

**WORKING SCHEME**

**FOR**

**BANKI RANGE**

**OF**

**ROURKELA (T) DIVISION**

**(For The Period of 2017-18 to 2023-24)**

**Prepared by**

Dr. Sanjeet Kumar, IFS

Divisional Forest Officer, Rourkela

**Under Guidance of**

Sri Lingaraj Otta, IFS,

Regional Chief Conservator of Forests,

Rourkela Circle

# **INTRODUCTION**

Bonai Forest Division was created with effect from 1.1.1948 after independence. The forests of Bonai state were not subjected to any systematic form of management prior to the year 1911. However, with the visit of Agency, some sort of regulatory control in the working of the forests was introduced. The management of the forests in a systematic direction began with the preparation of Working Plans from time to time as detailed below.

There were 5 (Five) Territorial Ranges namely Bonai, Koirra, Jarda, Tamra, Banki and one non-territorial Range with head quarters at Barsuan exclusively for Railway and Mining activities.

Consequent upon reorganization of Forest Department on 1.10.2003 vide Govt. Notification No. No.13228 / F & E dt.08.8.2003 and No. 17803/F&E DT. 27.10.2009 in Forest and Environment Department the entire area of Banki Range of Bonai Forest Division merged with newly created Rourkela Forest Division from 1.10.2003.

## **Babu J.N. Ghosh Plan (1931-32 to 1950-51)**

It was the 1<sup>st</sup> Working Plan prepared and published in the year 1935 under the direction of the Agency forest officer for management of 35 R.F blocks only covering an area of 527.1Sq. Miles. Under this plan, following four Working Circles were constituted.

1. High Forest Working Circle.
2. Dandpat Working Circle.
3. Coppice Working Circle.
4. Bamboo (overlapping) Working Circle.

### **Sri S.N. Das Plan (1953-54 to 1972-73)**

Revised Working Plan was prepared by Sri S.N. Das, IFS, WPO, Sambalpur and was brought into force from the year 1953-54. Only the R.F areas of this Division were included in this plan for its systematic management. The following 6 (Six) Working Circles were constituted under this Working Plan.

1. Conversion Working Circle.
2. Selection Working Circle.
3. Selection Coppice Working Circle.
4. Coppice Working Circle.
5. Bamboo (overlapping) Working Circle.
6. Protection Working Circle.

### **Sri G.G. Das Plan (1973-74 to 1992-93)**

The Revised Working Plan for the period from 1973-74 to 1992-93 was prepared by Sri G.G. Das, IFS, WPO, Sambalpur. This plan was further extended up to 1995-96 vide Government letter No.24786/F&E dt.26.11.1993. It was further extended up to 30.6.1998 vide No.18-FC-WP-OS-Bonai dt.13.12.1997 of the CCF (Central), Bhubaneswar. Some of the prescriptions of the Working Plan were also amended as per the provisions of the forest (Conservation) Act'1980 vide Memo No.26961 (4) dt.28.12.1990 of the Principal Chief Conservator of Forests, Odisha, Bhubaneswar. In this Plan, only 55 RF Blocks covering an area of 1, 8,428.445 Ha were included for systematic management by constituting 6 (Six) Working Circle as per detailed below.

1. Sal Conversion Working Circle.
2. Selection Working Circle.
3. Coppice Working Circle.
4. Plantation Working Circle.
5. Protection Working Circle.
6. Bamboo (overlapping) Working Circle.

### **Sri Suresh Pant Plan (1997-98 to 2016-17)**

The present Working Plan prepared by Sri Suresh Pant, IFS, Working Plan Officer, Sambalpur came into force with effect from 1997-98 and is valid up to 2016-17. In this plan, the PRF areas (already notified u/s-4 of O.F. Act'1972) of 43 blocks have been included for the first time for its systematic management along with the R.F. areas. But while preparing the Working Plan, the area of R.F. and P.R.F. Blocks have been computed by the W.P.O Sambalpur from latest Topo Sheet of 1:25,000 scale and included in the plan for its management. The details of area of R.F. and P.R.F. blocks as per Government Notification and area found as per computation based on Topo Sheet and included in the Plan is as detailed below.

Category of Forest.	Area in Ha as per Government Notification.	Area computed by WPO from latest Topo Sheet of 1:25,000 Scales and included in the Working Plan.	Area of Banki Range out of the computed area in Ha.
1	2	3	4
1. Reserved Forests	1,16,212.893 (59 blocks)	1, 15, 455.452 (59 blocks)	13,159.676 (14 blocks)
2. P.R.F. (U/S-4)	35,310.178 (43 blocks)	33, 937.382 (43 blocks)	1,977.190 (7 blocks)
<b>G Total:-</b>	<b>1, 51, 523.071</b>	<b>1, 49, 392.834</b>	<b>15,136.866</b>

The above computed RF & PRF area of 1,49,392.834 Ha are being managed in 7 (Seven) Working Circle as per details below.

Sl. No.	Name of Working Circle	Area in Ha. as per Working Plan	Area of Banki Range in Ha.	Remarks
1	Selection Working Circle	1, 20, 295.172 Ha.	11,878.147	
2	Protection Working Circle	8, 426.860 Ha.	604.562	
3	Rehabilitation-cum-Plantation Working Circle	20, 670.802 Ha.	2,654.157	
4	Bamboo (overlapping) Working Circle	70, 190.802 Ha.	5,098.422	
5	Wild life (overlapping) Working Circle	1, 48, 156.952 Ha.	14,650.244	
6	N.T.F.P (overlapping) Working Circle	1, 48, 156.952 Ha.	14,650.244	
7	Misc. (overlapping) Working Circle	3, 809.992 Ha.	Nil	
<b>Total:-</b>		<b>1, 49,392.834 Ha.</b>	<b>15,136.866</b>	

The present working plan of Bonai division covers Banki Range of Rourkela Division and the plan ends in the year 2016-17. In the mean time the working plan of Rourkela Division has been approved for the period from 2014-15 to 2023-24 which does not cover Banki Range. So it is necessary to write the preliminary working scheme report of Banki Range for the period from 2017-18 to 2023-24. After that one consolidated Working Plan for the entire Rourkela Division can be prepared.

The peoples of Banki Range generally depend on the following weekly markets to meet their requirement. The details are given below.

<b>Sl. No.</b>	<b>Name of weekly market</b>	<b>Day of weekly market sitting</b>	<b>Time</b>
1	Lahunipara	Sunday	10 Am to 6 Pm
2	Bimlagarh, Darjing	Monday	7 Am to 4 Pm
3	Chandiposh	Tuesday	8 Am to 4 Pm
4	Lahunipara, Relhatu	Wednesday	10 Am to 6 Pm
5	Bimlagarh	Thursday	8 AM to 4 PM
6	Birtola, Kucheita, Relhatu	Friday	8 Am to 4 Pm
7	Banki, Gamalei	Saturday	8 Am to 4 Pm

Besides, the people of this Range depend upon other surrounding weekly markets coming under the jurisdiction of Bonai Division to meet their requirements.

In Banki Range of Rourkela Forest Division, a place named Deodarh has been identified as the Ecotourism puritanical place which attracts the tourists to enjoy the natural beauty and for picnic. Social customs of the peripheral forest dwellers are linked with worshipping the “tree” in the tradition of KARMA PUJA and TUSI PUJA which is prevalent age old practice.

The head quarters of this Range is now at Rajamunda which is encircled by river Brahamani and National Highway 143 on the Western direction. Besides, NH-215 strats from Rajamunda of Rourkela Forest Division and passes upto Panikoili of Jajpur District through Koira Range of Bonai Division on East direction. More over some Village roads are concreted under PMGSY Scheme. Now the people are availing better communication. The forest roads are maintained by Forest Department under CAMPA and State Plan Scheme.

The approved Working Plan of Banki Range is valid up to 2016-17. The Working Plan of Other Ranges of Rourkela Division approved by Government of India vide No.8 (31) 19/2014-FCE dt.29.9.2014 is valid for 10 years from 2014-15 to 2023-24. Hence, it is suggested to prescribe the Working Scheme of Banki Range for a period of 7 years from 2017-18 to 2023-24 incorporating all the major prescriptions of expiring plan which were not carried out during the plan period due to varios reasons so that the next working scheme of entire Rourkela (T) Division can be prepared for the period from 2024-25 onwards.

Divisional Forest Officer  
Rourkela Forest Division

## **PART-I**

### **1. Situation of the Range**

Banki Forest Range comes under Bonai Civil Sub-Division of Sundargarh District in the expiring Working Plan. The Head Quarters of this Forest Range is now at Rajamunda which is encircled by river Brahamani on North and East direction and National Highway 143 on Western direction. Besides, NH-215 starts from Rajamunda of Rourkela Division and runs up to Panikoili of Jajpur District through Koira Range of Bonai Division on East direction. Banki Range was under the control of Bonai Division up to 30.9.2003. During re-organisation of Forest Department vide notification No.13228/F&E dt.8.8.2003, the entire portion of Banki Range merged with Rourkela Division from 1.10.2003. The nearest Railway Stations are Bimlagarh, Chandiposh and Rourkela at a distance of 20 Km, 25 Km. and 50 Km. respectively from Rajamunda.

In the current Working Plan of Banki Range, in total, 10 RF blocks, 4 RF extension blocks and 7 PRF blocks are included.

In North, Jharbeda Block is the largest one and forms almost a compact and continuous patch of forest along with its adjoining and nearby forest blocks of Silkuta-I RF, Silkuta-II RF and PRF.

In the West also, almost a compact and contiguous patch of forests is formed by RF blocks of North Champajharan RF, South Champajharan RF, Kucheita RF, Kukia RF and Kuradhi RF, Dhanghar RF. The remaining RF and PRF blocks both in East and West are having scattered type of distribution.

### **2. Geographical area**

The total geographical area of Bonai Civil Sub-Division is 3,357 Sq. Km and the expiring Working Plan of Bonai Division including Banki Range was based on the total area.

But after re-organisation of Forest Division with effect from 1.10.2003, the entire area of Banki Forest Range was separated from Bonai Division and merged with Rourkela Forest Division. The net geographical area of Banki Range comes to 422.79 Sq. Kms.

### 3. Forest area & Topography

The total forest area of Banki Range as on 1.4.1997, prior to re-organisation was 26,444,797 Ha and the detail break up was as below.

(a) Reserved Forests: -	13, 318.326 Ha. (14 blocks)
(b) P.R.F. (u/s-4):-	1, 690.495 Ha. (7 blocks)
(c) UDPF (K.F):-	11, 330.997 Ha.
(d) Village Forests: -	95.710 Ha.
(e) <u>Un-classed forests: -</u>	<u>9.269 Ha.</u>

**Total: - 26, 444.797 Ha.**

**(Source- Divisional Forest Officer, Rourkela Division.)**

All the R.F. blocks (14 nos.) covering an area of 13, 318.326 Ha. and all PRF blocks (7 nos.) covering 1,690.495 Ha. i.e., total of 15,008.821 Ha have been included for its management in the current Working Scheme. In addition to this the area notified during the expiring plan period U/s-4 as PRF and U/s-33 as PF and DPF has been included in proposed Working Scheme for its management.

While preparing the expiring Working Plan, the forest area of RF and PRF blocks have been computed by Working Plan Officer, Sambalpur from latest Topo sheet of 1:25,000 scale and the area came to 13,159.676 Ha (14 blocks) and 1,977.190 Ha. (7 blocks), the total being 15, 136.866 Ha.

The forests of this Division are covered by the following Topo Sheets of the scale 1:50, 000 and 1:25, 000.

1:50, 000 Scale	1:25, 000 Scale
73B/16	73B/16 SE
73C/13	73C/13 NE
73F/4	73C/13 NW
	73C/13 SE
	73F/4 SE
	73F/4 SW



#### 4. Forest area in detail like RF, PRF, VF etc.

**4.1 Reserved Forest (R.F)** – The current Plan of Banki Range for the period from 1997-98 to 2016-17 covered 14 R.F blocks (13,318.326 Ha.). The present Plan will also cover the said area of 13,318.326 Ha. as per Government Notification during 2017-18 to 2023-24 and the details are given bellow:

##### **List of Reserved Forests (RF) of Banki Range.**

Sl. No.	Name of the Forest Block	Area in ha. As per Govt. Notification excluding de-reserved area	Area computed by WPO from latest Topo sheet of 1:25,000 scale during last plan (1997-98 to 2016-17)	Notification No. & Date
1	2	3	4	5
1	N.Champajharan RF	1092.675	1028.313	No.13624/CF-12F-179/M/57 dt.27.7.57
2	S.Champajharan RF	1450.667	1397.813	-do-
3	Silkuta-I RF	2042.088	1976.375	-do-
4	Silkuta-I Ext. RF	153.783	153.78	No.75497/R dt.20.9.1976
5	Silkuta-II RF	885.876	884.999	No.13624/CF-12F-179/M/57 dt.27.7.57
6	Silkuta-II Ext. RF	186.159	186.159	No.35936/FS dt.14.5.1975
7	Kucheita RF	395.791	395.791	No.13624/CF-12F-179/M/57 dt.27.7.57
8	Kukia RF	467.017	467.017	-do-
9	Kuradhi RF	489.680	501.188	-do-
10	Kuradhi Ext. RF	38.445	38.446	No.38609/FS dt.13.6.1983
11	Jharbeda RF	3615.540	3587.813	No.13624/CF-12F-179/M/57 dt.27.7.57
12	Jharbeda Ext. RF	224.605	224.605	No.74552/FS dt.22.9.1975
13	Dhanghar RF	894.374	935.749	No.13624/CF-12F-179/M/57 dt.27.7.57
14	Mahura RF	1381.626	1381.628	-do-
<b>Total:-</b>		<b>13318.326</b>	<b>13159.676</b>	
<b>Source :- Divisional Forest Officer, Rourkela Division</b>				

**4.2 Proposed Reserved Forest (PRF)** – The current Plan of Banki Range for the period from 1997- 98 to 2016-17 covered 7 P.R.F blocks covering an area of 1,690.495 Ha. Subsequently 4 blocks covering an area of 162.744 ha have been notified U/s-4 of OFA'1972 during the Plan period. Thus, the total PRF blocks come to 11 covering an area of 1,853.239 ha. Hence present Plan will cover 11 P.R.F blocks of 1853.239 ha. as per Government Notification during revision of the Working Plan from 2017-18 to 2023-24 and the details of these P.R.F blocks is given bellow:-

**List of PRF (U/s-4) of Banki Range.**

Sl. No.	Name of the Forest Block	Area in ha. As per Govt. Notification excluding de-reserved area	Area computed by WPO from latest Topo sheet of 1:25,000 scale during last plan (1997-98 to 2016-17)	Notification No. & Date
1	2	3	4	6
1	N.Champajharan	177.256	249.814	No.72992 dt.12.11.74
2	S. Champajharan	594.496	503.188	No.72265 dt.9.11.73
3	Hatioda PRF	52.772	203.250	No.4337 dt.20.1.84
4	Jharbeda PRF	71.630	138.375	No.40419 dt.20.6.84
5	Mahura PRF	282.476	214.063	No.72646 dt.10.11.73
6	Thelakudar PRF	78.915	62.125	No.43041 dt.4.6.76
7	Purnapani - Budhikutni Samardhari - Juniani PRF	432.950	606.375	No.39946 dt.18.1.84
8	Birtola PRF	27.114	Not included	No.12918 dt.13.3.2000
9	Kusumtola PRF	88.632	-do-	No.8968/ F&E dt.17.5.2012
10	Kucheita PRF	26.395	-do-	-do-
11	Kendughati PRF	20.603	-do-	-do-
<b>G.Total:-</b>		<b>1,853.239</b>	<b>1977.190</b>	
<b>Source :- Divisional Forest Officer, Rourkela Division</b>				

**4.3 Demarcated Protected Forest (DPF to be notified U/s-4 of OFA'1972)** – 3 no of Forest Blocks under the category of DPF to be notified U/s-33 of OFA'1972 have been submitted for approval. But, these areas are not covered under the existing working plan from 1997-98 to 2016-17. These areas are to be included during revision of the Working Scheme from 2017-18 to 2023-24 and the details of these blocks are given below:-

**DEMARCATED PROTECTED FOREST**

DEMARCATED PROTECTED FOREST					
Sl. No.	Name of Range	DPF	Notification No. & date	Area (in Ha.)	Area (in Acres.)
1	2	3	4	5	6
1	Banki	Nuagaon		214.476	
2		Dhanghar		855.927	
3		Karda		60.137	
Total:-				1,130.540	
Sources :- Divisional Forest Officer, Rourkela Division					

**4.4 Village Forest (VF)** – There are 15 Village Forests covering an area of 95.710 ha under Banki Range. The VF areas have not been included in the existing Working Plan. There is proposal to include the VF areas in the present working plan for the period from 2017-18 to 2023-24. The detail is given below:-

**Details of Village Forests of Banki Range.**

Sl. No.	Range	Name of Village	Area in Ha.	Govt. Notification No. & Date	Land schedule of the area in acres.
1	2	3	4	5	6
1	Banki	Bandupada	4.000	AFFN (SIDA) 89/91- 29566 F&E Dt.9.12.1992.	
2		Badpurnapani	3.200		
3		Gamalei	6.900		
4		Thiaberna	8.000		
5		Bad Tumkela	5.960		
6		Mishrapali	5.000		
7		Gadapali	8.000		
8		Gauduniposh	5.000		

9		Darjing	7.000		
10		Kenapali	5.050		
11		Kenapali	0.880		
12		Arkeikela	4.820		
13		Bhudhikutuni	8.000	AFFN (SIDA) 19/93 - 22017/ F&E Dt.27.9.1993.	
14		Nuapara	9.500	AFFN (SIDA) 19/93 - 26667/ F&E Dt.8.12.1993.	
15		Kapanda	14.400		
<b>Total:-</b>			<b>95.710</b>		
<b>Source : Divisional Forest Officer, Rourkela Division</b>					

**4.5 Protected Forest (PF)** – There are 9 Protected Forests covering an area of 487.838 ha in Banki Range. The Protected Forests (U/s-33 of OFA'1972) areas have been notified after preparation of the existing Working Plan. There is proposal to include the PF areas in the present working scheme for the period from 2017-18 to 2023-24. The details of the PFs are given below:-

**Details of Non-forest and forest land identified for Compensatory Affn. against the Diversion of forest land and declared as P.F. under section 33 of OFA'1972.**

Sl. No.	Name of User Agency with Mines	Nome of P.F.	Notification No. & date.	Name of Village	Name of PS	Area (in ha.)
1	Patbeda Iron Mines (14 ha.) of M/s M.G. Mohanty	San-Thelakudar	SRO No.342/2009 dt.20.8.2009	San-Thelakudar	K.Bolang	13.166
2	Patbeda Iron Mines of M/s MGM Mineral Ltd.	-do-	-do-	-do-	-do-	26.557
3	Narayanposhi Iron & Manganese Mines of M/s Amtc Ltd.	Kusumtola	SRO No.346/09 dt.20.8.2009	Kusumtola	Banki	184.591
4	Bhanjpali Iron Mines of J.N. Patnaik	San-Thelakudar	No.13445/ F&E	San-Thelakudar	K.Bolang	4.047
5	Tantra Irono Mines of M/s Korp Resources	Kucheita	SRO No.230/10 dt.5.6.2010	Kucheita	Banki	32.925
6	Nadidihi Iron & Manganese Mines of M/s Feegrade & Co Ltd.	Paramdihi	SRO No.344/2014 dt.14.7.2014	Paramdihi	K.Bolang	7.976

7	Oraghat Iron Mines of M/s Rungta Sons (P) Ltd.	Ruguda	SRO No.647/2013 dt.26.10.2014	Ruguda	-do-	27.658
8	Raikela Iron Mines of M/s Geetarani Mohanty	San-Thelakudar	SRO No.1/09 dt.14.5.2009	San-Thelakudar	-do-	65.459
9	Mahulsukha Manganese Mines of M/s AMTC Ltd.	San-Tikayatpali	No.16630/F&E dt.22.9.2005	San-Tikayatpali	Lahunipara	125.459
<b>Total:-</b>						<b>487.838</b>
<b>Source : Divisional Forest Officer, Rourkela Division</b>						

**List of Un-classed Forest will be given during the plan.**

**GRAND ABSTRACT**

Sl. No.	Type of Forest	Area as per current plan	Additional area notified from 1997-98 to 2015-16.	Total area	Area to be included in future plan
1	RF	13,318.326	-	13,318.326	13,318.326
2	PRF	1690.495	162.744	1853.239	1,853.239
3	VF	-	95.710	95.710	95.710
4	P.F	-	487.838	487.838	487.838
5	DPF (to be notified U/s-4)	-	1130.540	1130.540	1130.540
<b>Total:-</b>		<b>15,008.821</b>	<b>1876.832</b>	<b>16885.653</b>	<b>16885.653</b>

## **5. DLC REPORT OF THE DIVISION**

The D.L.C. report of Banki Range has been prepared during 1997. Re-organisation of Forest Division took place during 2003 with effect from 1-10-2003. However, the total forest area of Banki Range as on 1.4.1997, area included during 1997-98 to 2015-16, area excluded during that period and net area available as on 1-4-2016 is as below;

Category of Forests	Total area in Ha. as on 1.4.1997	Area added during 1997-98 to 2015-16.	Area excluded during 1997-98 to 2015-16.	Total area of Banki Range as on 1.4.2016.
1.Reserved Forests	13,318.326 (14 blocks)	-	-	13,318.326 (14 blocks)
2.PRF(u/s-4)	1690.495 (7 blocks)	162.744 (4 blocks)	-	1853.239 (11 blocks)
3.UDPF (KF as per Revenue record)	11,330.997	-	46.998 (Area of Kendughati and kucheita included in PRF)	11,283.999
4.P.F. (u/s-33)	-	487.838	-	487.838
5.Village Forests	95.710	-	-	95.710
6.Unclassed Forests	9.269	-	-	9.269
7.DLC Land	-	1,032.464	29.870 (Included in PF for San-Tikeyat pali PF (Part area)	1,002.594
8.DPF (to be notified u/ (s-4)	-	1,253.243	27.114 (Included in PRF) + 95.589 (Included in San-Tikayatpali PF)	1,130.540
<b>G Total:-</b>	<b>26,444.797</b>	<b>2,936.289</b>	<b>199.571</b>	<b>29,181.515</b>
<b>Source : Divisional Forest Officer, Rourkela Division</b>				

## 6. Forest area involved in the outgoing working Plan

The present Working Plan prepared by Sri Suresh Pant, IFS, Working Plan Officer, Sambalpur came into force with effect from 1997-98 and is valid up to 2016-17. In this plan, the PRF areas (already notified u/s-4 of O.F. Act'1972) of 43 blocks have been included for the first time for its systematic management along with the R.F. areas. But while preparing the Working Plan, the area of R.F. and P.R.F. Blocks have been computed by the W.P.O Sambalpur from latest Topo Sheet of 1:25,000 scale and included in the plan for its management. The details of area of R.F. and P.R.F. blocks as per Government Notification and area found as per computation based on Topo Sheet and included in the Plan is as detailed below.

Category of Forest.	Area in Ha as per Government Notification.	Area computed by WPO from latest Topo Sheet of 1:25,000 Scale and included in the Working Plan of Bonai Division.	Area of Banki Range out of the computed area in Ha.
1	2	3	4
Reserved Forests	1,16,212.893 (59 blocks)	1,15,455.452 (59 blocks)	13,159.676 (14 blocks)
P.R.F. (U/S-4)	35,310.178 (43 blocks)	33,937.382 (43 blocks)	1,977.190 (7 blocks)
<b>G Total:-</b>	<b>1, 51, 523.071</b>	<b>1,49, 392.834</b>	<b>15,136.866</b>

The above computed PF & PRF area of 1,49,392.834 Ha are being managed in 7 (Seven) Working Circle as per details below.

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7	Misc. (overlapping) Working Circle	(3, 809.992 Ha.)	Nil	
<b>Total:-</b>		<b>1,49,392.834 Ha.</b>	<b>15,136.866</b>	

The details of forest area involved in different working circle in respect of the area of Banki Range are given in the table as follows:-

**RF wise details of area allotted to different working circle in the expiring working plan from 1997-98 to 2016-17.**

Sl. No.	Name of the Forest Block	Area (in ha.)		Range	Working Circle
		Area in ha. as per Govt. Notification excluding de-reserved area	Area computed by WPO from latest Topo sheet of 1:25,000 scale during last plan (1997-98 to 2016-17)		
1	2	3	4	5	6
1	N.Champajharan RF	1092.675	1028.313	Banki	SWC & BWC
2	S.Champajharan RF	1450.667	1397.813	Banki	-do-
3	Silkuta-I RF	2042.088	1976.375	Banki	SWC & PWC
4	Silkuta-I Ext. RF	153.783	153.780	Banki	SWC

5	Silkuta-II RF	885.876	884.999	Banki	SWC
6	Silkuta-II Ext. RF	186.159	186.159	Banki	SWC
7	Kucheita RF	395.791	395.791	Banki	RWC
8	Kukia RF	467.017	467.017	Banki	RWC
9	Kuradhi RF	489.680	501.188	Banki	SWC & BWC
10	Kuradhi Ext. RF	38.445	38.446	Banki	SWC & BWC
11	Jharbeda RF	3615.540	3587.813	Banki	SWC & RWC
12	Jharbeda Ext. RF	224.605	224.605	Banki	SWC
13	Dhanghar RF	894.374	935.749	Banki	SWC, RWC & Bamboo
14	Mahura RF	1381.626	1381.628	Banki	SWC, Protection & Bamboo
<b>Total:-</b>		<b>13318.326</b>	<b>13159.676</b>		
<b>Source : Divisional Forest Officer, Rourkela Division</b>					

**PRF wise details of area allotted to different working circle in the expiring working plan from 1997-98 to 2016-17.**

Sl. No.	Name of the Forest Block	Area (in ha.)		Range	Working Circle
		Area in ha. as per Govt. Notification excluding de-reserved area	Area computed by WPO from latest Topo sheet of 1:25,000 scale during last plan (1997-98 to 2016-17)		
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
1	N.Champajharan	177.256	249.814	Banki	SWC
2	S. Champajharan	594.496	503.188	Banki	RWC
3	Hatioda PRF	52.772	203.250	Banki	RWC
4	Jharbeda PRF	71.630	138.375	Banki	SWC
5	Mahura PRF	282.476	214.063	Banki	RWC
6	Thelakudar PRF	78.915	62.125	Banki	RWC
7	Purnapani - Budhikutni Samardhari - Juniani PRF	432.950	606.375	Banki	RWC
8	Birtola PRF	27.114	Not included	Banki	Not included
9	Kusumtola PRF	88.632		Banki	
10	Kucheita PRF	26.395		Banki	
11	Kendughati PRF	20.603		Banki	
<b>Total:-</b>		<b>1853.239</b>	<b>1977.190</b>		
<b>Source : Divisional Forest Officer, Rourkela Division</b>					



## 7. Geology

The data have been collected from the Regional Officer of the Directorate, Geological Survey of India, Bhubaneswar during preparation of the Working Plan.

The rock formations found in Bonai Sub-Division belong mainly to ore Supergrapy of Pre-cambrianage. The important rock types are represented by Mica-Schists, Phyllites and Quartzites. Two graphs of sedimentaries known as Dhanjori group and Kolhan series are recognised and are younger than the Iron Ore series as well as Bonai granites (Singhbhum granite). The stratigraphy of the area is represented by the following geographical sequences.

P R E C A M B R I A N	RECENT to SUB-RECENT		Alluvium and soil
			Laterite Vein Quartz
			Aplitic granite and gneisses
	Iron Ore Super Group	Dhanjori Group	Dolomite dykes, Carbonaceous quartzite and phyllite
			Quartzite and Quartz-sericite Schists
			Quartzite, Phyllite, grit and conglomerate
		U N C O N F O R M I T Y	
		Bonai Group	Quartz reefs, Bonai granite
			Basic and Ultrabasic Intrusive
			Banded haematite jasper with iron ore.
			Purple and brown shale with Manganese ore
			Black Shale, Banded haematite jasper and iron ore Basic metavolcanics
		Iron Ore Group	Mica schists, Quartzite and phyllite
		Older Metamorphous	Quartzite.

### Alluvium and Soil :

Thick mantle or capping of yellow brown soil is observed over the area consisting of shales and granites. The river valleys and their flood plains are covered by alluvium.

### Building stones :

The granite gneisses, quartzite, dolerites and epidermitis available in the areas of this Range find their applications as road metals and railway blasts. The granites gneisses are also used as building stones and in the manufacture of concrete.

## 8. SOIL –

The soils of East Banki are derived from the rocks of iron ore series and are mostly red ferruginous soils.

The manganese ore deposits occurring in highly folded shales of the Iron Ore series have been intensely weathered over the years resulting in the formation of lateritic, reddish ferruginous type of soils and chert. As usual, the soil gradually diminishes along the slope and hill tops are usually covered with thin layer of soil. Accordingly, the quality of the Sal deteriorates and mostly quality IV to V type of Sal is found near the hill tops. Soil derived from mica schists and Quartzites are dry and only support a poor Mixed deciduous forests. Quartzite contains some clay forming ingredient which on washing gets deposited in patches. The granite rocks occurring in the areas of this Range produce some of the best agricultural soil which is distributed over a considerable area of the Brahamani Valley. Due to predominance of Quartzites and Quartz-Schists types of rocks in the hill ranges, West Banki is covered with adequate depth of soil and in such places, good stands of Sal are found. In general, due to poor type of soil, the quality of Sal is much poorer in West Banki than East Banki.

## 9. CLIMATE-

The average weather condition prevalent in this locality depend on solar radiation (Light, Heat and Temperature), Moisture and Wind. The climatic conditions of this locality for the year have been discussed below.

Climatic condition of the locality.			
Sl. No.	Climatic condition	Month	Descriptions
1	Summer	March to June	The summer months are very dry and hot, desiccating winds blow invariably from 11 AM to 4 PM. The highest temperature is felt in the month of May-June. The highest temperature goes up to 44° c. Occasional showers with thunderstorms are a common feature experienced in this locality.
2	Rain	July to September	Uniform precipitation occurs mainly during July and August. But rain starts from 15 <sup>th</sup> June. Practically there is no rain from December to January. Occasional shower occurs during February and March. It has been observed that unusual heavy precipitation occurs some time causing floods in the river systems of this Division.
3	Post Monsoon	October to November	Medium to heavy shower occurs in places, which impart an important role for the vegetation.
4	Winter	December to February	Practically cold season starts from November and last till the end of February. The continuity of dense vegetation imparts a distinct cold for a longer period.

**10. Rain fall** - The statement showing the extent of rainfall in different Community Development Blocks have been displayed in the table below.

**C.D. Block-wise rain fall data of Banki Range from 2009 to 2015 (up to August'2015).**

Year	Month												Total in MM	Total No. of rainy day
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept.	Oct.	Nov.	Dec		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b><u>Gurundia C.D. Block</u></b>														
2008	34	-	-	-	-	405	520	220	271	44	-	-	1493.8	71
2009	-	-	-	-	66	60	378	442	67	81	14	-	1107.9	70
2010	0.5	-	14	-	31.4	241	242	194	44	23	2	47	839.1	54
2011	-	-	-	61	158	121	180	399	684	53	-	-	1656	79
2012	60	4	-	20	39.0	163	203	672	336	88	15	-	1600	82
2013	5	7	12	49	16	237	486	384	218	323	-	-	1737	93
2014	-	18	25	0	47	159	438	420	321	50	-	-	1478	78
2015	5	16	77	89	76	133	491	475	100	-	-	-	1462	65

Year	Month												Total in MM	Total No. of rainy day
	Jan	Feb	Mar	Apr	May	June	July	Agu	Sept.	Oct.	No v.	Dec.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b><u>Lahunipara C.D. Block</u></b>														
2008	48	4.4	9.4	52.4	67	581.2	402.8	214	288	21	-	-	1688.2	95
2009	-	-	-	21	78.6	72.4	351.2	319.6	110.5	79.5	32	-	1065	79
2010	-	-	-	-	78.9	125.8	304	288.7	107.2	50.3	-	46	1000.5	67
2011	-	12.40	16.10	74.1	152.2	201.6	243.3	454.4	654.4	50.5	-	-	1859	90
2012	27.6	-	-	7.6	22.4	192.6	305.4	725.4	281.2	55	10	-	1627.4	80
2013	12	10.8	0	64.3	94	140	644.4	335.4	243.8	241.2	-	-	1785.9	91
2014	-	5	11.80	28.60	78.80	160.4	565.72	501	236.80	65.80	-	-	1653.88	72
2015	-	-	-	9.3	79.20	221.40	638.5	426.8	36.5	-	-	-	1411.7	61

<b><u>Koira C.D. Block</u></b>														
2009	-	-	-	-	84.3	75.7	317.2	100.8	103	41.3	40	-	762.3	75
2010	-	3	-	-	14	95	134.5	159.5	111.5	18.3	-	25.5	561.3	70
2011	47	11	17	113.5	88	247.6	146.3	335	480	57	-	-	1542.4	88
2012	21	9	-	60	6.2	71	303	386.5	25.2	101	14	1	1224.7	90
2013	3	11	5	70.3	69.3	138	444	288	202	221	-	-	1451.6	98
2014	-	-	-	-	8.55	39.95	420.85	446.3	173	84	-	-	1172.6	66
2015	-	-	-	178	5	147	465	Up to 7/8/15 = 35 MM	-	-	-	-	830 MM up to 7/8/15	43
<b>Source : Divisional Forest Officer, Rourkela Division</b>														

**11. Analysis of Rainfall** – As per the data, the rainfall in this tract is irregular. Due to change of rainfall pattern, the condition and composition of the vegetation differ from Northern part to that of Southern part of this Division. The bulk of precipitation occurs during the Rainy season by South-West Monsoon. Usually Rain breaks in the middle of June and continues up to September. Pre-Monsoon showers are also experienced in the last week of May or 1st week of June. Post monsoon showers are also experienced in the month of October and November. On an average 82 rainy days are recorded in a year.

## **12 Temperature**

The data in regard to temperature was being maintained in C.D. Block Bonai only in the Silt Research Station, Soil Conservation Department, Bijakuli. But it is observed that the center is not functioning at present. However, the average minimum and maximum temperature for the period from 2005 to 2009 and 2007 to 2011 have been maintained in Soil Conservation Department, Bonai and the month-wise temperature position are furnished below.

Month	Average Temperature from 2005 to 2009.		Average Temperature from 2007 to 2011.	
	Maximum	Minimum	Maximum	Minimum
1	2	3	4	5
January	27.7	12.2	27.5	12.1
February	30.7	15.0	30.1	14.8
March	35.6	19.3	25.4	19.1
April	40.1	24.1	40.0	24.0
May	41.3	26.7	41.2	26.0
June	36.9	26.3	36.5	26.0
July	31.5	24.6	31.0	24.0
August	31.1	24.5	31.0	24.0
September	32.1	24.3	32.0	24.1
October	32.2	21.4	32.0	21.2
November	30.2	16.2	30.0	15.8
December	27.6	7.5	27.6	5.8
Source : Divisional Forest Officer, Rourkela Division				

### 13 Humidity –

No records/ data relating to humidity have been maintained in this Division.

### 14. Rights & Concession

No rights are admitted in the Reserved Forests of this Range. However, as a concession, the Tribals are permitted to collect free of charge edible fruits, roots, leaves and grass for their own domestic consumption. Free grazing has been abolished in this Range since 1954. In times of calamities like flood or fire, supply of forest materials at schedule of rate is made to the distressed people from nearby forest areas as per provisions contained vide Rule-250 and 251 of “The Odisha Forest Department Code, 1979”. The tenants are allowed to take bamboos from the annual coupes at scheduled of rates. The tenants are also allowed to collect dry timber and firewood from Khesra Forests at half of the current schedule of rates subject to payment of their Nistar cess. The Prevailing schedule of rates for forest produce, Odisha, 1977 came into force with effect from 24.11.1977.

### 15. Boundary Position

The boundary length of both RF and PRF areas of Banki Range are as below.

Category of Forests.	Total No. of boundary pillars.	Total boundary line in Kms.		
		Boundary line except common boundary line.	Common boundary line.	Total in Kms.
1	2	3	4	5
1. RF	1,744	214.456	25.500	239.956
2. PRF (u/s-4)		70.417	18.000	88.417
<b>Total:-</b>	<b>1,744</b>	<b>284.873</b>	<b>43.500</b>	<b>328.373</b>

The details of RF and PRF-wise total number of boundary pillars, boundary line with common boundary line has been prepared and furnished below.

**List of Reserved Forests (RF) wise length of boundary line and Pillars of Banki Range.**

Sl. No.	Name of the Forest Block	Area in ha. as per Govt. Notification excluding de-reserved area	No. of Boundary Pillars in Nos.	Length of Boundary Line excluding common boundary line in Kms.	Length of common boundary line in Kms.	Total Boundary length in Kms.
1	2	3	4	5	6	7
1	N. Champajharan RF	1,092.675	198	19.198	0.750	19.948
2	S. Champajharan RF	1,450.667	148	16.140	0.750	16.890
3	Silkuta-I RF	2,042.088	72	27.752	2.250	30.002
4	Silkuta-I Ext. RF	153.783	90	5.430	2.250	7.680
5	Silkuta-II RF	885.876	103	21.435	3.500	24.935
6	Silkuta-II Ext. RF	186.159	137	8.500	3.500	12.000
7	Kucheita RF	395.791	214	14.072	-	14.072
8	Kukia RF	467.017	76	9.225	-	9.225
9	Kuradhi RF	489.680	40	7.945	0.500	8.445
10	Kuradhi Ext. RF	38.445	21	1.140	0.500	1.640
11	Jharbeda RF	3,615.540	312	48.887	5.750	54.637
12	Jharbeda Ext. RF	224.605	115	7.260	2.500	9.760
13	Dhanghar RF	894.374	84	15.441	-	15.441
14	Mahura RF	1,381.626	134	12.031	3.250	15.281
<b>G.Total:-</b>		<b>13,318.326</b>	<b>1,744</b>	<b>214.456</b>	<b>25.500</b>	<b>239.956</b>
1	N. Champajharan PRF	177.256	96	2.816	6.850	9.666
2	S. Champajharan PRF	594.496		6.362	6.400	12.762
3	Hatioda PRF	52.772		8.455	-	8.455
4	Jharbeda PRF	71.630		5.200	0.800	6.000
5	Mahura PRF	282.476		6.538	3.750	10.288
6	Thelakudar PRF	78.915	84	7.435	-	7.435
7	Purnapani-Budhikutuni-Samardari-Juiani PRF	432.950	119	15.180	0.200	15.380
8	Birtola PRF	27.114		3.000	-	3.000
9	Kusumtola PRF	88.632		10.030	-	10.030
10	Kucheita PRF	26.395		2.810	-	2.810
11	Kendughati PRF	20.603		2.591	-	2.591
<b>G.Total:-</b>		<b>1,853.239</b>	<b>299</b>	<b>70.417</b>	<b>18.000</b>	<b>88.417</b>

N.B. Common boundary with RF: - 18Kms.

Common boundary with PRF: - NIL

**Total: - 18 Kms.**

The length of common boundary of Reserved Forests and PRFs of Banki Range with Jharkhand state is 18 Km, and with Bonai Division is 52 Km.

Boundary pillar and boundary line are being maintained regularly basing on availability of funds. However, boundary clearance and maintenance will be taken up first during revision of the plan.

## 16. Forest Right Act-2006

The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act'2006 came into force with effect from 31.12.2007 vide S.O. No.2224 (E) dt.1.12.2007.

Accordingly, applications from the Schedule Tribes and Other Traditional Forest Dwellers of this Division have been received by the Sub-Divisional Level Committee through the Gram Sabha for issue of Forest Rights in shape of patta.

### Position of issue of patta in case of individual cases.

No application has been received for issue of forest right in case of Reserve forests. The inhabitants are under possession of the Revenue Forest lands (K.F.) The position of receipt of application and its disposal as on April 2016 are as below

Name of the Dist (sub-div wise)			1	Bonai
No. of village in the district			2	596
No. of villages fully covered so far (total)			2 (A)	259
No. of 1st Gram Sabha meetings held			3	301
No. of Gram Sabha meetings held subsequently			4	289
No. of FRCs constituted by Gram Sabha			5	590
No. of claims received by FRCs			6	14372
No. of claims verified by FRCs and sent to Gram Sabha (Out of Col. 6)			7	14037
Gram Sabha Level	No. of claims approved by Gram Sabha and sent to SDLC		8	13484
	Area Involved (in acres) & No. of families	Area in acres	9	-
		No. of families	10	13484
	No. of claims rejected by Gram Sabha		11	553
	No. of claims remanded to FRCs		12	0
	No. of Gram Sabha confirming completion of recognition on claims so far (total)		12 (A)	596
Sub-Divisional	No. of claims approved by SDLC (sub-div wise) & Sent to DLC		13	9142

Level Committee	Area Involved (in acres) & No. of families	Area in acres	14	-
		No. of families	15	9142
	No. of claims rejected by SDLC		16	3947
	No. of claims remanded to Gram Sabha		17	395
	No. of Sub-division confirming completion of recognition on claims so far (total)		17 (A)	-
District Level Committee Level	No. of claims approved by DLC for title		18	3953
	Area Involved (in acres) & No. of families	Area in acres	19	-
		No. of families	20	3953
	No. of claims rejected by DLC		21	286
	No. of claims remanded to SDLC		22	13
No. of certificate of titles distributed			23	3633
Area (in acre)			24	4524.64
No. of certificate of titles distributed by PTG			25	221
Area (in acres)			26	-
No. of claims uploaded			27	6994

**17. Area diverted under Forest Conservation Act'1980.**

Not applicable as there is no Mining Lease in Banki Range.

**18. FOREST FIRE**

The forest fire and the destruction caused there in is a regular feature of this Range. Most of the forest fire occurrences in this Range are intentional and manmade. The forest fire destroys micro organism of the ground soil and thus reduces the fertility of soil to a great extent. It also destroys trees of lower diameter, grasses and fire prone species. Many a times, the wild fauna and birds get destroyed due to forest fire. The forest fire around the village areas occurs mainly for collection of Mohua Flower and Kendu leaves.

However, the following measures have been taken in Banki Range to control forest fire.

(a) Fire map has been prepared for the Division showing intensity and occurrence of forest fire. Accordingly, precautionary measures are planned annually.

(b) Fire lines are cleared and maintained in the forest areas prone to regular fire hazard.



(c) The field staff have been supplied with necessary equipments and vehicles to tackle the fire menace effectively.

(d) Fire fighting squads have been engaged under CAMPA to control forest fire.

(e) Hired vehicles are provided to reach in the inaccessible areas quickly to control Forest fire.

(f) Mass awareness campaigns are organised every year before fire season in the month of February in the forest fringe villages to create awareness regarding destruction by forest fire.

(g) The VSS members/ local people are co-operating the field staff of this Division to extinguish forest fire. Incentius are paid to VSS/villagers through their VSS account for outstanding work in forest fire control.

The position of occurance of forest fire in this Range during last 19 years i.e. from 1997-98 to 2015-16 are as below.

<b>Year</b>	<b>Area affected by fire (in ha.)</b>	<b>Year</b>	<b>Area affected by fire (in ha.)</b>
<b>1997-98</b>	117.00 Ha.	<b>2007-08</b>	9.00 Ha.
<b>1998-99</b>	51.00 Ha.	<b>2008-09</b>	7.00 Ha.
<b>1999-2K</b>	21.00 Ha.	<b>2009-10</b>	5.00 Ha.
<b>2000-01</b>	79.00 Ha.	<b>2010-11</b>	6.50 Ha.
<b>2001-02</b>	16.00 Ha.	<b>2011-12</b>	4.50 Ha.
<b>2002-03</b>	-	<b>2012-13</b>	-
<b>2003-04</b>	980.00 Ha.	<b>2013-14</b>	-
<b>2004-05</b>	820.00 Ha.	<b>2014-15</b>	3.29 Ha.
<b>2005-06</b>	670.00 Ha.	<b>2015-16</b>	5.00 Ha.
<b>2006-07</b>	38.00 Ha.		
<b>Source : Divisional Forest Officer, Bonai and Rourkela Division</b>			

The details of expenditure incurred for the purpose during the period from 2003-04 to 2015-16 are furnished below;

Year	For Fire line creation & maintenance	For Fire protection squad with vehicle etc.	Fire equipments	Incentives to VSS/ People and awareness.	Cost of mapping	Total expenditure .
2003-04	-	1,300	-	-	-	1,300
2004-05	3,500	3,500	-	-	-	7,000
2005-06	10,500	1,000	500	-	300	12,300
2006-07	-	3,000	-	-	-	3,000
2007-08	-	4,000	-	-	-	4,000
2008-09	5,000	59,180	-	-	-	64,180
2009-10	-	-	-	-	-	-
2010-11	-	1,48,000	-	-	-	1,48,000
2011-12	-	33,855	-	-	-	33,855
2012-13	1,48,500	1,85,250	30,000	-	-	3,63,750
2013-14	1,65,000	3,78,000	35,000	46,800	-	6,24,800
2014-15	2,80,500	2,27,000	35,000	-	-	5,42,500
<b>Total:-</b>	<b>6,13,000</b>	<b>11,44,085</b>	<b>1,00,500</b>	<b>46,800</b>	<b>300</b>	<b>18,04,685</b>
Source : Divisional Forest Officer, Rourkela Division						

## 19. ENCROACHMENT

Banki Range is also having considerable area of forest land under active encroachment and shifting cultivation. A good portion of prime forest land having gentle slope, adjoining to the large settlement areas have been encroached for agricultural and home stead purpose. Some valley portion adjoining to perennial streams have been observed to be under active encroachment in the past.

Apart from this, some portions of the RF blocks were also under active encroachment in the past. As per instructions of the PCCF, Odisha vide his Memo No.12000(65)/9F-II(Misc)1/2002 dt.5.6.2002, the position of Pre-80 and Post-80 encroachment areas was jointly verified by the Forest Department with the Officials of Revenue Department during 2002-2003 and 2003-2004 and the position of encroachment are as below.

Category of Forests.	Item	No. of encroacher	Area in Ha. under encroachments	Remarks
1	2	3	4	5
RF	NIL			
PRF (u/s-4)	Pre-80	Nil	Nil	
	Post-80	Nil	Nil	
Revenue Forests	Pre-80	89	6.722	
	Post-80	489	150.683	
<b>G.Total:-</b>		578	157.405	
<b>Source : Divisional Forest Officer, Rourkela Division</b>				

**Measures to be taken to control the encroachment.**

(a) The encroached areas inside RF areas as indicated in the previous plan are to be verified and actual position is to be indicated in the Revised Working Plan. These areas were previously under Protection Working Circle, now to be included in Rehabilitation-cum-Plantation Working Circle for restocking of the barren areas through plantation on priority basis.

(b) All the old pending encroachment cases are to be finalised expeditiously as per the provisions of legal procedure under Forest Right Act'2006.

(c) Such areas are to be demarcated in the field and delineated on the management map with necessary details and reflected in the respective compartment histories.

(d) The forest boundary lines are to be surveyed, inspected and maintained at regular intervals to control fresh encroachment in the field.

(e) The forest areas either adjacent to the habitation or facing threat of encroachment are to be adequately protected by keeping proper watch and ward. The concerned Beat Forest Guard and Forester should be made accountable for fresh encroachment.

## 20. FOREST TYPE

Banki Range is mainly an isolated hilly tract and lies within the tropical zone. It is situated at a fairly good distance from sea and for that reason the vegetation is practically free from its direct influence. The altitude of the area varies from 152m in plains to 903m in Koirā plateau. The terrain is rugged and has continuous hill ranges interspersed with small pockets of level lands and valleys. The climate is characterised by hot dry and prolonged summer season with short and mild winter season.

The average rainfall of the area is about 1500 mm. and most of it is concentrated to monsoon months only. The occurrence of frost is rare and is of localised nature. Therefore, the entire area comes within the Northern Tropical Moist Deciduous Zone. But due to the factors like poor moisture retaining capacity of soil, regular incidence of annual fire and low depth of soil on the hills, some of the localities like hill tops and exposed slopes contain a poor and dry type of vegetation. The main types of forest embracing the major parts of the Range are the moist peninsular Sal, the dry peninsular Sal and the dry mixed deciduous forest.

The prevailing vegetation is of mixed type with Sal as the Principal species. Sal occurs as a dominant species both in moist and dry region of this Division and is also economically the most important species. At many places, both in plain and hilly terrain, it forms almost pure or nearly pure crop. Though on most of the hills, it ascends to the top, but it is at its best in the valleys having deep loamy soil. The quality of Sal and its associates varies from All India Quality-II to Quality-V depending upon type and depth of soil, aspect, moisture content of soil, altitude etc.

The forests of Banki Range are well stocked with trees of varying girth classes except the areas maintained under coppice system in the past which have already been degraded to a great extent and are bearing trees predominantly of smaller girth classes. Natural regeneration in most of the areas is satisfactory but the establishment of seedlings is very poor mainly due to occurrence of repeated annual fire and heavy biotic pressure.

Considerable areas of forest in North Banki especially, in the R.F. blocks of Silkuta contain a very fine quality Sal forests corresponding to that available in Saranda forests of Jharkhand State. Here the quality II and quality III are found in the valleys and in the lower slopes of hills having rich and well drained soil while quality IV Sal is found towards the top of hills. Drier and poorer type of Sal forests, generally of quality IV, occurs in most of the area of West Banki except in some valleys and moist packets of forest blocks of Champajharan.

Heavy felling of trees till recent past and repeated annual fires are responsible for more and more dryness of the tract and for reducing the moisture retention capacity of the soil. These facts coupled with excessive pressure of the grazing, increasing demand of firewood and small timbers in the periphery of villages, are the main adverse biotic factors contributing to degradation and depletion of the forest of this Range is gradually losing ground in some of the places and is being slowly replaced by either inferior miscellaneous species or by bushy growth of weeds which are more Xerophytic in nature.

The forests of this Range can be classified under the following types and subtypes in the lines of classification adopted by Champion and Seth.

1. Sub- group 5B- Northern Tropical Moist Deciduous Forests.

(i) Type: 5B/C1- Dry Sal Bearing Forests

Subtype: 5B/C1 (e)- Dry peninsular Sal Forests

(ii) 5/E 9- Dry Bamboo Brake.

The description of each type and Sub-type and its distribution is given below:-

**Dry Peninsular Sal Forests- Subtype 5B/C1 (e).**

This sub-type covers the largest area of the Division and is found extensively in all forest blocks lying in the Northern portion of East Banki, i.e., Dhanghar, Silkuta-I, Silkuta-II, Mahura, Champajharan, Kuradhi & Jharbeda. Forest under this subtype occurs on shallow soils derived usually from crystalline and

metarmorphic rocks. These types of soil are having poor moisture retention capacity and are not suitable for the development of moist Sal forests. Forest of this sub-type occupies entire portions of hills excepting the ridges and steep slopes where there is predominance of mixed miscellaneous forests and the moist valleys and level plains where forest type corresponds to moist Sal (low level) forest. Through, the area receives good rainfall which is adequate for the growth of moist sal but the factors like low moisture retention capacity of soil, occurrence of repeated annual fires contributing to more and more drier conditions etc. have caused the establishment of this type of forests. Sal is the dominant species forming 50 to 79% of standing crop. The quality of Sal is poor varying from Quality-IV to Quality-V. The quality of Sal is generally Quality-V over a considerable area, especially on upper slopes and hill summits, where the soil is quite shallow but in the valleys and lower slopes there are extensive areas of Quality-IV. In the areas adjoining to perennial streams where the soil is of good depth and water table is not low, small strips of Quality-III Sal is also available.

Quality-III is also available in the West Bonai along the Northern aspect of hills, particularly in the areas where the ground is flat or having gentle slope. In the poorer localities and in the drier aspects and towards the top of hills, forest under this subtype merges into dry miscellaneous forests. Regeneration of Sal is fairly well. Density of crop varies from 0.5 to 0.8.

The common associates of Sal in the top canopy are *Terminalia tomentosa*, *Anogeissus latifolia*, *Pterocarpus marsupium*, *Diospyros melanoxylon*, *Adina cordifolia*, *Mitragyna parviflora*, *Lagerstroemia parviflora*, *Madhuca Indica*, *Bambax ceiba* and *Sterculia urens*. The second storey comprises of *Embllica-officinalis*, *Terminalia chebula*, *Ougenia oojeinensis*, *Cleistanthus collinus*, *Lennea coromandelica*, *Semicarpus-anacardium*, *Buchanania lanzan*, *Xylea xylocarpa*, *Kydia-calycina*, *Symplocos racemosa* and *Scherebera swietenoides*. The under growth consists of *Indigofera pulchella*, *Flemingia chapper*, *Phoenix sylvastris* and *Desmodium* species. Common climbers available in the area are *Bauhinia vahlil*, *Smilax marcrophylla*, *Butea superba*, *Accasia pinnata* and *Combretum decandrum*. *Salia Bamboo (Dendrocalmus strictus)* occurs in

most of the blocks. Dungi bamboo (*Cephalostachyum pergracil*) occurs along nallah banks in the Raipiri, Kunjar and Majurdima blocks.

### **Dry Bamboo Breakes 5/E9**

Salia Bamboo (*Dendrocalums strictus*) is having its luxuriant growth in the upper slopes of hills of the forest blocks of Champajharan. Patches of these bamboos are also found within the areas of mixed forests where soil is too shallow to allow the growth of tree species. But the quality of bamboo in these areas is not good as culms are thin and short and clumps are small. The scattered tree species found are- *Boswellia serrate*, *Stereulia urens*, *Anogeissus-latifolia*, *Cochlospermum gossypium*, *Euphor-bia nivelia*, *Gardenia gummifera* etc.

### **Distribution of Forest area**

All the R.F. blocks (10 blocks) extension R.F. blocks (4 blocks) and PRF areas (7 blocks out of 11) i.e. total of 21 blocks have been included in the expiring working plan of Banki Range. The PRF blocks i.e. Birtola PRF, Kusumtola PRF, Kucheita PRF and Kendughati PRF covering an area of 162.744 Ha were not included for its management in the said Working Plan as these area were notified after 1997-98.

The areas of 10 R.F. blocks, 4 extension R.F. blocks and 7 PRF blocks of Banki Range were computed by the Working plan officer, Sambalpur from latest Topo sheet of 1,25,000 scale and arrived to be 12,556.686 Ha., 602.990 Ha. & 1,977.190 Ha respectively, while as per the R.F. register & records of Banki Range Office, the recorded area of these forest blocks is 12,715.334 Ha., 602.992 Ha. & 1,690.495 Ha respectively. Thus, the total computed area of the forest blocks covered under the expiring Working Plan for Banki Range comes to 15,136.866 Ha, while as per the records of Banki Range, the same is 15,008.821 Ha.

The R.F. & PRF wise details of notified area, computed area and area allotted to different Working Circle in the expiring Working Plan (1997-98 to 2016-17) relating to Banki Rnage is as below.

Sl. No.	Name of the Forest Block	Area in ha. as per Govt. Notification excluding de-reserved area	Area computed by WPO from latest Topo sheet of 1:25,000 scale during last plan (1997-98 to 2016-17)	Area allotted to Selection Working Circle in Ha.	Area allotted to Protection Working Circle in Ha.	Area allotted to Rehabilitation -cum- Plantation Working Circle in Ha.	Area allotted to Bamboo (overlapping ) Working Circle in Ha.	Area allotted to Misc. (overlapping) Working Circle in Ha.
1	2	3	4	5	6	7	8	9
1	N.Champajharan RF	1092.675	1028.313	1028.313	-	-	1028.313	-
2	S.Champajharan RF	1450.667	1397.813	1397.813	-	-	1397.813	-
3	Silkuta-I RF	2042.088	1976.375	1489.753	486.622	-	-	-
4	Silkuta-I Ext. RF	153.783	153.780	153.780	-	-	-	-
5	Silkuta-II RF	885.876	884.999	884.999	-	-	-	-
6	Silkuta-II Ext. RF	186.159	186.159	186.159	-	-	-	-
7	Kucheita RF	395.791	395.791	-	-	395.791	-	-
8	Kukia RF	467.017	467.017	-	-	467.017	-	-
9	Kuradhi RF	489.680	501.188	501.188	-	-	501.188	-
10	Kuradhi Ext. RF	38.445	38.446	38.446	-	-	38.446	-
11	Jharbeda RF	3615.540	3587.813	3452.240	-	135.573	-	-
12	Jharbeda Ext. RF	224.605	224.605	224.605	-	-	-	-
13	Dhanghar RF	894.374	935.749	868.974	-	66.775	868.974	-
14	Mahura RF	1381.626	1381.628	1263.688	117.940	-	1263.688	-
<b>Total:-</b>		<b>13318.326</b>	<b>13159.676</b>	<b>11489.958</b>	<b>604.562</b>	<b>1065.156</b>	<b>5098.422</b>	<b>0.000</b>
1	N.Champajharan PRF	177.256	249.814	249.814	-	-	-	-
2	S. Champajharan	594.496	503.188	-	-	503.188	-	-
3	Hatioda PRF	52.772	203.250	-	-	203.250	-	-
4	Jharbeda PRF	71.630	138.375	138.375	-	-	-	-
5	Mahura PRF	282.476	214.063	-	-	214.063	-	-
6	Thelakudar PRF	78.915	62.125	-	-	62.125	-	-
7	Purnapani - Budhikutni Samardhari - Juniani PRF	432.950	606.375	-	-	606.375	-	-
<b>Total:-</b>		<b>1690.495</b>	<b>1977.190</b>	<b>388.189</b>	<b>-</b>	<b>1,589.001</b>	<b>-</b>	<b>-</b>
<b>G.Total of RF &amp; PRF area :-</b>		<b>15508.821</b>	<b>15136.866</b>	<b>11,878.147</b>	<b>604.562</b>	<b>2,654.157</b>	<b>5,098.422</b>	<b>-</b>
<b>Source : Divisional Forest Officer, Rourkela Division</b>								



## **21. Biodiversity Survey:-**

No assessment of status of plant and faunal species and their periodic monitoring has been done in the past in this Range in formulating strategies for conservation, maintenance & enhancement of overall biodiversity.

But, a study on protection and conservation of Sacred Groves of Banki Range has been taken up and identified 4 No. of sites the details of activities undertaken in these areas are as below:-

1. Plantation of 100 Nos. Indigenous species planted in 4 No. of sites.
2. Conducted awareness cum consolidation meeting.
3. Management Plan Preparation.
4. Survey, demarcation, positing of heritage stone and pillar positing.
5. Provision of signage by engraving on locally available stone.
6. Protection of deities from destruction and vagaries of nature to be executed by community.
7. Enrichment Plantation of religious significant plant species.
8. Creation of permanent water source.

## **22. Regeneration Survey:-**

No Regeneration survey has been taken up during implementation of expiring Working Plan.

However, assessment of re-generation status will be taken up during preparation of the revised Working Plan of this Division based on guide lines as per para-74 of the National Working Plan Code, 2014.

## 23. Estimation of Growing Stock:-

Total computed area of 14 R.F. and 7 PRF blocks covered under the expiring Working Plan (1997-98 to 2016-17) of Banki Range is 15,136.866 Ha. The forest type, crop composition, crop quality, crop density etc are not uniform throughout the area but vary from place to place. The regeneration survey was taken up over about 1% of the area and the enumeration was carried out by linear strip sampling method. The total enumerated area of RF & PRF blocks is over 109.836 Ha. & 7.200 Ha respectively i.e. total of 117.036 Ha. The growing stock having girth of 30 cm at breast height & above were enumerated for the purpose. The RF and PRF wise details of result of the survey i.e. density of the crop, percentage of availability of Sal crop, average number of trees and bamboo clumps found per ha. is as below.

**RF and PRF wise details of density of crop, availability of Sal crop, average no. of trees to be removed in Selection Working Circle in the expiring working plan from 1997-98 to 2016-17.**

Sl. No	Name of the Forest Block	Area under SWC in Ha.	Average quality of crop	Average density of crop.	Enumerated area in Ha.	No. of Class-I trees	No. of Class-II trees.	Maximum No. of trees to be removed per Ha.
1	2	3	4	5	6	7	8	9
Sl. No	Name of the Forest Block	Area under SWC in Ha.	Average quality of crop	Average density of crop.	Enumerated area in Ha.	No. of Class-I trees	No. of Class-II trees.	Maximum No. of trees to be removed per Ha.
1	2	3	4	5	6	7	8	9
1	N.Champajharan RF	1028.313	IV	0.5	10.801	154	348	6
2	S.Champajharan RF	1397.813	IV	0.5	13.600	164	356	5
3	Silkuta-I RF	1489.753	IV	0.5	15.520	197	616	6
4	Silkuta-I Ext. RF	153.780	0	0	0	0	0	0
5	Silkuta-II RF	884.999	IV	0.5	8.798	141	312	6
6	Silkuta-II Ext. RF	186.159	0	0	0	0	0	0
7	Kuradhi RF	501.188	IV	0.5	4.840	42	68	3
8	Kuradhi Ext. RF	38.446	0	0	0	0	0	0
9	Jharbeda RF	3452.240	IV	0.5	34.399	259	734	4
10	Jharbeda Ext. RF	224.605	0	0	0	0	0	0
11	Dhanghar RF	868.974	IV	0.5	8.199	70	296	5
12	Mahura RF	1263.688	IV	0.5	13.679	126	356	5
<b>Total:-</b>		<b>11489.958</b>			<b>109.836</b>	<b>1153</b>	<b>3086</b>	

PRF Area								
Sl. No	Name of the Forest Block	Area under SWC in Ha.	Average quality of crop	Average density of crop.	Enumerated area in Ha.	No. of Class-I trees	No. of Class-II trees.	Maximum No. of trees to be removed per Ha.
1	2	3	4	5	6	7	8	9
1	N.Champajharan	249.814	IV	0.6	4.800	56	148	6
2	Jharbeda PRF	138.375	IV	0.5	2.400	15	16	2
<b>Total:-</b>		<b>388.189</b>			<b>7.200</b>	<b>71</b>	<b>164</b>	
<b>G.Total of RF &amp; PRF area :-</b>		<b>11,878.147</b>			<b>117.036</b>	<b>1,224</b>	<b>3,250</b>	
<b>Source : Divisional Forest Officer, Rourkela Division</b>								

## 24. Impact of the climate change:-

The general climate is of monsoon type & is characterized by three main seasons i.e. summer season, rainy season and winter season. The summer season starts from March and ends in June. The rainy season begins from July & continues upto October. The winter season starts from November and continues up to end of February. The monsoon usually breaks by the middle of June & continues till September with a few showers in October. Even during the winter, sporadic showers are there in the month of January or early February. Pre-monsoon showers are also experienced in the last week of May or the first week of June. Thunder & hail storms occur some times in the month of April & May. The cold weather is characterized by cool nights & heavy dews.

The details of climate change will be given during preparation of Plan.

## 25. Water resource Management:-

The river Bramhani is the major river flowing across the Range. It flows from North to south direction & passes along the boundary of the Range. It originates at Panposh from the confluence of two rivers mainly the Koel & Sankha. It enters Banki Range near Banki and after covering about 40 Km within the Range flows away into Bonai and Deogarh District. It has many tributaries in the forms of hill streams along its Western bank within the Range.

The most important amongst these hill streams is the Kuradhi nallah which originates from Toda block near Tensa & from there on North-West direction joins the river Bramhani at Barghat of this Range. Apart from this, it is fed by other important perennial streams in East Bonai i.e. Sarkunda nallah, Amrudhi nallah, Samji nallah, Rangan nallah, karapani nallah. All these nallahs are perennial in nature. The drainage of greater part of Western Banki is towards the river Brahmani.

The tribal as well as non-tribal habitats of Banki are usually located near such streams. West Banki has very few perennial streams. The non-perennial streams get dried up during summer season. The inhabitants are mainly dependent up on tanks & wells. The inhabitants of surrounding Rajamunda depend up on the water supply from wells/ Bore wells and from Brahmani river.

### **Remedy for Water resources Management**

Human being are directly as well as indirectly responsible to a great extent for the depletion & degradation of valuable forest of this Range through illicit felling, uncontrolled grazing, forest fire, encroachment of forest land etc. & are causing considerable damage to the forest vegetation & responsible for soil, water & noise pollution.

No specific fund for under taking various measures towards watershed development has been allocated to the Range in the past.

No records/data is available in this Range regarding decline of ground water level. However, there are 5 No of Hydrograph Network stations within the Range i.e. at Banki, Chandiposh, Lahunipara, Darjing & K Bolang established and managed by central Ground water Board, Bhubaneswar.

The concerned authorities will be contacted in the matter and special provisions will be made during revision of the working plan to sustain water resources and livelihood issues of the people living in & around natural inland water sources.

## **26. Natural Calamity:-**

The entire Range is Subject to extreme heat. So damage to forest vegetation may occur in the years of extreme drought.

Strong wind storms are generally experienced during the month of April to June but their adverse effect is very much localised and extent of damage is negligible. However, some damage to the forest vegetation occurs at irregular intervals when the intensity of cyclone is severe.

## **27. Tree Outside Forest:-**

Trees outside forests are located on the agricultural lands, institutional premises, road side Avenue Plantation etc. Some people are also involved in tree plantation of commercial species in their unproductive land. Free distribution of seedlings under farm forestry is made to the people/institution of this Range in each year. The details of seedling supplied to the public as well as to the sponge industries during last 5 (five) year is furnished below.

<b>Year</b>	<b>No. of seedlings supplied</b>
2010-11	50,000
2011-12	80,000
2012-13	1,60,000
2013-14	1,40,000
2014-15	2,25,000
2015-16	1,00,000

Apart from this, Avenue Plantation on both sides of different roads of this Range have been taken up under different schemes and the position of plantation during last 5 (Five) years is furnished below.

<b>Year</b>	<b>Area covered (in RKM)</b>
2010-11	-
2011-12	-
2012-13	-
2013-14	10 RKM
2014-15	22 RKM
2015-16	37 RKM

### **Suggestion for tree plantation outside forest areas.**

- (a) The VSS/JFMC will be motivated for plantation in and around the village over the non-forest areas.
- (b) Eco-clubs in all schools and colleges will be motivated to take up tree plantation within their premises.
- (c) There is provision to award best Gram Panchayat / Institution as well as individual for outstanding work in tree planting etc. under Prakruti Mitra and Prakruti Bandhu and cash prize of Rs.10,000/- and Rs.5,000/- have been given to the awardees respectively. The prize amount may be enhanced to popularise the schemes ultimately better result can be obtained in plantation.
- (d) Plantation on both sides of NH and all the major village roads are to be done in a planned manner.

Detailed work programme will be prepared during revision of the Working Scheme.

## **28. Flora & Fauna**

### **28.1 Flora**

The tract dealt with this Plan is situated about 200 km from the Bay of Bengal. The vegetation is absolutely free from influence of Sea. It lies in the tropical zone. The altitude of the area is about 244 mt above mean sea level. It is covered from all sides by forest clad hills which are intersected by a few passes or gorges connecting it with the surrounding areas. The only river Brahmani flowing from North to South direction. It receives the tributaries from surrounding hills and passes through a gentle undulating valley. There is a belt of level ground varying in width from five to fifteen kilometres on either side of the river. The rest of the area of this Range is hilly and undulating. However, the physiography of the Range can be best dealt with by describing the portions lying to the East and West of Banki during preparation of the Working Scheme.

## 28.2 Glossary of Odia, English & Latin name:-

### A - TREE.

List of Trees				
Sl. No.	Odia Name	Classifications	Botanical Name	Family
1	Amba	Large tree	<i>Mangifera indica</i>	Anacardiaceae
2	Ambada	Medium tree	<i>Spondias mangifera</i>	-do-
3	Achhu	Small tree	<i>Morinda tintoria</i>	Rubiaceae
4	Ankula	-do-	<i>Alangium salvifolium</i>	Alangiaceae
5	Amla	-do-	<i>Embllica officinalis</i>	Euphorbiaceae
6	Arjuna	Large tree	<i>Terminalia arjuna</i>	combretaceae
7	Asan / Sahaja	-do-	<i>Terminalia tomentosa</i>	-do-
8	Aswastha	-do-	<i>Ficus religiosa</i>	Moraceae
9	Ata / Ramphal	Small tree	<i>Annona reticulata</i>	Anonaceae
10	Agasti	-do-	<i>Sesbania grandiflora</i>	Papilionaceae
11	Ambthi	-do-	<i>Bauhinia malabarica</i>	Caesalpiniaceae
12	Baula	Medium tree	<i>Mimusops elengi</i>	Sapotaceae
13	Bija / Piasal	Large tree	<i>Pterocarpus marsupium</i>	Fabaceae
14	Badhial/Sitaphal	Small tree	<i>Annona squamosa</i>	Anonaceae
15	Bandhan	Medium tree	<i>Ougenia oojenensis</i>	Fabaceae
16	Bara	Large tree	<i>Ficus benghalensis</i>	Moraceae
17	Babul	Small tree	<i>Acacia nilotica</i>	Mimosaceae
18	Bahada	Large tree	<i>Terminalia belerica</i>	Combretaceae
19	Barabakulia	-do-	<i>Dalbergia paniculata</i>	Fabaceae
20	Buro	Small tree	<i>Zizyphus mauritiana</i>	Rhamnaceae
21	Barun	Medium tree	<i>Crataeva religiosa</i>	Capparidaceae
22	Bela	Small tree	<i>Aegle marmelos</i>	Rutaceae
23	Bhalia	Medium tree	<i>Semicarpus anacardium</i>	Anacardiaceae
24	Bheru	Small tree	<i>Chloroxylon swietenia</i>	Meliaceae
25	Batra	-do-	<i>Melia composita</i>	-do-
26	Bhersunga	Small tree	<i>Murraya koenigi</i>	Rutaceae
27	Badam (Deshi)	Large tree	<i>Terminalia catappa</i>	Combretaceae
28	Chadeigudi	Medium tree	<i>Vitex peduncularis</i>	Verbenaceae
29	Chakundi	Large tree	<i>Cassia siamea</i>	Caesalpiniaceae
30	Char	Small tree	<i>Buchanania lanzan</i>	Anacardiaceae
31	Chauli	-do-	<i>Elaeodendron glaucum</i>	Celastraceae
32	Chatian	Large tree	<i>Alstonia scholaris</i>	Apocynaceae
33	Choari	Medium tree	<i>Bauhinia retusa</i>	Caesalpiniaceae
34	Champa	Large tree	<i>Michelia champaca</i>	Magnoliaceae
35	Chaladhua	Small tree	<i>Erythrina suberosa</i>	Papilionaceae
36	Damkurudu	-do-	<i>Gardenia latifolia</i>	Rubiaceae
37	Dhaman	Large tree	<i>Grewia tiliaefolia</i>	Tiliaceae
38	Dhaura	-do-	<i>Anogeissus latifolia</i>	Combretaceae
39	Dimri	Small tree	<i>Ficus glomerata</i>	Moraceae
40	Eucalyptus	Large tree	<i>Eucalyptus species</i>	Myrtaceae
41	Gamhari	Medium tree	<i>Gmelina arborea</i>	Verbenaceae
42	Ghanta	Small tree	<i>Zizyphus xylopyra</i>	Rhamnaceae
43	Ghodalanja	Large tree	<i>Albizzia stipulata</i>	Mimosaceae

44	Genduli	-do-	<i>Sterculia urens</i>	Sterculiaceae
45	Gohira	-do-	<i>Acacia leucophloea</i>	Mimosaceae
46	Giringa	-do-	<i>Pterospermum heyneanum</i>	Sterculiaceae
47	Gua	Small tree	<i>Areca catechu</i>	Palmaceae
48	Harida	Large tree	<i>Terminalia chebula</i>	Combretaceae
49	Hinjal	Medium tree	<i>Barringtonia acutangula</i>	Lecythidaceae
50	Haldu (kurum)	Large tree	<i>Adina cordifolia</i>	Rubiaceae
51	Jamu	-do-	<i>Syzigium cumini</i>	Myrtaceae
52	Jari	-do-	<i>Ficus retusa</i>	Moraceae
53	Kadamba	Large tree	<i>Anthocephalus cadamba</i>	Rutaceae
54	Kaitha	-do-	<i>Feronia elephantum</i>	Rutaceae
55	Kamalagundi	Small tree	<i>Mallotus philippinensis</i>	Euphorbiaceae
56	Karada	-do-	<i>Cleistanthus collinus</i>	Euphorbiaceae
57	Karanj	Medium tree	<i>Pongamia pinnata</i>	Fabaceae
58	Kasi	Large tree	<i>Bridelia retusa</i>	Euphorbiaceae
59	Kendu	-do-	<i>Diospyros melanoxylon</i>	Ebenaceae
60	Khair	Small tree	<i>Acacia catechu</i>	Mimosaceae
61	Khajuri	Medium tre	<i>Phoenix sylvastris</i>	Palmaceae
62	Kochila	Large tree	<i>Strychnos nuxvomica</i>	Longaniaceae
63	Kangada	-do-	<i>Xylia xylocarpa</i>	Mimosaceae
64	Kodala	-do-	<i>Sterculia villosa</i>	Sterculiaceae
65	Kumbhi	Medium tree	<i>Careya arborea</i>	Lecythidaceae
66	Kusum	Large tree	<i>Scheichera oleosa</i>	Sapindaceae
67	Lankavalia	Small tree	<i>Anacardium occidentale</i>	Anacardiaceae
68	Lodha	Large tree	<i>Symplocos racemosa</i>	Symplocaceae
69	Mahanimba	-do-	<i>Ailanthus excelsa</i>	Simarubaceae
70	Mahula	-do-	<i>Madhuca indica</i>	Sapotaceae
71	Mankada kendu	-do-	<i>Diospyros embryopteris</i>	Ebenaceae
72	Mai	-do-	<i>Lannea coromandelica</i>	Anacardiaceae
73	Mundi	-do-	<i>Mitragyna parvifolia</i>	Rubiaceae
74	Neem	-do-	<i>Azadirachta indica</i>	Meliaceae
75	Nadia	-do-	<i>Cocos nucifera</i>	Palmaceae
76	Nageswar	-do-	<i>Messua ferrea</i>	Guttiferaceae
77	Paldhua	Small tree	<i>Erythrina indica</i>	Fabaceae
78	Palas	Small tree	<i>Butea monosperma</i>	-do-
79	Panasa	Medium tree	<i>Artocarpus intigrifolia</i>	Moraceae
80	Panigamhar	-do-	<i>Trewia nudiflora</i>	Euphorbiaceae
81	Patuli	-do-	<i>Lagerstroemia speciosa</i>	Lythraceae
82	Phasi	Large tree	<i>Anogeissus acuminata</i>	Combretaceae
83	Rai	-do-	<i>Dillenia pentagyna</i>	Dilleniaceae
84	Rajmohi	-do-	<i>Bursera serrata</i>	Burseraceae
85	Ritha	Medium tree	<i>Sapindus emerginatus</i>	Sapindaceae
86	Rohini	Large tree	<i>Soyimida febrifuga</i>	Meliaceae
87	Sal	Large tree	<i>Shorea robusta</i>	Dipterocarpaceae
88	Salai	-do-	<i>Boswellia serrata</i>	Burseraceae
89	Salapa	-do-	<i>Caryota urens</i>	Palmaceae
90	Saguan	-do-	<i>Tectona grandis</i>	Verbenaceae
91	Semal	-do-	<i>Bombax ceiba</i>	Bombacaceae
92	Sidha	-do-	<i>Lagerstroemia parviflora</i>	Lythraceae
93	Siris	-do-	<i>Albizia lebbek</i>	Mimosaceae



94	Sisoo	-do-	<i>Dalbergia latifolia</i>	Fabaceae
95	Sunari	Small tree	<i>Cassia fistula</i>	Caesalpiniaceae
96	Sajana	-do-	<i>Moringa oleifera</i>	Moringaceae
97	Sahada	Small tree	<i>Streblus asper</i>	Moraceae
98	Simakayan	-do-	<i>Pithecolobium dulce</i>	Mimosaceae
99	Tala	Large tree	<i>Borassus flabellifer</i>	Palmaceae
100	Tentuli	-do-	<i>Tamarindus indica</i>	Caesalpiniaceae
101	Tangini	Small tree	<i>Xylia dolabriformis</i>	Mimosaceae
102	Telko	-do-	<i>Randia uliginosa</i>	Rubiaceae

## B - SHRUBS

List of Shrubs			
Sl. No	Odia Name	Botanical Name	Family
1	Arakha	<i>Calotropis procera</i>	Asclepidaceae
2	Amari	<i>Ipomea fistulosa</i>	Convolvulaceae
3	Aswagandha	<i>Withania somnifera</i>	Solanaceae
4	Baincha	<i>Flocourtia sepiaria</i>	Flocourtiaceae
5	Baramasi	<i>Agave american</i>	Amaryllidaceae
6	Basanga	<i>Adhatoda vasica</i>	Acanthaceae
7	Bhanga	<i>Cannabis sativa</i>	Cannabinaceae
8	Gila	<i>Caesalpinia decapetala</i>	Caesalpiniaceae
9	Girili	<i>Indigofera pulchella</i>	Fabaceae
10	Karabir	<i>Nerium indicum</i>	Apocynaceae
11	Kanteikoli	<i>Ziziphus oenoplia</i>	Rhamnaceae
12	Ghurudu	<i>Gardenia gumifera</i>	Rubiaceae
13	Mamuri	<i>Antidesma diandrum</i>	Euphorbiaceae
14	Nagairi	<i>Lantana camara</i>	Verbenaceae
15	Ranidantakathi	<i>Flemingia chappar</i>	Fabaceae
16	Siju	<i>Euphorbia nivulia</i>	Euphorbiaceae
17	Telkoruan	<i>Ixora parviflora</i>	Rubiaceae
18	Jajangi	<i>Phyllanthus collinus</i>	Euphorbiaceae

## C- HERBS

List of Herbs			
Sl. No.	Odia Name	Botanical Name	Family
1	Ankaranti	<i>Solanum xanthocarpum</i>	Solanaceae
2	Anantamula	<i>Hemidesmus indicus</i>	Asclepidaceae
3	Ada (Ambakasi)	<i>Curcuma amada</i>	Zingiberaceae
4	Apamaranga	<i>Achyranthes aspera</i>	Amarantaceae
5	Baghanakhi	<i>Martynia diandra</i>	Pedaliaceae
6	Bhuinimba	<i>Andrographis paniculata</i>	Acanthaceae
7	Bhurngaraj	<i>Wedelia calendulacea</i>	Campositae
8	Chitaparu	<i>Plumbago zeylanica</i>	Plumbaginaceae
9	Dudura	<i>Datura stramonium</i>	Solanaceae
10	Ganjei	<i>Cannabis sativa</i>	Cannabinaceae
11	Ghikuari	<i>Aloe vera</i>	Liliaceae

12	Haladi	<i>Curcuma longa</i>	Zingiberaceae
13	Hatisundha	<i>Heliotropium indicum</i>	Boraginaceae
14	Patalagaruda	<i>Rauwolfia serpentina</i>	Apocynaceae
15	Palua	<i>Curcuma aromatic</i>	Zingiberaceae
16	Salaparni	<i>Desmodium gangeticum</i>	Fabaceae
17	Saptapheni	<i>Opuntia dillenii</i>	Cactaceae
18	Tulasi (dhala)	<i>Ocimum basilicum</i>	Labiatae
19	Tulasi (kala)	<i>Ocimum sanctum</i>	-do-
20	Nagapheni	<i>Opuntia vulgaris</i>	Cactaceae

#### D- GRASSES

List of Grasses			
Sl. No.	Odia Name	Botanical Name	Family
1	Baunsa ( salia )	<i>Dendrocalamus strictus</i>	Gramineae
2	-do- (daba)	<i>Bambusa arundinacea</i>	Gramineae
3	-do- (dungi)	<i>Cephalostachyum pergracile</i>	Poaceae
4	Babuli	<i>Pollinidium angustifolium</i>	Gramineae
5	Bena	<i>Vitiveria zizanoides</i>	-do-
6	Broom	<i>Thysalolaena maxima</i>	-do-
7	Duba	<i>Cynodon dactylon</i>	-do-
8	Kasatandi	<i>Saccharum spontaneum</i>	-do-
9	Sabai	<i>Pollinidium angustifolium</i>	-do-
10	Sinkula	<i>Hetropogon contortus</i>	-do-

#### E – CLIMBER

List of Climber			
Sl. No.	Odia Name	Botanical Name	Family
1	Atundi	<i>Combretum decandrum</i>	Combretaceae
2	Ambalata	<i>Bauhinia racemosa</i>	Caesalpiniaceae
3	Asadhua	<i>Capparis zeylanica</i>	Caparidaceae
4	Anantamuli	<i>Hemidesmus indicus</i>	Asclepiadaceae
5	Arsi / Gila	<i>Entada scandens</i>	Mimosaceae
6	Baidank	<i>Mucuna pruriens</i>	Fabaceae
7	Banamali	<i>Jasminum arborescens</i>	Oleaceae
8	Beta	<i>Calamus tenuis</i>	Palmaceae
9	Dantari	<i>Acacia pennata</i>	Mimosaceae

10	Desialu	<i>Dioscorea alata</i>	Dioscoreaceae
11	Dhudhiali	<i>Cryptolepis buchanani</i>	Euphorbiaceae
12	Gudmari	<i>Gymnema sylvestre</i>	Asclepiadaceae
13	Gulichhi	<i>Tinospora cordifolia</i>	Menispermaceae
14	Kaincha	<i>Abrus precatorius</i>	Fabaceae
15	Kalama	<i>Ipomea aquatic</i>	Convolvulaceae
16	Karaba	<i>Dioscorea pentaphylla</i>	Dioscoreaceae
17	Kankada	<i>Momordica dioica</i>	Cucurbitaceae
18	Lata palas	<i>Butea superb</i>	Fabaceae
19	Malati	<i>Aganosma caryophyllata</i>	Apocynaceae
20	Mardalai	<i>Milletia auriculata</i>	Fabaceae
21	Muturi	<i>Smilax macrophylla</i>	Liliaceae
22	Modanga	<i>Loranthus longiflorus</i>	Loranthaceae
23	Satabari	<i>Asparagus racemosus</i>	Liliaceae
24	Siali	<i>Bauhinia vahlii</i>	Caesalpiniaceae
25	Hadabhanga	<i>Cissus quadrangularis</i>	Ampelidaceae

## 28.2 (A) Fauna

**28.2.1 Elephant** – It is the biggest animal found in these forests. It attains height up to 9 ft, length to 11 ft and width 4 ft 6 inches. The weight of one male can reach up to 1500 kg and female up to 700 kg. It has two fan-like pinnate, trunks with one sensory projection and four knees. Male has long tusk than female and both can be trained. It uses low frequency sound to communicate among themselves, when cannot see each other. It cannot jump. They used to move in herds with about 5 to 15 Nos. in each herd.

**28.2.2 Elephant Census** - Elephant census had been taken up in different years in the forest of this tract. The census figure is given in the table below.

### Elephant Census

Year	Census figure
1999	Nil
2002	Nil
2005	Nil
2007	41
2010	Nil
2012	11
2015	39

**28.2.3 Tiger, Leopard and Water fowl Census** – The details of Census report of this Division is given in the table below.

**Tiger & Leopard Census**

Year of Census	Tiger in Nos.	Leopard in Nos.
1998	1	1
2000	Nil	Nil
2002	1	3
2004	Nil	Nil
2006	Nil	Nil
2010	Nil	Nil
2014	Nil	Nil

**Water fowl Census**

Year of Census	No. of Birds found
2003-04	399
2004-05	275
2005-06	254
2006-07	412
2007-08	1,223
2008-09	688
2009-10	740
2010-11	462
2011-12	350
2012-13	360
2013-14	179
2014-15	402
2015-16	467

**28.2.4 Bear** – It is a medium size animal with long coarse hairs. Limbs have 5-clawed digits; tail short and it can climb trees. Bear is partly carnivorous; also feed on fruits, honey and insects. It can walk upright on hind legs and can be tamed. It is found in almost all blocks included in this revision. Especially Landimal and Rail blocks are famous for bear population. Bear is a peace loving animal but become cruel when hungry or under attack.

**28.2.5 Spotted Deer** – It is seen in herds of 4 to 6 number on valley and plain along the perennial nallas flowing in this tract. The colour is bright fawn with white spots and a black line along the spine. It attains about 1 mt height. Only male has branchy horns. Their number is gradually decreasing.

**28.2.6 Rabbit** – It is seen in almost all peripheral forests in this zone. It is about 40 cm in length and 1 kg in weight. Body covered with fur and hairs. It varies in colour like pure white, black or mixed. Hind limbs longer and powerful for running and jumping. It has a pair of large movable pinnate and a short bushy tail. It feeds on grass.

**28.2.7          Monkey** – Two types of monkeys are seen in this area. The common monkey has a black face with silvery gray body colour. Hind limbs are longer than fore limbs. Females live in herd headed by one strong male. Males live in herd without female. The red-faced monkey is of smaller size with short tail. Males and females irrespective in number live in herds. Some time a strong single male has seen alone.

**28.2.8          Fishing Cat** – They live in riverbank forests and hunt fish, crab, frog, birds, insects and some time others child mammals. It is a fierce beast smaller than a panther but capable of mauling one in a fight. Its specialty is to get on to rocks overhanging water and sweep at fish with its paw as they swim by.

**28.2.9          Civet Cat** – A small flesh eating animals valued for production of fatty substances with strong scent from its pouches close to the tail. It is used in making several kinds of perfumes. It is a nocturnal of forests.

**28.2.10        Jackal** – They are distributed uniformly in this tract. Its limbs long, claws non-retractile and teeth well developed. They move in pair or in herd. It is a very clever animal. It is a carnivorous and also a cane feeder.

**28.2.11        Fox** – It is noticed in all part of this Range. It has pointed snout, elongated body, short leg, erect ears and strong bushy tail. It lives in burrow. It is a nocturnal and feeds on birds, hares, rodents and fish. Its keen sight, smell and hearing make it a very good hunter. Vixen is known for her ferocity in protecting her young ones.

**28.2.12        Hyena** – It is spotted or striped and voice is almost human. Front part of the body is heavy with massive jaw and neck. It is a scavenger, feeds on carrion though carnivorous. Very rarely seen in this tract either single or pair.

**28.2.13 Sambar** – It is very rarely seen in Champajharan and Silkuta block. The coarse, shaggy brown coat darkens with age and turning almost black in old stage. The branched horns that stag bear take up to four years to reach full size, but once fully grown, they are shed every year and then re-grown for the breeding season in winter. Stages are usually alone without companions except when young. They associate with female deer only during the mating season. It has an excellent sense of hearing and smell. When in danger it flicks tail, stamps feet and gives out a loud alarm call, which can be heard 1 kmt away.

**28.2.14 Barking Deer** – It is found in thickly wooded hills in this tract. It is 2 ft high and colour chestnut with black streaks on the face. Its antlers are 3 inch long and each with one tine on the main stem. Barking deer has no horns. It is diurnal, lives in pair. Its call sounds like dog.

**28.2.15 Wild Boar** – It has long mobile snout with terminal nostrils. Its limbs short and narrow with 4 digits, colour dark gray with rusty and white hairs, feet and ears black. New born are brown. It is omnivorous and feed on carrion, snakes, insects and crops. It is said to be a courageous animals in the forests.

**28.2.16 Squirrel** – It has elongated body covered with fur and has 5 long stripes of dark colour on the back. Its tail is a long and bushy, eye and ears are large. It is an arboreal, active climber and nests on trees. They feed on nut, seeds and fruits.

**28.2.17 Rat** – Rats are found nearer to villages and they are prolific breeder. They can give birth about 10 to 15 young ones at a time. They are burrowing animals and omnivorous. They have constantly growing teeth for which they bite wood, concrete and rocky soil. They can survive without water for a longer period than camels.

**28.2.18 Mongoose** – Its body is elongated and covered with yellowish gray fur. Head long with pointed snout eyes, pinnate small and tail long. Limbs have 5 digits with claw. It can fight and kill snakes and feed on their blood.

**28.2.19 Pangolin** – They are noticed in dense forests. They are about 5 ft long and their head, body and tail covered with round horny scales. Its head is small with short pointed snout, eyes and small pinnate. Its limbs strong with 5 clawed digits to dig anthills. It is a tree climber and can roll into ball on danger for defence.

**28.2.20 Bat** – Bats live in colonies of hundreds. Its body covered with soft fur, snout short, pinnate large, eyes small, vision poor and tail concealed. Fore limbs only toe is clawed and hind limbs have 5-clawed digits. Produce ultra-sonic sound wave for flight.

**28.2.22 Terrestrial Birds** – All terrestrial birds have been divided into three groups, as High, Medium and Low, depending on their numbers seen in this area. The fallowing birds named as Common myna, Jungle fowl, Hornbill, Sparrow, Raven myna, Cuckoo, Black drongo , Crow, Hornbill, Red crow, King fisher, Owl, Pigeon, Parrot, Dove, Nightingale and Heron are seen in maximum number in this locality. Those birds are included in High group.

The birds namely Weaver bird, Falcon, Kite, Sandpiper, Chat, Woodpecker and Hawk are seen in medium numbers in this plan area. Those birds are included in Medium group.

The birds namely Blue jay bird, Black bee, Swiftly, Grey crane, Golden oriole, Gander, King Vulture and Brahmin kite are seen in very few numbers in this tract. Those birds are included in Lower group.

**28.2.23 Aquatic Birds** – The fallowing aquatic birds such as little cormorant, Graylag goose, Water hen and Water fowl are seen in this area.

**28.2.24 Aquatic Animals:** -The aquatic animals such as Turtle, Crab, Leech, Snail and Water snake are seen in the ponds, perennial and semi-perennial nala and dams exist in this tract.

**28.2.24(A) Reptiles:**-The common reptiles such as Tortoise, Lizard, Iguana, Garden lizard, all varieties of snake and Pangolin are seen in this locality. Besides this, Centipede, Earthworm, Millipede and Galley worm are seen everywhere in this Range. Two varieties of tortoise such as Kachuga tenteria and Chitra indica are seen in this tract. Pangolins are rarely seen in this forest tract.

**28.2.25 Fish:** -The fishes like Trout, Flat fish, Carp, Ground fish, Mrigal, Breeding fish and Big gudgeon are found in ponds and dams. Their size is large and they can attain weight up to 1 kg with in 1 year in the dam. All variety of fishes named above have scales except Trout. Flat fish, Trout, Ground fish and Big gudgeon feed on fishes and other aquatic animals.

The fishes like Sandeel, Gilt head, Gudgeon, Water fish, Small trout, Flounder, and Eel are found in both dams and nalas. Their size is medium and they become easy prey for carnivorous during summer.

The fishes like Grig, Minnow, Small sand fish and Floating fish are found at every place. Their size is small and they are the best food for heron.

The fishes like Cat fish, Scorpion fish and Nail fish are found in common water. They have no scales and their nails are very poisonous. They are commonly called as medicinal fishes.



## 28.3 Glossary of Odia, English & Latin name :-

### A – ANIMALS (Mammals)

List of Animals					
Sl. No.	Odia Name	English Name	Zoological Name	Family	Schedule No.
1	Bajra kapta	Pangolin	<i>Manis crassicaudata</i>	Manidae	I
2	Badudi	Bat	<i>Rouseltute schenaulti</i>	Pteropodidae	V
3	Banabiradi	Wild cat	<i>Felis chaus affinis</i>	Felidae	I
4	Barah	Wild boar	<i>Sus crefa cristatus</i>	Suidae	III
5	Bilua	Jackal	<i>Canis latranus</i>	Canidae	V
6	Bhalu	Black bear	<i>Selenarctos tibetana</i>	Ursidae	II
7	Chital	Spotted deer	<i>Axis axis</i>	Cervidae	III
8	Chemani	House bat	<i>Cynopterus sphinx</i>	Pteropodidae	V
9	Gunduchimusa	Squirrel	<i>Funambulus penanti</i>	Sciuridae	V
10	Gurandi	Mouse deer	<i>Trangulus meinna</i>	Tragulidae	I
11	Hati	Elephant	<i>Elephas maximus</i>	Elephantidae	I
12	Heta	Hyena	<i>Hyaena striata</i>	Hyaenidae	I
13	Jinka	Porcupine	<i>Hystrix leucura</i>	Hystriidae	IV
14	Kalarapatriya	Leopard	<i>Panthera pardus fusca</i>	Felidae	I
15	Katasa	Big wild cat	<i>Paradoxurus hermaphrodit</i>	Felidae	II
16	Khurant	Musk deer	<i>Moschila menina</i>	Tragulidae	I
17	Kokisiali	Fox	<i>Vulpes bengalensis</i>	Canidae	II
18	Kutura	Barking deer	<i>Cervulus muntjac</i>	Cervidae	III
19	Mankada (hanu)	Black-faced monkey	<i>Semnopithecus entellus</i>	Cercopithecidae	II
20	-do- (pati)	Red-faced monkey	<i>Macaca mulatta</i>	Cercopithecidae	II
21	Musa	Mouse	<i>Rattus rattus</i>	Muridae	V
22	-do- (nepali)	Flying squirrel	<i>Petauristaphili pinensis</i>	Muridae	V
23	Nilgai	Blue bull	<i>Boselaphus tragocamelus</i>	Bovidae	III
24	Neula	Mongoose	<i>Herpestes bengalensis</i>	Viverridae	IV
25	Odha	Otter	<i>Lutra lutra</i>	Mustelidae	III
26	Sambar	Deer	<i>Cervulus unicolor</i>	Cervidae	III
27	Saliapatini	Civet	<i>Vivericula indica</i>	Viverridae	II
28	Thekua	Hare	<i>Lepus ruficaudatus</i>	Leporidae	III

## B– BIRDS

List of Birds					
Sl. No.	Odia Name	English Name	Botanical Name	Family	Schedule No.
1	Bani	Common myna	<i>Acridotheres tristis</i>	Sturnidae	IV
2	Baya chadhei	Weaver bird	<i>Ploccus phillipinus</i>	Ploceidae	IV
3	Bajapakhi	Hawk	<i>Astur badius</i>	Accipitridae	I
4	Banakukuda	Jungle fowl	<i>Gallus gallus</i>	Phadianidae	IV
5	Baja	Falcon	<i>Ergetta garzette</i>	Accipitridae	I
6	Bhadabhadalia	Blue jay bird	<i>Coracas bengalensis</i>	Muscicapidae	I
7	Bahadakhai	Grey hornbill	<i>Tikos birostris</i>	Bucerotidae	I
8	Bhrungaraj	Black bee	<i>Dissomurus paradisens</i>	Dicruridae	IV
9	Gunduri	Bastard gull	<i>Turnix buscitotor</i>	Turnicidae	IV
10	Chatak	Swift	<i>Micropus affinis</i>	Apodidae	IV
11	Chila	Kite	<i>Mylous migrans</i>		IV
12	Dahuka	Water hen	<i>Metopidius indicus</i>	Jacanidae	IV
13	Gendalia	Grey crane	<i>Anastromis oseitens</i>	Ciconidae	IV
14	Gharchatia	Sparrow	<i>Passer domesticus</i>	Ploceidae	IV
15	Ghukalika	Raven myna	<i>Acridathares ginginianus</i>	Sturnidae	IV
16	Haldibasant	Golden oriole	<i>Oriolus xanthernus</i>	Orididae	IV
17	Hansa	Gander	<i>Anas poacierhancha</i>	Podicipedidae	IV
18	Koeli	Cuckoo	<i>Cuculus caronus</i>	Cuculidae	IV
19	Kajalapati	King crow	<i>Dicrurus maococerus</i>	Dicruridae	IV
20	Kau	Crow	<i>Corvus splendens</i>	Corvidae	V
21	Kochilakhai	Hornbill	<i>Anthroceceros coromatus</i>	Bucerotidae	I
22	Kumbhatua	Red crow	<i>Centropus sinensis</i>	Cuculidae	IV
23	Mayura	Peacock	<i>Pavo cristatus</i>	Phadianidae	I
24	Macharanka	King-fisher	<i>Caryle rudis</i>	Alcedinidae	IV
25	Panikua	Little cormorant	<i>Phalacrocorax nigar</i>	Anatidae	IV
26	Pecha	Owl	<i>Athena brama</i>	Strigidae	IV
27	Para	Pigeon	<i>Columba livia</i>	Columbidae	IV
28	Sua	Parrot	<i>Pistacula kramerii</i>	Sturnidae	IV
29	Saguna	King vulture	<i>Sacrogyaps calvus</i>	Muscicapidae	IV
30	Sankachila	Brahmin kite	<i>Haliastur Indus</i>	Muscicapidae	I
31	Kapota	Dove	<i>Streptopellchin opensis</i>	Columbidae	IV

32	Bulbul	Persian / Nightingale	<i>Pyenonotus luteohes</i>	Pycnonotidae	IV
33	Baga (kanti)	Pond heron	<i>Ardeola grayii</i>	Ardeidae	IV
34	Baga (rani)	Cattle egret	<i>Bubulcus ibis coromandus</i>	Ardeidae	IV
35	Baga (rati)	Night heron	<i>Nycticorax nycticorax</i>	Ardeidae	IV
36	Kathahana	Ceylon hoopoe	<i>Upupa ceylonensis</i>	Upupidae	IV

## C – SNAKES

List of Snakes					
Sl.No.	Odia Name	English Name	Botanical Name	Family	Scheduled No
1	Ahiraj	King cobra	<i>Naja hannah</i>	Elapidae	II
2	Ajararh	Indian python	<i>Python molurus</i>	Boidae	I
3	Chiti	Painted krait	<i>Bungarus coeruleus</i>	Elapidae	IV
4	Dhamana	Rat snake	<i>Ptyas mucosus</i>	Colubridae	II
5	Boda	Rusell's viper	<i>Vipera russelli</i>	Viperidae	II
6	Dhulia naga	Sand viper	<i>Echis carinatus</i>	-do-	IV
7	Domundia	John's sandboda	<i>Eryx conicus</i>	Boidae	IV
8	Gokhar	Cobra	<i>Naja naja</i>	Elapidae	II
9	Kananoli	Grass snake	<i>Ahetulla species</i>	Colubridae	IV
10	Laudankia	Arboreal adder	<i>Dryophis nasutus</i>	Elapidae	IV
11	Dhanda	Water snake	<i>Natrix piscator</i>	Colubridae	IV
12	Rana	Banded krait	<i>Bungarus fasciatus</i>	Elapidae	II
13	Tampa	Monocellate cobra	<i>Naja naja kuothia</i>	-do-	II
14	Telia	Blind snake	<i>Typhlops braminus</i>	Typhlopidae	IV

## D – LIZARDS

List of Lizards					
Sl. No.	Odia Name	English Name	Botanical Name	Family	Scheduled No.
1	Bahurupi	Indian chamleon	<i>Chameleon zeylanicus</i>	Chmaeleonidae	IV
2	Champeineoli	Mabuya	<i>Mabuya bibro</i>	Sciencidae	IV
3	Endua	Garden lizard	<i>Calotes versicolor</i>	Agamidae	IV
4	Godhi	Guana	<i>Varanus monitar</i>	Varanidae	I
5	Jhitipiti	Lizard	<i>Hemidactylus flaviviridis</i>	Gekkonidae	IV

## E – TURTLES

List of Turtles					
Sl. No.	Odia Name	English Name	Botanical Name	Family	Scheduled No.
1	Pathuria kaincha	Land tortoise	<i>Testudo elongute</i>	Trionychidae	IV
2	Pani kaincha	Water turtle	<i>Lissemys punctata granosa</i>	Emydidae	IV

## F – FISHES

List of Fishes					
Sl. No.	Odia Name	English Name	Botanical Name	Family	
1	Balia	Trout / Wallago	<i>Wallago attu</i>	Siluridae	
2	Baligarada	Sandeel	<i>Glossogobius giziris</i>	Gobidae	
3	Bhakur	Carp	<i>Catla catla</i>	Cyprinidae	
4	Chenga	Gilt head	<i>Ophiocephalus gachus</i>	Channidae	
5	Chitala	Flat fish	<i>Notopterus chitala</i>	Notopteridae	
6	Dandikiri	Grig	<i>Esomus dandrica</i>	Cyprinidae	
7	Gadisa	Gudgeon	<i>Ophiocephalus punctatus</i>	Channidae	
8	Jalanga	Ground fish	<i>Pangasius</i>	Pangasidae	
9	Jahlla	Floating fish	<i>Chela argentea</i>	Cyprinidae	
10	Kantia	Nail fish	<i>Myristicivora cavastris</i>	Bagridae	
11	Karandi	Minnow	<i>Barbus ambassis</i>	Cyprinidae	
12	Magura	Cat fish	<i>Clarius batrachus</i>	Claridae	
13	Mirkali	Mrigal	<i>Cirrhina mrigala</i>	Cyprinidae	
14	Neuli	Small sand fish	<i>Gobiopoma ohung</i>	Gobidae	
15	Pohala	Water fish	<i>Cirrhinus reba</i>	Cyprinidae	
16	Pabata	Callichrous	<i>Callichrous bimaculatus</i>	Siluridae	
17	Phalli	Flounder	<i>Notopterus notopterus</i>	Notopteridae	
18	Rohi	Breeding fish	<i>Labeo rohita</i>	Cyprinidae	
19	Serana	Minnows	<i>Barbus serana</i>	Cyprinidae	
20	Seula	Big gudgeon	<i>Ophiocephalus striatus</i>	Channidae	
21	Singi	Scorpion fish	<i>Heteropneustes fossilis</i>	Pneustidae	
22	Todi	Eel	<i>Mastomelasma armatus</i>	Cembelidae	
23	Chungudi	Shrimp / Prawn	<i>Palaemon malcolmsonii</i>		

#### **28.4. Threat to Flora:-**

There is tremendous pressure of fire wood on the Forest that attribute illicit cutting of pole size crop. However steps are being taken to provide salvage material for firewood and some alternative firewood are also being introduced such as bio gas. In order to improve the efficiency of firewood burning for cooking, some VSS also provided with Smokeless Chula.

During summer season, fire often occur in the forest and the fire is mainly man made due to collection of Mohua flower, Kendu leaves, collection of Honey.

Grazing is also a threat to the Forest in this Range. Due to lack of adequate pasture land in and around Banki and adjoining areas the domestic cattle use to enter into nearby forest area causing damage to the Forest.

#### **Measures to be taken to save injuries to the flora.**

1. The VSS/JFMC people are protecting the forests by “Thengapali” system. The people should be motivated to continue their activities in the VSS area as well as nearby forest areas to control illicit felling

2. There is provision for payment of rewards to the informers as well as to the forest staff detecting the case as per “The (Odisha Rewards for Detection of forest offences Rules, 2004)”. which should be followed so that the forest staff and the informers will be encouraged in detection of offence cases.

3. Forest Protection Squad, Anti Poaching Squad, Fire Protection Squad, Para Forest Staff, have been formed and posted to the Ranges to check the illicit felling and removal of timber and poaching of wild life under CAMPA. The same is to be continued all along the years.

4. The important forest beats prone to illicit felling and poaching have been provided with 10 (Ten) Nos. of Para Forest Staff in a Range to assist the forest guard which may be continued.

5. The Divisional control room should function for 24 hours to receive and transmit information to field level regarding protection of flora and fauna.

**28.4.1 Maoist problem:** The presence of Maoist activities some time stands as barrier in forest protection work. Their presence inside forest makes impediments in developmental activities inside the forest area that cause a threat to forest.

## **29. Threat to Fauna:-**

The most common factors which are responsible for degradation of wild life habitat and destruction of wildlife of this Range are detailed below.

- (a) Biotic Interferences
- (b) Hunting and shooting
- (c) Fire
- (d) Over grazing

### **Measures to be taken for preventing degradation of wild life habitat.**

The suggestion as indicated vide item No.28.4 above are also to be taken up to save the wild life. Apart from this, anti-depredation squad engaged under CAMPA should be continued to save the crop as well as wild life.

30.

## **PAST SYSTEM OF MANAGEMENT**

- (i) To maintain permanent closed canopy on the hill slopes and catchment to check soil erosion, to maintain hydrological balance and regulate water yield.
- (ii) To prevent further degradation of ecosystem by restricting the felling of trees and giving more emphasis on the conservation and protection of flora and fauna.
- (iii) To improve composition and productivity of these forests by increasing investment and through appropriate scientific management.
- (iv) To restock barren, degraded and depleted forests using appropriate techniques and prescriptions.
- (v) To ensure peoples participation in achieving the aforesaid objectives.
- (vi) To protect and manage wild life resources with a view to conserve the biodiversity.
- (vii) To meet the needs of forest produce of local people to the permissible extent subject to aforesaid imperatives.
- (viii) To provide increasing employment opportunities to the local people through above mentioned conservation oriented activities.

### **Babu J.N. Ghosh Plan (1931-32 to 1950-51)**

It was the 1<sup>st</sup> Working Plan prepared and published in the year 1935 under the direction of the Agency forest officer for management of 35 R.F blocks only covering an area of 527.1Sq. Miles. Under this plan, following four Working Circles were constituted.

1. High Forest Working Circle.
2. Dandpat Working Circle.
3. Coppice Working Circle.
4. Bamboo (overlapping) Working Circle.

### **Sri S.N. Das Plan (1953-54 to 1972-73)**

Revised Working Plan was prepared by Sri S.N. Das, IFS, WPO, Sambalpur and was brought into force from the year 1953-54. Only the R.F areas of this Division were included in this plan for its systematic management. The following 6 (Six) Working Circles were constituted under this Working Plan.

1. Conversion Working Circle.
2. Selection Working Circle.
3. Selection Coppice Working Circle.
4. Coppice Working Circle.
5. Bamboo (overlapping) Working Circle.
6. Protection Working Circle.

#### **Sri G.G. Das Plan (1973-74 to 1992-93)**

The Revised Working Plan for the period from 1973-74 to 1992-93 was prepared by Sri G.G. Das, IFS, WPO, Sambalpur. This plan was further extended up to 1995-96 vide Government letter No.24786/F&E dt.26.11.1993. It was further extended up to 30.6.1998 vide No.18-FC-WP-OS-Bonai dt.13.12.1997 of the CCF (Central), Bhubaneswar. Some of the prescriptions of the Working Plan were also amended as per the provisions of the forest (Conservation) Act'1980 vide Memo No.26961 (4) dt.28.12.1990 of the Principal Chief Conservator of Forests, Odisha, Bhubaneswar. In this Plan, only 55 RF Blocks covering an area of 1, 8,428.445 Ha were included for systematic management by constituting 6 (Six) Working Circle as per detailed below.

1. Sal Conversion Working Circle.
2. Selection Working Circle.
3. Coppice Working Circle.
4. Plantation Working Circle.
5. Protection Working Circle.
6. Bamboo (overlapping) Working Circle.

#### **Sri Suresh Pant Plan (1997-98 to 2016-17)**

The present Working Plan prepared by Sri Suresh Pant, IFS, Working Plan Officer, Sambalpur came into force with effect from 1997-98 and is valid up to 2016-17. In this plan, the PRF areas (already notified u/s-4 of O.F. Act'1972) of 7 blocks out of 11



Blocks have been included for the first time for its systematic management along with the R.F. areas. The area of remaining 4 PRF blocks were not included as these blocks were notified after approval of the working Plan. But while preparing the Working Plan, the area of R.F. and P.R.F. Blocks have been computed by the W.P.O Sambalpur from latest Topo Sheet of 1:25,000 scale and included in the plan for its management. The details of area of R.F. and P.R.F. blocks as per Government Notification and area found as per computation based on Topo Sheet and included in the Plan is as detailed below.

Category of Forest.	Area in Ha as per Government Notification.	Area computed by WPO from latest Topo Sheet of 1:25,000 Scale and included in the Working Plan of Bonai Division.	Area of Banki Range out of the computed area in Ha.
1	2	3	4
Reserved Forests	1,16,212.893 (59 blocks)	1,15,455.452 (59 blocks)	13,159.676 (14 blocks)
P.R.F. (U/S-4)	35,310.178 (43 blocks)	33,937.382 (43 blocks)	1,977.190 (7 blocks)
<b>G Total:-</b>	<b>1, 51, 523.071</b>	<b>1,49, 392.834</b>	<b>15,136.866</b>

The above computed PF & PRF area of 1,49,392.834 Ha are being managed in 7 (Seven) Working Circle as per details below.

Sl. No.	Name of Working Circle	Area in Ha. As per Working Plan	Area of Banki Range in Ha.	Remarks
1	Selection Working Circle	(1, 20, 295.172 Ha.)	11,878.147	
2	Protection Working Circle	(8, 426.860 Ha.)	604.562	
3	Rehabilitation-cum-Plantation Working Circle	(20, 670.802 Ha.)	2,654.157	
4	Bamboo (overlapping) Working Circle	(70, 190.802 Ha.)	5,098.422	
5	Wild life (overlapping) Working Circle	(1, 48, 156.952 Ha.)	14,650.244	
6	N.T.F.P (overlapping) Working Circle	(1, 48, 156.952 Ha.)	14,650.244	
7	Misc. (overlapping) Working Circle	(3, 809.992 Ha.)	Nil	
<b>Total:-</b>		<b>1,49,392.834 Ha.</b>	<b>15,136.866</b>	

## **SELECTION WORKING CIRCLE**

Total area allotted to this Working Circle under Banki Range is 11,878.147 Ha. which is about 70% of the total area of 16,885.653 ha. has been covered under this scheme.

Sal conversion & coppice system which had been adopted in the last plan (1973-74 to 1992-93) could not achieve the set targets. On account of these reasons and as per Govt. of India guide lines, forest areas worked under these systems have been incorporated in this Working Circle so as to improve the crop status by taking suitable silvicultural operations. In addition to 15 felling series of the outgoing plan (1973 -74 to 1992-93), 7 (Seven) more felling series have been incorporated in this working circle . So, in total, there are 22 felling series covering the entire area of this Working Circle. Addition of 7 (Seven) more felling series is due to inclusion of conversion & coppice un-worked areas of the last plan and R.F.& PRF blocks of Mahulpada have been incorporated for the first time to the selection system in outgoing Working Plan.

Out of 22 felling series, 2 (Two) felling series i.e. Champajharan & Silkuta covering an area of 11,878.147 Ha. (5,348.236 Ha+6,529.911 Ha) comes under Banki Range and is under management in this Range. The main objectives of management of this working circle are as below;

(a) To improve the density and composition of forest crop and to encourage the natural regeneration and establishment of principal species by taking suitable silvicultural operation with due emphasis on soil and water conservation.

(b) Consistent with primary objectives, removal of matured & silviculturally available trees before they become unsound on sustained yield basis.

(c) Removal of unsound and defective trees under improvement felling so as to improve & increase the stocking of principal species.

(d) To re-stock the blank areas, if any, by artificial regeneration as per para-413 of the working plan with due approval of the schemes by the competent authority.

## Implementation

Although, the working plan was valid from 1997-98, no coupe working was taken up from 1997-98 to 2004-05, i.e., Coupe No.I to VIII due to moratorium on felling of trees issued by Govt. in F&E Deptt. during 1992 in each felling series. However, Coupe working was started from Coupe No.IX, i.e., 2005-06 and onwards. The year-wise details of Coupes due for working, trees marked for felling and out-turn of timber and firewood obtained from each Coupes are furnished below.

<b><u>Details of Timber Coupes under Selection Working Circle allotted for working with out-turn obtained for the period from 1997-98 to 2014-15.</u></b>								
Year	Name of the Coupe	Area in ha.	Max. No. of trees to be marked as per Para-397 of WP	No. of trees marked	No. of trees felled	Out-turn obtained		Remarks
						Timber in Cums.	Firewood in stacks (12X3X3)	
1	2	3	4	5	6	7	8	10
1997-98	Champajharan SWC – I	329.554	1648	No coupe working during 1997-98 to 2004-05 was taken up due to moratorium on felling of trees issued by Government in F&E Department during 1992.				
1998-99	-do- SWC-II	294.559	1472					
1999-2K	-do- SWC-III	224.568	1123					
2000-01	-do- SWC-IV	228.872	1144					
2001-02	-do- SWC-V	320.260	1601					
2002-03	-do- SWC-VI	337.658	2026					
2003-04	-do- SWC-VII	265.831	1595					
2004-05	-do- SWC-VIII	192.520	1155					
2005-06	-do- SWC-IX	318.404	1910	496	-	-	-	No coupe working done due to Maoistic problem
2006-07	-do- SWC-X	163.714	982	203	-	-	-	-do-
2007-08	-do- SWC-XI	269.652	809	511	511	109.7561	18	
2008-09	-do- SWC-XII	269.982	810	306	306	93.7333	61	
2009-10	-do- SWC-XIII	250.864	1254	308	308	29.1953	5	
2010-11	-do- SWC-XIV	444.633	2223	306	306	38.9490	12	
2011-12	-do- SWC-XV	173.477	867	108	108	18.8510	12	
2012-13	-do- SWC-XVI	233.641	1168	509	509	150.9193	122	
2013-14	-do- SWC-XVII	245.915	1230	431	431	87.1390	24	
2014-15	-do- SWC-XVIII	290.666	1453	133	133	77.2608	36	
2015-16	-do- SWC-XIX	279.463	1397	211	17	5.000	12	Not yet completed
2016-17	-do- SWC-XX	214.003	1070	110	-	-	-	Work could not be strated due to obstruction by the local villagers.
	<b>Total:-</b>	<b>5348.236</b>	<b>26937</b>	<b>3632</b>	<b>2632</b>	<b>610.8038</b>	<b>302</b>	

Year	Name of the Coupe	Area in ha.	Max. No. of trees to be marked as per Para-397 of WP	No. of trees marked	No. of trees felled	Out-turn obtained		Remarks
						Timber in Cums.	Firewood in stacks (12X3X3)	
1	2	3	4	5	6	7	8	10
1997-98	Silikuta SWC – I	250.484	1503	No coupe working during 1997-98 to 2004-05 was taken up due to moratorium on felling of trees issued by Government in F&E Department during 1992.				
1998-99	-do- SWC-II	284.398	1706					
1999-2K	-do- SWC-III	337.633	2026					
2000-01	-do- SWC-IV	434.118	2605					
2001-02	-do- SWC-V	336.900	2021					
2002-03	-do- SWC-VI	251.602	1510					
2003-04	-do- SWC-VII	419.317	2516					
2004-05	-do- SWC-VIII	400.239	2401					
2005-06	-do- SWC-IX	305.393	1222	153	-	-	-	No coupe working due to MCC problem
2006-07	-do- SWC-X	494.718	1701	540	-	-	-	-do-
2007-08	-do- SWC-XI	312.429	1250	152	152	77.3011	24	
2008-09	-do- SWC-XII	262.546	1050	288	-	-	-	No coupe working due to MCC problem
2009-10	-do- SWC-XIII	342.593	1370	-	-	-	-	-do-
2010-11	-do- SWC-XIV	297.603	1190	-	-	-	-	-do-
2011-12	-do- SWC-XV	280.199	1121	-	-	-	-	-do-
2012-13	-do- SWC-XVI	256.264	1025	-	-	-	-	-do-
2013-14	-do- SWC-XVII	427.422	1710	124	124	31.0808	36	
2014-15	-do- SWC-XVIII	280.122	1120	548	548	286.71115	186	
2015-16	-do- SWC-XIX	334.857	1339	361	361	95.5439	36	
2016-17	-do- SWC-XX	221.074	884	503	503	165.0517	96	
	<b>Total:-</b>	<b>6529.911</b>	<b>31270</b>	<b>2669</b>	<b>1688</b>	<b>655.6887</b>	<b>378</b>	

Though, marking in all the coupes was taken up from 2005-06 and coupes were delivered to OFDC Ltd for working in the year due for working, the OFDC Ltd have not taken up working of coupe No. IX & X of Champajharan felling series and coupe No. IX, X, XII, XIII, XIV, XV, XVI (7 coupes) of Silkuta felling series due to Maoist activities in these areas from 2005-06 to 2012-13.

As per Para- 412 of the expiring Working Plan, subsidiary silvicultural operations in the year following the main felling have been taken up in this Range based on availability of funds. Subsidiary Silvicultural Operation over 4,749.468 ha. has been taken up during that period.

The year-wise and coupe-wise details of area covered under Subsidiary Silvicultural Operation is furnished below.

**Details of Timber Coupes where Subsidiary Silvicultural Operation taken up under Selection Working Circle for the period from 1997-98 to 2014-15.**

Year	Name of the Coupe	Area of the coupe in ha.	Area covered under SSO in Ha.	Remarks
1	2	3	4	5
1997-98	NIL			
1998-99	NIL			
1999-2K	NIL			
2000-01	NIL			
2001-02	NIL			
2002-03	NIL			
2003-04	NIL			
2004-05	NIL			
2005-06	1. Champajharan SWC - IX	318.404	318.404	
	2. Silkuta SWC - IX	305.393	201.000	
	<b>Total:-</b>	<b>623.797</b>	<b>519.404</b>	
2006-07	1. Champajharan SWC - X	163.714	163.700	
	2. Silkuta SWC - X	494.718	494.000	
	<b>Total:-</b>	<b>658.432</b>	<b>657.700</b>	

Year	Name of the Coupe	Area of the coupe in ha.	Area covered under SSO in Ha.	Remarks
1	2	3	4	5
2007-2008	1. Champajharan SWC - XI	269.652	269.000	
	2. Silkuta SWC - XI	312.429	212.000	
	<b>Total:-</b>	<b>582.081</b>	<b>481.000</b>	
2008-2009	1. Champajharan SWC - XII	269.982	250.864	
	2. Silkuta SWC - XII	262.546	249.500	
	<b>Total:-</b>	<b>532.528</b>	<b>500.364</b>	
2009-2010	1. Champajharan SWC - XIII	250.864	232.200	
	2. Silkuta SWC - XIII	342.593	-	
	<b>Total:-</b>	<b>593.457</b>	<b>232.200</b>	
2010-2011	1. Champajharan SWC - XIV	444.633	469.300	
	2. Silkuta SWC - XIV	297.603	286.500	
	<b>Total:-</b>	<b>742.236</b>	<b>755.800</b>	
2011-2012	1. Champajharan SWC - XV	173.477	173.400	
	2. Silkuta SWC - XV	280.199	280.000	
	<b>Total:-</b>	<b>453.676</b>	<b>453.400</b>	
2012-2013	1. Champajharan SWC - XVI	233.641	215.000	
	2. Silkuta SWC - XVI	256.264	-	
	<b>Total:-</b>	<b>489.905</b>	<b>215.000</b>	
2013-2014	1. Champajharan SWC - XVII	245.915	245.000	
	2. Silkuta SWC - XVII	427.422	425.000	
	<b>Total:-</b>	<b>673.337</b>	<b>670.000</b>	
2014-2015	1. Champajharan SWC - XVIII	290.666	14.600	
	2. Silkuta SWC - XVIII	280.122	-	
	<b>Total:-</b>	<b>570.788</b>	<b>14.600</b>	
2015-2016	1. Champajharan SWC - XIX	279.463	250.000	
	2. Silkuta SWC - XIX	334.857	-	
	<b>Total:-</b>	<b>614.320</b>	<b>250.000</b>	

## **DEVIATION IN WORKING OF THE COUPES**

There is no failure in the implementation of the prescriptions under Selection Working Circle except non-working of the coupes due to Maoist activities. However, the deviation report for non-working of the timber coupes due to MCC problem for the year 2009-10 & 2010-11 has been submitted by the DFO, Rourkela vide his Memo No.4212 dt.3.11.2010 & No.2832 dt.25.7.2011.

### **Suggestion for future Working Scheme.**

The maximum number of trees to be removed from a coupe has been described vide Para-397 of the expiring Working Plan. From the marking position of trees, it will be seen that in all the coupes, less number of trees than the prescribed norm have been marked. As subsidiary silvicultural; operation with soil conservation measures have been taken up, the regeneration status will improve in future. Hence, the areas coming under selection working circle in the present scheme may be retained as such during revision of the Working Scheme. But, it may be constituted as "Selection-Cum-Improvement Working Circle" instead of Selection Working Circle. However, during the proposed scheme period 2017-18 to 2023-24 the Coupe No.I to X may be taken up for selection felling since these coupes were not worked out during the expiring Working Plan due to moratorium on felling of tree issued by Government and due to active presence of Maoist in that area.

## **2.PROTECTION WORKING CIRCLE.**

The areas not allotted to any other working circle owing to their specific nature of problems requiring specific silvicultural treatment and areas covered under active encroachment for cultivation and habitation purpose have been covered under this working circle. The total area covered under this working circle is 8,426.860 Ha. Out of this, an area of 604.562 ha. (Mahura RF 117.940 Ha. + Silkuta-I RF 486.622 Ha.) comes under Banki Range and merged with Rourkela Division with effect from 1.10.2003.

The main objective of management is as follows.

- (a) To keep the delicate ecological balance intact by taking required soil moisture conservation and other rehabilitation measures.
- (b) To keep proper records of encroached areas and areas under shifting cultivation till their restoration / eviction as the ease may be.
- (c) The rehabilitation of the forest area subjected to encroachment or shifting cultivation by taking required social, administrative and silvicultural measures.
- (d) All the old and abandoned areas under shifting cultivation lying in degraded condition are to be restocked as per the prescriptions given in Rehabilitation Working Circle.

### **Implementation.**

Para-649 of the expiring Working Plan prescribes only removal of dead and fallen trees from the areas. No dead or fallen trees are found for departmental salvation .

As per joint verification made with Revenue Officials during 2002-2003 and 2003-2004, there was no encroachment in RF and PRF area. The encroachment is in Revenue forest land only in Banki Range. The position of Pre-80 and Post-80 encroachment has been furnished vide item No.19 above. Besides, no application from any Gram Sabha has been received for settlement of RF area under Forest Rights Act'2006. Only, the revenue forest land (KF) has been settled with the encroachers as furnished vide item No.16 above.



Anti-smuggling squad, Anti-poaching squad as well as depredation squad have been constituted in this Division each year under FC Grant and CAMPA for protection purpose.

It is observed that there is no further encroachment inside RF area. Further, the shifting cultivation system has been discontinued to some extent due to engagement of the Tribals in the nearby mining areas as labourers. These areas have been infested by Maoist activities. Hence, no verification of the abandoned areas, has been taken up in these areas to take up further silvicultural operation.

### **DEVIATION IN WORKING OF THE AREA**

No specific Silvicultural system is prescribed for the areas included under this Working Circle except for removal of dead and fallen trees. No departmental salvation has been taken up due to non-availability of dead and uprooted trees. However, proposal will be submitted shortly for all the years up to 2015-16 to obtain approval of the PCCF, Odisha.

### **Suggestion for future Working Plan.**

The above area of 604.562 Ha. may be kept as such during revision of the Working Plan, The said areas will be demarcated in the field and shown in the management map during revision of the Working Plan. Specific proposal should find place in the report during revision of the plan for its restoration, as the same could not be treated in the last plan due to Maoist activities.

### **3 REHABILITATION-CUM-PLANTATION WORKING CIRCLE**

The forest areas of this Working Circle cover 04 RF blocks and 05 PRF blocks (both full and in part). This Working Circle is inclusive of Coppice worked out areas and the areas where plantations have been raised in the past . The PRF blocks have been incorporated for the first time in the regular scheme. The total area of outgoing working circle comes to 2,654.157 Ha. which is about 15.71% of the total plan area.

The area added during working scheme in form of PRF /DPF where CA has been done over 487.838.

The total area of Banki Range covered under the Working Circle comes to 2,654.157 Ha. Out of this, already planted area is 408.869 Ha. and the rest area of 2,245.288 Ha. has been formed with 2 Nos. Of Rehabilitation series as per details below:-

Kucheita series:- 1,259.771 Ha.

Kukia Series:- 985.517 Ha.

**Total:- 2,245.288 Ha.**

**The main objectives of management.**

- (a) To tend and improve the existing growing stock through suitable silvicultural measures.
- (b) To regenerate the barren and blank patches by planting suitable hardy species.
- (c) To rehabilitate and improve the productivity of the depleted and degraded forest through enrichment plantation and other suitable measures.
- (d) To tend the existing plantation so as to get maximum annual increment.
- (e) To raise block plantation preferably of economically important species in the large gaps having more than 4 Ha.
- (f) To improve micro-edaphic conditions, especially in dry and open patches by taking suitable soil and water conservation measures.
- (g) To provide effective protection against illicit felling, encroachment, shifting cultivation, overgrazing and fire hazards in these areas.
- (h) To meet the bonafide needs and requirement of local inhabitants in regard to firewood, small timber and fodders etc.

Due to in-appropriate system of management applied in the past and due to severe biotic interference in the form of illicit felling, overgrazing, fire hazards, shifting cultivation etc, most of the areas covered under this working circle are in various stages of degradation. A good number of plantations have been taken up in the degraded patches in the past. At present, the vegetation in these blocks is very poor and

most of the vegetation cover is of artificial nature. However, plantation in some of the degraded blocks has been taken up under different schemes and details furnished in the subsequent item.

### **Implementation**

As per Para-439 of the expiring Working Plan, the first and foremost concern of management is to protect and improve the existing growth through enrichment plantation and other rehabilitation measures. No exploitation is to be done in the natural vegetated areas except removal of dead, dying and diseased trees.

The plantation and other activities in the areas allotted in each year vide Para-481 of the Working Plan have not been followed due to paucity of funds. Coupe No.I to VIII of each felling series remained as such due to moratorium on felling of trees. In other years, no dry and uprooted trees are found for its departmental salvation.

As regards plantation activities, plantations in all the rehabilitation series have not been taken up in each year as per Working Plan prescription. But, plantations have been taken up in most of the RF and PRF areas of the rehabilitation series each year under different schemes basing on receipt of allotment of funds. However, the details of plantation and other activities taken up during the period from 1997-98 to 2015-16 are furnished below.

Year	Area due for plantation and other activities in Ha.	Actual area in Ha. in which plantation and other activities taken up.	Remarks
1997-98	120.000	-	
1998-99	120.000	-	
1999-2000	120.000	-	
2000-01	105.697	-	
2001-02	113.573	-	
2002-03	110.000	-	
2003-04	100.000	-	
2004-05	100.000	-	
2005-06	97.017	-	
2006-07	110.000	-	
2007-08	103.125	154.000	
2008-09	100.000	-	
2009-10	100.000	-	
2010-11	110.063	-	
2011-12	120.000	-	
2012-13	120.000	-	
2013-14	113.250	-	

2014-15	120.000	50.000	
2015-16	126.375	100.000	
2016-17	136.188	-	
<b>G.Total:-</b>	<b>2245.288</b>	<b>304.000</b>	
<b>Source- Divisional Forest Officer, Rourkela Division.</b>			

The year-wise details of target and achievement of plantation activities have been furnished above. Due to non-availability of funds, the target could not be achieved fully.

### **DEVIATION IN IMPLEMENTATION OF THE PRESCRIPTIONS**

There is deviation in rehabilitation process as indicated above Plantation based on area allotted in each year in the working plan has not been taken up during that year due to non availability of funds. However, plantation over 5088.630 Ha. out of 16400.798 Ha. have been taken up under compensatory afforestation under CAMPA, OFSDP, MGNREGA and FC Grant. The deviation statement for the year 2008-09 and 2010-11 has been submitted by the DFO, Rourkela vide his Memo No.4212 dt.3.11.2010 and No.2832 dt.25.7.2011.

The details of plantation taken up in this Range during the period form 1997-98 to 2015-16 are furnished below.

### **23. Details of plantation taken up in Banki Range from 2003-04 to 2015-16 (Year-wise).**

Year of plantation	Name of the scheme	Range	Location of the plantation with status of forests	Area planted in Ha.				Name of VSS if involved
				AR	ANR	ANR without gap	Avenue	
1	2	3	4	5	6	7	8	9
1997-98				NIL				
1998-99	Comp. Affn.	Banki	Kucheita PF	47.00	-	-	-	Deptly
1998-99	W.F.P.	Banki	Borghat	50.00	-	-	-	-Do-
<b>Total:-</b>				<b>97.00</b>	-	-	-	
1999-2K				NIL				
2000-01				NIL				
2001-02	Central Plan, NTFP Bamboo	Banki	Ergeda PF	35.00	-	-	-	Departmentally (Ergeda VSS)
2001-02	-do-	-do-	Kucheita PF	35.00	-	-	-	Departmentally (Kucheita VSS)
<b>Total:-</b>				<b>70.00</b>	-	-	-	
2002-03	Non-Plan Comp. Affn.	-do-	San-Tikayatpali PF	125.461	-	-	-	Deptly
2002-03	-do-	-do-	Kareichuan KF	156.238	-	-	-	-do-
<b>Total:-</b>				<b>281.699</b>	-	-	-	
2003-04				NIL				

2004-05	FDA	Banki	Ergeda KF	-	22.50	-	-	Ergeda VSS
2004-05	-do-	-do-	Kucheita KF	30.00	22.50	-	-	Kucheita VSS
2004-05	-do-	-do-	Amrudhi KF	-	22.50	-	-	Amrudhi VSS
2004-05	-do-	-do-	Bakartola KF	-	22.50	-	-	Bakartola VSS
2004-05	-do-	-do-	Thelakudar KF	20.00	22.50	-	-	Thelakudar VSS
2004-05	-do-	-do-	Budhikutuni	-	22.50	-	-	Budhikutuni VSS
2004-05	-do-	-do-	Birtola DPF	20.00 (Bamboo)	22.50	-	-	Birtola VSS
2004-05	-do-	-do-	Bad-Purnapani KF	20.00	15.00	-	-	Bad-Purnapani VSS
2004-05	-do-	-do-	Nuagaon KF	30.00	22.50	-	-	Nuagaon VSS
2004-05	-do-	-do-	Saleipali KF	20.00	22.50	-	-	Saleipali VSS
<b>Total:-</b>				<b>140.00</b>	<b>217.50</b>	-	-	
2005-06	FDA	Banki	Ergeda KF	-	7.50	-	-	Ergeda VSS
2005-06	-do-	-do-	Kucheita KF	-	7.50	-	-	Kucheita VSS
2005-06	-do-	-do-	Amrudhi KF	-	7.50	-	-	Amrudhi VSS
2005-06	-do-	-do-	Bakartola KF	-	7.50	-	-	Bakartola VSS
2005-06	-do-	-do-	Thelakudar KF	-	7.50	-	-	Thelakudar VSS
2005-06	-do-	-do-	Budhikutuni	-	7.50	-	-	Budhikutuni VSS
2005-06	-do-	-do-	Birtola DPF	-	7.50	-	-	Birtola VSS
2005-06	-do-	-do-	Bad-Purnapani KF	-	5.00	-	-	Bad-Purnapani VSS
2005-06	-do-	-do-	Nuagaon KF	-	7.50	-	-	Nuagaon VSS
2005-06	-do-	-do-	Saleipali KF	-	7.50	-	-	Saleipali VSS
2005-06	FDA		Sargigarh	30	-	-	-	Sargigarh
			Mishrapali	12	-	-	-	Mishrapali
			Talbahali	20	-	-	-	Talbahali
			Madhupur	8	-	-	-	Madhupur
			Arjunchuan	20	-	-	-	Arjunchuan
<b>Total:-</b>				<b>90.00</b>	<b>72.50</b>	-	-	
2006-07	Comp. Affn.		Santhelakudar	<b>13.166</b>	<b>26.557</b>	-	-	
2007-08	FDA		Mushabira	-	25	-	-	Mushabira
			Jamardihi	-	20	-	-	Jamardihi
			Rengalbeda	-	20	-	-	Rengalbeda
			Thiaberna	-	30	-	-	Thiaberna
			Tikayatpalli	-	50	-	-	Tikayatpalli
			Tetengagila	-	25	-	-	Tetengagila
			Arjunchuan	-	50	-	-	Arjunchuan
			Talbahali	-	30	-	-	Talbahali
	13 <sup>th</sup> FC		Kukia RF	-	100	-	-	
			Kucheita RF	-	54	-	-	
			Dhanghar/ Kuradhi RF	200	-	-	-	
<b>Total:-</b>				<b>200.00</b>	<b>404.00</b>	-	-	
2008-09	FDA		Rengalbeda	45	-	-	-	Rengalbeda
			Thiaberna	20	-	-	-	Thiaberna
			Tikayatpali	30	-	-	-	Tikayatpali
			Tetengagila	25	-	-	-	Tetengagila
			Arjurchuan	50	-	-	-	Arjurchuan
			Talbahali	30	-	-	-	Talbahali

<b>Total:-</b>				<b>200.00</b>	-	-	-	
2009-10			Hatioda	15	65			
			Jibikaposh	1	35			
			Mahura	15	65			
			Samardari	1	30			
			Rumkuberna	5	65			
			Mahisichapal	3	50			
			Kuradihi	3	77			
<b>Total:-</b>				<b>43.00</b>	<b>387.00</b>	-	-	
2010-11	FDA		Mushabira	-	30	-	-	Mushabira
			Arjunchuan	-	50	-	-	Arjunchuan
			Rengalbeda	-	35	-	-	Rengalbeda
			Tetengagila	-	35	-	-	Tetengagila
			Gauduniposh	-	50	-	-	Gauduniposh
	CAMPA		Jhirpani	15				
			Mushariba	20				
			Madhupur	10				
			Babehudi	80				
			Sankhajurnali	80				
	OBDP		Kukia	20				
	OFSDP		Kusumtola	15	65			
			Chandiposh	15	65			
			Barghat	15	65			
			Kuchieta	16	65			
			Rengalbeda	21				
			Ramlata	18				
			Hatioda	40				
			Jibikaposh	20				
			Mahura	20				
			Kuchieta	30				
			Jamrdihi			600		
			Madhupur			180		
			Angarpada			200		
			Mahura			299		
			Birtola			191		
			Dhangar			30		
			Mushabira			280		
			Jhirpani			380		
			Sankhajurnali			20		
			Babehudi			20		
<b>Total:-</b>				<b>435.00</b>	<b>460.00</b>	<b>2200.00</b>	-	
2011-12	OBDP	Banki	Kukia RF	25	-	-	-	
	13 <sup>th</sup> FC OWP		Champajharan SWC XIV coupes	-	-	1200	-	
			Champajharan BC 'D' coupes	-	-	400	-	
	OFSDP		Budhikani	11	75	13	-	
			Budhikutuni	24	30	28	-	
			Lauposh	16	15	10	-	
			Kamarposh	40	22	-	-	
			Ghusuriposh	30	31	13	-	
			Dalimdihi	23	58	64	-	
			Kumakela	16	60	80	-	
			Kapanda	14	60	26	-	
	SSO Bamboo		South Champajharan	-	-	44.4	-	

	(NP)							
	CAMPA		Dhanghar RF	-	-	50	-	
			Kukia RF	-	-	50	-	
			Dhanghar RF	-	-	271	-	
			Mahura RF	-	-	229	-	
<b>Total:-</b>				<b>199.00</b>	<b>351.00</b>	<b>2478.40</b>		
2012-13	13 <sup>th</sup> FC		Silkuta SWC XV	-	-	280.4	-	
			Jharbeda RF	-	-	173.6	-	
	OBDP		Kuradhi RF	25	-	-	-	
	Comp. Affn.		Kucheita	9.33	23.593	-	-	
			Kusumtola	-	184.59	-	-	
			Bhanjapali	-	3.921	-	-	
	FDA		Khajurinali	-	50	-	-	Khajurinali
	NBM		Kuradhi RF	20	-	-	-	Kuradhi RF
	OFSDP		Madhupur	33	60	15	-	Madhupur
			Birtola	30	30	45	-	Birtola
			Tikayatpali	25	50	30	-	Tikayatpali
			Amrudhi	30	30	40	-	Amrudhi
			Saleipali	27	40	37	-	Saleipali
			Saleibahal	27	-	-	-	Saleibahal
			San-purnapani	23	24	25	-	San-purnapani
			Badbahal	5	-	-	-	Badbahal
			Jibikaposh	10	-	-	-	Jibikaposh
			Juniani	5	-	-	-	Juniani
	CAMPA		South Champajharan BC 'B' coupes	-	-	490.8	-	
			Dhanghar RF	-	-	509.2	-	
<b>Total:-</b>				<b>269.33</b>	<b>496.104</b>	<b>1646.00</b>		
2013-14	13 <sup>th</sup> FC		Talbahali KF	20	-	-	-	
			Jodabandh KF	20	-	-	-	
	SSO Work		Mahura RF	-	-	215	-	
	OBDP		Kuradhi RF	25	-	-	-	
	NBM		Jodabandha Rev. land	25	-	-	-	
	MGNREGS		Darjing	15	-	-	-	
			Bad-purnapani	25	-	-	-	
			Lahunipada – Kaleiposh	-	-	-	10	
	CAMPA		South champajharan	-	-	1600	-	
<b>Total:-</b>				<b>130.00</b>	<b>-</b>	<b>1815.00</b>	<b>10</b>	

2014-15	OFSDP (FF)		Kendughati, Chhidi, Rumkuberna, Mahura	40.43	-	-	-	
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	13 <sup>th</sup> FC		Kukia	-	50	-	-	
			Samardari	-	240	-	-	
			South Champajharan	-	25	-	-	
			Mahura	-	85	-	-	
	Comp. Affn.		Kendughati, Kusumtola Rev. land	26.395	109.22	-	-	
	NBM		Bad-purnapani, Samardari, Budhikutuni	30	-	-	-	
			Private land	10	-	-	-	
	MGNREGS		Rengalbeda KF	15	-	-	-	
			Thelakudar	-	60	-	-	
			Jharbeda	-	235	-	-	
			Kucheita	245	-	-	-	
			South Champajharan	-	160	-	-	
			NH-143 to Sialikudar PWD road	-	-	-	10	
			Lamsi to Mahischapal PWD road	-	-	-	8	
			NH-143 to Gouduniposh PWD road	-	-	-	4	
	CAMPA		Kuradhi	-	-	490.8	-	Kuradhi
			Dhanghar	-	-	509.2	-	Dhanghar
<b>Total:-</b>				<b>366.825</b>	<b>964.220</b>	<b>1000.00</b>	<b>22</b>	
2015-16	Avn. Pltn.		Hatioda to Kucheita	-	-	-	5	
	NBM		Hatioda PRF	35	-	-	-	
	FDA		Bajenia	-	45	-	-	Bajenia
	CAMPA		Hatioda	-	100	-	-	
	IWP, OWP (SP)		Bajenia	25	-	-	-	
			Kapanda	25	-	-	-	
			Kucheita	15	-	-	-	
	Comp. Affn.		Paramdihi, Luguda	35.634	-	-	-	
	MGNREGS		Jambahal to Jhandapahad	-	-	-	5	
			Bajenia Rev. Land	-	150	-	-	
			Takara to Tetengagila	-	-	-	10	
			Nandapada to Amrudhi	-	-	-	10	
			Sianbahal to Badrama	-	-	-	7	
<b>Total:-</b>				<b>135.634</b>	<b>295.00</b>	<b>-</b>	<b>37</b>	

**Grand Abstract.**

<b>AR</b>	<b>2,670.654 Ha.</b>
<b>ANR</b>	<b>6,152.281 Ha.</b>
<b>Total Plantation</b>	<b>8,822.935 Ha.</b>
<b>ANR without gap</b>	<b>6,661.000 Ha.</b>
<b>Avenue Plantation</b>	<b>69 Rkm.</b>



#### **Suggestion for future Working Scheme.**

Coppice worked out areas and PRF areas were included under this working circle for the 1<sup>st</sup> time. In case of coppice worked out areas, Kucheita and Kukia felling series were of 40 years rotation during the period from 1973-74 to 1992-93 and the vegetation of the areas is of pole crop.

Hence, the areas may be included as such in rehabilitation cum plantation management circle during revision of the Working Scheme.

#### **4- BAMBOO (OVER LAPPING) WORKING CIRCLE.**

This working circle overlaps the bamboo bearing areas of Selection Working Circle. The Champajharan felling series covering an area of 5098.422 Ha. (6 RF blocks) comes under Banki Range which merged in Rourkela Division with effect from 1.10.2003 after reorganisation of forest divisions. The main objectives of management are:-

(a) To follow proper silvicultural principles while working the bamboo bearing forests in order to secure a sustained yield consistent with the improvement of quality and quantity of bamboo clumps.

(b) To revive and rehabilitate the exhausted bamboo bearing areas through appropriate measures like tending and planting wherever necessary.

(c) To meet the demand of local people and Paper Industries.

The following three species of bamboos are mainly found in this Division.

1. Salia bamboo (*Dendrocalamus strictus*)
2. Daba bamboo (*Bambusa arundinacea*)
3. Kantabauns (*Bambusa bambus*)

Out of these, Salia bamboo occurs over extensive areas in substantial quantities. Daba and Kanta bamboos are available but in a limited quantity and their growth is confined to few pockets only.

### **Implementation.**

Working of bamboo has been nationalised by Govt. of Odisha, F & E Department from 1988-89 and thus coupe working is undertaken by OFDC ltd since then.

Champajharan bamboo coupe due for working in each year was demarcated in the field and handed over to OFDC ltd. for working from 1997-98 to 2015-16. But the coupe was remained un-worked and surrendered by OFDC ltd. on the ground of non-availability of bamboos for commercial exploitation.

The present degraded status of bamboo clumps in the bamboo bearing forests is most probable due to rampant and reckless removal of bamboo shoots (Karadi) and young green by local inhabitants for the consumption and trade purpose. The other adverse factors like negligence of bamboo cutting rules, over exploitation of bamboo clumps and non-application of required silvicultural operation over the years during last plan period have also contributed significantly to the depletion of bamboo forests.

Besides, the rhizome formation does not take place in a short span of time due to several climatic factors. Again, the tender bamboo is a very good fodder for the wild Elephants. They are depending mostly on the bamboo clumps for their food and rampantly damage the clumps while grazing.

As per Para-534 of the expiring Working Plan, simultaneous silvicultural operation of bamboo coupes have been taken up in each year basing on the receipt of allotment of funds under CAMPA and F.C. grant. Silvicultural Operation over 9,908.99 Ha has been taken up during the period from 1997-98 to 2015-16.

The details of year-wise and coupe-wise area treated under SSO is furnished below.

Year	Name of the Coupe	Area of the coupe in ha.	Area covered under SSO in Ha.	Remarks
1	2	3	4	5
1997-98	Champajharan BCA	1632.572	200	
1998-99	Champajharan BCB	793.554	200	
1999-2K	Champajharan BCB	793.554	80	

2000-01	Champajharan BCB	793.554	350	
2001-02	NIL			
2002-03	NIL			
2003-04	NIL			
2004-05	NIL			
2005-06	NIL			
2006-07	NIL			
2007-08	Champajharan BCD	1746.626	690	
2008-09	Champajharan BCA	1632.572	200	
2009-10	Champajharan BCB	793.554	682	
2010-11	Champajharan BCC	925.670	2061.70	
2011-12	Champajharan BCD	1746.626	1545	
2012-13	Champajharan BCA	1632.572	1118.836	
2013-14	Champajharan BCB	793.554	793.554	
2014-15	Champajharan BCC	925.670	915.000	
2015-16	Champajharan BCD	1746.626	1072.900	
Total:-		<b>15956.704</b>	<b>9908.990</b>	
Source- Divisional Forest Officer, Rourkela Division.				

Apart from this, bamboo plantation over 120 Ha. outside the bamboo coupe in different PRF and KFs have been taken up as per details furnished below.

**Bamboo Plantation within coupe area:- Nil**

**Bamboo Plantation outside coupe area.**

Year	Area Planted (in ha.)
2010-11	25 Ha.
2012-13	20 Ha.
2013-14	25 Ha.
2014-15	30 Ha.
2015-16	20 Ha.
<b>G. Total :-</b>	<b>120 Ha.</b>
Source- Divisional Forest Officer, RKL Dvn.	

**DEVIATION IN IMPLEMENTATION OF PRESCRIPTIONS.**

There is practically no deviation in working of the bamboo coupes during the period from 1997-98 to 2016-17 except non working of bamboo coupes by OFDC Ltd due to non-availability of bamboo for commercial exploitation. However, proposal for non-working of the coupes from 1997-98 to 2016-17 will be submitted to the PCCF, Odisha for approval.

#### **SUGGESTION FOR FUTURE WORKING SCHEME.**

The general observations and from the out-turn figure of bamboo coupes furnished above indicate depletion of bamboo forests in this Range to a great extent. Since proper silvicultural operation and bamboo plantations have been taken up during the plan period as indicated above, there is expectation of rehabilitation of the bamboo coupes with desired bamboo growth in the coming years. Thus, the said area may be kept as such during the Working Scheme period. The silvicultural operation to enhance the Bamboo growth may be taken up during next Working Scheme period.

However, the cutting cycle of four years (A, B, C, D) as was done in the last plan may also be continued during the Working Scheme period to carry out the silvicultural operations followed by enrichment plantation of bamboo inside the coupe area after demarcation of coupes. The details of year-wise coupe area distribution is mentioned in the future management scheme.

Since the Bamboo corp is not silviculturally viable for the cutting, so no commercial felling may be prescribed during the next scheme period.

#### **5. WILDLIFE (OVER LAPPING) WORKING CIRCLE.**

In the past prior to independence, Bonai Forest Division was very rich in flora and fauna particularly prior to independence. During that time, "SHIKAR" was the prerogative of the Ruler and was confined only to royal relations, royal guest and other close friends. However, after merger of Bonai state with the province of Odisha State, the situation in respect of wild animals took a reverse turn and there were wanton destructions of wild life both lawfully and unlawfully. Further, the wild-life habitat was severely disturbed due to excessive human interference in the form of timber operations, mining activities, Bamboo and Kendu leaf operation and collection of MFPs etc. A good

portion of wild-life habitat was directly lost due to large scale human resettlement in the forest areas.

Keeping these field realities in view, for highlighting the importance of wild life and to improve the wild life population in this Division, constitution of this working circle has been done. This working circle overlaps the entire area of Selection Working Circle, Rehabilitation-cum-Plantation Working Circle and Protection Working Circle except 1,235.882 Ha of Protection Working Circle. The total area of this working circle comes to 1, 48,156.952 Ha. Out of this, 14,650.244 Ha comes under Banki Range which merged in Rourkela Forest Division with effect from 1.10.2003.

The constitution of this Working Circle aims at:-

(a) To improve the habitat of wildlife by reducing biotic interference caused in the form of illicit felling, poaching, grazing, shifting cultivation, encroachment, over exploitation of timber and bamboo and forest fire etc.

(b) To conserve and preserve the diversity and integrity of flora and fauna within natural eco-system.

(c) To carry out extensive as well as intensive research concerning to the improvement and development of wild habitat and wildlife.

(d) To educate the local inhabitants about the importance of the fauna in the forest eco-system.

(e) To conserve the existing prime wild life habitats like the areas which are frequently visited by wild animals and birds for their shelter, food, water etc. by providing adequate protection and by taking various developmental measures.

### **Objective of Management**

The following measures are prescribed for future management of Wildlife of the Range.

#### **1. Habitat Improvement**

A wild life habitat has four basic components, i e Food, Cover, Water and Space, which are known as the welfare factors. Hence emphasis will be

given in the new plan for habitat improvement with an aim to Improve availability of:-

- (a) Food.
- (b) Water
- (c) Forest cover.
- (d) Wilderness.
- (e) Meadows and salt licks &
- (f) Take proactive steps in protection of forests and wild life.

- 1. Silvicultural measures
- 2. Legal and administrative measures.
- 3. Scientific study and wild life census.
- 4. Integrated development.
- 5. Fire protection measures.
- 6. Development of Eco-Tourism.
- 7. Measures to reduce damage caused by wildlife.

**Implementation.**

All precautionary measures for wild life protection have been taken up in this Range during the plan period and the details are furnished below.

**Improving food availability.**

Plantation of timber and bamboos has been taken up in RFs, PRFs, and KFs of this Range over 8,822.935 Ha under different schemes as per details furnished earlier during the period from 1997-98 to 2015-16.

**Improving water availability.**

In total 63 Nos. of water bodies under State Plan, Central Plan, CAMPA and OFSDP have been constructed throughout the Division incurring expenditure of Rs.1,45,00,000/- during the period from 2007-08 to 2014-15 as details below for the wild life.

2010-11	Babehudi	1 No.	2,19,202/-
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2013-14	Tikayatpali, Mahupada, Badbahal & Kumakela	5 Nos.	12,50,000/-
2014-15	Kucheita, Kalodihi and Musabira	5 Nos.	12,50,000/-
<b>Total:-</b>		<b>11 Nos.</b>	<b>27,19,202/-</b>
<b>Source- Divisional Forest Officer, Rourkela Division.</b>			

**Measures for improving cover.**

Details of afforestation activities taken up from 1997-98 to 2015-16 have been furnished vide item-(i) above.

**Measures for improving wilderness.**

There is no encroachment inside RF areas of this Range as discussed and described earlier vide item-1.19 above. There is no habitat of elephant in this Range. The Elephants usually come from Saranda area to this Range and left this Range to Bonai Division by crossing the river Brahmani.

There is no wild life sanctuary in this Range. Man-animal conflict particularly Man-Elephant and Man-Bear is a regular phenomenon in this Range. The details of Elephant Corridor is furnished below:-

1. From Saranda → Silkuta RF → Jharbeda RF → Mahura RF → Dhanghar RF of Rourkela Division → Cross river Bonai at Deodar → Dhenkiam RF → Kusumdihi RF → Rushimath RF → Kunjar RF.
2. From Saranda → Toda RF → Sarkunda RF → Sarkunda PRF.

**Measures for Protection & Development of Salt licks.**

Measures taken for forest protection are as below;

(1) A Division Mobile squad headed by a Forest Ranger/Deputy Ranger with Forester & Forest Guards has been constituted and the squad is performing the protection duty as per direction of the ACF, is helping the Range level squads and staffs as and when required for Forest & Wildlife protection.

(2) One control room has been functioning at Division Office and 3 persons on daily wages basis have been engaged to receive and communicate messages to the Range for protection of forests.

(3) The Forester and Forest Guards of the vulnerable areas have been supplied with Mobile phones to communicate messages on protection of forests & wild life.

(4) Different squads such as Para Forest Staff and Wildlife protection squad have been engaged under different schemes in the Range for protection of Forests & Wild life. Hired vehicles with other implements have also been supplied for the purpose.

(5) Para Forest staff @ 10 people for the Range has been deployed in important and theft prone beats to assist the Beat Forest Guard in protection of Forests & Wild life.

The details of protection of Forests & Wild life and achievements made there in are furnished below.



**Engagement of different squads with expenditure incurred  
from 2003-04 to 2014-15.**

Year	Control room staff.	Para forest staff.	Critically endangered squad.	Anti-smuggling squad with vehicle.	Anti-poaching Elephant, WL protection and Ex-Army squad with vehicle.	Purchase of equipments crackers etc.	Incentives to VSS/ people staff.	Awareness	Other Misc. Exp.	Total
1	2	3	4	5	6	7	8	9	10	11
2003-04	-	-	-	-	-	-	-	-	-	-
2004-05	-	-	-	-	-	-	-	-	-	-
2005-06	-	-	-	21200	-	-	-	-	-	21200
2006-07	-	-	-	18960	-	-	-	-	-	18960
2007-08	-	-	-	20476	-	-	-	-	-	20476
2008-09	-	-	12500	42000	-	-	-	-	-	54500
2009-10	-	-	20700	117910	-	-	-	-	-	138610
2010-11	-	154905	-	68800	-	-	-	-	-	223705
2011-12	-	219649	-	208735	24300	-	-	-	-	452684
2012-13	-	246000	68000	403500	-	-	-	-	-	717500
2013-14	-	852000	-	225000	-	20000	-	-	-	1097000
2014-15	-	427500	-	-	264000	-	-	-	-	691500
<b>G.Total</b>	<b>-</b>	<b>1900054</b>	<b>101200</b>	<b>1126581</b>	<b>288300</b>	<b>20000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3436135</b>
<b>Source:- Divisional Forest Officer, Rourkela Division.</b>										

**Details of offence cases booked in Banki Range from 2003-04 to 2015-16 (Year-wise).**

Year	Details of cases booked							Materials seized	Compensation realized.
	O.R	P.R	W.L. case	Cases U/s-56	U.D. Case	WildLife U.D. case	Total		
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
2003-04	146	--	--	01	34	--	181	Timber=450.79Cft Poles=643 Nos. F.W.33.33MT	46,045/-
2004-05	204	--	--	--	32	--	237	Timber =298.71Cft. Poles=996 Nos. F.W.=1.53mt	39,160/-
2005-06	115	--	--	02	25	--	142	Timber=963.67 Poles=481 Nos. F.W.=22.74MT	29,059/-
2006-07	107	01	--	01	32	--	140	Timber=37.09Cft Poles=443 Nos. F.W.=3.709MT	20,807/-
2007-08	132	--	--	--	15	--	147	Timber=124.16Cft. Poles=768 Nos. F.W.=18.2MT	33,731/-
2008-09	251	02	--	05	18	--	275	Timber=240.64Cft Poles=568 Nos. F.W.=23.69MT	67,182/-
2009-10	210	--	--	01	01	--	212	Timber=34.52Cft Poles=625 Nos. F.W.=2.63MT	44,818/-
2010-11	178	02	--	01	15	--	197	Timber=193.52Cft Poles=837 Nos. F.W.=24.92MT	61,350/-

2011-12	235	--	--	01	07	--	243	Timber=211.3Cft Poles=1245 Nos. F.W.=5.125MT	92,100/-
2012-13	210	--	--	--	18	--	228	Timber=526.619Cft Poles=1318 F.W.=21.615MT	1,17,200/-
2013-14	196	--	--	02	09	--	207	Timber=73.3Cft Poles=1323 F.W.=11.28MT	1,11,500/-
2014-15	174	--	--	--	12	--	186	Timber=719.53Cft. Poles=1209 F.W.=4.44 MT	1,36,600/-
2015-16	164	--	--	02	08	--	174	Timber=1234.99Cft. Poles=1669 F.W.=3.11	2,74,850/-

**Death position of different category of wild life from 1997-98 to 2015-16.**

Year	Range	Type of Wild Animal dead	No. of death cases	Reason of death
1	2	3	4	5
1997-98 to 2001-02	Banki	Nil		
2002-03	Banki	Barking Deer	1 No.	Poaching
2003-04 to 2015-16	Banki	Nil		
Source- Divisional Forest Officer, Bonai Division.				

**Details of depredation caused by wild animals from 1997-98 to 2015-16.**

<b><u>Human Kill</u></b>						
Year	Name of Wild animal	No. of death cases.	Compassionate grant sanctioned	Amount paid	Balance to be paid	Remarks
1	2	3	4	5	6	7
1997-1998 to 2015-2016	NIL					

<b><u>Human Injury</u></b>								
Year	Name of Wild animal involved	No. of cases	No of cases sanctioned	Balance cases to be sanctioned	Compassionate grant sanctioned	Amount paid	Balance to be paid	Remarks
1	2	3	4	5	6	7	8	9
1997-98 to 2000-01	Nil							
2001-2002	Elephant	3	1	2	1000	1000	-	Not yet sanctioned for want of documents
2002-2003	Bear	1	1	-	10000	10000	-	
2003-2004 to 2004-2005	NIL							
2005-2006	Bear	1	1	-	2000	2000	-	
2006-2007 to 2009-2010	NIL							
2010-2011	Bear	2	2	-	66600	66600	-	
2011-2012 to 2012-2013	NIL							
2013-2014	Bear	1	1	-	5000	5000	-	
2014-2015	NIL							
2015-2016	Elephant	1	-	1	-	-	-	Not yet sanctioned for want of documents
<b>Total:-</b>		<b>9</b>	<b>6</b>	<b>3</b>	<b>84600</b>	<b>84600</b>	<b>-</b>	

<b><u>Crop Damage</u></b>						
Year	Name of wild animal involved	No. of cases	Damaged area in acres.	Compassionate grant sanctioned	Amount paid	Balance to be paid
1	2	3	4	5	6	7
1997-98 to 2000-01	NIL					
2001-02	Elephant	3	3.25	1625	1625	
2002-03	Elephant	31	40.50	20250	20250	
2003-2004	Elephant	34	43.75	21875	21875	
2004-2005	Elephant	8	7.85	7850	7850	
2005-2006	Elephant	NIL				
2006-2007	Elephant	2	2.18	2180	2180	
2007-2008 to 2011-2012	NIL					
2012-2013	Elephant	26	21.41	214100	214100	
2013-2014	NIL					

2014-2015	Elephant	49	38.74	387800	387800	
2015-2016	Elephant	325	116.88	1175720	1073120	102600
<b>Total:-</b>		<b>478</b>	<b>274.56</b>	<b>1831400</b>	<b>1728800</b>	<b>102600</b>

<b><u>House Damage</u></b>									
Year	Name of wild animal involved	No. of house damage			No. of cases sanctioned	Compassionate grant sanctioned	Amount paid	Balance to be paid	Remarks
		Partly	Fully	Total					
1	2	3	4	5	6	7	8	9	10
1997-98 to 2013-14	-	-	-	-	-	-	-	-	
2014-2015	Elephant	13	24	37	37	266000	266000	-	
2015-2016	Elephant	4	17	21	21	178000	178000	-	
<b>Total:-</b>		<b>17</b>	<b>41</b>	<b>58</b>	<b>58</b>	<b>444000</b>	<b>444000</b>	<b>-</b>	

<b><u>Cattle Killed</u></b>								
Year	Type of Cattle Killed	Name of Wild animal by whom Killed	No.of Cases	No. of Cases Sanctioned	Amount Sanctioned	Amount paid	Balance to be paid	Remarks
1	2	3	4	5	6	7	8	9
1997-98 to 2015-16	Nil							

Usually Elephants are coming down to the forest fringe villages during crop season and damaging the crop as well as the houses of the tribal people. Different anti-depredation squads & Trackers have been engaged as per the details furnished above. Man-Elephant conflict exists and there are incidences of bear attack also.

No provision has been made for salt licks for the herbivores during the plan period.

#### **Silvicultural Measures**

The marking rules for felling of trees in selection working circle Coupes have been taken up as per prescriptions contained vide para-405 of the working plan. Subsidiary silvicultural operation in timber coupes have been taken up in each year basing on the receipt of allotment of funds. A portion of left over lops & tops and other debris are piled up on the boundary of the coupe line to provide shelter to the small wild animals.

#### **Legal & Administrative Measures.**

All Acts & Rules framed by Govt. of Odisha from time to time are implemented in this Range in protection of forests and wild life.

#### **Scientific Study & Wild life Census.**

No scientific study in wild life research, systematic data collection & its analysis has been made in this Range except conducting Elephant census & Tiger census. The census position of wild life have been furnished vide item-28.2.2 & 28.2.3 above.

### **Integrated Development**

Majority of the people of this Range are depending on agriculture. The tribal people depend on forest and some of them are engaged in mining as labourers. In the past this Range was an industrially backward region. At present 4 No of sponge Iron units and some Crusher units have been established. Most of the people are engaged in the industries & thus, the economic conditions of the people have increased to a great extent. The literacy level of the people has also increased by 70%. Thus, there is a considerable reduction of pressure on forest & wild life.

### **Fire Protection Measures.**

The position of occurrence of forest fire and steps taken so far in this Range to reduce the forest fire has been described in detail in item No. 1.18 above. One 10 member Exclusive Fire Squad have been deployed since 2012-13 to tackle the fire incidence. The details of expenditure incurred for the purpose during the period from 2003-04 to 2014-15 are furnished below;

Year	For Fire line creation & maintenance	For Fire protection squad with vehicle etc.	Fire equipments	Incentives to VSS/ People and awareness.	Cost of mapping	Total expenditure.
1	2	3	4	5	6	7
2003-04		1300				1300
2004-05	3500	3500				7000
2005-06	10500	1000	500		300	12300
2006-07		3000				3000
2007-08		4000				4000
2008-09	5000	59180				64180
2009-10						
2010-11		148000				148000
2011-12		33855				33855
2012-13	148500	185250	30000			363750
2013-14	165000	378000	35000	46800		624800
2014-15	280500	227000	35000			542500
2015-16						
<b>Total</b>	<b>613000</b>	<b>1044085</b>	<b>100500</b>	<b>46800</b>	<b>300</b>	<b>1804685</b>

### **Development of Eco-Tourism.**

This Range is having a good number of scenic spots of high potential for Eco- Tourism i.e. at Deodarh. A good number of tourists are coming to Deodarh to visit the area and its magnificent forest cover. Many of them comes for picnic purpose.

### **Measures to reduce damage caused by wild life.**

Details of measures taken to reduce damage caused by wild life has been described above.

### **DEVIATION IN IMPLEMENTATION OF THE PRESCRIPTIONS**

There is no deviation and the objectives of management of the working plan prescriptions have been implemented as described above.

### **Suggestion for Future Working Plan.**

Since this is an overlapping Working Circle, the areas coming under Selection, Protection and Plantation Working Circle during revision of the Working Plan will come under the purview of this Working Circle.

### **6- NTFP (OVER LAPPING) WORKING CIRCLE.**

This is an overlapping Working Circle and includes the areas coming under Selection Working Circle, Protection Working Circle and Rehabilitation-cum-Plantation Working Circle. The total area of this, Working Circle is 1, 48,156.952 Ha. Out of this, 14,650.244 Ha comes under Banki Range and merged in Rourkela Forest Division with effect from 1.10.2003.

The term Non-Timber Forest Produce (NTFP) includes all the items of forest produces except timber, small timber and fuel wood. The NTFP potential of this Range is at higher side. The tribals as well as other rural inhabitants are dependent upon various NTFP items for their livelihood and consumable requirements. On the other hand, the collection, transportation and marketing of NTFP items provide remunerative work to them. Constitution of this working circle has been made basing on the above facts for economic development of the rural and tribal people as well as for contributing significant amount of revenue to the state exchequer.



## **OBJECTIVES OF MANAGEMENT**

The objectives of management are as follows:

- (a) To regulate the collection and extraction of various NTFPs with a view
  - (i) To sustain desired species composition,
  - (ii) To encourage regeneration of the forests,
  - (iii) To promote sustainable management of forests and
  - (iv) To protect the interests of the primary gatherers.
- (b) To optimize collection and extraction of various NTFPs consistent with the first objective.
- (c) To enhance the value of forests by way of
  - (i) Developing new NTFPs in the forest,
  - (ii) Creating opportunities for value-addition in existing NTFPs, and
  - (iii) Strengthening marketing and other local institutions.
- (d) To enhance the stakes of local people in NTFPs and to extend skills to local people for sustainable collection, extraction and utilization of various NTFPs.
- (e) To encourage greater financial and managerial inputs in forests to promote regeneration of valuable and desirable NTFPs and to enhance productivity of forests.
- (f) To involve VSS members in NTFP extraction, value addition, disposal and marketing.

## **Implementation.**

The method and agencies of harvesting of some of the important NTFP items are furnished below.

(i) Kendu Leaf:-	The K.L. trade is regulated under the provisions of The Odisha KL (Control of Trade) Act'1961 and under operation by K.L. wing of Odisha Forest Department.
(ii) Sal Seed:-	It is a specified forest produce vide Notification No.34308/FFAH dt.9.12.82 and is regulated under The Odisha Forest Produce (Control of Trade) Act'1981. The OFDC Ltd. was appointed as Agent for collection and trade of Sal seed up to 2005 crop.
(iii) Tasar cocoons:-	Lease settled with M/s. ST & SCS Ltd, BBSR a Govt. of Odisha undertaking.

(iv) Siali fibre:-	Lease settled with Rourkela (KL) Division.
(v) Siali leaves:-	Settled with Sri P.K. Agarwal, Bisra along with TDCC ltd for 3 years from 1996-97 to 1998-99 vide F&E Department No.21794/FFAH dt.25.9.96. Again, the lease settled with Sri Amit Kumar Singh, Bisra for 3 years from 1999-2000 to 2001-02.
(vi) Mohua seed and Char seed:-	Settled with Sri Sawarmal Gododia, Rajgangpur for 3 years from 1999-2000 to 2001-02.
(vii) Lodh and Medha bark:-	Settled with Sri Sawarmal Gododia, Rajgangpur for 3 years from 1999-2000 to 2001-02.
<b>Source- Divisional Forest Officer, Bonai Division.</b>	

Apart from this, lease of 32 MFP items in this Division were settled with M/s- Utkal Forest Products ltd, Sambalpur vide G.O. No.28403/FFAH dt.6.12.89 for 10 years from 1989-90 to 1998-99. Subsequently, the order was cancelled vide No.10046/FFAH dt.5.5.90 and 29 MFP items out of 32 items were settled with the said company for 10 years from 1990-91 to 1999-2000 vide No.23632/FFAH dt.26.9.90. Out of this collection of 10 MFP items were surrendered by the company during 1995 and 18 items were worked out by the company.

The lease of Lac, Tamarind, Myrobalans and Kantabadhuni were settled with TDCC ltd during 1997-98. During 1998-99 other item i.e. Gum, Honey, Hill broom, Baidanka, Jute seed, Nageswar, Baghnakhi, Ananta seed, Marda seed, Polanga seed, Kamalagundi, Lodobaguli, Katkal and Makhna seed were settled with TDCC ltd. But during 1999-2000, TDCC ltd. had surrendered these extra items and worked only on Lac, Tamarind, Myrobalans and Siali leaves in this Division.

However, as per Govt. Policy, in total, 60 items were treated as MFP items in stead of NTFP items and their collection and disposal was transferred to Gram Panchayats with effect from 31.3.2000. Subsequently, another 9 items were also transferred to the control of G.P. during 2000 and 2006 as detailed below.

No.5503/FFAH dt.31.3.2000	-	60 items
No.13285/FFAH dt.23.8.2000	-	7 items
No.15325/FFAH dt.21.9.2000	-	1 item (Baibirang seed)
No.3695/FFAH dt.2.3.2006	-	1 item (Sal seed)

**Total- 69 items**

The NTFP items like Gum, Sal resin, Sal leaves, Khaira and Catechu, Barks of trees (Sunari, lodh, Medha, Phenphena, Arjun etc), Roots of Patala garuda, Tassar cocoons, Sandal wood and Canes are now under the control of Forest Department.

There is ban on collection of Sal leaves and Resin in this Division as its collection will affect the regeneration of Sal forests. Collection of any bark has also been prohibited from Silvicultural point of view. Availability of Khaira, Patala garuda, Sandal wood and cane are very less for its commercial exploitation. The item like Tasar cocoon is only worked out through SEREFED (ST&SCS ltd previously), Bhubaneswar.

There is no control over the management of the 69 MFP items as the Gram panchayats are not reporting details of traders engaged in collection and transportation each year as well as the monthly return on collection of the items entrusted with them. Regular regular monitoring is required in this matter.

The NTFP survey was carried out in this Range during 2011-12 and 2012-13 under 13<sup>th</sup> F.C. Grant and the result of out-turn of NTFP both tree and shrub species based with its value are furnished below.

Range	Category of NTFP	Total collection found from sample survey.			Total value in Lakhs.		
		Consumption in Qtls.	Sale in Qtls.	Total quantity in Qtls.	Value based on consumption.	Value as per sale.	Total value.
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Banki	SAL seed	55	259	314	27500	129500	157000
	Mahua Flower	93	516	609	111600	619200	730800
	Mahua seed	196	257	453	196000	257000	453000
	Char seed	1.51	0.14	1.65	30200	2800	33000
	Kusum seed	73	60	133	292000	240000	532000
	Karanja seed	32	6	38	128000	24000	152000
	Siali leafs	0	185	185	0	277500	277500
	Siali fibre	2	34	36	2000	34000	36000
	Khajuri broom	38	1	39	38000	1000	39000
	Harida seed	16	16	32	16000	16000	32000
	Hill broom	18	18	36	18000	18000	36000
	Bahada seed	0	33	33	0	16500	16500
	Amla seed	0	16	16	0	19200	19200
	Bhuin neem	8	0	8	8000	0	8000
	Girli flower	16.5	1.5	18	82500	7500	90000
	Pitalu kanda	17	15.5	32.5	25500	23250	48750
	<b>Total</b>	566.01	1418.14	1984.15	975300	1685450	2660750

During the OFSDP Phase-I implementation there were 2 nos. of clusters operating in 20 VSS involving 45 SHG groups were actively participated in IGA activities in Banki Range. The major NTFP items were Mahua Flower and Siali Leafs.

Afforestation have been taken up in this Range during the period from 1997-98 to 2015-16 as furnished earlier where in NTFP species like Assan, Arjun, Harida, Bahada, Anla, Neem, Mango, Karanj, Mahul, Tamarind etc. have been planted in these areas. It is expected that there will be increase in production of NTFP items in future.

### **DEVIATION IN IMPLEMENTATION OF THE PRESCRIPTIONS**

There is no deviation in the management of the working plan prescriptions during the plan period.

### **Suggestion for future Working Plan.**

Since this is a overlapping Working Circle, the entire area to be covered during revision may be included for its management.

### **7.MISC. (OVERLAPPING) WORKING CIRCLE**

Not applicable since there is no mining lease in Banki Range.

### **8.JOINT FOREST MANAGEMENT OVERLAPING WORKING CIRCLE**

During the period OFSDP Phase-I and Ama Jangal Yojana Scheme 60 nos. of VSS were actively participated for proper implementation of JFM activities for their socio-economic development and as well as to restore the valuable Forest in their locality. They have raised economic plantation, fuel and fodder plantation, bamboo plantation, NTFP plantation to make greenery of the locality. Hence, there is need of management of Forests in Joint Forest Management mode.

## **PART-II**

### **1. FUTURE MANAGEMENT**

Considering the factors described above and the results of the past working plan prescription, it is felt that some additions in the same revised working plan may be done. Prescription may also be changed in some forest block. The total area of 19,494.493 ha notified area including Revenue forest land has been taken into the consideration for future management as per details furnished below.

Sl. No.	Category of forest	Area in ha. covered under expiring working plan to be included during revision	New area (in ha.) proposed to be included during revision	Total area (in ha.) for the revised working plan
1	2	3	4	5
1.	Reserved Forest	13.318.326 (14 Blocks)	-	13.318.326 (14 Blocks)
2.	PRF (U/s-4)	1690.495 (7 Blocks)	162.744 (4 Blocks)	1853.239 (11 Blocks)
3.	P.F. (u/s-33):-	-	487.838	487.838
4.	Village Forests:-	-	95.710	95.710
5.	DPF (to be notified U/s-4)	-	1130.540	1130.540
6.	Revenue Forest :-	-	2608.840	2608.840 (VSS area)
	<b>G. Total :-</b>	<b>15008.821</b>	<b>4485.672</b>	<b>19494.493</b>

The above area except revenue forest land is based on the Government notification.

### **Objectives of management**

- (i) To conserve and improve the existing vegetative-cover for soil and water conservation with a view to ensure ecological and environmental stability.
- (ii) To endeavour to meet the requirements of people for agricultural small timbers, firewood, bamboos and other forest produces.
- (iii) To improve the composition and productivity of the forests for the production of timber and non-timber products.

- (iv) To protect and manage Wild Life resources with a view to conserve and help enrich bio-diversity.
- (v) To promote development of sustainable and non-destructive livelihood opportunities for local communities.
- (vi) To promote Joint Forest management involving Vana Samrakhyana Samiti for sustainable management of forests.
- (vii) To ensure sustainable production of Non-timber forest products and thus enhance livelihood opportunities of the communities dependent on forests.
- (viii) To rehabilitate the depleted forest through artificial regeneration and tending of the existing vegetation.

### **Method of Execution**

- Silvicultural operation like cleaning, thinning, high stump cutting & SMC work along with other prescription.

### **Constitution of Working Circles.**

Taking into consideration of the past system of management, it is suggested to constitute the following 7 (seven) Working Circle during revision of the Working Scheme of Banki Range.

- (1) Selection-cum-Improvement Working Circle.
- (2) Protection Working Circle.
- (3) Rehabilitation-cum-Plantation Working Circle.
- (4) Bamboo (overlapping) Working Circle.
- (5) NTFP/ MFP (overlapping) Working Circle.
- (6) JFM (overlapping) Working Circle.
- (7) Wildlife (overlapping) Working Circle.

The tentative area to be allotted to each Working Circle as per Government Notification is furnished below.

Items	R.F. in Ha.	P.R.F. in Ha.	P.F. in Ha.	Village forests in Ha.	DPF (in ha.)	Rev. Forest (in ha.)	Total in Ha.
1	2	3	4	5	6	7	9
1. Selection Working Circle.	11639.884	248.886	-	-	-	-	11888.770
2. Protection Working Circle.	613.286	-	-	-	-	-	613.286

3. Rehabilitation-cum-Plantation Working Circle.	1065.156	1589.00	--	--	--	--	2654.156
4. Bamboo (overlapping) Working Circle.	5098.422	-	-	-	-	-	5098.422
5. Wildlife (overlapping) Working Circle.	13318.326	1853.239	487.838	95.710	1130.540	2608.840	19494.493
6. NTFP (overlapping) Working Circle.	13318.326	1853.239	487.838	95.710	1130.540	2608.840	19494.493
7. JFM (overlapping) Working Circle.	1888.450	1472.010	-	-	-	2608.840 (Pure)	5969.300
<b>Total:-</b>	<b>13318.326</b>	<b>1853.239</b>	<b>487.838</b>	<b>95.710</b>	<b>1130.540</b>	<b>2608.840</b>	<b>19494.493</b>
<b>Source- Divisional Forest Officer, Rourkela Division.</b>							

The Working Circle wise details of forest area included in the expiring Working Plan (1997-98 to 2016-17) are furnished below for a comparison with the proposed Working Plan.

Items	R.F. in Ha.	P.R.F. in Ha.	P.F. in Ha.	Village forests in Ha.	DPF (in ha.)	Rev. Forest (in ha.)	Total in Ha.
1	2	3	4	5	6	7	9
1. Selection Working Circle.	11639.884	248.886	-	-	-	-	11888.770
2. Protection Working Circle.	613.286	-	-	-	-	-	613.286
3. Rehabilitation-cum-Plantation Working Circle.	1065.156	1589.00	-	-	-	-	2654.156
4. Bamboo (overlapping) Working Circle.	5098.422	-	-	-	-	-	5098.422
5. Wildlife (overlapping) Working Circle.	12822.980	1690.495	-	-	-	-	14513.475
6. NTFP (overlapping) Working Circle.	12822.980	1690.495	-	-	-	-	14513.475
7. JFM (overlapping) Working Circle.	-	-	-	-	-	-	-
<b>Total:-</b>	<b>13318.326</b>	<b>1690.495</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>15008.821</b>
<b>Source- Divisional Forest Officer, Rourkela Division.</b>							

The RF, PRF, DPF, VF & PF wise details of area included in the expiring Working Plan and area proposed in the revised Working scheme are also furnished be

Sl. No.	Name of the Forest Block	Area in ha. as per Govt. Notification	Area in different Working Circle in Ha. in the expiring Working Plan.							Area allotted to different Working Circle in Ha. in the proposed Working Scheme.						
			Area allotted to Selection Working Circle in Ha.	Area allotted to Protection Working Circle in Ha.	Area allotted to Rehabilitation-cum-Plantation Working Circle in Ha.	Area allotted to Bamboo (overlapping) Working Circle in Ha.	Area allotted to Misc. (overlapping) Working Circle in Ha.	Area allotted to wild life (overlapping) Working Circle.	Area allotted to NTFP (overlapping) Working Circle.	Area allotted to Selection Working Circle in Ha.	Area allotted to Protection Working Circle in Ha.	Area allotted to Rehabilitation-cum-Plantation Working Circle in Ha.	Area allotted to Bamboo (overlapping) Working Circle in Ha.	Area allotted to JFM (overlapping) Working Circle in Ha.	Area allotted to wild life (overlapping) Working Circle.	Area allotted to NTFP (overlapping) Working Circle.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	N.Champajharan RF	1092.675	1092.675	-	-	1028.313	-	1092.675	1092.675	1092.675	-	-	1028.313	210.000	1092.675	1092.675
2	S.Champajharan RF	1450.667	1450.667	-	-	1397.813	-	1450.667	1450.667	1450.667	-	-	1397.813	110.000	1450.667	1450.667
3	Silkuta-I RF	2042.088	1546.742	495.346	-	-	-	1546.742	1546.742	1546.742	495.346	-	-	110.000	2042.088	2042.088
4	Silkuta-I Ext. RF	153.783	153.783	-	-	-	-	153.783	153.783	153.783	-	-	-	-	153.783	153.783
5	Silkuta-II RF	885.876	885.876	-	-	-	-	885.876	885.876	885.876	-	-	-	110.410	885.876	885.876
6	Silkuta-II Ext. RF	186.159	186.159	-	-	-	-	186.159	186.159	186.159	-	-	-	-	186.159	186.159
7	Kucheita RF	395.791	-	-	395.791	-	-	395.791	395.791	-	-	395.791	-	355.000	395.791	395.791
8	Kukia RF	467.017	-	-	467.017	-	-	467.017	467.017	-	-	467.017	-	16.190	467.017	467.017
9	Kuradhi RF	489.680	489.680	-	-	501.188	-	489.680	489.680	489.680	-	-	501.188	115.000	489.680	489.680
10	Kuradhi Ext. RF	38.445	38.445	-	-	38.446	-	38.445	38.445	38.445	-	-	38.446	-	38.445	38.445
11	Jharbeda RF	3615.540	3479.967	-	135.573	-	-	3615.540	3615.540	3479.967	-	135.573	-	151.460	3615.540	3615.540
12	Jharbeda Ext. RF	224.605	224.605	-	-	-	-	224.605	224.605	224.605	-	-	-	-	224.605	224.605
13	Dhanghar RF	894.374	827.599	-	66.775	868.974	-	894.374	894.374	827.599	-	66.775	868.974	345.250	894.374	894.374
14	Mahura RF	1381.626	1263.686	117.940	-	1263.688	-	1381.626	1381.626	1263.686	117.940	-	1203.688	365.140	1381.626	1381.626
<b>Total RF:-</b>		<b>13318.326</b>	<b>11639.884</b>	<b>613.286</b>	<b>1065.156</b>	<b>5098.422</b>	<b>0.000</b>	<b>12822.980</b>	<b>12822.980</b>	<b>11639.884</b>	<b>613.286</b>	<b>1065.156</b>	<b>5098.422</b>	<b>5098.422</b>	<b>13318.326</b>	<b>13318.326</b>
1	N.Champajharan PRF	177.256	177.256	-	-	-	-	177.256	177.256	177.256	-	-	-	177.256	177.256	177.256
2	S. Champajharan	594.496	-	-	503.188	-	-	594.496	594.496	-	-	503.188	-	533.117	594.496	594.496
3	Hatioda PRF	52.772	-	-	203.250	-	-	52.772	52.772	-	-	203.250	-	52.772	52.772	52.772
4	Jharbeda PRF	71.630	71.630	-	-	-	-	71.630	71.630	71.630	-	-	-	-	71.630	71.630
5	Mahura PRF	282.476	-	-	214.063	-	-	282.476	282.476	-	-	214.063	-	197.000	282.476	282.476
6	Thelakudar PRF	78.915	-	-	62.125	-	-	78.915	78.915	-	-	62.125	-	78.915	78.915	78.915
7	Purnapani – Budhikutni	432.950	-	-	606.375	-	-	432.950	432.950	-	-	606.375	-	432.950	432.950	432.950
	Samardhari - Juniani PRF															
8	Birtola PRF	27.114	-	-	-	-	-	-	-	-	-	27.114	-	-	27.114	27.114
9	Kusumtola PRF	88.632	-	-	-	-	-	-	-	-	-	88.632	-	-	88.632	88.632



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
10	Kucheita PRF	26.395	-	-	-	-	-	-	-	-	-	26.395	-	-	26.395	26.395
11	Kendughati PRF	20.603	-	-	-	-	-	-	-	-	-	20.603	-	-	20.603	20.603
<b>Total PRF:-</b>		<b>1853.239</b>	<b>248.886</b>	<b>0.000</b>	<b>1589.001</b>	<b>0.000</b>	<b>0.000</b>	<b>1690.495</b>	<b>1690.495</b>	<b>248.886</b>	<b>0.000</b>	<b>1751.745</b>	<b>0.000</b>	<b>1472.010</b>	<b>1853.239</b>	<b>1853.239</b>
1	Nuagaon DPF	214.476	-	-	-	-	-	-	-	-	-	214.476	-	-	214.476	214.476
2	Dhanghar DPF	855.927	-	-	-	-	-	-	-	-	-	855.927	-	-	855.927	855.927
3	Karda DPF	60.137	-	-	-	-	-	-	-	-	-	60.137	-	-	60.137	60.137
<b>Total DPF:-</b>		<b>1130.540</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>1130.540</b>	<b>0.000</b>	<b>0.000</b>	<b>1130.540</b>	<b>1130.540</b>
1	Bandupada VF	4.000	-	-	-	-	-	-	-	-	-	4.000	-	-	4.000	4.000
2	Badpurnapani	3.200	-	-	-	-	-	-	-	-	-	3.200	-	-	3.200	3.200
3	Gamalei	6.900	-	-	-	-	-	-	-	-	-	6.900	-	-	6.900	6.900
4	Thiaberna	8.000	-	-	-	-	-	-	-	-	-	8.000	-	-	8.000	8.000
5	Bad Tumkela	5.960	-	-	-	-	-	-	-	-	-	5.960	-	-	5.960	5.960
6	Mishrapali	5.000	-	-	-	-	-	-	-	-	-	5.000	-	-	5.000	5.000
7	Gadapali	8.000	-	-	-	-	-	-	-	-	-	8.000	-	-	8.000	8.000
8	Gauduniposh	5.000	-	-	-	-	-	-	-	-	-	5.000	-	-	5.000	5.000
9	Darjing	7.000	-	-	-	-	-	-	-	-	-	7.000	-	-	7.000	7.000
10	Kenapali	5.050	-	-	-	-	-	-	-	-	-	5.050	-	-	5.050	5.050
11	Kenapali	0.880	-	-	-	-	-	-	-	-	-	0.880	-	-	0.880	0.880
12	Arkeikela	4.820	-	-	-	-	-	-	-	-	-	4.820	-	-	4.820	4.820
13	Bhudhikutuni	8.000	-	-	-	-	-	-	-	-	-	8.000	-	-	8.000	8.000
14	Nuapara	9.500	-	-	-	-	-	-	-	-	-	9.500	-	-	9.500	9.500
15	Kapanda	14.400	-	-	-	-	-	-	-	-	-	14.400	-	-	14.400	14.400
<b>Total VF:-</b>		<b>95.710</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>95.710</b>	<b>0.000</b>	<b>0.000</b>	<b>95.710</b>	<b>95.710</b>
1	San-Thelakudar PF	13.166	-	-	-	-	-	-	-	-	-	13.166	-	-	13.166	13.166
2	-do-	26.557	-	-	-	-	-	-	-	-	-	26.557	-	-	26.557	26.557
3	Kusumtola	184.591	-	-	-	-	-	-	-	-	-	184.591	-	-	184.591	184.591
4	San-Thelakudar	4.047	-	-	-	-	-	-	-	-	-	4.047	-	-	4.047	4.047
5	Kucheita	32.925	-	-	-	-	-	-	-	-	-	32.925	-	-	32.925	32.925
6	Paramdihi	7.976	-	-	-	-	-	-	-	-	-	7.976	-	-	7.976	7.976
7	Ruguda	27.658	-	-	-	-	-	-	-	-	-	27.658	-	-	27.658	27.658
8	San-Thelakudar	65.459	-	-	-	-	-	-	-	-	-	65.459	-	-	65.459	65.459
9	San-Tikayatpali	125.459	-	-	-	-	-	-	-	-	-	125.459	-	-	125.459	125.459
<b>Total PF:-</b>		<b>487.838</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>487.838</b>	<b>0.000</b>	<b>0.000</b>	<b>487.838</b>	<b>487.838</b>
1	<b>Revenue Forest (KF)</b>	<b>2608.840</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.00</b>	<b>0.000</b>	<b>2608.840</b>	<b>2608.840</b>	<b>2608.840</b>
<b>G.Total :-</b>		<b>19494.493</b>	<b>11888.770</b>	<b>613.286</b>	<b>2654.156</b>	<b>5162.752</b>	<b>0.000</b>	<b>14513.475</b>	<b>14513.475</b>	<b>11888.770</b>	<b>613.286</b>	<b>4530.989</b>	<b>5098.422</b>	<b>5969.300</b>	<b>19494.493</b>	<b>19494.493</b>

Detailed area of the forest block taken up in future management as detail given below:-

### **Reserved Forests (RF)**

Sl. No.	Name of the Forest Block	Area as per Govt. Notification (in ha.)	Area computed by WPO during last plan (1997-98 to 2016-17)	Proposed for future management (in ha.)	W.C.
1	2	3	4	5	6
1	N.Champajharan RF	1092.675	1028.313	1092.675	SWC & BWC
2	S.Champajharan RF	1450.667	1397.813	1450.667	SWC & BWC
3	Silkuta-I RF	2042.088	1976.375	2042.088	SWC & PWC
4	Silkuta-I Ext. RF	153.783	153.78	153.783	SWC
5	Silkuta-II RF	885.876	884.999	885.876	SWC
6	Silkuta-II Ext. RF	186.159	186.159	186.159	SWC
7	Kucheita RF	395.791	395.791	395.791	RWC
8	Kukia RF	467.017	467.017	467.017	RWC
9	Kuradhi RF	489.680	501.188	489.680	SWC & BWC
10	Kuradhi Ext. RF	38.445	38.446	38.445	SWC & BWC
11	Jharbeda RF	3615.540	3587.813	3615.540	SWC & RWC
12	Jharbeda Ext. RF	224.605	224.605	224.605	SWC
13	Dhanghar RF	894.374	935.749	894.374	SWC & RWC
14	Mahura RF	1381.626	1381.628	1381.626	SWC, PWC & BWC
<b>Total area of Banki Range:-</b>		<b>13318.326</b>	<b>13159.676</b>	<b>13318.326</b>	
<b>Sources :- Divisional Forest Officer, Rourkela Division</b>					

### **Proposed Reserved Forest (PRF)**

Sl. No.	Name of the Forest Block	Area as per Govt. Notification (in ha.)	Area computed by WPO during last plan (1997-98 to 2016-17)	Proposed for future management in Ha.	W.C.
1	2	3	4	5	6
1	N.Champajharan	177.256	249.814	177.256	SWC
2	S. Champajharan	594.496	503.188	594.496	RWC

3	Hatioda PRF	52.772	203.250	52.772	RWC
4	Jharbeda PRF	71.630	138.375	71.630	SWC
5	Mahura PRF	282.476	214.063	282.476	RWC
6	Thelakudar PRF	78.915	62.125	78.915	RWC
7	Purnapani - Budhikutni Samardhari - Juniani PRF	432.950	606.375	432.950	RWC
8	Birtola PRF	27.114	Not included	27.114	RWC
9	Kusumtola PRF	88.632	Not included	88.632	RWC
10	Kucheita PRF	26.395	Not included	26.395	RWC
11	Kendughati PRF	20.603	Not included	20.603	RWC
<b>Total area of Banki Range:-</b>		<b>1853.239</b>	<b>1977.190</b>	<b>1853.239</b>	

**Demarcated Protected Forest (DPF to be notified U/s-4 of OFA'1972)**

Sl. No.	Name of DPF	Area (in Ha.)	Area computed by WPO during last plan (1997-98 to 2016-17)	Proposed for future management (in ha.)	W.C.
1	2	3	4	5	6
1	Nuagaon DPF	214.476	Not included	214.476	RWC
2	Dhanghar DPF	855.927	Not included	855.927	RWC
3	Karda DPF	60.137	Not included	60.137	RWC
	<b>TOTAL :-</b>	<b>1130.540</b>		<b>1130.540</b>	

### **Village Forest (VF)**

Sl. No.	Name of the VF	Area as per Govt. Notification (in ha.)	Area computed by WPO during last plan (1997-98 to 2016-17)	Actual area found as per DGPS survey in Ha.	Proposed for future management in Ha.	W.C.
1	2	3	4	5	6	7
1	Bandupada	4.000	Not included	-	4.000	RWC
2	Badpurnapani	3.200	Not included	-	3.200	RWC
3	Gamalei	6.900	Not included	-	6.900	RWC
4	Thiaberna	8.000	Not included	-	8.000	RWC
5	Bad Tumkela	5.960	Not included	-	5.960	RWC
6	Mishrapali	5.000	Not included	-	5.000	RWC
7	Gadapali	8.000	Not included	-	8.000	RWC
8	Gauduniposh	5.000	Not included	-	5.000	RWC
9	Darjing	7.000	Not included	-	7.000	RWC
10	Kenapali	5.050	Not included	-	5.050	RWC
11	Kenapali	0.880	Not included	-	0.880	RWC
12	Arkeikela	4.820	Not included	-	4.820	RWC
13	Bhudhikutuni	8.000	Not included	-	8.000	RWC
14	Nuapara	9.500	Not included	-	9.500	RWC
15	Kapanda	14.400	Not included	-	14.400	RWC
	Total :-	<b>95.710</b>	-	-	<b>95.710</b>	RWC

### **Protected Forest (PF)**

Sl. No.	Name of User Agency with Mines	Nome of P.F.	Notification No. & date.	Name of Village	Name of PS	Area (in ha.)
1	Patbeda Iron Mines (14 ha.) of M/s M.G. Mohanty	San-Thelakudar	SRO No.342/2009 dt.20.8.2009	San-Thelakudar	K.Bolang	13.166
2	Patbeda Iron Mines of M/s MGM Mineral Ltd.	-do-	-do-	-do-	-do-	26.557
3	Narayanposhi Iron & Manganese Mines of M/s AMTC Ltd.	Kusumtola	SRO No.346/09 dt.20.8.2009	Kusumtola	Banki	184.591
4	Bhanjpali Iron Mines of J.N. Patnaik	San-Thelakudar	No.13445/F&E dt.3.8.2009	San-Thelakudar	K.Bolang	4.047

5	Tantra Irono Mines of M/s Korp Resources	Kucheita	SRO No.230/10 dt.5.6.2010	Kucheita	Banki	32.925
6	Nadidihi Iron & Manganese Mines of M/s Feegrade & Co Ltd.	Paramdihi	SRO No.344/2014 dt.14.7.2014	Paramdihi	K.Bolang	7.976
7	Oraghat Iron Mines of M/s Rungta Sons (P) Ltd.	Ruguda	SRO No.647/2013 dt.26.10.2014	Ruguda	-do-	27.658
8	Raikela Iron Mines of M/s Geetarani Mohanty	San-Thelakudar	SRO No.1/09 dt.14.5.2009	San-Thelakudar	-do-	65.459
9	Mahulsukha Manganese Mines of M/s AMTC Ltd.	San-Tikayatpali	No.16630/F&E dt.22.9.2005	San-Tikayatpali	Lahunipara	125.459
<b>Total:-</b>						<b>487.838</b>
<b>Source : Divisional Forest Officer, Rourkela Division</b>						

### **VSS Area in RF, PRF & Revenue Forest land**

Sl. No.	Nos. of VSS	Total VSS area (in ha.)	Area computed by WPO during last plan (1997-98 to 2016-17)	Actual area found as per DGPS survey in Ha.	Proposed for future management (in ha.)	W.C.
1	2	3	4	5	7	8
1	60	RF- 1888.450 PRF- 1472.010 <u>K.F.- 2608.840</u> <b>Total:- 5969.300</b>	Not included	Not done	RF- 1888.450 PRF- 1472.010 <u>K.F.- 2608.840</u> <b>Total:- 5969.300</b>	JFM

### **GRAND ABSTRACT**

Sl. No.	Name of the Forest Block	Area as per Govt. Notification (in ha.)	Proposed for future management (in ha.)	Remark
1	2	3	7	8
1	RF	13318.326	13318.326	
2	PRF	1853.239	1853.239	
3	DPF	1130.540	1130.540	
4	VF	95.710	95.710	
5	PF	487.838	487.838	
6	KF (VSS area)	2608.840	2608.840	
	<b>TOTAL :-</b>	<b>19494.493</b>	<b>19494.493</b>	

## **1. (A) SELECTION WORKING CIRCLE**

The area of 11,878.147 ha. notified area which was in the existing plan has been proposed during revision under Selection Working Circle. The marking will be as per prescriptions of existing Working Plan. Also proper sample layout and accurate yield calculation will be made. There should be specific prescription of improvement in selection forests to improve the growth of principal and secondary species. Regular climber cutting and other subsidiary silvicultural operation (SSO) should be done in extensive manner where timber operation have completed. The coupes which have not been worked also be treated with SSO work. Sufficient fire protection measures should be prescribed to help the seedlings and saplings to establish. Although the Working Plan was valid from 1997-98, no coupe work was taken up from 1997-98 to 2004-05 i.e. coupe No. I to VIII due to moratorium on felling of trees issued by Government F&E Department. Moreover, in 2005-06 & 2006-07 though marking has been done in Coupe No. IX & X respectively but coupes were not worked due to intense maoistic activities in the locality. Due to non working of the coupes in previous plan period most of the trees in the aforesaid coupes have attended to exploitable girth which needs to be operated in the proposed scheme period ie. From 2017-18 to 2023-24. Those coupes may be prescribed to carry out the operations within this Working Scheme from 2017-18 to 2023-24

- ❖ To remove the mature and silviculturally available trees on sustainable basis before they become unsound.
- ❖ To build up the growing stock and improve the stand structure and encourage natural regeneration by taking suitable silvicultural operations with emphasis on soil and water conservation measures.
- ❖ To maintain and improve biodiversity of forest blocks.
- ❖ To work out the coupes which were not worked in previous plan period due to various reasons.
- ❖ Post felling operations like S.S.O., climber cutting, SMC, and control of biotic factors, boundary maintenance, and compartment line maintenance shall be specifically prescribed.

**Distribution of Area** – The following area of Banki Range proposed for distribution of forest blocks into the Selection Working Circle along with its area are given in the table below.

Reserved Forest area				
Sl. No.	Name of the Forest Block	Area as per Govt. Notification (in ha.)	Area to be included under SWC	W.C.
1	2	3	4	6
1	N.Champajharan RF	1092.675	1092.675	SWC
2	S.Champajharan RF	1450.667	1450.667	SWC
3	Silikuta-I RF	2042.088	1546.742	SWC
4	Silikuta-I Ext. RF	153.783	153.783	SWC
5	Silkuta II RF	885.876	885.876	SWC
6	Silkuta-II Ext. RF	186.159	186.159	SWC
7	Kuradhi RF	489.680	489.680	SWC
8	Kuradhi Ext. RF	38.445	38.445	SWC
9	Jharbeda RF	3615.540	3479.967	SWC
10	Jharbeda Ext. RF	224.605	224.605	SWC
11	Dhanghar RF	894.374	827.599	SWC
12	Mahura RF	1381.626	1263.686	SWC
<b>Total RF:-</b>		<b>12455.518</b>	<b>11639.884</b>	
Proposed Reserved Forest area				
13	N.Champajharan PRF	177.256	177.256	SWC
14	Jharbeda PRF	71.630	71.630	SWC
<b>Total PRF:-</b>		<b>248.886</b>	<b>248.886</b>	
<b>G. Total RF + PRF</b>		<b>12704.404</b>	<b>11888.770</b>	

**Schedule of working of coupes:**

Year	Name of the Coupe	Area in ha.	Max. No. of trees to be marked as per Para-397 of WP	Year	Name of the Coupe	Area in ha.	Max. No. of trees to be marked as per Para-397 of WP
1	2	3	4	1	2	3	4
Champajharan Felling Series				Silikuta Felling Sereis			
2017-18	Champajharan SWC – I	329.554	1648	2017-18	Silikuta SWC – I	250.484	1503
2018-19	-do- SWC-II & III	519.127	2595	2018-19	-do- SWC-II & III	622.031	3732
2019-20	-do- SWC-IV	228.872	1144	2019-20	-do- SWC-IV	434.118	2605
2020-21	-do- SWC-V	320.260	1601	2020-21	-do- SWC-V	336.900	2021
2021-22	-do- SWC-VI	337.658	2026	2021-22	-do- SWC-VI & VII	670.919	4026
2022-23	-do- SWC-VII & VIII	458.351	2750	2022-23	-do- SWC-VIII	400.239	2401
2023-24	-do- SWC-IX & X	482.118	2892	2023-24	-do- SWC-IX & X	800.111	2923
<b>Total:-</b>		<b>2675.940</b>	<b>14656</b>	<b>Total:-</b>		<b>3514.800</b>	<b>19211</b>

### **1.(B) PROTECTION WORKING CIRCLE**

The forest area having high gradient, slopes with moderate forest, encroachment areas, grazing and browsing prone areas and area showing natural regeneration of species will be included in this circle. The areas which show good natural regeneration of indigenous species will be included in Protection Working Circle. In this circle adequate protection shall be provided with fencing and watch and ward. The biotic pressure shall be minimized to allow natural regeneration to come up. The areas requiring very specific silvicultural treatment and administrative measures have been covered under this working circle.

- The working circle includes ecologically fragile areas of high hills, encroachment area, catchment area around reservoirs and hilly steep precipitation slopes with high altitudes, which are susceptible to environmental degradation due to fire and grazing etc.
- This working circle covers some portion of RFs and PRFs which are under encroachment for cultivation and habitation purposes.
- This circle includes areas affected by fire, illicit felling, poaching in the past.
- No felling will be taken up except removal of uprooted and wind fallen trees.
- Adequate SMC measures, suitable gap planting in more than 0.4 acres will be planted with indigenous species.
- Measures to tackle smuggling, poaching and other biotic interference in all the working circles will be prescribed under miscellaneous regulation.

The areas have little vegetation except in the cooler aspect and the crop is somewhat open and covers many exposed hill tops. At places, this is due to edaphic factors rather than due to climatic conditions. Sal is the dominant species and other important associates of Sal available are Asan, Dhaura, Bija, Jamu, Mai, Amba, Anla, Bahada, Kasi, Kumbhi and Sidha, etc. The crop density varies from 0.2 to 0.5. Due to rugged nature of the ground, the open areas of this region are quite susceptible to soil erosion. The areas under active encroachment are bereft of forest vegetation but have adequate regeneration. Infestation of weeds is seen at some places and the magnitude is high in some RFs and PRFs.

### **OBJECTIVES OF MANAGEMENT**

The objectives of management set for this Working Circle are as follow:

- To prevent further degradation of delicate and eco-sensitive areas and stabilize these areas as ecologically stable.
- To rehabilitate the forest area subjected to encroachment or shifting cultivation by adequate social, administrative and silvicultural measures.



- The area having high gradient, slopes with moderate forest, encroachment evicted areas, grazing and browsing prone areas and area showing natural regeneration of indigenous species will be included in this circle.
- Grazing shall be stopped with the help of local adjoining villagers/VSS members.
- Illicit felling of trees shall be controlled and stopped with the help of villagers and members of adjoining VSS areas.
- Fire will be prevented in all forest blocks with the help of local adjoining villagers and members of VSS of area.

Protection squad will be formed at important places with adequate infrastructure and staff. Adequate financial provision shall be made for protection of all forest blocks.

The areas requiring very specific silvicultural treatment and administrative measures have been covered under this working circle. The working circle includes ecologically fragile areas of high hills around water sources and hilly slopes, which are susceptible to environmental degradation. This working circle covers some portion of RFs and PRFs which are under encroachment for cultivation and habitation purposes. This also includes some forest blocks under shifting cultivation in the past having little vegetation and containing sufficient root stocks for regeneration.

**Distribution of Area** – The following 2 nos. of forest blocks covering an area of 613.286 ha. proposed for distribution into the Protection Working Circle.

<b>Reserved Forest area</b>				
Sl. No.	Name of the Forest Block	Area as per Govt. Notification (in ha.)	Area to be included under SWC	W.C.
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>6</b>
1	Silkuta-I RF	2042.088	495.346	PWC
2	Mohura RF	1381.626	117.940	PWC
<b>Total of RF:-</b>		<b>3423.714</b>	<b>613.286</b>	

### **1.(C) REHABILITATION-CUM-PLANTATION WORKING CIRCLE**

The objectives and treatment of Rehabilitation W.C. shall include 40 forest blocks of RF / PRF / DPF / VF / PF covering an area of 4530.989 ha.

### **GENERAL CONSTITUTION**

The forest blocks that are in various stages of degradation needs rehabilitation through gap plantation are allotted to this working circle. Degradation of these forests is due to unrelenting biotic interference such as illicit felling, repeated fires, uncontrolled grazing and encroachments. These adverse factors along with other locality

factors have affected the natural regeneration very badly in these forests. On the other hand, these forests contain sufficient root stock, which if tended and protected has the potentiality to convert into high forests. These blocks need immediate attention with respect to rehabilitation of degradation.

### **OBJECTIVES OF MANAGEMENT**

The following objectives of management have been prescribed:

- To improve the condition of existing forests through protection against grazing, fire and illicit felling.
- To enhance soil productivity through soil and moisture conservation measures.
- To stabilize the ratio between water runoff during rainy season and during dry season.
- To restock barren areas through artificial regeneration by gap plantation of most desirable indigenous species.
- To involve local community and VSS in protection and management of the forests.
- To restore and improve the microclimate and micro edaphic condition.
- To increase the biodiversity and heterogeneity in the forest crop by encouraging natural regeneration and subsidiary silvicultural operations.
- Old plantations taken up in the last Plan will be surveyed, listed and prescription for tending and future management shall be recorded.
- The degraded area of Selection Working Circle will be included in this circle.

### **CHARACTER OF VEGETATION**

Crops in the forest blocks allotted to this working circle are degraded and the soil is prone to different types of soil erosion due to biotic interference. Mature trees are available in scattered manner in most of the forest blocks. Recruits are adequate but the established saplings and poles have poor representation.

The forests are open, scrubby and miscellaneous in composition. There is no distinct storey in most of these forest areas. Main species include *Shorea robusta*, *Terminalia tomentosa*, *Madhuca indica*, *Pterocarpus marsupium*, *Anogeissus latifolia*, *Boswellia serrata*, *Buchnanian lanzan*, *Diospyros melanoxylon*, *Terminalia chebula*, *Emblica officinalis*, *Ougenia oojenensis*, *Bauhinia retusa*, *Woodfordia fruticosa*,

Indigofera pulchella, Nyctanthes arbotritis, Ixora arborea, Grewia nudiflora, Phoenix acaulis, Bauhinia vahili, Butea superba, Holarrhena antidysentrica, and Smilax macrophylla, etc.

### **SPECIAL OBJECTIVE OF MANAGEMENT**

The following special objectives of management are set for this working circle which is within the ambit of the general objective of management. These are as follows:

- To enrich the micro-edaphic conditions and ensure maximum conservation of soil and water through proper soil conservation measures and through involvement of local people.
- To tend and improve the existing growing stock through suitable silvicultural measures.
- To regenerate the barren and blank gaps and patches by planting suitable indigenous species. Part of forest blocks which were under shifting cultivation in the past will be planted and rehabilitated.
- To boost growth of Sal and other valuable species of coppice origin by appropriate silvicultural operation.
- To tend the existing plantation so as to get maximum annual increment.
- To provide adequate protection to the areas having rootstock and constitute JFM committee to involve the local people.
- To meet the bona fide needs of local inhabitants like fire wood, small timber, fodder, NTFP, etc in future when restocked.

**Distribution of Area for Rehabilitation-cum-plantation working circle** – The following areas proposed for distribution into the Rehabilitation-cum-plantation working circle are given in the table below as per previous working plan of Bonai Forest Division.

Sl. No.	Name of the Forest Block	Area in ha. as per Govt. Notification	Area allotted to Rehabilitation-cum-Plantation Working Circle in Ha. as per computation by the than Working Plan Officer	W.C.	Remarks
1	2	3	4	5	6
<b><u>Reserved Forests (RF)</u></b>					
1	Dhanghar RF	894.374	66.775	RWC	Area planted upto 1986-87 is 66.775 Ha.
2	Jharbeda RF	3615.540	135.573	RWC	Area planted upto 1990-91 is 72.0 Ha.

3	Kucheita RF	395.791	395.791	RWC	Part of this was previously worked under coppice W.C. Area planted upto 1992-93 is 120.094 Ha.
4	Kukia RF	467.017	467.017	RWC	Previously worked under coppice W.C. Area planted upto 1995-96 is 50.0Ha.
<b>Total RF:-</b>		<b>5372.722</b>	<b>1065.156</b>		
<b>Proposed Reserved Forest(PRF)</b>					
5	S.Champajharan PRF	594.496	503.188	RWC	
6	Hatioda PRF	52.772	203.250	RWC	
7	Mahura PRF	282.476	214.063	RWC	
8	Thelakudar PRF	78.915	62.125	RWC	
9	Purnapani - Budhikutni Samardhari – Juniani PRF	432.950	606.375	RWC	Planted area upto 1994-95 is 100.00Ha.
<b>Total PRF:-</b>		<b>1441.610</b>	<b>1589.001</b>		
<b>G.Total:-</b>		<b>6814.332</b>	<b>2654.157</b>		<b>(-) 408.869 Ha.</b>

Sl. No.	Name of the Forest Block	Area in ha. as per Govt. Notification	Area allotted to Rehabilitation-cum-Plantation Working Circle in Ha.	W.C.	Remarks
1	2	3	4	5	6
<b>Proposed Reserved Forest (PRF)</b>					
1	Birtola PRF	27.114	27.114	RWC	
2	Kusumtola PRF	88.632	88.632	RWC	
3	Kucheita PRF	26.395	26.395	RWC	
4	Kendughati PRF	20.603	20.603	RWC	
<b>Total PRF:-</b>		<b>162.744</b>	<b>162.744</b>		
<b>Demarcated Protected Forest (DPF to be notified U/s-4 of OFA, 1972)</b>					
5	Nuagaon DPF	214.476	214.476	RWC	
6	Dhanghar DPF	855.927	855.927	RWC	
7	Karda DPF	60.137	60.137	RWC	
<b>Total DPF:-</b>		<b>1130.540</b>	<b>1130.540</b>		

Sl. No.	Name of the Forest Block	Area in ha. as per Govt. Notification	Area allotted to Rehabilitation-cum-Plantation Working Circle in Ha.	W.C.	Remarks
1	2	3	4	5	6
<b>Village Forest</b>					
8	Bandupada VF	4.000	4.000	RWC	
9	Badpurnapani	3.200	3.200	RWC	
10	Gamalei	6.900	6.900	RWC	
11	Thiaberna	8.000	8.000	RWC	
12	Bad Tumkela	5.960	5.960	RWC	
13	Mishrapali	5.000	5.000	RWC	
14	Gadapali	8.000	8.000	RWC	
15	Gauduniposh	5.000	5.000	RWC	
16	Darjing	7.000	7.000	RWC	
17	Kenapali	5.930	5.930	RWC	
18	Arkeikela	4.820	4.820	RWC	
19	Bhudhikutuni	8.000	8.000	RWC	
20	Nuapara	9.500	9.500	RWC	
21	Kapanda	14.400	14.400	RWC	
<b>Total VF:-</b>		<b>95.710</b>	<b>95.710</b>		
<b>Protected Forest (PF)</b>					
22	San-Thelakudar	109.229	109.229	RWC	
23	Kusumtola	184.591	184.591	RWC	
24	Kucheita	32.925	32.925	RWC	
25	Paramdihi	7.976	7.976	RWC	
26	Ruguda	27.658	27.658	RWC	
27	San-Tikayatpali	125.459	125.459	RWC	
<b>Total PF:-</b>		<b>487.838</b>	<b>487.838</b>		
<b>G. Total</b>		<b>1876.832</b>	<b>1876.832</b>		

**Abstract of total area prposed in Rehabilitation Working Circle under Working Scheme:**

Reserve Forest Area as per previous Bonai Working Plan	1065.156
Proposed Reserve Forest Area as per previous Bonai Working Plan	1589.001
Proposed Reserve Forest Area included in proposed Working Scheme	162.744
Demarcated Protected Forest Area included in proposed Working Scheme	1130.540
Village Forest Area included in proposed Working Scheme	95.710
Protected Forest Area included in proposed Working Scheme	487.838
<b>Grand Total</b>	<b>4530.989</b>

**YEAR WISE DISTRIBUTION OF AREA FOR REHABILITATION-CUM-PLANTATION  
WORKING CIRCLE AS PER PREVIOUS WORKING PLAN OF BONAI FOREST DIVISION:**

**Kucheita Rehabilitation Series:**

Year of working	Coupe No.	Compartment & sub-compartment No.	Area ( in Ha.)	Area to be rehabilitated (in Ha.)	Map ref.
1	2	3	4	5	6
2017-18	I	Kucheita	275.697	275.697	73B/16/SE
2018-19	II	Jharbeda 12(a) Part	63.573	63.573	-do-
2019-20	III	Ch. (a) I PRF part	60.000	60.000	-do-
2020-21	IV	Ch. (s) I PRF	293.125	293.125	-do-
2021-22	V	Ch. (s) II PRF	150.063	150.063	73B/16/SE 73C/13/NE
2022-23	VI	Hatioda PRF	203.250	203.250	73B/16/SE
2023-24	VII	Mahura PRF	214.063	214.063	-do-
		<b>TOTAL :-</b>	<b>1259.771</b>	<b>1259.771</b>	

Reference :- Keh. – Kucheita      Ht. – Hatioda      Jh. – Jharbeda      M. – Mahura  
Ch(s). – Champajharan South

**Kukia Rehabilitation Series:**

Year of working	Coupe No.	Compartment & sub-compartment No.	Area ( in Ha.)	Area to be rehabilitated (in Ha.)	Map ref.
1	2	3	4	5	6
2017-18	I	Kk. Part	150.000	150.000	The rehabilitation area of Kukia RF is distributed over 2 Nos. of topographical sheets of scale 1:25,000 of survey of India 73C/13/NE 73C/13/NW
2018-19	II	Kk. Part	150.000	150.000	
2019-20	III	Kk. part	117.017	117.017	
2020-21	IV	Pn. PRF part	150.000	150.000	The rehabilitation area of Purunapani - Budhikutuni PRF is covered in 2 nos. of topographical sheet 1:25,000 of scale of S.O.I. 73C/13/NE 73C/13/SE
2021-22	V	Pn. PRF part	150.000	150.000	
2022-23	VI	Pn. PRF part	206.375	206.375	
2023-24	VII	Th. PRF	62.125	62.125	73C/13/NE
		<b>TOTAL :-</b>	<b>985.517</b>	<b>985.517</b>	
		<b>Total Kucheita &amp; Kukia Series</b>	<b>2245.288</b>	<b>2245.288</b>	

Reference :- Kk. – Kukia RF      Pn. – Purunapani-Budhikutuni      Th. – Thelkudar

**N.B:-** The distribution of area for 2245.288 Ha. under rehabilitation-cum-plantation working plan has been proposed excluding 408.869 Ha. of area already covered under plantation as per remarks column. Due to maoist influence in the locality, the rehabilitation activities was not taken up during the last working plan period. Hence, the total area has been proposed in the current working scheme period from 2017-18 to 2023-24.

**YEAR WISE DISTRIBUTION OF AREAS PROPOSED FOR REHABILITATION-CUM-PLANTATION WORKING CIRCLE AS PER PRESENT WORKING SCHEME OF ROURKELA FOREST DIVISION WHICH WAS NOT INCLUDED IN PREVIOUS BONAI WORKING PLAN:**

**Dhanghar Rehabilitation Series:**

Year of working	Coupe No.	Compartment & sub-compartment No.	Area ( in Ha.)	Area to be rehabilitated (in Ha.)	Map ref.
1	2	3	4	5	6
2017-18	I	Birtola PRF Kusumtola PRF Kucheita PRF Kendughati PRF	27.114 88.632 26.395 20.603	27.114 88.632 26.395 20.603	
2018-19	II	Nuagaon DPF	214.476	214.476	
2019-20	III	Dhanghar DPF (P-I)	300.000	300.000	
2020-21	IV	Dhanghar DPF (P-II)	300.000	300.000	
2021-22	V	Dhanghar DPF (P-III) Karada DPF	255.927 60.137	255.927 60.137	
2022-23	VI	San-Thelakudar PF Kusumtola PF Kucheita PF Paramdihi PF Ruguda PF San-Tikayatpali PF	109.229 184.591 32.925 7.976 27.658 125.459	109.229 184.591 32.925 7.976 27.658 125.459	
2023-24	VII	Bandupada VF Badpurnapani VF Gamalei VF Thiaberna VF Bad Tumkela VF Mishrapali VF Gadapali VF Gauduniposh VF Darjing VF Kenapali VF Arkeikela VF Bhudhikutuni VF Nuapara VF Kapanda VF	4.000 3.200 6.900 8.000 5.960 5.000 8.000 5.000 7.000 5.930 4.820 8.000 9.500 14.400	4.000 3.200 6.900 8.000 5.960 5.000 8.000 5.000 7.000 5.930 4.820 8.000 9.500 14.400	
		<b>TOTAL :-</b>	<b>1876.832</b>	<b>1876.832</b>	

### **1.(D) BAMBOO (OVERLAPPING) WORKING CIRCLE**

This is an overlapping working circle and the blocks included in the current working plan will continue as such during present Working Scheme. Bamboo silvicultural operation will be taken up to improve the growth of Bamboo. The areas covered under this Working Circle are given below. However, the cutting cycle of four years (A, B, C, D) as was done in the last plan may also be continued during the Working Scheme period to carry out the silvicultural operations followed by enrichment plantation of bamboo inside the coupe area after demarcation of coupes. The details of year-wise coupe area distribution is mentioned in the future management scheme.

Since the Bamboo corp is not silviculturally viable for the cutting, so no commercial felling may be prescribed during the next scheme period.

Systematic management of the bamboo forests to obtain sustained yield alongwith treatment prescriptions of intensive SSO works, fire protection works and soil and moisture conservation works as per the availability of funds allotment by the Government under different schemes.

### **GENERAL CONSTITUTION**

This is an overlapping working circle and only the bamboo producing areas of the Range has been kept in this working circle. The bamboo crop has been exposed to fire hazards and over-felling over the years. As a result, the condition of bamboo forests has deteriorated. These bamboo areas need to be rehabilitated. The total area in the current working circle is 5098.422 ha. and the said area will remain the same during revision of the Working Plan.

### **GENERAL OBSERVATION AND VEGETATION**

*Dendrocalamus strictus* (Salia Bamboo) is the main species and grows in extensive areas. *Bambusa arundinacea* (Daba Bamboo) grows over small patches along the permanent nallahs and rivers. Salia bamboo generally grows on the hilltop as under storey or at some place as bamboo brakes. Mostly the bamboo present is of Quality III.



## OBJECTIVES OF MANAGEMENT

The objectives of the management of the Bamboo (Overlapping) Working Circle are as follows: -

- Systematic management of the bamboo forests to obtain sustained yield alongwith treatment prescriptions of intensive SSO works, fire protection works and soil and moisture conservation works.
- Meeting the demand of the local people and artisans from the depots of the Orissa Forest Development Corporation.
- Meeting the demand of raw materials for the paper mills.
- Employment to forest dwellers and local people.
- To apply proper silvicultural principles while working bamboo forests in order to secure sustained yield along with improvement of quality and quantity of bamboo clumps.
- To rehabilitate the degraded bamboo areas through tending, cleaning and bamboo planting, etc.
- To enrich the Bamboo Working Circle areas enrichment of bamboo plantations provisions may be made to cover the gaps.

## AREA ALLOTMENT

The bamboo has been exploited unscientifically in the past. While easily accessible forest areas were over exploited, the difficult hilly terrains and inaccessible areas were either under exploited or left without working. This has adversely affected the growth of bamboo clumps. Degeneration and degradation of bamboos in lower slopes and plains and congestion in upper slopes is the result of haphazard bamboo working in the past. Most of the clumps on an average do not contain minimum number of culms required for healthy growth of rhizomes. All the area will be treated as per working plan prescription irrespective of availability of harvestable bamboo.

Name of the Coupe	Area in ha.
Champajharan B/C "A"	1632.572
Champajharan B/C "B"	793.554
Champajharan B/C "C"	925.670
Champajharan B/C "D"	1746.626

### Schedule of operation to be carried out during 2017-18 to 2023-24

Coupe No.	Year of Demarcation and Felling	Name of Forest Block	Compt. & Sub-Compt.	Area in ha.	Map reference 1:25,000 scale
B	2017-18	Chamajharan (S) RF	1, 2(Part), 4(Part), 5(b)	793.554	73B/16/SE, 73C/13/NE
C	2018-19	Kuradihi RF, Dhanghar RF, Kuradihi Extn. RF	1 & 2 1 & 2(part) Entire	925.670	73C/13/NE 73C/13/NW
D	2019-20	Dhanghar RF, Mahura RF	2 (bal.) & 3 1,2,3,4&5	1746.626	73B/16/SE 73C/13/NE
A	2020-21	Chamajharan (N) RF Chamajharan (S) RF	1,2,3,4 & 5 2 (bal.), 3 & 4(bal.)	1632.572	73B/16/SE
B	2021-22	Chamajharan (S) RF	1, 2(Part), 4(Part), 5(b)	793.554	73B/16/SE, 73C/13/NE
C	2022-23	Kuradihi RF, Dhanghar RF, Kuradihi Extn. RF	1 & 2 1 & 2(part) Entire	925.670	73C/13/NE 73C/13/NW
D	2023-24	Dhanghar RF, Mahura RF	2 (bal.) & 3 1,2,3,4&5	1746.626	73B/16/SE 73C/13/NE

### CHARACTER OF VEGETATION

Two species of bamboo are found in the forests of this Range. The most commonly found species is Salia bamboo (*Dendrocalamus strictus*). This is an overlapping working circle and the blocks included in the current working plan will continue as such in all the bamboo area. The reason for degradation and poor productivity of the area will be analysed in details. In case of plantation in 'C' type bamboo clump area, bamboo species like *Dendrocalamus strictus*, *Bambusa arundinacea* will be prescribed.

Sl. No.	Name of the Forest Block	Area in ha. as per Govt. Notification	Area computed by WPO	Area allotted to Bamboo (overlapping) Working Circle in Ha.	W.C.
1	2	3	4	5	6
1	N.Champajharan RF	1092.675	1028.313	1028.313	BWC
2	S.Champajharan	1450.667	1397.813	1397.813	BWC
3	Dhanghar RF	894.374	868.974	868.974	BWC
4	Kuradhi RF	489.680	501.188	501.188	BWC
5	Kuradhi Ext. RF	38.445	38.446	38.446	BWC
6	Mahura RF	1381.626	1263.688	1263.688	BWC
<b>Total:-</b>		<b>5347.467</b>	<b>5098.422</b>	<b>5098.422</b>	

### **1.(E) NTFP (OVERLAPPING) WORKING CIRCLE**

This is an overlapping working circle comprising of all forest area of Banki Range. The recommendations of the current working plan will continue.

### **GENERAL CONSTITUTION**

The forests of Banki Range are rich in biodiversity. Species yielding non-timber forest produce (NTFP) like fruits, seeds, flowers, tubers, barks, leaves, roots and gums are abundant. The livelihood support of people in and around the forests largely depends on these products. NTFPs were haphazard in the past and their collection was largely unorganized. Moreover, the present practice of collection of NTFPs is not scientific and sustainable. 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 and tribals of the locality.

The gatherers of NTFP, majority of them are women, have limited access to the market, and their primary concern is getting a fair price for the materials gathered by them and disposing them off. The prevailing system does not adequately provide these facilities to the primary gatherers. Keeping in view above consideration, the Government of Odisha formulated the Policy on procurement and trade of Non Timber Forest Produce during March 2000. In the present scenario, special efforts are required to strike a balance between protection of interest of the primary gatherers; enhancing their subsistence along with protection/conservation of the natural resources and increasing the productivity and making the forests products sustainable.

### **OBJECTIVES OF MANAGEMENT**

The objectives of management are as follows:

- (a) To regulate the collection and extraction of various NTFPs with a view
  - (i) To sustain desired species composition,
  - (ii) To encourage regeneration of the forests,
  - (iii) To promote sustainable management of forests and
  - (iv) To protect the interests of the primary gatherers.
- (b) To optimize collection and extraction of various NTFPs consistent with the first objective.
- (c) To enhance the value of forests by way of
  - (i) Developing new NTFPs in the forest,
  - (ii) Creating opportunities for value-addition in existing NTFPs, and
  - (iii) Strengthening marketing and other local institutions.

- (d) To enhance the stakes of local people in NTFPs and to extend skills to local people for sustainable collection, extraction and utilization of various NTFPs.
- (e) To encourage greater financial and managerial inputs in forests to promote regeneration of valuable and desirable NTFPs and to enhance productivity of forests.
- (f) To involve VSS members in NTFP extraction, value addition, disposal and marketing.

### **AREA ALLOTMENT**

This Working Circle overlaps the entire Working Plan area, i.e., 19,494.493 ha. of the Range.

### **ANALYSIS AND VALUATION OF THE CROP**

No systematic study was undertaken in the Range to assess the Volume/potentiality, flow and varied uses of NTFPs by the forest communities. There is need to ascertain the impact of collection / extraction / utilization practices on sustainability of these forests vis-à-vis the role of NTFPs in the village economy. The need for such studies has been long felt and NTFP survey was conducted in this Range. Many collection practices very adversely affect forests and are often unsustainable. For example, if all seeds are collected from forest floor and no seed is left for regeneration, forests may not regenerate. This is evident in many Sal forests, where Sal seed is very intensively collected. Similarly, no young Mohua trees are observed in many areas because there is no scope for regeneration due to massive seed and flower collection.

Forest floors are often burnt before many oil seeds and grasses, particularly fodder grasses, are collected or used. This practice is very harmful to forests. It kills micro-flora and fauna. In many forests, floors are swept for leaf litter and humus. This practice effects nutrient re-cycling which plays an important role in maintaining transpiration process. Moreover, the NTFPs are over-exploited in many cases. Likewise, some medicinal species have been over-exploited. They have either become extinct or are facing extinction. Similarly, plants whose tubers and roots are collected or used are under greater threat. The MFP items are being worked through Gram Panchayats .

The term Non-Timber Forest Produce (NTFP) includes all forest produce except timber, small timbers and fuel wood. NTFP have great potential to support the people's economic development consistent with the principles of sustainable forest management. Banki Range having extensive jurisdiction and vast vegetative cover has good potential of NTFP. The tribals, who constitute major part of population along with other rural people, are dependent on such forest produce for their sustenance. Some of the NTFP items supplement their food and other consumable requirements while the

collection, transportation and marketing of other NTFP items provides regenerative work to them especially during lean period.

The National Forest Policy 1988 has spelt out one of its strategies of rural development by associating the tribals and other rural people living in and around forest areas for protection, regeneration and development of forests by ensuring optimum collection of NTFP through them. Institutional arrangement for marketing the same will also be done to safeguard their customary rights and interests and to provide them employment. About 40% of livelihood of rural people including tribals is covered through collection and sale of various NTFP items. These items also contribute some amount of revenue to the state exchequer. Many NTFP items have commercial importance. NTFP were neglected in the past and their collection was largely disorganised. Moreover, the present practice of collection of NTFP is not scientific and sustainable. In the light of above facts and with a view to provide avenues of economic development to rural and tribal people by generating employment the constitution of this working circle has been felt essential.

The collection of NTFP items is not only confined to RF blocks but also spread to DPFs, Khesra Forest, Village Forest, Govt. Waste land and private lands. Sal is the dominant species in majority of forests of this Range and forms pure crop in many forest blocks. Sal seeds, Sal leaves and Sal resin (Jhuna) are important NTFP items procured from Sal forests of this Range and these items are available in substantial quantities. The primary and secondary associates of Sal along with under wood and under growth provide other important NTFP items like char seeds, kusum seeds, myrobalans, mahua flowers and seeds, karanja seeds, babul seeds, siali leaves and fibres, dhatuki flowers, bhuineem, ban haldi, bankulthi, kanta badhuni, phul badhuni, bantulshi, gums and resins, etc. Some of these items are exploited for commercial purposes.

Kendu leaf is another important NTFP item exploited at commercial level in this division. Kendu leaf bushes and shrubs are mostly available in Govt. waste land and private holdings and contribute about 75% of Kendu leaf production. The mohua trees which yield mohua flowers and seeds are largely available in the village forests and private holdings and contribute more than 55 percent of Mohua flowers and seeds collection. Mohua trees are also available in many RF and DPFs.

### **APPROACH FOR DEVELOPMENT**

The objectives for development of this working circle are as follows:

- (1) To improve existing marketing institutions like NTFP co-operatives and forest marketing co-operative societies for payment of fair prices to primary collectors and save them from exploitation by middle men.

- (2) To create alternate employment / income generation by developing village and cottage industries and using locally available NTFP items as input/ raw material.
- (3) To carry out extensive as well as intensive research for utilisation of various NTFP items and to explore their commercial viability.
- (4) To develop NTFP based industries.
- (5) To study the potentiality of NTFP items including medicinal plants.

#### **1.(F) Joint Forest Management (JFM) (OVERLAPPING) WORKING CIRCLE**

The National Forest Policy 1988 provided that requirement of Forest produce of the tribal and other villages living in and near the forest area to be treated as the first change on forest produce. It implies that meeting the requirement of local people consistent with the production capacity of the forest should be the main objective of JFM.

#### **Area Allotment**

The JFM (overlapping) Working Circle will be created during revision of the scheme for the first time. In Banki Range, 60 Nos. of VSS / JFMCs have been formed so far as on 30.6.2016 and they have been actively participating in Forest Protection. The total area allotted to these VSS comes to 5,969.30 Ha as per the details below.

Reserved Forest :-	1,888.45 Ha.
P.R.F. (U/s-4):-	1,472.01 Ha.
Revenue Forests:-	<u>2,608.84 Ha.</u>
<b>Total:-</b>	<b>5,969.30 Ha.</b>

Out of 60 JFMC/ VSS, Plantation and other activities have since been taken up in 48 VSS over an area of 4,104 Ha during the period from 2004-05 to 2015-16 as per details furnished below.

Name of Agency.	Target in Ha.	Achievement in Ha.	Balance in Ha.	No. of VSS involved.
1	2	3	4	5
1.OFSDP	3,269.00	3,269	-	34
2.F.D.A.	1,933.69	835	1,098.69	14
<b>Total:-</b>	<b>5,202.69</b>	<b>4,104</b>	<b>1,098.69</b>	<b>48</b>
<b>Source- Divisional Forest Officer, Rourkela Division.</b>				

**Provision & JFM areas:**

As per the JFM resolution of the State, Micro Plans are prepared for the area allotted to the VSS. Since degraded forest areas have been allotted to VSS, most of these forests are still in degraded stage and have been allotted to the Rehabilitation Working Circle. It is expected that the broad treatment for the crop and soil and moisture conservation will be similar. The VSS Micro plan will be site specific treatment plan and will generally follow the prescription to the rehabilitation working circle and JFM working Circle.

**The result of consultation with R.C.C.F with local people forum, JFM committee, Panchayats & FDA are as follows:-**

- JFM committee requested for demarcation of the areas assigned to the VSS for protection and management of forest.
- Small scale industries are to be provided for up-liftment of the livelihood of the local people by creating alternate income generation option.
- Small industries are to be established in the cluster villages for scientific processing of NTFP items and value addition thereof to support the income of the local people.
- Creation of income generating activities in the villages protecting the forests. Involvement of the local people in collection and trade of NTFPs.
- Plantation of MFPs species needs to be encouraged for generating employment opportunity to the villagers as well as the forest dwellers.
- Entry point activities need to be taken up in order to motivate, sensitize and to ensure community participation and involvement in implementation of the projects. Various income generation Entry Point Activities are to be taken up in the project in consultation with the local people like establishment of multi community centre, Tent house utensils, leaf plati mauling units, creation of community orchards, ponds etc.
- Improvement of soil productivity through suitable soil and moisture conservation activities to make the people engaged for betterment of the forests as well as providing income generating source to improve their livelihood.
- The VSS micro-plan will be site specific treatment plan and will generally follow the prescription of the Rehabilitation Working Circle and JFM working Circle. The work allotted in this working circle may be entrusted to the JFMs for smooth operation and management.

## **Community Forest Management**

The concept of people participation in the management of forests is a very old practice in some places. Every village hamlet and community ensured that the utilization of natural resources including forests did not exceed the ecological carrying capacity.

Forest community rights related to use of community forest resources like minor forest produce, grazing grounds, water bodies etc. recognised under the provision of the forest Right Act 2006, can be exercised within the frame work of sustainable management.

As such there is no community claim till date under FRA'2006. Individual claims have been settled and 3633 nos. of titles have been issued covering an area of 4524.64 Acres (Or, 1831.097 ha.). The status of the land will be retained and planting fruit bearing / NTFP trees will be done in the lands allotted to the beneficiaries. Proposal in detail will be placed in the revised working plan.

## **Fringe Forest Management**

The communities living in the Forest fringe villages / hamlets depend heavily on the forest for their fuel wood, small timber, bamboo and fodder needs. In rural areas fuel wood is used for cooking as well as for heating water and house hold heating, more so in the hilly regions. The dependence of villages on fuel wood is heavy because, commercial sources of energy are not easily available due to varied reasons. Non Timber Forest Produce (NTFPs) referred to in the National income accounts as minor forest products are source of livelihood and food security for a large number of rural communities living in and around forests. They are important to rural households in terms of their contribution to health, food, energy and other aspects of rural welfare.

The importance of management of fringe forests lies in the fact that if property managed.

- i) It can arrest people entry in to forest.
- ii) Can reduce fire incidence in the forest.



So, alternate source of energy shall be provided in the form of

- i) Low cost fuel efficient chullas through the JFMCs.
- ii) People in the forest fringe villagers will be education through training, meeting and capacity building programme on collection, processing and value addition of the NTFP items.
- iii) Prevention and management of forest fire will be done through the fringe villagers.

### **REDD+**

REDD stands for reducing emissions from deforestation and forest degradation. REDD+ 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 as a tool for climate change mitigation. Deforestation happens when forests are cleared and such land is put to other non-forestry use.

It is therefore proposed to develop mechanisms in the revised Working Plan on the following aspects like, payment to local people

- (i) To protect and rejuvenate the degraded forests.
- (ii) For fodder development in order to avoid lopping of tree branches
- (iii) For fuel efficient cooking devices to reduce fuel wood use etc.

### **Carbon Sequestration and Mitigation**

Growing trees absorb carbon dioxide from the atmosphere and store the carbon so efficiently that half the dry weight of a tree is carbon. This carbon remains locked up in the form of wood and wood products. Sustainably grown and harvested wood (and other biomass) also provides a renewable alternative to fossil fuels and enhance carbon storage.

Carbon sequestration through recognised and innovative silvicultural practices, eco restoration and degraded forests, mines out forest lands, improved mass productivity etc will help in improving forest health and vitality. Forest soil must be kept healthy and fertile.

Provisions shall be made in detail for afforestation and eco restoration in degraded forest, compensatory afforestation and safety zone plantation in mined out and OB dump.

### **Forest and climate change.**

Climate change and variability have a great impact on forest eco-system process and functionary. Response time of Forest eco-system to disturbance ranges from a very short duration to decades and even centuries, depending on the condition of eco-system and the type, intensity and duration of the external stimuli. The actual state of forest eco-system largely depends on process and practise of the past. Forests are linked to climate change in three ways.

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

Impacts of climate change on forest eco-systems are getting manifested as species range shifts, changing biodiversity, 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 the frequency and severity of forest fire, changing water regimes and expanding forest insect infestation. A grid based sample survey will be conducted to obtain information to cover the times scales.

### **1.(G) WILD LIFE (OVERLAPPING) WORKING CIRCLE**

Banki Range has very large number of wildlife and protection should be strengthened to prevent poaching of wild animals. Due to depletion of habitat, the elephants are often entering nearby cultivated fields and damaging the crop. In search of water and food the elephants are entering villages adjacent to forest blocks. Some cases of elephant death due to poaching and electrocution have been reported. To prevent destruction of elephant habitat prescriptions may be made for establishment of permanent elephant corridors, establishment of task force units furnished with equipments, creation of water bodies, creation of salt licks and plantation of fruit bearing species etc. Creation of awareness among the people is very essential to avoid man-elephant conflict and necessary prescription may be made with adequate allotment in different heads.

## **GENERAL CONSTITUTION**

In the past prior to independence, Banki Range was very rich in flora and fauna particularly prior to independence. During that time, “SHIKAR” was the prerogative of the Ruler and was confined only to royal relations, royal guest and other close friends. However, after merger of Bonai state with the province of Odisha State, the situation in respect of wild animals took a reverse turn and there were wanton destructions of wild life both lawfully and unlawfully. Further, the wild-life habitat was severely disturbed due to excessive human interference in the form of timber operations, mining activities, Bamboo and Kendu leaf operation and collection of MFPs etc. A good portion of wild-life habitat was directly lost due to large scale human resettlement in the forest areas.

Keeping these field realities in view, for highlighting the importance of wild life and to improve the wild life population in this Range, constitution of this working circle has been done.

## **OBJECTIVES OF MANAGEMENT**

The objectives of the management of the Wildlife Working Circle are as follows:

- Conservation, protection and improvement of existing wildlife habitat.
- Protection of wildlife in general and endangered species in particular.
- Eco-tourism and People’s participation to create awareness.
- Increase in biodiversity and wildlife population.
- To improve the habitat of Wild life by reducing biotic interference,
- To create more water bodies and salt licks to support the dwindling wild life population.
- To conserve and preserve the diversity of flora and fauna within natural eco-system,
- To educate and create awareness among masses about the importance of wild fauna in the forest eco-system.
- To improve habitat of existing wild life in different forest blocks with strengthening of elephant corridors and reduction of man-elephant conflict.
- To ensure quick and timely payment of compassionate grant to the victims of wild animals.

## **AREA STATEMENT**

This working circle overlaps the entire area of Selection Working Circle, Rehabilitation-cum-Plantation Working Circle and Protection Working Circle. The total area of this working circle comes to 19,494.493 ha.

## **SPECIAL OBJECTIVES OF MANAGEMENT**

The special objectives of management set for this Working Circle include:

- (i) To conserve, protect and improve wild life habitat with special emphasis on the sanctuary area and corridor for elephants.
- (ii) To promote wildlife in general and endangered species in particular.
- (iii) To create awareness among the local people regarding necessity to conserve and protect the wildlife and their habitat.
- (iv) To conserve and develop important wildlife habitat for the purpose of eco-tourism.
- (v) To increase biodiversity and wildlife population.
- (vi) To help prevention of wildlife related crimes.

## **METHOD OF TREATMENT**

In order to achieve the special objectives of management set for this overlapping working circle, special objectives of management set for the working circles to which it overlaps must be kept in view. The method of treatment will vary depending on the habitat of wild life, status of the fauna in the Range, protection provided to them and their breeding capability for proliferation of population.

The number of wild animals has deteriorated during the plan period. The carnivores have reduced in number and sighting is very less. The man-elephant conflict is increasing day by day because elephants are coming out to village areas due to non-availability of food, water and cover inside forest. Massive plantation of fruit bearing trees may be taken up. This working circle shall include forest areas having importance of wildlife and recreation. Like wild flora, wild fauna also has genetic pool, which can be utilized for the future welfare of humanity. Wild animals and their products have great commercial value and due to excessive and illegal exploitation of this resource in the past, depletion of wild life has taken place.

## **STRATEGIES**

Despite overwhelming protection given to the conservation of biodiversity and wildlife during recent years, many forest patches of this Range are degraded.

Though there has been general decline in the forests and wildlife habitat, the Range continues to have wildlife resources. For protection of the existing wild life, improvement of their habitat and conservation of bio-diversity, this overlapping Working Circle has been constituted that extends to entire Range. The biotic pressure by humans and domestic cattle has adversely affected the biodiversity of flora and fauna due to degradation of forests over the years. Systematic biodiversity survey has not been made in the Range barring some qualitative observations.

### **MISCELLANEOUS REGULATIONS**

As usual, a chapter on miscellaneous regulations such as statements of deviations, sample plots, grazing, protection from fire, programmes for roads and buildings, water supply, maintenance of boundary, maintenance of compartment history, maintenance of map, control forms and preservation of trees etc should be incorporated in the new Scheme.

### **COLLECTION OF INFORMATION.**

The following information will be collected relating to the revision of Working Scheme of Banki Range.

<b>SL No.</b>	<b>Information to be collected</b>	<b>Source of information</b>	<b>Authority to be requested</b>
1	Information on Geology , Rock and Soil	Geological Survey of India	
2	Date on rainfall, temperature and humidity	Metrological Department	
3	State of boundaries of forest block	Divisional Forest Officer	DFO, Rourkela
4	Legal position of Forest area	Divisional Forest Office	DFO, Rourkela
5	Right and concession	Old Working Plans of the Division	DFO, Rourkela
6	Illicitly felling, encroachment, cattle population, mining, scientific information with regard to attack of fungus and insect.	Divisional Forest office and Silviculturist	DFO, Rourkela
7	Agricultural customs and wants of the people	District Hand Book	Collector, Sundargarh
8	Method of harvesting and their cost	Divisional Forest Office	DFO, Rourkela
9	Past and current prices	Divisional Forest Office	DFO, Rourkela

SL No.	Information to be collected	Source of information	Authority to be requested
10	Dependence of local people on forest (human and cattle population, occupation, annual income, incidence of poverty, source of energy and fodder, social customs, old traditional knowledge etc)	Divisional Forest Office	DFO, Rourkela
11	Staff and labour supply	Divisional Forest Office	DFO, Rourkela
12	General history of forests	All old Management/ Working plan.	DFO, Rourkela
13	Past yield, revenue and expenditure	Recodes maintained in the Division Office.	DFO, Rourkela
14	Statistic of growth and yield	Bibliography of all published statistic relating to growth and yield and outturn or extract in Indian Forester and Silvicultural conferences, Silviculturists ledger files and sample plot files etc.	
15	Soil Type	Soil Conservation Dept.	Dist. Soil Conservation Officer, Sundargarh
16	Rocks	Geology Dept.	Geology Department, Sambalpur
17	Mineral Resources	Mining Dept.	DDM, Koira
18	Rainfall	Collectorate	Collector, Sundargarh
19	Temperature	Meteorological Office, Bhubaneswar	Director, IMO, Bhubaneswar
20	Relative Humidity	-do -	-do -
21	Availability of drinking water facilities in different Blocks of Banki Range	Sub-collector, Office	Sub-collector, Bonai
22	Abstract of District Level Committee Report.	Collectorate DFO , Sundargarh	Collector, Sundargarh
23	Abstract of Block wise forest area of Banki Range	Divisional Forest Office	Divisional Forest Office
24	Index Map of Banki Range (1:50000)	Divisional Forest Office	Divisional Forest Office
25	Details of Forestry area diverted for non- forestry purpose.	Divisional Forest Office	Divisional Forest Office
26	Details of boundary of various forest blocks	Divisional Forest Office	Divisional Forest Office

<b>SL No.</b>	<b>Information to be collected</b>	<b>Source of information</b>	<b>Authority to be requested</b>
27	Information on Pre-80 encroachment of Banki Range	Divisional Forest Office	Divisional Forest Office
28	Information on Post-80 encroachment of Banki Range	Divisional Forest Office	Divisional Forest Office
29	Abstract of JFM Activities of Division	Divisional Forest Office	Divisional Forest Office
30	Depth of water table (in meters)	Central Ground Water Board, Bhubaneswar	Central Ground Water Board, Bhubaneswar
31	List of village forests	Divisional Forest Office	Divisional Forest Office
32	Notification of Bonai State Reserved Forests	Divisional Forest Office	Divisional Forest Office
33	List of Active VSSs of Banki Range	Divisional Forest Office	Divisional Forest Office
34	List of Plantations	Divisional Forest Office	Divisional Forest Office
35	SC& ST Population of Banki Range	Sub-Collectorate, Bonai	Sub-Collector, Bonai
36	Location of Firewood Depots functioning in Banki Range	D.M. OFDC Rourkela	D.M. OFDC Rourkela
37	Production of Bamboo coupe wise in Banki Range	Divisional Forest Office	Divisional Forest Office
38	Outturn and Royalty of NTFP in Banki Range	Divisional Forest Office	Divisional Forest Office
39	Outturn and Unit price of worked out coupes in Banki Range	Divisional Forest Office	Divisional Forest Office
40	List of Buildings in Banki Range	Divisional Forest Office	Divisional Forest Office
41	Head wise expenditure in Banki Range	Divisional Forest Office	Divisional Forest Office
42	Head wise Revenue realized in Banki Range	Divisional Forest Office	Divisional Forest Office

## 2. Map.

The following maps are required during preparation of the Revised Working Scheme of Banki Range.

1:50, 000 Scale	1:25, 000 Scale
73C/13	73B/16 SE
73F/4	73C/13 NE
	73C/13 NW
	73C/13 SE
	73F/4 SE
	73F/4 SW

## 3. Field work to be carried out by Rourkela Division.

- i. Inspect plan area i.e. Blocks, Compartments, Sub-compartments and check boundaries.
- ii. Update Compartment histories.
- iii. General composition of crops in each Compartment is to be determined.
- iv. Sample point inventory if remote sensing is adopted.
- v. Study of stock map.
- vi. Assesment of site quality, crop density, crop age.
- vii. Regeneration Survey.
- viii. Statistics of growth and yield.
- ix. Socio economy Survey.
- x. Inventorization of NTFPs.
- xi. Plantation Survey.
- Xii. Forest Soil Analysis.



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