narasinghpur East &Narasinghpur West Range, which comprises 0.22 % of the total managed area of the Working Plan. **Special Feature: -** There is not any significant observed in the forest area managed during the outgoing Plan period. Firewood and small timber demand of the inhabitant of the locality are fulfilled from the forest, which are not managed in this revision. Forest fire is an important tragedy to the forest of this tract. Soil fertility reduces due to forest fire and subsequently has a negative impact on the overall quality of the tree growth. **Conclusion: -** The villagers have conserved the vegetation of this grove which can be known by seeing the density of the trees species in the grove. However no sacred grove committee has been formed. In our village meeting where the president of the VSS and some other villagers were present, had some of their own suggestion such as a boundary should be made around the sacred grove to check the entry of the cattle entirely. A particular place should be made where the goddess is being worshiped.	340 - 351

09	**Protection Overlapping Working Circle:** The total area allotted to Protection Overlapping Working Circle is 39626.163 hectare. The forests of Athagarh Division are subjected to various factors causing damage to forest as well as wild animals. As most our forests are deciduous in nature and leaf litters accumulate on forest floor during winter thereby creating, fire hazard is all most seen in all forests. **General characteristics of vegetation:** The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. **Protection Series / JFM areas:** Protection Series has not been constituted in this overlapping working circle. Therefore protection of the managed area is a continues process at every time during the plan period. **Forest Blocks in Protection Overlapping Working Circle:** The total area allotted to this Protection overlapping working circle is 39626.163 hectare. It covers all forest blocks of this Division. More emphasis has been given for protection of areas those are vulnerable for illicit felling, theft and fire. **Objectives of Management:** -To enhance possibility of establishment of regeneration . - To minimize biotic pressures like illicit felling, fire, grazing, etc. - By developing forest road network, constitution of protection unit,VHF network, infrastructure developments . - Protection against illegal query operation. -Effective evection of enchroachment. -Strengthening of striking force by providing arms and ammunitions. **Grazing:** The forest blocks to be protected against grazing specially planted up area and newly regenerated area. **People's Participation:** The local people and VSS members are to be motivated to protect the forest resources. More VSS in forest fringe villages are required to be constituted. **Right and Concessions:** Rights and concessions under this working circle shall be regulated in accordance with the provisions of the Orissa Forest Act, 1972: Rules made there under besides the Government policies in force.	352 - 360

10	**Water Resource Management Chapter.** **General Constitution of Water Resource Management Chapter:** The total area allotted to Water Resource Management Working Circle is 39626.163hectare. There are many waterfall existing in this division. The main waterfalls are Dianjhara, Dabarakhola, Hadua etc. The management of the water resource existing in this division is necessary for the wildlife, forest and local inhabitant. **Special Objectives of Management:-** The special objectives of Water ResourcManagement, REDD+ and Climate change have been given below. ▪ To regenerate the degraded forest by appropriate Water Resource Management. ▪ To restock the barren area by artificial regeneration. ▪ To extend soil and moisture conservation measure in a watershed approach to enrich the micro- edaphic condition for making the forests more productive in the near future. ▪ To protect the area and minimize its further degradation. ▪ To supply the firewood, poles and timber in systematic manner to the local peoples and there by discouraging illicit felling. ▪ To increase the water level in the locality. ▪ To encourage natural regeneration through fire protection and closure from grazing by involving local communities. ▪ To create favorable condition for the habitat and multiplication of the wild life.	361 - 369

11	REDD+ and Climate change Chapter:- General Constitution of REDD+ and Climate change Chapter:- The totalarea allotted to REDD+ and Climate changeChapter is 39626.163hectare. The total geographical area of this division is 152262.00 ha. and total GIS Computed Area forest area is39626.163 hectare. There are many waterfall existing in this division. The main waterfalls are Dianjhara, Dabarakhola, Hadua etc. The management of theREDD+ and Climate change existing in this division is necessary for the wildlife, forest and local inhabitant. General Character of Vegetation:- The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissus latifolia, Cleistanthuscollinus, Terminalia tomentosa, Buchananialanzan, Diospyros melanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewia sps., Indigofera cassioides, etc. Hemidesmus indicus, Calycopteris floribunda, Combretum decandrum, Butea superba, Bauhniavahilii etc., are the important climbers present in this forest. The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied. REDD+ and Climate changeSeries, and JFM areas:- REDD+ and Climate changeSeries has not been constituted in this working circle. Blocks, compartments and JFM area (marked on GIS based maps):- Forest Blocks in REDD+ and Climate change. The area allotted to this REDD+ and Climate change is distributed in all Ranges, which comprises the total manage area of this plan. The detail is given in the table below.	370 - 377

12	**Biodiversity Conservation and Development Working Circle.** **General Constitution of Working Circle:-** The forest area that is in various stages of degradation is included in this regulation. The total manage area proposed in this revision over 39626.163 hectare has been included in this working circle. This area is under continuous pressure for removal of metals, Murums. **12.3. General characteristics of vegetation:-** The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. **Biodiversity Series and JFM areas:-** The total GIS Computed Area included in this revision is 39626.163 hectare. It will be managed for Reserve Forests, Proposed Reserve Forests, Protected Forest, and Village Forests & Un-classed Forest. **Objectives of Management:-** The special objectives of Biodiversity Conservation and Development Working Circle have been given as follows. ▪ Regeneration of degraded forest . ▪ Restocking of barren areas by artificial regeneration. ▪ Soil and moisture conservation measure for making forest area more productivity. ▪ To encourage natural regeneration. ▪ Habitat Development for Wildlife. **Silvicultural system:-** It does not involve any Silvicultural System. Therefore only Bio-diversity protection is proposed in this revision. Also protection against wild life poaching is proposed. **Rotation period:-** There is no experimental plot in the division to determine exactly the year at which the tree attains exploitable girth. The planned number of years between regeneration and maturity of a crop varies depending on its site quality. Rotation should be a multiplication of the felling cycle. **Biodiversity Assessment: -** The data collected during enumeration such as the number of individuals of each species and the DBH of each tree are utilized to derive secondary attributes like basal area (BA, m^2 / ha), density (D, trees per ha) and frequency (F, number of quadrates where trees are present in relation to total plots observed). Relative values 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). **Regeneration Survey: -** Tree enumeration has been done in 16 patches which is extended over 14 Reserve Forest and 02 Proposed Reserve Forest of the tract. The plot size is 40 .0 x 25 .0 over an area of 0.1 ha. Data collected for sapling in the plot size of 03 .0 x 03 .0 in the middle of the above patches. In the square plot of 1 .0 x 1 .0 the above patches establish, woody, whippy, sub-whippy and recruit are counted.	378 - 406

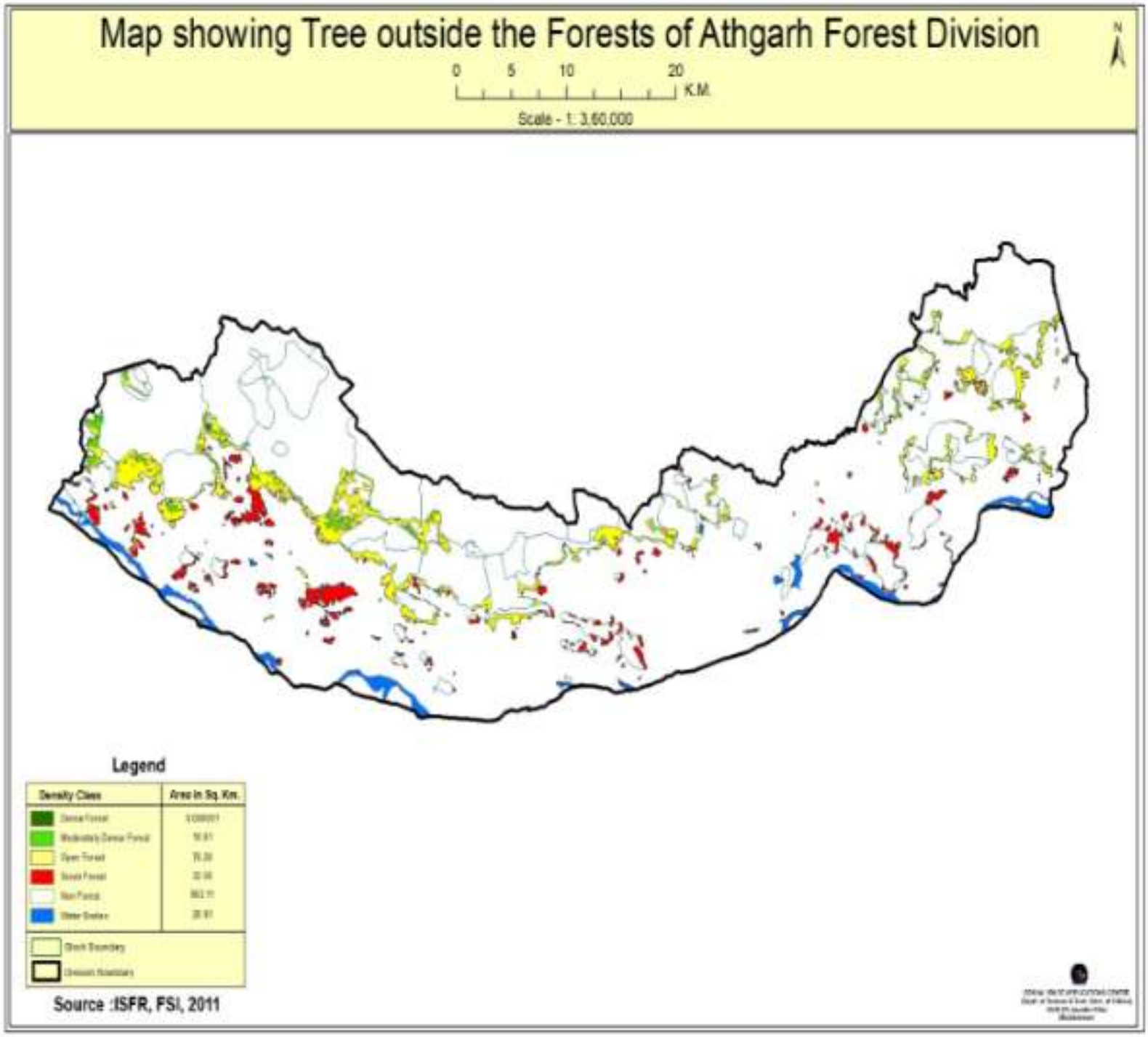
	Assessment of Regeneration Status: - Young plants of tree species up to 11.0 diameter are taken into consideration for assessment of regeneration status of a particular species as practiced in National Forest Inventory by FSI. Data collected from the square plots of 3x3 m^2 for saplings (2.0 to 11.0 collar diameter) and from the square plots of 1x1m for seedlings will be generally used to assess the regeneration status of species in the management unit (compartment, village or any other unit). Based on the photosociological data from plot level enumeration. **Analysis of Regeneration Survey: -** The enumeration data have been analyzed. The regeneration status is assessed. The assessed values of regeneration for 16 blocks are given in the plan.	
13	General Financial Forecast and Financial Plan of Operation.	407 - 423
14	**Miscellaneous Regulations.** **General Constitution of Working Circle:-** The forest area that are in various stages of degradation are included in this regulation. An area over 7.492 ha of un-classed forest(UF), which are not included in any working circle has been included in Miscellaneous Regulation.	424 - 424

15	**Science and Research.** **. Forest area:-** An area over 100.00 hectare have been identified for Science and Research. The forest area that is in various stages of degradation is included in this Chapter. This area is proposed in RWC of this revision. **Preservation Plots:-** An area of 20.00 hectare has been marked as preservation plot in each Range. The area will be surveyed and boundary line will be marked has preservation plot. A separate record will be maintained with detail of vegetation, change of the vegetation and impact the climatic variation. **Special Objectives of Chapter:-** The special objectives of Science and Research Chapterhave been given in the table below. ▪ To regenerate the degraded forest by appropriate silvicultural operation. ▪ To restock the barren area by artificial regeneration. ▪ To extend soil and moisture conservation measure in a watershed approach to enrich the micro-edaphic condition for making the forests more productive in the near future. ▪ To protect the area and minimize its further degradation. ▪ To record natural regeneration and its survival. ▪ To identify different insects affective the wood. ▪ To create favorable condition for the habitat and multiplication of the Wildlife. ▪ To stop illegal mining operation. To record growth rate for next revision of the plan	425 -428
16	Summary of Prescription:	429 - 449

17	**Tree Outside Forest Area.** **General Constitutions of Working Circle:-** The total area allotted to Tree Outside Forest Working Circle is 93284.8579 hectare (152262.00 – 39626.163).Trees outside forests (TOF) are located on the lands other than forests, including agricultural lands, 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 Plantation area assigned to TOF:- The plantation area assigned to TOF management is as follows. ▪ All the area planted under "Jagannath Van Prakalpa" will be included / managed under this Working Circle. Over an area of 460.59ha. ▪ Under National Afforestation Programme usually termed as FDA plantations those are outside the purview of JFM Working Circle. ▪ All avenue Plantations raised either under various sponsored programme or Nanional Mahatma Gandhi Rural Employment Guaranty Programme "NMGREGP. To an extent of 584.0 Rkm of avenue plantations have been raised till 2020-21. ▪ Trees available on Govt. vacant land irrespective of planting Agency are to be managed under this Working Circle. **Silvicultural system:-** It does not involve any Silvicultural System. Therefore only TOF protection is proposed in this revision. Also protection against wild life poaching is proposed. **Method of Treatment / Silvicultural system:-** It is not possible to prescribe any particular silvicultural system that can be adopted in TOF Working Circle. Plantations raised under FDA, Jagannath van Prakalpa are to be managed as per prescriptions of Plantation Working Circle and Rehabilitation Working Circle as applicable. Miscellaneous regulation to maintain and manage trees created along the road side, trees found in other areas, Industrial Houses and Mine reclamation will be formulated during plan preparation. **Harvesting:-** There is requirement of specific species / girth class for Jagannath Car construction. The same guideline will be followed. When the tree will attain such Girth Class, selection methods will be adopted. In case of JFM areas, prescriptions in Micro plan after due revisit will be followed. **Rights& Concessions:-** No specific rights and concessions are being enjoyed by individuals. However Community as a whole is morally responsible for its protection management. Any guidelines in this aspect will regulate the rights & concession.	450 - 455
x	**Appendix**	456-494
x	**DLC Report of Athgarh Forest Division**	495 - 715

+CHAPTER-17

Tree Outside Forest Area.



CHAPTER-17

Tree Outside Forest Area.

17.1.Tree Outside Forest Chapter:-

17.1.1. General Constitutions of Chapter:-

The total area allotted to Tree Outside Forest Chapteris93284.8579hectare {152262.00 – (39626.163+19343.4871+7.492)}.Trees outside forests (TOF) are located on the lands other than forests, including agricultural lands, 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. They not only contribute to the total growing stock of the division but also have become major source of wood.During 2000 and thereafter trees have been planted on suitable riverbanks to provide timber for construction of Chariots under "Jagannath Van Prakalpa". Under National Afforestation Programme massive plantations have been taken up by VSS under "Forest Development Agency". Free seedlings are distributed to public to plant trees in vacant lands, Back yard and take up agro forestry plantations.Avenue plantations are being taken up on many highways, district Roads, Panchyat Road. Industrial Houses, Mining companies are taking of plantations under green belt, CSR programme.Now it is time to have a basic survey about availability of trees and prescribe a general management practices for guidance of public and for our own assessment.

17.2. General characteristics of vegetation:-

The forest blocks included in this working Circle are mostly north tropical dry deciduous sal forest, Mixed Forests, Bamboo bearing tract, Area covered under plantation in outgoing plan period and planted during Social Forestry Project and compensatory afforestation programme. The natural forest consists of Shorearobusta, Anogeissuslatifolia, Cleistanthuscollinus, Terminaliatomentosa, Buchananialanzan, Diospyrosmelanoxylon, Lagerstroemia parviflora, etc. The important shrubs present are *Helicteres*isora, Grewiasps.,Indigoferacassioides, etc. Hemidesmusindicus, Calycopteris floribunda, Combretumdecandrum, Buteasuperba, Bauhniavahilii etc., are the important climbers present in this forest. The area those are previously planted up bears teak, San chakunda, Acacia, sisoo, Neem, Karanja and bamboo. The crop composition is varied.

17.3. Plantation area assigned to TOF:-

The plantation area assigned to TOF management is as follows.

Sl. No.	Plantation area assigned
1	All the area planted under "Jagannath Van Prakalpa" will be included / managed under this Working Circle.
2	Under National Afforestation Programme usually termed as FDA plantations those are outside the purview of JFM Working Circle.

3	All avenue Plantations raised under either under various sponsored programme or Nanional Mahatma Gandhi Rural Employment Guaranty Programme "NMGREGP
4	Trees available on Govt. vacant land irrespective of planting Agency are to be managed under this Working Circle.

17.4.Plantation under Jagannath van Prakalpa:-

Under this programme 460.59 hectares of area have been covered up during 2000-01 to 2005-06. The details are furnished in Table below.

Table No-1

Jagannath van Prakalpa area in ha.

Year of Plantation	Name of range	Name of CD Block	Name of Plantation site	Area
2000-01	Narsinghpur West	Narsinghpur	Chakragada	13.76
		-do-	Purusotampur	17.37
		-do-	Subalaya	7.00
		-do-	Nuapatna	18.16
		-do-	Kathakhunat	15.00
	Narsinghpur East	Narsinghpur	Kakudia	14.30
	Total			85.59
2001-02	Narsinghpur West	Narsinghpur	Kathakhunat	17.00
		-do-	Subalaya	7.00
		-do-	Chakragada	6.00
	Narsinghpur East	-do-	Ekadala (Muralipur)	13.00
	Athagarh	Athagarh	Patenigaon	75.00
	Total			118.00
2002-03	Athagarh	Athagarh	Betakholi	30.00
		-do-	Patenigaon	20.00
		-do-	Ghoradia	8.35
	Narsinghpur West	Narsinghpur	Mandatutha	16.50
		-do-	Kathakhunat	3.38
		-do-	Chakragada	1.77
	Total			80.00
2003-04	Athagarh	Athagarh	Balarampur	40.00
		Banki	Sananauput	20.00
	Narsinghpur West	Narsinghpur	Khola	50.00
	Total			110.00
2004-05	Athagarh	Athagarh	Baudabanakhandi	20.00
	Narsinghpur West	Narsinghpur	Mansinghpatna	30.00
	Total			50.00
2005-06	Narsinghpur East	Narsinghpur	Mansinghpatna	17.00
G.T				460.59

17.5. Area of V.S.S Outside the RF, PRF&PF:-

Area Planted under VSS outside RF, PRF andPFneeds scientific management. The total area allotted to 31 number of VSSis 2599.09 hectare. These areas are proposed to be managed under this TOF guidelines.

Table No. 2			
List of V.S.S in Athagarh Division			
Sl. No	Name of the VSS	Name of the Revenue Forest (KF)	Area in ha.
1	BarapatanaSampur VSS, Badanauput	Badanauput	12.95
2	Kalapata VSS, Kalapata	Kalichaballav	50.00
3	Green Heaven VSS, Kantapada	Kantapada	8.0
4	Maa Nakadei VSS, Amantia	Amantia	15.62
5	Mahaveer VSS, Bhelei (Kharod)	Bhelei (Kharod)	25.4
6	Bajarangi VSS, Mahulamada(Kharod)	Mahulamada(Kharod)	13.8
7	Purukutia VSS, Purukutia	Baradabania	46.00
8	Bahali VSS, Bahali	Bahali	80.00
9	Maa Brahmanidevi VSS, Panchagochhia	Panchagochhia	183.77
10	Mahaveer VSS, Mansinghpatana	Mitikina	100.00
11	Maa Bauti VSS, Khajuria	Khajuria	20.00
12	Brahmanidevi VSS, Dumalborei	Mitikina	100.00
13	Bhagabatia Pragati VSS, Champeswar	Bokada	165.00
14	Ramachandrapur VSS, Ramachandrapur	Kuladiha&jamukhola	44.00
15	Maa Malakei VSS, Kandhabareni	Mitikina	36.57
16	Maa Mangala VSS, Bandhahuda	Panchagochhia	200.00
17	Nehuri VSS, Jenapala	Jenapala	15.45
18	Maa Saurani VSS, Godibandha	Chandragiri	41.32
19	Ambadhoba VSS, New Ransinghpur	Alara	51.82
20	Maa Magaramuhin VSS, Guptamanika	Chandragiri	30.00
21	Satabhauni VSS, Nuagaon	Kandhal	17.00
22	Maa Malkei VSS, Bichhanabati	Mitikina	94.00
23	OmmBudhabudhi VSS, Nuagarh	Nuagarh	100.00
24	Deobhuin VSS, Deobhuin	Deobhuin	130.00
25	Pitabali VSS, Odasingha	Saradhapur	247.95
26	Jagannatha VSS, Jagannathaprasad	Saradhapur	200.00
27	Bramhani Devi VSS, Sukata	Saradhapur	68.44
28	Maa Brahmani Devi VSS, Jantaria	Bhagatpur	72.00
29	Maa Mangala VSS, Mahulasahi	Saradhapur	180.00
30	Hanumantia VSS, Nukhapada	Saradhapur	150.00
31	Trinathadev VSS, Badabhuin	Barakhola	100.00
		Total area	**2599.09**

17.6. Avenue Plantation:-

Avenue plantations have been taken up along National Highway, State Highway, Major District roads and Panchyat Roads. The Avenue plantation completed during the plan period is 361.00 ha. (Row Kilometer). Further from the year 2017-18 to 2020-21 the avenue plantation completed over 223.00 RKM .

Table No-3		
Year wise Avenue Plantations taken up		
Year	Total No. of Road	Total Length in RKM
2010-11	5	18.0
2011-12	18	72.0
2012-13	16	61.0
2013-14	18	66.0
2014-15	25	84.0
2015-16	07	30.0
2016-17	08	30.0
2017-18	09	29.0
2018-19	05	20.0
2019-20	18	61.0
2020-21	25	113.0
Total	--	584.0

17.6.1.Raising of Seedling, Distribution and type of plantation :-

Sl No.	Year	Raising of Seedling (in Nos.)	Distribution of Seedling (in Nos.)	Remarks
1	2019-20	200000	200000	Distributed in 2020-21
2	2020-21	2030000	758730	To be distributed during 2022-23

Year	Scheme	Type of Plantation	Area in Ha.
2007-08	FDA	ANR	1200
		AR	100
		Mixed	100
2008-09	--	--	--
2009-10	--	--	--
2010-11	--	--	--
2011-12	--	--	--
2012-13	FDA	ANR	350
2013-14	--	--	--
2014-15	--	--	--
2015-16	--	--	--

2016-17	FDA	ANR	50
2017-18	FDA	ANR	181
		AR	95
2018-19	FDA	ANR	150
2019-20	FDA	ANR	145
2020-21	FDA	ANR	210

Year	Scheme	Type of Plantation	Area in Ha.
2007-08	--	--	--
2008-09	--	--	--
2009-10	--	--	--
2010-11	--	--	--
2011-12	--	--	--
2012-13	--	--	--
2013-14	--	--	--
2014-15	IGC (State plan)	AR	50
2015-16	--	--	--
2016-17	MGNREGA (Convergence)	AR	50
2017-18	MGNREGA (Convergence)	AR	10
2018-19	Programme Expenditure GMM	AR	30
2019-20	Programme Expenditure IGC	AR	20
2020-21	CAMPA	AR	20
	MGNREGA	AR	5

17.7.Prescription for management of trees grown outside forest area:-

There is requirement of specific species / girth class for Jagannath Car construction. The same guideline will be followed. When the tree will attain such Girth Class, selection methods will be adopted. In case of JFM areas, prescriptions in Micro plan after due revisit will be followed.

17.8. Range wise distribution of TOF area:-

The Range wise distribution of TOF area is given below.

Table No- 4			
Range wise distribution of TOF area in ha			
Sl. No	Name of the Range	Geographical area	TOF area
1	Athgarh	39126.00	23967.5876
2	Khuntuni	23231.00	14237.3106
3	Badamba	36285.00	22229.5729
4	Narasinghpur East	34263.00	20991.5138
5	Narasinghpur West	19355.00	11858.873
	Total	152262.00	93284.8579

APPENDIX

Appendix-I					
List of Old Building existing prior to Plan period					
S.L No	Name of Building	Plinth Area in Sft	Year of Construction	Type of Building	Amount spent
1	D.F.O Office, Athgarh	2837	1957	A.C Sheet Pucca	16780
2	Choukidarshed, Athgarh		1957	A.C Sheet Pucca	2180
3	H.C QrsF.ColonyAthgarh	1080	1951	A.C Sheet Pucca	2500
4	Acctt. Qrs F. Colony Athgarh	1080	1951	A.C Sheet Pucca	2500
5	Cleark Qrs F. Colony Athgarh	1080	1951	A.C Sheet Pucca	2500
6	Cleark Qrs F. Colony Athgarh	1080		A.C Sheet Pucca	2500
7	Cleark Qrs F. Colony Athgarh	1080	1951	A.C Sheet Pucca	2500
8	Cleark Qrs F. Colony Athgarh	1080	1951	A.C Sheet Pucca	2500
9	Forester Qr. At Athgarh	1389	1946-47	A.C Sheet Pucca	2500
10	Forester Qr. At Khuntuni	1421	1945-46	A.C Sheet Pucca	2700
11	Forester Qr. At Tigiria	986	1945-46	Pucca	3000
12	Forester Qr. At Gurudijhatia	776	1963-64	A.C Sheet Pucca	2500
13	F.G Shed, Athgarh	456	1950-51	A.C Sheet Pucca	1000
14	F.G Shed, Athgarh	456	1950-51	A.C Sheet Pucca	1000
15	F.G Shed, Kulailo	825	1945-46	A.C Sheet Pucca	200
16	F.G Shed, Khuntuni	280	1945-46	A.C Sheet Pucca	250
17	F.G Shed,Krishnapur	456	1962-63	A.C Sheet Pucca	1150
18	F.G Shed, Nidhipur	474	1961-62	A.C Sheet Pucca	200
19	F.G Shed, Gobara	669	1961-62	A.C Sheet Pucca	200
20	F.G Shed, Gurudijhatia	760	--	A.C Sheet Pucca	400
21	F.G Shed,Oranda	456	1957	A.C Sheet Pucca	1150

22	Forester Qr. 2nd Shed, Athagrh	1389	1951-52	A.C Sheet Pucca	2500
23	F.G Shed, Khuntuni	549	1961-62	A.C Sheet Pucca	4400
24	F.G Shed, Mahalaxmipur	595.1	1961-62	A.C Sheet Pucca	3460
25	F.G Shed, Nuapatana	595.1	1961-62	A.C Sheet Pucca	3460
26	F.G Shed, Kandarpur	595.1	1961-62	A.C Sheet Pucca	
27	F.G Shed, Krishnapur	398	1965-66	A.C Sheet Pucca	5000
28	F.G Shed, Brahmanbasta	700	1962-63	A.C Sheet Pucca	--
29	F.G Shed, Tigiria	592	--	A.C Sheet Pucca	--
30	Staff Barrack at Forest Colony Athgarh	--	--	A.C Sheet Pucca	--
31	L.D Clerk qrs. 8th Shed F. Colony Athgarh	868.8	--	A.C Sheet Pucca	37500
32	Food distribution center Athgarh	--	1994-95	A.C Sheet Pucca	30000
33	RO QrsBadamba range Office	160	1959-1960	A.C Sheet Pucca	5870
34	Forester Qr. Badamba	--	1954-55	A.C Sheet Pucca	2500
35	Forester Qr. Gopapur	--	1959	A.C Sheet Pucca	2500
36	F.G Shed, Oranda	--	1945-46	A.C Sheet Pucca	1700
37	F.G Shed, Janipadar	--	1944-45	A.C Sheet Pucca	1000
38	F.G Shed, Badamba	--	1933-34	A.C Sheet Pucca	60
39	F.G Shed, Khalimati	--	1928	A.C Sheet Pucca	60
40	F.G Shed, khandabandha	--	1927	A.C Sheet Pucca	60
41	F.G Shed, Kunarpala	--	1932	A.C Sheet Pucca	60
42	F.G Shed, Gopapur	--	1954	A.C Sheet Pucca	60
43	F.G Shed, Gopapur	352	1954	Kachha	60
44	Marking Shed Badamba	352	1957	Kachha	200
45	Marking Shed Banapur	352	1961	Kachha	60
46	Forester Qr. Maniabandha	585.5	1961-62	Pucca	--

47	F.G Shed, Banapur	505	1968-69	Pucca	--
48	R.O Qrs. Narasinghpur	1862	1928-29	Pucca	1600
49	Forester Qrs. Narasinghpur	838	1928-29	Pucca	1400
50	Forester Qrs. Saradhapur	1034	1944-45	Pucca	700
51	Forester Qrs. Nuagarh	798	1944-45	Pucca	680
52	Forester Qrs. Bokada	453	1944-45	Kachha	1000
53	F.G Shed, Godibandha	1140	1939-40	Kachha	50
54	F.G BeathouseOlaha	1100	1924-25	Kachha	50
55	F.G BeathouseGuptamanik	703	1938-39	Kachha	
56	F.G BeathousePanchagochia	495	1924-25	Kachha	50
57	F.G BeathouseManpur	1080	1940-41	Kachha	105
58	F.G BeathouseDeobhuin	650	1924-25	Kachha	50
59	F.G BeathouseMitikapur	874	1942-43	Kachha	150
60	F.G BeathouseNarasinghpur	612	1948-49	Kachha	200
61	F.G BeathouseJaypur	575	1954-55	Kachha	
62	Forester Beathouse Bokada	2848	1943-44	Kachha	1000
63	Forester BeathouseChampeswar	842	1961-62, 1962-63	Kachha	7848
64	Inspection shed Balikiary	844	1962-63, 1963-64	Kachha	--
65	Range Office Narasinghpur	426	1963-64	Kachha	3000
66	Forester Qrs. Tilinda	263	1962-63	Kachha	--
67	F.G Shed Narasinghpur	214	1962-63	Kachha	--
Sources: Divisional Fores Officer, Athgarh					

Appendix-II				
Type of Building and the sources				
S.L No	Year of Construction	Name of the Range	Name of the Site	Type of Building
1	2	3	4	5
1	2010-11 (CAMPA-APO-2009-10)	Athgarh	Tigiria	F.G Quarter
2		Badamba	Maniabandha	F.G Quarter
3		Badamba	Gopapur	F.G Quarter
4		Narasinghpur West	Narasinghpur	F.G Quarter
5		Narasinghpur West	Chakragada	F.G Quarter
6		Narasinghpur West	Barasingha	F.G Quarter
7		Narasinghpur West	Badabhuin	F.G Quarter
8		Khuntuni	Ghantikhal	F.G Quarter
9		Narasinghpur East	Jadapada	F.G Quarter
10		Narasinghpur East	Sermunda	F.G Quarter
11	2011-12 (CAMPA-APO-2010-11)	Narasinghpur West	Balikiary	Protection Barrack
12		Narasinghpur West	Narasinghpur	Range Office
13		Khuntuni	Khuntuni	Range Office
14		Khuntuni	Rajaballavpur	Forester Quarter
15		Khuntuni	Bhagua	Anti-Poaching Shed
16		Narasinghpur East	Guptamanik	Forester Quarter
17	2012-13 (CAMPA-APO-2011-12)	Athgarh	Athgarh	Range Office
18		Narasinghpur West	Jaypur	Forester Quarter
19		Athgarh	Athgarh	F.G Quarter
20		Khuntuni	Khuntuni	F.G Quarter
21		Narasinghpur West	RO Campus	F.G Quarter
22		Narasinghpur East	Champeswar	F.G Quarter
23	2013-14 (CAMPA-APO-2012-13)	Athgarh	Division Office	Control Room
24		Narasinghpur East	Narasinghpur	Range Office
25		Badamba	Badamba	Range Office
26		Athgarh	Athgarh	RO Residence
27		Badamba	RO Campus	Barrack
28		Khuntuni	Adala Central Nursery	Barrack
29		Khuntuni	Oranda	Malkhana
30		Narasinghpur East	Olab	Forester Quarter
31		Khuntuni	Gurudijhatia	Forester Quarter
32		Narasinghpur West	Balikiary	F.G Quarter
33		Narasinghpur East	Nuagarh	F.G Quarter
34		Narasinghpur East	Sermunda C.N.G	F.G Quarter
35		Athgarh	Seizure Yard	F.G Quarter
36		Athgarh	Forest Colony	F.G Quarter

37	2013-14 (CAMPA-APO-2012-13)	Khuntuni	Brahmanbasta	F.G Quarter
38		Khuntuni	Nuapatana	F.G Quarter
39		Khuntuni	Mahalaxmipur	F.G Quarter
40	2014-15 (CAMPA-APO-2013-14)	Athgarh	Tigiria	Forester Quarter
41		Athgarh	Rajangar	Forester Quarter
42		Narasinghpur East	Sermunda	Forester Quarter
43		Narasinghpur East	Olab	F.G Quarter
44		Athgarh	Jenapada	F.G Quarter
45		Athgarh	Kulailo	F.G Quarter
46		Khuntuni	Gobara	F.G Quarter
47		Narasinghpur East	Panchagochhia	F.G Quarter
48		Narasinghpur East	Dalak	F.G Quarter
49		Narasinghpur West	Jayapur	F.G Quarter
50		Narasinghpur West	Khola	F.G Quarter
51	2016-17 (CAMPA-APO-2015-16)	Narasinghpur East	Khuntuni	Range Office Residence
52		Narasinghpur West	Jadapada	Forester Quarter
53		Narasinghpur West	Narasinghpur	Forester Quarter
54		Narasinghpur West	Mitikapur	Forester Quarter
55		Narasinghpur West	Saradhapur	Forester Quarter
56		Narasinghpur East	Nuagarh	Forester Quarter
57		Badamba	Dandakhumba	Forester Quarter
Sources: Divisional Fores Officer, Athgarh				

Appendix-III			
Forest Roads			
S.L No	Name of the Range	Name of the Forest Road	Length in Km
1	Badamba	Karada-Soruan	8
2		Badamba- Aranda	5
3		Chhanchunia-Soruan	11.2
4		Guptamanik-Chhanchunia	2
5		Badakambilo-Daleimaru	5
6		Maniabandha-Badajora	8
	Total		39.2
7	Narasinghpur East	Sermunda-Guptamanik	24
8		Nuagarh-Raiguda	8
9		Nuagah-Dalak	3.2
	Total		35.2
10	Narasinghpur west	Mitikapur-Barasingha	8
11		Bhaguapala-Balikiary	17.6
	Total		25.6
12	Khuntuni	Gurudijhatia-Orda	12.8
13		Rajaathgarh-Orda	14.4
	Total		27.2
	Grnd Total		127.2
Sources: Divisional Fores Officer, Athgarh			

Appendix-IV			
Name of the Ranges etc. Section and Beat			
S.L No	Name of the Range	Name of the Section	Name of the Beat
01	Athgarh	Athgarh Sadar	Athgarh
			Kandarpur
			Saranda
			Kualailo
		Rajangar	Rajangar
			Megha
			Patenigaon
		Tigiria	Tigiria
			Nuapatana
			jenapada
Total		03	10
02	Khuntuni	Khuntuni	Khuntuni
			Adal
		Krushnapur	Krushnapur
			Mahalaxmipur
			Bhagua
		Gurudijhatia	Gurudijhatia
			Gobara
			Rajaballavpur
		Oranda	Oranda
			Nuapatana
		Ghantikhala	Ghantikhala
			Brahmanbasta
			Kakhadi
Total		05	13
03	Badamba	Badamba Sadar	Badamba Sadar
			Gundadwar
			Aranda
			Khalimati
			Banapur
			Kantapada
		Gopapur	Gopapur
			Chhanchunia
			Janipadar
			Bhatarika
			Kusapala
		Maniabandha	Maniabandha
			Judum
			Karada

			Kaduapada
			Kunarpala
Total		03	16
04	Narsinghpur East	Ranasinghpur	Ranasinghpur
			Panchagochhia
			Dalak
		Bokada	Bokada
			Guptamanika
			Ekdal
			Godibandha
		Debabhuin	Debabhuin
			Olab
			Jadapada
		Nuagarh	Nuagarh
			Chatarapada
			Brahmani
		Sermunda	Sermunda
			Kandhadeobhuin
			Kharuani
Total		05	16
05	Narsinghpur West	Narasinghpur West Sadar	Narasinghpur
			Badabhuin
			Ghoradia
		Saradhapur	Saradhapur
			Chakragada
		Jayapur	Jayapur
			Khola
		Barasingha	Barasingha
			Balikiary
			Mitikapur
Total		04	10
G. T	05	20	65

Appendix-V						
Range wise distribution of forest area in hectare						
Sl No	Name of Range	Name of Forest Block	Area in ha.	Area diverted under		Area available for management in ha.
				FC Act 1980	FRA	
Reserve Forest						
1	Narasinghpur East	Deobhuin R.F	6082.23	52.805	0.96	6028.465
2	Narasinghpur East	Olab R.F	2288.8	27.52	0	2261.28
3	Narasinghpur East	Chandragiri RF	738.66	40.34	0	698.32
4	Narasinghpur East	Mundagada RF	136.48	0	0	136.48
	Range Total		9246.17	120.665	0.96	9124.545
5	Narasinghpur West	Bramhanidei RF	99.91	0	0	99.91
	Range Total		99.91	0	0	99.91
6	Baramba	Chandragiri RF	321.16	56.16	0	265
7	Baramba	Haladiasein RF	3925.17	0	0	3925.17
8	Baramba	Badajora RF	1063.97	0	0	1063.97
9	Baramba	Tareiganda RF	999.39	0	2	997.39
10	Baramba	Kumaranga RF	361.36	0	0	361.36
11	Baramba Baramba	Talachandra giri RF	993.8	13.275	0	980.525
12	Baramba	Nagatota RF	2228.97	0	0.6055	2228.3645
13	Baramba	Mandap RF	433.48	0	0	433.48
14	Baramba Baramba	Jagabehera thali RF	224.15	0	0.9712	223.1788
15	Baramba	Karada RF	1156.41	0	0	1156.41
16	Baramba	Belapada (B)RF	91.66	0	0	91.66
17	Baramba	Jhinkal (B)RF	436.2	0	0	436.2
	Range Total		12235.72	69.435	3.5767	12162.7083
18	Athgarh	Sukhasan RF	707.28	0	0	707.28

19	Athgarh	Khalakhala RF	602.99	0	0	602.99
20	Athgarh	Baudabanakhandi RF	545.03	4.352	0	540.678
21	Athgarh	Oringa RF	438.44	0	6.0704	432.3696
22	Athgarh	Jenapada RF	123.24	0	0	123.24
23	Athgarh	Subasi {I &II(P)} RF	771.83	0.26	0	771.57
24	Athgarh	Ranibania (C1) RF	258.6718	0	3.6818	254.99
25	Athgarh	Adal RF	238.61	0	0	238.61
26	Athgarh	Nizigarh RF	823.1	0	0	823.1
27	Athgarh	Kalichaballav RF	722.01	6.9	0	715.11
28	Athgarh	Sorispal RF	651.29	0	0	651.29
	Range Total		5882.4918	11.512	9.7522	5861.2276
29	Khuntuni	Baniabandha RF	5766.71	9.252	42.9327	5714.5253
30	Khuntuni	Gobara RF	524.49	0	13.9417	510.5483
31	Khuntuni	Sankhapoi RF	496.65	0	1.0117	495.6383
32	Khuntuni	Baula RF	95.87	0	0	95.87
33	Khuntuni	Suniamuhan RF	186.97	0	0.07	186.9
34	Khuntuni	Bramhanbasta RF	320.27	0	0	320.27
35	Khuntuni	Raniabania (Part)RF	773.2582	0	0	773.2582
36	Khuntuni	Subasi (II Balance)RF	508.73	0	0	508.73
37	Khuntuni	Deulia RF	288.19	0	0	288.19
	Range Total		8961.1382	9.252	57.9561	8893.9301
Division \Reserved Forest Total			36425.43	210.864	72.245	36142.321
Proposed Reserve Forest						
1	Narasinghpur East	Bhuska PRF	248.36	0	0.9	247.46
	Range Total		248.36	0	0.9	247.46
2	Baramba	Baghamundia PRF	115.49	0	0	115.49
3	Baramba	KhalidhipJanisahi PRF	35.58	0	0	35.58
4	Baramba	Kandhamundia PRF	48.36	0	0	48.36
5	Baramba	Gothamundia PRF	83.89	0	0	83.89
6	Baramba	Birigadia PRF	20.32	0	0	20.32

7	Baramba	Kabatbar PRF	18.33	0	0	18.33
8	Baramba	Ganguari PRF	30.45	0	0	30.45
9	Baramba	Telunia PRF	25.01	0	0	25.01
	Range Total		377.43			377.43
10	Athgarh	Saranda PRF	129.1	0	0	129.1
11	Athgarh	Phulubadi PRF	377.49	0	0	377.49
12	Athgarh	Megha PRF	44.9	0	0	44.9
13	Athgarh	Kandarpur PRF	19.38	0	0	19.38
	Range Total		570.87			570.87
14	Khuntuni	Baniabandha PRF	269.93	0	0	269.93
15	Khuntuni	Deulia East PRF	74.21	0	0	74.21
	Range Total		344.14			344.14
Division PRF Total			1540.8	0	0.9	1539.9
Protected Forest						
1	Narasinghpur West	Kaliapada PF	18.98	0	0	18.98
	Range Total		18.98			18.98
2	Athgarh	Gopalprasad PF	29.51	0	0	29.51
3	Athgarh	Kalankpur PF	34.4	0	0	34.4
	Range Total		63.91			63.91
Division Protected Forest Total			82.89	0	0	82.89
Village Forest						
1	Athgarh	Nuaptna	10	0	0	10
2	Athgarh	Radhakrushnapur	20	0	0	20
3	Athgarh	Radhakrushnapur	10	0	0	10
4	Athgarh	Radhakrushnapur	15	0	0	15
5	Athgarh	Radhakrushnapur	10	0	0	10
6	Athgarh	Patenigaon	5	0	0	5
7	Athgarh	ChhenakhiaNuagaon	10	0	0	10
	Range Total		80	0	0	80
8	Baramba	Budhapanka	10	0	0	10
9	Baramba	Budhapanka	2	0	0	2
10	Baramba	Satagachhia	8	0	0	8
11	Badamba	Satagachhia	6	0	0	6
12	Baramba	Champeidwar	5	0	0	5
13	Baramba	Champeidwar	2	0	0	2

14	Baramba	Sanabarsingh	2	0	0	2
15	Baramba	Kotapalla	5	0	0	5
16	Baramba	Kuanrapala	10	0	0	10
17	Baramba	Kuanrapala	10	0	0	10
18	Baramba	BadakumbiloBa npur	150	0	0	150
19	Baramba	Badakumbilo	20	0	0	20
20	Baramba	Khairapanga	25	0	0	25
21	Baramba	Khairapanga	20	0	0	20
22	Baramba	Banapur	20	0	0	20
23	Baramba	Badakumbilo	10	0	0	10
24	Baramba	Rampur	20	0	0	20
25	Baramba	Banapur	15	0	0	15
26	Baramba	Banapur	65	0	0	65
27	Baramba	Satagachhia	100	0	0	100
28	Baramba	Badabarsingh	50	0	0	50
29	Baramba	Badabarasingh	30	0	0	30
30	Baramba	Sanabarasingh	30	0	0	30
31	Baramba	Kotapalla	15	0	0	15
32	Baramba	Satagochhia	15	0	0	15
33	Baramba	Kotapalla	15	0	0	15
34	Baramba	Judum	15	0	0	15
35	Baramba	Judum	15	0	0	15
36	Baramba	Talamundali	15	0	0	15
37	Baramba	Talamundali	5	0	0	5
38	Baramba	Telikumbilo	90	0	0	90
39	Baramba	Telikumbilo	15	0	0	15
40	Baramba	Banapur	20	0	0	20
41	Baramba	Telikumbilo	30	0	0	30
42	Baramba	Badabarana	15	0	0	15
43	Baramba	Mugagahiri	20	0	0	20
44	Baramba	Badabarana	20	0	0	20
45	Baramba	Badabarana	10	0	0	10
46	Baramba	Karadibandha	20	0	0	20
47	Baramba	Karadibandha	20	0	0	20
48	Baramba	Dhanapalli VWL	6	0	0	6
49	Baramba	Dhanapalli VWL	2	0	0	2
50	Baramba	Dhanapalli VWL	7	0	0	7
51	Baramba	Jhajia	4	0	0	4
52	Baramba	Kharod	8	0	0	8

53	Baramba	Malati	8	0	0	8
54	Baramba	Amatia	10	0	0	10
55	Baramba	Ratapata	10	0	0	10
56	Baramba	Ratapata	9	0	0	9
57	Baramba	Badakambilo	6	0	0	6
58	Baramba	Judum	5	0	0	5
59	Baramba	Avimanpur	4.5	0	0	4.5
60	Baramba	Kankarajori	1	0	0	1
61	Baramba	Kadana	7	0	0	7
62	Baramba	Satagochhia	9	0	0	9
63	Baramba	Rampur	2	0	0	2
64	Baramba	Judum	7.5	0	0	7.5
65	Baramba	Kadana	4	0	0	4
66	Baramba	Kharod	10	0	5.448	4.552
67	Baramba	Baliapala	9.5	0	0	9.5
68	Baramba	Judum	10	0	0	10
69	Baramba	Nuapada	10	0	0	10
70	Baramba	Talamundali	10	0	0	10
71	Baramba	Kotapalla	10	0	0	10
72	Baramba	Banapur	5	0	0	5
73	Baramba	Banapur	5	0	0	5
74	Baramba	Karadibandha	10	0	0	10
75	Baramba	Kuniapala	10	0	0	10
76	Baramba	Karadibandha	10	0	0	10
77	Baramba	Kasapala	10	0	0	10
78	Baramba	Biswanathapur	6	0	0	6
79	Baramba	Khairipanga	5	0	0	5
80	Baramba	Khairipanga	4	0	0	4
81	Baramba	Gundadwara	5	0	0	5
82	Baramba	Guradipala	30	0	0	30
83	Baramba	Kadambpala	10	0	0	10
84	Baramba	Gurudipala	20	0	0	20
85	Baramba	Badabareana	5	0	0	5
86	Baramba	Sasanga	5	0	0	5
87	Baramba	Sasanga	10	0	0	10
88	Baramba	Karadibandha	5	0	0	5
	Range Total		1294.5	0	5.448	1289.052
89	Narasinghpur East Range	Baghadharia	10	0	0	10
90	Narasinghpur East Range	Bahali	7	0	0	7
91	Narasinghpur East Range	Hatiapalli	5	0	0	5

92	Narasinghpur East Range	Hatiapalli	4	0	0	4
93	Narasinghpur East Range	Bahali	6	0	0	6
94	Narasinghpur East Range	Ragadisahi	3	0	0	3
95	Narasinghpur East Range	Bagadharia	5	0	0	5
96	Narasinghpur East Range	Bagadharia	5	0	0	5
97	Narasinghpur East Range	Lehenga	5	0	0	5
98	Narasinghpur East Range	Siaria	10	0	0	10
99	Narasinghpur East Range	Biswanathapur, Siaria Taila	5	0	0	5
100	Narasinghpur East Range	Siaria	5	0	0	5
101	Narasinghpur East Range	Bichanabati	6	0	0	6
102	Narasinghpur East Range	Bichanabati	5	0	0	5
103	Narasinghpur East Range	Siaria	10	0	0	10
104	Narasinghpur East Range	Champeswar	5	0	0	5
105	Narasinghpur East Range	Manpur	5	0	0	5
106	Narasinghpur East Range	Kalamatia	5	0	0	5
107	Narasinghpur East Range	Kalamatia	7	0	0	7
108	Narasinghpur East Range	Gharadia	5	0	0	5
109	Narasinghpur East Range	Durgaprasad	5	0	0	5
110	Narasinghpur East Range	Durgaprasad	4	0	0	4
111	Narasinghpur East Range	Durgaprasad	2	0	0	2
112	Narasinghpur East Range	Kandhabereni	5	0	0	5
113	Narasinghpur East Range	Aleigundi,Trilochanpur	5	0	0	5
114	Narasinghpur East Range	Taila	5	0	0	5
115	Narasinghpur East Range	Taila	5	0	0	5
116	Narasinghpur East Range	Madhubana	5	0	0	5

117	Narasinghpur East Range	Madhubana	5	0	0	5
118	Narasinghpur East Range	Rushipada	8	0	0	8
119	Narasinghpur East Range	Rushipada	5	0	0	5
120	Narasinghpur East Range	Rushipada	10	0	0	10
121	Narasinghpur East Range	Bokada	5	0	0	5
122	Narasinghpur East Range	Sagar(Badabare na)	5	0	0	5
123	Narasinghpur East Range	Badabareana	4	0	0	4
124	Narasinghpur East Range	Panchagachhia	4	0	0	4
125	Narasinghpur East Range	Padamapur	5	0	0	5
126	Narasinghpur East Range	Padamapur	5	0	0	5
127	Narasinghpur East Range	Kamaladeipur	5	0	0	5
128	Narasinghpur East Range	Kamaladeipur	5	0	0	5
129	Narasinghpur East Range	Sagara	5	0	0	5
130	Narasinghpur East Range	Panchagachhia	50	0	0	50
131	Narasinghpur East Range	Panchagachhia	40	0	0	40
132	Narasinghpur East Range	Panchagachhia	36	0	0	36
133	Narasinghpur East Range	Kandhabereni	14	0	0	14
134	Narasinghpur East Range	Champeswara	15	0	0	15
135	Narasinghpur East Range	Champeswara	6	0	0	6
136	Narasinghpur East Range	Godibandha	5	0	0	5
137	Narasinghpur East Range	Adhigandi(Trilo chanpur)	5	0	0	5
138	Narasinghpur East Range	Bokada	10	0	0	10
139	Narasinghpur East Range	Kandhabadabhu in	6	0	0	6
140	Narasinghpur East Range	Jayangamala	5	0	0	5
141	Narasinghpur East Range	Purukutia	6	0	0	6

142	Narasinghpur East Range	Odisingha	5	0	0	5
143	Narasinghpur East Range	Sukat	20	0	0	20
144	Narasinghpur East Range	Kanpur	7	0	0	7
	Range Total		455	0	0	455
145	Narasinghpur West Range	Kakudia	5	0	0	5
146	Narasinghpur West Range	Basantapur	17	0	0	17
147	Narasinghpur West Range	Basantapur	5	0	0	5
148	Narasinghpur West Range	Basantapur	8	0	0	8
149	Narasinghpur West Range	Ghoradia,Mandhota	2	0	0	2
	Range Total		37	0	0	37
Division V.F Total		147 No	1866.5	0	5.448	1861.052
Grand Total			39915.62	210.864	78.593	39626.163

Appendix-VI			
Notified and GIS Computed Area of Forest Block of this Division before divertion			
Sl. No	Name of the Forest Block	Notified Area	GIS Computed Area
1	Deobhuin RF	6545.61	6082.23
2	Olab RF	2700.15	2288.8
3	Chandragiri 'B'RF	742.62	738.66
4	Mundagada B' RF	131.93	136.48
5	Brahmandei 'B' RF	106.84	99.91
6	Chandragiri (A) RF	427.31	321.16
7	Haladiaseni RF	3866.98	3925.17
8	Badajora RF	1179.13	1063.97
9	Taraiganda RF	1043.72	999.39
10	Kumaranga RF	410.39	361.36
11	Talachandragiri (B) RF	815.71	993.8
12	Nagatota (B) RF	2131.96	2228.97
13	Mandap (B) RF	430.6	433.48
14	Jagabeherathali (B) RF	305.04	224.15
15	Karada (B) RF	1273.99	1156.41
16	Belapada (B) RF	108.78	91.66
17	Jhinkal (B) RF	472.85	436.2
18	Sukhasan RF	1036.03	707.28

19	Khalakhala (B) RF	562.53	602.99
20	Baudabanakhandi(B) RF	446.38	545.03
21	Oringa (B) RF	455.28	438.44
22	Jenapada (B) RF	171.59	123.24
23	Subasi RF	1390.14	1280.56
24	Ranibania RF	1069.21	1031.93
25	Adal (B) RF	252.7	238.61
26	Nizigarh (B) RF	789.16	823.1
27	Kalichaballabh (B) RF	744.64	722.01
28	Sorispal(B) RF	713.89	651.29
29	Baniabandha RF	5919.95	5766.71
30	Gobara (B) RF	651.56	524.49
31	Sankhapoi (B) RF	519.63	496.65
32	Baula (B) RF	99.55	95.87
33	Suniamuhan (B) RF	214.89	186.97
34	Brahmanbasta (B) RF	359.37	320.27
35	Deulia (B) RF	264.77	288.19
	Total RF	38354.88 ha	36425.43
36	Bhuska PRF	184.13	248.36
37	Baghamundia PRF	97.43	115.49
38	KhalidhipJanisahi PRF	23.22	35.58
39	Kandhamundia PRF	22.09	48.36
40	Gothamundia PRF	86.73	83.89
41	Birigadia PRF	47.75	20.32
42	Kabatbar PRF	60.13	18.33
43	Ganguari PRF	31.97	30.45
44	Telunia PRF	18.21	25.01
45	Saranda PRF	162.93	129.1
46	Phulbadi PRF	363.42	377.49
47	Megha PRF	53.82	44.9
48	Kandarapur PRF	16.59	19.38
49	Baniabandha PRF	522.87	269.93
50	Deulia (East) PRF	105.62	74.21
	Total PRF	1796.91 ha	1540.8
51	Kaliapada PF	18.98	18.98
52	Gopalprasad PF	29.51	29.51
53	Kalankpur PF	34.40	34.40
	Total PF	82.890 ha	82.89
	Village Forest(149nos)	1866.50	1866.5
	G.T	42101.18	39915.62

Appendix-VII					
Village Forest					
Sl No.	District	Tahasil	G.P	Village	Area in Ha
1	Cuttack	Narsinghapur	Champeswar	Baghadharia	10
2	Cuttack	Athagarh	Nuapatna	Nuaptna	10
3	Cuttack	Baramba	Avimanpur	Budhapanka	10
4	Cuttack	Baramba	Avimanpur	Budhapanka	2
5	Cuttack	Baramba	Ragadipada	Satagachhia	8
6	Cuttack	Baramba	Ragadipada	Satagachhia	6
7	Cuttack	Baramba	Godapokhari	Champeidwar	5
8	Cuttack	Baramba	Godapokhari	Champeidwar	2
9	Cuttack	Baramba	Ragadipada	Sanbarsingh	2
10	Cuttack	Baramba	Ragadipada	Kotapalla	5
11	Cuttack	Baramba	Avimanpur	Kunarpal	10
12	Cuttack	Baramba	Avimanpur	Kunarpal	10
13	Cuttack	Baramba	Badakumbilo	BadakumbiloBanpur	150
14	Cuttack	Baramba	Badakumbilo	Badakumbilo	20
15	Cuttack	Baramba	Baliapat	Khairpanga	25
16	Cuttack	Baramba	Baliapat	Khairpanga	20
17	Cuttack	Baramba	Badakumbilo	Banapur	20
18	Cuttack	Baramba	Badakumbilo	Badakumbilo	10
19	Cuttack	Baramba	Ragadipada	Rampur	20
20	Cuttack	Baramba	Ragadipada	Banapur	15
21	Cuttack	Baramba	Ragadipada	Banapur	65
22	Cuttack	Baramba	Ragadipada	Satagachhia	100
23	Cuttack	Baramba	Ragadipada	Badabarsingh	50
24	Cuttack	Baramba	Ragadipada	Badabarsingh	30
25	Cuttack	Baramba	Ragadipada	Sanabarsingh	30
26	Cuttack	Baramba	Ragadipada	Kotapalla	15
27	Cuttack	Baramba	Ragadipada	Satagochhia	15
28	Cuttack	Baramba	Ragadipada	Kotapalla	15
29	Cuttack	Baramba	Judum	Judum	15
30	Cuttack	Baramba	Judum	Judum	15
31	Cuttack	Baramba	Maniabandha	Talamundali	15
32	Cuttack	Baramba	Maniabandha	Talamundali	5
33	Cuttack	Baramba	Maniabandha	Telikumbilo	90
34	Cuttack	Baramba	Maniabandha	Telikumbilo	15
35	Cuttack	Baramba	Maniabandha	Banapur	20
36	Cuttack	Baramba	Maniabandha	Telikumbilo	30
37	Cuttack	Baramba	Gopapur	Badabarana	15

38	Cuttack	Baramba	Gopinathpur	Mugagahiri	20
39	Cuttack	Baramba	Gopapur	Badabarana	20
40	Cuttack	Baramba	Gopapur	Badabarana	10
41	Cuttack	Baramba	Karadibandha	Karadibandha	20
42	Cuttack	Baramba	Karadibandha	Karadibandha	20
43	Cuttack	Baramba	Mahulia	Dhanapalli VWL	6
44	Cuttack	Baramba	Mahulia	Dhanapalli VWL	2
45	Cuttack	Baramba	Mahulia	Dhanapalli VWL	7
46	Cuttack	Baramba	Pariyapara	Jhajia	4
47	Cuttack	Baramba	Dasarathpur	Kharod	8
48	Cuttack	Baramba	Dasarathpur	Malati	8
49	Cuttack	Baramba	Beliapal	Amatia	10
50	Cuttack	Baramba	Ratapat	Ratapat	10
51	Cuttack	Baramba	Ratapat	Ratapat	9
52	Cuttack	Baramba	Badakambilo	Badakambilo	6
53	Cuttack	Baramba	Judum	Judum	5
54	Cuttack	Baramba	Avimanpur	Avimanpur	4.5
55	Cuttack	Baramba	Kankarajori	Kankarajori	1
56	Cuttack	Baramba	Kankarajori	Kadana	7
57	Cuttack	Baramba	Ragadipada	Satagochhia	9
58	Cuttack	Baramba	Ragadipada	Rampur	2
59	Cuttack	Baramba	Judum	Judum	7.5
60	Cuttack	Baramba	Kankadajadi	Kadana	4
61	Cuttack	Baramba	Dasarathpur	Kharod	10
62	Cuttack	Baramba	Beliapal	Baliapal	9.5
63	Cuttack	Baramba	Judum	Judum	10
64	Cuttack	Baramba	Judum	Nuapada	10
65	Cuttack	Baramba	Judum	Talamundali	10
66	Cuttack	Baramba	Ragadipada	Kotapalla	10
67	Cuttack	Baramba	Ragadipada	Banapur	5
68	Cuttack	Baramba	Ragadipada	Banapur	5
69	Cuttack	Baramba	Karadibandha	Karadibandha	10
70	Cuttack	Baramba	Parajapada	Kuniapal	10
71	Cuttack	Baramba	Karadibandha	Karadibandha	10
72	Cuttack	Baramba	Badakambilo	Kasapal	10
73	Cuttack	Baramba	Beliapal	Biswanathpur	6
74	Cuttack	Baramba	Beliapal	Khairipanga	5
75	Cuttack	Baramba	Beliapal	Khairipanga	4
76	Cuttack	Baramba	Gopapura	Gundadwar	5
77	Cuttack	Baramba	Badakambilo	Guradipal	30
78	Cuttack	Baramba	Badakambilo	Kadampal	10
79	Cuttack	Baramba	Badakambilo	Gurudiapal	20
80	Cuttack	Narsinghapur	Codibandha	Bahali	7
81	Cuttack	Narsinghapur	Palkabarbati	Hatiapalli	5
82	Cuttack	Narsinghapur	Palkabarbati	Hatiapalli	4
83	Cuttack	Narsinghapur	Giribandha	Bahali	6
84	Cuttack	Narsinghapur	Sagar	Ragadisahi	3
85	Cuttack	Narsinghapur	Chempeswar	Bagdharia	5
86	Cuttack	Narsinghapur	Chempeswar	Bagdharia	5
87	Cuttack	Narsinghapur	Nukhapada	Lehenga	5

88	Cuttack	Narsinghapur	Siaria	Siaria	10
89	Cuttack	Narsinghapur	Siaria	Biswanathpur, siaria Taila	5
90	Cuttack	Narsinghapur	Siaria	Siaria	5
91	Cuttack	Narsinghapur	Godibandha	Bichanabati	6
92	Cuttack	Narsinghapur	Godibandha	Bichanabati	5
93	Cuttack	Narsinghapur	Judum	Odisinga	5
94	Cuttack	Narsinghapur	Siaria	Siaria	10
95	Cuttack	Narsinghapur	Chempeswar	Chempeswar	5
96	Cuttack	Narsinghapur	Kanpur	Manpur	5
97	Cuttack	Narsinghapur	Balilijhari	Kalamatia	5
98	Cuttack	Narsinghapur	Balilijhari	Kalamatia	7
99	Cuttack	Narsinghapur	Nukhapada	Gharadia	5
100	Cuttack	Narsinghapur	Paikabarbati	Durgaprasad	5
101	Cuttack	Narsinghapur	Paikabarbati	Durgaprasad	4
102	Cuttack	Narsinghapur	Paikabarbati	Durgaprasad	2
103	Cuttack	Narsinghapur	Nuapatna	Kakudia	5
104	Cuttack	Narsinghapur	Chempeswar	Kandhaberini	5
105	Cuttack	Narsinghapur	Kanpur	Kanpur	7
106	Cuttack	Narsinghapur	Sagar	Adheigandi, Trilachanpur	5
107	Cuttack	Narsinghapur	Paikabarbati	Taila	5
108	Cuttack	Narsinghapur	Paikabarbati	Taila	5
109	Cuttack	Narsinghapur	Siaria	Madhubana	5
110	Cuttack	Narsinghapur	Siaria	Madhubana	5
111	Cuttack	Narsinghapur	Siaria	Rushipada	8
112	Cuttack	Narsinghapur	Siaria	Rushipada	5
113	Cuttack	Narsinghapur	Siaria	Rushipada	10
114	Cuttack	Narsinghapur	Godibandha	Bokada	5
115	Cuttack	Narsinghapur	Bandhahuda	Sagar (Badabarana)	5
116	Cuttack	Narsinghapur	Bandhahuda	Badabarana	4
117	Cuttack	Narsinghapur	Sagar	Panchagachhia	4
118	Cuttack	Narsinghapur	Nakhapada	Padmapur	5
119	Cuttack	Narsinghapur	Nakhapada	Padmapur	5
120	Cuttack	Narsinghapur	Bandhahuda	Kamaladeipur	5
121	Cuttack	Narsinghapur	Bandhahuda	Kamaladeipur	5
122	Cuttack	Narsinghapur	Sagar	Sagar	5
123	Cuttack	Narsinghapur	Balisahi	Sukat	20
124	Cuttack	Narsinghapur	Sagar	Panchagachhia	50
125	Cuttack	Narsinghapur	Sagar	Panchagachhia	40
126	Cuttack	Narsinghapur	Sagar	Panchagachhia	36
127	Cuttack	Athagarh	Dhaiaur	Radhakrushanpur	20
128	Cuttack	Athagarh	Dhaiaur	Radhakrushanpur	10
129	Cuttack	Athagarh	Dhaiaur	Radhakrushanpur	15
130	Cuttack	Athagarh	Dhaiaur	Radhaprasanpur	10
131	Cuttack	Baramba	Gopalpur	Badaberana	5
132	Cuttack	Narsinghapur	Nuapatna	Basantapur	17
133	Cuttack	Narsinghapur	Nuapatna	Basantapur	5
134	Cuttack	Narsinghapur	Champeswar	Kandhabarani	14
135	Cuttack	Narsinghapur	Champeswar	Champeswar	15
136	Cuttack	Narsinghapur	Champeswar	Champeswar	6
137	Cuttack	Athagarh	Megha	Patnigaon	5

138	Cuttack	Narsinghapur	Nuapatna	Basantapur	8
139	Cuttack	Narsinghapur	Godibandha	Godibandha	5
140	Cuttack	Narsinghapur	Nakhapada	Ghoradia, Mandhota	2
141	Cuttack	Narsinghapur	Sagar	Adhigandi (Trilochanpur)	5
142	Cuttack	Narsinghapur	Godibandha	Bokada	10
143	Cuttack	Narsinghapur	Sagar	Kandhabadabhuia	6
144	Cuttack	Narsinghapur	Nukhapada	Jayamangal	5
145	Cuttack	Narsinghapur	Godibandha	Purukutia	6
146	Cuttack	Athagarh	Khuntuni	ChhenakhiaNuagaon	10
147	Cuttack	Baramba	Baramba	Sasanga	5
148	Cuttack	Baramba	Baramba	Sasanga	10
149	Cuttack	Baramba	Baramba	Karadibandha	5
				Total area	1866.5

Appendix-VIII		
Forest Block wise Notified areas of Athgarh Forest Division		
Sl. No	Name of Forest Block	Notified are in Ha.
1	Deobhuin RF	6545.61
2	Olab RF	2700.15
3	Chandragiri 'B'RF	742.62
4	Mundagada B' RF	131.93
5	Brahmandei 'B' RF	106.84
6	Chandragiri (A) RF	427.31
7	Haladiaseni RF	3866.98
8	Badajora RF	1179.13
9	Taraiganda RF	1043.72
10	Kumaranga RF	410.39
11	Talachandragiri (B) RF	815.71
12	Nagatota (B) RF	2131.96
13	Mandap (B) RF	430.6
14	Jagabeherathali (B) RF	305.04
15	Karada (B) RF	1273.99
16	Belapada (B) RF	108.78
17	Jhinkal (B) RF	472.85
18	Sukhasan RF	1036.03
19	Khalakhala (B) RF	562.53
20	Baudabanakhandi(B) RF	446.38
21	Oringa (B) RF	455.28
22	Jenapada (B) RF	171.59
23	Subasi (1&2Part) RF	1390.14
24	Ranibania (C-1) RF	1069.21
25	Adal (B) RF	252.7
26	Nizigarh (B) RF	789.16
27	Kalichaballabh (B) RF	744.64
28	Sorispal(B) RF	713.89
29	Baniabandha RF	5919.95
30	Gobara (B) RF	651.56
31	Sankhapoi (B) RF	519.63

32	Baula (B) RF	99.55
33	Suniamuhan (B) RF	214.89
34	Brahmanbasta (B) RF	359.37
35	Deulia (B) RF	264.77
	Total	**38354.88**
36	Bhuska PRF	184.13
37	Baghamundia PRF	97.43
38	KhalidhipJanisahi PRF	23.22
39	Kandhamundia PRF	22.09
40	Gothamundia PRF	86.73
41	Birigadia PRF	47.75
42	Kabatbar PRF	60.13
43	Ganguari PRF	31.97
44	Telunia PRF	18.21
45	Saranda PRF	162.93
46	Phulbadi PRF	363.42
47	Megha PRF	53.82
48	Kandarapur PRF	16.59
49	Baniabandha PRF	522.87
50	Deulia (East) PRF	105.62
	Total	**1796.91**
51	Kaliapada PF	18.98
52	Gopalprasad PF	29.51
53	Kalankpur PF	34.40
	Total	**82.89**
	Total Forest Block Area	**40234.68**
	Village Forest	**1866.50**
	Grand Total	**42101.18**

Appendix-IX					
Total Geographical area of Athgarh Forest Division					
Sl.No	Range	Section	Sl.No	Beat	Area in Sq. Km
1	Athgarh	Athgarh Sadar	1	Athgarh Sadar	45.407
			2	Kandarpur	2.701
			3	Saranda	61.678
			4	Patenigaon	14.609
			5	Kulailo	65.303
		Rajnagar	6	Rajnagar	13.175
			7	Megha	22.750
		Tigiria	8	Tigiria	97.951
			9	Nuapatana	35.657
			10	Jenapada	32.032
				Total-	391.263
		Khuntuni	1	Khuntuni	27.651
			2	Adal	6.071
			3	Krushnapur	20.675

2	Khuntuni	Krushnapur	4	Mahalaxmipur	14.641
			5	Bhagua	18.375
		Gurudijhatia	6	Gurudijhatia	24.805
			7	Gobara	30.352
			8	Rajballabhpur	20.816
		Oranda	9	Oranda	23.283
			10	Nuapatna	18.360
		Nidhipur	11	Nidhipur	6.805
			12	Brahamanbasta	14.933
			13	Kakhadi	5.552
				Total-	232.319
3	Badamba	Badamba Sadar	1	Baramba Sadar	21.670
			2	Aranda	17.637
			3	Khalimati	22.185
			4	Banapur	20.766
			5	kantapada	32.580
		Gopapur	6	Gopapur	32.595
			7	Chhanchunia	17.909
			8	Janipadar	28.866
			9	Bhatarika	40.469
			10	Kushapal	27.097
		Maniabandha	11	Maniabandha	14.964
			12	Jodum	45.205
			13	Karada	5.624
			14	Kaduapada	17.687
			15	Kunarpal	17.605
				Total-	362.859
4	Narsinghpur East	Ranasinghpur	1	Ranasinghpur	22.882
			2	Panchagochhia	38.842
			3	Dalak	11.893
			4	Ghoradia	6.151
		Bokada	5	Bokada	21.288
			6	Guptamanika	16.710
			7	Ekdal	59.328
			8	Godibandha	27.422
		Debabhuin	9	Debabhuin	20.210
			10	Olab	9.471
			11	Jadapada	18.224
		Nuagarh	12	Nuagarh	13.025
			13	Chatrapada	22.776
			14	Brahmani	28.775
		Seramunda	15	Seramunda	13.469
			16	Kandha-deobhuin	6.940
			17	Kharuani	5.228
				Total-	342.634
5	Narsinghpur West	Narasinghpur Sadar	1	Narasinghpur	18.036
			2	Badabhuin	23.717
		Saradhapur	3	Saradhapur	15.880
			4	Chakragada	25.360
		Jaypur	5	Jaypur	11.748

			6	Khola	15.829
		Barsingha	7	Barsingha	15.275
			8	Balikiary	22.539
			9	Mitikapur	45.168
				Total-	193.552
Grand Total					1522.627

Appendix-X					
List of VSS of Athgarh Forest Division					
Sl. No.	Name of the V.S.S	Name of the forest Block	Type of Forest		Total area in ha.
			PRF	R.F	
	Narsinghpur (East)				
1	MaaMangala	Debabhumi RF	--	150	150
2	Bahali	Debabhumi RF	--	120	120
3	BudhaBudhi	Debabhumi RF	--	80	80
4	MaaBrahamanidei	Debabhumi RF	--	16.23	16.23
5	MaaBauti	Debabhumi RF	--	100	100
6	MaaMagaramuhini	Debabhumi RF	--	25	25
7	Purukutia	Debabhumi RF	--	100	100
8	Nehuri	Chandragiri RF	--	46	46
9	MaaSaurani	Chandragiri RF	--	95	95
10	NewPhulapada	Mundagada RF	--	20	20
11	Kendupalli	Mundagada RF	--	20	20
12	RaghunathJew	Mundagada RF	--	27.07	27.07
13	Paikapadapatna	Mundagada RF	--	21.41	21.41
14	MaaMagareswari	Bhuska PRF	200		200
15	MaaMagarmunhi VSS , Guptamanik	Chandragiri RF	--	100	100
16	Pitabali VSS, Kansailo	Deobhuin RF	--	145	145
17	Deobhuin VSS, Debhuin	Deobhuin RF	--	70	70
18	Paikapadapatna(Tanalasahi) VSS,Paikapadapatna	Mundagada RF	--	48	48
	Village Forest -58 Nos.		--	--	455
	Range Total		--	--	**1838.71**
Range	Narsinghpur (West)			--	
19	Maa Brahmanidei	Brahmanidei RF	--	60	60
	Village Forest -05 nos.		--		37.0
	Range Total				**97.0**
	Baramba			--	
20	Gujapada	Badjora RF	--	56	56
21	Raghunathjew	Jhinkal RF	--	50	50
22	MaaMangala	Jhinkal RF	--	50	50
23	MaaBauti	Jhinkal RF	--	70	70
24	MaaDurga	Jhinkal RF	--	87	87

25	Badabarsingh	Jagabeherathali RF	--	80	80
26	Telikambilo	Nagatota RF	--	100	100
27	Jaganath	Nagatota RF	--	200	200
28	Badakambilo	Mandap RF	--	80	80
29	Kundeswar	Mandap RF	--	20	20
30	MaaBanadurga	Mandap RF	--	100	100
31	Khambeswari	Karada RF	--	100	100
32	MaaBrahmanidei	Karada RF	--	200	200
33	Kaduapada	Karada RF	--	150	150
34	Shyamsundarpur	Karada RF	--	50	50
35	Galuamada	Haladiaseni RF	--	30	30
36	Soruan	Haladiaseni RF	--	35	35
37	Bauti	Haladiaseni RF	--	50	50
38	Mahatabandha	Talachandragiri RF	--	12	12
39	Ramlila	Talachandragiri RF	--	100	100
40	Kadana	Kumarnga RF	--	40	40
41	Manpur	Kumarnga RF	--	55	55
42	Gobindpur	Kumarnga RF	--	60	60
43	Gopalpur	Gothamundia PRF	32		32
44	MaaAnantakumari VSS, Bangerisinga	Kumaranga RF	--	86.25	86.25
45	Shibasakti VSS, Guhalsahi	Nagatota RF	--	100	100
46	MaaSauruni VSS, Khairpanga	Mandap RF	--	200	200
47	MaaDakhinakali VSS, Padmanavapur	Nagatota RF	--	200	200
48	Jogamaya VSS, Budhiabereni	Talachandragiri RF	--	50	50
49	MaaBanadurga VSS, Narayanprasad	Nagatota RF	--	100	100
50	MaaBrahmanidevi VSS, Malati	Talachandragiri RF	--	50	50
51	Baba Biswanath VSS, Biswambharpur	Tareiganda RF	--	40	40
52	Gopamathura VSS, Gopamathura	Tareiganda RF	--	60	60
53	Sri Raghunathjew VSS, Jemadeipur	Karada RF	--	45	45
	Village Forest-81 Nos.		--		1289.052
	Range Total				**4027.302**
	Athagarh			--	
54	Madhapur	Oringa RF	--	80	80
55	Totapada	Ranibania RF	--	100	100
56	Kulailo	Ranibania RF	--	100	100
57	Gundichapur, Tarsingh	AdalaRF	--	200	200
58	Haridapasi (1)	Sorispal RF	--	40	40
59	Godijharia	Sorispal RF	--	120	120
60	MaaPanthaDevi	Sorispal RF	--	55	55
61	AchalakotSabarsahi	Sorispal RF	--	40	40

62	Banadurga	Sorispal RF	--	40	40
63	MangalaManasi	Sorispal RF	--	60	60
64	Panchagaon	Sorispal RF	--	200	200
65	Haridapasi (2)	Kalichabllav RF	--	100	100
66	Gokhankhal	Kalichabllav RF	--	100	100
67	Bhejia	Kalichabllav RF	--	100	100
68	Kalapata	Kalichabllav RF	--	50	50
69	Baliput	Kalichabllav RF	--	100	100
70	Kundaladei	Kalichabllav RF	--	100	100
71	Haridapasi (3)	Kalichabllav RF	--	100	100
72	Kandarpur	Bauda.Banakhandi RF	--	60	60
73	BentapadaBanakhadi	Bauda.Banakhandi RF	--	200	200
74	Jenapada	Jenapada RF	--	123.24	123.24
75	Rajnagar	Sukasan RF	--	60	60
76	JayMaaMangala (Dalabhag)	Subasi RF	--	200	200
77	Chhenakhianuagoan	Subasi RF	--	88	88
78	Ghantikhal	Subasi RF	--	90	90
79	Ahamadia	Nizigarh RF	--	75	75
80	Kadalibadi	Fulubadi PRF	60	--	60
81	Jaysitaram	Subasi RF	--	50	50
82	Balunkeswar	Subasi RF	--	100	100
83	Jaya Hanuman	Subasi RF	--	52	52
84	MaaKanakdurga	Subasi RF	--	100	100
85	MaaMangala	Subasi RF	--	70	70
86	Radhakrishnapur	Adala RF	--	38.61	38.61
87	Jenapur	Khalakhala RF	--	70	70
	Village Forest-07 Nos.		--		80.0
	Range Total				**3201.85**
	Khuntuni			--	
88	Gobara	Gobara RF	--	200	200
89	Rajbalabhapur	Gobara RF	--	120	120
90	Sabujaprema	Subasi RF	--	113	113
91	Sarpeswar	Khalakhala RF	--	70	70
92	Radharamanpur	Ranibania RF	--	40	40
93	MaaBautiAdala	Ranibania RF	--	80	80
94	JandaputBauti	Ranibania RF	--	100	100
95	ChatriBadajena	Ranibania RF	--	100	100
96	Mahalaxmipur	Baniabandha RF	--	80	80
97	Bhagua	Baniabandha RF	--	200	200
98	Krishnapur	Baniabandha RF	--	100	100
99	Charideshkrushiunnayanparisada	Baniabandha RF	--	200	200
100	KalimukhiBayaniMaaMangala	Baniabandha RF	--	100	100

101	Saraswatipur	Baniabandha RF	--	30	30
102	Banadurga	Baniabandha RF	--	120	120
103	Brahmanabasta	Brahmanbasta RF	--	100	100
104	Sauria	Sankhapoi RF	--	121	121
105	MaaKhambeswari	Deulia RF	--	50	50
106	Adisakti	Deulia RF	--	50	50
107	MaaBanadurga/ Bhogra	Deulia RF	--	75	75
108	Oranda	Suniamuhan RF	--	127	127
109	Madanmuhan VSS, Gurudijhatia	Sankapoi RF	--	59.5	59.5
110	MaaSaradhabauti, Rahangul	Baniabandha RF	--	120	120
111	MaaJatiabauti VSS, Bauinstangar	Baniabandha RF	--	50	50
112	Mahadev VSS, Kansara	Baniabandha RF		100	100
113	MaaBhanaranga VSS, Khirikhia ,Oringabadi ,Badakhamana	Baniabandha RF	--	190	190
114	MaaBudhalingeswar VSS, Khaksa	Baniabandha RF	--	140	140
115	Laxminarayan VSS, Musuliapadapathara	Baniabandha RF	--	200	200
	Range Total				**3035.5**
Total		--			
Total]	Village Forest	--	--	--	1861.052
G.T	--	--	--	--	12200.362

Sl. No	Name of the VSS	Name of the Revenue Forest (KF)	Area in ha.
1	BarapatanaSampur VSS, Badanauput	Badanauput	12.95
2	Kalapata VSS, Kalapata	Kalichaballav	50.00
3	Green Heaven VSS, Kantapada	Kantapada	8.0
4	Maa Nakadei VSS, Amantia	Amantia	15.62
5	Mahaveer VSS, Bhelei (Kharod)	Bhelei (Kharod)	25.4
6	Bajarangi VSS, Mahulamada(Kharod)	Mahulamada(Kharod)	13.8
7	Purukutia VSS, Purukutia	Baradabania	46.00
8	Bahali VSS, Bahali	Bahali	80.00
9	Maa Brahmanidevi VSS, Panchagochhia	Panchagochhia	183.77
10	Mahaveer VSS, Mansinghpatana	Mitikina	100.00
11	Maa Bauti VSS, Khajuria	Khajuria	20.00
12	Brahmanidevi VSS, Dumalborei	Mitikina	100.00
13	Bhagabatia Pragati VSS, Champeswar	Bokada	165.00
14	Ramachandrapur VSS, Ramachandrapur	Kuladiha&jamukhola	44.00
15	Maa Malakei VSS, Kandhabareni	Mitikina	36.57
16	Maa Mangala VSS, Bandhahuda	Panchagochhia	200.00
17	Nehuri VSS, Jenapala	Jenapala	15.45
18	Maa Saurani VSS, Godibandha	Chandragiri	41.32

19	Ambadhoba VSS, New Ransinghpur	Alara	51.82
20	Maa Magaramuhin VSS, Guptamanika	Chandragiri	30.00
21	Satabhauni VSS, Nuagaon	Kandhal	17.00
22	Maa Malkei VSS, Bichhanabati	Mitikina	94.00
23	OmmBudhabudhi VSS, Nuagarh	Nuagarh	100.00
24	Deobhuin VSS, Deobhuin	Deobhuin	130.00
25	Pitabali VSS, Odasingha	Saradhapur	247.95
26	Jagannatha VSS, Jagannathaprasad	Saradhapur	200.00
27	Bramhani Devi VSS, Sukata	Saradhapur	68.44
28	Maa Brahmani Devi VSS, Jantaria	Bhagatpur	72.00
29	Maa Mangala VSS, Mahulasahi	Saradhapur	180.00
30	Hanumantia VSS, Nukhapada	Saradhapur	150.00
31	Trinathadev VSS, Badabhuin	Barakhola	100.00
		Total area	**2599.09**

Abstract

V.S.S Area (115 Nos.) - 12200.362 ha.
K.F VSS Area (31 Nos.) - 2599.09 ha.

Appendix-XI

Production Of Bamboos From Bamboo Coupes from the year 2007-08 to 2010-11.

Year of working	Name of Range	Name of Coupe and area in Ha.	Production of Industrial Mixed Bundles	Prescribed Yield as per W.P.	Total Sale Unit Produce
2007-08	Badamba	Haladiaseni BC "D" 1063.97	Not Worked	65.11	--
-do-	N.S.Pur East	Deobhuin BC "D" 1053.64	31820 IB	170.68	53364
-do-	-do-	Olab BC "D" 623.56	Not Worked	187.06	--
-do-	-do-	Budhabudhi East BC "D" 404.44	Not Worked	65.50	--
-do-	-do-	Budhabudhi West BC"D" 140.00	Not worked	30.66	--
-do-	-do-	Chandragiri (B)BC "D" 207.09	Not worked	32.61	--
-do-	N.S. Pur West	Balikiary BC "D" 482.00	6000 IB	169.18	100.625
-do-	-do-	Jaypur BC "D" 789.73	9200 IB	277.19	154.291
2008-09	Badamba	Haladiaseni BC "A" 1043.00	Not Worked	225.28	--
-do-	N.S. Pur East	Deobhuin BC "A" 1137.66	27700 IB	184.28	464.552
-do-	-do-	Olab BC "A" 380.92	16200 IB	114.27	271.688

	-do-	Budhabudhi East BC "A" 243.75	Not Worked	39.48	--
	-do-	Budhabudhi West BC"A" 180.00	Not Worked	39.42	--
	-do-	Chandragiri (B)BC "A" 137.35	Not worked	21.31	--
-do-	N.S. Pur West	Balikiary BC "A" 553.62	20000 IB	194.32	335.417
		Jaypur BC "A" 997.50	Not worked	350.12	--
2009-10	Badamba	Haladiaseni BC "B" 1043.56	13000 ISB	226.05	218.02
-do-	N.S. Pur East	Deobhuin BC "B" 1394.09	20050 ISB	225.04	336.25
-do-		Olab BC "B" 715.88	11546 ISB	214.16	193.64
-do-		Budhabudhi East BC "B" 334.27	Not Worked	95.28	--
-do-		Budhabudhi West BC"B" 171.85	Not Worked	37.63	--
-do-		Chandragiri BC "B" 196.05	9330 ISB	30.99	156.47
-do-	N.S. Pur West	Balikiary BC "B" 360.41	14480 ISB	126.50	242.84
-do-	-do-	Jaypur BC "B" 817.22	Not Worked	286.84	--
2009-10 Flowering Coups	N.S.Pur East	Deobhuin BC "C" 137.54	850 ISB	--	14.25
-do-	-do-	Deobhuin BC "D" 170.68	850 ISB	--	14.25
-do-	-do-	Olab BC "C" 171.13	315 ISB	--	15.03
-do-	-do-	Olab BC "D" 187.06	800 ISB	--	13.42
-do-	N. S.Pur West	Balikiary BC "D" 482.00	800 ISB	--	13.42
-do-	-do-	Balikiary BC "C" 529.29	900 ISB	--	15.09
2010-11	Badamba	Haladiaseni BC "C" 1835.64	15020 ISB	396.49	251.90
-do-	N.S.Pur East	Deobhuin BC "C" 849.06	29120 ISB	137.54	488.37
-do-	-do-	Olab BC "C" 570.44	21380 ISB	171.13	358.56
-do-	-do-	Chandragiri(B) BC "C" 200.20	1500 ISB	31.50	25.16
-do-	N. S.Pur West	Balikiary BC "C" 529.29	14480 ISB	185.78	242.83
-do-	-do-	Jaypur BC "C" 968.30	11200 ISB	339.87	187.83

Appendix-XII			
List of Rest Shed			
Sl. No.	Name of camping spot	Name of Range	No. of suits
1	Barrack	Athgarh	02
2	Barrack	Narasinghpur West	02

Appendix-XIII			
Forest Roads			
S.L No	Name of the Range	Name of the Forest Road	Length in Km
1	Badamba	Karada-Soruan	8
2		Badamba- Aranda	5
3		Chhanchunia-Soruan	11.2
4		Guptamanik-Chhanchunia	2
5		Badakambilo-Daleimaru	5
6		Maniabandha-Badajora	8
	Total		39.2
7	Narasinghpur East	Sermunda-Guptamanik	24
8		Nuagarh-Raiguda	8
9		Nuagah-Dalak	3.2
	Total		35.2
10	Narasinghpur west	Mitikapur-Barasingha	8
11		Bhaguapala-Balikiary	17.6
	Total		25.6
12	Khuntuni	Gurudijhatia-Orda	12.8
13		Rajaathgarh-Orda	14.4
	Total		27.2
	Grnd Total		127.2
Sources: Divisional Fores Officer, Athgarh			

Appendix-XIV

Year	Temperature of Athgarh Division in Celsius												
	Min/ max	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2003	Min	4.4	10.2	8.8	19.0	18.9	19.9	19.9	19.0	19.3	16.5	8.8	6.6
	Max	33.3	37.0	39.4	49.9	46.7	47.0	35.4	34.0	35.3	34.7	31.7	28.0
2004	Min	6.2	9.0	13.7	20.0	24.6	19.6	22.6	19.2	21.4	-	11.8	7.0
	Max	30.0	35.0	39.5	42.7	43.8	42.4	34.8	35.6	34.4	-	32.2	30.5
2005	Min	8.5	10.0	16.8	18.5	20.0	42.2	21.9	21.8	22.2	20.2	10.5	6.8
	Max	30.6	34.8	37.8	40.2	45.8	46.0	34.4	35.7	35.2	35.0	32.0	30.1
2006	Min	7.7	9.9	14.2	16.1	21.0	20.4	20.2	21.2	21.6	17.1	12.6	8.8
	Max	32.6	37.2	38.2	40.2	41.8	42.2	34.9	32.6	34.2	35.4	31.9	31.6
2007	Min	7.4	10.6	12.9	16.8	21.8	24.2	24.4	23.3	22.3	16.3	22.8	9.8
	Max	32.2	34.2	38.5	42.0	43.4	45.0	34.1	34.2	34.2	33.2	33.4	30.8

Sources - Director Metrological Center, Bhubaneswar.

Appendix-XV				
Water Bodies				
Sl No.	Location	Type of Water Body	Geo-coordinates	Remarks Departmental/ Natural
Khuntuni Range				
1	Ranibania RF	Game Tank	N 20 35 01.9 E 85 41 11.0	Departmental
2	Baniabandha RF	-do-	N 20 36 56.7 E 85 44 00.3	-do-
3	Baniabandha RF	-do-	N 20 39 06.0 E 85 46 36.4	-do-
4	Baniabandha RF	-do-	N 20 38 59.7 E 85 48 19.9	-do-
5	Gobara RF	-do-	N 20 37 03.4 E 85 49 03.3	-do-
6	Sankhapoi RF	-do-	N 20 35 09.0 E 85 46 44.7	-do-
7	Baula RF	-do-	N 20 31 59.4 E 85 49 03.7	-do-
8	Suniamuhan RF	-do-	N 20 32 24.2 E 85 47 22.9	-do-
9	Suniamuhan RF	-do-	N 20 32 23.3 E 85 47 27.0	-do-
10	Suniamuhan RF	-do-	N 20 32 13.4 E 85 47 35.6	-do-
11	Subasi RF	-do-	N 20 32 38.0 E 85 46 27.0	-do-
12	Subasi RF	-do-	N 20 32 36.9 E 85 45 32.0	-do-
13	Baniabandha RF	-do-	N 20 39 03.7 E 85 48 19.3	-do-
14	Baniabandha RF	-do-	N 20 37 58.8 E 85 46 35.6	-do-
15	Baniabandha RF	-do-	N 20 37 6.8 E 85 48 04.3	-do-
16	Suniamuhan RF	-do-	N 20 32 17.0 E 85 47 55.0	-do-
17	Brahmanbasta RF	-do-	N 20 31 36.3 E 85 44 46.6	-do-
Narsinghpur West Range				

18	Mitikapur, Hatibari field	-do-	N 20 33 45.1 E085 02 08.5	-do-
19	Balikiary RF C-12	-do-	N 20 32 30.8 E085 03 52.4	-do-
20	Barakhola RF	-do-	N 20 32 30.7 E085 03 52.3	-do-
21	Balikiary PRF	-do-	N 20 32 58.8 E085 00 58.2	-do-
22	Balikiary RF	-do-	N 20 32 41.1 E085 02 55.8	-do-
23	Barsingha C-8	-do-	N 20 30 54.9 E085 05 05.6	-do-
24	Barakhola RF, Kharapada	-do-	N 20 30 51.5 E085 01 43.6	-do-
25	Balikiary RF C-10	-do-	N 20 34 58.8 E085 00 58.2	-do-
26	Uparakata, Saradhapur PRF	-do-	N 20 31 10.0 E085 01 42.4	-do-
27	Barakhola RF	-do-	N 20 30 33.1 E085 03 45.9	-do-
28	Balikiary RF	Game Tank	N 20 31 50.3 E085 04 05.8	Departmental
29	Balikiary C-11	-do-	N 20 32 58.0 E 85 03 13.0	-do-
30	Tamera (Khola)	-do-	N 20 32 39.3 E 85 05 12.3	-do-
31	Barakhola C-2	-do-	N 20 31 39.9 E 85 03 45.7	-do-
32	Barakhola C-2	-do-	N 20. 511071 E 85.073091	-do-
33	Barakhola C-2	-do-	N 20. 51065 E 85.073952	-do-
34	Saradhapur PRF	-do-	N 20 30 23.0 E 85 02 28.8	-do-
Narsinghpur East Range				
35	Deobhuin RF C-8	-do-	N 20 31 37.1 E085 09 01.3	-do-
36	Bhuska PRF	-do-	N 20 33 22.5 E085 07 28.8	-do-
37	Nuagarh RF C-3	-do-	N 20 32 27.6 E085 06 51.9	-do-
38	Nuagarh RF C-5	-do-	N 20 34 39.8 E085 06 22.2	-do-
39	Nuagarh RF C-9	-do-	N 20 36 10.5 E085 08 25.0	-do-
40	Nuagarh RF C-10	-do-	N 20 32 41.1 E085 02 55.8	-do-
41	Deobhuin RF C-12	-do-	N 2031 19.0 E085 11 38.4	-do-
42	Deobhuin RF C-13	-do-	N 20 31 07.5 E085 12 16.2	-do-

Athgarh Range				
43	Khalakhala RF	-do-	N 20 29 49.5 E 85 42 27.6	-do-
44	Baudabanakhandi RF	-do-	N 20 28 34.0 E85 40 24.0	-do-
45	Baudabanakhandi RF	-do-	N20 28 23.2 E85 39 37.2	-do-
46	Phulbadi PRF	-do-	N20 28 44.6 E85 36 45.8	-do-
47	Khalakhala RF	-do-	N20 29 45.0 E85 42 31.3	-do-
48	Sukasan RF	-do-	N20 28 34.2 E85 40 24.1	-do-
49	Ranibania RF	-do-	N20 33 42.0 E85 41 18.0	-do-
50	Kochilaballav RF	-do-	N20 29 32.6 E85 27 41.7	-do-
Badamba Range				
51	Tareiganda RF,C-1	-do-	N-20 27 47.4, E- 85 19 42.0	-do-
52	Haladiaseni RF,C-1	-do-	N-20 29 48.2, E- 85 16 52.3	-do-
53	Haladiaseni RF,C-5	-do-	N-20 28 43.3, E- 85 20 45.2	-do-
54	Karada RF,C-2	-do-	N-20 28 45.8, E- 85 22 09.4	-do-
55	Nagatota RF,C-4	-do-	N-20 27 47.5, E- 85 18 20.9	-do-
56	Tareiganda RF,C-3	-do-	N-20 27 43.6, E- 85 20 23.6	-do-
57	Nagatota RF,C-7	-do-	N-20 2655.2, E- 85 1909.1	-do-
58	Karada RF,C-2	-do-	N-20 28 45.0, E- 85 20 10.2	-do-
59	Haladiaseni RF,C-4	-do-	N-20 29 02.7, E- 85 19 05.6	-do-
60	Nagatota RF,C-3	-do-	N-20 27 34.1, E- 85 17 35.2	-do-

Appendix-XVI					
Boundary & Pillars of Forest Blocks					
Sl. No	Blocks	Boundary Length in Km	Nos. of Pillars	No. of Existing	No. of to be repaired
1	Deobhuin RF	42.7	260	125	135
2	Olab RF	23	114	59	55
3	Chandragiri 'B'RF	10.48	77	15	62
4	Mundagada B' RF	4.26	25	25	0
5	Brahmandei 'B' RF	3.64	31	22	9
6	Chandragiri (A) RF	16.1	200	125	75
7	Haladiaseni RF	34.96	178	73	105
8	Badajora RF	13.32	49	16	33
9	Tareigonda RF	17.28	116	40	76
10	Kumaranga RF	10.44	74	0	74
11	Talachandragiri (B) RF	10.36	120	55	65
12	Nagatota (B) RF	21.32	263	103	160
13	Mandap (B) RF	11.92	149	33	116
14	Jagabeherathali (B) RF	9.56	105	65	40
15	Karada (B) RF	9.02	135	33	102
16	Belapada (B) RF	5.7	57	0	57
17	Jhinkal (B) RF	15.18	180	115	65
18	Sukhasan RF	12.48	91	32	59
19	Khalakhala (B) RF	10.3	73	13	60
20	Baudabanakhandi(B) RF	10.1	60	42	18
21	Oringa (B) RF	8.92	94	0	94
22	Jenapada RF	8.12	47	12	35
23	Subasi RF	29.52	161	28	133
24	Ranibania RF	26.9	81	70	11
25	Adal (B)RF	11.2	59	51	8
26	Nizigarh (B) RF	14.18	187	19	168
27	Kalichaballav (B) RF	18.44	158	22	136
28	Sorispal(B) RF	17.2	159	49	110
29	Baniabandha RF	44.38	114	75	39
30	Gobara (B) RF	8.9	73	27	46

31	Sankhapoi (B) RF	7.76	43	25	18
32	Baula (B) RF	4.04	35	28	7
33	Suniamuhan (B) RF	8.3	58	54	4
34	Brahmanbasta (B) RF	4.32	81	15	66
35	Ranibania RF	25.25	81	70	11
36	Subasi (part) RF	27.75	161	16	145
37	Deulia (B) RF	9.25	37	0	37
38	Bhuska PRF	12	98	9	89
39	Baghamundia PRF	5.7	25	0	25
40	KhalidhipJanisahi PRF	2.5	13	0	13
41	Kandhamundia PRF	3.05	18	0	18
42	Gothamundia PRF	3.55	31	0	31
43	Birigadia PRF	2.1	21	0	21
44	Kabatbar PRF	1.5	21	0	21
45	Ganguari PRF	2.2	19	0	19
46	Telunia PRF	2.1	0	0	0
47	Saranda PRF	3.5	15	0	15
48	Phulbadi PRF	1.75	92	27	65
49	Megha PRF	3.15	23	23	0
50	Kandarapur PRF	1.1	0	0	0
51	Baniabandha PRF	5.1	8	0	8
52	Deulia (East) PRF	5.38	0	0	0
	Total	**621.23**	**4370**	**1611**	**2759**

Appendix-XVII		
Year Wise Target & Achievement of Bamboo Coupe Working and Production in Last Plan Period		
Years of Cutting	Production of Salia and Daba bamboos commercial boundless in Sale Units	Royalty Paid by OFDC Ltd
2006-07	423.39	277270
2007-08	788.556	369980
2008-09	1071.657	541440
2009-10	1147.22	595855
2010-11	1366.82	801700
2011-12	0	0
2012-13	0	0
2013-14	0	0
2014-15	0	0
Total	4797.643	2586245

Appendix-XVIII				
. Year wise target and achievement of Simultaneous sivicultural operation in Bamboo coupes				
Year	Range	Name of Coupe	S.S.O Done in Ha.	Amount Spent
2008-09	Narasinghpur West	Jaypur BCD	268	112560
		Jaypur BCC	48	20000
		Balikiary RF BCD (Comp. No. 13	192	80710
		Balikiary RF BCA	200	84000
		Barakhala BRF	965	404980
	Narasinghpur East	Deobhuin RF BCD (Comp. No.3)	260.5	102820
		Deobhuin RF BCD (Comp. No.10)	100.5	41920
		Deobhuin BCD	35	13830
		Deobhuin BCB	50	21140
		Deobhuin BCB (Comp. No.6)	99	42000
		Deobhuin BCB (Comp. No.3)	50	21000
		Nuagarh RF	227.5	122640
		Nuagarh RF (Comp. No.9)	48	33700
		Nuagarh RF BCD	116.5	48860
		Bramhani Coupe -1	162	76860
Total-			2822.00	
2009-10	Narasinghpur East	Budhabudhi BCB	184	99835
		Deobhuin RF	189	102165
	Badamba	Haladiaseni BCB (Comp. No. 4)	150	81000
		Haladiaseni (Comp. No.3)	150	81000
	Narasinghpu West	Jaypur BCB	602	324000
Total-			1275.00	
2010-11	Narasinghpur East	Deobhuin BCB (Comp. No.2)	138	75260

		Deobhuin RF (Comp. No.9)	100	53820
		Deobhuin RF (Comp. No.13)	46	25000
		Chandragiri RF BCB	20	10800
		Olab RF Comp. No.6)	56	30230
	Narasinghpur West	Balikiary RF BCB	200	10800
		Balikiary RF BCC	50	27000
		Budhabudhi BCB	36	19440
2010-11	Baramba	Haladiaseni RF(Comp. No.3)	150	81400
		Haladiaseni RF(Comp. No.5)	357	196950
		Haladiaseni RF(Comp. No.4)	40	21600
Total-			1193.00	
2011-12	Badamba	Haladiaseni RF BCC	620	334440
	Narasinghpur East	Chandragiri RF BCC (Comp. No.3)	100	54000
		Olab RF BCB(Comp. No.6)	200.10	108000
		Deobhuin RF Comp. No13	350	189000
	Narasinghpur West	Balikiary RF BCC (Comp. No. 12)	100	53970
		Balikiary RF (Comp. No. 7)	141	75960
		Balikiary RF (Comp. No. 6)	159	86070
		Balikiary RF	25	22500
			1695.10	
2012-13		Balikiary RF (Comp. No. 10)	325	292500
	East	Olab BCA	50	45000
		Chandragiri Comp No.1	217	195300
		Deobhuin RF Comp No. 3&4	100	89650
	Badamba	Haladiaseni RF BCA	150	135000
		Haladiaseni RF (Comp. No.1)	150	135000
Total-			992.00	

Appendix-XIX	
Simultaneous sivicultural operation Bamboo Coupes Under Taken During the Plan Period under State Plan From 2011-12 to 2014-15	
Year	Area in ha.
2011-12	1325.00
2012-13	1615.00
2013-14	1450.00
2014-15	2500.00

Appendix-XX			
Abstract of S.S.O in Bamboo coupes.			
Year	General (Area in Ha.)	CAMPA (Area in Ha.)	Total (Area in Ha.)
2008-09	2822.00	--	2822.00
2009-10	1275.00	--	1275.00
2010-11	1193.00	--	1193.00
2011-12	1695.10	1325.00	3020.10
2012-13	992.0	1615.00	2607.00
2013-14	--	1450.00	1450.00
2014-15	--	2500.00	2500.00
Total-	7977.1	6890.00	14867.10

Appendix-XXI			
Proposed New Forest Road			
Sl. No	Name of the Range	Name of the Forest Road	Length in Km.
1	Athgarh	Arati Road to Dalabhaga Village	02.00
2		TigiriaCharichhaka Road to Kundal	03.00
3	Khuntuni	Deuli Tagar to Khandabandha Village	02.00
4		Karma Company Road to Ramshyampur Village	05.00
5		Kansara waterbody to Dhenkanal Border	02.00
6		GhasuaChhack to BhaurangaThakuraniPitha	02.00
7	Badamba	Gurudipal to Diantaila	05.00
8		Khalimati to Rampur	03.00
9	Narasinghpur East	Baresinga to Vejia	07.00
10		Naijhari to Sundhuni	08.00
11		Dalak to Kandhadeobhuin	03.00
12	Narasinghpur West	Sishupathara to Sankhida	06.00
13		Badabhuin to Katurighasanala	06.00
14		Suliabanka to Jaypur	10.00
15		Uparakata to Ambakhola	05.00

DLC REPORT

Appendix-XXII

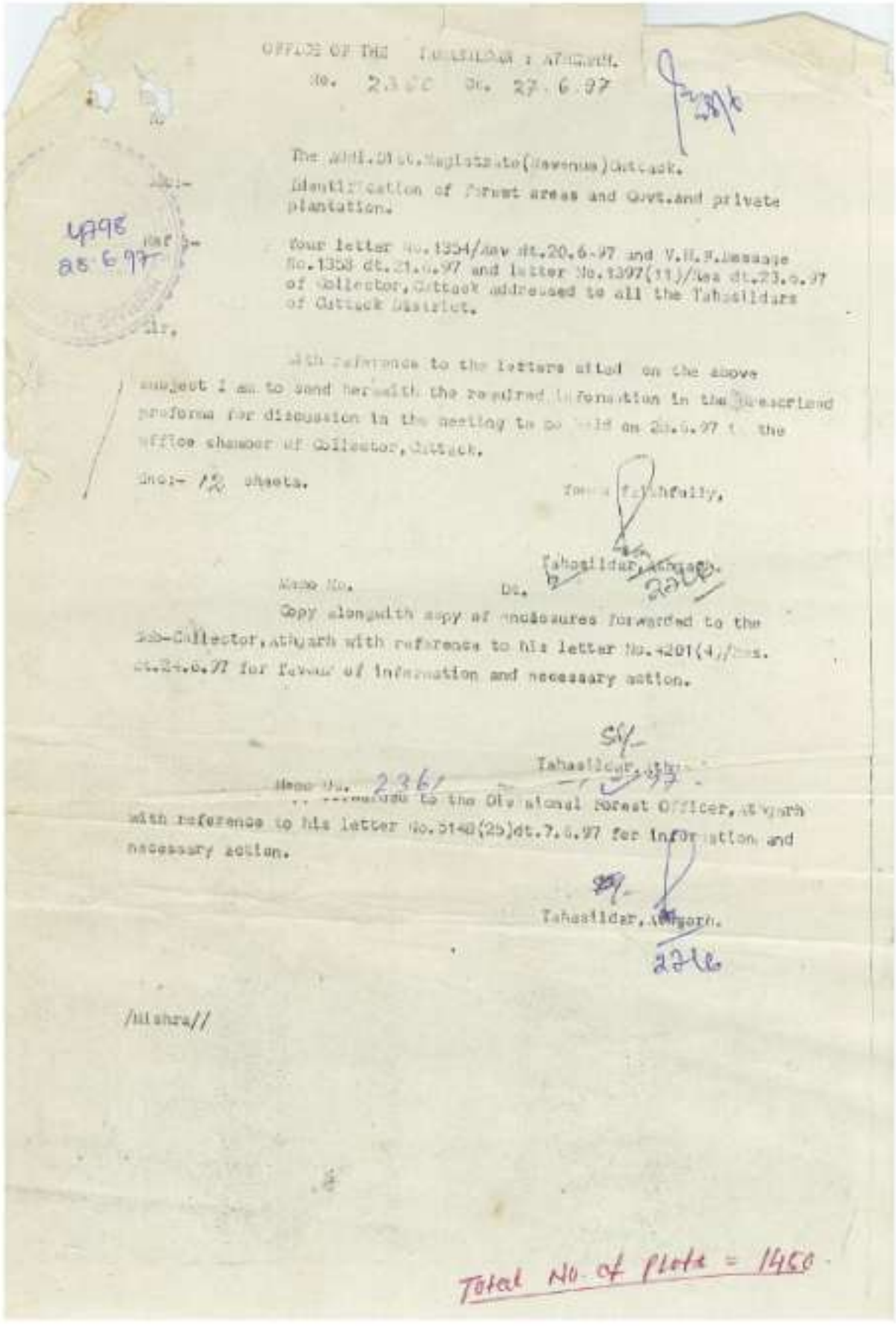
DLC Report of the Division.

There are six Tahasil within the administrative jurisdiction of Athagarh Division. These are Narsinghpur, Barmba, Tigria, Athagarh, part of Cuttack Sadar and part of BankiTahasil. The DLC land has been recorded RI Circle wise and comes to 10084.421 hectare. The details is as follows.

DLC Report of the Division.	
Name of the Tahasil	Area of DLC Forest Land in hectare
Athgarh	1963.229
Narsinghpur	6702.00
Badamba	739.19
Tigiria	236.00
Banki (Part)	444.002
Cuttack Sadar (Part)	Nil
Total-	10084.421

The original Tahasil wise DLC records is attached herewith for ready reference.

1. DLC area of AthgarhTahasil



OFFICE OF THE [illegible] ATHGARH.
No. 2360 Dt. 27.6.97

To
The Addl.Dist.Magistrate(Revenue)Cuttack.

Identification of forest areas and Govt.and private plantation.

Your letter No.1354/Rev dt.20.6.97 and V.H.F.Message No.1358 dt.21.6.97 and letter No.1397(11)/Rev dt.23.6.97 of Collector,Cuttack addressed to all the Tahasildars of Cuttack District.

With reference to the letters cited on the above subject I am to send herewith the required information in the prescribed proforma for discussion in the meeting to be held on 28.6.97 in the office chamber of Collector,Cuttack.

Encl:- 12 sheets.

Yours faithfully,

Tahasildar,Athgarh.

Memo No. Dt.

Copy alongwith copy of enclosures forwarded to the Sub-Collector,Athgarh with reference to his letter No.4201(4)/Rev. dt.24.6.97 for favour of information and necessary action.

Tahasildar,Athgarh.

Memo No. 2361 Dt. 27.6.97.

Copy forwarded to the Divisional Forest Officer,Athgarh with reference to his letter No.3140(29)dt.7.6.97 for information and necessary action.

Tahasildar,Athgarh.

/mishra//

Total No of Plots = 1450

Khata No	Plot No	Area (Ca Acres)	Ownership Govt. or Private	Name of Tehsil	Mauza	Khat. No	Plot No	Area (Ca Acres)	Ownership Govt. or Private
13	14	15	16	17	18	19	20	21	22
437	2342	4-0-28	Govt.	Abbottabad	Havelian	171	30 (P)	4-1-00	Govt.
	2347	4-	"		Ali Sher	348	1345 (P)	4-10-03	"
	21-7	4-1-12	"		Nizampur	876	23	4-1-30	"
	2370	4-0-20	"		Gopalpur	325	510/477	4-4-22	"
	344	4-1-12	"		Baliyan	570/284	109	4-1-10	Nilambar
	341	4-1-03	"				93	4-0-26	"
	377	4-0-23	"				97	4-1-35	"
	1502	4-0-31	"			278/276	98/241	4-1-12	"
569	1902	4-1-10	"				56/509/56	4-0-36	"
	1911	4-1-01	"				54/1/54	4-1-00	"
	1908	4-1-32	"			219	109	4-0-63	"
	1965	4-0-25	"				Total = 69-12 of Nilambar Land		
	1979	4-0-37	"				Total = 46-72 of Govt. Land		
	1997	4-1-12	"						
	1998	4-0-03	"						
	1902	4-1-2	"						
	1305	4-0-13	"						
	1907	4-0-42	"						
330	401/2004	4-0-34	"						
	1175/1967	4-0-06	"						
330	77	4-2-01	"						
	404	4-2-02	"						
	1	4-1-70	"						
449	243/245	4-0-64	"						
134	1237	4-0-62	"						
	723/403	4-1-17	"						
116	147	4-0-69	"						
	525	4-25-66	"						
	771	4-0-16	"						
	776	4-0-32	"						
	779	4-5-62	"						
	787	4-0-96	"						
	570	4-0-27	"						
	33	4-0-06	"						
401	2308	4-0-22	"						
134	1520	4-0-12	"						
	1358/1358	4-0-19	"						
136	1347	4-0-34	"						

10	11	12	13	14	15	16
	Altenfeld	Dreiherrenstein	M	2718	A=0.035	Quarz
				2733	A=0.56	"
				2747	A=0.73	"
				2747/2756	A=1.30	"
				2756-2780	A=0.34	"
				2780/2806	A=0.04	"
				2806/2839	A=0.47	"
				2839 - 2847	A=0.65	"
				2847/2867	A=0.27	"
					A=0.61	"
				2880	A=0.57	"
				2915	A=0.57	"
				2931	A=1.36	"
				2946		"
				2971/3002	A=0.02	"
				3002/3040	A=1.98	"
				3040	A=0.50	"
				3058	A=0.61	"
				3076	A=0.03	"
				3076/3098	A=0.08	"
				3098		"
				3116/3143	A=0.45	"
				3143/3166	A=0.03	"
				3166/3185	A=0.02	"
				3185/3211	A=0.26	"
		Klausenkopf	A53	3211/3260	A=0.07	"
				3260/3283	A=0.26	"
				3283/3309	A=0.19	"
				3309/3340	A=0.11	"
				3340	A=0.60	"
				3376/3424	A=0.23	"
				3424/3457	A=0.02	"
				3457/3483	A=0.02	"
				3483/3513	A=0.16	"
				3513/3536	A=0.12	"
				3536/3555	A=0.05	"
				3555/3577	A=0.04	"
				3577/3600	A=0.04	"
				3600/3625	A=0.04	"
				3625/3650	A=0.05	"
				3650/3675	A=0.05	"
				3675/3701	A=0.05	"
				3701/3731	A=0.08	"
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				3757	A=0.04	"
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				3777/3797	A=0.58	"
				3797/3817	A=0.20	"
				3817/3844	A=0.27	"
				3844/3872	A=0.49	"
				3872	A=0.07	"
				3879/3902	A=0.45	"
				3902/3917	A=0.40	"

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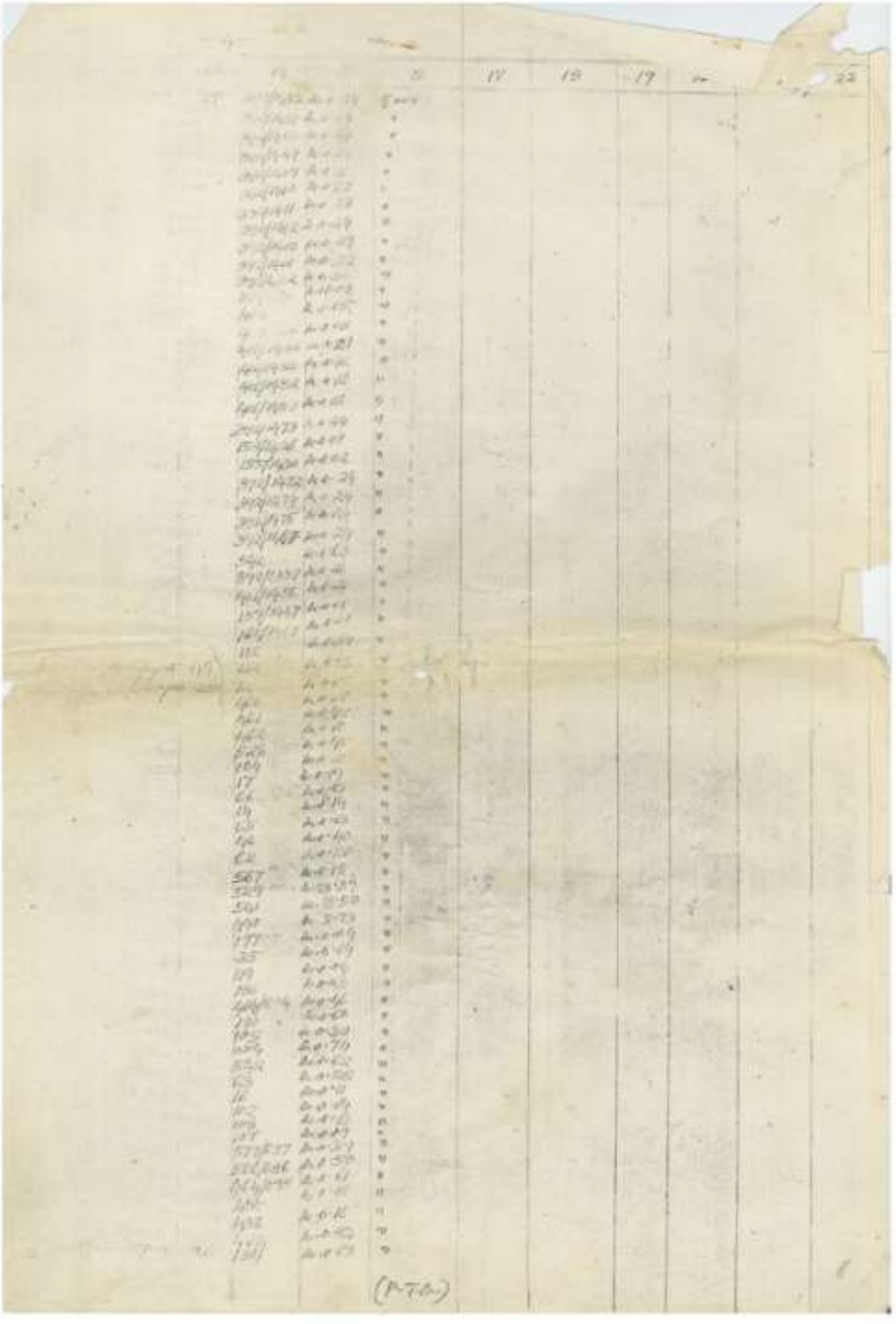
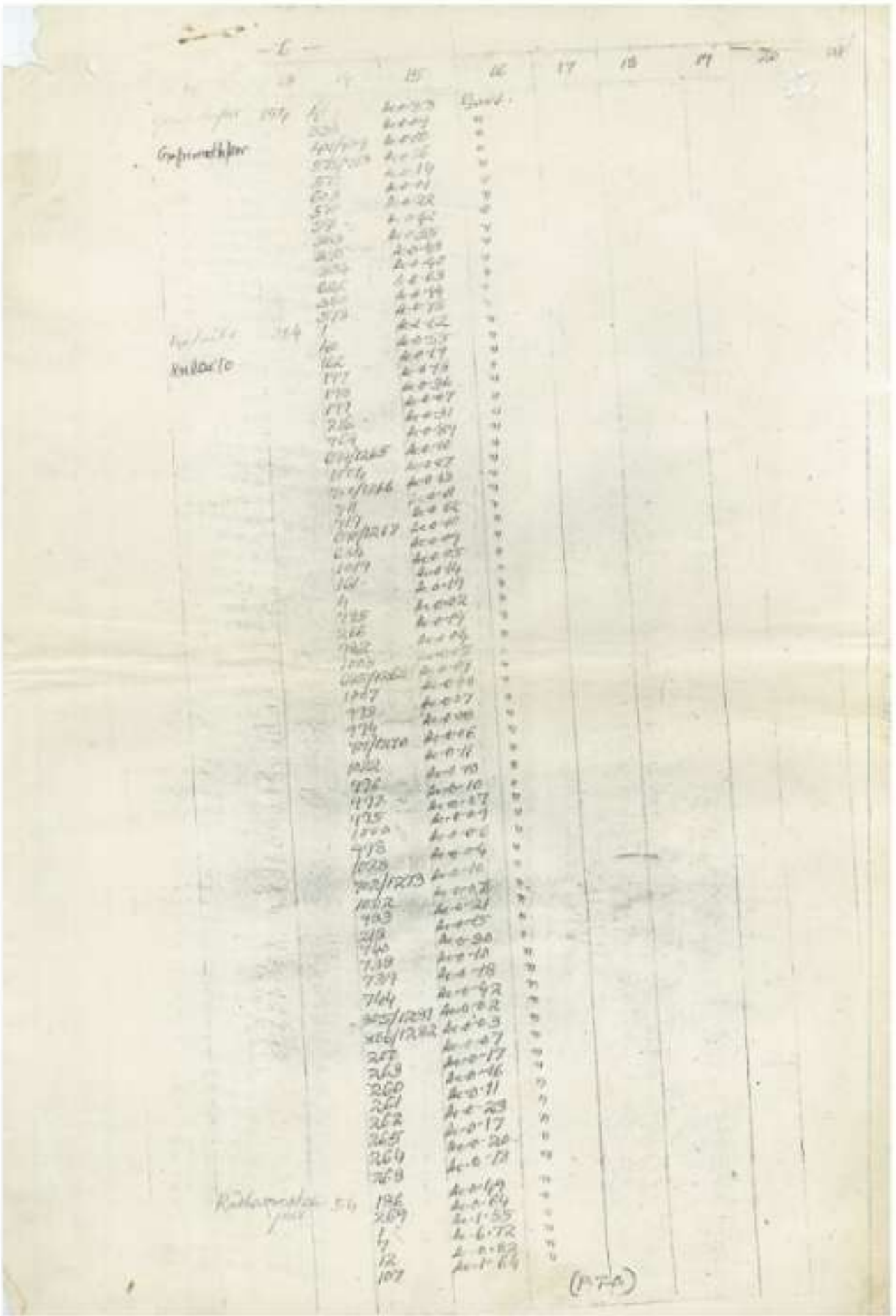
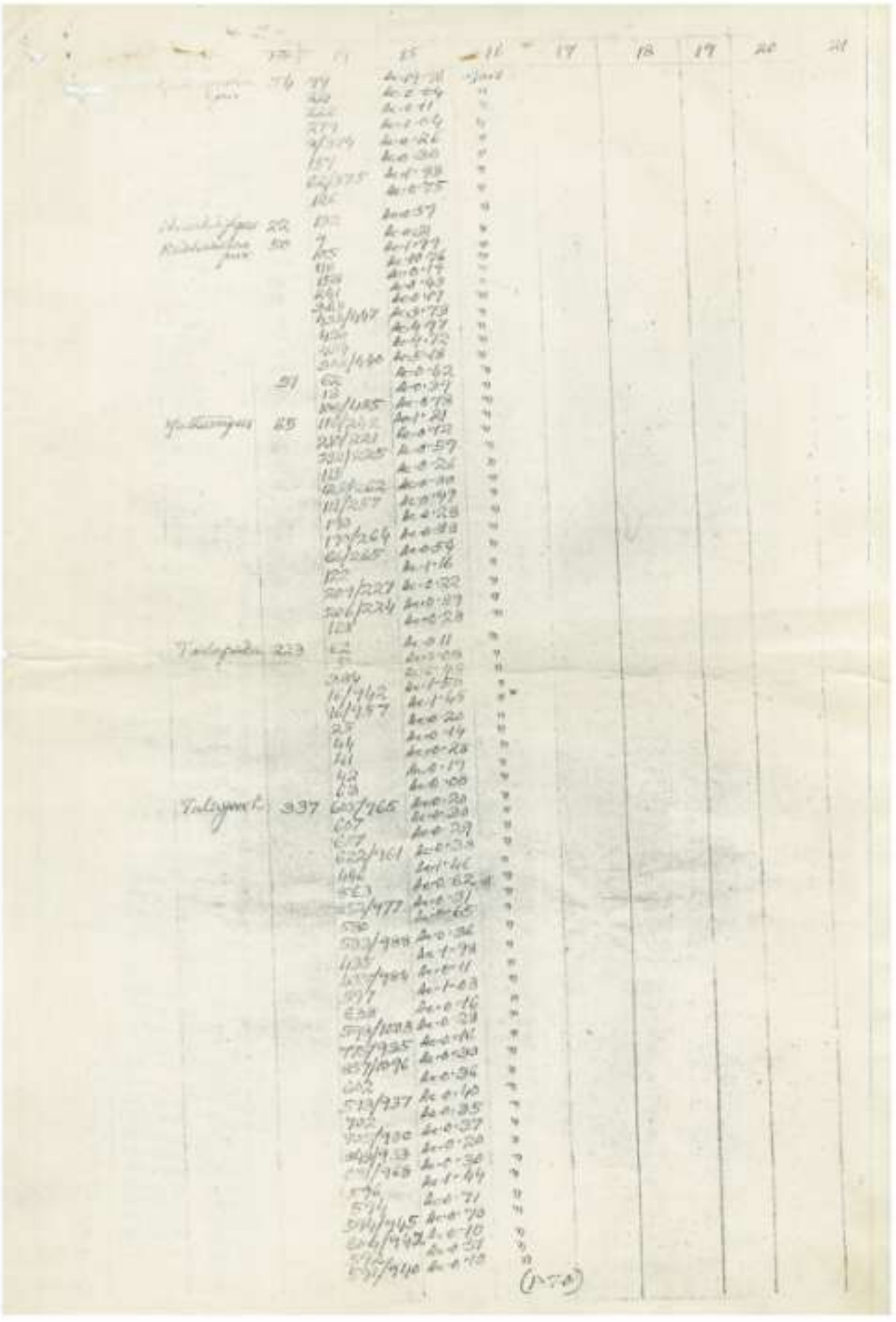


10	11	12	13	14	15	16	17
		Kadayanallur	59			Good	
		Alwarpur	346				



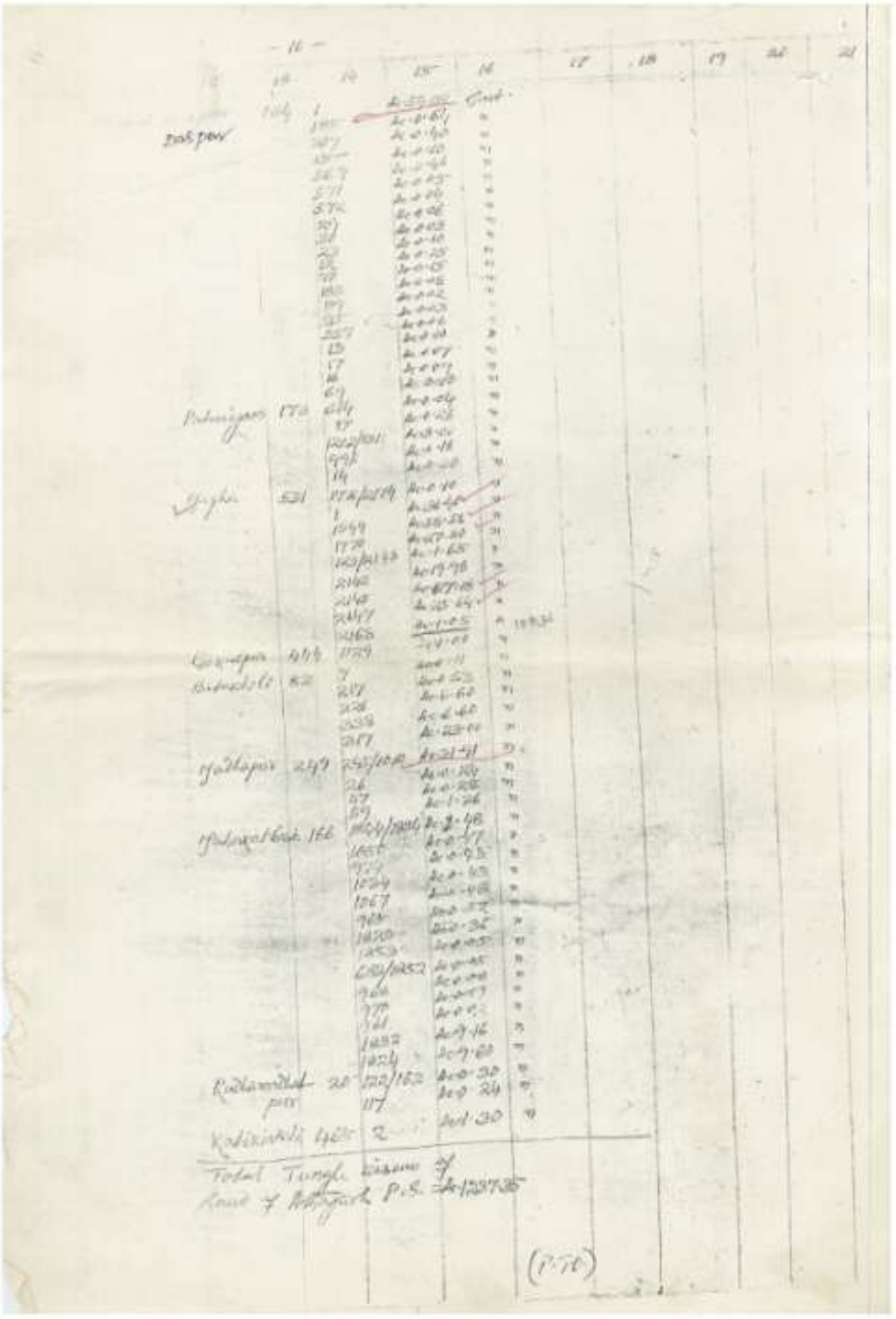


11	12	13	14	15	16
Aligarh	Tilgaon	537	228	A.e.97	Board.
			631/960	A.e.78	
			630/1137	A.e.72	
			611/952	A.e.30	
			553/1018	A.e.28	
			554/1147	A.e.20	
			504/1247	A.e.62	
			561/1250	A.e.15	
			616	A.e.47	
			557/1104	A.e.78	
			554	A.e.32	
			556/1207	A.e.532	
			640	A.e.23	
			557/1019	A.e.01	
			637	A.e.704	
			557/1014	A.e.1607	
			556/1975	A.e.478	
			521	A.e.404	
			583	A.e.48	
			617	A.e.46.76	
			653	A.e.0.22	
			637/1025	A.e.0.60	
			194	A.e.37	
Ramnagar	44		1	A.e.1.38	
			246	A.e.323	
			2461/259	A.e.0.01	
			1785/262	A.e.1.47	
Bandapur	876		2246	A.e.0.49	
			2536	A.e.0.45	
			2457	A.e.0.78	
			2532	A.e.0.14	
			2446	A.e.0.07	
			2443	A.e.0.42	
			2531	A.e.1.46	
			2552	A.e.0.02	
			2573/5023	A.e.57.46	
			2531	A.e.0.45	
			2551	A.e.2.56	
			2572/2117	A.e.0.84	
			2546	A.e.1.07	
			2707/3116	A.e.3.67	
			2564	A.e.1.35	
			2 11/3089	A.e.2.39	
			2716/2027	A.e.3.76	
			2571	A.e.0.77	
			2546	A.e.0.05	
			2535	A.e.0.12	
			2550	A.e.0.16	
			2537	A.e.0.07	
			2545	A.e.0.86	
			2580	A.e.0.77	
			2465	A.e.0.7	
			2569	A.e.0.18	
			2537	A.e.0.25	
			1792	A.e.0.45	
			2180	A.e.5.80	
			2633	A.e.0.27	
			3137	A.e.0.16	
			3138	A.e.0.02	
			2534	A.e.0.16	
			3176	A.e.0.22	
			3177	A.e.0.96	
			2537	A.e.0.10	
			2541	A.e.0.32	
			2559	A.e.0.52	

(Pto.

7	8	9	10	11	12	13	14	15	16	17
		Tank	Kandiyur	375	2073	Ac-0-20	Gvt.			
					1838	Ac-0-21	"			
					1610	Ac-0-34	"			
					1780	Ac-0-38	"			
					1760	Ac-0-14	"			
					2089	Ac-2-157	"			
					2118	Ac-0-16	"			
					2010	Ac-2-27	"			
					2075	Ac-3-60	"			
				3-7	2034	Ac-00-04	"			
					1833	Ac-1-20	"			
					2030	Ac-1-38	"			
			Kandiyur	4C	1	Ac-1-61	"			
					155	Ac-0-10	"			
					165	Ac-0-159	"			
					260	Ac-1-20	"			
					261	Ac-1-102	"			
					1861	Ac-1-21	"			
					1864	Ac-1-18	"			
					262	Ac-0-13	"			
					257	Ac-0-31	"			
					253	Ac-0-20	"			
				1/1	245	Ac-00-28	"			
			Kandiyur	3C	204	Ac-0-154	"			
					1246	Ac-0-163	"			
					1249	Ac-0-124	"			
					247	Ac-0-20	"			
					1246	Ac-0-42	"			
					1249	Ac-0-45	"			
					1165	Ac-0-50	"			
					240	Ac-0-42	"			
					241	Ac-0-46	"			
					1248	Ac-0-107	"			
					1249	Ac-0-126	"			
					1246	Ac-0-57	"			
					1248	Ac-1-66	"			
					238	Ac-1-72	"			
					241	Ac-1-90	"			
					160	Ac-1-24	"			
					161	Ac-1-24	"			
					217	Ac-0-43	"			
					162	Ac-0-34	"			
					148	Ac-0-118	"			
					149	Ac-0-23	"			
					253	Ac-2-26	"			
			Kandiyur	376	1486	Ac-0-35	"			
					264	Ac-0-50	"			
					1912	Ac-0-93	"			
					243	Ac-0-127	"			
					243	Ac-0-17	"			
					1954	Ac-0-52	"			
					955	Ac-0-52	"			
					1858	Ac-0-78	"			
					1877	Ac-1-96	"			
					1892	Ac-0-160	"			
					858	Ac-0-95	"			
					312	Ac-0-114	"			
					1957	Ac-0-39	"			
					1911	Ac-2-58	"			
					1864	Ac-1-40	"			
					1895	Ac-0-17	"			
					1909	Ac-1-90	"			
				207	317	Ac-0-46	"		17-03	
			Nandalo	123	640/612	Ac-0-60	"			
					643	Ac-0-78	"			
					611	Ac-0-303	"			
			Kandiyur	57	369	Ac-0-19	"			
					C/453	Ac-0-80	"			
					5	Ac-1-45	"			
			Thangapur	115	385	Ac-0-132	"			
					187	Ac-1-81	"			
					215	Ac-0-92	"			

(P.T.O.)



11	12	13	14	15	16	17
	Ekhinorhynchus gadi-perciformis	42	1169/1211	Ac 0.25	Gadus	
			1176	Ac 0.17	"	
			1178	Ac 0.3	"	
	Rhadinorhynchus	41	42			
	Corynosoma	42	2019/2023	Ac 0.32	"	
			111	Ac 1.18	"	
			2071	Ac 0.84	"	
			2067	Ac 0.69	"	
			2085	Ac 0.36	"	
			2089	Ac 0.76	"	
			1175	Ac 1.104	"	
			1180	Ac 0.34	"	
			1181	Ac 0.27	"	
			1178	Ac 0.78	"	
			81	Ac 1.052	"	
			117	Ac 0.83	"	
			1185	Ac 0.23	"	
			1198/1199	Ac 1.16	"	
			41	Ac 0.10	"	
			46	Ac 1.87	"	
			1170	Ac 2.659	"	
			1208	Ac 1.172	"	
			218	Ac 1.31	"	
			118	Ac 1.23	"	
			218	Ac 0.58	"	
			187	Ac 0.38	"	
			1209/1216	Ac 1.611	"	
			150	Ac 2.10	"	
			1197/1201	Ac 0.709	"	
			1199/1207	Ac 0.14	"	
			1203/1177	Ac 0.160	"	
			1197/1202	Ac 1.160	"	
	Echinorhynchus	43	745	Ac 0.377	"	
			96	Ac 0.59	"	
			65	Ac 1.12	"	
			65/1126	Ac 0.26	"	
	Kandorhynchus	7??	30	Ac 0.42	"	
			120	Ac 1.68	"	
			1	Ac 0.73	"	
			0	Ac 0.94	"	
			4	Ac 0.94	"	
			7	Ac 0.10	"	
			1165	Ac 0.001	"	
			1269	Ac 1.65	"	
			1267/1282	Ac 0.63	"	
			1275/1285	Ac 0.39	"	
			1254/1254	Ac 0.25	"	
			1263/1263	Ac 1.20	"	
			1264/1264	Ac 0.92	"	
			1262/1262	Ac 0.60	"	
			205	Ac 0.65	"	
			286	Ac 0.69	"	
			176	Ac 0.17	"	
			1242/1242	Ac 0.13	"	
			1205/1205	Ac 1.62	"	
			1235/1235	Ac 1.60	"	
	Kratschmidhynchus pud	64	11	Ac 0.07	"	
			12	Ac 0.70	"	
			13	Ac 0.09	"	
	Oligacanthorhynchus	256	1	Ac 3.852	"	
			328	Ac 59.34	"	
			1743	Ac 0.26	"	
			728/729	Ac 0.65	"	
			726/726	Ac 0.01	"	
			20	Ac 10.65	"	
	Chaetosoma	130	218	Ac 2.69	"	
			1130	Ac 2.70	"	
			1177	Ac 5.72	"	
			1162	Ac 6.49	"	

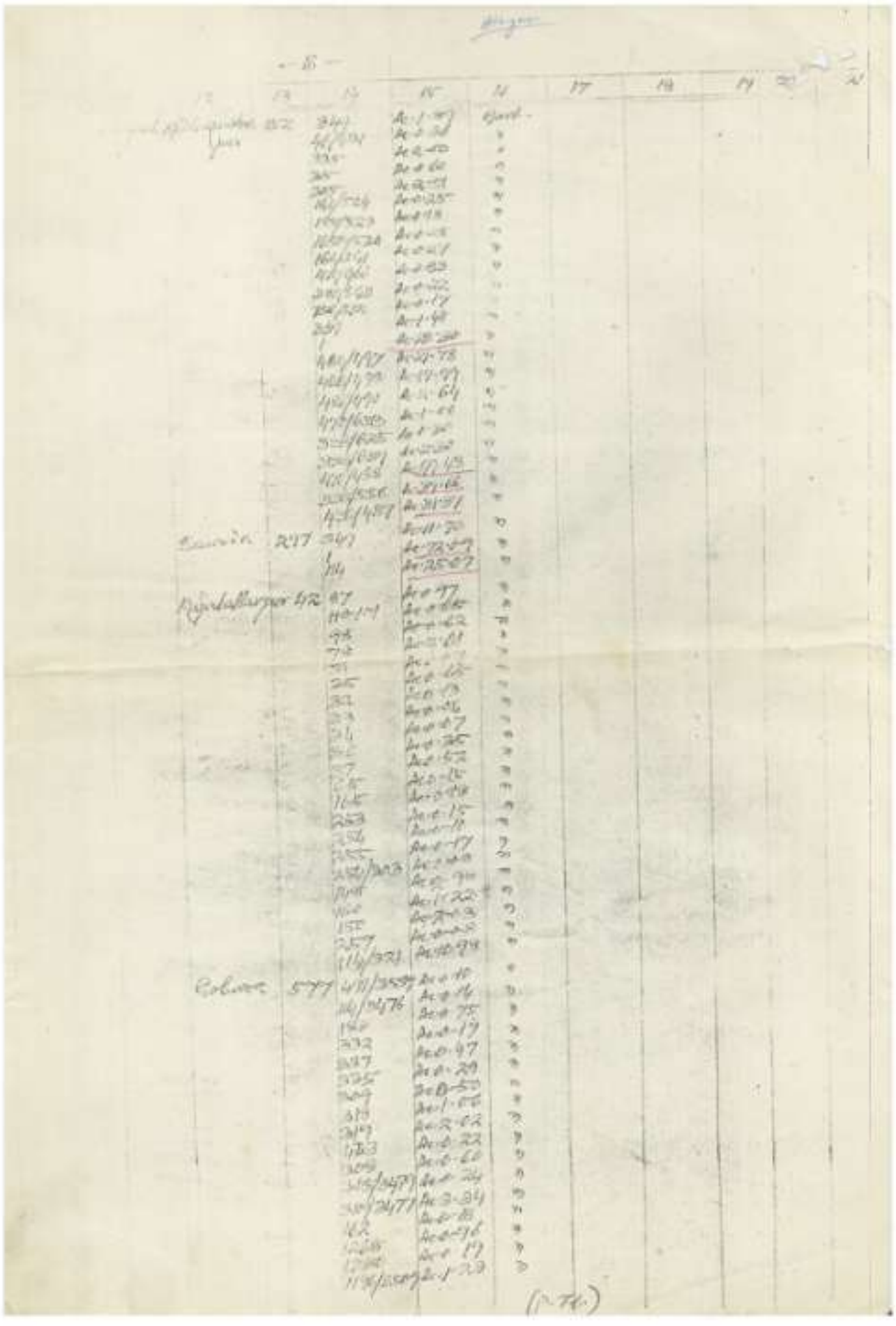
(ATE)

W	13	14	15	16	17	18	19	20	21

11	12	13	14	15	16	17	18	19	20

9	10	11	12	13	14	15	16
		Morgan	Rutherford				

13	14	15	16	17	18	19	20	21



1	11	11	12	13	14	15	16
		Stayton, Aumsville	577	1024	A-2-29	Sand
				24/3532	A-2-37	"
				665	A-2-35	"
				669	A-2-15	"
				819	A-2-18	"
				1177	A-2-67	"
				1179	A-2-47	"
				220	A-2-48	"
				307	A-2-51	"
				340	A-2-54	"
				342	A-2-50	"
				293	A-2-49	"
				323	A-2-67	"
				24/1467	A-2-47	"
				24/3830	A-2-59	"
				24/3831	A-2-72	"
				24/3475	A-2-18	"
				24/3489	A-2-82	"
				118	A-2-52	"
				117/3713	A-2-69	"
				24/3409	A-2-78	"
				24/3736	A-2-64	"
				124	A-2-32	"
				1330	A-2-28	"
				1324	A-2-54	"
				1334	A-2-45	"
				1338	A-2-35	"
				249	A-2-34	"
				1327	A-2-62	"
				1343	A-2-57	"
				1260	A-2-71	"
				24/3475	A-2-48	"
				44/3472	A-2-32	"
				666	A-2-37	"
				670	A-2-68	"
				24/3478	A-2-66	"
				24/3487	A-2-6	"
				1/3434	A-2-33	"
				24/3432	A-2-10	"
				1201	A-2-34	"
				1343	A-2-23	"
				24/3726	A-2-85	"
				24/3711	A-2-40	"
				24/3729	A-2-82	"
				24/3722	A-2-77	"
				24/3729	A-2-73	"
				24/3478	A-2-86	"
				157	A-2-92	"
				24/3727	A-2-85	"
				1346	A-2-84	"
				24/3732	A-2-25	"
				24/3731	A-2-52	"
				24/3736	A-2-36	"

(P.T.A.)

13	14	15	16	17	18	19	20	21	22
	1/3767	Ac 3-20	Good						
	1/377	Ac 1-17	"						
	4ac	Ac 1-12	"						
	4 1/2 ac 25	Ac 4-77	"						
	227	Ac 0-06	"						
	221	Ac 1-25	"						
	195	Ac 2-98	"						
	247	Ac 2-46	"						
	253	Ac 7-40	"						
	1/3 1/237	Ac 0-31	"						
	2 1/2 ac 25	Ac 0-12	"						
	4 1/2 ac 4	Ac 0-62	"						
	2 ac	Ac 0-93	"						
	222 1/2 ac 25	Ac 0-87	"						
	1	Ac 0-58	"						
	17	Ac 9-55	"						
	12	Ac 5-50	"						
	22	Ac 1-76	"						
	49	Ac 6-13	"						
	53	Ac 1-22	"						
	193	Ac 3-85	"						
	1 1/2 1/2 90	Ac 1-13	"						
	8	Ac 0-50	"						
	196 1/2 97	Ac 17-08	"						
	76 1/2 43	Ac 0-63	"						
	177	Ac 0-57	"						
	69	Ac 1-07	"						
	69 1/2 66	Ac 2-59	"						
	72	Ac 17-20	"						
	73 1/2 78	Ac 0-42	"						
	72 1/2 87	Ac 1-28	"						
	73 1/2 74	Ac 0-94	"						
	40	Ac 2-34	"						
	177 1/2 50	Ac 0-90	"						
	69 1/2 83	Ac 3-05	"						
	69 1/2 66	Ac 2-15	"						
	69 1/2 61	Ac 0-72	"						
	2	Ac 0-09	"						
	211	Ac 0-82	"						
	60 1/2 57	Ac 2-23	"						
	61 1/2 24	Ac 0-14	"						
	69 1/2 43	Ac 17-25	"						
	104	Ac 0-24	"						
	101 1/2 89	Ac 2-57	"						
	101 1/2 91	Ac 0-82	"						
	101 1/2 82	Ac 0-70	"						
	39	Ac 2-01	"						
	24 1/2 87	Ac 0-46	"						
	58	Ac 0-47	"						
	64	Ac 1-98	"						
	5	Ac 0-72	"						
	60	Ac 0-79	"						
	61 1/2 58	Ac 0-42	"						
	79	Ac 1-24	"						
	77 1/2 77	Ac 0-44	"						
	42	Ac 0-72	"						
	43 1/2 59	Ac 1-98	"						
	44 1/2 65								

(P.74.)

10	11	12	13	14	15	16	17
	Alleyne Aberdeen		78	20	Ac 1-16	Bank	
				21/209	Ac 1-21		
				54	Ac 0-07		
				56	Ac 1-32		
				60/209	Ac 1-35		
				67	Ac 0-05		
				69/202	Ac 0-32		
				171/175	Ac 1-16		
				181/48	Ac 0-11		
				205/49	Ac 0-27		
				211/257	Ac 0-52		
				220/315	Ac 0-07		
				60/235	Ac 0-16		
				66/247	Ac 0-45		
				68/268	Ac 0-11		
				69/268	Ac 0-32		
				6/240	Ac 1-02		
				171/177	Ac 0-04		
				4	Ac 0-02		
				8/249	Ac 0-16		
				9	Ac 1-37		
				17	Ac 0-12		
				207/247	Ac 0-21		
				226/268	Ac 0-20		
				6/209	Ac 0-30		
				212/290	Ac 0-14		
				68	Ac 1-48		
				174	Ac 11-44		
				178	Ac 4-25		
				178/209	Ac 0-34		
		Kanhoon	158	57/172	Ac 1-44		
				69	Ac 0-24		
				98	Ac 0-14		
				98	Ac 0-09		
				98	Ac 0-14		
				180	Ac 0-09		
				207	Ac 3-15		
				140/245	Ac 0-06		
				111	Ac 0-25		
				117	Ac 1-54		
				57	Ac 0-29		
				162	Ac 0-15		
				82	Ac 0-05		
				2	Ac 5-14		
				4	Ac 0-15		
				5	Ac 1-17		
				9	Ac 1-20		
				20	Ac 1-17		
				23	Ac 1-32		
				25	Ac 1-65		
				32	Ac 0-15		
				52	Ac 0-26		
		Sandomkai	171	207	Ac 0-33		
				216	Ac 1-74		
				250	Ac 1-20		
				314	Ac 0-23		
				250	Ac 0-33		
				271	Ac 0-25		
				50/260	Ac 0-47		
		K Deonarayan	217	54	Ac 0-14		
				281/276	Ac 0-32		
				444/303			

(P.T.O.)

17	18	19	15	16	17	18	19	20	21
			Ac 11	Speed					
	330	44/203	Ac 53	"					
		37	Ac 37	"					
		47	Ac 73	"					
		50	A-2-34	"					
		38	Ac 1-14	"					
		33	Ac 71	"					
		1	Ac 52	"					
		17	Ac 96	"					
Gainesboro	341	223	Ac 57	"					
		125	Ac 60	"					
		46/50	Ac 96	"					
		117/119	Ac 22	"					
		204/223	Ac 38	"					
		177	Ac 25	"					
		4	Ac 80	"					
Kodak	302	463/466	Ac 24	"					
		307/465	Ac 96	"					
		55/208	Ac 25	"					
		57/439	Ac 24	"					
		48/56	Ac 66	"					
		16/317	Ac 92	"					
		9/231	Ac 17	"					
		14/302	Ac 26	"					
		15/303	Ac 57	"					
		16/129							
Pittsville	155	20/517	Ac 34	"					
		20/517	Ac 57	"					
		354/363	Ac 20	"					
		307	Ac 43	"					
		308	Ac 22	"					
Oakdale	171	294	Ac 47	"					
		45	Ac 60	"					
		1065/1065	Ac 38 48	"					
		107/107	Ac 43	"					
		330/335 1103	Ac 14 93	"					
Kalkaska	118	28	Ac 44	"					
		26	Ac 57	"					
		29	Ac 21	"					
		53	Ac 12	"					
		38	Ac 28	"					
		47	Ac 43	"					
		57	Ac 79	"					
		401/409	Ac 20	"					
		404/405	Ac 40	"					
		404/406	Ac 25	"					
		404/425	Ac 78	"					
		2	Ac 41	"					
		53	Ac 43	"					
	114	57/484	Ac 63	"					
		60	Ac 88	"					
		9	Ac 8	"					
		1	Ac 20	"					
Manton-Kingsley	229	1/1978	Ac 45	"					
		4	Ac 21	"					
		24	Ac 16	"					
		69	Ac 66	"					
		124/188	Ac 20	"					
		69/175	Ac 15	"					
		769	Ac 45	"					
		161/652	Ac 33	"					

(P.T.)

11	12	13	14	15	16	17	18	19
		227	[illegible]	[illegible]	$3000.			
			[illegible]	[illegible]	"			
			[illegible]	[illegible]	"			
			[illegible]	[illegible]	"

10	11	12	13	14	15	16	17	18
				1027		Gent.		
				685		"		
				760		"		
				1069		"		
				857		"		
				804		"		
				1487		"		
				530		"		
				519		"		
				522		"		
				536		"		
				539		"		
				530		"		
				574		"		
				426		"		
				1113/1110		"		
				1197/1206		"		
				577/1225		"		
				577/1197		"		
				1201/1228		"		
				20/1226		"		
				97/1249		"		
				277		"		
				90		"		
				1		"		
				2		"		
				46/1229		"		
				1201/1230		"		
				271		"		
				230		"		
				307/1222		"		
				306		"		
				312		"		
				1463		"		
				65/123		"		
				118		"		
				107/1249		"		
				1197/1244		"		
				713		"		
				1119		"		
				664/1277		"		
				1152		"		
				197/1251		"		
				14		"		
				60		"		
				129		"		
				90		"		
				34/1249		"		
				8		"		
				10		"		
				9		"		
				10		"		
				11		"		
				12		"		
				1193		"		
				21		"		

(P.T.O.)

10	11	12	13	14	15	16	17
	Stargard Gpr. Gymnasium		332	553	4-9-70	Gard.	
				502	4-0-04	"	
				654	4-0-07	"	
				587	4-0-16	"	
				577/1101	4-0-64	"	
				953/1116	4-0-03	"	
				572	4-0-33	"	
				573	4-0-17	"	
				574	4-0-32	"	
				588	4-0-15	"	
				586	4-0-45	"	
				585	4-0-17	"	
				670	4-0-46	"	
				691	4-0-20	"	
	Plumitz		332	301	4-1-12	"	
	Hansdorf		162	867/969	4-0-47	"	
				2201/1195	4-18-60	"	
	Bordzimmer Linde		219	185	4-0-16	"	
				149	4-0-09	"	
					4-0-06	"	
	Barnimpol		169	377	4-0-24	"	
				52/1154	4-0-24	"	
				1	4-77-24	"	
	Lantzenbau		114	341	4-7-10	"	
				352	4-0-76	"	
				323/657	4-0-52	"	
				419	4-7-30	"	
	Pahnke		114	125	4-1-29	"	
				455/563	4-0-40	"	
				317	4-0-22	"	
				766/1204	4-0-40	"	
				275/552	4-0-15	"	
					4-0-30	"	
				59	4-0-24	"	
				64			
				372	4-0-23	"	
				47	4-0-66	"	
				148	4-0-10	"	
	Brandt		316	1178/1198	4-1-42	"	
				1177	4-3-01	"	
				1176	4-0-03	"	
				1172	4-0-72	"	
				1177	4-0-06	"	
				1188	4-0-10	"	
				1183	4-0-24	"	
				1196	4-0-02	"	
				662/1167	4-0-16	"	
	Schmidt		185	416	4-1-355	"	
	Kirchhoff		294	1331	4-0-49	"	
				1078	4-1-20	"	
				1069	4-6-16	"	

(P.T.O.)

13	14	15	16	17	18	19	20	21	22
Bhagwati Mahto	4*7	1116	Ac 0-09	Govt.					
		1247/1685	Ac 1-24	"					
		1937	Ac 0-32	"					
		1934	Ac 0-62	"					
		1919/1858	Ac 0-32	"					
		1664/1920	Ac 0-12	"					
		1943/772	Ac 0-53	"					
		1665/1403	Ac 1-60	"					
		456	Ac 0-46	"					
		1941	Ac 1-73	"					
		1661/1920	Ac 0-45	"					
		1664/1757	Ac 0-3	"					
		1661/1755	Ac 0-12	"					
		1624/1792	Ac 0-41	"					
		1858	Ac 0-37	"					
		498/1729	Ac 0-24	"					
		1663/1796	Ac 0-49	"					
		859	Ac 0-11	"					
		860	Ac 0-71	"					
Bhagwati Mahto	112	144	Ac 0-20	"					
		307	Ac 0-84	"					
		458	Ac 0-36	"					
		857	Ac 0-09	"					
		241	Ac 0-42	"					
		244	Ac 0-30	"					
		1130	Ac 0-21	"					
		2403	Ac 26-35	"					
		2441	Ac 0-26	"					
		2427	Ac 0-30	"					
		48	Ac 14-79	"					

Total Tanghia raiyati Land
of Gumaijhuda P.S. = 4.96(3.77)
– 24 – of Bhagwati P.S. = 4.037.25

Grand Total = 4.957.14 under Bhagwati Tahsil Area.

Tahsildar, Bhagwati
22/6

DLC area of Badamba Tahasil

OFFICE OF THE TAHASILDAR, BADAMBA.

No. 1528 /Dt. 23.6.97

To

the Divisional Forest Officer, Athgarh Division.

Sub- Identification of forest land and Govt. and private plantation.

Ref:- Your letter No 5148 Dt. 7.6.97.

Sir,

With reference to the letter on the subject cited above, I am to send herewith the required information in the prescribed proforma relating to forest land as per Revenue record and plantation made by Social Forestry. As regards information on Col. 1 to 10 of the proforma relating to Reserved Forest no information is available in this office.

This is for your kind information.

Yours faithfully,

Tahasildar, Badamba.

Memo No_____/ Dt.

Copy alongwith copy of statement submitted to the Additional District Magistrate Cuttack for favour of information and necessary action with reference to his letter No 1254 dt. 20.6.97.

Tahasildar, Badamba.

Memo No_____/ Dt.

Copy alongwith copy of statement submitted to the Sub-Collector Athgarh for favour of information and necessary action with reference to his letter No. 4811 dt. 21.6.97.

Tahasildar, Badamba.

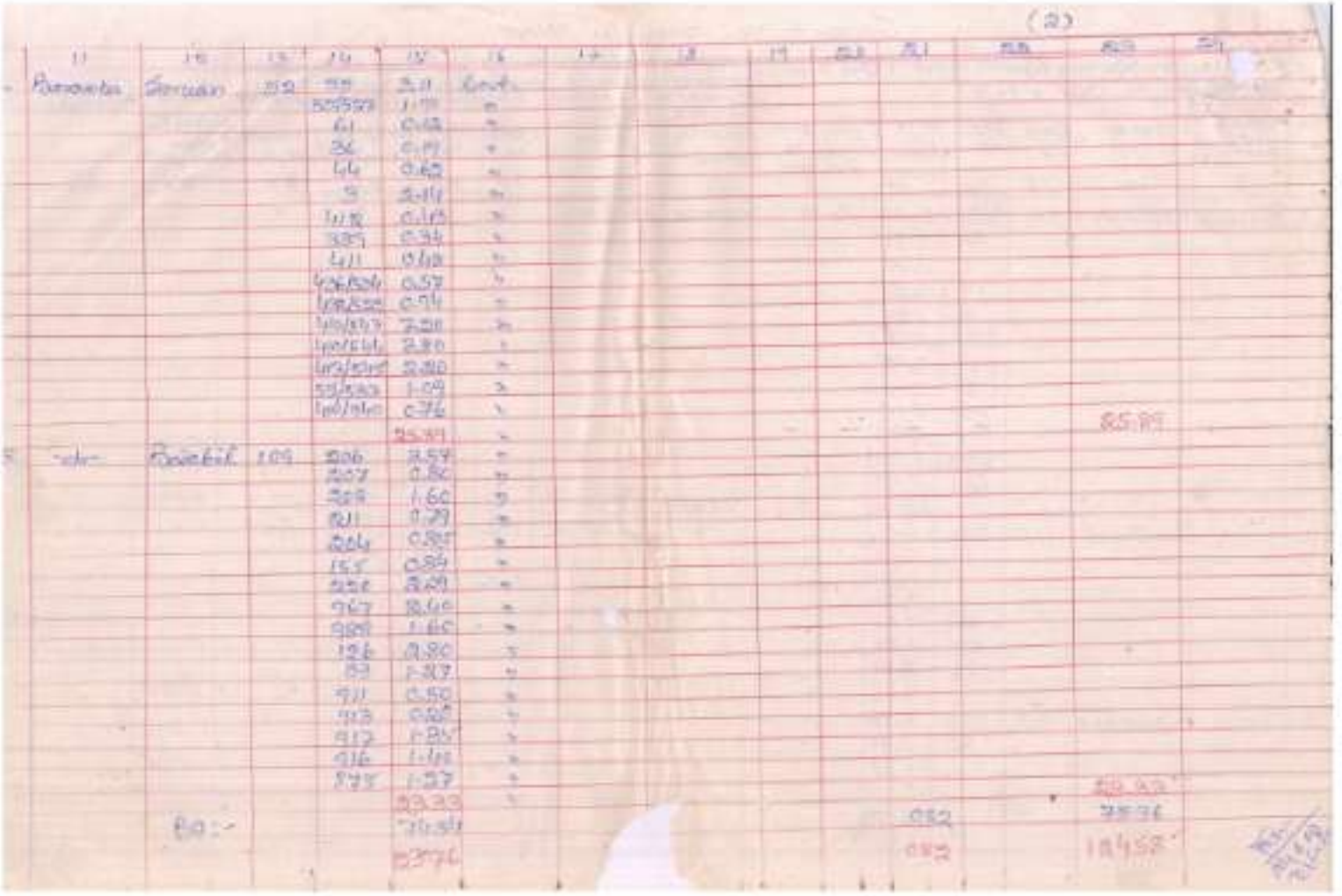
Total No of Prop = 493

Abstract of Forest land in respect of Rayrangpur Takari

Name of the Circle	Name of the village	Forest as per Revenue Record Area in Hector (col 5)	Area not recorded as forest but which are secondary growth area of naturally grown and plantation of forest (col 6)	Ground Total (col 5+6)	Remarks
Mayurbhanj Circle	Kendadiya	Ha 8.00	—	Ha 8.00	
-do-	Dhanapalli	—	Ha 10.00	Ha 10.00	
-do-	Amarapur	Ha 2.97	Ha 0.57	Ha 4.54	
-do-	Bathapur	Ha 65.47	Ha 1.00	Ha 66.47	
-do-	Kuanarpal	Ha 1.13	Ha 2.87	Ha 4.00	
-do-	Kadkina	—	Ha 1.05	Ha 1.05	
-do-	Mahapara	Ha 11.45	Ha 0.55	Ha 12.00	
-do-	Jyotiranjanpur	Ha 0.56	Ha 1.63	Ha 2.19	Ha 90.58 + Ha 176.7 = 1095
9- Gopalpur Circle	Ananda	Ha 78.46	—	Ha 78.46	
-do-	Kadampal	Ha 7.05	—	Ha 7.05	
-do-	Kusumbeda	Ha 3.57	—	Ha 3.57	
-do-	Kathiapal	Ha 4.95	—	Ha 4.95	
-do-	Kusapal	Ha 10.05	—	Ha 10.05	
-do-	Kashinkha	Ha 5.05	—	Ha 5.05	
-do-	Kherimara	Ha 109.54	—	Ha 109.54	
-do-	Kendupalli	Ha 0.36	—	Ha 0.36	
-do-	Khaosad	Ha 35.84	—	Ha 35.84	
-do-	Gopalpur	Ha 30.31	—	Ha 30.31	
-do-	Malati	Ha 1.19	—	Ha 1.19	
-do-	Mahabhanda	Ha 16.64	—	Ha 16.64	
-do-	Benuthanga	Ha 2.67	—	Ha 2.67	
-do-	Nandrapalli	Ha 10.74	—	Ha 10.74	
-do-	Tinghuria	Ha 1.01	—	Ha 1.01	
-do-	Talkansili	Ha 18.38	—	Ha 18.38	
-do-	Dakkanali	Ha 6.97	—	Ha 6.97	
-do-	Badabilwa	Ha 2.32	—	Ha 2.32	
-do-	Jamagadia	—	Ha 14.99	Ha 14.99	
-do-	Dimudumpa	Ha 0.95	Ha 1.07	Ha 2.02	
-do-	Sukanga	Ha 2.37	Ha 7.80	Ha 10.17	
-do-	Thaligi	Ha 5.45	Ha 6.90	Ha 12.35	
-do-	Ganesi	Ha 0.26	Ha 4.52	Ha 4.78	
-do-	Bakiapal	—	Ha 22.38	Ha 22.38	
-do-	Ghasimpalli	—	Ha 5.85	Ha 5.85	
-do-	Ghatkhunta	Ha 98.93	—	Ha 98.93	
-do-	Tentakhola	Ha 25.21	—	Ha 25.21	
-do-	Dukumara	Ha 27.65	—	Ha 27.65	Ha 505.98 + 83.51 = 589.49
37 Sadakala Circle	Khalisoti	Ha 63.44	—	Ha 63.44	
38 -do-	Gumudapal	Ha 9.43	Ha 0.82	Ha 10.25	
39 -do-	Rampur	Ha 1.67	—	Ha 1.67	
40 -do-	Sonuam	Ha 25.89	—	Ha 25.89	
41 -do-	Badabahali	Ha 23.33	—	Ha 23.33	
42 -do-	Gumbadhar	Ha 7.95	—	Ha 7.95	
43 -do-	Gopinathpur	Ha 10.92	—	Ha 10.92	
44 -do-	Sukapadha	—	Ha 2.00	Ha 2.00	
45 -do-	Balisahi	—	Ha 0.82	Ha 0.82	
46 -do-	Jodumara	—	Ha 12.50	Ha 12.50	Ha 142.63 + 16.14 = 158.77
	Grand Total	Ha 739.19	Ha 97.32	Ha 836.51	

Sacker circle. Bangalore Taluk

Name of Tenant	Name	Khata No	Plot No	Area in Acres	Class of Soil and Remarks	Name	Name	Khata No	Plot No.	Area in Acres	Class of Soil / Remarks	Total Area (Acres)	Remarks
11	12	13	14	15	16	17	18	19	20	21	22	23	24
Patamma	Kallappa	116	586	31.05	Land.	Patamma	Kallappa	—	—	—	—	—	
			88	1.09	"								
			1	11.15	"								
			19	4.04	"								
			5	1.25	"								
			574	1.18	"								
			577	0.05	"								
			578	0.41	"								
			744	0.65	"								
			856	8.32	"								
			665	0.41	"								
			666	0.03	"								
				63.14	"	Patamma	Kallappa	—	—	—	—	63.14	
- do -	Municipal	105	596	0.21	"	- do -	Municipal	105	31	0.21	Land		
			199	0.06	"			"	32	0.25	"		
			1	2.38	"			105	34	4.36	"		
			119	0.21	"								
			34	0.21	"								
			59	0.06	"								
			152	0.22	"								
				9.43	"						0.22	10.25	
- do -	Ramanna	33	101	2.36	"								
			55	0.31	"								
				1.67	"	—	—	"	—	—		1.67	
	Total			76.41						0.32		75.36	



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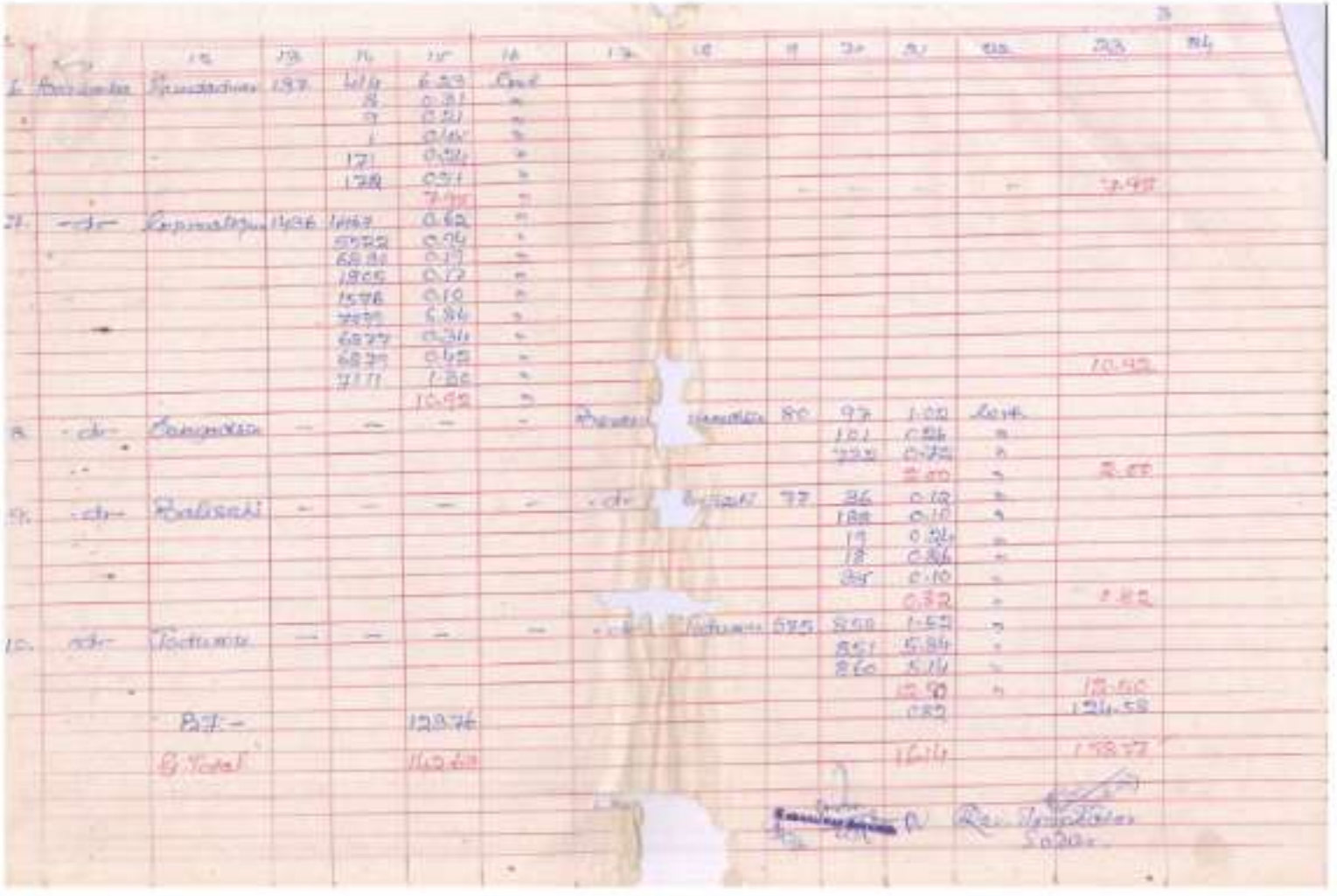
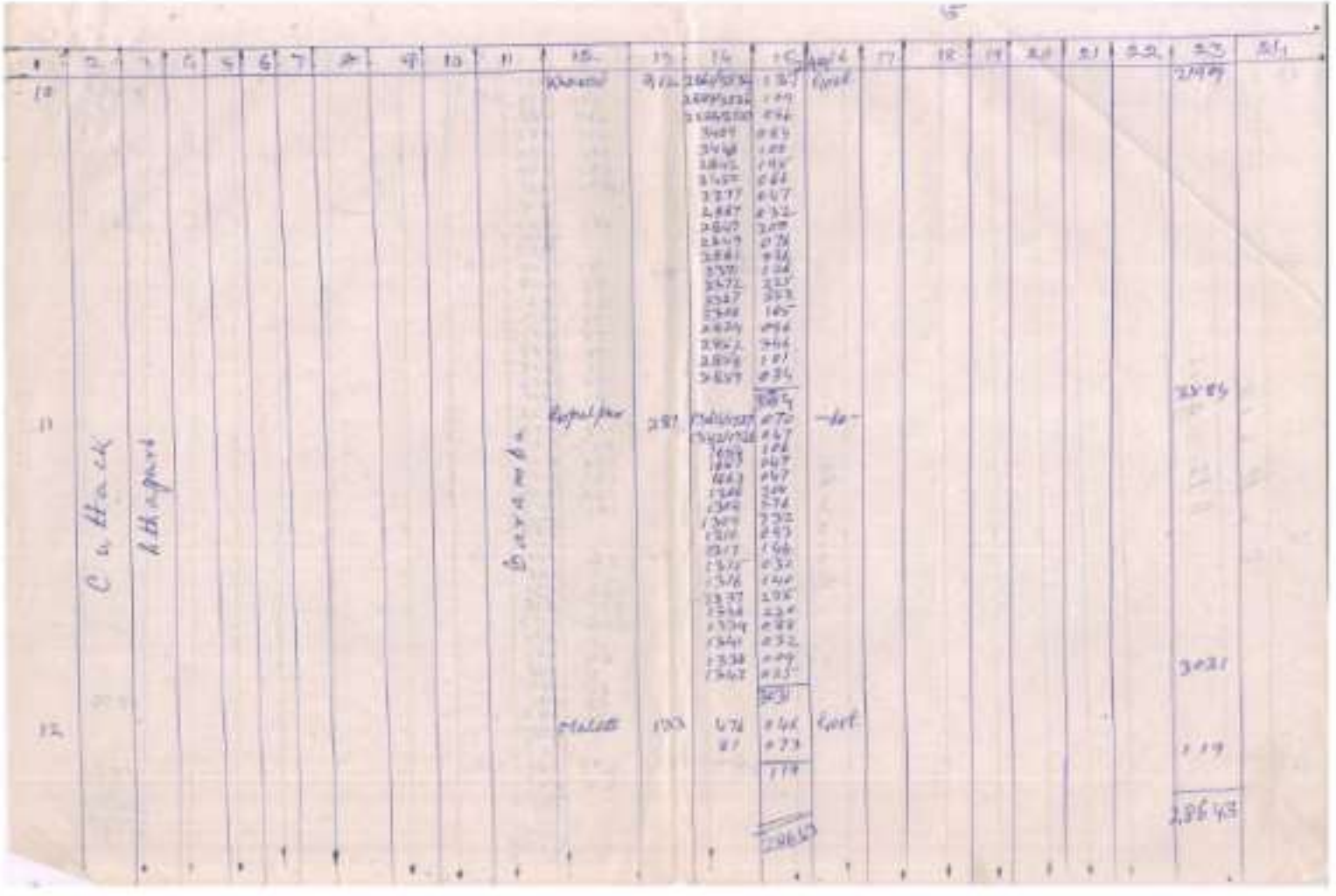
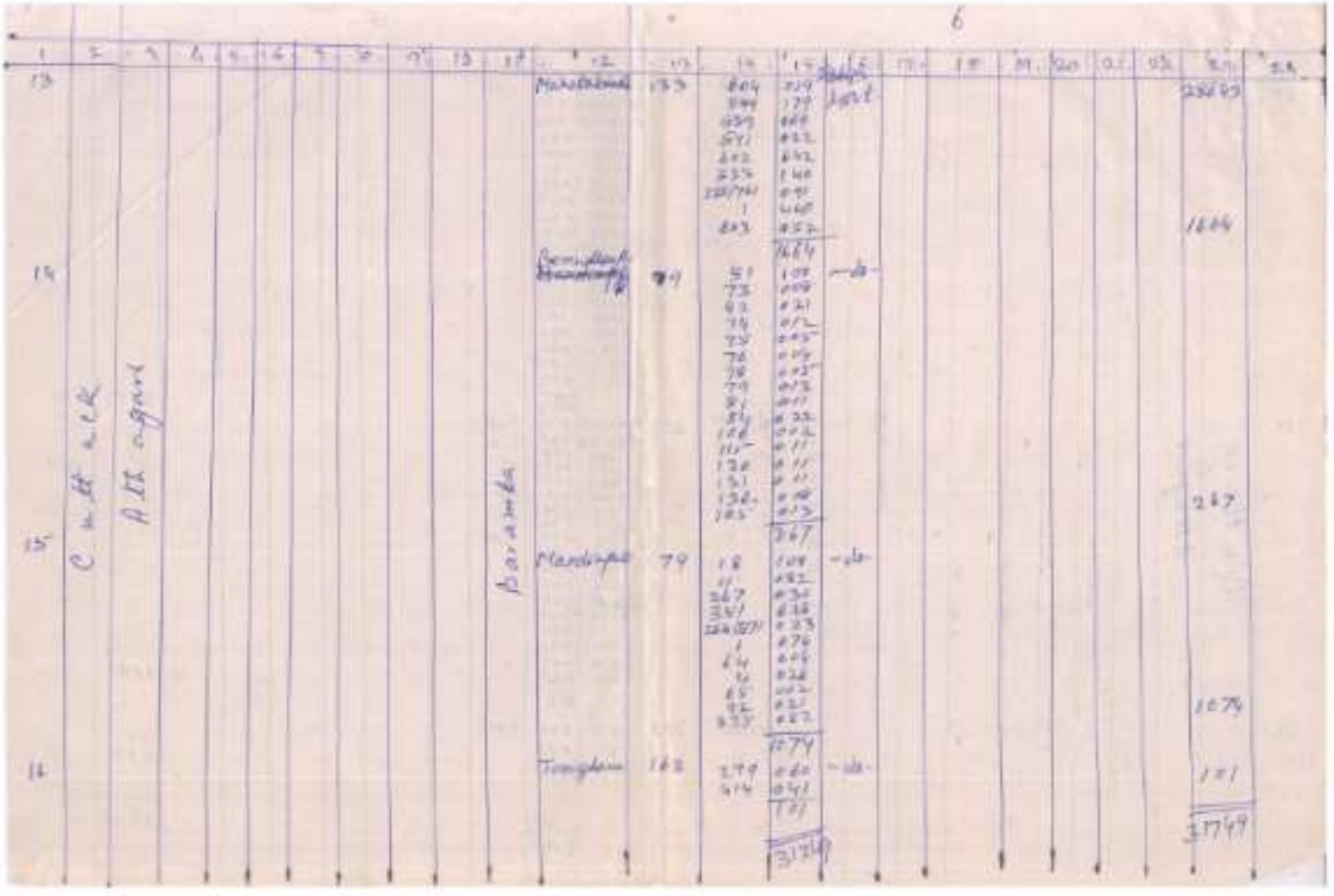
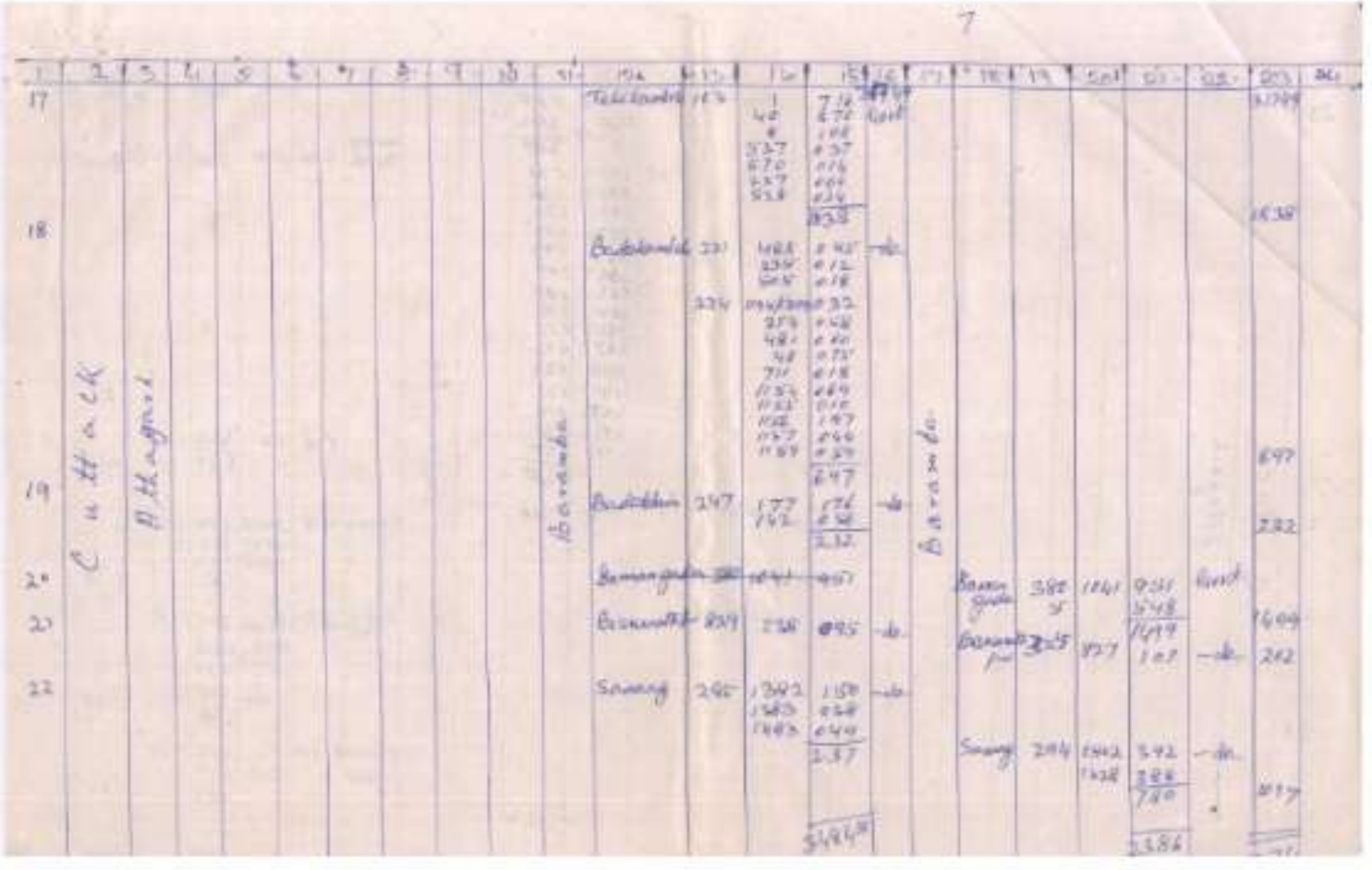
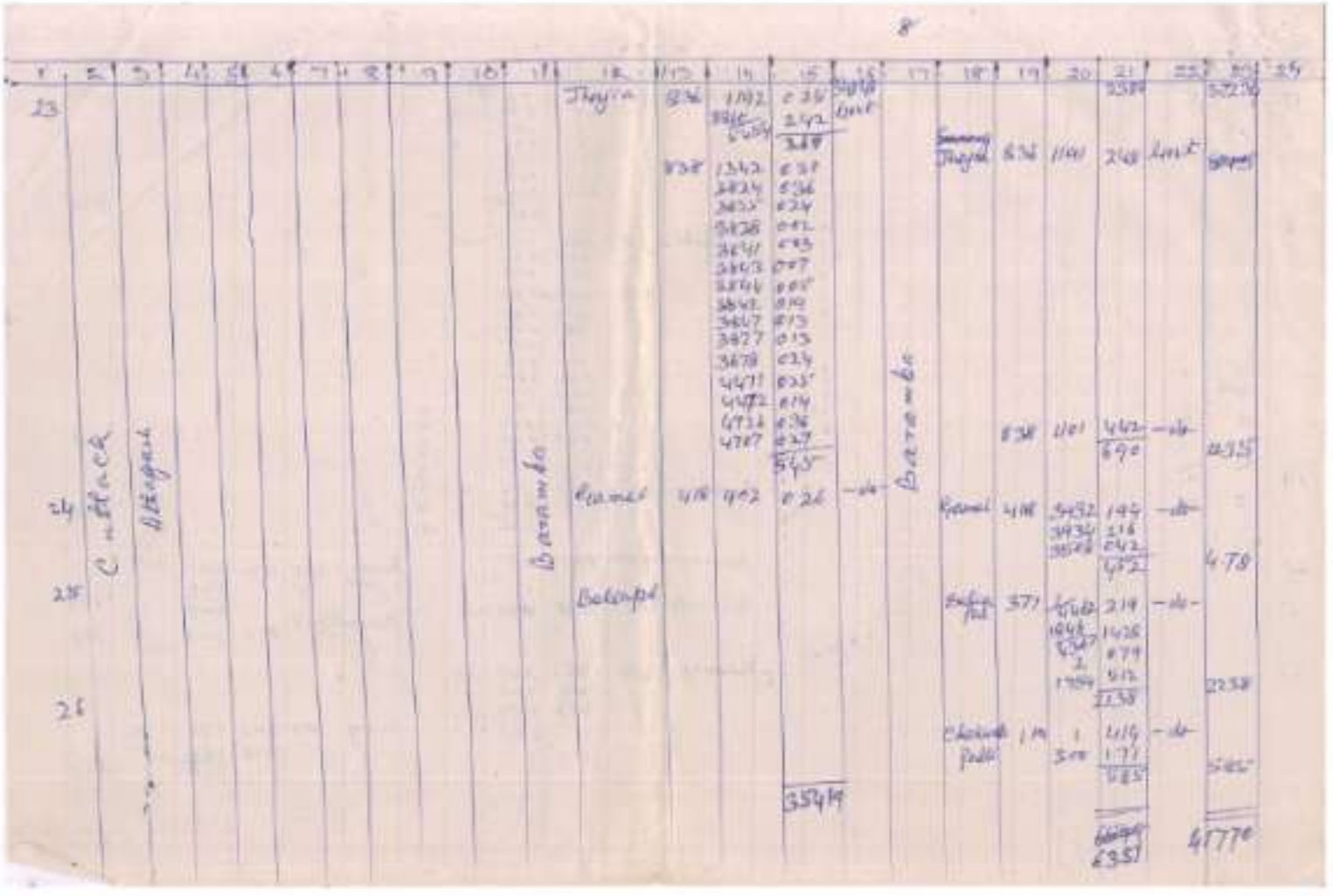
11	12	13	14	15	16	17	18	19	20	21	22	23	24
Ramanta	Sarvaiya	252	22	2.11	Govt.								
			505529	1.19	"								
			61	0.62	"								
			36	0.47	"								
			44	0.63	"								
			9	2.46	"								
			1178	0.68	"								
			387	0.34	"								
			411	0.68	"								
			404504	0.57	"								
			404505	0.74	"								
			404513	2.20	"								
			404514	2.30	"								
			404515	2.30	"								
			505503	1.09	"								
			404504	0.76	"								
				25.21	"								85.92
"	-do-	Bavaliya	105	206	2.59	"							
			207	0.82	"								
			208	1.60	"								
			211	1.79	"								
			264	0.87	"								
			155	0.89	"								
			256	2.49	"								
			267	3.46	"								
			988	1.65	"								
			126	0.80	"								
			83	1.37	"								
			911	0.50	"								
			913	0.85	"								
			917	1.84	"								
			916	1.11	"								
			895	1.37	"								
				33.33	"								49.59
	80:-			76.81							052		35.26
				5376							052		18458

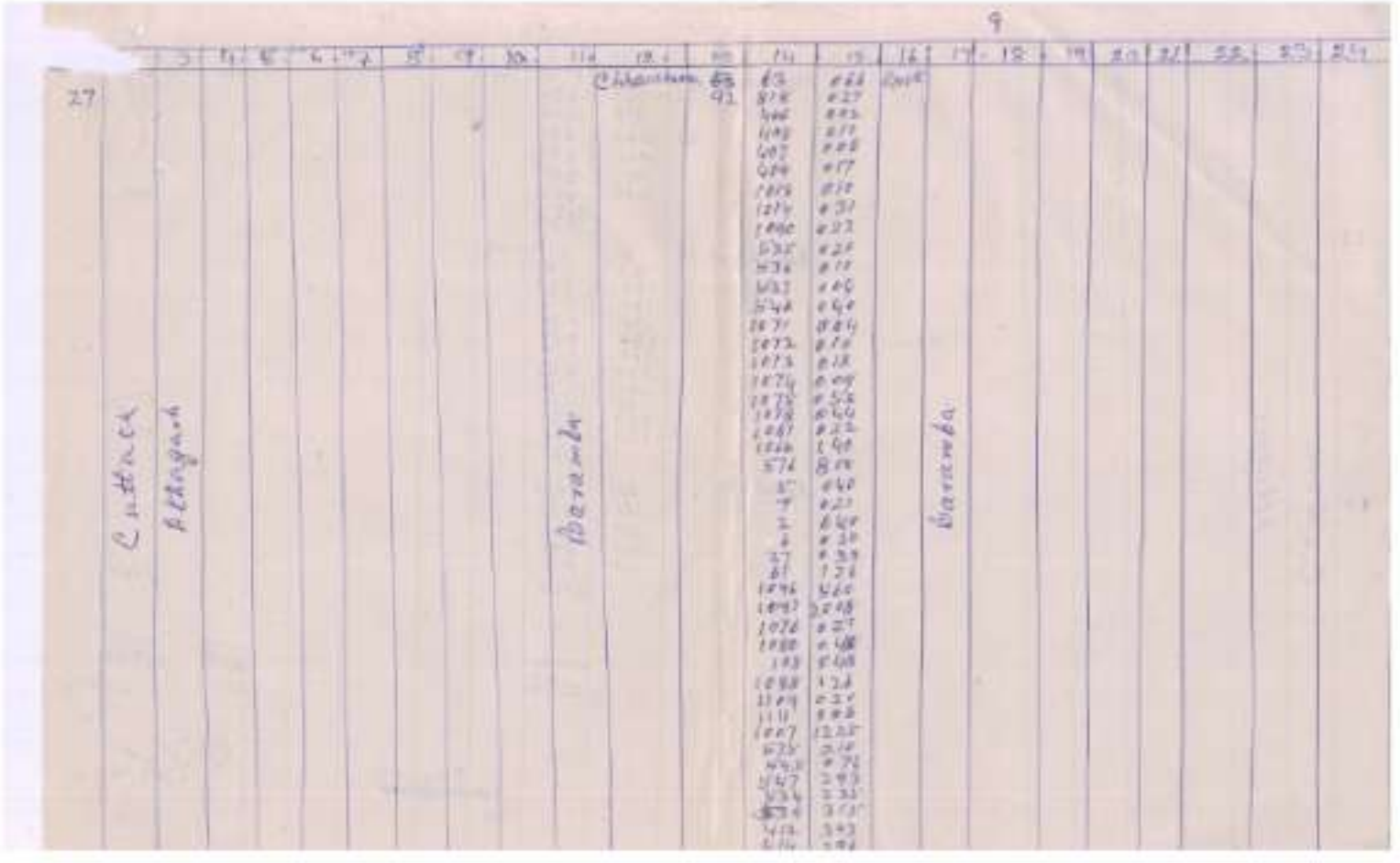


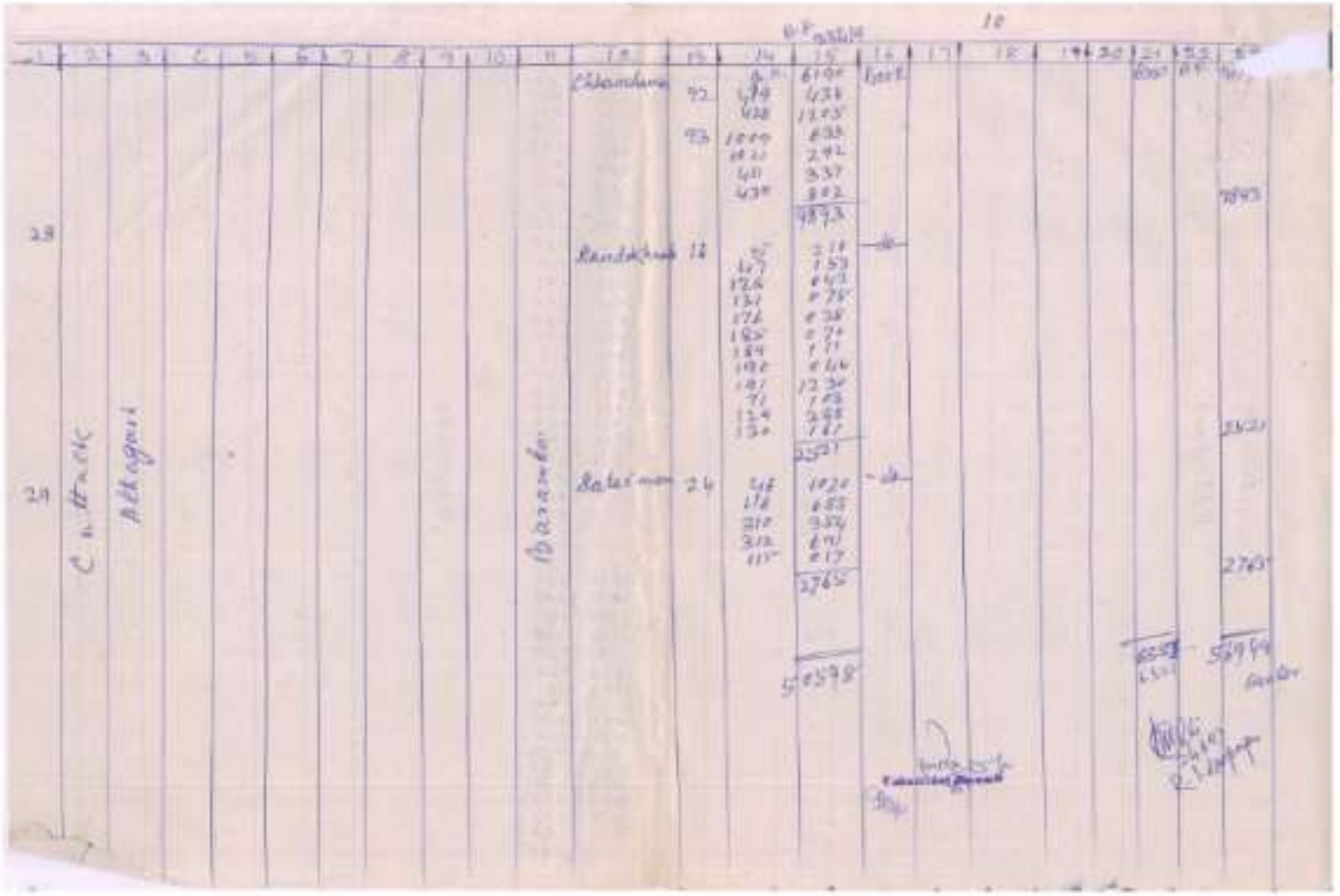






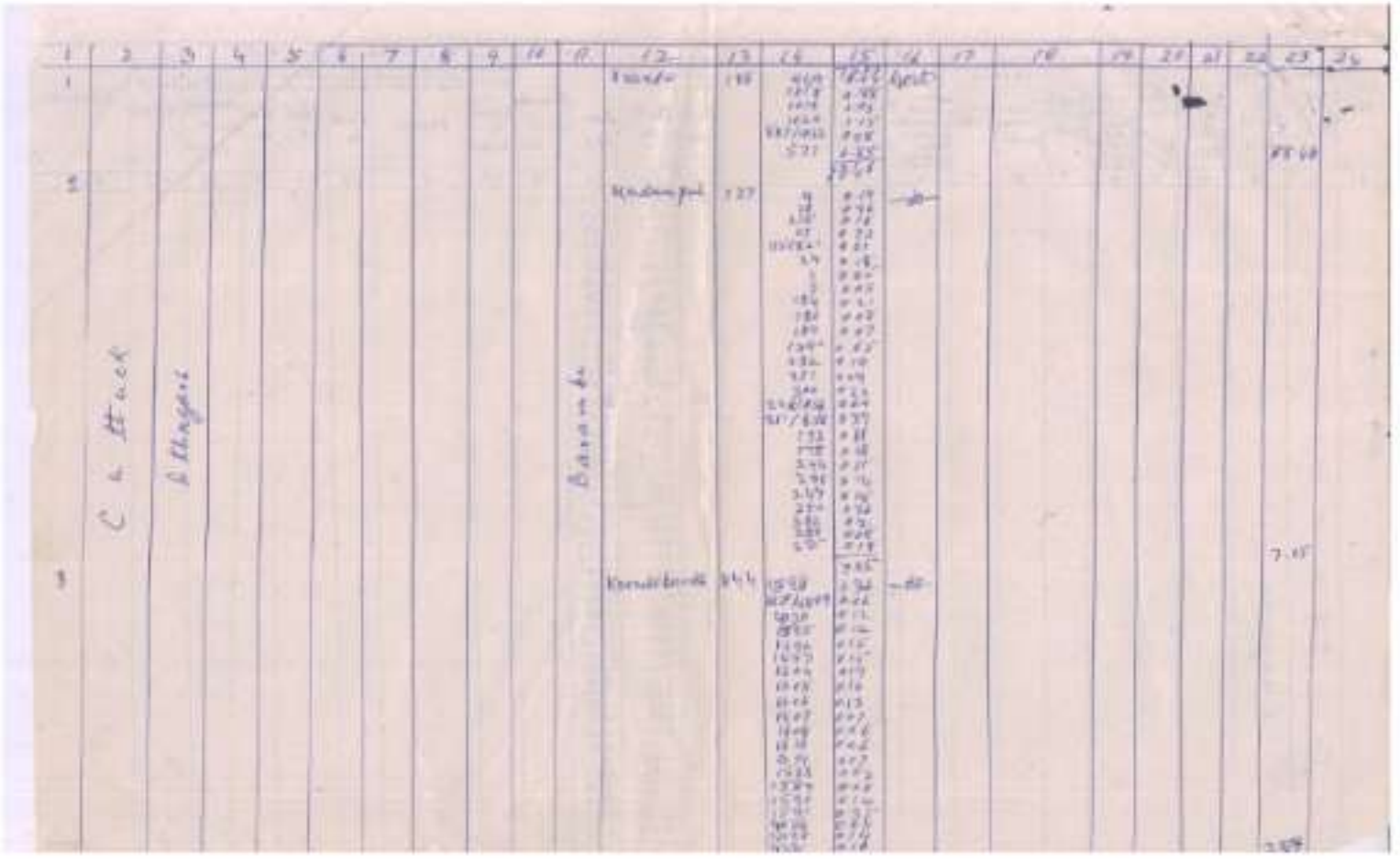


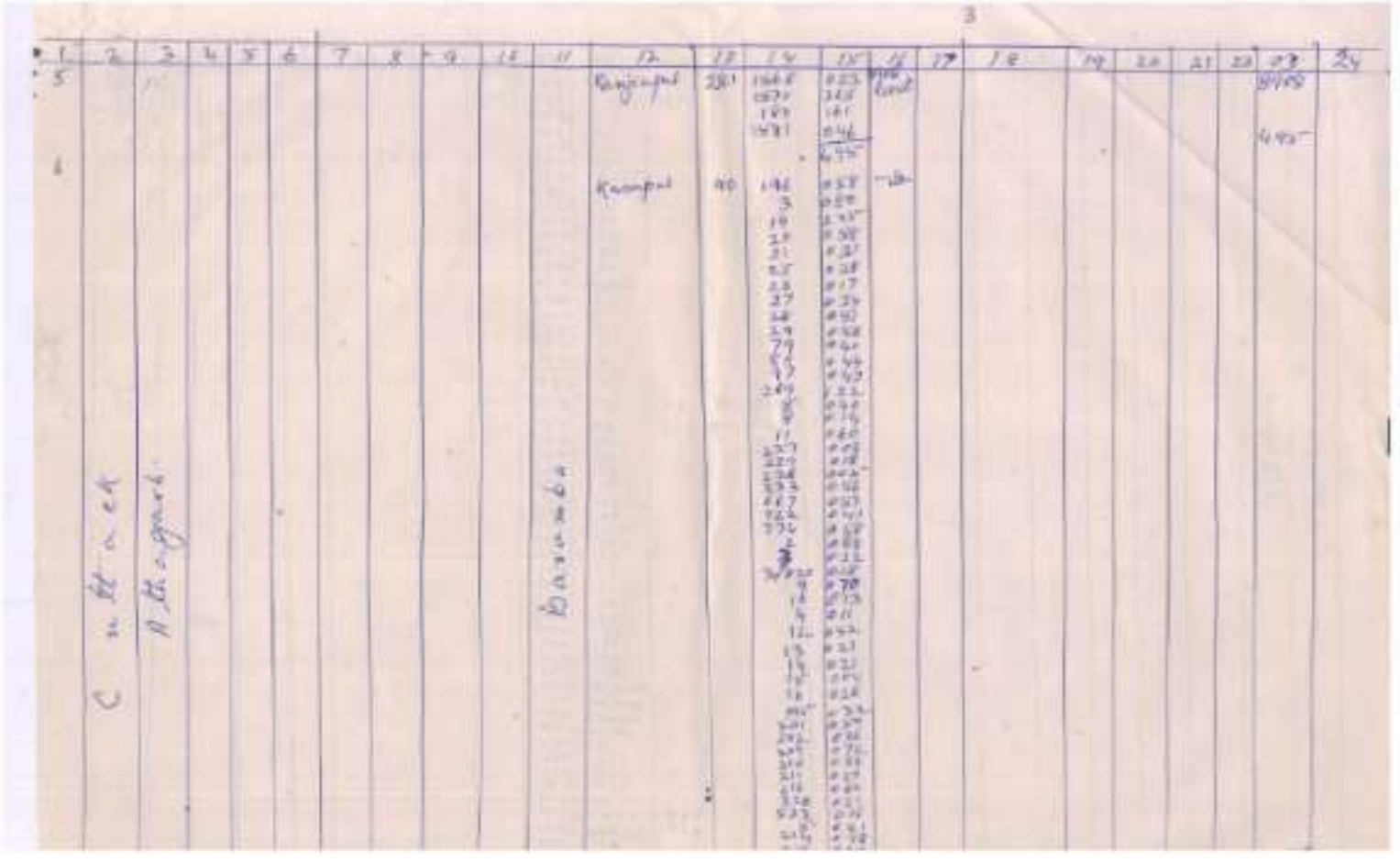


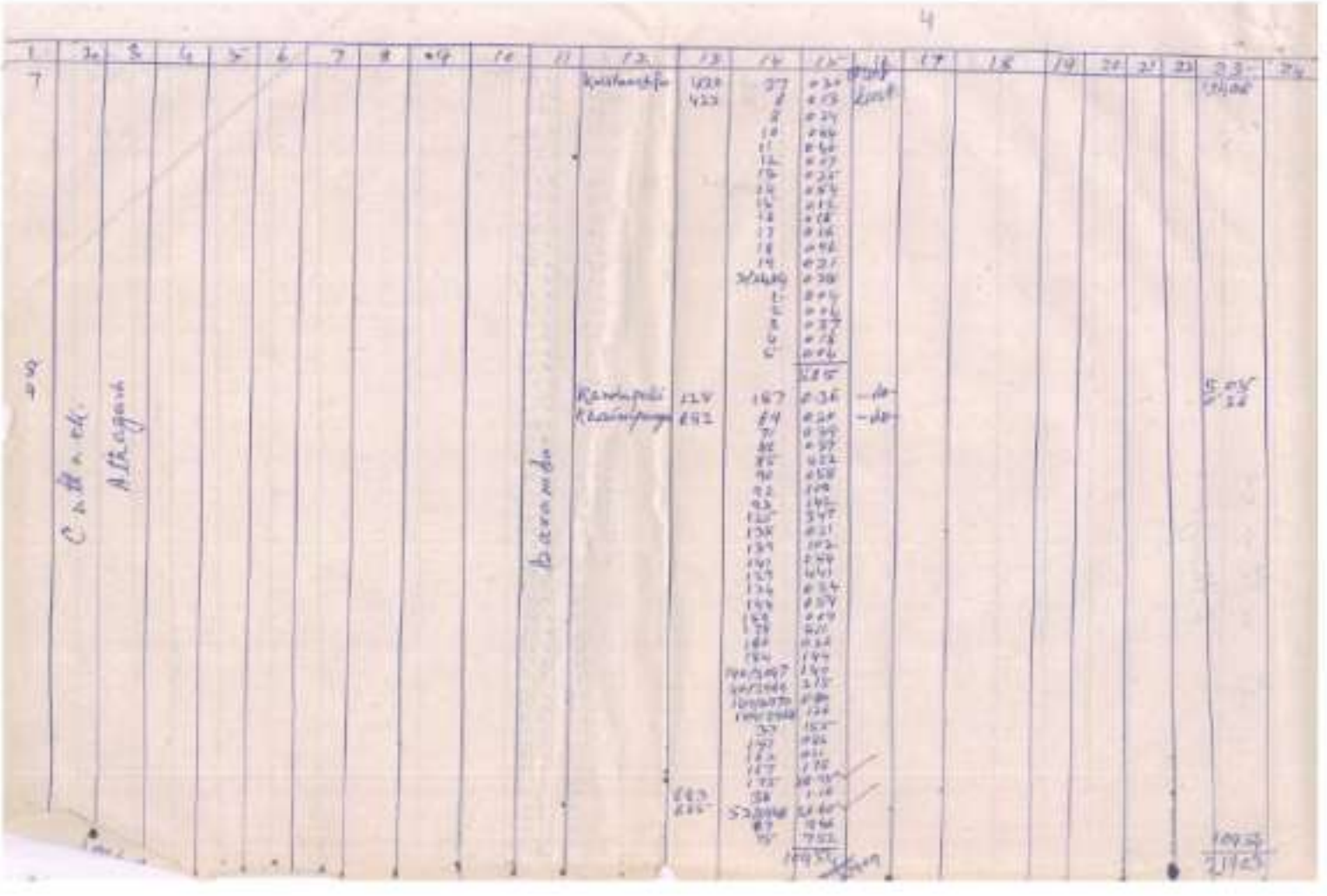


Register Circle

Forest area as per First Regulation record						Forest area Revised record (Col. 11 to 18 Chain Areas appearing in Col. 4 to 8)						Area not recommended for inclusion in Reserved Forest but recommended for inclusion in Protected Forest						Remarks
Area as per Revised Record	Area as per Settlement Record	Increase (Variation) Remarks	Decrease (Variation) Remarks	Total	Area which remained out of Reserved Forest	Name of Tahsil	Mauza	Khasra No.	Plot No	Area (a)	Remarks	Name of Tahsil	Mauza	Khasra No.	Plot No.	Area	Remarks	
4	5	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
							Randa	183	577/503	0.81	4062								
									574	0.44									
									575	0.07									
									579	1.34									
									956	0.15									
									8	1.26									
									957/607	0.49									
									961	1.38									
									962	1.38									
									961/960	2.09									
									965	1.63									
									934	1.21									
									958	2.08									
									960	3.44									
								184	173	0.13									
									981	2.57									
									523	1.49									
									921	1.82									
									938	0.15									
									939	0.83									
									582	0.44									
									598/608	0.04									
									917	1.33									
									916	1.40									
									915	1.44									
									914	1.74									
									954	3.43									
									955	2.35									
									993	0.07									
									1011	0.88									
									1011	0.39									
									1012	3.12									
									(44)	0.41									
									950	1.50									
									974	0.15									
									884	0.52									
									949	1.75									
									982	0.41									
									981	0.42									
									1	0.81									
									488	1.30									
									492	2.82									

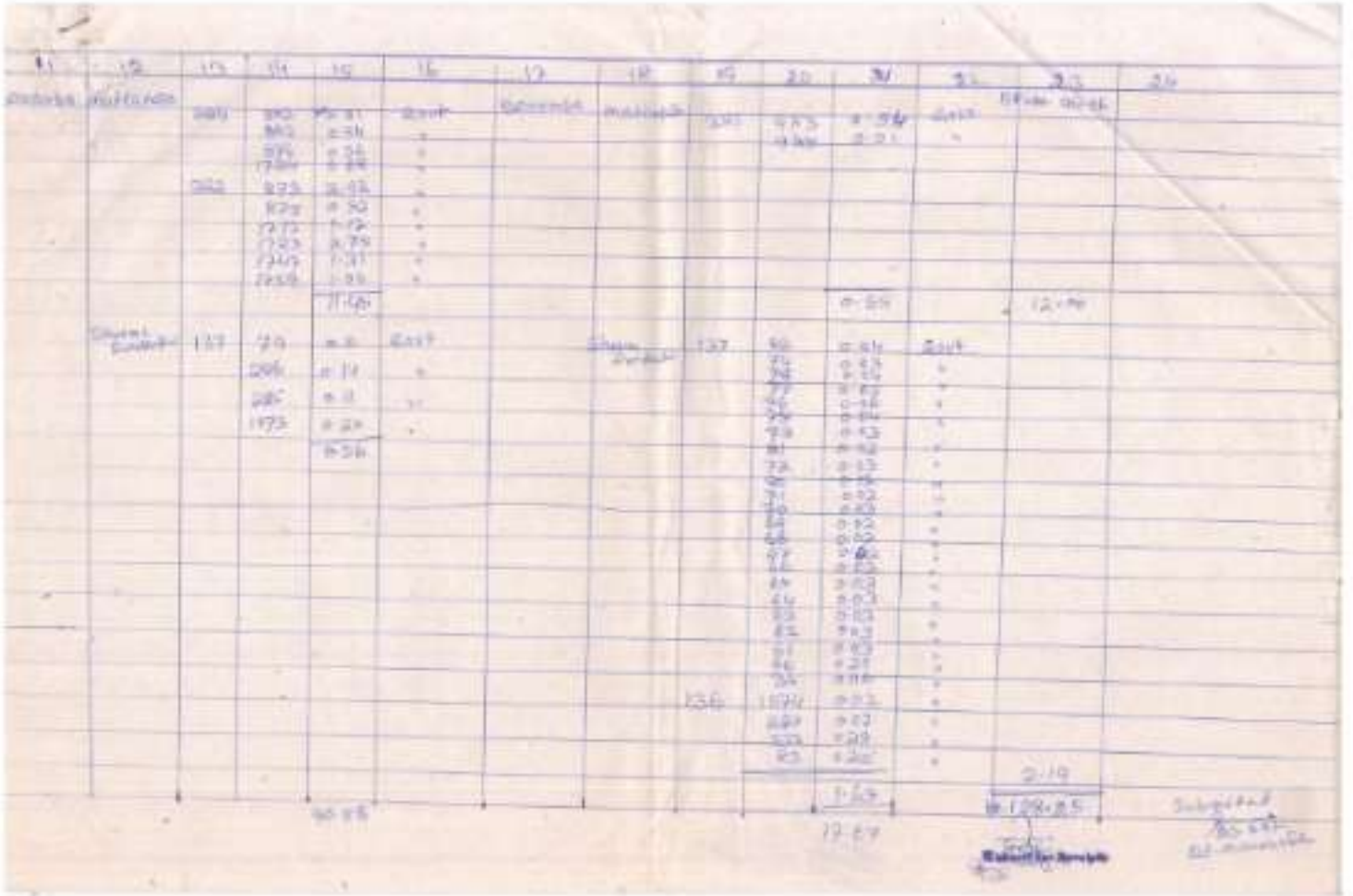


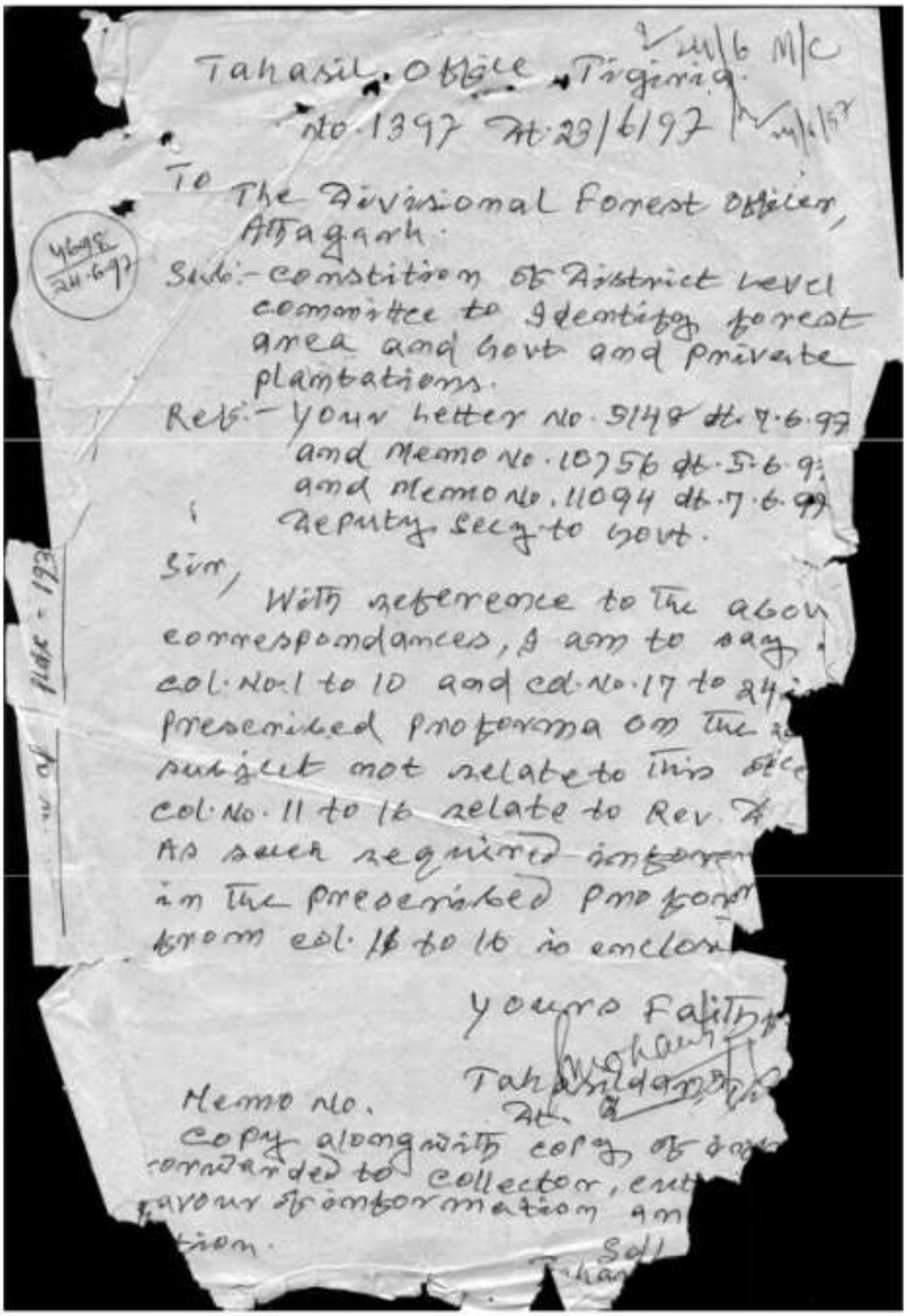




Thimbleberry Creek

1	12	13	14	15	16	17	18	19	20	21	22	23	24	25





Tahasil Office Tigiria
No. 1397 Dt. 23/6/97

To The Divisional Forest Officer,
Athagarh.

Sub:- constition of District Level committee to Identify forest area and Govt and private plantations.

Ref:- Your letter No. 9148 dt. 9.6.97 and Memo No. 10756 dt. 5.6.97 and Memo No. 11094 dt. 7.6.97 Deputy Secy to Govt.

Sir,

With reference to the abov correspondances, I am to say col. No. 1 to 10 and col. No. 17 to 24 prescribed Proforma on the subject not relate to this offic col. No. 11 to 16 relate to Rev. D As such required inform in the prescribed Pro from col. 12 to 16 is enclos

Yours Faithf

Tahasildar

Memo No.
Copy alongwith copy of abo forwarded to Collector, Cut favour of information an tion.

Tahas

Proforma.

Forest Assessment Record. (Excluding those are appearing in col. 4 to 8)

Name of Tahasil	Mouza	Khata No.	Plot No.	Area (Ha)	Ownership. Govt/Private.
11	12	13	14	15	16
Tigiria Tahasil.	1- Haridapasi.	584	3560	1.19	Govt.
			3561	0.05	"
Dist-Cuttack.			3562	0.53	"
		587	2607	0.92	"
			2688	1.58	"
			2689	0.17	"
			2716	0.96	"
			3761	2.15	"
			518	0.37	"
			2705	2.60	"
			2706	28.70	"
			3762	11.58	"
			3582	0.44	"
			2507	0.36	"
			2511	0.07	"

P.T.O.

ABSTRACT

Name of Village.	Area.
1- Haridapasi -	61·39
2- Vejia -	52-15
3- Godigharia -	1-01
4- Aahalakot -	79·32
5- Panchagan -	~~439~~
6- Sudarsampur -	50·20
7- Nizgarh Tigiria -	50·44
8- Karadapaka	23·47
9- Gokhankhal	4·85
10- Pankal	3·30
11- Nuapatna.	26-13
12- Vejia.	5·21
13- Bindasima.	131·43
14- Chasgamra.	5·14
15- Hatamal	21-30
16- Purunatigiria.	12-87
	9·49
	537·70

Name of Village.	Area.
B.P.	537·70
17- Kumbhipat	0·30
18- Koilikanga	0·50
19- Baripat.	0·68
20- Paikasama.	30·14
21. Samangapat	2·55
22- Mahuladhip-	0·85
23- Bhogara.	17·77
	590·49 Acre.

About. 236 Hectors.

Approved
23-6-97
Tahasildar, Tigiria.
23.6.97.

11	12	13	14	15	16
	1- Haridapasi	587	2514	0·14	
			2987	0·10	
			2528	0·33	
			2540	0·87	
			2502	0·08	
			2698	1·40	
			2581	0·48	
			2588	0·15	
			2545	0·20	
			2553	1·96	Govt
			2569	3·20	
			2119	0·12	
			3904		
			525	0·61	
			528	0·48	
	2- Virudg	1397	6233	11·52	
			5777	1·113	
			1892	17·70	
			1166	19·25	
			8893	2·25	

11	12	13	14	15	16
	3- Godigharia	230	236	1·01	Govt
	4- Achalakot	926	5124	0·84	
			325	0·40	
			~~5429~~		
			330	1·79	
			755	1·70	
			4877	19·10	
			4885	1·80	
			5005	21·93	
			718	0·33	
			4869	0·28	
			4863	2·57	
			4876	25·10	
			4767	2·48	Govt.
	5- Panchagam.	1078	758	2·23	
			62	1·98	
			173	0·06	
			172	0·10	
		1081	1717	4·42	
			2832	0·32	
			757	38·12	
			1722	2·97	

11	12	13	14	15	16
	6- Sudarsanpur		117	0·40	
		107	76	0·53	
			150	0·11	
			167	0·13	
			169	0·13	
			184	0·20	
		109	1391	7·90	
			613		
			1395	33·42	
			489	6·10	
			689	1·52	Govt.
	7- Nizgarh Tigaria.	644	2718 / 1877	0·14	
			143 / 1880	0·46	
			143	0·56	
			~~796~~		
		647	770	6·81	
			831	3·50	
			74	0·17	
			75	1·11	

P.T.O.

11	12	13	14	15	16
	7- Nizgarh Tegeria	647	141	1·40	
			1903	9·72	
			69		
	8- Karadapali	342	40	2·90	
			40	1·95	
			1969		
	9- Gokhamkhal	126	436	3·23	
			684	0·07	
	10- Pankal	~~441~~ 436	1156	26·13	
	11- Nuapatna.	729	36	4·83	
			39	0·38	
	12- Vejia	905	796	4·98	
			800	0·49	
			802	0·92	
			671	0·25	Govt.
			2947	0·21	
			2948	0·14	
			2949	0·09	
			2950	3·98	
			2951	0·41	

11	12	13	14	15	16
	12-Vegia	905	2957	0·53	
			2958	0·72	
			2963	0·37	
			2979	0·52	
			3039	0·36	
			3056	0·05	
			3060	0·04	
			3073	1·94	
			3379	3·59	
			2313	0·22	
			800 / 3733	14·53	Govt.
			3065 / 3737	5·49	
			833 / 3740	3·49	
			2948 / 3741	0·90	
			3287 / 3742	0·17	
			3015 / 3717	0·73	

11	12	13	14	15	16
	12- Vejja	905	2195	3·78	
			2901	0·73	
			2801	0·87	
			3000	0·45	
			1175	11·18	
			4876		
			[illegible]		
			57	0·60	
			59	1·76	
			2130	8·60	
			1024	7·W	
			1175	13·[illegible]	Govt.
			839	1·38	
			840	5·87	
			841	1·83	
			3122	1·97	
			3136	23·83	

11	12	13	14	15	16
	13- Bindanima	1256	837	0·24	
			895	0·41	
			899	3·32	
			303	1·17	
	14- Chaoanna	437	1247	6·70	
			1275	14·60	
	15- Hataoal	277	1086	0·83	
			1102	1·25	
			1103	0·26	
			1104	0·38	
			1110	0·20	
			1137	0·14	
			1022	0·21	
			1023	0·65	
			979	0·96	
			984	0·25	Govt.
			1001	1·27	
			1002	0·46	
			1003	0·23	
			1004	0·17	
			1005	0·02	
			1006	0·19	

11	12	13	14	15	16
	15- Hatamal	277	1008	0·18	
			1009	0·02	
			1010	0·09	
			1011	0·58	
			1098	0·30	
			1099	0·13	
			1100	0·18	
			1013	0·07	
			1014	0·11	
			1015	0·20	
			1017	0·14	
			1018	0·86	
			1330	0·92	
			986	0·09	
			989	0·58	
			993	0·45	Govt.
			1044		
	16- Purnea Tigania.	1120	3294	0·87	
			3301	0·40	
			3316	0·47	
			3327	0·12	
			3564	0·83	
			3373	6·30	
			3359	0·50	

11	12	13	14	15
17- Kumpkhipur		473	884	0.05
			885	0-13
			1081	0·12
			1359	
18- Koilikanga.		121	740	0·43
			515	0·07
19- Bonipur		436	9	0·68
20- Paikgamra.		1010	1571	0·17
			2529	0·12
			4245	
		1013	2703/4349	0·42
			2679/4350	0·14
			2787	26·50
			2806/4358	0·03
			2731	2·73
21- Samamanpur		196	941	1·26
			968/1330	0·48
			970	0·81

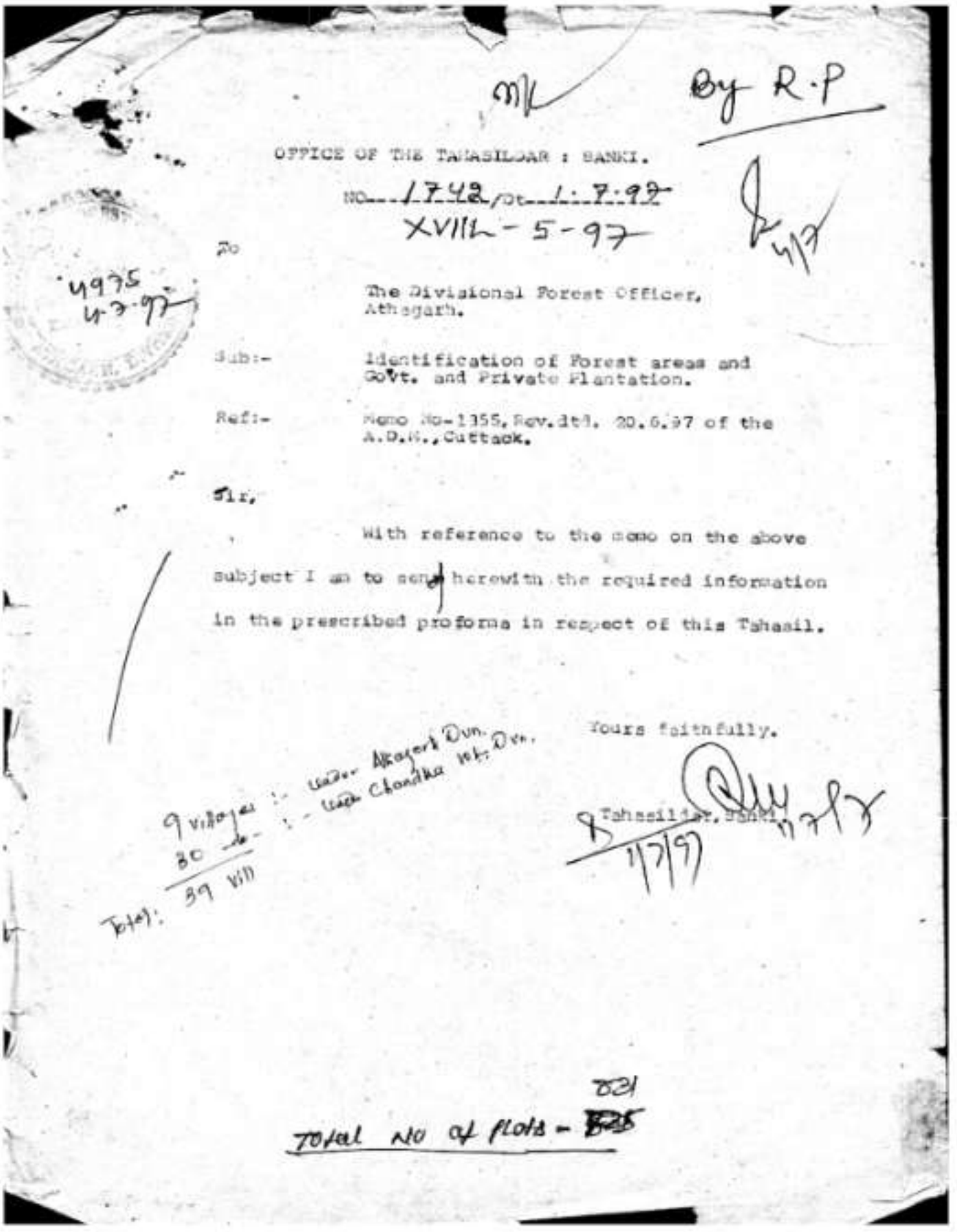
11	12	13	14	15	16
	22- Mahuladhip.	309	846/980	0-03	
			267	0-03	
			830	0-06	
			862	0-54	
			433	0-06	
			653	0-02	
			118	0-11	
	23- Bhogang.	456	79	0-12	
			118	17-35	
			85	0-02	
			118/1535	0-28	

Govt

Tahasildar, Digapahandi
23-6-97

562

DLC area of BankiTahasil



MK By R.P

OFFICE OF THE TAHASILDAR : BANKI.

NO. 1742 /Dt. 1.7.97
XVIII - 5 - 97

4975
4.7.97

To

The Divisional Forest Officer,
Athagarh.

Sub:- Identification of Forest areas and Govt. and Private Plantation.

Ref:- Memo No-1355, Rev.dtd. 20.6.97 of the A.D.M., Cuttack.

Sir,

With reference to the memo on the above subject I am to send herewith the required information in the prescribed proforma in respect of this Tahasil.

Yours faithfully.

Tahasildar, Banki
1/7/97

9 villages :- Under Athagarh Div.
30 " :- Under Chandka Wl. Div.
Total: 39 Vill

021
Total No of Plots - ~~825~~

• List of forest as per Revenue Records

Name of the Tahasil	Name of the R.I. Circle.	Total Area in acres	Remarks
Barabanki	1) Bhatmanpura	1,387.52	
	2) Baideswara.	468.07	
	3) Talabatta	4,738.87	
	4) Ratagarh	1,287.03	
	5) Gadaji	10,523.23	
	6) Sadar	0.55	
	Total	18,405.27	

Tahasildar, Barabanki
30/6/97

Brahmapura R.S. Circle

Name of Village	Mouza	Khata No	Plot No	Area	Ownership: Govt.	Ownership: private
11	12	13	14	15	16	
	Gahingatia	387	23	1 13		
			58	0·76		
			64	0·49		
			165	39 10		
			167	19 06		
			324	115 46		
			340	11 42		
			169	24·60		
			170	2 63		
			711	29·60		
			1337	0·26		
			1330	6·13		
			1334	0 43		
			1342	3·28		
			1349 / 1338	2·48		
			1342	1 55		
			1376	4·51		
			1418	6·18		
			1537 / 1562	3·51		
			1469	1 40		
			1537	4 05		
			1582	6 79		
			760 / 1676	3·29		
			762	6·42		
			764	13 57		
			1347 / 1341	2·28		

A 290-89 co.

11	12	13	14	15	16
			D.F.	290-89	
		387	1349	Rs 4 71	
				A295-60	
	Kathmandu	746	987	Rs 6·16	
			931	13 45	
			1489	2·48	
			1501/2386	0·29	
			1501	0·72	
			5	Rs 23·10	
	Pinche	297	196	Rs 0·21	
			198	0·10	
			302	0·72	
			482	0·42	
			496	0·59	
			499	1·59	
			509	1·21	
			512	03·10	
			535	1·99	
			540	36·24	
			1075	0·64	
			489	9·62	
			12	Rs 95·88	
280			341	Rs 232·90	
			341/1180	0·23	
			14	Rs 329·01	
				A329-01	

Name of Tehsil	Mauza	Khata No	Plot No	Area	Govt.	Private
11	12	13	14	15	16	
	Nagarjo	2022	799	2·09		
			506	1·33		
			512	0·96		
			560	0·36		
			555	0·42		
			659	0·53		
			693	1·25		
			698	1·62		
			730	0·32		
			528	8·08		
			512	8·70		
			561	~~28·63~~		
			628	12·30		
			678	6·57		
			682	20·54		
			691	1·86		
			695	1·46		
			741	53·96		
			743	44·96		
			748	34·18		
			761	7·58		
			710	6·10		
			770	1·24		
		23		~~A282-98~~		

-8-

-A-

Name of Tahsil	mouza	Khatono	plotNo	Area	Owners Name	
					Rent	proprietor
12	12	13	14	15		16
	Bordebara	750	1604	Ac 13·12		
			1605-2780	2·50		
			1605	7·152		
			1606 2781	0·50	Govt	
			1606 2782	8·30		
			1606	8·62		
			1608	10·30		
			1609	17·58		
			8	136·04		
	Kumhara	453	657	172 12		
			1638	24·72	do-	
			1650	91·85		
			658/1093	16·89		
			4	305·56		
	Nuggon	533	1083	29 12		
			1085	1·78	do	
			1088	1·88		
			3	32·78		

18

11	12	13	14	15	16
	Rajib	689	71	A0·65	
			30	A1·50	Govt
			76	A148·06	
			3	A150·21	

(4)

(45)

Abstract

1)	Kalicahi	A31-51
2)	Rameswar	A101-97
3)	~~Kanhiary~~ Nathia	AA1=46
4)	Jokikolda	A59-06
5)	Baghei	A30=32
6)	Kenkeri	A 1-25
7)	Bania	A51-70
8)	Chadeikentha	A40=59
9)	Rajikea	A.150-21
		A468=07

Tahsildar,
Bankt
27/6/97

11	12	13	14	15	16
Ranchi	Lambary	610	476	A 1·25	Govt
			1	A 1·85	
	Bamra	191	1	A 8·02	
			177	A 6·68	
			532	A 0·80	
			594	A 1·52	
			600	A 0·24	-do-
			602	A 1·36	
			623	A 26·75	
			615	A 1·21	
			884	A 5·00	
			895	A 0·09	
			10	A 51·70	
	Chaibasa	141	612	A 3·20	
			617	A 4·48	
			610	A 17·36	
			611	A 7·24	
			624/694	A 0·10	-do-
			625/696	A 0·10	
			623/694	A 0·07	
			642	A 7·54	
			8	A 40·59	
			22	-	

Baideboa R.9 circle.

Mouza	Khata No	plot No	Area	Owner ship	
				Govt	private
12	13	14	15	16	
Mailoli	889	1361	4 33		
		1362	9 31		
		610	0 69		
		124	0 93	Govt	
		723	2 47		
		743	5 22		
		751	1 15		
		787	1 34		
		1364	6 03		
	Total	9	31 51		
Doaipara	124	75	21 00		
		38	75 90		
		57	0 54	-do-	
		46	2 73		
		47	0 72		
		50	1 08		
	Total	6	101 97		

571

a	Khata No	Plot No	Area	Ownership: Govt	Ownership: private
2	13	14	15	16	
ni	979	517	A 0.06	Govt	
		552	A 0.64		
		554 (1.00)	A 0.76		
		3	A 1.46		
: dola	361	1409	A 2.76		
		1557	A 3.71	Govt	
		1519	A 0.57		
		1522	A 2.18		
		1730	A 29.84		
		5	A 59.06		
	486	766	A 0.57		
		773	A 11.79	- do -	
		813	A 0.81		
		1000	A 17.15		
		4	A 30.90		

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-5-

Name of Taluq/il	Mouza	Khata No	Plot No	Area	Remarks	
					Govt	private
11	12	13	14	15	16	
	Paritanada	201	29	12.68		
			31	12.66		
			49	7.76		
			3	32.50		

Abstract

Galigadia 295-60
Kadhanal - 23-10
Panidia — 329-01
Naraganga - 252-98
Pandalana - 136-04
Kumusar - 305-54
Nuagaon - 32-78
Panikasoda - 32-50
A-1387-52.

(98)

Tahasildar
Banki
27697

Tricbatta R.S = a Oxia Talabanta

11	12	13	14	15	16
	Tabbata	2520	5568	R 0·35	
			5508	0·15	
			5795	0·98	
			5807	2·06	
			5826	0·64	
			5835	1·82	
			6510	0·34	
			6016	0·14	
			~~6070~~		
			6593	0·96	
			6395	0·80	
			6481	0·44	
			6205	1·05	
			6520	0·24	
			6535	0·53	
			6630	4·94	
			6680	15·20	
			6036	0·06	
			6434	18·28	
			6638	1·50	
			6661	17·18	
			6723	1·83	
			6962	32·18	
			6978	33·00	
			6963	12·00	
			6970	11·00	
			6971	12·06	
			6958	29·43	
			6955	0·36	
			6960	21·12	
			6963	27·23	
		30		342-87	

342=87

~~88~~ 342-87

11	12	13	14	15	16
		2520	6972	51·41	
			6973	29·64	
			7070	35·61	
			7071	32·12	
			7072	27·23	
			7074	35·00	
			7095	34·82	
			7111	1·63	
			6988	1·82	
			7500	1·40	
			6931	1·02	
			8283	5·20	
			9080	0·85	
			9081	17·42	
			9083	3·30	
			9090	1·21	
			9099	1·71	
			9106	2·07	
			9110	0·15	
			9112	0·58	
			9123	0·98	
			6715	0·26	
			9085	1·29	
			9087	2·14	
			9091	0·44	
			1587	0·57	
			6623	0·36	
			2734	1·05	
			5920	0·09	
			10248	0·07	
		38		A291-40	

11	12	13	14	15	16
1	Fibrite	25 20	9032	AC 0·40	
			9039	36·23	
			9043	2·00	
			9054	10·65	
			9058	26·18	
			6560	0·22	
			9263	2·67	
			7165	0·06	
			9551	0·32	
			9552	0·18	
			9553	0·14	
			6558	0·22	
			8421	0·30	
			9971	0·12	
			6666	0·25	
			9926	0·3	
			1667		
			10059	1·02	
			7501	0·24	
			8903		
			9967		
			2713	0·74	
			5091	0·12	
			9557		
			5091	0·10	
			9558		
			5091	0·74	
			8723	1·02	
			153		
			2 [illegible]	A83-99	A83-99
			71000	000	

11	12	13	14	15	16
	Talabarta	2520	5413	0·11	
			5799	0·34	
			5794	0·74	
			—	0·43	
			—	0·44	
			—	0·46	
			—	2·38	
			6007	0·22	
			6393	0·96	
			6535	0·55	
			6586	0·43	
			6598	0·11	
			6686	0·78	
			7076	12·110	
			7183	6·52	
			7185	3·41	
			7372	2·03	
			7346	0·23	
			8714	0·58	
			8716	14·61	
			8715	4·10	
			8711	9·66	
			8863	6·29	
			8916	7·44	
			8921	1·22	
			8937	5·06	
			8943	7·60	
			8963	1·37	
			8985	11·22	
			8926	0·32	
			4028	2·07	
			93	97.68	

Talalcasta
Alcastact
342-87
291-40
83-99
97.68
A815=94.

11	12	13	14	15	16
	Talabatt	2522	6512	0·28	
			6961	45·12	
			6962	45·23	
			6964	45·12	
			6965	44·47	
			6966	40·76	
			7073	28·94	
			9158	68·00	
			9160	108·18	
			8857	51·23	
			8984	141·06	
			9060	53·59	
			9061	58·70	
			9062	57·29	
			9064	57·12	
			9065	84·66	
			9066	87·72	
			9067	73·94	
			9068	65·12	
			9069	68·65	
			9070	39·88	
			9071	48·57	
			9074	79·00	
			9076	27·70	
			9129	14·76	
			9130	73·76	
			9131	60·00	
			9132	56·42	
			9133	66·12	
			9134	70·53	
			9135	67·53	
			9136	65·57	
			32		

11	12	13	14	15	16
	Fairborne	8322	9137	56.23	
			9138	60.70	
			9139	53.62	
			9140	66.29	
			9141	46.82	
			9142	112.23	
			9143	51.00	
			9144	51.88	
			9145	59.96	
			9146	52.23	
			9147	42.06	
			9148	51.57	
			9149	67.94	
			9150	98.63	
			9151	81.70	
			9152	83.35	
			9153	81.52	
			9154	67.29	
			9155	97.59	
			9156	81.12	
			9157	80.18	
			9158	91.96	
			22	2610.95	

11	12	13	14	15	16
•	Gulmarg	952	3493	A 140·42	
			3454	46·04	
			3378	42·22	
			3414	0·12	
			3403	1·83	
			2215	0·95	
			2214	0·77	
			3671	0·35	
			3656	0·40	
			3423	1·04	
			3353	0·34	
			2172	2·82	
			2223 / 3895	0·06	
			2208 / 3876	0·66	
			2205 / 3876	1·34	
			2147	1·45	
			3426	0·79	
			8566 / 3926	0·08	
			95·74 / 3733	0·06	
			3068	0·63	
			1852	0·13	
			2207 / 3894	051	
			2213 / 3853	0·43	
			1968	1·05	
			3658	0·26	
			24	A246·80	

11	12	13	14	15	16
	Quiscopus	957	2178	R 0·50	
			2128	0·93	
			2180	0·96	
			2181	0·44	
			3070	0·96	
			3071	0·76	
			3073	0·35	
			3074	0·75	
			3075	0·34	
			3077	0·64	
			3078	0·76	
			3084		
			3086	0·52	
			3087	0·96	
			3088	0·56	
			3083	0·18	
			2194	1·12	
			1192		
			3680	0·58	
			3635		
			3665	110·00	
			3666	7·114	
			3667	83·00	
			3668	128·82	
			3663	1112·06	
			3670	96·85	
			3633	0·22	
			3661	28·63	
			3662	6·24	
			3663	110·88	
			3664	1282	
			3666	79·33	
			28	931·54	

12	13	14	15	16
Sultanpur	957	3631	₹ 1·75	
		3633	0·47	
		3570 / 3866	0·05	
		3563 / 3984	0·07	
		3565 / 3985	0·06	
		3563	0·30	
		3638 / 3818	0·20	
		3638 / 3816	0·12	
		3603 / 3902	0·59	Alcastract
		9	3-61	Tolalenata A815-91 2610-95
Araspur	281	853	₹ 25·50	Dolavapur 1181-95
		855	50·22	Araspur 129-95
		[illegible]	[illegible]	Bilipada Saradhapur A006
		443	0·22	
		857	29·68	
		596	24·95	
		5	₹ 129·97	Total-A4738-87
Bilipada Saradhapur	1322	1077	₹ 0·02	Tahasildar. Banki. 27/697
		1093	00·04	
		2	0·06	
		(16)		

Ratagarh Circle

Name of Tehsil	Mouza	Khata	Plot No	Area	Ownership	
					Govt	Private
11	12	13	14	15	16	
	Sontra Pt	630	127	A 0·53		
			120	A 9·82		
			173	Ac 1·40		
			175	Ac 5·59		
			1000	Ac 0·70	Govt	
			998	Ac 0·10		
			135	Ac 1·57		
			222	Ac 0·23		
			1037	Ac 0·05		
			1078	Ac 0·42		
			10	A 20·46		
	Sonarbigah	185	98	Ac 0·95		
			100	A 33·20		
			132	A 2·30		
			253	A 2·16		
			4	A 58·61		
		186	87	A 15·46		
			5	A 74·07		
	Kadalibari	1000	3337	Ac 0·29		
			3344	3·20		
			1096	0·96		
			3348	48 26		
			3912	0·67		
			3930	2·95		
			2061	8·56		
			3911	33·54		
		(22)			93-84	93-84

Name of Tehsil	Mouza	Khata No	plot No	Area	Owners Pt. No	
					Govt	Private
11	12	13	14	15	16	
	Ostia	343	256	A 5·86		
			46	1·72		
			115	0·08	Govt	
			117	0·36		
			13	664·96		
			214	9·32		
			6	A 682 35		
	Fulabadi	165	635	A 12·66		
			839	2·71	- do -	
			2	A 15·37		
	Ghoshbar	505	1705	A 0·12		
			1049	113·61		
			1695	27·78		
			306	3·30		
			2183			
			514	35·60		
			1162	0·51	- do -	
			546	25·83		
			548	27·10		
			547	26·78		
			9	200·57		
	Gholapur	814	145	A 0·09		
			1100	A 0·09	- do -	
			2	A 0·18		
	Ghatipal	279	9	A 0·78		
			1	A 0·78		

Name of Tehsil	Mouza	Khata No	plot No	Area	Ownership: Govt	Ownership: private
11	12	13	14	15	16	
Gorki	Nizampur	615	652	0.25		
			648	0.23		
			664	0.03		
			665	0.15		
			685	0.30		
			686	0.23		
			688	0.10		
			806	0.02		
			808	0.15		
			1928	0.75		
			2085	0.13		
			2087	0.90		
			2092	1.22		
			2115	1.15	Gorki	
			2122	3.93		
			2124	0.59		
			2126	1.10		
			2356	15.42		
			2330	3.54		
			2369			
			2135	0.79		
			23485	0.81		
			2363	27.00		
			22	58.79		
			2291	0.08		
			2325	0.10		
			3122			
			2093	0.44		
			25	59.14		

11	12.	13	14	15	16
	Kashinagar	175	113	A 3·87	
			1	A 3·87	
	Rodrapur	702	914	A 8·42	
		305	608	1·36	
			720	12·00	
			916	5·00	
			4	26·78	
	Chakuleswar	283	188/1321	A 10·64	
			27	5·84	
			29	1·62	
			40	12·22	
			128	2·08	
			125	3·70	
			159	0·10	
			200	10·30	
			2	0·46	
			1360		
			302	0·38	
			1434		
			1	0·57	
			11	67·91	
2			1316	8·00	
			1317	14·90	
			1306	6·74	
			200	6·90	
		(13)	4165	109·25	

Coni. | Private

Abstract

1. Samukhpur A 2·46
2. Sarandagarh A 14·07
3. Kadalikandi A 93·84
4. Optan A 682·35
5. Fulkadi A 15·37
6. Ghodabasa A 200·57
7. Ghokapur A 0=18
8. Ghasipur A 0=78
9. Nasikpur A 0=5874 5941
10. Kinakhapur A 3·87
11. Bishnupur A 126·78
12. Chakuleswar A 1092·5

~~A 1287·03~~
~~A 1286·73~~
A 1287·03

Tahasildar.
Banki
30/8/47

Bijadpur R.D. Circle

Name of Tehsil	Mouza	Khata No	Plot No	Area	Details of Plot	
					Govt	Private
11	12	13	14	15	16	
Bahmi	Bhagi Nala	209	96	27.26		
			97	4 13		
			99	20 11		
			101	0 80		
			102	3 60		
			103	1 41		
			104	1 41		
			226	1 12		
			227	8 35		
			232	96 35		
			234	16 38		
			289	2 62		
			469	14 83		
			528	16 38		
			14			
			111	41 66		
			15	306 01		
~~Gopalpur~~ Barana		782	3865	6 72		
			3881	4 27		
			3882	1 82		
			3855	0 34		
			3864	9 36		
			3076	1 71		
			3077	0 72		
			3077	0 72		
			3885	1 29		
			24 ✓	27.00		

Radjit RJ Circle

Name of Taluqdar	Mouza	Khata No	Plot No	Area	Ownership	
					Part	Private
11	12	13	14	15	16	
	~~Rajmahalia~~ Barara	782	3078	1 92		
			3079	1·06		
			3080	36 91		
			3081	30 00		
			3068	13 29		
			3073	22 84		
			3075	1 71		
			3366	4 06		
			3367	26 86		
			3368	28 00		
			3369	1 26		
			3370	2 24		
			3371	2 35		
			3330	1 94		
			3331	0 48		
			3332	0 68		
			3336	30 00		
			3333	0 45		
			3334	9 02		
			3335	10 00		
			3337	0 40		
			3338	0 83		
			3339	1 46		
			3340	35 00		
			3068	1 18		
			3926			
			3068	1 60		
			3927	0 64		
			3068/3928	A266-18		

Barara
A266-18
A27 00
A293-18

Rodajit Rj Cancle

Name of Thesil	Mouza	Khata No.	plot No	Area.	Ownership. Govt.	Ownership. private.
11	12	13	14	15	16	
Bonili	Rajakhanga	441	2076	37.00		
			2077	10.40		
			2098	22.20		
			2281	40.68		
			2282	5.65		
			2253	25.72		
			2286	29.92		
			2287	52.80		
			2288	39.05		
			2289	47.76		
			2290	37.83		
			2291	40.00		
			2292	40.00		
			2293	45.72		
			~~2004~~			
			2304	48.62		
			1085	1.62		
			1086	20.92		
			2294	46.22		
			2296	66.40		
			2301	32.75		
			2303	16.60		
			803	37.40		
			804	35.14		
			810	41.72		
			811	54.00		
			812	34.30		
			813	37.12		
			814	48.55		
			28	A 1000.09		

Godaj'd RJ Centre

Name of Tahsil	Mouza	Khata No	Plot No	Area	Ownership	
					Govt	Private
11	12	13	14	15	16	
Barwi	Gajalabara	490	2295	49 60		
			2328	38 60		
			2329	40 35		
			2330	39 60		
			2331	50 12		
			2332	42 06		
			2333	36 53		
			2339	61 76		
			2340	54 12		
			2341	70 48		
			1904	0 26		
			2244	3 68		
			2245	0 83		
			13	30 45		
			16	36 08		
			18	36 08		
			745	14 92		
			747	0 70		
			749	0 15		
			1088	9 50		
			1087	31 85		
			1084	1 48		
			1955	0 80		
			2089	2 10		
			2090	84 83		
			2091	31 12		
			2092	38 14		
			2093	52 90		
			2094	46 40		
			29	844-83		

Gajalabara
A 1000=09
844-83
A 1844-92

Name of Taluqs	Mouza	Khatto No	Plot No	Area	Ownership	
					Part	Whole
11	12	13	14	15	16	
Banki	Kusupangi	626	36	2 20		
			37	0 50		
			39	6 41		
			101	21 47		
			103	2 94		
			104	6 47		
			107	11 65		
			119	23 59		
			121	109 35	1	
			123	11 65	1	
			128	37 82		
			129	19 41	1	
			70	23 84		1
			3978	24 76		1
			3994	13 75		
			3998	73 31		
			4003	11 88		
			4005	4 42		
			4007	15 47		
			4013	103 82		
			4014	58 41		
			4015	50 30		
			3917	51 42		
			247	9 58		
			112	1 58		
			3994	0 36		
			4376			
			26	A694-36		

Name of Taluqdar	Mauza	Khata No	plot No	Area	Owner-ship	
					Govt	Private
11	12	13	14	15	16	
Baria:	Kusupangi	626	117	A. 138 07		Kusupangi A 69A-36 A 139-03 A 833-39
			3925	0 53		
			190	0 43		
				A 139-03		
d.	Pachapur	661	1	A. 10 40		
			3325	1.69		
			83	4 18		
			85	10 12		
			126	6 40		
			226	32 12		
			1	0 35		
			31			
			2845	0 04		
			3225	5 1 18		
			2199			
			3139	81 12		
			3082			
			3140	25 10		
			3075	26 53		
			3076	80 05		
			3077	10 70		
			3078	10 59		
			3079	22 36		
			3080	32 84		
			3081	3 18		40A-48
			3082	20 53		
			3083	A 40A-48		
			22			

Name of Taluka	Mouza	Khata No	plot No	Area	Ownership: Govt	Ownership: Private
11	12	13	14	15	16	
Barki	pallapur	661	3084	17-65		
			2199 / 3139	5, 18		
			3082 / 3140	8, 12		
			2199 / 3138	96 56		
		663	3073	43-18		
			3074	37 36		
			3095	26 76		
			3096	34 76		
			3097	25 94		
			3085	63 70		
			3086	23 47		
			3087	33 53		
			3088	22 49		
			3089	25 94		
			3090	20 70		
			3091	21. 82		
			3092	34. 94		
			3093	13 88		
			3094	40 00		
			3082 / 3141	31 44		
			3082 / 3142	30 94		
			3082 / 3143	34 06		
			3084 / 3144	30. 06		
			3084 / 3145	30 06		
			24	891-49		

Pattapur
A 401-48
A 891-49
A 1295-97

Baddajit R.g Candia

11	12	13	14	15	16
Garmi	Baddajit	886	1772	4-73	
			886	0 34	
			3140	0 07	
			1914	0 59	
			1917	0 03	
			2213		
			2960	0 18	
			1914		
			3163	0 07	
			448		
			2714	0 18	
			1914		
			3450	0 12	
			2850		
			2892	0 21	
			2538	0 41	
			2539	0 35	
			2024	0 84	
			1724	0 74	
			1693	2 33	
			1685	0 19	
			2543	0 05	
			2951	0 35	
			2546		
			867	0 02	
			2652	0 09	
			396		
			2408	0 34	
			2547	0 14	
			1833	0 34	
			5672	12-47 A12-74	
			2542		

23

11	12	13	14	15	16
Bank	Body's	886	1467	12 88	
			1468	48 24	
			1469	36 59	
			1472	28 64	
			1473	47 29	
			1433	1 00	
			2319	5 60	
			2320	40 m	
			2321	41 79	
			2322	150 12	
			2421	42 36	
			2574	40 60	
			2599	43 54	
			1981	31 18	
			~~2021~~	~~29 48~~	
			2009	5 12	
			2064	16 48	
			3201		
			2318	2 13	
			2647	3 49	
			2524	0 66	
			1532	4 28	
			2602	2 14	
			127	0 82	
			2354	1 12	
			143	5 00	
			2064	13 95	
			2642	695=02	
			750		

11	12	13	14	15	16
Bank:	Podcjit	886	1889	0.10	
			9670		
			1949	0 15	
			2911		
			2274	0 28	
			2088	0 47	
			2930		
			720	1 06	
			1523	0 80	
		888	2052	101 78	
			2049	55 44	
			2041	42 36	
			2053	32 06	
			2054	85 90	
			2055	87 86	
			2056	40 00	
			2057	40 00	
			2472	40 00	
			2473	37 20	
			2474	40 00	
			2475	40 00	
			2476	40 00	
			2019	36 48	
			2042	46 06	
			2477	39 70	
			263	33 54	
			2043	84 72	
			24	1025-36	

Name of Tehsil	Mauza	Khata No.	Plot No	Area	Ownership: Govt.	Ownership: Private
11	12	13	14	15	16	
Bahawalpur	Hadojid	558	2040	9 42		
			2045	180 60		
			2046	159 66		
			1757	37 52		
			1927	41 20		
			2470	50 00		
			2603	45 69		
			2604	44 70		
			2606	43 82		
			2605	49 53		
			2607	41 20		
			2608	58 82		
			1924	41 80		
			1925	41 20		
			1928	41 20		
			1929	41 20		
			1931	60 94		
			1932	39 47		
			1933	34 53		
			1930	10 00		
			1934	48 48		
			1936	33 00		
			1937	23 41		
			1938	41 20		
			1939	49 47		
			1940	32 65		
				A 1229 = 11		

Name of Taluqdar	Mauza	Khata No	plot No	Area	Ownership	
					Govt	Private
11	12	13	14	15	16	
Barki	Gadaj'd	888	1766	2-48		
			1760	33-85		
			1759	41-20		
			1770	2-20		
			3486			
			1770	2-20		
			3487			
			1627	38-35		
			1628	43-64		
			1629	46-00		
			1630	40-00		
			1634	41-20		
			1635	41-20		
			1638	41-20		
			1640	44-30		
			1642	45-74		
			1643	50-11		
			1644	41-84		
			1645	41-20		
			1648	45-50		
			1646	50-58		
			1676	2-11		
			1651	61-80		
			1652	67-80		
			1653	41-20		
			1625	48-06		
			1626	39-58		
			1592	38-18		
			26	A1000=42		

11	12	13	14	15	16
Barki	Hadaji	888	1941	41-20	
			1942	41 47	
			1959	82 10	
			1960	75 18	
			1961	41-20	
			1962	41-20	
			1963	41-20	
			1964	20 00	
			1965	41-20	
			1966	112 40	
			1967	27 58	
			1968	17 94	
			1969	48 88	
			1970	32 00	
			1971	35 12	
			1972	42 35	
			1973	29 84	
			1974	41 20	
			1975	41 20	
			1976	41-20	
			1979	50 00	
			1982	20 00	
			1987	41-20	
			1988	41-20	
			1989	41-20	
			1991	41 20	
			24	A1028-66	

11	12	13	14	15	16
Bank	Godejie	888	1993	41 20	
			1994	41 20	
			1995	41 20	
			1996	62 00	
			1997	62 00	
			1999	31 00	
			2000	41 20	
			2001	60 00	
			1783	~~240 00~~ 3 10	
			1788	7 18	
			1798	1 31	
			1800	37 ~~47~~	
			1801	44 ~~47~~	
			1802	16 31	
			1803	41 20	
			1804	43 20	
			1806	59 80	
			1812	45 29	
			1813	41 47	
			1830	1 41	
			1858	40 00	
			1859	57 24	
			1900	39 65	
			1907	41 20	
			1908	41 20	
			1911	41 20	
			1912	38 24	
			1920	41 20	
				A1090=98	1090=98

					Remarks	
		No.	Plot No.	Area	Land	Survey
11	12	13	14	15	16	
Barisi	Bada ji	888	1565	112·70		
			1540	19·35	Gaalji	
			1543	27 53	A191-25	
			367	7 47	A1090-98	
			3641		A1028-66	
			1758	41·80	A1000-42	
		Total		191-25	A1229-11	
					A1025-96	
	Gebarbapa	590	774	11·84	A695-02	
		593	823	13·35	A12-74	
			796	9·92	A6213-54	
			783	11 17		
			723	2 95		
			5	42·23		
			(10)			

Abstract

Bhagipur A293-18
Gayalkank A1844-92
Kusupangi A883-39
Pathpur A1295-97
Govindpur A-42-23
Gadjit A6213-54
Total A10523-23

Tahasildar, Banki

W20	Khata No	Pl. No.	Area		Remarks	
12	13	14	15	16		17
area for	945	49	0 55 ~~0 55~~ A0 55			

(1)

Talukdar Bankit
Kar
30/6/93

DLC area of NarasinghpurTahasil

Abstract.

N.C.F.W.

JUNGLE LAN[illegible] RE[illegible] RECORDS OF NARASINGHPUR TAHASIL

1	[illegible]ge:-	Total Forest area in acres: 3 *IN ACRE	REMARKS: 4
1	Siaria Taila:	0-27	
2	Salijheripatna	0-66	
3	Kuranjamalisahi	1-22	
4	Padmalpatna	6-06	
5	Bisunathpur	0-58	
6	Tagilo	4-83	
7	Kalamatia	172-19	
8	Solabundha	13-12	
9	Kandhaberani	113-09	
10	Salijheripathada	2-25	
11	Karia	38-05	
12	Kimbiritola	1-43	
13	Mardarpatna	0-53	
14	Kuranja	3-08	
15	Tumera	19-16	
16	Manasinghpatna	39-35	
17	[illegible] Rusipada	[illegible] 6-64	
18	Dhamrapal	15-03	
19	Olaba	496-11	
20	Ostapal	43-32	
21	Talapunji	430-12	
22	Borasha	35-02	
23	Vansailo	222-91	
24	Similibola	67-20	
25	Gaptamanik	252-24	
26	Berhampura @ Barisinga	13-17	
27	Chasabarabeti	0-42	
28	Jenapal	54-21	

1991-44

1	2	3	4
29	Mipashi	0-32	
30	Nagadisahi	1-49	
31	Nagdharia	3-87	
32	Naupal	32-00	
33	Godibundha	49-78	
34	Karile	1-59	
35	Sahali	178-02	
36	Sokada	288-99	
37	Jamubahali	7-91	
38	Sinchanabati	4-99	
39	Champeswar	5-89	
40	Sahada	70-13	
41	Dalaka	359-22	
42	Jayadamodarpur	201-60	
43	Mandagola	85-96	
44	Kharuani	29-70	
45	Karabira	35-43	
46	Brahmani	137-98	
47	Benipathar	73-30	
48	Nuagarh	192-69	
49	Kandhadebhuin	37-82	
50	Seramunda	177-65	
51	Debhuin	492-77	
52	Kandhal	258-83	
53	Bhuska	1118-94	
54	Nuagaon	180-20	
55	Santarapur	3-30	
56	Choradia	4-05	
57	Panchagachhia Jungle Block	78-72	
58	Badabarena	6-90	
59	Durgaprasad Taila	7-00	
60	Panchagochhia	46-45	

6164.93

1	2	3	4
61	Randhabadabhuin	79-85	
62	Matiapalli	2-07	
63	Ramsinghpur	235-25	
64	Kendupalli	20-61	
65	Panchagachhia Jungle-'Ka'	1140-05	
66	Brahmapura	17-09	
67	Patrabhag	340-83	
68	Sadhucharanpur	59-97	
69	Chatarapada	351-84	
70	Krushnachandrapur	3-46	
71	Muraripur	11-57	
72	Sagar	50-62	
73	Rangalab	3-90	
74	Kathoukhoja	2-25	
75	Lehanga	4-13	
76	Kamaladeipur	0-60	
77	Khajuria	0-08	
78	Bhaliadiha-10 Annas	1-03	
79	Ganagama	39-88	
80	Padmapur	23-75	
81	Durgaprasad	2-66	
82	Balikiari	271-57	
83	Kusal	164-14	
84	Barabhaya	247-95	
85	Chakraprasad	38-83	
86	Sukata	53-89	
87	Guhalsahi	0-34	
88	Pathansahi	0-91	
89	Khola	198-42	
90	Birasingpur	192-38	
91	Badabhuin	34-34	
92	Nuabhuin	326-39	

1	2	3	4
		10-25-58	
93	Anantaprashad	45-34	
94	Jayapur	156-32	
95	Damakata	1-01	
96	Kakudia	11-04	
97	Saradiha	2-26	
98	Subalaya	14-95	
99	Tolakpatia	1-14	
100	Janteria	1-99	
101	Jogibahali	17-51	
102	Kanagódi	524-13	(524-13)
103	Mitikapur	41-36	
104	Kokalaba	2-68	(2-68)
105	Nakhapada	16-51	
106	~~Sahistapatna~~ Cheramulia	2-06	(106)
107	Galisigadia	0 -06	
108	Baulasahi	3-79	
109	Gopapur	0-28	
110	Khalisahi	15-84	
111	Kuapalli	1-15	
112	Kalispata	12-83	
113	Purusottampur	24-10	
114	Thengapalli	3-57	
115	Kathakhunta	42-44	
116	Kendumula	0-50	
117	Gandapalli	1-88	
118	Sargumapalli	4-06	
119	Chinamali	0-46	
120	Krushnoprasad	44-81	
121	Paramal	0-68	
122	Paikparapatna	35-29	
123	Ghantapada	285-93	
		11340-55	

1	2	3	4
124	Ramachandrapur	81-04	
125	Sardhapur	68-80	
126	Narayanprashad	4-72	
127	Bhagatpur	172-02	
128	Basantapur	3-00	
129	Bhagaon	17-51	
130	Jhajibundha	190-20	
131	Dhanadhip	80-09	
132	Paikregeda	729-22	
133	Kainpokhari	266-35	
134	Kaintara	263-75	
135	Jochmu	150-52	
136	Mandania	3-65	
137	Manibhuin	0-15	
138	Salagaon	6-75	
139	Odasinga	2-17	
140	Tolakpatia	2-46	
141	Jayamangalpur	0-03	
142	Basantapur	0-57	
143	Jagannathpur	2-07	
144	Kunjabanpur	1-77	
145	Shyampur	239-91	
146	Chakamunda	45-00	
147	Hinjalkhal	0-83	
148	Jayamangalpur-Ka:	0-63	
149	Satyajayapur	704-19	
150	Dhanurjayapur	803-11	
151	Siloti Baliput	51-56	
152	Panchama	587-41	
153	Mardamekha	73-63	
154	Mahigada	6-37	
155	Regeda	23-71	

15924-34

11611

1	2	3	4
156	Chikankhandi	15924 34 17-56	
157	Jamisahi	12-12	
158	Dahakhola	169-73	
159	Talasahi	16-82	
160	Sanagaon	11-74	
161	Kamalatiha	30-96	
162	Mugaon	515-34	
163	Sishupathar	48-45	

Grand Total :- 16,755·04 Acres.
or 6702 Hectors

Tahasildar, Narasinghpur.
21/8/97

Certified that, the above villagewise total Forest areas in respect of Narasinghpur Tahasil have been correctly prepared fromthe R:O:Rs: of the concerned villages of this abstract and total area tallied with the villagewise total:

Tahasildar, Narasinghpur.
21/8/97

1	12	13	14	15	16	
		Khasra No.	Plot No.	Area in Acre		
Hiranagar	Sirlok Gurdaspur	58	17	1.47	Jamabandi = 2	Gurdaspur
			51	3.98	— do —	
			52	0.32	—	
			1	3.25	— do —	
			8	6.39	— do —	
			32	0.190	— do —	
			3.89	0.44	— do —	
			6	0.34	— do —	
			4	5.14	— do —	
			39	0.43	— do —	
			50.1	0.47	— do —	
			67	0.46	— do —	
			29	0.11	Pathankot Tehsil	
			64/324	0.32	— do —	
			41	0.42	— do —	
			42	0.38	— do —	
			3.89	0.85	— do —	
			3.45	0.56	— do —	
			3	0.37	— do —	
			5	0.61	— do —	
			29	0.08	— do —	
			32	0.96	— do —	
			6/369	3.48	— do —	
			38	0.24		
			51	0.28		
			27	0.08	— do —	
			28	0.19	— do —	
			30	0.16	— do —	
			16	0.12	— do —	
			18	0.44	— do —	
			20	0.64	— do —	
			22	0.36	— do —	
			7	0.08	— do —	
			16	0.29	— do —	
			53	0.86	— do —	
			11	0.21	— do —	
			13	1.59	— do —	
			12	0.88	— do —	
			19	1.27	— do —	
			33	0.26	— do —	
— do —	Ravaladeha	333	468	0.18	Pathankot Tehsil	
			502	0.44	— do —	
			77/1491	0.04	— do —	
			77	31.23	— do —	
			85	0.22	— do —	
			35	2.63	— do —	
			3	0.40	— do —	
			6	2.91	— do —	
			77/1492	0.07	— do —	
			77/1495	0.03	Gurdaspur Tehsil	
			77/1492	0.14	— do —	
			99	0.13	— do —	
— do —	Ratehana	472	11	0.03		
			12	0.38		
			13	0.88		
			14	0.02		
			15	0.88		
			48	0.42		
			45	0.225		
			46	0.51		
			43	0.34		

Ajay Kumar
Revenue Officer
GURDASPUR

Nasaogh Pantaora Plot	A+2	A8	0.88	Rungta	
		49	0.84		
		50	0.97		
		51	2.20		
		52	0.49		
		53	0.88		
		54	0.41		
		55	0.48		
		57	1.45		
		58	1.38		
		59	0.34		
		60	0.12		
		61	0.18		
		62	0.17		
		64	0.48		
		65	0.50		
		66	0.33		
		67	0.31		
		68	0.61		
		69	0.89		
		35	19.47		
		119	0.53		
		118	0.19		
		104	0.34		
		105	0.35		
		135	1.08		
		143	0.54		
		164	0.37		
		217	0.19		
		226	0.86		
		227	0.18		
		236	0.54		
		239	0.86		
		233	1.63		
		239	1.14		
		240	1.60		
		189	0.95		
		291	24.32		
		312	0.35		
		30/3568	3.82		
		348	0.36		
		393	32.48		
		234	1.44		
		285	0.92		
		326	0.90		
		353	4.32		
		299	1.64		
		344	1.51		
		348	5.67		
		345	2.38		
		347	4.12		
		349	2.25		
		350	0.19		
		352	0.84		
		368	0.53		
		351	0.34		
		355	0.38		
		363	0.62		
		358	0.08		
		357	0.62		
		364	0.34		

Forest Ranger Officer
MAESINGHPUR

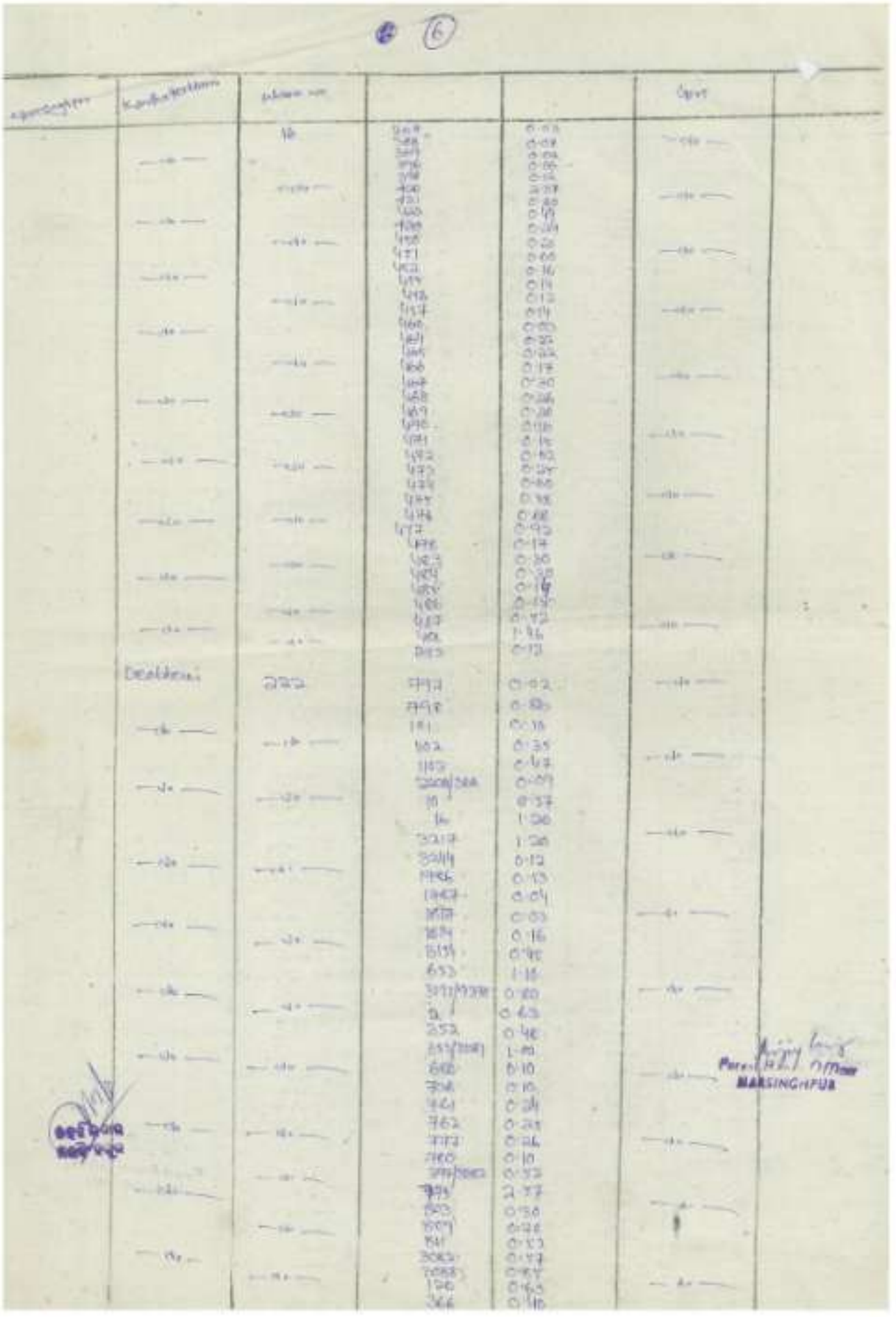
11	12	13	14	15	16	
Kensington	Ponsham	A2B	554	0.21	Trucks	Gold-Crown
			556	0.18	"	
			562	5.43	"	
			564	0.18	"	
			565	0.15	"	
			568	0.31	"	
			569	0.19	"	
			A10	0.86	"	
			A13	0.14	"	
			A23	0.16	"	
			A23	0.38	"	
			A24	0.15	"	
			A24	0.30	"	
			A28	1.15	"	
			A34	0.79		
			436	0.50		
			426	0.47		
			428	0.58		
			427	1.69		
			429	0.59		
			430	0.87		
			431	0.65		
			433	0.43		
			439	0.88		
			460	0.04		
			461	0.08		
			466	0.05		
			485	0.03		
			474	0.21		
			476	0.31		
			481	0.30		
			584	0.28		
			531	1.04		
			3215/32/74	0.27		
			537	0.8		
			539	0.20		
			538	0.08		
			543	1.03		
			545	0.03		
			546	0.49		
			547	0.50		
			561	3.06		
			562	0.28		
			563	2.25		
			564	34.72		
			559	0.02		
			565	3.41		
			582	1.60		
			571	0.13		
			591	0.58		
			596	0.14		
			597	0.11		
			615	0.16		
			619	0.17		
			598	0.11		
			650	0.11		
			644	0.12		
			622	0.03		
			623	0.10		
			634	0.19		
			642	0.47		
			640	0.23		
			649	0.48		
			695	0.09		
			901	0.06		

Nannorrhops Ritchieana		492	402	0.07	Village Jamrgir	
			405	0.24	"	
			446	0.03	"	
			412	0.19	"	
			415	0.10	"	
			458	0.09	"	
			459	0.35	"	
			516	0.03	"	
			761	0.13	"	
			764	0.05	"	
			1167	0.11	"	
			814	0.06	"	
			836	0.05	"	
			873	0.11	"	
			874	0.18	"	
			881	0.06	"	
			948	0.03	"	
			949	0.03	"	
			911	0.09	"	
			932	0.37	"	
			933	0.07	"	
			958	0.03	"	
			979	0.05	"	
			980	0.08	"	
			1002	0.41	"	
			1003	0.12	"	
			1061	4.62	"	
			1064	0.21	"	
			1066	4.37	"	
			1162	21.90	"	
			1152	6.50	"	
			1167/1164	4.50	"	
				19.24	"	
			1167	4.07	"	
			1162	10.33	"	
			1153	40.00	"	
			1126	0.63	"	
			1209	0.64	"	
			1204	0.09	"	
			1206	0.07	"	
			1156	0.11	"	
			1212	0.02	"	
			1241	0.06	"	
			1244	0.06	"	
			1260	0.06	"	
			1297	0.13	"	
			1296	0.70	"	
			477	1.69	"	
			447	0.08	"	
			483	1.43	"	
			450	0.05	"	
			448	0.04	"	
			1144	0.60	"	
			1187	0.04	"	
			794	0.02	"	
			802	0.04	"	
			803	0.09	"	
			804	0.15	"	
			805	0.15	"	
			806	0.24	"	
			807	0.04	"	
			809	0.03	"	
				0.13	"	

Forest Range Office
MARINGHPUR

11	12	13	14	15	16
		226	893	0·42	
			858	0·09	
			894/895	0·05	
			894	0·03	
			886	0·06	
			870	0·05	
			928/929	0·10	
			884	0·21	
			1245	0·34	
			857/858	0·05	
			849	0·08	
			581	0·13	
			581/2092	0·04	
			986/1413	0·02	
			987/989	0·15	
			894	0·06	
			893	0·09	
			924	0·07	
			1281	0·30	
			1049/1054	0·39	
			991/1002	0·03	
			1001	0·04	
			989/1019	0·06	
			1019/1032	0·08	
		108	398	12·28	
			359	0·65	
			61	1·32	
			596	1·15	
		6	97	0·39	
			53	2·63	
			54	1·41	
			31	19·50	
			64	8·13	
			49	0·30	
			29	0·41	
			12	0·60	
			1	37·00	
			46	0·19	
			30	0·28	
			38	0·40	
			30	0·29	
			25	0·38	
			17	1·23	
			29	0·34	
			41	0·83	
			26	0·96	
			37	0·92	
			98	0·18	
		18	2	1·03	
			1	3·00	
			17	0·94	
			10	0·27	
			11	1·36	
			26	0·19	
			23	0·04	
			3	0·67	

Forest Range Officer
NARSINGHPUR



11	12	13	14	15	Forest Rs
Nawagaon	Reddem	222	3790	0 30	
			3193	0 76	
			2193	1 52	
			3207/3881	0 08	
			1936	0 48	
			559	0 36	
			576	0 35	
			578	3 99	
			600	4 21	
			628	0 32	
			666	0 10	
			631	0 05	
			657	0 24	
			618	0 03	
			650	0 03	
			661	0 03	
			665	0 02	
			667	0 11	
			670	0 13	
			719	0 02	
			720	0 03	
			714	0 08	
			723	0 08	
			718	0 10	
			716	0 27	
			633	0 04	
			634	0 03	
			627	0 04	
			612	0 04	
			613	0 03	
			611	0 03	
			616	0 03	
			1288	0 61	
			538	0 16	
			116	0 17	
			117	0 08	
			2279	0 49	
			2332	0 49	
			2226	0 03	
			2347	0 05	
			2348	0 05	
			2349	0 06	
			2346	1 46	
			2252/2887	0 08	
			714	0 67	
			34	0 11	
			35	1 14	
			24	1 19	
			6	1 30	
			8	0 98	
			11	3 54	
			7	1 08	
			14	1 22	
			17	0 39	
			17	0 43	
			5	3 03	
			2338	0 25	
			2344	0 12	
			2342	0 08	
			350	1 04	
			2348	0 26	
			2287	1 39	
			5126	0 36	
			2190	0 38	
			2	1 92	
			2344	0 41	
			2342/2345	0 07	
			5333/5377	0 07	
			1912	0 06	
			5236/2385	0 06	
			5348/5349	0 05	
			5351/5347	0 09	

Forest Range Officer
NARSINGHPUR

Name of species	Description	Remarks	(E)			
		2252	1999	0·55		
			1873	0·38		
			8858	0·245		
			06	0·58		
			34	0·34		
			91	0·34		
			3000	0·83		
			5301	1·55		
			3389	0·49		
			3335	0·38		
			3468	0·42		
			3031	0·17		
			3040	0·143		
			3032	0·41		
			2634	1·0		
			3299	0·13		
			2863	0·84		
			3086	0·11		
			2415	0·65		
			2609	0·67		
			2607	0·51		
			2612	0·13		
			2809	0·119		
			348	0·13		
			281	0·03		
			2315	1·57		
			2319	1·43		
			2337	0·36		
			308	0·58		
			1397	0·58		
			3034	0·22		
			3036	0·86		
			3039	0·15		
			649	0·05		
			681	0·13		
			634	0·13		
			645	0·51		
			696	0·69		
			728	0·43		
			729	0·36		
			730	0·69		
			734	0·28		
			5	1·98		
			3/3389	1·66		
			3471	1·07		
			1336	51·36		
			9133	0·36		
			1156	1·08		
			1293	0·93		
			736	0·57		
			779	2·39		
			623	0·03		
			618	14·36		
			631	1·22		
			635	0·82		
			633	0·03		
			632	0·36		
			634	0·18		
			722	0·34		
			3469	3·35		
			999	0·83		
			2612	3·11		
			1	10·34		
			12	1·63		
			35	3·59		
			90	1·41		
			92	1·03		
			94	14·32		

Forest Range Officer
BARSINGHPUR

11 Name of tree	12 Position	13 Remarks	14	15	16
		222	3205	0.22	Govt Orders
			3248	1.56	
			3254	1.87	
			3256	38.43	
			3262	28.91	
			3261	31.69	
			3263	80.74	"
			3265	20.87	
			3269	12.40	
			3267	6.44	
			3266	39.38	
			3274	15.79	
			3275	28.03	
			3148	0.36	
			3149	15.49	
			3166	8.65	
			3150	0.96	
			3152	26.15	
			3161	18.18	
			3143	26.79	
			3155	15.06	"
			3158	8.93	
			3160	24.23	
			6376	0.41	
	Abogonia	74	148	0.04	
			5169	0.04	
	Lendia tenfolia	56	24	2.03	
			19	1.18	
			28	4.10	
			25	5.26	
			30	28.13	
			1	93.49	"
			2	7.70	
			18	0.93	
			26	0.36	
			28	0.20	
			69	1.04	
			65	1.55	
			64	0.85	
			239	0.42	
			62	0.21	
			85	0.13	
			87	0.17	
			84	0.62	
			83	0.30	
			86	0.83	
			77	0.09	
			78	0.33	"
			76	0.35	
			177	0.13	
			101	0.16	
			103	0.09	
			116	0.01	
			107	0.32	
			108	0.11	
			112	0.46	
			111	0.30	"
			71	0.33	
			146	0.39	
			142	0.20	
			139	0.16	
			70	0.65	
			73	0.56	"
			72	0.61	

Forest Ranger Officer
NARSINGHPUR

Nawashahr	Rakwal	132	103/650	0·42		
			103/651	0·51		
			685	0·14		
			677/1423	0·43		
			104	0·31		
			110	0·92		
			112	0·73		
			113	0·85		
			114	0·67		
			115	0·28		
			116	0·98		
			119	0·22		
			120	0·62		
			122	0·47		
			1239	0·09		
			343/1419	0·26		
			683/1421	0·30		
			526	0·50		
			527	0·05		
			528	0·12		
			531	0·06		
			117	0·35		
			535	0·19		
			536	0·13		
			549	0·44		
			551	0·43		
			550	0·48		
			553	0·36		
			554	0·27		
			557	0·41		
			572	0·34		
			575	5·04		
			579	0·73		
			600	0·36		
			601	0·24		
			602	0·67		
			591	0·26		
			598	0·12		
			593	1·33		
			644	0·36		
			647	0·45		
			636	0·61		
			687	0·05		
			699	0·32		
			711	0·19		
			695	0·31		
			639/1424	0·08		
			965	0·20		
			751/1417	0·42		
			519	0·25		
			520	0·17		
			580	0·35		
			616	0·13		
			623	0·18		
			1369/1430	0·07		
			246/1431	0·38		
			1	2·65		
			2	2·48		
			581	0·82		
			101	9·85		

Forest Ranger Officer
BHASINGHPUR

11	12	13	14	15	16
Narsinghpur	Bhoiki	152	163	0·67	Gout Stone
			447	0·10	
			105	30·17	
			111	3·453	4
			121	1·436	
			321	0·84	
			1589	0·22	
			606/1627	0·70	
			555	0·93	
			562	0·98	
			571	0·85	
			572	0·57	
			573	3·86	4
			576	0·99	
			637	1·13	
			646	0·11	
			657	0·13	
			660	0·54	
			662	1·38	
			665	0·57	
			671	0·71	
			711	2·52	
			726	0·24	4
			731	0·09	
			732	0·21	
			738	0·39	
			1206/1634	0·07	
			790	152/4	
			797	195/25	
			1253	1·12	
			1270	0·19	
			1280	1·85	4
			1282	0·93	
			1259	2·65	
			1256	0·51	
			1263	2·06	
			1260	0·90	
			1241	0·14	
			1516	0·12	
			1561	239·39	
			1597	5·18	
			1601	97·85	
			1605		
	Bodijoori	13	1	26·00	
			3	12·00	
			5	28·00	
			16	28·59	
			18	0·06	
			64	0·60	
			65	0·66	
			67	0·27	
			69	0·21	4
			83	0·16	
			68	0·59	
			22	0·00	
			25	0·08	
			24	0·18	
			47/38	0·22	
			32	0·61	
			33	0·45	

Nursingpur	Ashoknagar	15	29	0.87		
			33	0.17		
			36	0.19		
			37	0.14		
			38	0.47		
			39	0.41		
			40	2.00		
			43	28.00		
			14/102	0.44		
			46/99	1.04		
			41	0.53		
			40	0.33		
			16/100	1.38		
			16/104	2.87		
			44	0.28		
			45	0.09		
			16/101	1.18		
			46	0.37		
			47	0.35		
			48	1.30		
			49	0.30		
			50	0.46		
			51	0.28		
			52	0.28		
			53	0.38		
			26	0.33		
			64	0.30		
			65	0.17		
			58	0.14		
			59	0.16		
			63	0.01		
			66	0.36		
			67	0.07		
			72	0.02		
			73	0.37		
			74	0.47		
			75	0.21		
			76	0.21		
			91	0.31		
			89	0.25		
			92	0.38		
			93	7.26		
			94	2.13		
			84/97	1.13		
	Dalas	10	2	0.49		
			3	1.60		
			4	0.97		
			7	0.13		
			20	0.12		
			22	0.07		
			48	0.17		
			49	0.17		
			50	0.20		
			51	0.19		
			52	0.21		
			53	0.20		
			55	0.37		
			56	0.60		
			58	0.13		
			57	0.40		
			60	0.20		
			61	0.48		
			62	0.38		

Forest Range Officer
BARSINGHPUR

11	12	13	14	15	16	
Division	Village	Number	Plot No	Area	Govt. Interest	
	Satara	10	72	0.22	Govt. 0.32	
			220	0.24		
			231	1.04		
			233	0.79		
			240	1.06		
			253	0.20		
			256	0.54		
			257	0.24		
			258	0.15		
			259	0.98		
			261	0.97		
			308	0.44		
			262	0.93		
			263	0.58		
			264	0.46		
			265	2.60		
			266	0.44		
			307	0.47		
			309	1.48		
			310	0.96		
			312	1.28		
			122	0.23		
			316	0.17		
			199	0.07		
			203	0.07		
			202	0.85		
			205	0.29		
			207	0.16		
			209	0.48		
			214	61.50		
			216	0.63		
			292	2.56		
			260	51.69		
			311	0.43		
			219	0.36		
			303	92.94		
			304	0.29		
			296	11.75		
			54	0.16		
			57	1.79		
	Samtunda	24	107	2.69		
		26	1	26.77		
			35	18.89		
			42	0.19		
			10	0.15		
			14	0.38		
			134	0.66		
			32	18.19		
			26	0.77		
			91	0.47		
			154	0.44		
			286	54.25		
			305	0.36		
			328	0.68		
			329	1.08		
			341	0.27		
			384	0.23		
			386	42.18		
			362	1.78		
			385	1.08		
			313	0.40		
			316	1.25		
			145	0.04		
			251	0.12		
			224	0.19		

Range Forest Officer
MARTHONDPUR

Khatiyan No	Garmunda	26	328	0·10		
			153	2·65		
			165/988	0·28		
			169	1·70		
			171	0·72		
			172	0·04		
			565	0·03		
			580	0·27		
			585	0·35		
			317	1·43		
			318	1·14		
			319	0·65		
			324	1·46		
	Khasmahal	25	1	29·70		
		52	1	2·41		
			7	18·36		
			24	17·12		
			108	2·77		
			18	2·80		
			26	0·53		
			20	0·63		
			412	92·27		
			446	0·71		
			493	15·71		
			510	0·85		
			72	0·60		
			69/871	0·65		
			75	1·73		
			75	0·90		
			41	0·92		
			82	0·36		
			93	0·39		
			85	0·39		
			87	0·42		
			89	1·18		
			352	0·03		
			164	0·30		
			166	0·38		
			163	0·34		
			145	0·44		
			169	0·30		
			132	1·63		
			158	0·52		
			156	0·17		
			157	0·10		
			143	0·12		
			206	0·31		
			207	1·56		
			210	1·40		
			168	0·26		
			170	0·39		
			171	0·19		
			158	0·51		
			363/676	0·85		
			636	0·77		
			678	0·20		
			248	0·18		
			365/674	0·30		
			246	0·10		
			256/255	0·32		
			233	0·13		
			234	0·35		
			240	0·23		

Range Officer
HABIGANJ

11	12	13	14	15	16
Narsinghpur	Khamwai	52	242	0.00	6881 0.32
			246	0.05	
			248	0.04	
			249	0.19	
			253	0.15	
			264	0.07	
			265	0.50	
			272	0.28	
			313	0.27	
			319	0.41	
			320	0.17	
			324	0.18	
			325	0.22	
			326	0.26	
			328	0.70	
			308	0.25	
			312	0.07	
			309	0.34	
			210	0.11	
			1936	0.61	
			1937	0.58	
			1947	0.50	
			1949	0.72	
			1945	0.49	
			1954	0.11	
			1935	0.56	
			1938	0.10	
			1939	0.22	
			1917	0.11	
			1938	0.74	
			1978	1.04	
			1976	0.47	
			1988	0.20	
			1986	0.45	
			1979	0.47	
			1980	0.16	
			1981	0.06	
			1982	0.06	
			1983	0.03	
			1975	0.06	
			1986	0.08	
			1987	0.09	
			1985	0.15	
			1989	0.02	
			538	0.41	
			277/662	0.07	
			274/663	0.06	
			332/667	0.11	
			278/654	0.08	
			275	0.33	
			267	0.41	
			2330	0.37	
			259	0.15	
			467	0.21	
			1963	0.99	
			1964	0.58	
			1972	0.33	
			1967	0.90	
			1971	0.52	
			1973	0.36	
			1962	0.52	

Forest Ranger Offi...
NARSINGHPUR

Nandeshpur	Khayrania	52	522	15.38		
			204	0.20		
			416	0.08		
			415	0.51		
			300/673	0.17		
			46	0.28		
			1287	2.49		
			167	0.21		
			903	0.10		
			153	0.64		
			1200	0.96		
			937	0.65		
			258	0.12		
			263	0.37		
			271	0.40		
			191	0.21		
			389	0.29		
			538	0.04		
			528	0.12		
			583	0.31		
			586	0.53		
			378	0.42		
			375	0.68		
			374	0.30		
			377	0.27		
			378	0.16		
			379	0.27		
			380	0.74		
			381	0.31		
			496	0.47		
			1764/284	0.21		
			196	0.28		
			91/877	0.30		
			172	0.30		
	Khayrania	74	148	0.06		
	Jamdhipur	193	540	0.04		
			1735	0.37		
			202	2.06		
			201	0.47		
			1826	0.62		
			1220	0.07		
			710	3.65		
			712	2.20		
			711	0.26		
			715	1.28		
			708	0.56		
			709	0.65		
			249	0.06		
			870	0.09		
			694	0.03		
			6972	0.63		
			1423	0.19		
			1142	0.45		
			1952	0.03		
			416	0.12		
			418	0.01		
			1826	0.05		
			394	0.06		
			1735	0.04		
			615	2.83		
			605	0.39		

Forest Ranger Officer
MARSINGHPUR

11	12	13	14	15	16
	Village	Ward	Plot No	Area	Govt. Grant
Narsingpur	Jamadi Pur	192	610	0.20	
			652	0.48	
			498	0.06	
			680	0.06	
			1854	0.05	
			1110	0.13	
			695	0.38	
			771	0.02	
			778	0.09	
			793	0.04	
			673	0.11	
			674	0.11	
			706	0.30	
			704	0.36	
			38	0.83	
			39	0.13	
			40	0.49	
			35	0.12	
			36	0.24	
			37	0.22	
			46	1.40	
	Kanniadeipur	169	534	0.20	
			537	0.04	
			538	0.04	
			539	0.07	
			540	0.07	
			541	0.05	
			542	0.08	
			544	62.88	
	Kandhal	114	1	21.17	
			4	12.58	
			6	5.81	
			1522	0.65	
			1528	2.78	
			989	5.16	
			996	1.66	
			997	0.47	
			1001	0.75	
			993	0.87	
			998	0.49	
			1124/1755	1.60	
			1136/1756	1.85	
			1282/1757	1.83	
			1280/191	0.45	
			1191	2.30	
			1192	26.38	
			1202	15.17	
			1446	0.26	
			1419	0.06	
			1418	0.45	
			1528	0.27	
			1521	0.36	
			1530	16.37	
			1531	1.93	
			1586	2.67	
			1980	0.05	
			1976	0.22	
			1717	2.78	
			72	0.53	
			208	0.06	
			215	0.34	

Forest Ranger Office
NARSINGHPUR

Kensington	Hamilton	city	208	0.11
			1527	0.43
			478/1707	0.15
			478/1945	0.09
			580	0.19
			581	0.21
			813	0.21
			729	0.24
			813	1.17
			707	0.27
			1182	0.60
			1596	0.90
			1710	0.09
			1712	0.21
			1715	0.38
			1082/1924	25.06
			44	0.36
			50	0.52
			54	0.82
			30	0.24
			345	0.83
			562	1.21
			51	0.42
			52	1.70
			44	0.30
			814	0.15
			845	1.53
			860	0.64
			1003	1.14
			1004	1.81
			1013	0.07
			1198	0.33
			1201	0.21
			1093/1963	0.30
			4	0.65
			67	0.38
			41	0.10
			31	0.05
			2	0.96
			8	0.41
			26	0.17
			59	0.02
			814	3.99
			65	0.12
			90	0.09
			91	0.41
			344	0.38
			544	0.44
			568	0.07
			987	0.25
			988	0.52
			732	0.38
			832	0.12
			1181/1904	0.31
			536	0.17
			538	0.12
			544	0.17
			541	0.37
			553	0.25
			546	0.46
			550	0.14
			554	0.23
			543	0.11
			538	0.11
			551	0.07
			535	1.37
			548	0.06

9	12	13	14	15	16	
Nandigaon	Kandhal	119	582	0·29	Govt Grid 33	
			577	0·1		
			576	0·25		
			572	0·32		
			565	0·19		
			571	0·35		
			604	0·46		
			524/1013	0·16		
			494/1150	0·15		
			494/1240	0·07		
			610	0·10		
			611	4·30		
			540	0·38		
			268	0·44		
			569	0·05		
			608	3·67		
			638	0·33		
			641	0·67		
			647	0·56		
			660	0·45		
			661	0·48		
			662	0·21		
			663	0·14		
			673	0·20		
			644	0·23		
			640	0·65		
			654	0·42		
			646	0·25		
			645	0·11		
		1188	747	0·49		
			749	0·13		
			753	0·15		
			754	0·19		
			757	0·13		
			756	0·0		
			750	0·11		
			751	0·13		
			755	0·14		
			768	0·12		
			784	0·16		
			760	0·21		
			761	0·11		
			766	0·12		
			782	0·04		
			783	0·09		
			780	0·06		
			781	0·10		
			825	0·93		
			775	0·09		
			776	0·17		
			779	0·06		
			789	0·06		
			792	0·33		
			796	0·32		
			819	0·63		
			817	0·36		
			736	0·39		
			781	0·35		
			741/1176	0·04		
			1246/1246	0·13		
			1241/1244	0·06		
			859	0·51		
			855	0·27		
			856	0·18		
			857	0·53		
			858	0·31		
			877	0·49		
			908	0·7		
			909	0·13		
			910	0·16		

Bijay Lord
Forest Ranger Officer
BARLINGHPUR

Kendrapai	Kendrapai	114	931	0·07
			950	0·07
			940	0·07
			956	0·56
			972	0·66
			945	0·25
			978	2·67
			1751	0·37
			1730	0·40
			1731	1·36
			1706	0·72
			1702	0·49
			1708	0·48
			1709	2·28
			1715	0·10
			1716	1·15
			56	0·28
			132	0·19
			154	0·32
			155	0·15
			350	0·11
			387	0·05
			692	0·39
			650	0·50
			646	0·30
			648	0·39
			649	0·38
			651	0·26
			652	0·35
			655	0·49
			655	0·40
			656	0·37
			657	0·96
			658	0·35
			659	0·06
			665	0·38
			671	0·09
			774	0·60
			915	0·39
			816	2·61
			817	0·92
			818	0·24
			825	0·45
			874	0·81
			1002	0·42
			1012	1·19
			1018	0·75
			834	1·12
			835	0·35
			839	0·80
			836	0·62
			837	0·29
			842	0·71
			826	2·09
			829	2·73
			881	0·17
			857	0·35
			9801 1747	0·19
			911	1·03
			912	0·98
			920	1·65
			921	0·75
			947	1·70
			941	0·38
			946	0·89

11	12	13	14	15	16
Nandighat	Kendua	114	938	0.67	Govt Orissa
			939	0.12	
			934	0.72	
			933	0.11	
			936	0.16	
			938	0.23	
			939	0.20	
			941	0.93	
			1220	0.16	
			994	1.28	
			965	0.71	
			980	6.05	
			983	0.19	
			986	0.52	
			990	0.51	
			1019	25.65	
			1018	0.06	
			1143	0.38	
			1041	1.31	
			1045	1.52	
			1047	1.39	
			1139	0.83	
			1076	1.80	
			1196	0.39	
			1211	0.04	
			1216	0.87	
			1206	2.60	
			1208	1.81	
			1213	0.03	
			1212	0.08	
			1214	0.43	
			1219	0.08	
			1220	0.03	
			1280	0.16	
			1537	1.07	
			1560	6.77	
			1541	0.28	
			1570	0.35	
			1561	0.33	
			1582	0.49	
			1562	0.16	
			1563	0.01	
			1564	0.83	
			720/1767	0.09	
			721/1766	0.08	
			721/1767	0.10	
			721/1768	0.13	
			721/1769	0.15	
			713/1770	0.12	
			721/1771	0.17	
			720/1772	0.60	
			758/1773	0.23	
			758/1774	0.45	
			758/1776	0.20	
			758/1778	0.20	
			758/1779	0.20	
			759/1798	0.09	
			759/1780	0.10	
			758/1782	0.28	

Forest Ranger Officer
NARSINGHPUR

Narsingpur	Kanhal	114	1037/1161	0·08
			1039/1784	0·63
			1040/1785	1·65
			1037/1762	0·45
			1034/1764	1·34
			1039/1768	0·38
			1039/1759	1·07
			926/1791	0·30
			1038/1801	1·00
		112	152	24·20
			559	15·00
			560	83·93
			561	65·81
	Jaisinghpur	12	46	76·20
			30	825·80
	Barhadpa	3	1	32·38
			29	37·95
	Nilagarh	27	209	0·23
		31	58	0·16
		37	17	0·17
			18	0·10
			37	1·45
			53	0·10
			47	1·62
			62	1·75
			64	0·68
			168	0·45
			129	1·66
			149	0·10
			46	0·28
			88	17·60
			200	0·60
			808/284	2·84
			90	3·63
			223	0·13
			154	38·38
			222	0·84
			229	2·30
			264	0·15
			203	0·10
			243	1·22
			978/284	16·00
			97/282	12·00
			135	0·33
			139/272	8·25
			238/244	6·65
			98/287	0·11
			22	0·14
			23	0·12
			42/267	0·01

1300

Patent Paper Office
NARSINGHPUR

11	12	13	14	15	16
slaughter	Narayanpur	57	20	9.88	Beer Canal
			12	0.17	
			28	1.65	
			84	0.36	
			153	1.75	
			197	0.12	
			203	8.15	
			160/200	0.42	
			4to200	0.21	
	Kanaka	3	4	0.10	
			16	0.38	
			17	0.32	
			43	0.04	
			23	0.02	
		4	70	0.12	
		5	19	0.39	
			15	0.51	
			24	0.08	
			2	1.82	
			25	0.08	
			34	6.10	
			53	0.07	
			60	0.11	
			69	0.02	
			71	0.12	
			80	0.13	
			11	0.20	
			99	4.36	
			3	0.16	
			6	0.03	
			26	0.34	
			31	0.24	
			33	0.12	
			35	1.63	
			36	0.60	
			37	0.87	
			40	0.70	
			43	0.10	
			45	0.82	
			45	0.15	
			52	0.62	
			54	0.64	
			58	0.05	
			81	0.12	
			86	5.20	
			89	12.08	
				2.03	
	Benipatkar	25	2	1.32	
			49	0.24	
			7	0.06	
			8	0.80	
			10	1.18	
			15	0.55	
			16	6.14	
			46	0.90	
			48	0.10	
			11	1.60	
			12	0.53	
			14	0.36	
			44	0.14	
			124	0.20	

Forest Range Offr...
NARSINGHPUR

Narsinghpur	Pachpathar	RD	168	0·60		
			47	0·06		
			62	0·62		
			100	0·05		
			2/177	0·38		
			190	37·47		
			41	0·43		
			6	2·56		
			161	2·73		
			24	0·70		
			107	0·23		
	Chhindgaon	89	434	10·06		
			439	6·98		
			820	49·19		
		91	1	14·90		
			4	28·28		
			284	0·30		
			286	1·42		
			256	0·55		
			288	1·26		
			238	1·16		
			341	0·49		
			432	0·21		
			461	0·05		
			462	0·06		
			617	0·06		
			908	3·61		
			878	0·20		
			883	20·55		
			636	0·14		
			670	8·83		
			804	1·36		
			806	1·15		
			809/731	3·83		
			812	1·60		
			818	25·22		
			820/735	21·06		
			823	35·60		
			829	1·85		
			852	0·65		
			853	6·73		
			834/939	0·29		
			850/903	0·60		
			888	0·60		
			6/896	0·31		
			5	1·68		
			10	4·88		
			14	0·88		
			26	0·40		
			27	4·41		
			34	1·08		
			41	2·36		
			53	0·67		
			57	0·11		
			814	0·44		
			209	0·31		
			282	0·05		
			283	0·60		
			285	0·34		
			339	0·44		
			364	0·23		

11	12	13	14	15	16
Narsinghpur	Chatarapada	91	359/910	0.39	Govt. Grass
			859.	0.13	
			860	0.23	
			861	0.38	
			939	0.48	
			940	0.26	
			941	0.33	
			942	0.46	
			943	0.13	
			944	0.05	
			945	0.26	
			947	0.92	
			3359	0.39	
			3960	0.05	
			1/3	0.39	
			108	0.36	
			109	0.69	
			92	0.19	
			93	0.38	
			96	0.92	
			96	0.13	
			97	11.99	
			100	19.13	
			102	1.74	
			106	3.36	
			79	2.94	
			81	6.42	
			84	16.83	
			91	4.09	
			86	2.52	
			87	0.01	
			89	0.35	
			75	0.85	
			57	0.39	
			64	0.83	
			65	2.33	
			73	3.70	
			2	2.83	
			36/859	9.33	
			882	2.14	
			891	0.64	
			893	1.14	
			24	0.48	
			639	0.03	
			646	0.08	
			32	1.15	
			687	0.11	
			688	0.14	
			33	0.82	
			31	0.17	
			8/14	0.04	
			836	0.27	
			70	0.14	
			72	0.72	
			74	1.31	
			76	0.63	
			815	1.23	
			106	0.32	
			77	0.14	
			98	0.34	
			99	0.83	
			103	2.83	
			114	0.04	

Forest Ranger Offi...
NARSINGHPUR

Nagaghat	Champapada	91	115	0·07		
			116	0·29		
			117	0·06		
			357	0·24		
			358	0·24		
			359	0·35		
			360	0·33		
			363	0·30		
			364	0·35		
			368	0·16		
			369	0·18		
			370	0·21		
			371	0·32		
			372	0·29		
			373	0·30		
			374	0·22		
			375	0·19		
			376	0·28		
			377	0·33		
			378	0·32		
			379	0·19		
			380	0·61		
			381	0·15		
			382	0·20		
			383	0·13		
			384	0·14		
			1/1401	0·12		
			1149	0·13		
			1150	0·21		
			5·51	0·08		
			5·52	0·05		
			605	0·18		
			606	0·07		
			617	0·05		
			618	0·14		
			619	0·36		
			621	0·09		
			625	0·25		
			627	0·15		
			628	0·13		
			61	0·05		
			62	0·31		
			11	0·57		
			8/306	0·35		
			15	0·60		
			68	0·18		
			399/1M	602·00		
			399	0·15		
			35	0·39		
			401/399	0·39		
			397/398	0·25		
			824/398	0·24		
			824/392	0·27		
			11	0·31		
			13	0·14		
			396	2·10		
			402	0·42		
			403	0·26		
			404	0·18		
			399	0·28		
			399/1M	0·38		
			726	0·30		
			1/1403	0·31		
			801	0·38		
			803	0·29		

11	12	13	14	15	16	
[illegible]	Pobbathiya	234	1123	2.25	Geol: Gneiss	
		235	1142	54.00		
				0.06		
	Kotawaththa	174	523	0.06		
			524	0.08		
			534/775	0.15		
			2975			
	Kanna Oya Para	118	30	0.64		
	Jayaruwa	559	845	15.36		
				14.30		
	Hatiyapola	99	1	0.03		
			2	0.01		
			5			
		101	31	0.83		
			32	0.03		
			33	0.03		
			34	0.04		
			42	0.01		
			62	0.13		
			174	0.03		
			154	0.05		
			46/977	0.12		
			46/682	0.17		
			67	0.02		
			2284	0.15		
			171	0.16		
			176	0.03		
			175	0.13		
			184	0.06		
			190	0.02		
			135	0.05		
			128	0.03		
			137	0.07		
			124	0.29		
			198	0.02		
			139	0.03		
			148	0.03		
			149	0.18		
			145	1.07		
			167	8.25		
			168	0.13		
			169	0.02		
			178	0.01		
			179	0.02		
			199	0.03		
			203	0.05		
			245	0.01		
			229	0.07		
			234	0.01		
			235	0.01		
			248	0.02		
			296	0.02		
			449	0.02		
			453	0.02		
			457	0.04		
			458	0.10		
			467	0.13		
			478	0.08		
			487	0.04		
			552	0.18		
				0.16		

Kesarsingh Pur	Vaishnapali	101	576	0.03		
			471	0.04		
			460	0.01		
			462	003		
			474	0.03		
			1185	0.09		
			1468	0.02		
			1498	0.05		
			1491	0.05		
			590	0.06		
			560	0.02		
			99/881	0.07		
			561	0.12		
			166/691	0.23		
			52	0.02		
	Kanwa Chandrapur	116	160	15.00		
			249/179	0.04		
			160/185	0.32		
			160/172	0.30		
			160/169	0.08		
			160/181	0.11		
			36	0.19		
			17	0.12		
			27	0.12		
			158	0.17		
			20	1.20		
	Rangpur Mehra	176	309	2.05		
			418/810	0.03		
			761/810	0.07		
	Madhavpur	71	494	9.38		
	Bhagyapurwadi	27 (140)	1	28.03		
		39	218	0.02		
			1/368	5.95		
			1/390	1.27		
	Gopalmadhapur	139	1	0.60		
	Adbhagwadi	5 41	6	0.46		
			1678	0.12		
	Bhatiadeha	129	1679	0.42		
			1/1223	0.98		
			1161/1222	0.20		
			205	0.03		
			39	0.03		
			641	0.04		
			668/1270	0.03		
			32	0.03		
			1478	0.02		
			3/1245	0.05		
	Nandapali	178	21	0.78		
			24	0.18		
			4	0.57		
			11	9.36		
			712	0.14		
			90	0.35		
			41	1.53		

Forest Range Officer
MARSINGHPUR

11	12	13	14	15	16	
Narsinghpur	Kanhupalli	178	51	0·63	Good crop	
			57	1·99		
			54	0·36		
			25	1·57		
			37	0·89		
			40	1·57		
			25	1·63		
			27	0·83		
			21	0·24		
			32	0·06		
			223	0·25		
			227	0·83		
			247	0·77		
	Jhadtarai		248	2·59		
		776	504	0·10		
			620	0·02		
			626	0·03		
			727	0·04		
			728	0·03		
			1873	0·02		
			904	0·08		
			127	1·33		
			2466	0·03		
			2492	0·24		
			2915	0·03		
			2719	0·05		
			1363	0·27		
			2417	0·24		
		779	5035	0·96		
			661	0·30		
			662	0·37		
			683	0·30		
			691	11·88		
			1054	2·16		
			1111	4·50		
			1116	0·65		
			1129	0·05		
			1968	0·30		
			5177	0·13		
			5217	1·16		
			5245	0·52		
			79	1·18		
			80	6·02		
			127	0·63		
			173	2·16		
			249	0·24		
			257	6·52		
			268	0·31		
			303	1·15		
			430	0·04		
			394	4·53		
			696	5·15		
			716	3·29		
			886	0·93		
			889	0·11		
			894	0·32		
			972	0·28		
			1077	0·94		
			4952	0·05		
			1983	0·36		
			4966	0·31		
			4976	0·11		

Forest Ranger Office
NARSINGHPUR

Jeypore	Jeypore	579	4714	0·11
			4931	0·56
			12	5·57
			13	2·76
			57	1·23
			71	0·27
			2058	1·75
			712	0·29
			713	0·05
			714	0·09
			102	0·03
			N14	0·02
			121	0·79
			87	0·64
			100	0·09
			115	0·57
			116	0·11
			117	0·08
			118	0·16
			120	0·26
			2136	0·06
			2137	0·21
			53	0·03
			54	0·01
			111	0·18
			112	0·12
			113	0·14
			114	0·09
			101	024
			683	0·70
			239	0·36
			2147	0·38
			711	0·65
			52	0·07
			103	0·28
			5240	0·03
			2136	0·31
			2147	0·29
Kavikhani	149		914	0·08
Bahada	389		700	0·01
			1406	283·30
			1878	1·26
			1818	1·62
			1380	1·66
			13.83	4·22
			1879/2148	2·38
			1389	1·73
			1390	1·76
			1	43·00
			462	0·16
			1466	0·25
			1467	0·27
			1468	0·37
			1453	0·10
			1462	0·82
			1411	0·68
			1460	0·30
			1475	0·92
			1469	0·16
			1462	0·11
			68	0·10
			1432	0·02
			1453	0·04

Deputy Conservator
Forest Working Officer
BARSINGHPUR

11	12	13	14	15	16	
Narsinghpur	Kalisakri	125	767	0.074	Gramya jungle	Govt-land
			713	0.07	"	
			414	0.04	"	
			309	0.02	"	
			554	0.05	"	
			558	0.05	"	
			562	0.04	"	
			493	0.05	"	
			495	0.03	"	
			491	0.03	"	
			929	0.07	"	
			287	0.03	"	
			293	0.02	"	
				51.58	"	
	Kanagarh	279	14	2.80	"	
			79	4.37	"	
			19	0.99	"	
			22	1.13	"	
			52	36.32	"	
			46	51.93	"	
			56	0.94	"	
			61	1.68	"	
			63	1.02	"	
			64	0.27	"	
			68	57.70	"	
			47	146.95	"	
			7	0.21	"	
			12	0.29	"	
			25	0.08	"	
			26	0.06	"	
			10	0.13	"	
			29	0.25	"	
			28	0.16	"	
			32	0.12	"	
			27	0.08	"	
			30	0.30	"	
			13	0.08	"	
			20	0.08	"	
			31	0.20	"	
			14	0.52	"	
			32	0.25	"	
			15	1.13	"	
			33	0.28	"	
			16	0.90	"	
			34	0.07	"	
			17	0.30	"	
			18	0.54	"	
			35	0.26	"	
			37	0.15	"	
			36	0.64	"	
			37	0.18	"	
			38	0.20	"	
			40	0.75	"	
			42	0.66	"	
			503/1838	0.04	"	
			52	0.14	"	
			53	0.74	"	
			147	146.93	"	
			75/1903	0.90	"	
			75	2.53	"	

Forest Ranger Officer
NARSINGHPUR

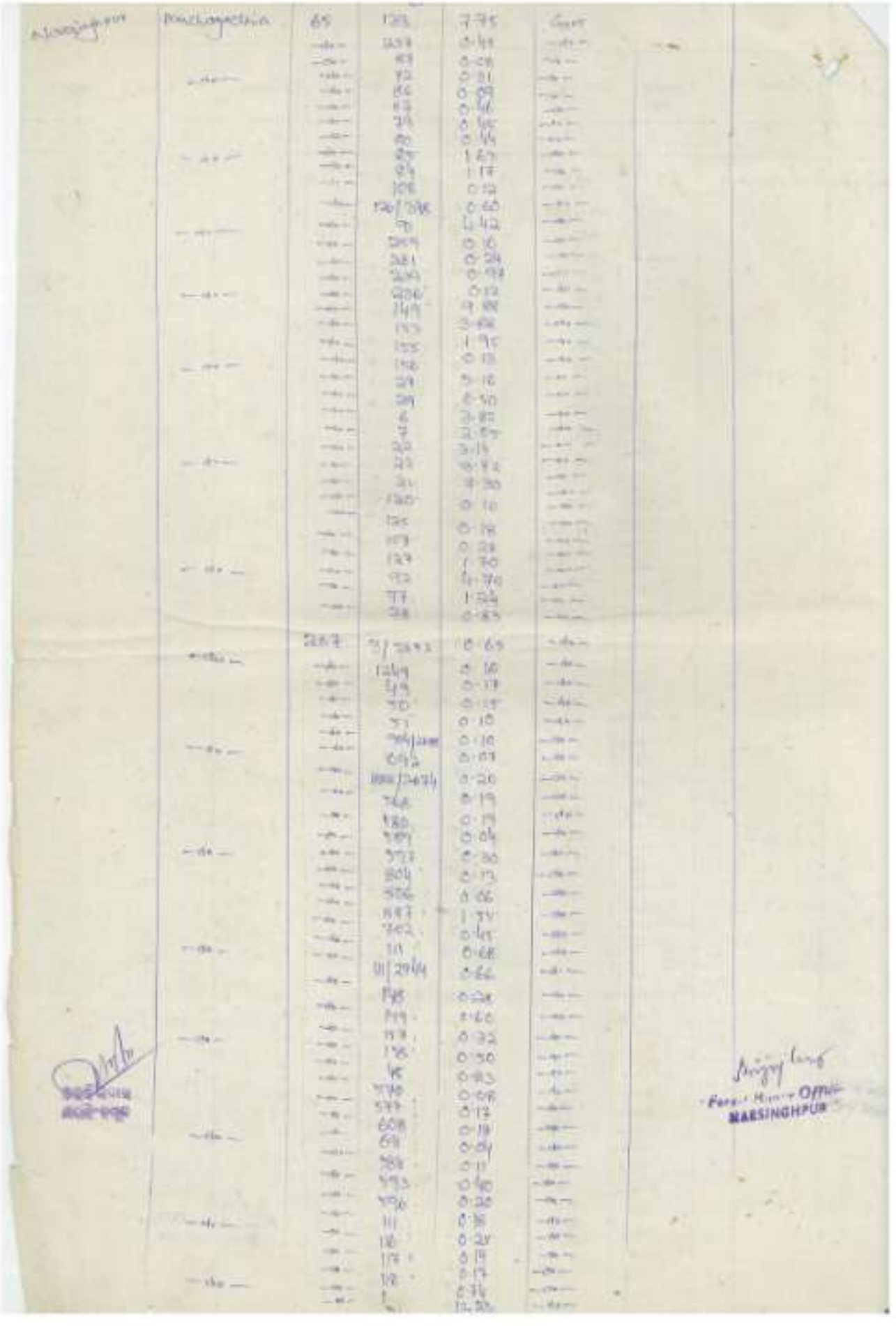
1132

Colloon Range 267

Forest Ranger Officer
MARSINGHPUR

Taluka	village	Khasra No	Plot No	Area in Hect	Govt /	Private
11	12	13	14	15	16	
Akkalkuwa	Kachargaon	63	247	1.00		
			245/249	3.20		
			260	2.09		
			309	63.13		
			311	2.96		
			312	6.14		
			248	0.10		
			249	6.42		
			318	0.56		
			334	36.13		
			332	1.48		
			134/351	5.10		
			66	0.87		
			64	6.65		
			359	0.20		
			19/337	9.80		
			309/308	3.62		
			260	72.13		
			148	4.10		
			172	11.90		
			154	16.43		
			1	154.86		
			2	235.79		
			4	162.66		
			7	0.53		
			5	0.29		
			13	0.98		
			14	0.43		
			15	0.20		
			315	1.20		
			17	1.26		
			18	0.40		
			19	138.76		
			20	92.98		
			24	4.11		
			25	14.58		
			26	4.16		
			30	1.80		
			31	2.35		
			259	0.10		
			256	0.08		
			214	1.07		
			33	25.38		
			34	29.25		
			42	43.79		
			41	8.20		
			46	5.52		
			48	4.52		
			50	2.12		
			49	8.91		
			129/342	0.92		
			29	8.48		
			20	8.26		

Forest Range Officer
NANDURBAR


Forest Nursery Office
NARSINGHPUR

11	12	13	14	15	16
[illegible]	Punchagotia	3667	6	1·21	9049
		—do—	7	0·60	—do—
		—do—	199	0·37	—do—
		—do—	650	0·11	—do—
		—do—	119	0·13	—do—
		—do—	685	1·57	—do—
		—do—	280	0·64	—do—
		—do—	505	0·96	—do—
		—do—	687	1·39	—do—
		—do—	678	0·98	—do—
		—do—	178	1·18	—do—
		—do—	159	0·69	—do—
		—do—	135	0·80	—do—
		—do—	152	1·36	—do—
		—do—	67	2·58	—do—
		—do—	5/2669	0·33	—do—
		869	1209	0·64	—do—
		—do—	2678	0·15	—do—
		—do—	1878	0·45	—do—
		—do—	1129	0·70	—do—
		—do—	930	0·64	—do—
		—do—	1855/2689	0·42	—do—
		—do—	255	0·31	—do—
		—do—	2956	2·32	—do—
		—do—	261	0·10	—do—
		—do—	209	0·83	—do—
		—do—	1890	0·93	—do—
	Punchagotia	139	139/381	1·22	
		—do—	154/1052	1·35	
		—do—	154/1483	1·62	
		—do—	170/2815	0·92	
		—do—	158/1659	1·75	
		—do—	148	1·12	
		—do—	144	0·68	
		—do—	184	0·24	
		—do—	106	0·59	
		—do—	141	0·46	
		—do—	192	0·38	
		—do—	130	3·48	
		—do—	92	0·22	
		—do—	179	2·66	
		—do—	1	130·68	
		—do—	34	1·41	
		—do—	16	0·94	
		—do—	15	0·42	
		—do—	11	3·02	
		—do—	54/387	0·30	
		—do—	54/1388	0·16	
		—do—	31	0·49	
		—do—	24/2815	0·34	
		—do—	36/2872	0·22	
		—do—	18	1·16	
		—do—	93	0·33	
		—do—	36/96	0·28	
		—do—	43/370	0·18	
		—do—	149	1·48	

Forest Range Officer
NARSINGHPUR

Kasaragod	Baraka	139	364/1346	0·66		
		139	160/163	0·59		
			51	2·10		
			63	1·28		
			91	0·34		
			162	4·20		
			60	1·16		
			28	3·30		
			22/374	0·38		
			67	0·18		
			291/297	0·58		
			28/37	0·10		
			24/302	0·42		
			72	0·04		
			73	0·12		
			76	0·89		
			75	0·30		
			76	0·09		
			163/361	3·94		
			78	1·22		
			79	1·89		
			81	0·98		
			83	0·20		
			86	0·08		
			80	0·98		
			87	0·30		
			129	0·20		
			24/398	0·10		
			27/399	0·26		
			329/395	0·20		
			47/49	0·38		
			149	0·38		
			148	0·29		
			165	0·10		
			169	3·67		
			169/396	1·35		
			131	5·80		
			133	0·58		
			134	18·78		
			165	5·12		
			166	0·57		
Kasaragod		258	259	0·19		
			258	0·42		
			2088	0·17		
			1133	0·63		
			1131	0·96		
			1123	0·34		
			243	0·61		
			1119	2·46		
			162	0·16		
			306	0·18		
			313	0·12		
			1139	0·13		
			1137	1·84		
			496	0·15		
			303	0·18		
			329	0·24		
			302	0·17		
			1100	0·53		
			418	0·28		
			164	0·09		
			449/396	0·42		
			3848	0·33		
			2113	0·32		
			2119	0·24		
			277	0·11		
			272	0·18		
			353	0·09		

Forest Range Officer
KASARAGOD

11	12	13	14	15	16	
Marsingipet	Pambhanna	492	2197	0.06	Jungle	Govt Land
			3140	0.10	"	
			3141	0.05	"	
			3151/3147	0.61	"	
			2507/3148	0.57	"	
		3048	3223/3149	0.19	"	
			94	0.16	"	
			36	0.69	"	
			79	0.60	"	
			63	0.35	"	
			61/3150	0.18	"	
			31	87.55	"	
			36	10.51	"	
			66	16.58	"	
			3134	90.63	"	
			3167	0.05	"	
			1	36.41	"	
			37	0.03	"	
			1161	127.60	"	
			987	6.60	"	
			980/3160	4.86	"	
			1169	80.29	"	
11	Kasarlatta	69	315	0.47	"	
			328	0.10	"	
			180	0.19	"	
			181	0.30	"	
			98	0.18	"	
			156	0.20	"	
			191	0.32	"	
			118	0.96	"	
			191	0.34	"	
			158	0.32	"	
			169	0.09	"	
			160	0.06	"	
			161	0.02	"	
			162	0.10	"	
			163	0.09	"	
			132	0.32	"	
			1154	0.62	"	
			134	0.36	"	
			143	0.31	"	
			142	0.67	"	
			146	0.16	"	
			147	0.65	"	
			149	0.09	"	
			1141	0.11	"	
			195	2.82	"	
			162	0.44	"	
			167	1.08	"	
			163	0.60	"	
			2	0.315	"	
			3	0.86	"	
			4	0.38	"	
			5	0.42	"	
			1	180.60	"	
			89	0.93	"	
			104	0.65	"	
			117	0.33	"	
			34	0.54	"	
			39	0.42	"	
			127	0.24	"	

Forest Range Officer
MARSINGIPET

Narsinghpur	Kailash	69	138	0.02	Jungle
			75	0.30	"
			96	0.16	"
			1926	0.38	"
			136	0.47	"
			79	0.20	"
			92	0.15	"
			199	0.02	"
			123	0.26	"
			80	0.20	"
			91	0.14	"
			184	0.20	"
			142	0.53	"
			51	0.28	"
			99	0.17	"
			1021	0.22	"
			101	0.27	"
			92	0.30	"
			94	0.10	"
			110	0.26	"
			141	0.61	"
			83	0.35	"
			93	0.28	"
			185	0.20	"
			88	14.88	"
			5283	0.21	"
			5220	0.29	"
			5211	0.36	"
			93	0.12	"
			109	0.60	"
			116	0.10	"
			111	0.76	"
			112	0.37	"
			120	0.32	"
			121	0.10	"
			137	0.59	"
			95	0.14	"
			118	0.28	"
			136	0.60	"
			134	0.46	"
			96	0.15	"
			113	0.20	"
			148	0.68	"
			103	0.46	"
			105	0.32	"
			114	0.23	"
			91	0.29	"
			116	0.26	"
			130	0.03	"
			125	0.66	"
			249/277	0.36	"
			47/282	1.03	"
			457	138.40	"
			214	0.19	"
			373	0.09	"
			345	0.03	"
			80/105	0.16	"
			213/736	0.20	"
			8m/730	1.63	"
			213/723	0.39	"
			213/724	0.22	"

Range Officer
Forest Div. Office
NARSINGHPUR

(7)

11	12	13	14	15	16	
Nanoungkpo	Satyrgaigpo	68	4183	1.59	Jungle	Sandstone
			390	0.86	"	
			852	0.67	"	
			569	0.20	"	
			931	1.95	"	
			410	0.21	"	
			689	0.16	"	
			1686/751	0.21	"	
			492	0.42	"	
			493	0.63	"	
			494	0.34	"	
			634	0.10	"	
		71	1	445.00	Thick Jungle	
			9	34.69	"	
			11	20.04	"	
			53	2.62	"	
			002	144.17	"	
			931	9.13	"	
			185/193	14.85	"	
			859/918	444.28		
			462/959	0.33	"	
			700	1.06	"	
			696	0.84	"	
			697	0.05	"	
			698	0.158	"	
			701	1.42	"	
			682	1.05	"	
			675	0.23	"	
			673	0.05	"	
			674	0.20	"	
			768/697	1.12	"	
			356	0.51	"	
			357	0.56	"	
			116	0.38	"	
			117	0.19	"	
			4	2.35	"	
			355	1.44	"	
			677	0.14	"	
			679	0.03	"	
			1803/1867	1.97	"	
			721/748	0.20	"	
			637/740	0.24	"	
			1074/1865	2.41	"	
			706	0.10	"	
			696	0.39	"	
			680	0.60	"	
	Pairo Rajenda	364	3	116.35	Thick Jungle	Mixed Land
			11	0.22	"	
			13	0.63	"	Forest Range Office MARING
			16	0.16	"	
			18	2.16	"	
			19	0.481	"	
			21	9.171	"	
			25	4.09	"	
			36	198.61	"	
			64	1.12	"	
			66	0.21	"	

Kaccomopsis Pathrecogena	354	93	0.12	Patra Jurnyee	
		96	0.08	"	
		85	0.62	"	
		89	1.10	"	
		99/2824	0.30		
		131	0.92	"	
		193/2827	0.49	"	
		138	0.04	"	
		143	0.60	"	
		153	54.650	"	
		193	0.06	"	
		134	0.46	"	
		135	0.06	"	
		136	0.72	"	
		140	1.99	"	
		142	0.63	"	
		1414	0.46	"	
		1445	0.107	"	
		97/2899	1.170	"	
		177	15.94	"	
		93	1.11	"	
		328	1.19	"	
		204/2875	3.35	"	
		206/2878	0.32	"	
		316	0.39	"	
		319	0.75	"	
		320	0.38	"	
		321	0.92	"	
		325	0.60	"	
		326	0.11	"	
		335	0.82	"	
		337	0.93	"	
		347	0.04	"	
		360	0.71	"	
		3691	4.19	"	
		4128	0.16	"	
		434	0.03	"	
		435	0.03	"	
		439	0.37	"	
		434	0.18	"	
		435	0.80	"	
		436	0.13	"	
		576	0.114	"	
		587	0.11	"	
		444	6.06	"	
		449	0.90	"	
		460	0.12	"	
		461	0.02	"	
		452	0.06	"	
		235	1.69	"	
		237	0.04	"	
		238	0.05	"	
		239	0.29	"	
		246	0.32	"	
		242	0.40	"	
		243	0.32	"	
		244	0.07	"	
		248	0.14	"	
		246	0.04	"	
		247	0.10	"	
		249	0.30	"	
		250	6.65	"	

Angry Lung
Forest Range Officer
NARSINGHPUR

11	12	13	14	15	16	
Navasotaglen	Parkersgade.	349	358	1.13	Parker Jacobsgade	Gellerupvej.
			359	0.80		
			368	1.07		
			380	0.04		
			389	1.22		
			434	0.10		
			435	0.60		
			460	0.42		
			462	0.85		
			463	0.38		
			464	0.42		
			466	0.08		
			468	0.34		
			470	0.38		
			471	0.40		
			473	1.46		
			478	0.43		
			479	0.32		
			480	0.09		
			486	0.32		
			551	0.01		
			578	0.12		
			596	0.32		
			643	0.66		
			644	0.84		
			646	0.38		
			708	0.16		
			710	0.22		
			713	0.11		
			711	0.65		
			712	0.19		
			736	0.08		
			862	0.38		
			869	0.55		
			870	0.18		
			1150	0.09		
			1151	0.25		
			1152	0.12		
			1155	0.51		
			1345	0.34		
			1536	0.18		
			1537	0.04		
			1538	0.17		
			1539	0.18		
			1550	0.52		
			546	0.36		
			534	0.66		
			542	0.42		
			1547	0.50		
			1570	0.36		
			1596	0.34		
			1598	0.36		
			1586	0.51		
			1582	0.94		
			1580	0.56		
			1585	0.32		
			1588	0.18		
			1589	0.40		
			1594	0.50		
			1595	0.18		
			1631	0.96		
			1659	0.56		
			1653	0.38		
			236	0.51		
			243	0.64		
			688	0.68		

Nanacaphor	Pauka-gadi	359	1656	1.96	Rakesh Singh
			1657	0.16	
			1658	0.16	
			1659	1.67	
			1660	0.18	
			1661	0.30	
			1662	1.64	
			1663	0.85	
			1664	0.18	
			1665	1.19	
			1666	0.35	
			1667	0.31	
			1668	0.30	
			1669	0.42	
			1670	0.12	
			1671	0.53	
			1672	0.45	
			1673	0.55	
			1674	0.80	
			1675	0.68	
			1676	0.30	
			1677	0.10	
			1678	0.42	
			1679	0.62	
			1680	0.78	
			1681	0.49	
			1682	0.12	
			1683	0.28	
			1684	0.38	
			1685	0.35	
			1686	0.38	
			1687	0.07	
			1688	0.08	
			1689	2.16	
			1690	0.88	
			1691	0.13	
			1692	1.06	
			1693	5.56	
			1694	0.02	
			1695	0.19	
			1696	0.35	
			1697	0.84	
			1698	0.85	
			1699	0.12	
			1700	0.15	
			1701	0.16	
			1702	0.08	
			1703	7.40	
			1704	0.09	
			1705	0.80	
			1706	3.58	
			1707	3.65	
			1708	1.12	
			1709	1.08	
			1710	0.12	
			1711	0.38	
			1712	0.08	
			1713	0.08	
			1714	0.18	
			1715	1.89	
			1716	1.62	
			1717	0.58	
			1718	0.09	

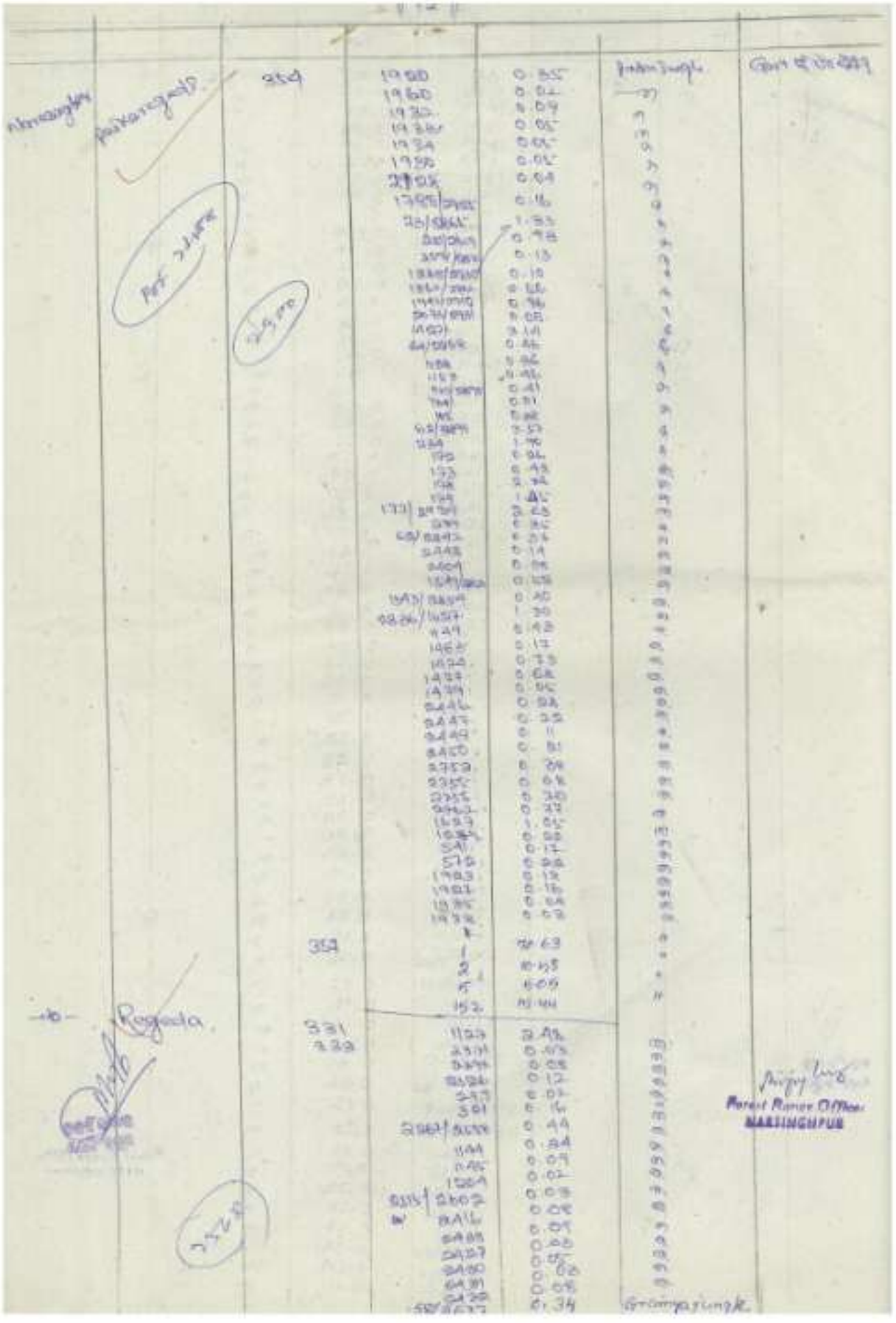
2.355

24 mc

2.4 cy

Forest Range Officer
MARSINGHPUR

11	12	13	14	15	16	
		364	A91	0.25	Jungle	Good Crop
			11.56	0.42		
			1690	1.88		
			1691	0.84		
			1679	0.84		
			1693	0.56		
			1741	0.14		
			1966	0.28		
			A90	0.11		
			A96	0.28		
			83	0.18		
			1157	0.07		
			1661	0.98		
			1662	0.14		
			1245	0.14		
			2346	0.10		
			2332	0.98		
			1411	1.82		
			2098	1.05		
			1417	0.98		
			A60	0.84		
			A03	0.21		
			1603	0.35		
			1610	1.40		
			1611	0.56		
			1630	0.42		
			1602	0.42		
			1359	0.67		
			1795	1.16		
			1825	0.82		
			1629	0.10		
			1233	0.84		
			1581	0.34		
			86	0.28		
			87	0.15		
			89	0.10		
			1539	0.56		
			1539	1.40		
			1519	0.98		
			1224	0.30		
			1766	0.28		
			1758	0.40		
			1787	0.69		
			1239	0.16		
			1749	0.61		
			1242	0.07		
			1245	0.69		
			1248/SAW	0.76		
			A166/SAW	0.12		
			1528	0.16		
			1551	0.14		
			1534	0.98		
			79/SAW	1.05		
			A49/SAW	0.05		
			1919/1968	0.16		
			1135/SAW	0.28		
			843	0.05		
			245	0.85		
			801	0.32		
			789	0.50		
			1131	0.56		
			913/SAW	0.35		
			3038922	0.04		
			1986	0.11		


Forest Ranger Officer
NARSINGHPUR

11	12	13	14	15	Growth	Growth Chains
Nonsingpur	Regedm	233	5432	0.52		
			5434	0.46		
			5435	0.32		
			5436	0.66		
			5437	0.06		
			5476	0.68		
			5404	0.19		
			5499	1.36		
			0551	0.38		
			5334	0.57		
			5334	1.04		
			5321	1.07		
			5317	0.11		
			5305	0.85		
			5345	0.14		
			5343	0.57		
			1745	0.44		
			1809	0.15		
			1805	0.81		
			1801	0.50		
			1355/3373	0.15		
			1284/3434	0.11		
			3419	0.87		
			3252/3377	0.11		
			1138/2014	0.10		
			1133/2535	0.85		
			1134/3376	0.06		
			3303/3498	0.09		
			3313/3497	0.04		
			1751	0.98		
			1340	0.13		
			1439	0.64		
			339	0.35		
			1763	0.15		
			367	0.04		
			635	0.09		
			1054	0.18		
			1172	0.03		
			3484/3860	0.86		
			3503/3890	0.04		
			8983	0.03		
do-1	TALASAHI	134	1395	0.68		
		86	151	0.03		
			80/440	1.18		
			1	15.49		
			2	14.64		
			3	16.36		
			4	11.83		
			5	0.15		
			6	1.80		
			7	0.08		
			8	0.03		
			9	0.03		
			10	0.01		
			11	0.14		
			12	0.13		
			13	0.08		
			14	0.10		
			90	0.59		
			80	0.33		
			78	18.75		
			83	0.80		
			76	1.32		
			74	0.01		
			75	0.17		
			89	0.36		
			119	0.38		
			120	0.39		
			121	0.21		
			122	0.12		
			851	0.13		
			7241	0.06		
			306	0.23		
			307	1.10		

Range Officer
NARSINGHPUR

Nowshimghat	Nazigaon.	86	389	0·13	Sakamya Gurgaon.	
			316	0·28		
			311	0·96		
			312	0·09		
			313	0·65		
			318	0·16		
			320	0·26		
			321	0·80		
			315	0·52		
			316	0·04		
			317	1·54		
			327	1·98		
			322	0·25		
			323	0·73		
			369	0·21		
			389	0·24		
			385	1·68		
			405	0·15		
			408	2·09		
			414	0·46		
			416	15·30		
			403	6·12		
			404	0·12		
			428	0·14		
			424	2·48		
			412	0·46		
			411	0·31		
			406	2·04		
			426	24·93		
			429	25·00		
			436	0·38		
			446	0·33		
			447	0·18		
			448	1·48		
			449	0·57		
			434	0·03		
			465	0·27		
			472	0·44		
			473	0·23		
			463	1·06		
			469	0·28		
			487	0·77		
			488	0·22		
			542	0·66		
			629	4·27		
			630	1·40		
			809	3·29		
			878	5·36		
			836	0·05		
			849	0·38		
			736	0·38		
			127	5·40		
			910	1·46		
			352	0·07		
			387	0·34		
			893	0·11		
			264/367	0·12		
			291	0·40		
			295	0·29		
			320	0·38		
			501	0·32		
			323	0·04		
			299	0·09		
			131	0·29		
			117	4·91		
			125	0·86		
			526	0·20		
				0·63		

2443

2300

1371

Forest Ranger Officer
NARSINGHPUR

	Village	Khasra no.	Plot no.	Area	Crops	
Ahmadgarh	Ahmadgarh	86	560	0.16	Grazing land	Govt. Land
			561	0.24	"	
			562	0.41	"	
			563	0.24	"	
			564	0.21	"	
			570	0.16	"	
			574	0.24	"	
			577	0.27	"	
			578	0.29	"	
			579	0.25	"	
			580/901	0.33	"	
			581	0.49	"	
			583/588	0.96	"	
			585/1589	0.25	"	
			590/1180	0.63	"	
			518	0.20	"	
			594/600	0.18	"	
			595	0.44	"	
			615	0.81	"	
			491/1185	0.98	"	
			877	0.01	"	
			124/1189	0.30	"	
			138/1231	0.73	"	
			192/1093	0.17	"	
			1215	0.86	"	
			911	0.49	"	
			206	0.41	"	
			1771	0.07	"	
			917	0.07	"	
			541	0.12	"	
— " —	Chikanbhandi	139	1432	0.20	"	
			1446	0.31	"	
			1824	0.60	"	
			1828	0.30	"	
			1813	0.18	"	
			1619	0.15	"	
			1620/1998	0.59	"	
			1900	1.28	"	
			1964/1969	1.49	"	
			930	0.138	"	
			972	0.03	"	
			946	0.10	"	
			921	0.06	"	
			189	0.39	"	
			1015	0.70	"	
			1016	0.46	"	
			999/1963	0.17	"	
			1006/1961	0.23	"	
			1836	1.80	"	
			1837	0.33	"	
			1530	0.03	"	
			1533	1.26	"	
			999/1968	0.78	"	
			1001	1.12	"	
			1005	0.24	"	
			1068	0.84	"	
			1007	0.79	"	
			1064/1972	1.25	"	
			1002	0.66	"	
			1065/1982	0.08	"	
— " —	Mandhanda	123	1670/1166	0.19	"	
			982	0.05	"	
			1055	0.43	"	
			840	0.08	"	
			60	0.12	"	
			999	0.10	"	
			41	0.29	"	
			1131/1166	0.08	"	
			107	0.10	"	

Nani Ghati	Mangania	123	1046/1161	0·23	Source Google
			703	0·01	
			831	0·06	
			713	0·05	
			796	0·06	
			594	0·03	
			802	0·08	
			609	0·04	
			680	0·04	
			2812	0·01	
			585	0·01	
			2814	0·01	
			584	0·01	
			08	0·03	
			1118	0·09	
			2818	0·15	
			2817	0·8	
			2811	0·07	
			2781	0·04	
			728	0·10	
			731	0·05	
			771	0·03	
			736	0·02	
	Sonagir	175	981	0·19	
			898	0·18	
			892	0·04	
			874	0·04	
			898	0·02	
			1202	0·04	
			1206	0·04	
			1207	0·07	
			1208	0·06	
			1213	0·31	
			2364	0·14	
			2435	0·12	
			2813	0·14	
			2364	0·03	
			2433	1·24	
			2431	0·68	
			2436	0·10	
			2437	0·03	
			2562	0·08	
			2563	0·07	
			2801	0·35	
			2803	0·24	
			2805	0·19	
			2807	0·07	
			2809	0·11	
			2810	0·31	
			2811	0·24	
			2812	0·09	
			2813	0·06	
			2814	0·03	
			2815	0·38	
			2816	0·33	
			2824	0·28	
			2828	0·72	
			2829	0·13	
			2865	0·03	
			2866	0·75	
			2838	0·11	
			534/2665	0·09	
			853/2666	0·59	
			2832	0·63	
			653	0·32	
			2857	0·03	
			2858	0·03	
			2865	0·09	
				0·17	

Forest Range Officer
BARSINGHPUR

11	12	13	14	15	16	
Mahanadi Par	Chasinga	245	1012	0.08	Grazing Ground	Forest Office
			2024	0.04	"	
			1719	0.28	"	
			1727	0.03	"	
			1912	0.09	"	
			1815	0.08	"	
			1617	0.07	"	
			1826	0.06	"	
			1732	0.05	"	
			1734	0.09	"	
			1902	0.35	"	
			1903	0.10	"	
	Jagannathpur	127	378	0.02	"	
			4	0.12	"	
			958	0.04	"	
			251	0.15	"	
			252	0.25	"	
			289	1.62	"	
			290	0.02	"	
	Bengal Khol	131	227	0.05	"	
			228	0.20	"	
			294/298	0.05	"	
			913	0.03	"	
			908	0.37	"	
			203	0.19	"	
			693	0.05	"	
			699	0.04	"	
			253	0.08	"	
			911/915	0.19	"	
	Jagannagpur	125	35	0.01	"	
			59	0.02	"	
		89	262	0.01	"	
	Mandmanda	181	749	0.05	"	
			814/1020	0.07	"	
			911/1021	0.05	"	
			719/1022	0.03	"	
			951/1031	0.04	"	
			818	0.36	"	
			643/1049	1.10	"	
			908	0.25	"	
			909	0.18	"	
			910	0.20	"	
			911	0.17	"	
			912	0.11	"	
			913	0.05	"	
			914	0.04	"	
			915	0.04	"	
			916	0.12	"	
			917	0.16	"	
			919	0.10	"	
			921	0.09	"	
			922	0.10	"	
			925	0.07	"	
			926	0.12	"	
			897	0.28	"	
			896	0.27	"	
			646/1011	0.21	"	
			646	7.80	"	
			691	0.49	"	
			829	0.05	"	
			885	0.14	"	
			901	0.19	"	
			916	0.08	"	
			554	0.15	"	

Forest Range Officer
HARSINGHEW

	Village	Khasra no	Plot no	Area	Class of soil	
Mohanlalganj	Mohanlalganj	184	247/1196	0·04	Cultivable/Jungle	
			249/1197	0·03	"	
			962	14·49	"	
			934	6·80	"	
			1004	8·40	"	
			1008	2·21	"	
			1009	5·34	"	
			1010	1·36	"	
			962	0·18	"	
			963	0·20	"	
			684	0·77	"	
			695	0·74	"	
			679	0·76	"	
			681	0·70	"	
			717	0·15	"	
			806	0·14	"	
			805	0·11	"	
			623	0·35	"	
			641	0·25	"	
			696	0·14	"	
			303	0·13	"	
			244	0·27	"	
			1186	0·46	"	
			589	1·09	"	
			665	0·34	"	
			692	0·28	"	
			673	0·22	"	
			803	0·30	"	
			600	0·41	"	
			538	0·28	"	
			802/1009	0·41	"	
			638/1019	0·38	"	
			851/1068	0·24	"	
			962/1083	0·33	"	
			890	0·26	"	
			802	0·50	"	
			899	0·125	"	
			906	0·23	"	
			917	0·24	"	
			661/1050	0·18	"	
			811	0·10	"	
			816	0·22	"	
			801	0·30	"	
			885/1064	0·12	"	
	Tolaraseria	31	50/84	6·08	"	
			49/89	0·24	"	
			47	0·09	"	
			64	0·35	"	
			41	1·30	"	
	Gaurisahi	230	1022/1735	0·04	"	
			720	2·63	"	
			574	0·30	"	
			1193	0·05	"	
			979	0·12	"	
			198	0·05	"	
			664	21·77	"	
			892	0·34	"	
			712	0·15	"	
			596	0·10	"	
			32	0·61	"	
			968	0·67	"	
			1616	0·66	"	
			1324/1760	0·12	"	
			563	0·40	"	
			1009/1799	0·04	"	

Forest Range Officer
HARSINGHPUR

	Village	Kilometer	Plot No	Area	Crop	
Kanchipathy Pet	Cheni Sathi	230	75/1960	0.12	Groundnut Cowpea	Ground-0.2.2
			1202/1969	0.12	"	
			1202/1970	0.06	"	
			581	0.24	"	
			583	0.08	"	
			584	0.08	"	
			23	0.19	"	
			24	0.16	"	
			25	0.07	"	
			599	0.62	"	
			2206/1962	0.02	"	
			1218/1800	0.14	"	
			714/1972	0.24	"	
	Doddanelam	21	721/1967	0.11	"	
			3	28.67	"	
			29	1.18	"	
			50	2.17	"	
			64	0.67	"	
			2	2.38	"	
			131	0.12	"	
			132	0.83	"	
			136 ✓	63.13	"	
			65	0.22	"	
			106	0.19	"	
			76	0.03	"	
			153	0.24	"	
			152	0.18	"	
			147	0.03	"	
			144	0.04	"	
			78	0.11	"	
			75	0.13	"	
			52	0.18	"	
			36	0.04	"	
			1	139.15	"	
	Kanyeperambai	22	74	14.44	"	
			76	0.39	"	
			79	1.30	"	
			81	1.04	"	
			102	2.97	"	
			104	19.66	"	
			128	1.20	"	
			139	3.00	"	
			3	0.30	"	
			2	0.24	"	
			5	0.99	"	
			6	0.23	"	
			4	0.05	"	
			8	0.96	"	
			9	0.30	"	
			12	1.03	"	
			13	0.79	"	
			14	1.00	"	
			15	0.69	"	
			18	1.75	"	
			20	0.33	"	
			22	1.16	"	
			30	1.57	"	
			26	3.87	"	
			34	80.30	"	
			32	43.35	"	
			62	0.78	"	
			86/1971	0.64	"	
			27	0.18	"	
			29	0.86	"	
			33	0.17	"	
			362	0.22	"	

Assistant Revenue Officer
HARIHARAPURA

	Village	Khasra no	Plot no	Area	Class	
Kanjiwala	Kanye Pokhari	22	549	0·46	Gauchar/Pyke	
			143	5·80	"	
			546	1·50	"	
			550	0·11	"	
			552	0·20	"	
			560	0·98	"	
			120	1·30	"	
			123	1·27	"	
			125	6·15	"	
			125	0·49	"	
			454	0·10	"	
			560	0·38	"	
			158	4·60	"	
			462	0·24	"	
			464	0·04	"	
			468	0·38	"	
			139	2·46	"	
			540	0·10	"	
			547	0·31	"	
			103	0·84	"	
			87	0·40	"	
			35	0·38	"	
			32	0·34	"	
			109	0·08	"	
			112	0·78	"	
			96	0·02	"	
			118	0·08	"	
			53	1·01	"	
			55	0·34	"	
			192	1·01	"	
			241	1·22	"	
			56	0·10	"	
			58	0·10	"	
			60	0·04	"	
			61	1·46	"	
			63	0·30	"	
			121	0·35	"	
			38	0·26	"	
			43	0·26	"	
			114	0·18	"	
			51	0·08	"	
			254	0·28	"	
			278	0·14	"	
			269	0·37	"	
			272	1·44	"	
			280	0·15	"	
			281	0·17	"	
			55	5·08	"	
		56	283	0·91	"	
			284	0·10	"	
			291	0·84	"	
			238	0·69	"	
	Basant Pur	107	609/622	0·25	"	
			609/628	0·30	"	
	Mangoo Pur	215	108	0·02	"	
			1636/1829	0·24	"	
		318	258/1807	0·24	"	
			356	0·10	"	
			358	0·10	"	
			367	0·09	"	
			276	0·07	"	
			280	0·71	"	
			282	0·36	"	
			290	0·87	"	
			20	4·32	"	

Forest Range Officer
MARSINGHPUR

11	12	13	14	15	16	
	Village	Khatiano	Plot No	Area		
Narasingh Pur	Dhanagiya Pur	218	27	0.85	Gramya Jungle	Govt. Orissa
			144	0.39	"	
			176	9.00	"	
			148	0.02	"	
			104	1.09	"	
			105	181.81	"	
			506	1.65	"	
			214	16.44	"	
			260	4.61	"	
			40	8.36	"	
			41	53.63	"	
			45	2.96	"	
			1	154.54	"	
			2	28.52	"	
			39	203.20	"	
			24	22.42	"	
			612	3.89	"	
			537	1.24	"	
			561	1.18	"	
			562	1.95	"	
			1667	1.77	"	
			214/1879	2.05	"	
			302	0.97	"	
			305	0.45	"	
			260/1869	0.85	"	
			260/1870	1.55	"	
			214/1	3.05	"	
			137	1.13	"	
			138	0.88	"	
			64	1.04	"	
			67	1.20	"	
			37	1.93	"	
			38	1.18	"	
			42	1.49	"	
			666	0.21	"	
			306	0.63	"	
			44	0.27	"	
			239	0.63	"	
			295	0.33	"	
			298	0.35	"	
			70	0.86	"	
			77/1754	0.33	"	
			628	1.28	"	
			341/1752	0.38	"	
			113/1757	1.95	"	
			89/1742	0.71	"	
			624/1850	1.14	"	
			283	0.76	"	
			176/1758	2.80	"	
			565/1859	2.22	"	
			616	0.83	"	
	Mahigada	188	319	0.03	"	
			306	0.02	"	
			4	0.46	"	
			188	0.17	"	
			317	0.03	"	
			320	0.13	"	
			1427	0.03	"	
			583	0.03	"	
			161	0.08	"	
			1404	0.04	"	
			609	2.69	"	

Record Room Officer
NARSINGHPUR

Narsinghpur	Shahdol	207	2	3·26	Quaternary/Recent
			3	1·80	"
			34	2·01	"
			49	1·30	"
			58	0·42	"
			51	1·59	"
			90	0·76	"
			91	0·33	"
			96/1046	0·20	"
			141	1·18	"
			152	0·32	"
			171	0·41	"
			194	1·92	"
			195	2·78	"
			196	1·47	"
			1241/1235	0·83	"
			319	0·23	"
			362	0·14	"
			831	0·07	"
			832	1·49	"
			833	9·05	"
			1372	0·29	"
			837	0·48	"
			839	5·85	"
			834/1208	1·10	"
			834	7·10	"
			196	1·41	"
			724	0·15	"
			891	2·13	"
			604	1·19	"
			730	0·27	"
			602	1·18	"
			480/1254	0·32	"
			1480	0·77	"
			412	0·31	"
			413	0·13	"
			414	0·13	"
			415	0·08	"
			417	0·41	"
			395	0·39	"
			1406	0·06	"
			318	0·26	"
			385	1·38	"
			315	0·79	"
			719/1205	0·60	"
			199	0·16	"
			261	0·34	"
			263	0·76	"
			268	0·37	"
			1093	0·16	"
			763	2·71	"
			764	0·12	"
			765	0·14	"
			766	0·64	"
			856	0·84	"
			857	0·32	"
			326	1·86	"
			1402	1·18	"
			518	0·43	"
			520	0·31	"
			521	0·64	"
			541	0·22	"
			1221	0·23	"
			1238	0·63	"
			617	0·87	"

Asstt. Director
Geological Survey of India
MARSINGHPUR

8	12	13	14	15	16		
Mandalghat	BADAGAN	519/644	0.36	Grazing Single	Cultivable		
		519	0.33				
		5	0.55				
		49	0.69				
		51	0.51				
		595	0.74				
		509	0.17				
		598	0.75				
		508	0.83				
		504	0.19				
		515	0.11				
		516	0.02				
		518	0.15				
		526	0.55				
		525	0.35				
		593	0.55				
		595	0.43				
		536	0.05				
		50/690	0.20				
		96	1.60				
		691	0.15				
		192	0.36				
		149	0.34				
		194/686	0.20				
		203	2.15				
		215	1.23				
		214	0.57				
		215	0.50				
		216	1.64				
		211	1.58				
		206	0.26				
		208	0.34				
		205	0.15				
		204	0.05				
		201	0.15				
		391	0.15				
		392	0.12				
		393	0.45				
		388	0.29				
		206	0.59				
		210	0.64				
		209	0.15				
		213	0.50				
		209	0.15				
		216	0.10				
		202	0.64				
		204	0.05				
		205	0.35				
		519	0.45				
		191	0.84				
		281	1.45				
		585	0.55				
		219	0.35				
— do —	Sampur	225/647	0.49	Grazing			
		1	0.10				
		10	1.35				
		10	0.60				
		10	0.55				
		151	0.93				
		155	0.67				
		226	0.15				
		225	0.80				
		7	0.17				
		22	0.23				
		23	0.15				
		24	0.85				
		25	0.42				
		14	0.64				
		12	0.15				
		34	0.34				
		32	1.10				
		30	0.08				
		29	0.24				
		28	0.34				
		27	0.96				
		26	0.30				
		19	0.34				
		18	0.15				
		24	0.10				
		21	0.10				
		22	0.15				
		23	0.45				
		24	0.96	0.34			

Forest Range Officer

Narasingapur Chakrapani	354	307	0.31	Swamy	
		894	2.26		
		628/1383	0.99		
		188	0.96		
		190	0.84		
		191	5.13		
		197	0.65		
		9	0.46		
		184	0.58		
		183	0.35		
		164	0.31		
		190	0.19		
		1883	0.14		
		15	0.75		
		189	2.12		
		32	0.45		
		286	0.80		
		96	0.13		
		45	0.64		
		197	0.84		
		383	1.58		
		672	3.81		
		661	2.33		
		211	0.86		
		364	0.88		
		883	1.57		
		436	1.14		
		550	0.84		
		541	0.14		
		1557	0.08		
		303	1.79		
		288	5.38		
		10	0.11		
		340	0.11		
		6	0.40		
		68	0.42		
		69	0.11		
		64	0.20		
		36	0.42		
		6691	0.30		
		123/3147	1.84		
		635	0.14		
		642	0.69		
		195	0.15		
		87	0.83		
		54	0.11		
		112	0.45		
		180	3.38		
		346	1.46		
		648	0.88		
		150	1.80		
		139	0.85		
		99	0.63		
Narasingapur - Sitaramapuram	107	935	0.96	Swamy	
		998	3.49		
		983	0.38		
		984	0.96		
		1156	0.56		
		1134	0.64		
		1160	0.16		
		1161	0.84		
		366	0.40		
		867	1.42		
		1599	0.36		
		160	0.32		
		1109	1.17		
		1118	0.54		
		567	0.69		
		844	0.60		
		532	0.14		
		525	0.42		
		316	0.90		
		315	0.34		
		495	0.26		
		281/1946	3.64		
		210	0.60		

Patent Writer Offices
NARASINGAPUR

11	12	13	14	15	16
Narasinghpur	Grandpalli	241	0.31	Swamps	Gen-Cer
		918	5.84		
		813	5.85		
		158	1.66		
		353	0.38		
		261	5.48		
		284	5.47		
		412	1.20		
		936	5.80		
		496	5.86		
		490	5.84		
		570	0.58		
		845/1844	5.80		
		971	5.98		
		1198	5.19		
		334	0.13		
		998	5.87		
		484	5.179		
		1141	6.64		
		1152	5.65		
		1148	0.11		
		989	5.81		
		992	5.81		
		1008	1.85		
		984	5.83		
		2A1/1113	0.14		
		5A1/1194	5.66		
		305	0.84		
		1102	6.60		
		579	0.68		
		324	0.43		
		530	0.13		
		254	0.63		
		499/1800	0.78		
	108	1AL	5.98		
		1379	0.53		
		34	0.65		
		1128	3.80		
		970	1.04		
		963	1.80		
		959	19.48		
		1060	1.08		
		961	0.37		
		963	5.86		
		969	1.98		
		965	1.13		
		967	0.65		
		1152	5.96		
		955	0.18		
		952	5.78		
		950	0.80		
		1	24.88		
		24	39.65		
		37	85.05		
		38	45.38		
		35	11.08		
		40	92.63		
		31	1.99		
		52	11.87		
		58	24.18		
		56	0.81		
		57	1.53		
		62	6.13		
		65	4.12		
		76	45.45		
		71	29.43		
		98	33.85		
		94	1.18		
		88	5.32		
		91	5.66		
		83	0.78		

Forest Ranger Officer
NARSINGHPUR

Forest Ranger Officer
MARSINGHPUR

11	12	13	14	15	16
Narsingh Pur	Sanjhapur	672	525/3992	0.24	Quarter Gunter Chain
			526/ 3993	0.24	"
			1533	0.80	"
			1285	1.31	"
			1284	1.57	"
			1281	0.93	"
	Jagannath Bandhaj	669	1687/3610	0.28	"
			1687/3346	0.96	"
			1687/3340	1.00	"
			1684/3366	0.18	"
			1682/342	0.33	"
			538	0.19	"
			1919	0.58	"
			2705	1.24	"
			2703	0.82	"
			2706	0.65	"
			2704	0.53	"
			2702	0.64	"
			2697	0.62	"
			65	1.20	"
			191	0.86	"
			58	0.92	"
			59	0.58	"
			61	1.65	"
			98	0.82	"
			69	0.95	"
			180	0.71	"
			175	0.60	"
			196	0.53	"
			177	0.77	"
			2202	1.18	"
			2228	0.81	"
			2215	0.15	"
			2216	0.06	"
			2220	1.47	"
			2227	0.19	"
			2229	0.15	"
			260	0.65	"
			261	0.74	"
			265	0.18	"
			324	0.09	"
			326	0.14	"
			348	0.40	"
			347	1.49	"
			350/3498	0.30	"
			351	0.20	"
			2	3.17	"
			22	0.33	"
			23	0.32	"
			24	0.20	"
			3	0.92	"
			4	0.23	"
			5	0.51	"
			505	0.19	"
			506	0.28	"
			2218	0.45	"
			2219	0.45	"
			2220	0.38	"
			2256	0.10	"
			2450	1.65	"
			2487	0.50	"
			2489	0.85	"
			2486	0.64	"
			2488	0.60	"
			2444/3481	1.62	"
			2461	0.81	"
			2462	0.81	"
			2445	0.12	"
			2465	0.81	"
			2469	0.81	"
			2468		

Forest Ranger Officer
HARSINGHPUR

2547	0.57	"
2487	0.43	"
2486	0.19	"
2501	0.15	"
2502	0.68	"
2503	0.30	"
2506	0.40	"
2509	0.29	"
2564	1.68	"
2569	0.36	"
2147	0.67	"
2152	0.69	"
1993	4.69	"
1964	0.81	"
2511	0.80	"
1648/2089	0.26	"
2519	0.39	"
2641/3064	0.56	"
2654	0.80	"
1119	0.09	"
2552	0.92	"
2562	0.89	"
2578	19.45	"
2579	0.19	"
582	0.94	"
184	1.21	"
171	0.42	"
199	0.68	"
2428	0.65	"
72	1.83	"
174	4.80	"
429	0.23	"
2484	0.04	"
2400	0.69	"
2456	0.88	"
2486	0.64	"
2456	1.15	"
197	0.68	"
2556	0.58	"
2629	2.10	"
2529	0.54	"
2524	0.92	"
210	1.09	"
211	0.22	"
285	0.39	"
286	0.20	"
410	0.13	"
413	0.14	"
415	0.60	"
429	0.08	"
469	0.51	"
470	0.56	"
19	0.92	"
16	0.86	"
18	0.20	"
19	2.29	"
39	1.20	"
93	12.08	"
645	31.40	"
648	51.23	"
709	0.50	"
2216	0.31	"
2411/653	0.85	"
644/665	0.28	"
642/666	0.19	"
642/662	1.38	"

Kalikary 71

Forest Ranger Officer
NABSINGHPUR

		21	16	0.72	"	
			4	0.52	"	
			34	0.36	"	
			1	103.16	"	
	Bandhaya	63	25	0.28	"	
			98	28.58	"	
			141	2.25	"	
			135	25.87	"	
			136	28.99	"	
			137	41.08	"	
			664	2.15	"	
			26	2.41	"	
			689	0.98	"	
			662	1.62	"	
			661/708	0.69	"	
			691	1.20	"	
			696	19.13	"	
			632	42.83	"	
		39A	663	2.35	"	
			699	2.16	"	
			119/703	4.90	"	
			91	1.23	"	
			93	0.23	"	
			97	0.48	"	
			89	0.65	"	
			695	1.00	"	
			172	0.83	"	
			108	1.36	"	
			159	0.69	"	
			160	0.46	"	
			161	0.90	"	
			163	1.14	"	
			109	0.86	"	
			110	0.85	"	
			111	0.96	"	
			112	0.24	"	
			113	0.34	"	
			114	0.60	"	
			115	0.92	"	
			117	0.33	"	
			118	0.10	"	
			120	0.35	"	
			122	0.62	"	
			125	0.17	"	
			128	0.21	"	
			135	0.58	"	
			137	0.15	"	
			147	0.34	"	
			177	0.71	"	
			151	0.57	"	
			179	5.35	"	
			146	0.23	"	
			181	0.67	"	
			186	0.35	"	
			187	0.65	"	
			189	1.03	"	
			190	0.45	"	
			193	0.21	"	
			176	0.08	"	
			177	0.20	"	
			178	0.13	"	
			179	0.26	"	
			182	0.32	"	
			195	0.28	"	
			191	0.32	"	
			192	0.22	"	
			193	0.23	"	

Forest Ranger Officer
NARSINGHPUR

			321	13.50	
			196	0.12	"
			198	0.16	"
			189	0.10	"
			190	0.18	"
			194	0.57	"
			200	0.24	"
			201	0.18	"
			242	0.32	"
			246	0.69	"
			241	1.78	"
			204	0.42	"
			208	0.32	"
			209	0.55	"
			642	0.36	"
			241	2.41	"
			243	0.67	"
			692	1.52	"
			696/716	0.36	"
			91	0.67	"
			701	0.70	"
			700	1.07	"
			702	0.86	"
			128	0.09	"
			129	0.37	"
			142	0.43	"
			143	0.42	"
			198	0.33	"
			194	1.96	"
			203	0.15	"
			100	0.62	"
			168	0.87	"
			172/906	0.62	"
			169/907	0.33	"
			169	0.33	"
			167	0.21	"
			171	1.12	"
			173/904	0.22	"
			687/717	0.24	"
			821	0.30	"
			144	0.82	"
	Bole Sabi	123	836	0.16	"
			666	0.09	"
			972	0.28	"
			994	0.04	"
			220	0.06	"
			991	0.05	"
			992	0.09	"
			972/1075	0.09	"
			705/1086	0.09	"
			989	0.04	"
			1002	0.01	"
			814/1000	0.16	"
			527/1088	0.12	"
			967	0.09	"
			971/1033	0.30	"
			1009	0.04	"
			781	0.03	"
			1022	0.02	"
			1052	0.03	"
			952	0.07	"
			930	0.10	"
			936	0.03	"
			81	0.08	"

11	12	13	14	15	16
Nowrangpur	Bakoda	229	1125	0.04	Good Growth
			980	0.15	
			981	0.03	
			1041C	0.10	
			1971	0.16	
			1992	0.54	
			1998	0.28	
			1197	0.80	
			1189	0.40	
			12	0.16	
			1641	0.04	
			1698	0.02	
			1682	0.07	
			1694	0.04	
			1686	0.09	
			1647	0.14	
			1934	0.06	
			1937	0.07	
			1911	0.07	
			1942	0.05	
			3	2.50	
			31/2177	0.30	
			1153	1.15	
			31/2111	0.62	
			31/2112	0.72	
			13/2126	0.22	
			1661/2047	0.15	
			1107	0.07	
			1179	0.09	
			1158	1.40	
			1161	0.28	
			1436	0.44	
			1446	0.31	
			1461	1.06	
			1381	0.44	
			9	0.40	
			1463	0.39	
			1515	0.99	
			22	0.22	
			1469	0.27	
			1391	1.51	
			1382	0.28	
			1388	2.45	
			1181	0.65	
			1131	1.12	
			1126	0.79	
			1127	1.00	
			1128	0.95	
			1283	0.05	
			1415/2015	0.40	
			1419	1.10	
			1979	0.07	
			1411	0.20	
			1411/2114	0.06	

Forest Range Officer
WARSINGHPUR

Narasinghpur	Domalkoni	12	1	16.61
			4	2.38
			26	1.07
			85	23.06
	Tagidi	215	1318	0.05
			1330	0.60
			1342	0.25
			29	0.15
			1395	0.02
			1568	0.17
			1535	0.08
			398	0.06
			399	0.06
			417	0.33
			472	0.47
			83	0.77
			486	0.25
			93	0.04
			96	0.07
			664	0.06
			672	0.9
			127	0.01
			14	0.23
			429	0.26
			432	0.43
			171	0.01
			624	0.02
			94	0.68
	Dingapasada	239	99	0.13
			930	0.18
			922	0.07
			39	0.20
			47	0.98
			68	0.12
			934	0.18
			1006	0.02
			9	0.43
			10	0.18
			11	0.16
			552	0.02
			809	0.25
	Baliajori Patika Pada	201	812	0.29
			1379	0.08
			1280	0.16
			1470	0.09
			1053	0.30
			1089/1449	0.85
			263	0.02
			328	0.16
			563	0.15
			541	0.91
			565	0.99
			105	0.65
			566	0.8
			373	0.09
			371	0.21

Forest Ranger Office
NARSINGHPUR

Forest Ranger Officer
MARSINGHPUR

Aswaghosh	Ghanshyam	293	1167	0.15	Jhanjhanjhanj

11	12	13	14	15	16	
Bridge	Checkpoint	335	1489	0.71	Grazing Jungle	Gypsy-Chital
			1490	0.93	17	
			1491	0.34	7	
			1496	0.52	7	
			1498	1.65	7	
			1498	0.90	11	
			2488/2833	0.88	11	
			1525	0.09	5	
			2001/2866	0.10	11	
			301/2868	0.08	7	
			1009/2862	0.09	11	
			1620/2863	0.06	11	
			1931/2864	0.06	11	
			1818	0.20	7	
			1821	0.92	7	
			1647	0.36	7	
		414	1664	0.07	7	
			1782	0.96	7	
			1865	0.15	7	
			1867	0.06	7	
			1880	0.37	7	
			1890	0.77	11	
			1893	0.36	7	
			1895	0.26	7	
			1898	0.31	11	
			1899	0.26	11	
			1895	0.26	11	
			1896	0.29	11	
			1897	0.09	11	
			1577	0.47	11	
			1902	0.32	11	
			1903	0.49	11	
			1936	0.48	11	
			1941/2871	0.15	11	
			1631	0.60	11	
			1950	0.08	11	
			1953	0.16	11	
			1952	0.69	11	
			1821/2959	0.15	11	
			1669	0.71	11	
			1671	0.31	11	
			1975	0.12	7	
			1998	0.10	7	
			999/2837	0.42	7	
			75/2856	0.03	11	
			781	0.61	11	
			1841/2835	0.10	7	
			1994/2861	0.07	7	
			1759/2862	0.08	11	
			1403/2870	0.08	11	
			1405/2874	0.14	11	
			1967	0.15	11	
			1676	0.09	11	
			583	0.17	7	
			588	0.11	7	
			1120	0.06	11	
			1164	0.62	11	
			1168	0.26	11	
			1201	1.14	11	
			1151/2858	0.12	11	
			302	0.18	11	
			305	0.16	11	

Forest Range Officer
NARSINGHPUR

Nandyal	Chinna Pasang	355	314	0·15	Gundlapalle	
			315	0·43	8	
			316	0·16	11	
			319	0·34	11	
			320	0·42	11	
			321	0·39	11	
			324	0·30	11	
			326	0·69	11	
			391/2003	0·67	11	
			460	0·19	11	
			469	0·73	11	
			2071	0·10	11	
			2091	0·62	11	
			2093	0·15	11	
			2098	0·31	11	
			194	0·16	11	
			195	0·15	11	
			1417/2003	0·11	11	
-do-	Peddha Pasang	69	24	0·35	11	
			29	0·36	11	
			30/1	0·44	11	
			30/2	0·58	11	
			31	0·37	11	
			31	0·32	11	
			36	0·24	11	
			36	1·20	11	
			37	0·108	11	
			38	0·63	11	
			43	0·56	11	
			44	1·31	11	
			45	0·19	11	
			47	0·107	11	
			305	0·51	11	
			306	0·16	11	
			307	1·51	11	
			30	0·42	11	
			31	0·43	11	
			19	0·40	11	
			58	0·11	11	
			1417/2003	0·55	11	
			1417/2003	0·35	11	
			72	0·36	11	
			73	0·39	11	
			74	0·19	11	
			75	0·17	11	
			1	0·25	11	
			34	0·39	11	
			35	0·35	11	
			36	0·135	11	
			38/1	0·16	11	
			38/2	0·16	11	
			39/1	0·8	11	
			39/2	0·53	11	
			39/3	0·34	11	
			39/4	0·36	11	
			39/5	0·35	11	
			39/6	0·43	11	
			39/7	0·18	11	
			251	0·30	11	
			1491	0·38	11	
			39	0·12	11	
			22	0·91	11	
			272	0·36	11	
			273	0·10	11	
			189	0·28	11	
			196			

Assistant Land
Patent Range Officer
NANDYAL

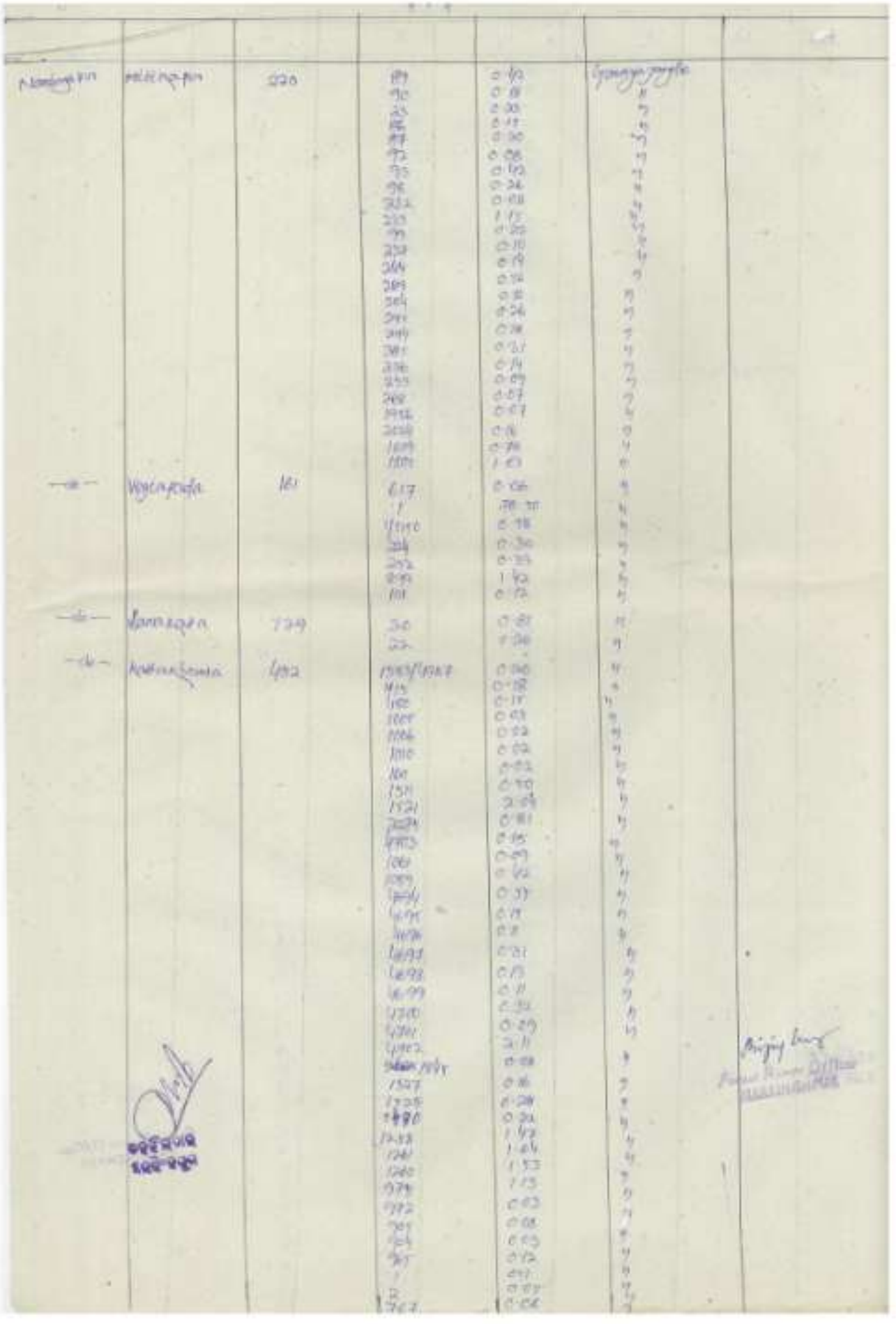
11	12	13	14	15	16	
Name of Work	Name of Period	64	63/361 114/358 98 120 114 823/389 181/316 97 84 57 88 85 96 102 136 131 130 141 124 122 128 93 94 93 121 71 149 161 156 160 158 132 219 182 126 156 140 141 146 149 148 138 158 167 114 101 102 157 155 99 156 29 152 71/394 48/394 28/324 28/322 28/328 483 485 141/322 81 85 111 142 196	0·28 0·42 0·42 0·42 0·30 0·61 0·32 1·32 0·61 0·29 0·30 0·45 0·20 0·12 0·22 0·32 0·81 0·72 0·64 0·17 0·28 0·16 0·16 0·52 0·58 0·59 1·18 0·67 0·12 0·27 0·18 0·25 0·36 0·30 0·30 0·5 0·49 0·30 0·87 0·85 0·61 0·65 0·69 1·34 0·18 0·89 0·48 0·31 0·62 0·67 0·14 0·18 0·10 0·27 0·10 0·42 0·31 0·13 0·34 0·23 0·31 0·26 0·85 0·20	Grange Jungle 6 11 11 11

	Rajma Pramanik	64	916/929	0.31	Gangajhuri	
			9	1.04	9	
			8	0.48	8	
			7	0.38	7	
			926/10	0.32	6	
			12	0.07	5	
	Sasadaya	177	1829	0.04	4	
			1831	0.17	3	
			1832	0.02	2	
			1834	0.15	1	
			1868	0.09	10	
			1585	0.05	9	
			1881	0.15	8	
			1891	0.06	7	
			1913	0.08	6	
			1887	0.03	5	
			1912	0.09	4	
			1915	0.08	3	
			1881	0.37	2	
			1908	0.24	1	
		43	1911	0.20	0	
			1910	0.38	9	
			1909	0.23	8	
			1907	0.11	7	
			1906	0.09	6	
			1675	0.06	5	
			1681	0.04	4	
			1699	0.04	3	
			1900	0.15	2	
			1902	0.07	1	
			1904	0.04	0	
			1657	0.37	9	
			1858	0.12	8	
			1859	0.08	7	
			1866	0.25	6	
			1872	0.27	5	
			1871	0.04	4	
			1878	0.02	3	
			1876	0.02	2	
			1879	0.01	1	
			1880	0.14	0	
			1877	0.02	9	
			1881	0.03	8	
			1898	0.03	7	
			1897	0.15	6	
			1899	0.34	5	
			1909	0.29	4	
			1905	0.18	3	
			1895	0.37	2	
			1896	0.16	1	
			1936	0.30	0	
			1934	0.10	9	
			1933	0.11	8	
			1932	0.19	7	
			1955	0.03	6	
			1954	0.17	5	
			1939	0.30	4	
			1679	0.10	3	
			1675	0.05	2	
			1946	0.09	1	
			1908	0.13	0	
			3958/3958	0.31	9	
			1960	0.26	8	
			1961	0.11	7	
			1958	0.18	6	
			1959	0.29	5	

Forest Ranger Officer
MAESINGHPUR

11	12	13	14	15	16	
Nandighosh	Sabalanga	179	1874	0.38	Sponge jungle	Good Condition
			1876	0.15	11	
			1849	0.18	11	
			1853	0.21	9	
			1847	0.08	7	
			1830	0.08	7	
			1831	0.10	7	
			1879	0.08	7	
			1854	0.16	7	
			1858	0.08	7	
			1873	0.28	7	
			1830	0.09	7	
			1899	0.05	7	
			1864	0.09	7	
			1865	0.34	7	
			1867	0.01	7	
-do-	Mahanadi	220	279	1.00	7	
			280	0.28	7	
			671	0.47	7	
			656	0.76	7	
			657	2.10	7	
			368	2.20	7	
			391	0.39	7	
			673	1.09	7	
			30	2.00	7	
			19	0.31	7	
			368	0.12	7	
			951	0.38	7	
			539	0.21	7	
			538	1.30	7	
			696	0.31	7	
			695	0.24	7	
			693	0.26	7	
			1369	0.36	7	
			41	0.11	7	
			42	0.20	7	
			43	0.13	7	
			20	0.26	7	
			1864	0.65	7	
			1871	0.05	7	
			1874	0.07	7	
			697	0.09	7	
			1201	0.25	7	
			551	0.52	7	
			114	0.33	7	
			1870	0.26	7	
			1871	0.07	7	
			1874	0.37	7	
			1861	0.12	7	
			1867	0.07	7	
			2362	0.8	7	
			2366	0.09	7	
			1363	0.09	7	
			1201	0.26	7	
			1365	0.18	7	
			1201	0.49	7	
			1365	0.14	7	
			1366	0.03	7	
			1367	0.14	7	
			1368	1.06	7	
			1369	2.46	7	
			1370	1.12	7	
			1371	0.13	7	
			1372	0.28	7	
			1373	0.28	7	

Range Forest Officer
NARSINGHPUR



11	12	13	14	15	16	
Nanjingpur	Kathalchoura	452	989	0·01	(illegible)	Good - Old Sal
			37[illegible]	0·11		
			990	0·01		
			993	0·03		
			994	0·08		
			1135	0·32		
			1136	0·09		
			1139	0·38		
			1140	0·14		
			1142	0·23		
			1143	0·18		
			1144	0·8		
			1145	0·15		
			1146	0·5		
			1147	0·34		
			1148	0·23		
			1149	0·26		
			1151	0·19		
			1150	0·18		
			1163	0·13		
			1167	0·12		
			1172	1·04		
			1173	0·16		
			1169	0·30		
			1171	0·68		
			1177	0·92		
			1178	0·28		
			1183	0·16		
			1182	0·38		
			1192	0·60		
			1193	0·97		
			1194	1·08		
			1199	0·32		
			1198	0·63		
			1196	0·35		
			1195	0·38		
			1205	0·28		
			1203	0·38		
			1206	0·29		
			1208	0·04		
			1209	0·26		
			1210	0·19		
			1211	0·12		
			1213	0·08		
			1215	0·03		
			1216	0·36		
			1217	0·14		
			1218	0·38		
			1234	0·33		
			1240	0·12		
			1467	0·33		
			1183	0·21		
			1170	0·26		
			1164	0·16		
			1174	0·45		
			1230	0·03		
			1231	0·04		
			1176	0·07		
			1225	0·20		
			1167	0·17		
			1168	0·31		
			1199	0·09		
			1181	0·23		
			1181	0·25		
			1132	0·39		
			1179	0·51		
			1171	1·14		
			1178	0·13		
			1238	0·02		
			1232	0·33		

Forest Range Officer
NARSINGHPUR

Nowshahi	Rakhiazoma	452	1192 592 678 794 1481 766 1141 1441 1287 1171	0·52 0·12 0·02 0·16 0·59 0·07 0·18 0·10 0·37 0·19	Grange Jungle " " " " " " " " " " " "	
-do-	Sonagopalli	19 20 22	68 80 185 574 694 638 609 636 604 655 636 623 622 615 616 612 619 595 594 681 178 183 182 181 180 179 184 188 186 187 190 191 192 193 194 195 196 197 198	0·13 0·26 0·07 0·36 2·85 0·22 0·105 0·13 0·50 0·1 0·90 0·08 0·10 0·44 0·02 0·06 0·19 0·06 0·12 0·14 0·11 0·28 0·18 0·69 0·07 0·8 0·09 0·25 0·09 0·04 0·02 0·26 0·02 0·69 0·06 0·07 0·12 0·13	" " " " " " " " " " "

11	12	13	14	15	16	
Narsingi	Mangalabanda	191	1518	0.06	Gangaraju	Gram Odder
			1518	0.03		
			1516	0.03		
			1516	0.09		
			1519	0.03		
			1520	0.03		
			1521	0.04		
			1523	0.03		
			1523	0.03		
			1525	0.04		
			1524	0.04		
			1525	0.37		
			1568	0.52		
			1569	0.24		
			1530	0.23		
			1531	0.08		
			1534	0.03		
			1530	0.39		
			1571	0.03		
			1572	0.04		
			1605	0.23		
			1606	0.26		
			1607	0.12		
			1619	0.11		
			1621	0.35		
			1624	0.02		
			1630	0.03		
			1631	0.04		
—do—	Kakuntla	186	1635	0.15		
			1287	1.10		
			1291	0.10		
			6	0.02		
			7	0.06		
			919	0.26		
			955	0.08		
			996	0.03		
			28	0.01		
			513	0.30		
			1635	0.12		
			1629	0.07		
			1630	0.06		
			1895	0.01		
			1934	0.02		
			1634	0.04		
			1891	0.12		
			1894	0.01		
			1868	0.12		
			1285	0.16		
			1346	0.09		
			1353	0.03		
			1409	0.04		
			1406	0.05		
			1395	0.08		
			1390	0.10		
			1392	0.34		
			1470	0.14		
			1499	0.19		
			1531	0.06		
			1434	0.03		
			1436	0.01		
			1483	0.03		
			1400	0.10		
			1495	0.03		
			1401	0.09		
			1402	0.26		
			1903	0.04		
			1891	1.30		
			1534/1895	0.09		
			1401/1520	0.03		
			1534/1936	0.11		
			1534/1938	0.11		

Forest Range Officer
NARSINGHPUR

Νεοχωρίτης	Καρυώτα	102	15/6/1916	0·89	Γεωργόχωρα	
			1370	0·34	"	
			1091	0·34		
—	Νεκταρίου	411	109	0·15	"	
			1974	0·37	"	
			1977	0·14	"	
			2[illegible]/0·27	0·27	"	
			[illegible]/2824	0·17	"	
			346	0·22	"	
			2183	0·07	"	
			2169	0·18	"	
			2169	0·28	"	
			40	0·37	"	
			41	0·31	"	
			42	0·32	"	
			2014	0·08	"	
			2565	0·16	"	
			2177	0·22	"	
			2172	0·15	"	
			130	0·08	"	
			89	0·30	"	
			71	0·28	"	
			38	0·14	"	
			107	0·07	"	
			115	0·18	"	
			85	0·10	"	
			47	0·08	"	
			49/2[illegible]	0·41	"	
			35	0·38	"	
			36	0·0	"	
			32	0·21	"	
			50	0·06	"	
			53	0·14	"	
			59	0·18	"	
			61	0·03	"	
			93	0·07	"	
			247	0·06	"	
			101	0·15	"	
			104	0·07	"	
			77	0·08	"	
			78	0·46	"	
			17	0·20	"	
			22	0·08	"	
			25	0·18	"	
			29	0·24	"	
			48	0·04	"	
			91	0·10	"	
			283	0·23	"	
			345	0·16	"	
			380	0·18	"	
			393	0·14	"	
			391	0·26	"	
			389	0·63	"	
			390	0·18	"	
			392	0·14	"	
			630	0·02	"	
			963	0·17	"	
			949	0·18	"	
			857	0·10	"	
			854	0·16	"	
			835	0·30	"	
			1062	0·16	"	
			1434	0·0	"	
			1439	0·16	"	
			1536	0·31	"	
			1580	0·42	"	

11	12	13	14	15	16	
[illegible]	Neem Bagicha	411	1371	0·10	[illegible]	Govt office
			1369	0·07		
			1366	0·01		
			1693	0·19		
			82	0·39		
			83	0·34		
			84	0·38		
			129	0·87		
			81	0·15		
			930	0·11		
			2208	0·13		
			1599	0·18		
			2254	0·08		
			2284	0·08		
—do—	Dimorian	303	2413	0·13		
			2310	0·34		
			2644	1·17		
			2282	0·42		
			2841	0·59		
			2883	0·39		
			2890	0·03		
			1926	0·01		
			822	0·04		
			2634	0·07		
			2281	0·34		
			2490/2639	0·09		
			2468	0·31		
			2636	0·37		
			2424	0·09		
			2262	0·21		
			2479	0·03		
			2539	0·31		
			2278/2804	0·09		
			2467	0·02		
			2790	0·18		
			2841	0·22		
			2269	0·11		
			2279/2828	0·09		
			2898	0·35		
			2291	0·16		
			2282	0·13		
			2603	0·15		
			2672	0·14		
			2649	0·09		
			2479	0·66		
			2468	0·08		
			2669	0·01		
			2645/2838	0·08		
—do—	Chromatia	86	30	0·10		
			129	0·11		
			249	0·34		
			240	0·24		
			242	0·22		
			37	0·04		
			39	0·10		
—do—	Khair pasta	84	190	0·68		
			66	0·20		
			392/616	0·08		
			124	0·1		
			8	0·30		
			18	0·08		
			62	0·18		
			63	0·37		
			66	1·15		
			68	0·24		
			98	2·89		
			241	0·32		
			96	0·29		

Forest Range Officer
NARSINGHPUR

Alangudy	Cyanthupalli	169	269	1·09	Quarry single	
			82	0·52	7	
			83	0·32		
			83	0·25		
			86	0·64		
			86	0·11		
			87	0·35		
			7	0·37		
		166	321	0·10		
—do—	Mallaya	140	641	0·85		
		142	640	0·11		
			660	0·38		
			493	0·26		
			498	0·28		
			462	0·10		
			683	0·60		
			686	0·15		
			675	0·60		
			647	1·50		
			514	0·81		
			478	0·19		
			632	0·13		
			637	0·30		
			527	0·12		
			649	0·29		
			465	0·38		
			463	0·21		
			469	0·27		
			471	0·10		
			482	0·60		
			496	0·9		
			484	0·35		
			503	0·32		
			449	0·31		
			438	0·43		
			431	0·32		
			429	0·30		
			428	0·21		
			432	0·30		
			436	0·15		
			422	0·32		
			426	0·32		
			423	0·34		
			436	0·30		
—do—	Nanjaya Puram	2	7	0·04		
		4	5	0·07		
			6	0·06		
		2	194	0·36		
		14	198	0·30		
			9	0·09		
		16	12	0·02		
			13	0·26		
			111	0·14		
			114	0·10		
			118	0·07		
			124	0·15		
			121	0·12		
			109	0·06		
			155	0·07		
			131	1·48		
			108	0·13		
			189	0·10		
			190	0·35		
—do—	Kuppayur	70	171	0·45		
			90	0·26		
			192	0·10		
			198	0·09		

Forest Range Officer

11	12	13	14	15	16	
Ellesmere Port	Neston	96	770	0·83	(grazing) pasture	Gravel - Clay
—do—	Heronbridge	43	687	0·82	7	
			105	0·09	5	
			149	0·10	5	
			198	0·04	6	
			180	0·16	7	
			130	0·04	7	
			132	0·07	5	
			96/209	0·02	5	
—do—	Tolarkeria	12	1	1·14	4	
	Neston (Parkgate)?	93	561	2·15	5	
			174	0·84	7	
			546	0·80	5	
			223	0·77	5	
			228	0·64	5	
			231/329	0·40	5	
			224	2·36	7	
			209	0·43	5	
			137	0·21	5	
—do—	Burton Pt?	99	3	0·07	5	
			409	0·38	5	
			10	0·08	5	
			9	0·12	5	
			8	0·08	5	
			7	0·07	5	
			166	0·36	5	
			35	0·07	5	
			34	0·04	5	
			36	0·05	5	
			37	0·1	5	
			38	0·04	5	
			39	0·03	5	
			28	0·08	5	
			18	0·09	5	
			16	0·18	5	
			737	0·42	5	
			5	0·09	5	
			4	0·03	5	
			2	0·06	5	
			26	0·09	5	
			492	0·19	5	
			491	0·23	5	
	Burton Pt?	68	557	0·29	5	
			239	0·14	5	
		69	228	0·10	5	
			237	0·14	5	
			2	0·14	5	
			63	0·38	5	
			64	0·31	5	
			17	0·30	5	
			20	0·42	5	
			25	0·31	5	
			24	0·28	5	
			47	0·32	5	
			42	0·39	5	
			43	0·36	5	
			38	0·35	5	
			178	0·36	5	
			241	0·38	5	
			96	1·49	5	
			97	0·52	5	
			240	0·35	5	
			15	0·15	5	
			201	0·49	5	
			226	0·52	5	
			230	0·36	5	
			227	0·43	5	

Forest Range Officer
WARRINGTON

Nilambur N/S	Nilambur Rly	69	675	1.61	Teakwood Sample	
			694	1.62		
			678	0.32		
			698	0.96		
			677	0.18		
			673	0.16		
			671	0.03		
			387/392	0.28		
			386	0.05		
			393	0.14		
			175	0.94		
			180	0.41		
			181	0.14		
			183	0.28		
			269	0.31		
			262	0.01		
			541	0.40		
			542	0.04		
		1971	543	0.58		
			541	0.37		
			536	0.66		
			357	1.29		
			378	0.30		
			382	0.03		
			369	0.14		
			271	0.13		
			272	0.17		
			349	1.10		
			414	0.10		
			361	0.15		
			366	0.18		
			389/392	1.63		
-do-	Near Powerhouse	51	396	0.72		
			399	0.69		
			398	0.40		
			395	0.32		
			393	0.38		
		53	572	0.71		
			142	0.21		
			1	2.64		
			20	0.12		
			21	0.27		
			35	1.58		
			36	0.63		
			177	0.38		
			124	1.92		
			913/965	0.27		
			124/462	0.71		
			124/453	0.71		
			124/464	2.00		
			1/1184	0.44		
			2	1.34		
			68	0.26		
-do-	Tuyapur	35	71	0.34		
			341	0.34		
			372	0.42		
			385	61.38		
			409	63.72		
			2	1.90		
			8	8.77		
			12	7.85		
			13	0.34		
			17	0.32		
			46	0.87		
			42	1.64		
			96	0.10		
			177/422	0.11		
			136/178	0.09		
			179/429	0.08		
			181/185	0.05		
			186	2.29		
			173	0.83		
			175	0.44		
			176	0.45		

Deputy Conservator
Forest Working Office
NILAMBUR(SOUTH)

12	13	14	15	16	
KHOL	15	1	1.23	Compartment	Forest Block
		2	1.12		
		28	28.79		
		81	51.52		
		112	3.08		
		127	2.93		
		142	74.18		
		50	19.14		
		141	19.86		
Rampatkhoni	253	195	0.07		
		257	0.48		
		196	0.06		
		201	0.05		
		152	0.19		
		535	0.15		
		879	0.19		
		880	0.11		
		174	0.50		
		105	5.39		
		93	2.36		
		62	0.07		
		149	2.55		
		3323	0.36		
		330	0.32		
		3199	0.28		
		323			
		3209	0.05		
		410			
		449	0.12		
		3201			
		324/3219	0.01		
		334/3230	0.04		
		66/3161	0.01		
		29/3119	0.64		
		86	0.30		
		87	0.23		
		96	0.04		
		99	0.43		
		103	0.11		
		98	0.37		
		123	0.05		
		129	0.05		
		130	0.05		
		131	0.05		
		250	0.30		
		324	0.21		
		395/3192	0.12		
		263	0.18		
		269	0.13		
		268	0.13		
		277	0.32		
		440	0.21		
		445	0.33		
		125	0.14		
		138/375	0.10		
		84/3278	0.13		
		395	0.42		
		442	2.23		
		893	0.20		
		62/3140	0.12		
		148	0.54		
		27	0.35		
		104/3170	0.76		
		126	0.05		
		3	0.24		
		4	1.29		
		5	0.22		
		7	0.85		
		8	1.20		
		9	1.11		
		326	0.26		

Forest Range Officer
NARSINGHPUR

Boundaries Name of Beat	Boundaries	Khasra No.			
		253	217	0.05	Compartment
			466/3192	0.12	"
			462/3193	0.16	"
			460/3194	0.24	"
			463/3189	0.12	"
			453/3190	0.06	"
			461/3191	0.12	"
			190	0.06	"
			192	0.05	"
			191	0.07	"
			194	0.06	"
			193	0.05	"
			197	0.05	"
			200	0.31	"
			202	0.03	"
			251/3207	0.17	"
			376	0.45	"
			536	0.06	"
			533	0.16	"
			795	0.05	"
			797	0.12	"
			798	0.18	"
			834	0.17	"
			796	0.24	"
			799	0.05	"
			835	0.24	"
			1196	0.51	"
			3976	0.04	"
			154	0.10	"
			153	0.20	"
			155	0.07	"
— do —	Nimbhag Nawasingh Pur	20	265	0.54	"
			269	0.90	"
			280	0.09	"
			394	0.14	"
			397	0.87	"
			401	28.25	"
			339	19.59	"
			331	0.45	"
			334	0.79	"
			342	0.62	"
			347	2.05	"
			321	14.85	"
			266	1.87	"
			101	0.01	"
			58	13.83	"
			142	0.04	"
			182	0.14	"
			1	98.45	"
			419	26.35	"
			420	18.89	"
— do —	Bhagat Pur	9	417	7.95	"
			418	53.13	"
			1	23.97	"
			5	2.13	"
			2	2.40	"
			3	0.75	"
			9	0.45	"
			8	0.24	"
			10	0.60	"
			14	0.67	"
			20	0.03	"
			11	0.16	"
			12	0.14	"
			13	0.33	"
			18	0.09	"
			16	0.24	"

Forest Range Officer
MARSINGHPUR

11	12	13	14	15	16	
Nan[illegible]ngh Rive	Bhagwati River	9	17	0·13	Gr[illegible]	Gond, Orissa
			21	0·13		
			23	0·09		
			30	0·02		
			46	0·10		
			25	0·18		
			27	0·29		
			31	0·11		
			32	0·35		
			34	0·15		
			47	0·87		
			22	0·20		
			28	0·15		
			29	0·13		
			13	0·36		
			39	0·18		
			48	0·04		
			24	0·10		
			26	0·34		
			42	0·56		
			43	0·06		
			36	0·41		
			38	0·03		
			44	0·04		
			40	0·06		
			45	0·07		
			49	0·10		
			54	0·18		
			58	0·06		
			53	0·22		
			56	0·39		
			52	0·12		
			57	0·16		
			55	0·03		
			59	0·19		
			61	0·18		
			63	0·63		
			64	0·25		
			33	0·33		
			65	0·66		
			77	0·32		
			66	0·05		
			67	0·15		
			68	0·26		
			69	0·03		
			76	0·10		
			80	0·11		
			71	0·26		
			72	0·05		
			74	0·21		
			75	0·04		
			78	0·05		
			79	0·34		
			60	0·10		
			81	0·15		
			82	0·08		
			84	0·13		
			86	0·16		
			87	0·38		
			85	0·16		
			89	0·23		
			90	0·63		
			91	0·11		
			92	0·19		
			93	0·14		
			93/186	0·22		
			94	0·38		
			95	0·12		
				0·03		

Forest Range Officer

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Narasingh Pur	Bhagat Pur	9	96	0·11	Grassy Jungle
			97	0·15	" "
			98	0·08	" "
			99	0·17	" "
			100	0·67	" "
			102	0·61	" "
			103	0·19	" "
			104	0·46	" "
			116	0·35	" "
			117	0·80	" "
			118	0·32	" "
			119	0·46	" "
			120	0·58	" "
			121	0·50	" "
			122	0·57	" "
			123	0·27	" "
			134	0·24	" "
			135	0·46	" "
			136	0·34	" "
			136	1·09	" "
			153	0·32	" "
			137	0·66	" "
			138	0·48	" "
			139	0·63	" "
			139	0·56	" "
			150	1·98	" "
			140	0·12	" "
			141	0·25	" "
			131	0·32	" "
			142	0·25	" "
			122	0·12	" "
			122	0·72	" "
			143	0·23	" "
			144	0·10	" "
			146	1·83	" "
			148	56·71	" "
			152	15·35	" "
			150	3·56	" "
			154	0·90	" "
			155	0·06	" "
			160	1·73	" "
			161	1·82	" "
			163	0·95	" "
			165	0·66	" "
			166	0·28	" "
			167	0·93	" "
			179	0·91	" "
			168	3·73	" "
			177	0·60	" "
			182	0·74	" "
			181	0·99	" "
			130/132	0·63	" "
			134/164	3·32	" "
			114	0·65	" "
			156	0·26	" "
—do—	Sahaspukhi	71	153/155	1·83	" "
			158	0·24	" "
			161	0·12	" "
			151	0·15	" "
			154	0·25	" "
			165	0·32	" "
			156	0·56	" "
			160	0·02	" "
			162	0·05	" "
			173	0·23	" "
			163	0·06	" "
			152	0·06	" "
			155	0·22	" "
			153	0·02	" "

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Name of Rec	Schemozaki	71	174	0.02	Gamunga Jungle Beat - Bihar
			164	0.06	"
			163	0.22	"
			176	0.12	"
			165	0.12	"
			175	0.20	"
			185	0.40	"
			187	0.03	"
			119/378	0.22	"
			341	0.95	"
			189/375	0.18	"
			186/344	0.03	"
—do—	Dhanlawan	69	119/369	0.37	"
			695	0.07	"
			696	0.03	"
			697	0.04	"
			650	0.20	"
			971	0.04	"
			58	0.11	"
			940	0.11	"
			238	0.09	"
			239	0.03	"
			235	0.05	"
			243	0.05	"
			238	0.04	"
			239	0.04	"
			240	0.12	"
			241	0.10	"
			632	0.21	"
			251	0.05	"
—do—	Jharipahadia	30	252	0.15	"
			465	0.05	"
			629	0.18	"
			1	31.20	"
			16	30.51	"
			26	1.60	"
			28	2.54	"
			58	15.36	"
			31	1.80	"
			82	1.62	"
			33	0.48	"
			17	4.20	"
			16/143	2.76	"
			18	0.33	"
			30	4.00	"
			23	0.51	"
			47	0.75	"
			53	0.47	"
			35	0.99	"
			51	0.49	"
			31/142	1.30	"
			32	0.51	"
			28	0.69	"
			40	1.95	"
			41	4.26	"
			62	0.91	"
			60	11.08	"
			64	0.41	"
			65	0.75	"
			66	0.65	"
			67	1.98	"
			69	0.63	"
			90	1.09	"
			75	0.89	"
			74	0.49	"
			95	0.61	"
			76	0.52	"
			78	0.56	"
			71	0.19	"
			80	0.94	"

Forest Ranger Officer
NARSINGHPUR

/54/

Nimmaligh Rly	Jhanjitanka	20	82	0.198	Compartment	
			83	1.10	"	
			84	2.10	"	
			86	4.15	"	
			89	1.87	"	
			92	2.09	"	
			98	1.40	"	
			103	1.92	"	
			113	1.24	"	
			114	0.64	"	
			115	1.90	"	
			116	1.84	"	
			117	2.00	"	
			118	2.09	"	
			119	1.96	"	
			120	2.05	"	
			121	2.09	"	
			123	1.95	"	
			CC/59	0.54	"	
			96/140	2.66	"	
			123/167	1.34	"	
			125/168	1.35	"	
			120/151	1.06	"	
			98/161	0.66	"	
			91/162	1.50	"	
			171/167	2.80	"	
			93/158	1.54	"	
			97/159	1.40	"	
			94/160	2.90	"	
			87/166	1.03	"	
—do—	Kalinfanda	9	6/153	0.36	"	
			12	0.55	"	
			6/104	0.26	"	
			34	0.10	"	
			33	0.34	"	
			2	1.38	"	
			11	0.93	"	
			45	0.17	"	
			54	0.23	"	
			98	0.15	"	
			30	0.44	"	
			31	0.30	"	
			101	2.04	"	
			22	0.93	"	
			45	2.57	"	
			52	0.08	"	
				1.13	"	

Forest Range Officer

(1)

Forest As per Revenue Records (Excluding those areas appearing in Col. 6 &

Name of Tahasil	Mauza	Khata no	plot no	Area in Hect	Ownership Govt	private	
11	12	13	14	15	16		
Narsinghpur	Mankapkhera	61	128	5.90	Govt of Orissa	-	Gramya Jungle
"	"	"	7	13.30	-do-	-	"
"	"	"	135	2.90	-do-	-	"
"	"	"	146	261.29	-do-	-	"
"	"	"	147	11.85	-do-	-	"
"	"	"	148	146.00	-do-	-	"
-do-	-do-	63	109	0.92	-do-	-	"
"	"	"	9/190	0.78	-do-	-	"
"	"	"	129	0.99	-do-	-	"
"	"	"	130	0.71	-do-	-	"
"	"	"	131	5.96	-do-	-	"
"	"	"	144/164	0.22	-do-	-	"
"	"	"	144/153	0.16	-do-	-	"
"	"	"	102/166	0.16	-do-	-	"
"	"	"	59	0.17	-do-	-	"
"	"	"	123	1.14	-do-	-	"
"	"	"	42/162	3.33	-do-	-	"
"	"	"	113/160	0.12	-do-	-	"
"	"	"	116/161	0.18	-do-	-	"
"	"	"	8/159	0.66	-do-	-	"
"	"	"	8/182	0.95	-do-	-	"
"	"	"	101/158	0.22	-do-	-	"
"	"	"	120/165	1.27	-do-	-	"
"	"	"	70	1.11	-do-	-	"
"	"	"	69	2.50	-do-	-	"
"	"	"	71	2.67	-do-	-	"
"	"	"	6/169	1.00	-do-	-	"
"	"	"	122	3.38	-do-	-	"
"	"	"	182	0.60	-do-	-	"
"	"	"	58/166	0.07	-do-	-	"
"	"	"	88	2.35	-do-	-	"
"	"	"	89	1.15	-do-	-	"

Forest Range Officer
Narsinghpur

Forest Range Officer
Narsinghpur

Nidamangalam	Kandhaberam	286	225	19.75	Govt of	Govt land
		288	233	2.80	-do-	-
		285	244	0.11	-do-	-
		-do-	615/1902	0.07	-do-	-
		-do-	1127	0.02	-do-	-
		-do-	1123	0.04	-do-	-
		-do-	59/1904	2.27	-do-	-
		-do-	13	1.15	-do-	-
		-do-	12	0.47	-do-	-
		-do-	42/1961	3.06	-do-	-
		-do-	11	0.60	-do-	-
		-do-	16	0.63	-do-	-
		-do-	30	0.44	-do-	-
		-do-	32	1.57	-do-	-
		-do-	40	0.75	-do-	-
		-do-	60	0.40	-do-	-
		-do-	68	0.64	-do-	-
		-do-	70	1.79	-do-	-
		-do-	71	1.26	-do-	-
		-do-	73	0.72	-do-	-
		-do-	74	0.56	-do-	-
		-do-	75	0.56	-do-	-
		-do-	77	0.56	-do-	-
		-do-	79	0.56	-do-	-
		-do-	80	0.56	-do-	-
		-do-	82	0.19	-do-	-
		-do-	84	6.40	-do-	-
		-do-	90	0.70	-do-	-
		-do-	85	1.26	-do-	-
		-do-	92	0.51	-do-	-
		-do-	147	0.12	-do-	-
		-do-	109	0.28	-do-	-
		-do-	110	0.27	-do-	-
		-do-	111	0.49	-do-	-
		-do-	226	4.25	-do-	-
		-do-	41/1997	0.35	-do-	-
		-do-	28	1.74	-do-	-
		-do-	55	0.59	-do-	-
-do-	Padagai Pattu	269	1050	82.83	-do-	-
		"	1051	28.25	-do-	-
		"	1052	26.45	-do-	-
		"	1053	28.28	-do-	-
		271	622	0.23	-do-	-

Tahsil	Village	Khata	plot	Area in Hect	Govt / private	
Narsinghpur	Kalamata	956.2		16.80	Govt of Orissa	—
"	"	" 68		153.41	—do—	
—do—	Boraingla	24	108	0.81	—"	—
—do—	22 Rangla			— Village	Rangla	
"	27	107		9.22	—do—	—
"	—do—	8		3.14	—"	
"						
—do—	Gopalamania	82	625	0.08	"	
"	"	"	32	0.69	"	—
"	"	"	1034	0.18	"	
"			432	0.03		
"			1085	0.22	"	
"		"	1101	0.46		—
"			638/1152	0.81		
"		"	216	0.90	"	
"			124	0.70		
"			121	0.09	"	—
"			133	1.41		
"	"	"	219	0.57	"	
"			212	1.05		—
"			94	2.46	"	
"	"	"	102	0.11		—
"			98	0.16		
"	"	2	20	0.13	"	
"			29	0.23		
"			109	0.36		—
"	"	"	108	0.36	"	
"			95	0.08		
"		2	103	0.44	"	—
"	"		96	0.10		
"		"	97	0.15		—
"	"		90	0.09	"	
"			91	0.35		
"	"	"	92	0.20	"	—
"			99	0.34		
"	"	"	105	0.16		—
"			106	0.15	"	
"			107	0.69		
"		"	110	0.20	"	—
"			100	0.90		
"		"	101	0.35	"	
"	"	"	104	0.12		—

PTO

Forest Range Officer
NARSINGHPUR

Norwinghan	Eruptive mass	82	1124	0·34	Early Orbitolina	present	
			1075	0·54	— do —		—
			1076	0·42	— do —		—
			1106	0·60	— do —		—
			1134	0·44	— do —		—
			1135	0·66	— do —		—
			1112	0·63	— do —		—
			933	0·35	— do —		—
			935	0·23	— do —		—
			936	0·14	— do —		—
			951	0·24	— do —		—
			952	0·19	— do —		—
			953	0·31	— do —		—
			954	0·28	— do —		—
			1026	0·24	— do —		—
			89	2·49	— do —		—
			93	0·82	— do —		—
			1103	3·80	— do —		—
			1109	0·58	— do —		—
			1035	0·66	— do —		—
			9	4·35	— do —		—
			325	0·05	— do —		—
			14	0·19	— do —		—
			12/1149	2·17	— do —		—
			Exc/1219	0·26	— do —		—
		84	1143	89·08	— do —		—
			1117	0·76	— do —		—
			1102	0·29	— do —		—
			12	76·35	— do —		—
			576	8·05	— do —		—
			686/1170	6·70	— do —		—
			1125	0·12	— do —		—
			208/1154	29·81	— do —		—
			1132/1148	0·48	— do —		—
			638/1152	0·60	— do —		—
			134/1215	6·18	— do —		—
			1145/1218	2·10	— do —		—
			687	0·36	— do —		—
			2	0·32			
			3	0·20	— do —		—
			1083	0·15			
			173/1149	0·64	— do —		—
			173/1260	0·60	— do —		—

11	12	13	14	15	16	
Nazinoshpur	Jamalbabola	27	18	9·83	Good condn	Grazing Ground
		29	379	3·85	-do-	
	"	"	369	1·29	-do-	-
	"	"	370	1·72	-do-	-
	"	"	12	0·47	-do-	
	"	"	30	0·45	-do-	
	"	"	34	0·13	-do-	-
-do-	Tinopal	99	1	68·79	-do-	-
		"	1/1056	3·52	-do-	
	"	"	719	0·04		
	"	"	511/1156	0·03	-do-	-
	"	"	78	0·40	-do-	
	"	"	83	0·27		-
	"	"	84	0·13	-do-	
	"	"	742	0·04		
	"	"	104/1092	0·30	-do-	-
	"	"	139/1046	0·04	-do-	-
	"	"	367	0·11		
	"	"	387	0·04		
	"	409	1/2234	24·75	-do-	-
			56/2303	0·10		
			119/2490	0·85	-do-	
Forest Ranger Officer Narsingdi-1600	"	"	1/2813	4·05		
	"	"	85	0·05		-
	"	"	280	0·15		
	"	"	28	0·32	-do-	
	"	"	29	0·25		-
	"	"	2288	0·50		
	"	"	2292	0·35		
	"	"	6	1·16		-
	"	"	16	2·05	Cultd	

Mornington	Gwalia Downs	409	17	1-80	Govt of Victoria	Granite type	
			18	0-14			
			289	0-20			
			2290	0-30			
			2291	0-20			
			2303	0-14			
			2304	0-15			
			2305	0-21			
			2296	0-24			
			2297	0-20			
			2298	0-31			
			250	0-08			
			237	0-04			
			240	0-07			
			242	0-04			
			246	0-13			
			2306	1-06			
			768/2340	0-03			
			86	0-04			
			92	0-03			
			87/2342	0-22			
			1014	0-02			
			875	0-15			
			876	0-05			
			877	0-03			
			878	0-04			
			905	0-09			
			906	0-06			
			907	0-06			
			735	0-11			
			732	0-20			
			734	0-36			
			59/2337	0-06			
			765	0-05			
			767	0-03			
			724	0-03			
			776	0-02			
			777	0-06			
			737	0-09			
			738	0-12			
			691	0-08			
			692	0-02			
			695	0-02			
			687	0-05			
			658	0-02			
			605	0-09			

Assay Laboratory Department of Mines MELBOURNE

					Gold / Wood	
Narasingpur	Godisendka	409	695	0·01	Gold & Grass Jungle	
			530	0·04	Others.	
			524	0·12		
			556	0·32		
			560	0·06		
			470	0·07		
			291	0·11		
			292	0·10		
			298	0·24		
			222	0·03		
			226	0·06		
			228	0·29		
			239	0·13		
			245	0·12		
			248	0·01		
			221	0·06		
			172	0·12		
			189	0·11		
			176	0·15		
			1070	0·08		
			1075	0·10		
			1076	0·05		
			913/2491	0·01		
			732/2492	0·01		
			2254	0·70		
			2236/2239	0·14		
			218/2428	0·10		
			27	0·25		
			88	0·16		
			24/2432	0·15		
			5/2434	0·24		
			103/2356	0·15		
			884	0·21		
			191	0·12		
			197	0·19		
			135/2392	0·10		
			23	0·12		
			25/2403	0·09		
			1964	0·13		
			151	0·27		
			2279	1·12		
			2279/2477	0·22		
			639/2444	0·01		
			220/2445	0·02		
			1032	0·20		
		440	302	0·12		

Forest Ranger Officer
NARSINGHPUR

Nosing Pa	Chingawa	631	188/1802	0·03	Cut-off drain	Grazing
	"	"	206/1803	0·03	"	"
			1279/1817	0·02	"	"
			102	0·30		
			7	322·02		
			5	1·23		
"	"	"	168	0·06	"	"
			169	0·14		
			127	0·22		
	"	"	76	0·85	"	
			1713/1764	53·41		
	"	"	701/1765	20·30		
"		"	701/1766	21·87	"	
			140/1762	1·23		
	"		143	32·92		
		433	1273/1936	0·07	"	
			404	0·04		
			405	0·05		
	"	"	400	0·26	"	
"			200/1359	0·39		
			1264	0·09		
	"		1148	0·09	"	
		"	1149	0·04		
			1267/1923	0·07		
			1241/1929	0·04	"	
		"	1265/1948	0·03		
	"		95	0·24	"	
			145	0·22		
		"	144	0·19		
	"		147	0·40	"	
"			148	0·32		
		"	149	0·40		
			150	0·25		
	"		157	0·40	"	
			115	0·13		
		"	120	0·20		
			130	0·17		
		"	121	0·30		
			134	0·21		
	"		135	0·51		
		"	62	0·21		
	"		1661	0·16	"	
			1639	0·13		
		"	1163/1931	0·05	"	
"	"	"	46/1954	0·10		
			1293/1830	0·03		

Forest Range Officer
MARLINGEPUR

11	12	13	14	15	16
Nallingam	Clamperum	433	1310/1892	0·27	Govt of Kerala Survey
			1224/1840	0·01	"
	"	"	1278/1839	0·04	
			121	0·06	"
		"	1309/1834	0·02	
	"		1269/1819	0·05	
		"	1719/1565	0·02	"
			1294/1836	0·05	
	"		1271/1820	0·05	
		"	1286/1825	0·03	"
			1272/1821	0·04	
	"		1280/1828	0·11	
		"	1261/1818	0·07	"
			1305/1832	0·03	
	"		1260/1852	0·13	"
		"	1322/1958	0·01	
			136/1739	0·11	"
	"		75/1758	0·08	
		"	128/1868	0·05	
	"		139/1814	0·24	"
		"	1358/1842	0·04	
			1334/1945	0·17	"
—do—	Rayadi Sahe	276	420	0·14	
	"	108	108	8·16	"
		—do—	113	15·34	
	"		48	0·05	"
		—do—	49	0·14	
			54	0·16	
	"		55	0·09	"
		—do—	146	0·11	
			145	0·05	
	"		123	0·22	
		—do—	129	0·13	"
	"		217	0·13	
		—do—	414	0·14	"
			426	0·17	
Forest Ranger Officer MARTINGHATTI	"		754	0·01	
	"	—do—	800	001	"
			661	006	
	"	—do—			

					Survey No.	Land revenue
		140	740	0·06		
			731	0·06	Govt & others	Government
Narsingpur	Konla	"	40	0·52	"	—
	"	"	42	0·44		—
			734	0·05		
	"	"	736	0·02	"	—
	"		738	0·06		
		"	739	0·07		—
			732	0·02		
	"	"	1589	0·10	"	—
			1590	0·10		
	"	"	1644	0·05	"	—
	"	"	1646	0·04		—
	"	"	498	0·02		
	"	"	1229/1229	0·10	"	—
	"		1064/	0·19		
		"	1066	0·03		—
	"	"	1332	007	"	
			1337	0·03		—
	Boyladhar	18	1242	0·18		—
	"	"	1231	26·00	"	
			1238	1·30		—
	"	"	1239	1·00		—
		20	1235	25·00	"	
	"		1232	0·82		—
		"	111	0·03	"	—
	"	"	314	0·12		—
			94	0·47		—
	"	"	315	0·20	"	—
	"		330	0·48		—
		"	321	1·12	"	—
	"	"	93	0·09		—
			107	0·65	"	—
	"		110	0·30		—
	Binchanabaj	220	515/1306	0·02		—
		"	505/307	0·01	"	—
			526/1269	0·07		—
	"	"	508/1298	0·14	"	—
		"	4621/1277	0·10		—
	"		5021/1303	0·08	"	—
		"	465/1205	0·14		—
	"	"	501/1266	0·04	"	—
			507/1263	0·05		—
	"	"	481/1268	0·09	"	—
			526/1228	0·34		—
		"				

Assistant Revenue Officer
NARSINGHPUR

11	12	13	14	15	16	
		20	466/1283	0-11	Govt of	Private
			504/1261	0-06	Orissa	
Nominal	Bindanadeh		499/1211	0-05	Orissa Surplus	
			1149/1220	0-13	"	—
			428/1219	0-07	"	
"	"	"	437/1213	0-07	"	
			435/1217	0-05	"	—
			522/1234	0-01	"	
	"	"	5161/1222	0-18	"	
			482/1222	0-03	"	
		"	461/1215	0-27	"	
	"	"	463/1223	0-11	"	—
"			310	0-08	"	
			607	0-06	"	
		"	160	0-05	"	
			161	0-03	"	—
	"	"	296	0-14	"	
			288	0-13	"	
		811	448/1332	0-07	"	
			436/1212	0-31	"	—
"	"		504/1227	0-03	"	
		"	486/	0-03	"	
		"	489	0-03	"	
	"		490	0-03	"	—
			492	0-20	"	
			518	0-17	"	
	"		480/1224	0-02	"	—
"		"	471	0-14	"	
			472	0-10	"	
	"	"	468/1216	0-14	"	—
			511/1229	0-03	"	
			1120/1236	0-32	"	
	"		525/1235	0-04	"	
		"	521/1232	0-05	"	
"	"		1143	0-09	"	—
		"	480/1221	0-05	"	
			512/1210	0-02	"	
			454/1259	0-06	"	—
	—	"	459/1309	0-01	"	
			503/1316	0-01	"	
	"	"	462/1313	0-10	"	—
			478/1214	0-10	"	
	"	"	473/1211	007	"	
			484/1304	003	"	—
			466/1305	007	"	

Forest Range Officer
MARICHJHAPATTI

					Coal Forest Range		
Nainital	Oak	20	46	2.64	— do —	—	—
"	"	"	1/223	0.42	— do —	—	—
"	"	22	1/229	30.00	— do —	—	—
"	"	"	125	0.10	— do —	—	—
"	"	"	216	10.26	— do —	—	—
— do —	Banaspati	12	1/303	8.39	— do —	—	—
"	"	"	1/306	3.82	— do —	—	—
"	"	13	1/305	73.88	— do —	—	—
"	"	15	21/307	0.62	— do —	—	—
"	"	"	191	2.20	— do —	—	—
— do —	Oak	66	235	4.14	— do —	—	—
"	"	"	535/1110	0.07	— do —	—	—
"	"	"	249	0.18	— do —	—	—
"	"	"	426	0.86	— do —	—	—
"	"	"	432	0.47	— do —	—	—
"	"	"	832/1138	0.82	— do —	—	—
"	"	"	127/1085	0.39			
"	"	"	611	0.38	— do —	—	—
"	"	"	612	0.22	— do —	—	—
"	"	"	613	0.14	— do —	—	—
"	"	"	614	0.11	— do —	—	—
"	"	"	761	4.78	— do —	—	—
"	"	"	1068	0.77	— do —	—	—
"	"	"	1064	4.80	— do —	—	—
"	"	"	256	0.15			
"	"	"	312	1.19	— do —	—	—
"	"	"	235	0.24			
"	"	"	229	0.20	— do —	—	—
"	"	"	232	1.43	— do —	—	—
"	"	"	236	0.09	— do —	—	—
"	"	"	211	0.49	— do —	—	—
"	"	"	423	2.60	— do —	—	—
"	"	"	418/1087	1.65	— do —	—	—
"	"	"	330	1.12	— do —	—	—
"	"	"	739	0.98	— do —	—	—
"	"	"	981	0.21	— do —	—	—
"	"	"	224	0.24	— do —	—	—
"	"	"	226	0.35			
"	"	"	230	0.08			
"	"	"	231	0.41			
"	"	"	234	0.34			
"	"	"	892	1.80			
"	"	"	896	1.30			
"	"	"	897				

Ajay Kumar
Forest Range Officer
HARSHIDEPUR

11	12	13	14	15	16
Narasinghpur	Slab	66	831	4.65	Dist. Chandrapur Conservator
			816	0.39	
			903	0.22	
			1137	4.25	
			1127/1111	0.09	
			788	1.31	
			1119	1.93	
			1126/1092	0.23	
			811	0.25	
			851	2.17	
			1130/1106	0.10	
			1136/1126	0.18	
			1092/1129	0.14	
			1120/1125	0.29	
			1139/1111	0.03	
			680	0.29	
			1115/1125	0.28	
			1118/1114	0.39	
			1125/1116	0.46	
			1119/1108	0.12	
			765	0.36	
			853	0.38	
			944	0.29	
			1088	0.49	
			967	0.44	
			986	0.45	
			989	0.47	
			990	0.62	
			1000	0.47	
			1001	0.59	
			1002	0.58	
			1000	0.86	
			1130/1090	1.08	
			939	0.28	
			972	0.60	
			815	0.36	
			85	0.17	
			838	0.29	
			977	0.89	
			946	0.8	
			953	0.62	
			826	2.03	
			859	1.89	
			847	2.90	
			892	2.45	
			868	2.16	
			823	1.38	
			879	2.83	
			931	1.63	
			874	1.86	
			938	0.58	
			94/96	0.87	
		67	833	3.86	
			945	0.108	
			942	8.32	
			940	32.48	
			886	99.90	
			936	1.02	
			832	5.26	
			810	6.85	
			838	5.17	
			823	6.98	
			825	6.16	
			259	41.30	
			260	2.60	
			261	0.69	
			262	1.38	
			263	5.15	
			264	29.45	

Forest Ranger Officer
NARSINGHPUR

Nilkantheshwar	Others	A 9	227	3.81	Out of limits
			212	8.06	Gyo – ge jungle
			218	6.48	x
			219	3.24	x
			216	3.03	x
			211	8.44	x
			21	23.46	x
			22	2.86	x
			233	6.34	x
			232	1.35	x
			6.8	0.39	x
			235	1.80	x
			622	0.26	x
			[illegible]	0.13	x
			[illegible]	0.43	x
			208	0.85	x
			[illegible]	0.39	x
			[illegible]	0.38	x
			[illegible]	0.26	x
			6.6	0.26	x
			223	0.39	½
	Tectona grandis	21	30	0.80	½
			22	0.05	½
			16	0.02	½
			23	0.08	½
			6214	0.36	½
			199	0.19	½
			200	0.11	½
			201	1.80	½
			210	0.39	½
			198	0.66	½
			202	0.43	½
			206	0.09	½
			203	0.28	½
			207	0.53	½
			213	0.03	½
			209	0.13	½
			220	0.03	½
			221	0.08	½
			229	0.03	½
			219	0.03	½
			224	0.03	½
			225	0.08	½
			227	0.03	½
			226	0.06	½
			231	0.06	½
			228	0.09	½
			342	0.51	½
			615	0.60	½
			614	0.08	½
			339	0.03	½
			340	0.03	½
			341	0.31	½
			342	0.39	½
			345	0.13	½
			343	0.03	½
			344	0.1	½
			355	0.31	½
			280	0.99	½

Forest Ranger Officer
HARISHCHEPUR

11	12	13	14	15	16
Harvest rights	d/ba	R1	A591	0·38	Out of series
			A592	0·22	
			A234	1·10	
			A536	0·35	
			A536	0·82	
			A538	0·48	
			A993	0·25	
			A539	0·53	
			A542	0·56	
			A1147	0·50	
			A681	0·16	
			A682	0·8	
			A684	0·52	
			A651	0·49	
			A853	1·58	
			A541	1·18	
			A552	0·52	
			A556	0·56	
			A684	0·18	
			962	1·35	
			A683	0·36	
			638	0·53	
			642	0·25	
			635	0·93	
			638	0·88	
			642	0·22	
			629	1·18	
			639	0·82	
			6141	0·91	
			A529	0·13	
			A990	0·23	
			A991	0·15	
			A12	1·76	
			616	0·69	
			893	3.64	
			836	0·85	
			669	0·08	
			610	0·25	
			591	0·19	
			1189	0·22	
			1188	0·32	
			605	0·15	
			606	0·18	
			602	0·118	
			625	0·31	
			607	0·60	
			632	0·192	
			620	0·21	
			6811/11	0·29	
			630	0·32	
			613	0·112	
			601	0·116	
			6311	1·89	
			612	0·142	
			6321	0·15	
			638	0·25	
			650	0·38	
			655	0·111	
			631	0·141	
			688	0·19	
			652	0·113	
			637	0·21	
			385	0·118	
				0·63	

Forest Range Officer
NARSINGHPUR

Marsinghar Rakaponji		61	1410	0·69	Ganga jugh
			029	0·28	
			1451	0·45	
			1483	0·61	
			1482	1·38	
			7528	8·11	
			2391	0·85	
			1540	0·29	
			6483	2·39	
			6415	2·94	
			3458	0·09	
			2339	0·10	
			1119	0·86	
			6.00	1·0	
			1849[illegible]	0·28	
			1109/1482	0·111	
			2561/1493	0·28	
			013	0·116	
			6	0·29	
			2410	0·08	
			2379	2·82	
			2463	1·09	
			8	0·9	
			1118[illegible]	0·29	
			1097/1691	0·13	
			1108/1490	0·72	
			1089/1435	0·09	
			2391/1422	0·9	
			2561/1502	0·05	
			2561/1502	0·05	
			270	0·18	
		61	2379	2·36	
			2463	18·05	
			1116	1·09	
			2413	2·26	
			1119	189	
			1161	0·51	
			2429	2·96	
			2481	12·9	
			538	111·31	
			1570	0·13	
			5413	2·10	
			311	2·69	
			1515	0·9	
			1492	0·106	
			1450	3·18	
			1492	0·50	
			1434	0·02	
			1425	0·111	
			1532	36·12	
			6410	19·60	
			1470	13·05	
			6108	1·02	
			6117	12·53	
			1420	46·13	
			6472	2·34	
			6512	0·34	
			6428	31·08	
			6513	0·91	
			62	0·11	
			1	62·34	
			2	0·64	
			3	1320	
			29	0·35	
			6111	2·62	
			6349	0·30	
			6419	1·12	
			1457	1·16	
			6815	1·01	

Forest Range Officer
MARSINGHPUR

11	12	13	14	15	16
[illegible]	[illegible]	20	69	1.05	[illegible]
			61	.11	
			68	0.14	
			69	0.29	
			90	0.24	
			142	0.62	
			201	0.20	
			213	0.48	
			264	0.03	
			278	0.16	
			307	0.42	
			312	0.32	
			281	0.18	
			277	0.89	
			290	0.15	
			296	0.82	
			299	0.39	
			271	0.41	
			289	0.81	
			282	0.34	
			273	0.41	
			276	0.28	
			308	0.36	
			228	0.10	
			229	0.34	
			232	0.06	
			51	1.02	
			236	0.22	
			288	0.38	
			213	0.63	
			261	0.10	
			287	0.52	
			223	0.99	
			300	0.10	
			274	0.11	
			272	0.33	
			216	0.15	
			299	0.39	
			252	0.34	
		23	206	35.05	
			320	11.33	
			19	0.39	
			127	0.49	
			126	0.39	
			96	0.25	
			93	0.01	
			1	1.01	
	Bokas	11	92	0.30	
			198	0.38	
			3/306	0.08	
			9/303	0.06	
			201	10.55	
			196	1.37	
			195	4.38	
			180	3.29	
			196/306	1.00	
			196/309	1.08	
			196/310	1.10	
			196/311	1.11	
			1	0.35	
			31/80	0.03	
			4/1	0.02	
			32	0.02	
			199	1.28	

Forest Ranger Office
WESTINGHAUSEN

			192	2·03	
			193	3·53	
	Kumsai	69	15	0·53	
			2	80·45	
			14	0·15	
			285	1·33	
			288	321·49	
			284	1·41	
			611	11·55	
			615	0·19	
			623	1·42	
			838	1·18	
			839	1·02	
			2110	11·96	
			6018	1·03	
			819	69·01	
			820	8·75	
			385	0·85	
			386	0·81	
			386	6·14	
			1123	20·98	
			1019	1·35	
			393	1·45	
			1961	0·45	
			873		
			1128/1141	13·00	
			967	1·03	
			2614	1·31	
			5144	0·03	
			9	0·0	
			96	0·03	
			801	0·61	
			1146/1141	2·53	
			1144/1141	28·10	
			382	0·02	
			885	0·32	
			8011	0·59	
			3835	0·35	
			119	0·17	
			806	0·29	
			140	0·69	
			163	0·61	
			1541	0·12	
			1115	1·08	
			160	0·93	
			163	1·00	
			1618	0·11	
			1109	0·92	
			653	0·05	
			170	0·05	
			1211	0·63	
			9341	0·12	
			727	0·06	
			177	0·17	
			920	0·06	
			2611	0·02	
			1013	0·31	
			2 1163	1·72	
			1141/1142	0·11	

Forest Ranger Officer
BARSINGHPUR

66

11	12	13	14	15	16
	Tawara	1119	1645	0.05	Bhaiya Jhar (Tirat - Dhaka)
			1646	0.06	
			1647	0.07	
			1648	0.10	
			1649	0.06	
			1803	0.07	
			1858	0.23	
			252	0.09	
			270	0.07	
			275	0.16	
			307	0.06	
			316	0.05	
			1670	0.18	
			1110	0.16	
			1156	0.18	
			1112	0.38	
			1103	0.64	
			1113	0.31	
			1116	0.18	
			1602	0.06	
			1611	0.39	
			1613	0.12	
			393	0.03	
			504	0.06	
			512	0.10	
			519	0.32	
			5143	0.05	
			515	0.23	
			516	0.09	
			517	0.18	
			514	0.10	
			2113	0.29	
			2111	0.12	
			280	0.08	
			281	0.08	
			262	0.03	
			268	0.18	
			269	0.07	
			271	0.08	
			285	0.04	
			286	0.18	
			288	0.18	
			289	0.11	
			287	0.23	
			294	0.32	
			295	0.19	
			297	0.20	
			299	0.13	
			301	0.23	
			303	0.14	
			290	0.15	
			848	0.05	
			247	0.08	
			248	0.17	
			1109	0.12	
			291	0.10	
			292	0.18	
			1629	0.27	
			2096	3.45	

Forest Ranger Office
NARSINGHPUR

Tamarix Kondelo	414	1630	0·13	Grazing jungle
		358	0·14	"
		2199	0·23	"
		2900	0·16	"
		1665	0·43	"
		1666	0·15	"
		1667	0·06	"
		1668	0·24	"
		2167	0·04	"
		577	0·04	"
		296	0·24	"
		266	0·04	"
		1668	0·27	"
		243	0·06	"
		1676	0·10	"
		1669	0·17	"
		2164	0·18	"
		1830	0·81	"
		2198	0·24	"
Babylon Peba	119	172/205	0·21	"
	165	160	0·50	"
		162/203	0·16	"

Forwarded for Garden
Forest Range Officer
MARSHUBATUS

11	12	13	14		
Narsingpur	Naupal	100	81	1.40	Gold Cases.
			82	0.42	
			129	0.89	
			130	0.56	
			131	0.37	
			132	0.24	
			190	0.58	
			191	0.11	
			128	0.06	
			180	0.05	
			183	0.30	
			34	0.53	
			71	0.45	
			72	0.30	
			1.93	0.03	
			163	0.10	
			192	0.19	
			315	0.13	
			119	0.55	
			294	0.08	
			309	0.53	
(98)	Khurtabar	844			
(99)	Kumbhimata	194	138	0.33	
			138	0.10	
			847	0.14	
			51	0.32	
			52	0.06	
			50	0.31	
			192	0.08	
			163	0.10	
(103)	Kanakpur	755	72	9.38	
(104)	Kanakpur	330	220	3.68	Footprint Jungle
			976	0.19	
			574	0.30	
			1919	0.20	
			569	0.11	
			996/1738	0.42	
			368	0.17	
			615	0.19	
			1982/1763	0.03	
			1960/1611	0.08	
			975	0.12	
		233	692	0.34	
			718	0.15	
			694	0.10	
			32	0.61	
			968	0.47	
			1616	0.06	
			563	0.40	
			1004/1011	0.69	
			31/1743	0.12	
			69	0.14	
			571	0.20	
			1956/1766	0.42	
			1/1763	0.06	

Forest Ranger Office

Tahasil	V					
11	12					16
Narasinghpur	Kurumjhi					Gramya Jungle
(37)				338	0.39	m
				591	0.61	m
				728/1101	0.03	m
				619/1793	0.05	m
				1367/1856	0.01	m
				1885/	0.05	m
				1620	0.08	m
				1593	0.03	m
				1296	0.08	m
				1570	0.10	m
				52	0.38	m
				1358	0.55	m
				1136	0.65	m
				1390	0.62	m
				1480	0.55	m
				1525	0.09	m
				1445	0.35	m
				1344	0.12	m
				591	0.58	m
				1490	0.63	m
40 =	(38) Baramchi	70		104	0.30	Gramya Jungle
				1	1.47	m
				2	0.58	m
				6	0.56	m
	(39) Malisahi	—	Nil			—
	(40) Sukato	—	Nil			—
	(41) Jaimanga	—	Nil			—
	(42) Padmapur	157	639		28-35	Gramya Jungle
	(43) Phulpada	—	Nil			—
	(44) Nibaranchandrapur	—	Nil			—
	(45) Mandatolla	70	728		1.00	Gramya Jungle
	(46) Lanphus scaberrimus (Blume)	60		2	3.35	m
		1		1	1.53	Rakam Jungle
	(47) Manikchandrapur	151		257	0.05	Gramya Jungle
				258	0.80	m
				344/978	0.05	m
				913	0.02	m
				988	0.32	m
				308	0.14	m
				693	0.05	m
				694	0.04	m
				233	0.08	m
				914	0.15	m
	(48) Mamudi	—	Nil			—
	(49) Nagpala	100		1	0.88	Gramya Jungle
				321	0.62	m
				119/318	0.08	m
				11	0.12	m
				12	0.52	m

Shijoy Kar
Forest Range Officer
NARSINGHPUR

11	12	13	14	15	16	
11	Jamecahi	333	1302/1964	0.69	Kattan Thanga	Gouri Gauri.
Nanabahi			566	1.20	Kannan Thanga	
			161	0.25	"	
			578	1.23	"	
			535	0.03	"	
			583	0.06	"	
			353	0.06	"	
			358	0.11	"	
			586	0.08	"	
			34	0.10	"	
			35	0.09	"	
	Pattamala Kadavu	3.41	599	0.62	"	
			981	2.39		
			992	2.60		
			997	1.34		
			1014	0.21		
	Ganagaya	915	1007/1019	0.30		
			2197/866	0.10	Kattanaya Thanga	
			465/2809	0.03	"	
			1091	0.12	"	
			463	0.69	"	
			466	0.48	"	
			930	0.01	"	
			445	0.05	"	
			455	0.03	"	
			459	0.01	"	
			446	0.04	"	
			464/668	0.18	"	
			4113/3677	0.01	"	
			456/2440	0.05	"	
			1538	2.59	"	
			446	0.10	"	
			440	0.03	"	
			451	0.03	"	
			452	0.11	"	
			462	0.08	"	
			496	0.08	"	
			449	0.07	"	
			1061	0.05	"	
			1437	0.08	"	
			1033	0.01	"	
			1039	0.14	"	
			447	0.07	"	
	Rangani Kadavu	176	1186	0.15	"	
			501	0.01	"	
			436/690	0.05	Kattanaya Thanga	
			393/982	0.03	"	
			393/910	0.03	"	
	Chaabavala	910	1622	0.01	"	
			1391	0.05	"	
			1386	0.06	"	
			1560	0.09	"	
			1561	0.01	"	
			2	0.01	"	
			1062	0.05	"	
			3196	1.29	"	
			1198	0.04	"	
			2648	1.01	"	
			3552	0.01	"	

Forest Ranger Officer
MARSINGHPUR

11	12	13	14	15	16
Nanadaghatti	Chamrajnagar	433	404	0.04	Cauvery Jungle
			405	0.05	
			440	0.36	
			866/1869	0.39	
			1884	0.09	
			1145	0.09	
			1124	0.04	
			1361/1935	0.03	
			1931/1904	0.04	
			1	0.46	
			145	0.38	
			146	0.39	
			147	0.40	
			148	0.32	
			149	0.40	
			150	0.35	
			151	0.40	
			152	0.12	
			1581	0.20	
			130	0.17	
			68	0.30	
			1881	0.45	
			1641	0.16	
			1639	0.13	
			1	0.06	
			1369/1868	0.04	
			1372/1945	0.03	
			1381/1826	0.05	
			1391/1820	0.05	
			1395/1829	0.12	
			1886/1845	0.03	
			1878/1894	0.04	
			1888/1858	0.11	
			1866/1818	0.07	
			1880/1832	0.03	
			35/1868	0.05	
			1854/1895	0.01	
			1856/1891	0.04	
		Ekdala.	681	0.17	
			2251	0.12	
			2256	0.08	
			2704	0.04	
			2704	0.05	
			2699	0.06	
			2690	0.10	
			1260	0.15	
			1261	0.04	
			1262	0.08	
			1263	0.03	
			1264	0.08	
			1270	0.06	
			329	0.33	
			330	0.37	
			331	0.30	
			335	0.15	
			326	0.28	
			327	0.39	
			328	0.43	
			340	0.33	
			347	0.14	
			149	0.17	
			152	0.24	
			133	0.12	
			123	0.10	
			112	0.30	
			114	0.12	
			36	1.65	
			635	0.21	
			636	0.10	
			637	0.11	

Forest Range Officer
MARSINGHPUR

11	12	13	14	15	16
Alamkhera	Khejra	[illegible]	0.04	[illegible]	
			688	0.69	Chhanya Range Gulm Chitta
			689	0.10	"
			916	0.35	"
			1000	0.98	"
			1001	0.15	"
			1002	0.17	"
			996	0.98	"
			994	0.18	"
			2276	0.14	"
			832	0.12	"
			876	0.16	"
			914	0.14	"
			1311	0.06	"
			1941	0.08	"
			1943	0.03	"
			1944	0.10	"
			1198	0.87	"
			1211	0.66	"
			2443	0.06	"
			2391	0.02	"
			2452	0.03	"
			2862	0.09	"
			1191	0.03	"
			1182	0.10	"
			942	0.05	"
			937	0.33	"
			2952	0.06	"
			2876/880	0.89	"
			2447/2881	0.06	"
			2317/2957	0.02	"
			2893	1.08	"
			1215	0.12	"
			1216	0.28	"
			2339	0.02	"
			347	1.40	"
			2877/2954	0.12	"
			2897/2905	0.01	"
			2899/2906	0.10	"
			264	0.64	"
			917	0.32	"
			918	0.19	"
			940	0.08	"
			941	0.05	"
			2912	0.17	"
9	Quadrangles	37	124	3.30	"
10	Champakotta	90	819	0.05	"
			820	0.10	"
			821	0.09	"
			823	0.01	"
			812	0.16	"
			813	0.03	"
			816	0.12	"
			817	0.03	"
			804	0.05	"
			809	0.03	"
			805	0.09	"
			811	0.14	"
			7758	0.04	"
			7759	0.09	"
			803	0.01	"
			815	0.02	"

Forest Range Officer
BARSINGHPUR

11	12	13	14	15	16
Narasingapur	Pachamala Deen	201	1629 1330	1.13 0.96	Gramajoor
	Dabu Mar Raghunathpur	1 3	4 2	1.33 3.75	Patan "
	Alamanur	— —	Nil	— —	— —
	Jalakal	— —	Nil	— —	— —
	Nandapur	—	Nil	— —	
	Road Hoin	— —	Nil	— —	
	Lakamapur	185	2122 2147 2152 2154 2176 2516	0.04 0.04 0.37 0.14 0.19 1.39	Gramajoor " " " " "
	Gokakanalla	478	1092 713 714 644 712 1493 517 529	0.07 0.06 0.07 0.11 0.06 0.10 0.05 0.11	" " " " " " " "
			1648 1647 2713 2717 2723 2716 2772 2761 2869 2751 2781 1661 1658 1654/1655 3241/3247 3241/3267 2146 173 172 187 168 167 165 1615 166 1156 164 1477 121	0.16 0.06 0.58 0.15 0.35 0.29 0.04 0.15 1.09 0.81 0.03 0.35 0.24 0.44 0.05 0.13 0.13 0.06 0.18 0.35 0.36 0.28 0.34 0.11 0.34 0.21 0.24	" "

Forest Range Officer
NARASINGAPUR

11	12	13	14	15	16
Narasingapuram	Balakrishna	1996	119	0.10	Gram. Jungle Govt. Patta
			120	0.06	"
			248	0.04	"
			250	0.08	"
			251	0.10	"
			252	0.05	"
			253	1.05	"
			254	0.85	"
			3	0.02	"
			105	0.02	"
			272	0.03	"
			274	0.19	"
			[illegible]	0.09	"
			1150	0.11	"
			[illegible]	0.05	"
			611	0.142	"
			[illegible]	0.07	"
			[illegible]	0.05	"
			[illegible]	0.10	"
			2188	0.04	"
			[illegible]	0.47	"
	Balakrishna pattam	- - -	[illegible]	- - -	
	Madhusudhana	- - -	[illegible]	- - -	
	Bhimanadhuni	1996	102	0.32	"
			11	0.24	"
	Pairu Narasaiah	1996	[illegible]	0.10	"
			[illegible]	0.03	"
			[illegible]	0.02	"
			[illegible]	0.02	"
			[illegible]	0.07	"
			[illegible]	0.11	"
			[illegible]	0.12	"
			[illegible]	0.13	"
			[illegible]	0.15	"
			[illegible]	0.03	"
			2196	0.03	"
			2197	0.14	"
			33 M	0.05	"
			[illegible]	0.09	"
			[illegible]	0.07	"
			[illegible]	0.11	"
			3[illegible]	0.05	"
			[illegible]	0.13	"
			[illegible]	0.42	"
			2654	0.03	"

Mandal Revenue Officer
NARSINGAPURAM

11	12	13	14	15	16
Narasimhapa	Parkabandeh	484	3604	0.09	Grazing Jungle
			3644	0.07	"
			3652	0.03	"
			3706	0.04	"
			3727/3848	0.06	"
			2762	0.015	"
			2757	0.07	"
			2774/3760	0.02	"
			3774/3849	0.03	"
			3774/3734	0.04	"
			3736/1	0.13	"
			3721/3752	0.01	"
			3779/3740	0.03	"
			3523	0.015	"
			3360	0.09	"
			3597	0.15	"
			3641	0.07	"
			3681	0.09	"
			2889	0.11	"
			2852	0.16	"
			2873	0.06	"
			3785	0.09	"
			3608	0.10	"
			3609	0.06	"
			3640	0.11	"
			3170	0.09	"
			3611	0.11	"
			3169	0.09	"
			3203	0.015	"
			2778	0.07	"
			2782	0.03	"
			2806	0.07	"
			2907	0.25	"
			2809	0.10	"
			3418	0.10	"
			3406	0.10	"
			3415	0.10	"
			3417	0.12	"
			3273	0.09	"
			3405	0.12	"
			3283	0.10	"
			3382	0.07	"
			3369	0.09	"
			3370	0.05	"
			3263	0.06	"
			3373	0.10	"
			3376	0.19	"
			3380	0.10	"
			3239	0.08	"
			3341	0.03	"
			3342	0.07	"
			3343	0.06	"

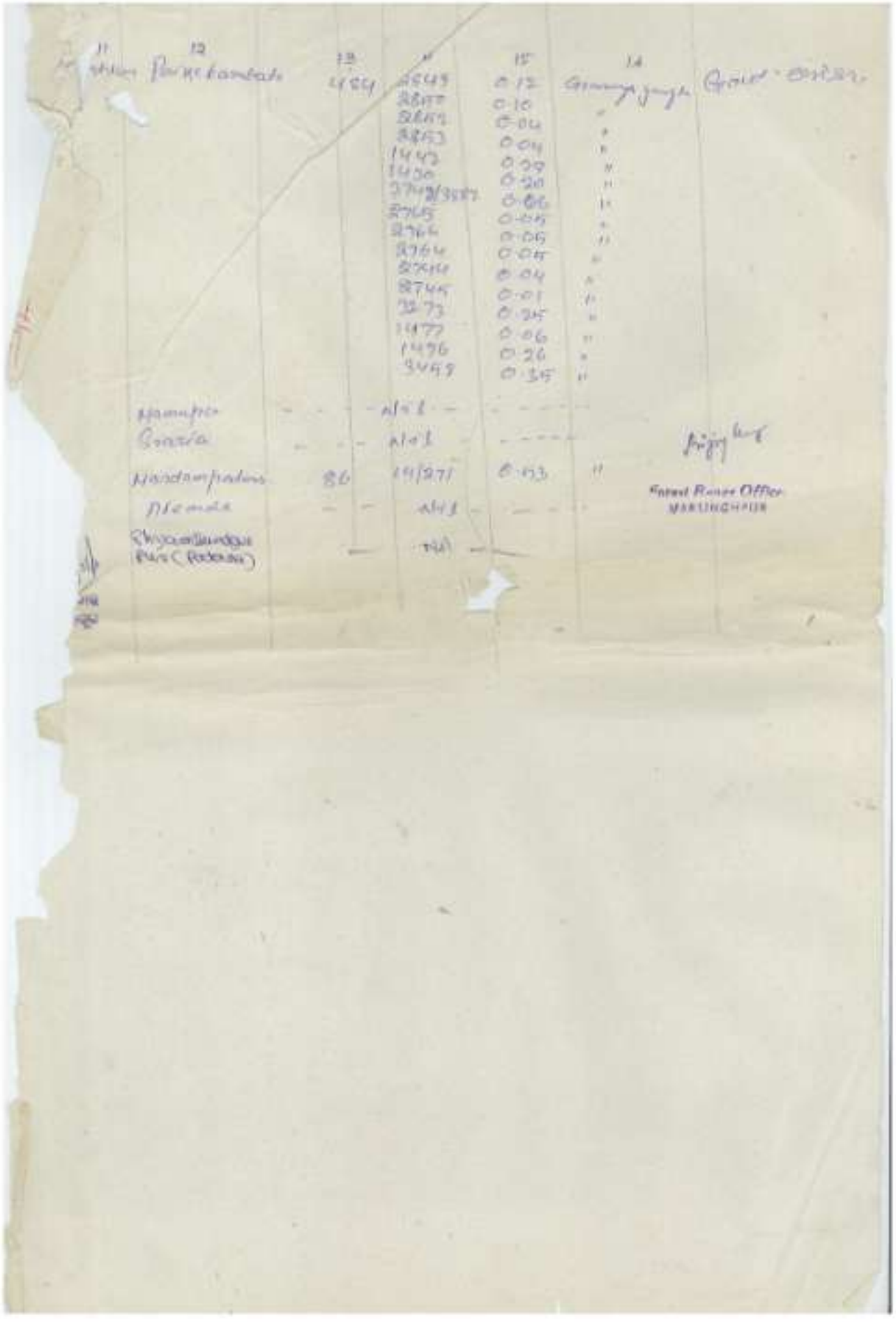
Forest Range Officer
NARSIMHAPUR

11	12	13	14	15	16	
Mahalakshmi	Parvathamma	USA	3122	0.09	Groundnut Jungle	Govt. Office
			3001	0.09	"	
			3123	0.36	"	
			3128	0.11	"	
			3126	0.10	"	
			3127	0.13	"	
			3125	0.10	"	
			3130	0.64	"	
			3237/3243	0.07	"	
			3209/3265	0.82	"	
			3234/3264	0.13	"	
			3150	0.09	"	
			3169	0.07	"	
			3178	0.19	"	
			3196	0.34	"	
			3209	0.09	"	
			3211	0.10	"	
			3327	0.03	"	
			3686	0.12	"	
			3602	0.10	"	
			3593	0.09	"	
			3588	0.03	"	
			3626	0.18	"	
			3627	0.11	"	
			3624	0.05	"	
			3629	0.07	"	
			3630	0.08	"	
			3631	0.08	"	
			3696	0.19	"	
			1571	0.01	"	
			1571	0.04	"	
			141141	0.12	"	
			2577	0.08	"	
			3532	0.04	"	
			3535	0.11	"	
			3592	0.02	"	
			95215	0.04	"	
			2750/2855	0.03	"	
			3162	0.14	"	
			3807/3807	0.83	"	
			2563/2596	0.06	"	
			3168	0.11	"	
			2774/2807	0.05	"	
			3696	0.18	"	
			3697	0.10	"	
			3700	0.18	"	
			3715/3893	0.04	"	
			2744			
			2746	0.03	"	
			3737	0.18	"	
			3515	0.03	"	
			2521	0.04	"	
			2525	0.06	"	
			2532	0.05	"	
			2161	0.56		
			2745	0.17		

Forest Range Officer
MARLINGHPUR

11	12	13	14	15	16
Hamsaghan	Parambanadi	UBR	2[illegible]	0.13	Groundnut Jungle
			[illegible]509	0.02	"
			[illegible]511	0.19	"
			3[illegible]652	0.27	"
			[illegible]647	0.10	"
			[illegible]657	0.05	"
			[illegible]661	0.10	"
			[illegible]661	0.03	"
			[illegible]665	0.11	"
			[illegible]659	0.04	"
			[illegible]628	0.86	"
			[illegible]639	0.10	"
			[illegible]646	0.03	"
			[illegible]643	0.06	"
			[illegible]646	0.06	"
			[illegible]650	0.18	"
			[illegible]650	0.19	"
			[illegible]670	0.07	"
			[illegible]671	0.06	"
			[illegible]669	0.24	"
			[illegible]675	0.03	"
			[illegible]656	0.02	"
			[illegible]693	0.92	"
			[illegible]692	0.10	"
			[illegible]675	0.22	"
			[illegible]704	0.06	"
			[illegible]701	0.15	"
			[illegible]705	0.06	"
			[illegible]709	0.10	"
			[illegible]711	0.09	"
			[illegible]702	0.18	"
			[illegible]726	0.17	"
			[illegible]716	0.43	"
			[illegible]707	2.53	"
			[illegible]755	0.02	"
			[illegible]754	0.03	"
			[illegible]759	0.17	"
			[illegible]756	0.15	"
			[illegible]751	0.05	"
			[illegible]758	0.07	"
			[illegible]759	0.10	"
			[illegible]763	0.13	"
			[illegible]764	0.03	"
			[illegible]765	0.02	"
			[illegible]766	0.02	"
			[illegible]720	0.13	"
			[illegible]712	0.19	"
			[illegible]730	0.30	"
			[illegible]956	0.71	"
			[illegible]983	0.07	"
			[illegible]965	0.16	"
			[illegible]929	0.04	"

[illegible] Range Officer
[illegible]


Forest Ranger Office
MARLINCHAIN