Chapter 4

FOREST, FORESTRY AND FOREST CONSERVATION IN JORINDA GONDIA: A RETROSPECTION
Chapter- 4

FOREST, FORESTRY AND FOREST CONSERVATION IN JORINDA GONDIA:
A RETROSPECTION

Background

Orissa got glorious history of forest, in pre and post independent period. The forests cover of Orissa always stands high in comparison to other state. In first part of eighties, forest cover of Orissa is out of 75.00 million hectares of land area under forest in India, 6.746 million hectares are found in Orissa, which works to about 9 per cent of the total forest area of the country. Within the state, about 43 % of the total land areas were under forest\textsuperscript{1}. Almost all the forests located in the state are owned and managed by the state Government. The extent of private forest is very negligible. Anyhow, Forests occurring over a large part of the region, in past that now constitute the state of Orissa were largely inaccessible except for the deltaic portion that had been penetrated till the Muslim rule. The forests lying in the inland mountains were very thick and largely unexploited. The description given by Hunter in 1872 of these forests refers to dense forests over large tracts. The forests were extremely rich in wild animals.

Little is known about the history of forestry in the state before 1883 when Orissa was a part of the Lower
Provinces of Bengal and Assam. The Orissa Forest Division was established in 1883 and some forests were declared as reserved forests.

People were free to remove forest produce from most forest areas not only for their own needs but also for petty sale. They paid very nominal fees for unrestricted use to forest produce.

The Orissa Forest Division was bifurcated into two divisions in 1891. Forests were in one division worked on the basis of selection cure, improvement felling. While the forest of other division were managed on improvement felling.

By 1912, about 1591 sq. kms. area of reserved forest had been constituted in the eight forest divisions that formed the present state of Orissa. In 1936, the separate state of Orissa came into being with a new Forest Department under the charge of a Conservator. At present a Principal Chief Conservator heads the Forest Department of Orissa. In 1938, the Ganjam and Parlakimidi Forest Divisions transferred from Madras Presidency were constituted into four divisions.

In 1948, of the erstwhile Princely States forming a part of the former Eastern States Agency were merged with Orissa. The forests of these states had been under scientific management since 1910 when Grieve of the Indian Forest Service was appointed as the Estate Forest Officer. These forests were demarcated on a systematic basis and each Princely State had formulated its own forest regulations or rules.2
The Orissa Preservation of Private Forests Act was enacted in 1947 in order to prevent the over-exploitation of private forests which vested in the government after 1951 though their control could be transferred to the Forest Department only in 1953. Some of the important historical developments on forestry of Orissa after independence are: 3

1. The Forest Department has been enlarged and strengthened.
2. All forest areas are under regular working plans.
3. The Orissa Forest Corporation has taken up commercial forestry in a big way.
4. Major social and community forestry programmes have been launched, to conserve existing forest and improve overall situation of forest cover. And to improve supply of timber, fuel, fodder, minor forest produce and to improve all around environmental conditions.

However, as per Orissa state forest report 2004 prepared by forest survey of India, Orissa has a recorded forest area measuring 58,136.23 sq. kms including 26,329.12 sq. kms of Reserved Forest, 11,686 sq. kms demarcated and protected forests, 3,868.78 sq. kms of un-demarcated protected forests, 20.55 sq. Kms of un-classed forest and 16,261.34 sq. kms of other forests including village and private forests which is 37.34% of the State's Geographical area of 1,55,707 sq. Kms. As per the “state of Forest Report, 2001” prepared by the Forest Survey of India, the State has only 48,838 sq. kms of forest cover including 219 sq. kms if
mangrove forest and 5,782 sq. kms of scrub. Of this, 27,972 sq. kms is dense forest (with crown density greater than 40%) and 20,866 sq. kms is open forest (with crown density between 10% to 40%).

The National Forest Policy, 1988 has mandated that 33% of the geographical area should be under forest cover, with 60% coverage in hilly tracts and 20% in plains. Against this, the State has 31.4% forest cover according to the Forest Survey of India. Thus, there is an imperative need to accelerate efforts for Afforestation and regeneration of the degraded forests for achieving the mandate 33% forest cover.

**Forest Plantation**

In order to prevent fast depletion of forest resources and to enhance ecological stability, plantation programmes have been undertaken in degraded forests and waste lands under Orissa State and Central Plan Schemes. The main objective and strategy of forest planning is to achieve the mandated 33% forest cover in place of the present 31.4% and also to restock the forest in the entire recorded forest area which is 37.3% of the State's geographical area. Action taken for fulfillment of this objective will lead to creation of additional employment opportunities for economically backward groups such as tribal and women.

During 2003-04, the afforestation programme has been implemented in the State under different State Plan and Central Plan Schemes over a total area of 39,376.50 hectares. Out of this 32,326.50 hectares have been covered
under block plantation and 7,050.00 hectares under rehabilitation of degraded forests. The Territorial, Social forestry and Afforestation Wings of OFDC have implemented afforestation works. The plantation programmed carried out by different wings of Forest Department for 1999-00 to 2003-04 (summerised in table 5.1).

Table-4.1

Achievement Under Plantation Programmes By Different Wings Of Forest Department

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Activity Name (Unit)</th>
<th>Name of the Organisation</th>
<th>Achievement during the Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Block Plantation (ha)</td>
<td>Territorial</td>
<td>30,883.60 15,389.96 18,673.42 10,589.00 32,326.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SFP</td>
<td>2,607.0 2,607.0 2,700.0 800.00 -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFDC</td>
<td>374.04 134.53 161.50 - -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>31,656.64 18,131.49 21,534.92 11,389.00 32,326.50</td>
</tr>
<tr>
<td>2</td>
<td>Rehabilitation of Degraded forests (ha)</td>
<td>Territorial</td>
<td>18,857.36 26,115.00 26,273.86 6,100.0 7,050.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SFP</td>
<td>- 5,000.0 4,100.0 - -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFDC</td>
<td>- - - 52.80 -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>18,857.36 31,115.00 30,373.00 6,152.80 7,050.00</td>
</tr>
<tr>
<td>3</td>
<td>Farm Forestry (seedlings distributed in lakh)</td>
<td>Territorial</td>
<td>325.63 - - 60.00 -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SFP</td>
<td>- 327.14 349.57 237.75 -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFDC</td>
<td>- - - - -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>325.63 327.14 349.57 237.75 -</td>
</tr>
<tr>
<td>4</td>
<td>Avenue Plantation (Rkm)</td>
<td>Territorial</td>
<td>43.93 80.04 - - -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SFP</td>
<td>97.66 132.00 - - -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFDC</td>
<td>50.24 4.00 4.00 1.50 -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>191.83 216.04 4.00 1.50 -</td>
</tr>
</tbody>
</table>

The State has also adopted the policy of Joint Forest Management (JFM) and has involved the local villagers in protection and management of the degraded forests. In accordance with 1993 JFM Resolution of the Government, 7002 numbers of Vana Sarankhyan Samities (VSS) were formed by the end of September, 2003 and 668895 hectares of forest area is covered under protection of these Vana Sarankhyan Samities.  

**Environment Education And Awareness Promotion**

In order to promote awareness for environment protection and conservation, thirty District Environment Societies, one for each district, have been constituted under the Chairmanship of District Collectors. The Government have instituted “Prakruti Mitra” award and “Prakruti Bandhu” awards for encouraging Voluntary Organisations/Villages/ Institutions/ Individuals to work in protection of environment. By the end of 2003-04, a total of 369 “Prakruti Mitra” award and 225 “Prakruti Bandhu” awards have been conferred including 19 “Prakruti Mitra” and 19 “Prakruti Bandhu” awards conferred during 2003-04.
conservation and development of forests and optimal use of forest resources in a sustainable manner. The immediate goal of forestry in the State is to protect the existing dense forests with their rich bio-diversity and wildlife from degradation and to restore through appropriate treatment their vigor for natural regeneration. The forest policy, rules and regulations in force will also be fine-tuned and institutional environment conducive for Joint Forest Management of degraded forests.

The forestry sector development in the Annual Plan, 2004-05 adopted an approach combining elements of asset creation, institutional development and social development to promote sustainable forest management practices. The plan will support development of forest resources in the State with focus on:

i) Conserving, protecting and developing 27,972 sq. kms of dense forests.

ii) Regenerating and developing 20,866 sq.kms.of open forest.

iii) Afforesting and reforesting 5,782 sq. kms. of scrub forests.

iv) Promoting Eco-tourism and Eco-development in the protected area and

v) Building capacity of the Forest Department and village level institutions to take up protection and management of the assigned forests.9
But in contrary to all these plan, programme, policy, action and involvement of people, forest is decreasing. In 1999 and 2000 forest cover was 36.00% and 37.00% and after all these improvement major forest cover in 2001 is 31.4%.10

More importantly conversion of dense forest into open or partially degraded forest ratio is more threatening. Further deteriorating supply of forest produce, erratic rain fall, frequent flood and drought, increasing temperature, soil erosion, and depleting water table are a few concern which induce present researcher to conduct an empirical study. In order to understand present policy, programme and action for regeneration, afforestation and protection of forest at ground.
Physical Feature

Orissa is situated on the East Coast of India. It extends from 17°49' to 23°34' Latitudes and from 81°27'E to 87°29'E. All Coasts situated on the sea coast the bulk of the State hilly and mountainous. The Eastern Ghats run along the length of the state from south to north and then merges with the Chotnagpur plateau. Orissa is a maritime state having a coastal line of about 500 km long.

The state, Orissa can be broadly divided into five different physical types, namely, coastal plains, the middle mountainous region, the rolling uplands, the river valleys and the subdued plateaus. Dhenkanal being a central district of Orissa, it belongs to middle mountainous region of Orissa. It extends in between Latitude 20°45'O” N Longitude 85°40'O”E. Gandia/Joranda-Gandia block being a administrative unit of the district Dhenkanal. It is situated in southeastern part of the district. It’s – Latitude 20°45'O” N Longitude 85°50'O”E. It's area extends in east, west, north and south up to, Cuttack, Kamakhyanagar, Bhuban and Dhenkanal. The block consists of 195 village and it's total geographical are 47933 Hector.11

Geology and Rock

The block presents an interesting assemblage of rocks, belonging to the Eastern Ghat Super-group, Iron Ore Super-group, Gondwana Super-group of tertiary and quaternary formations, Laterites (in situ) and Quaternary sediments
overlay these. The rocks are dissected by dendritic as well as subtrellis pattern of drainage lines controlled by the Brahmani river system.

Nuakot group represented by basic volcano plutonic rocks, pebbly/gritty quartzite etc, lie over a granite basement. These are intruded by ultramatics, chromate, younger granite, granophyre and dolomite dykes. Singhbhum Granite, with event co-relating to 2950 million years and 3200 million years, forms a major tectono-magmatic unit of the block. This type of rock, upon weathering and erosion, gives rise to shallow soil. Consequently, the hill slopes support a poor quality Sal forest and at places dry miscellaneous forests. The age is Precambrian. The Eastern Ghat super-group of rocks is mainly comprised of khondalites, talc. The Eastern Ghat Super group of rocks has been assigned a middle-lower Proterozoic age on the basis of vast majority of mid-proterozoic dates from adjoining areas.¹²

These rocks on weathering give rise to a variety of soils. Some soils have retained the character of the parent rock by not having been rebuilt by other forces of nature. Those soils, which were transported to long distance, in course of time, became heterogeneous in character.

Hence broadly speaking, the soils of and Gandia/Joranda-Gandia may be classified on bases of weathering and transportation, under two main categories,
namely, residual soil and transported soils. In specific to say, the soil type found in Gandia/Joranda-Gandia are:¹³

1. Sandy Loam Soil

In these types of soils the content of sand is slightly higher than the normal loamy soils. These soils have adequate water holding capacity.

2. Clayey Soils

These soils are composed of about 45-50 percent of clay, 10-20 percent of fine sand, 30 percent of silt and organic matter. They are very finely grained and dark in color. High swelling and shrinkage, plasticity and stickiness characterize them. These soils are low in Nitrogen, Organic matter, Potassium and rich in Iron, Lime, Alumina, Calcium and Magnesium Carbonate. They have low permeability, hence prone to salinity.

3. Calcareous-Or Lime Soils

These are basically sandy soils, which contain about 10 percent lime or calcium carbonate and the rest is sand and silt in equal quantities.

4. Morrum

The soil in the northern hill ranges and the southern hill ranges are mainly coarse and sandy, mixed with quartzite boulders.
5. Red Sandy-Loamy Soils

These soils are composed of about 40-45 percent sand, 35-40 percent silt, 10 percent clay, and 5 percent organic matter. The colour of these soils is due to the presence of Ferric Oxide. These soils are light textured, poor in humus, Nitrogen, Phosphorus and Lime. They are characterized by argillaceous soil with a cloddy nature. And this soil is mostly found in Gandia/Joranda-Gandia, other soil are found very less in quantity.

The Climate

The climate of Gandia/Joranda-Gandia is warm and humid. Four distinct seasons are experienced in a year. The summer is from March to May, monsoon from June to September, autumn from October to November and winter from December to February. The spring is practically absent.

Hot and Dry Summer: (March, April and May)

The mean summer maximum temperature is 38.7°C. May is the hottest month of the year with mean daily maximum temperature of 44.5°C. March and April receives minimum or sometimes no rainfall and-May receives some rainfall.

Hot and Humid: Wet Season: (July, August and September)
Usually monsoon sets in the second week of June. The average rainfall during the period from June to September is 1421 mm. The average temperature remains at 30-31°C and is highly humid.

**The Autumn: (October and November)**

In this period mean maximum temperature runs between 30-33°C and minimum temperature 13-22°C and severe cold has been experienced in the year 1996 with minimum temperature falling to 5°C in November.

**The winter: (December, January and February)**

The mean maximum temperature is in between 28-30°C. The minimum temperature in December is 10-12°C. For detail information on temperature and Rainfall of Gandia/Joranda-Gandia (refer table 4.2 and 4.3).

### Table-4.2

**Average Annual Temperature Of Gandia/Joranda-Gandia (1999-2002)**

<table>
<thead>
<tr>
<th>Month</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Max</td>
<td>Min</td>
<td>Max</td>
<td>Min</td>
</tr>
<tr>
<td>May</td>
<td>45.7</td>
<td>20.6</td>
<td>39.0</td>
<td>26.0</td>
</tr>
<tr>
<td>Dec</td>
<td>30.1</td>
<td>12.0</td>
<td>28.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>

**Source:** Directorate of Meteorology, Bhubaneswar and Sakti Sugar Dhenkanal.
Table-4.3

Average Annual Rainfall of Gandia/Joranda-Gandia:
(1999-2004)

<table>
<thead>
<tr>
<th>Years</th>
<th>Rainfall</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>1352 mm</td>
</tr>
<tr>
<td>2000</td>
<td>898 mm</td>
</tr>
<tr>
<td>2001</td>
<td>1298 mm</td>
</tr>
<tr>
<td>2002</td>
<td>797 mm</td>
</tr>
</tbody>
</table>

**Source:** Directorate of Meteorology, Bhubaneswar and Sakti Sugar Ltd Dhenkanal.

Forests Classification in Gandia/Joranda-Gandia

According to the classification made by Champion and Seth in their "Revised Survey of Forest Type in India, 1962", the types of forests present in the Gandia/Joranda-Gandia block, are in the following categories:17

(i) 2B/C3 Orissa Tropical Semi Evergreen Forests
(ii) 2B/E4 Lateritic Semi Evergreen Forests
(iii) 3C/C3 North Indian Tropical Moist Mixed Deciduous Forests.
(iv) 3C/C2e North Indian Tropical Moist Peninsular Sal Forests represented by the two sub-types i.e.
(a) 3C/C2e (l) North Indian Tropical Moist Peninsular high level Sal.
(b) 3C/C2e (ii) North Indian Tropical Moist Peninsular low level Sal.
(v) 5B/C2 Northern Tropical Dry Mixed Deciduous Forests.
(vi) 2B/ C3 / E Moist Bamboo Brakes, edaphic sub-types of North Tropical Semi Evergreen Forest.
(vii) 3C/C3/2S1 – Dry Bamboo Brakes, edaphic sub types of North Indian Tropical Moist Deciduous Forests (3C).
(viii) 5B/DS1 Dry Deciduous scrubs.
(ix) 5/1S1 – Dry Tropical Riverine Forests.

Table -4.4

2b/C3 – Orissa Tropical Semi Evergreen Forests

<table>
<thead>
<tr>
<th>Group 2</th>
<th>Tropical Semi Evergreen Forests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subgroup</td>
<td>2B Northern Tropical Semi Evergreen Forests</td>
</tr>
<tr>
<td>Type</td>
<td>2B/C3 Orissa Tropical Semi Evergreen Forests:</td>
</tr>
</tbody>
</table>

Flora found in this forest species like Saraca indica, Cane, Mangifera indica, Alstonia Scholaris, Gelonium multiflorum, Melia composita, Streblus asper, etc.
### Table -4.5

**2b/E4 Lateritic Semi Evergreen Forests**

<table>
<thead>
<tr>
<th>Group 2</th>
<th>Tropical Semi Evergreen Forests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subgroup</td>
<td>2B Northern Tropical Semi Evergreen Forests</td>
</tr>
<tr>
<td>Type</td>
<td>2B/E4 Lateritic Semi Evergreen Forests</td>
</tr>
</tbody>
</table>

Flora found in this evergreen forest is *Xykia xylocarpa, Pterocarpus marsupium, Anogeissus latifolia, Bridelia retusa, Strychnos nux-vomica, Flacourtia indica, Randia malabarica*, etc.

### Table -4.6

**3C/C3 North Indian Tropical Moist Mixed Deciduous Forests.**

<table>
<thead>
<tr>
<th>Group 3</th>
<th>Tropical Moist Deciduous Forests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub Groups</td>
<td>3C North Indian Moist Deciduous Forests</td>
</tr>
<tr>
<td>Type</td>
<td>3C/3C Moist Mixed Deciduous Forests</td>
</tr>
<tr>
<td>Sub Types</td>
<td>3C/3C.3SI Northern Secondary Moist Mixed Deciduous Forest</td>
</tr>
</tbody>
</table>

Flora founds *Terminalia tomentosa, Bridelia retusa, Strychnos nux-vomica, Schleichera oleosa, Careya arborea, Garuga pinata, Mangifera indica*, etc.
**Table -4.7**

3c/c2e North Indian Tropical Moist Peninsular Sal Forests

<table>
<thead>
<tr>
<th>Group 3</th>
<th>Tropical Moist Deciduous Forests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub Groups</td>
<td>3C North Indian Moist Deciduous Forests</td>
</tr>
<tr>
<td>Type</td>
<td>3C/C2 Moist Sal bearing Forests</td>
</tr>
<tr>
<td>Sub Types</td>
<td>3C/C2e (i) Moist Peninsular High level Sal</td>
</tr>
<tr>
<td></td>
<td>3C/C2e (ii) Moist Peninsular High level Sal</td>
</tr>
</tbody>
</table>

Flora founds Terminalia tomentosas, T. chbula, Madhuca latifolia, Syzygium cumini, Diospyros montana, Adina cordifolia, Careya arbores, Flemingia chajppar, Woodfordia fruticosa, Milletia auriculata, etc.

**Table - 4.8**

5B/C2 Northern Tropical Dry Mixed Deciduous Forests

<table>
<thead>
<tr>
<th>Group 5</th>
<th>Tropical Dry Deciduous Forests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub group</td>
<td>5B Northern Tropical Dry Deciduous Forests</td>
</tr>
<tr>
<td>Type</td>
<td>5B/C2 Northern Tropical Dry Mixed Deciduous Forests</td>
</tr>
</tbody>
</table>
### Table 4.9

**5B/DSL Dry Deciduous Scrub**

<table>
<thead>
<tr>
<th>Group 5</th>
<th>Tropical Dry Deciduous Forests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub group</td>
<td>5B Northern Tropical Dry Deciduous Forests</td>
</tr>
<tr>
<td>Type</td>
<td>5B/DS1 Dry Deciduous Forests</td>
</tr>
</tbody>
</table>

Flora founds Acacia catechu, Zizyphus xylocarpus, Boswellia serrata, Terminalia tomentjosa, Gardenia spp, Woodfordia fruticosa, etc.

### Table 4.10

**5/1S1 Dry Tropical Riverine Forest**

<table>
<thead>
<tr>
<th>Group 5</th>
<th>Tropical Dry Deciduous Forest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Serial Type</td>
<td>1S1 Dry Tropical Riverine Forests</td>
</tr>
</tbody>
</table>

Flora founds are Anogeissus acuminata, Holoptelia integrifolia, Pongamia glabra, Terminalia arhuna, Streblus asper, Gelonium, etc.

### Table 4.11

**2b/c3/e3- Moist Bamboo Breakes**

<table>
<thead>
<tr>
<th>Group 5</th>
<th>Tropical Semi Evergreen Forests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subgroup</td>
<td>2B Northern Tropical Semi Evergreen Forests</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Type</th>
<th>2B/C3 Orissa Semi Evergreen Forests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub Type</td>
<td>2B/C3/E3 Moist Bamboo Brakes</td>
</tr>
</tbody>
</table>

These forests are associated with Terminalia tomentosa, Bridelia retusa and Anogeissus latifolia.

**Table -4.12**

3c/c3/2s1 Dry Bamboo Brakes

<table>
<thead>
<tr>
<th>Group 3</th>
<th>Tropical Moist Deciduous Forests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub Groups</td>
<td>3C North Indian Moist Deciduous Forests</td>
</tr>
<tr>
<td>Type</td>
<td>3C/3C Moist Mixed Deciduous Forests</td>
</tr>
<tr>
<td>Sub Types</td>
<td>Dry Bamboo Brakes</td>
</tr>
</tbody>
</table>

Dendeocalamus strictus forms dense brakes, though mostly in degraded condition. Other major species are Anogeissus latifolia, Loannea coromandelica and Cochlospermum religiosum.


**Demographic Profile**

Total population of Dhenkanal district as per 1991 census and 2001 census are 9,47,870 and 10,65,983. And Gandia/Joranda-Gandia’s population according to 2001 census stands at 1,37,484. A detail population of Orissa
state, Dhenkanal district and Gandia/Joranda-Gandia Tahashil given below in table 5.19

**Table 4.13**

**Population of the Study Area**

<table>
<thead>
<tr>
<th>State/District/Block</th>
<th>Person</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orissa</td>
<td>3670620</td>
<td>18612340</td>
<td>18094580</td>
</tr>
<tr>
<td>Dhenkanal</td>
<td>1065983</td>
<td>543439</td>
<td>522544</td>
</tr>
<tr>
<td>Gandia/Joranda-Gandia Tehsil</td>
<td>137484</td>
<td>70103</td>
<td>67381</td>
</tr>
</tbody>
</table>

*Source: Census 2001, Government of India*

**Literacy**

Literacy wise Orissa although ranks lowest on the basis of national average, but Gandia/Joranda-Gandia Tehsil and Dhenkanal district are better placed on the basis of state district wise ratio in comparison to some other central and western districts of Orissa. A detailed data of Orissa state, Dhenkanal district and Gandia/Joranda-Gandia Tehsil as per 2001 census is given below in the table 5.20
Table-4.14

Literacy Rates by Residence and Sex- State, District, Tehsil (2001)

<table>
<thead>
<tr>
<th>State /District/ Tehsil,</th>
<th>Total Person</th>
<th>Male</th>
<th>Females</th>
<th>Rural Person</th>
<th>Male</th>
<th>Females</th>
<th>Urban Person</th>
<th>Male</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orissa</td>
<td>63.61</td>
<td>75.95</td>
<td>50.97</td>
<td>60.44</td>
<td>73.57</td>
<td>47.22</td>
<td>80.95</td>
<td>88.32</td>
<td>72.68</td>
</tr>
<tr>
<td>Dhenkanal</td>
<td>70.11</td>
<td>81.31</td>
<td>58.55</td>
<td>68.67</td>
<td>80.27</td>
<td>56.77</td>
<td>84.83</td>
<td>91.48</td>
<td>77.48</td>
</tr>
<tr>
<td>Gandia/Joranda-Gandia Tehsil</td>
<td>68.63</td>
<td>79.24</td>
<td>57.62</td>
<td>68.63</td>
<td>79.24</td>
<td>57.62</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Source:** Census 2001, Government of India

**Socio-Economic Profile**

Gandia/Joranda-Gandia even in this twentyfirst century stands some where in between modernity and traditionality in respect to socio economic standpoint. All the predominant religion of India like Hindu, Islam and Christian were found in Gandia/Joranda-Gandia. The society of Gandia/Joranda-Gandia also stratified on the bases of cast and class. It is more important for present research the ST population stands at 17.51 percent. Which is very important for the purpose of present research. The economy is basically non-industrial, that is agrarian. The agriculture of Gandia/Joranda-Gandia is also for the subsistence need of the people. Its basic land use pattern is for cultivation. A detail information regarding extent of cultivation and land use pattern (given in table-4.15 and 4.16)
Extent Of Cultivated Land And Land Use Pattern In Gandia/Joranda-Gandia

Maximum farmers (46.8%) are marginal having an area of 0.5-1.0 ha and even less than that followed by small farmers (36.8%) having an area of 1.0-2.0 ha. Maximum land is with small farmers followed by semi-medium farmers.\textsuperscript{21}

**Table-4.15**

<table>
<thead>
<tr>
<th>Extent of Cultivated Land</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sl. No.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

**Source:** Project Director, DRDA, Dhenkanal

**Table-4.16**

<table>
<thead>
<tr>
<th>Land Use Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
</tr>
<tr>
<td>Forest Area</td>
</tr>
<tr>
<td>Misc. Tree Crops</td>
</tr>
<tr>
<td>Permanent Pastures</td>
</tr>
<tr>
<td>Cultivable Waste</td>
</tr>
</tbody>
</table>
Land put to Non Agricultural Use | 506.609 | 3756.625 | 4245.25
---|---|---|---
Barren land | 1303 | 1245.625 | 1532.875
Current Fallow | 3474.25 | 2776.25 | 2660
Other Fallows | 2883.25 | 3529.125 | 3022.25
Net Sown Area | 17251.25 | 16807.5 | 16370.5

**SOURCE**: Project Director, DRDA, Dhenkanal

Gandia/Joranda-Gandia Being a Non-Industrial, Forest And Agriculture dependent society, the source of income is very limited. Their income is predominantly dependent on forest and agricultural produce. Further, absence of irrigation made economic condition measurable, minimizing scope for scale of cultivation, pattern of agriculture and land use pattern, in effect to which, a good number of family of the locality found below poverty line (For detail see table-4.17)

### Table-4.17

**List Of BPL Families of Gandia/Joranda-Gandia**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of the Block</th>
<th>Name of rural Families</th>
<th>%of BPL Families</th>
<th>%of S.C.</th>
<th>%of S.T.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gandia/Joranda-Gandia</td>
<td>28435</td>
<td>71.83</td>
<td>17.30</td>
<td>17.51</td>
</tr>
</tbody>
</table>

**Source**: Project Director, DRDA, Dhenkanal.
Forest protection, People's Interest And Forest Department Role in Gandia/Joranda-Gandia

Gandia/Joranda-Gandia block is consist of two forest range namely Kapilas and Sarangi of Dhenkanal forest division at present. Prior to 2003 forest of Gandia/Joranda-Gandia were managed with a forest range namely Sarangi. but their was a special range for social forestry activity.

This block got a very rich history in relation to forest. It's forest got a multi dimensional utility for the people through the time. Prior to independence and after independence up to seventies forest of Gandia/Joranda-Gandia was a prominent source of all amenities for people. It includes timber, fuel wood, fruits, fodder and a good range of minor forest produce. It's forest, wild life, Siva temple on Kapilas and religious scrien of Alekha cult, all ways made Gandia/Joranda-Gandia is a tourist place.

How ever, to examine forest history of Gandia/Joranda-Gandia or (sarangi and Kapilas range) and dhenkanal division is well documented in comparison to many forest divisions of Orissa. Forest range, Sarangi and Kapilas being always a part of administrative unit of Dhenkanal, it was treated under single policy, programme and working plan.

prior to eighties forest of Gandia/Joranda-Gandia were got two managerial setup or administractive unit to manage forest of Gandia/Joranda-Gandia.
1. FD: FD managed major chunk of forest of Gandia/Joranda-Gandia under the classification reserve forest and open forest, with the objective to give protection and to generate revenue for state.

2. Village community: Some other chunk of forest were managed at village level, with the objective to meet village's forest based requirement, which was known as community forest management, although these forest were not recognised as forest, it was called village west land by FD.

Any depletion of forest is not a phenomenon that was started some where around seventies or eighties, it was started in first part of nineteenth century. A Mee, the then Extra Assistant Conservator of Forests visited the Dhenkamal State in 1903. Mee reported that there was no forest conservancy of any kind. Indiscriminate felling and uncontrolled shifting cultivation were the order of the day. Me concluded that prior to 1890 and from 1890-1900 valuable logs from forests of Dhenkanal division and Gandia/Joranda-Gandia block found their way to Cuttack market. Heavy unregulated felling of Sal trees for sleepers were made during the construction of East Coast Railways (present Howrah-Madras line). As a result, large trees could not be located in the forests at the time of Mee's inspection. He recommended several suggestions for forest management/ administration that included immediate
reservation of some forest. Light improvement feeling to remove defective and over matured stock and complete rest, moratorium was advised in forest areas of low density and immature crops.

Sadly, it would appear that no action was taken on his report and no effort was made to give effect to his recommendations. In 1905, Sardar Bakshish Singh, a Dehradun trained Ranger was appointed as the State Forest Officer. During his tenure, up to 1915, demarcation of the reserves was undertaken. During this period, sleeper operations continued to carry on though there is no record of outturn of the same. It is, however, certain that nothing was done towards the improvement of the growing stock as suggested by Mr. Mee and the forests continued to deteriorate between revenue exploitation and the inroads of the tenants.

In October 1918 after the death of the late Ruler, Raja Surya Pratap Mahendra Bahadur, the State came under Government management and was visited for the first time by the Agency Forest Officer, G.M Cooper, IFS (Imperial Forest Service) in the Year 1919. Reorganization of staff followed and attempts were made to set right the chaotic state of affairs.

The famine of 1918-19 had its toll on the forests of the State, which were thrown open to the people. As relief measures they were allowed to collect timber at half rates from the forests. But due to the lack of capital the starving
people were forced to borrow from mahajans, who latter reaped the benefits that were intended for the famine affected villagers. Thus, the well meaning ‘relief measures’ led to the wholesale removal of the remaining mature trees from the reserved forests, which had escaped previous onslaughts.

Sleeper operations continued in Kapilas forest block till 1922 by Sen. and Company. On the State coming under the British rule (1919) steps were taken to complete the demarcation of the reserved forests and to survey them. In some places resurvey were found necessary. The work was finally completed in 1927, basically this demarcation were made for to alienate people from forest under the name of forest protection.

Under the name of scientific management, Systematic timber felling or systematic exploitation was first introduced in 1922-23 when the coppice coupe in Tangi (or Haripur) felling series was opened. Felling continued under suggestions of the Agency forest Officer up to the time they were all included in the first working plans, in 1929.

During the period 1920 onwards, some efforts were made to improve the quality of the staff by deputing men for training to Kurseong. Three foresters were thus trained during 1923-27. Subsequently, candidates were sent for training to the Champua Forest School.

To put a check to the uncontrolled felling and grazing and to bring about systematic forest management in
Dhenkanal State, the Government entrusted A.C Mohanty, the state forest officer to prepare a book on forest regulation of the State. Thus the Dhenkanal Forest Regulation was born, which was approved by the political agent and commissioner in his letter No. 2835 dated 30.7.1924. It came into force on the 1st of November 1924.

The Forest Regulation laid out clear rules for reserved forests and open forests separately. For the first time, important issues like power to reserve forest, maintenance of reserved boundary, prohibition of hunting, grazing, fire and trespassing was put in black and white. Felling and mining rule, concessions and privileges to the tribal people and raiyats were also defined in the regulation.

However, presently some of the rules make interesting reading. Given below are a few persons passing through or on the boundary of a reserved forest were required, by the rule, to camp only at the notified “camping ground” that was yearly notified by the state forest officer. Smoking in or on the boundary of the reserved forest was prohibited. For clearing private land adjacent to reserved forest by fire, person living in the vicinity of the reserved forest was required to inform the forest staff/ officer, one week before he proposes to set his land on fire. Every resident of the state was bound to render assistance in clearing and burning boundary lines and fire lines of RFs on such rates of payment as may be ordered by the Superintendent. Hunting, finishing, poisoning of water, setting of snare inside the reserved forest was prohibited.
Trespassing of cattle into RF and grazing within the RF was prohibited except in the case of insufficient grazing area in the open forest. Annual grazing fee inside the RF varied from 4 annas (25 paise) for calves to 8 annas (50 paise) for buffaloes. In the open forest bona fide residents were allowed free grazing up to ten heads of cattle. When the number of cattle exceeded ten, fee the excess number was 2 annas for cow and 4 annas (25 paise) for buffalo.

Any person failing to report occurrence of fire and to extinguish it when called to do so were liable for punishment with imprisonment up to six months or with fine up to Rs. 500/- or with both.

Twenty-seven tree species were declared ‘reserved’ even in the open forests. To name a few: Sal, Piasal, Sissoo, Kendu, Gambhari, Kurum, Kangada, Sunari, Amba, Anla, Harida, Bahada, Panas, Mahul, Bandhan, Kangada, Karanjan, Bar, Pipal, Limba, Kamal, Gundi, Jamun, and Khair. Felling, lopping, or any injury to the reserved species without the written permission of the Forest Officer was prohibited.

In the open forest, annual cess of Re. 1/- was levied for professionals like washerman, potter, blacksmith, goldsmith, sankhari, confectioner, cobbler, and weaver. Non-cultivators except the pans, hadi, sahar, tribal, invalid and beggar were required to pay 4 annas per house as fuel cess per annum.
Drift and waif timbers measuring more than 1 foot girth and 6 feet long found adrift in any river was deemed to be the property of the State. There was separate rule right to trees standing on Debottar and Lakhraj lands, and leased lands.

Duties of each category of officer like Forest Officer, Ranger Officer, Deputy Ranger, Forester, Revenue moharir, Forest Guard, Sarbarakar and tenants were codified in the regulation. Provisions were made for grant of rewards to the person instrumental in the detection of offence, seizure of article, or the capture of the offender.

It is seen that the regulation did not bring about a desired effect on the protection of the forests. Some reason for failures are can be attributed to the arbitrary nature of the mast of the rules. More power was given to the Forest Officer without considering the welfare of the people. This is the period where imperial administration introduce, imperial agenda to establish state authority over forest, depriving people from there traditional right. Some glimpse of the revenue history and settlements of Gandia/Joranda-Gandia block can be known from the report on “Land tenures and the revenue system of the Orissa and Chhatisgarh States by Mr. R.K Ramadhni, ICS, Officer on Special duty (Vol. III Extract on Dhenkanal from page 77 to 85). Forest rules of 1924, where in classification of forests like open forests and reserved forests, rights and concessions of the people, royats, number of reserved species, royalty, rules of clearance of forests outside RF were mentioned by him in the
book. Besides, discrepancies in the forest areas, poor maintenance of forest boundary have been reflected in the book.

H.f. Mooney's Pre and Post Independence Working Plan and Forest Management in Gandia/Joranda-Gandia:

1. H. F. Mooney (1928-43)

H.F Mooney prepared the first working plan of Dhenkanal forest in 1928 (1928-48). It came into force from April 1929. Being the advent of systematic working of the forests, the plan was very simple. The plan did not contemplate to introduce perfect scientific management, as its main object was to introduce some sort of ordered felling and organization, which would help in the preparation of a technically sound plan at a later stage. Three working circles namely (a) the Coppice with Standards Working Circle, (b) the Miscellaneous Working Circle and (c) the Bamboo Working Circle were prescribed therein.23

The Coppice With Standard Working Circle

It included those forests which were either incapable of yielding large timber or which were generally suited to produce small timber and fuel wood. The rotation varied from 40 to 50. The standards of more valuable species up to 20 per acre were prescribed. Cleanings were prescribed in the year following the main felling. Thinning was prescribed at intervals of ten years. Rules governing grazing and protection from fire were also provided. But, in later the work
appeared to have deteriorated due to lack of demand. One of the defects was the inclusion of a good deal of hilly forest containing forests of poor value to the coppice with standard working circle. Though it was not intended that the upper slopes of the hills should be worked, it was not possible at that time, with the only map available to allot the areas sufficiently and accurately.

**The Miscellaneous Working Circle**

It was constituted with the blocks that were considered unfit for intensive forest management. They were mostly treated as 'Protection' forest and no felling was prescribed. In Kapilas, improvement felling was prescribed over 1000 acres each year. Selection felling were done as per prescriptions but improvement felling were neglected contrary to the prescriptions. Marking was carried out mostly for 'revenue felling'. As in the coppice felling series, fires annually ravaged the forest damaging both matured crop and the regeneration. Theft was also widespread after 1938.

**The Bamboo Working Circle**

It included only Ghantabaja, a part of Kapilas and Sunajhari blocks. In other areas general cutting rules were followed but no regular cutting scheme was prescribed. It is doubtful if any of the prescriptions of the plan were ever put into effect. A few bamboo species were harvested well in between 1918-22. There was no attention given towards repair of forest road, construction forest staff quarters,
sinking of tube wells, stock mapping, maintenance of boundary and boundary pillars were prescribed in the plan. Though expenditures were incurred for fire protection and climber cutting, every acre of the forest was prescribed in the plan and none was raised. Due to increasing population and increasing agricultural land and shrinkage of village forest recommendation was made for reserved forest. It was however decided that any additional area that might be reserved would be managed solely for the use of the local people. Although unregulated cutting and overgrazing damaged much forest, nevertheless, some of it was of moderate quality. It was clear that with systematic management of forest, those village forests could both be maintained and improved as well. Due to injudicious reservation of forest there was a peasant upraise.

After ratification of the boundary made for reserved forest, there were no peasant's uprights furthermore. The plan also recommended educating people importance of their consumption and regeneration of forest.

In 1939-40, the State forests were divided into three classes, viz, class 'A' RF, class 'B' RF and Khesra forests with the areas as under:

Class 'A' RFs – 168.35 sq. kms.

Class 'B' RFs- 64.75 sq. kms.

The class 'A' RFs were constituted free of all rights and concessions. Class 'B' was burdened with all rights over
forests excepting the right of felling of reserved species free of royalty and cultivation. Thus in brief to say, the improvement major recommended were not implemented and all revenue generation major were taken.

**Mooney's Revised Plan of 1943-63**

Dr. Mooney’s plan which is introduced in 1943 and continued till 1963 is a better plan in relation to earlier plan in the context of technicalities, such as silvicultural principles with a view to improving the economic value of the forest. Provisions were also made to benefit the local tenants, keeping in mind of the sustainability of the forest. The revised plan came into force from 1943. It recommended several working circle to implement the central objective of forest management.

(i) Selection working circle: A selected felling was recommended in order to improved overall forest crops in different coupes. Contrary to the prescription selection system was virtually followed, resulting revenue felling. Cultural operations like climber cutting, thinning, and cleaning were not followed. The hills of Sunajhari, Kapilas and Aswakhola remained unworked.

(ii) Coppice Working Circle: It consisted of 48 RFs including some portion of Kapilas. Each RF block constituted one felling series and rotation varied from 30 to 40 years except in Sorsiapada felling series where the rotation was 80 years. The yield was calculated by annual coupes of equal area and taking the local demands into account. Up to ten
Standards/seed bearers of principal species like Sal, Bija, Asan, Gambhar, Kurum, Sissoo, Kangada and Bandhan were prescribed for retention per acre. Cleaning was to be done following the main felling and thinning at regular intervals of 10 years to improve the quality of the crop. But cultural operations were neglected.

(iii) Bamboo Working Circle: Under this working circle Kapilash, Hitanda and Ghantabhaja were treated inspite of specific direction regarding bamboo harvesting the local tenants were harvested bamboo defines the prescription in assessable areas.

(iv) Teak Plantation Working Circle: It don't have any specific working map, but as a whole in the Gandia/Joranda-Gandia block some treatment work were made for the improvement for the Teak work.

(v) The Miscellaneous Working Circle: Under it a part of Sundarkhola and Aswakhola RF of Gandia/Joranda-Gandia block were treated. No regular felling was prescribed. No subsidiary operations were prescribed but climber cutting could be considered at the discretion of the State Forest Officer. Since there was hardly any prescription except fire and grazing control, there was no work in the circle.

Forest Management In Post Independence Era

1. Mooney's revised plan was operational till 1947 i.e. till independence of India. From 1947 to 1952, all forest works were carried out according to the inspection reports and instructions of the Conservator of Forests, Baripada Circle.
2. M. Ahmedullah’s Plan (1958-78): M. Ahmedullah revised the Mooney’s second plan (1943-63). Ahmedullah’s plan came into force from 1958. He prescribed five working circles as detailed below:

a) Selection Working Circle: The aim of selection working circle was to improve the crop as quickly as possible with provision for improvement marking, thinning and other cultural operations. The yield was fixed by equi-productive area in coupes and a safe guard was adopted by way of retention of exploitable trees varying from 33% to 50% in different felling series. It was however noticed that no sizable material was available in Saptasajya and Birasal blocks. The devastating cyclone in 1972-73 uprooted innumerable trees in Ranjagarh, Anantapur and Kandhara blocks resulting in suspension of regular coupes from 1972-73 to 1977-78.

b) The Coppice Working Circle: The rotation was prescribed for 60 years for 8 felling series namely Sorisiapada, Lahada ‘A’, Lahada ‘B’ and Ramai belongs to Gandia/Joranda-Gandia blocks. The 8 felling series were subdivided into 3 periodic blocks (PBs) of 206ears each. In PB-I areas clear felling with retention as standards was prescribed. PB-II & PB-III areas were prescribed for working under selection system. Up to 15 trees per acre were prescribed for retention as standards. Trees standing along the forest roads and nallah banks and in eroded areas up to a girth of 90 cms. And all fruit bearing trees were prescribed after the main felling. Thinning was
prescribed in the 10th and 25th year. But unfortunately no attention was ever paid for these prescriptions.

The Khesra forests shrunk by day due to encroachment and became unproductive due to heavy biotic pressure. Consequently the demand of the ever-increasing population for firewood, small timber, and bamboo was diverted to the reserved forests. Thus the coppiced areas were opened to heavy illicit felling including uprooting of stumps and removal of whips even for toothbrushes. Other factors like forest fire and grazing resulted in non-establishment of crop. Further the hilly areas including steep slopes that had been allotted to coppice working circle were completely devastated. It can be concluded that the adoption of this faulty system is one of the reasons for the decimation of the forests.

c) The Bamboo Working Circle: a few felling series were recommended, cutting cycle of 4 years for Salia and 12 years for Daba was prescribed. For Daba bamboo all the felling series were prescribed for leasing out to paper mills. A few felling series were kept aside for tenants. However, in practice, the bamboo was neither sold from there nor the coupes opened for tenants supply. Owing to unrestricted rights, the bamboo clumps either deteriorated or completely vanished in some areas of these blocks. The conditions of bamboo coups that were worked by the paper mills were unsatisfactory so far as cultural operations are concerned.
d) The Plantation Working Circle: During the plan period 1958-78 in Saptasajya and Kandahara the cultural operations have been neglected in most areas. In Saptasajya, Kandhara and Kapilash, some plantations have been raised in unsuitable patches resulting in stunted growth. The plantation records like plantation journals were not maintained due to which any inference cannot be drawn now.

The growth of Sissoo and Eucalyptus in limited patches in Ramai block has come up well. Sissoo could have done better had the cultural operation been done. The growth of teak when planted pure appears to be more promising, especially when planted in suitable sites. The growth of Teak planted on rocky and degraded sites are predictably poor. Khair and Sabai plantations were prescribed in Kapilas and Ramai. But no Khair and Sabai plantation has been raised. No cane plantation exists, though as per record 4 Ha has been planted. Some cashew has been also successfully planted, the plantations under Social Forestry scheme of Cashew, Cassia siamea, Bamboo, Acacia auriculiformis and Teak raised in Nimidha RF after 1977-78 is successful. The trench fencing around the RF boundary line has afforded good protection to the plantation especially in the initial stage though presently they are badly silted up. Sal rooted wastes have also been successfully rehabilitated in some RFs by adequate protection under the Social Forestry scheme. The local people mainly gave protection measures needed in all the plantation areas.
S.N. Mohanty's plan (1979-99):

S.N. Mohanty revised the Ahmedulla's plan (3rd revision) and suggested elaborate prescriptions for management of the forests. Conservation of forests along with soil conservation and protection measures was the significance of the plan. Improvement of the forests by artificial regeneration was prescribed. At the same time, prescriptions were made for supply of timber and bamboo in a sustained yield manner to meet the growing needs of the population. Special prescriptions were also made for rehabilitation of degraded 'A' and 'B' class RFs. Management of minor forest produce and wild lives was given due importance in the plan.26

The Constituted Working Circles Were:

1. The Selection cum Improvement Working Circle

It included the best forests of the Division capable of producing good timber. Selection system with provision for improvement fellings was prescribed. Occurrence of Sal was more than 60-65% with average site quality of III/IV. In these blocks there were some pockets where the site quality was II, even tending to quality I also; especially in valleys and high uplands in the northern aspect of the hill ranges. In general the regeneration of Sal and other valuable species like Piasal, Bandhan, Sissoo, Kurum etc. was adequate. But
they could not establish themselves on account of repeated fire every year and uncontrolled grazing and browsing.

Annual coupes for felling worked only in 12 felling series comprising of eight RF blocks namely Ranjagarh, Anantapur and Kandhara, Kapilash, Aswakhola, Sunajhari, Dolia, and Bombpa and Aswakhola stopped in 1987-88 due to non-availability of good sized trees in the forests. The coupe working continued up to 1991-1992 when ban on felling on trees was imposed by Government of Orissa with effect from 11.11.1992 though marking was done in 1992-93 in 5 coupes.

Continued illicit felling left only miscellaneous species in the forest sacrificing valuable timber species like Sal, Piasal, Bandhan, Sissoo and Kurum. A good chunk of plain forests have been diverted for Dadaraghati, Ramiala and Sapua Badjora irrigation projects from Anantapur, Ranjagarh and Kandhara blocks. Thus in the 1st Preliminary Working Plan Report, the Conservator of Forests, Angul Circle recommended for select one working circle in the above three blocks and Principal CCF, Orissa approved the same in the 2nd Paper.

During inspection and fieldwork it has been noticed that valuable species of exploitable diameter are only restricted to steep hills of Anantapur and Rangagarh blocks. Sal is restricted to some compartments as major species in Anantapur RF. Diseased trees of valuable species above exploitable girth lie untouched by the smugglers on the plain
portions of these two blocks which need immediate removal for improvement of the forests.

In Kandhara, proportion in miscellaneous species is more compared to that of Sal and other valuable species, which are confined only to hilly portions of the block. The incidence of pole crop is more. In other words class II approaching trees comparatively more than class I trees in all the three RFs. Atundi, Kurein, Eupatorium and Lantana have replaced the gaps caused by the illicit removal. Encroachment on forestland is more noticed in Ranjagarh and Anantapur blocks- even deep inside them. Tribal group come from different states (mostly Bihar), clear the forested patches and gradually they form agricultural lands and permanent settlements. Unrestricted grazing and frequent forest fire has caused degradation of the forests.

2) Coppice with Reserves Working Circle

In Ahmedullah’s plan almost one third of the forest area of the BLOVK was prescribed for Coppice Working Circle. It became depletes and unproductive due to various biotic factors making it impossible to work under Coppice with Reserves working circle in Mohanty’s plan. The area allotted to this working circle supported open type of crop with bushy growth. Only 2 felling series could be formed under this circle viz. Lahada ‘A’ and Lahada ‘B’. Rotation prescribed was 60 years with 3 periodic blocks of 20 years each. The object of management was to work the forest to cater to the need of fuel, small timber and agricultural implements and simultaneously to preserve well-grown trees.
of economic importance. Regeneration in the felling series would be natural of both coppice and seedling origin, supplemented by plantation.

Important marking rules were as follows: All advance growth up to 45 cms girth was to be retained to form the future crop. Up to 40 healthy trees of principal species per hectares would be retained as reserves. All trees on either side of permanent roads and nallah banks would be reserved but not counted as standards. On eroded areas and areas susceptible to erosion all trees up to 90 cms girth would be marked for retention. In addition, all fruit bearing trees e.g. Mango, Mahula, Chara, Jackfruit, Kusum, Tamarind, Asan and palm even in the right-burdened class ‘B’ were prescribed for retention. After marking, coupes were sold by auction by dividing the coupes into lots.

Subsidiary silvicultural operations like cleaning, weeding sowing ang planting, thinning and climber cutting were prescribed. In addition, other regulations like grazing control and fire protection were envisaged. During the plan period, measures like cultural operations, trench fencing, artificial regeneration with bamboo and other fuel wood species and gap plantations have been taken up. But the over all condition of the crops seemed not to have improved. The important prescriptions like fire protection and prevention from grazing have been totally neglected.

3) Rehabilitation and Plantation Working Circle:

It was constituted as most of the blocks were degenerated and contained only bushy growth. The object of
management was to rejuvenate the areas with afforestation and rehabilitation measures at the earliest possible time thus making the area productive again. Two types of treatments were prescribed: for Sal bearing areas, where tending and cultural operations were prescribed and for the rest of the areas, where plantation of valuable species was prescribed.

Subsidiary cultural operations prescribed were wedding, casualty replacement, fire line tracing, soil working, mulching and thinning after the 4th year of planting. Strict control of fire and grazing for a minimum period of ten years was envisaged. During the plan period though plantations have been done, the cultural operations were neglected as is evident from the poor survival rate and health of the plantations.

4) The Teak Plantation Working Circle:

The circle was formed to increase the economic potential of the forest, which otherwise support only miscellaneous, degraded and bushy crops and where the locality factors are congenial for raising teak plantations. Mostly poor types of moist and depleted miscellaneous forests were earmarked for this working circle. The soil selected for this is deep alluvial or loamy to sandy loamy with proper drainage, avoiding the rocky and water logged patches.

A lot of teak plantations have been raised in different RFs as prescribed on different years during the current plan period. The results of the same are seem to be promising. But with the increase in girth, their population has begun to
decrease as the timber smugglers have selectively hacked them. In many such areas presently one can see the coppice teak forests rather than the original stump origin. The plantation was raised by clear felling of bushy forests, which should not have done.

5) The Bamboo Working Circle:

It was constituted as an overlapping working circle over a part of selection cum improvement working and coppice with reserve working circle. It covered all the bamboo bearing areas. Kandhara, Hitinda and part of Kapilas blocks were allotted to this circle. However, Kapilas RF remained without exploitation for due to lack of adequate stock and by an order of the Government as it came under ecologically fragile zone.

Rives felling series were constituted with the intention to work both Salia and Daba bamboo simultaneously. One felling series was formed in Kapilas to work mostly Daba bamboo. Cutting cycle of 4 years in the 12 years felling cycle was prescribed. Felling rules were framed as was done in the past. Grazing and fire control measures were also envisaged with planting of bamboo in the coupe to fill up the gaps.

The main demands for bamboo in this division are from paper mills and local tenants. The coupes leased out to M/s. Titagarh paper Mills up to 1992, when the Government ban on felling was declared. The tenants usually entered the bamboo coupes and caused damage to the crops due to unscientific felling. To prevent this, arrangements were made for some years to supply bamboo to the tenants from the
depots of the paper mills and/or from the Government Depots. But the arrangements were far from satisfaction. For nearly a decade, since 1993 M/s Ballarpur Industries Ltd. worked the bamboo coupes.

Some RF blocks previously under Bamboo working circle had greatly been reduced on account of heavy illicit felling, gregarious flowering and lack of proper protection and care. So the Bamboo Rehabilitation Working Circle was constituted. The objective was to rehabilitate and establish the degraded coupes with silvicultural operations. Cleaning of congested clumps, soil working, and application of fertilizers were prescribed. Bamboo inter-planting for artificial regeneration on the blank areas was suggested. However, very little work was done contrary to the prescription.

6) Bio-aesthetic Plantation Working Circle

It was constituted in Kapilas and Charkhola RF blocks. The aim was mainly for protection and to aesthetically develop the areas. The Kapilas and Saptasajya planting series were formed, as they are located inside the proposed sanctuaries. It was prescribed to raise plantations on suitable gaps or in strips with ornamental trees or economic species supplemented by cultural operation. Development of game tanks, raising of some botanical gardens, medicinal plants, have been prescribed to attract the people in general and students in particular. Miscellaneous plantation covering an area of 30 Ha has been planted in Charkhola RF block during 1979-80.
A plantation of ornamental plants has been raised in Kapilas RF covering an area of 30 Ha popularly known as Hara Udyan. One Champja plantation has also been raised on the foothills of Kapias hills near zoo on Debottar land. Attempts were made during 1986-87 by aerial seeding on Charkhola hills. Although aesthetic plantation got a very important role to play for people's awareness regarding forest utility but results were less promising and not visible on ground. Hundreds of people enter the three blocks for collecting firewood, small timber, bamboo, tooth sticks and leaves thereby putting enormous pressure on the forests.

7) Minor Forest Produce Overlapping Working Circle was prescribed with a view to harvest and market different MFPs in the division in a sustained manner. Important MFPs of this division are Kendu leaf, Sal seed, Mahua, Lac, Sabai grass, Khair, Khus, Tassar, Genduli gum, Annota seed and Rauwolfia. No specific prescription was made for collection of Kendu leaves whereas for collection of Sal seed, Lac, Tassar and other MFRs safeguards for collection were provided in the plan. It was also formulated for the D.F.O. to make inventory of areas for cultivation of some of the MFPs.

Private lessee collected Kendu leaf till its nationalization in 1973. Presently it is collected departmentally by the Kendu Leaf wing of the department and marketed by the OFDC Ltd. and Mahua by OFDC Ltd. for some years. Mahua flower is collected by the local people and sold to the businessmen. Prescriptions made for introduction of sabai grass, khair, rosa grass, khus khus
and lavender tree Rauwolfia plantation were not carried out. More emphasis could have been paid to this working circle for improving the overall value of the forest.

**Special Work Of Improvement Undertaken**

No significant effort has been undertaken to improve the quality of the forests of the Division. Some improvement works undertaken during the plan period are narrated below:

1. **Plantations**

A number of plantations of economic species have been raised with an object of improving the growing stock by enrichment planting with economic species. Different types of plantation schemes like block plantation, mixed plantation, RDF plantation and Avenue have been raised in different RF blocks. Social Forestry Project, OFDC Ltd. and the Afforestation Division have also taken up plantations in the division. Some good patches of old plantations existed before October 1999, the super cyclone devastated them leaving very few successful plantations in the division. Theft is still the major scourge of the matured plantations. The details of the plantations raised in the Division since inception by different planting agencies are given below:27
Table - 4.18

List of Plantations Raised In Gandia/Joranda-Gandia Block

<table>
<thead>
<tr>
<th>Year</th>
<th>Scheme</th>
<th>Location</th>
<th>Area</th>
<th>Species</th>
<th>Planting Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-81</td>
<td>NREP G. Mixed Plant</td>
<td>Raitola</td>
<td>12</td>
<td>Mixed Plantation</td>
<td>DFO</td>
</tr>
<tr>
<td></td>
<td>NREP G. Mixed Plant</td>
<td>Sadangi</td>
<td>12</td>
<td>Mixed Plantation</td>
<td>DFO</td>
</tr>
<tr>
<td></td>
<td>NREP G. Mixed Plant</td>
<td>Rupabalia</td>
<td>12</td>
<td>Mixed Plantation</td>
<td>DFO</td>
</tr>
<tr>
<td></td>
<td>NREP G. Mixed Plant</td>
<td>Eleijanga</td>
<td>7</td>
<td>Mixed Plantation</td>
<td>DFO</td>
</tr>
<tr>
<td>1981-82</td>
<td>G. Mixed Plant (NREP)</td>
<td>Kaimati</td>
<td>3</td>
<td>Mixed Plantation</td>
<td>DFO</td>
</tr>
<tr>
<td></td>
<td>G. Mixed Plant (NREP)</td>
<td>Jaripal</td>
<td>8</td>
<td>Mixed Plantation</td>
<td>DFO</td>
</tr>
<tr>
<td>1982-83</td>
<td>G. Mixed Plant (NREP)</td>
<td>Sarangi</td>
<td>10</td>
<td>Mixed Plantation</td>
<td>DFO</td>
</tr>
<tr>
<td></td>
<td>G. Mixed Plant (NREP)</td>
<td>Debasabha</td>
<td>2.8</td>
<td>Mixed Plantation</td>
<td>DFO</td>
</tr>
<tr>
<td></td>
<td>A.Economic Plantation</td>
<td>Sorisiapada TP</td>
<td>13</td>
<td>Teak</td>
<td>DFO</td>
</tr>
</tbody>
</table>

1. Fire Protection: fire is the greatest menace in the forests of this block-ranges It causes enormous damage to natural
regeneration, soil, trees, ground flora and microorganism and fauna. In most of the forest blocks fire breaks out two to three times a year between February and May causing irreparable damage. No systematic effort has ever been attempted for its control. Every year, a meager fund is allotted and spent, more as an apology than to combat this hazard.

2. Cultural Operations: As evident, the forests suffer due to lack of adequate cultural operation. Climbers damaged the trees slowly and systematically. Proper effort has not been taken to cut the climbers in the forest blocks of the some efforts have been taken under RDF work for some years. The aspect of climber cutting was further neglected after the imposition of moratorium on tree felling by the State Government in 1992, as because climber cutting is a mandatory item of coupe marking. But the quantum of operation in climber cutting, coppicing, thinning and singling is abysmally low.

3. Wild life conservation: There is nothing worthy to about the work done for wild life conservation. In fact, it has been totally neglected in the high forests of all the blocks. Only in the immediate past plan suggestions were made to dig game tank. However, no such work was ever carried out. A Deer Park has been established at Deogaon. But due to funds crunch maintenance of even the small number of animals present in the enclosures and moats is a problem.

4. Improvement of Communication: Comparing to other developmental activities, communication in the division is not also satisfactory. Dr. Mooney, in his revised Working Plan of 1943-63 prescribed for switching over to automobile
transport from bullock carts. Thus a few Kms long forest road was constructed during 1958. As per prescription of Ahmedullah's plan, there were no construction of roads during the plan period. With the recent addition of some new forest roads situation is little better. They are maintained every year and amount spent for their maintenance of these roads. But, in Gandia/Joranda-Gandia their is no improvement rather the road built earlier were in very bad condition.

5. Boundary Lines: In spite of the recent efforts taken for maintenance of the boundary, in general the condition of boundary lines and boundary pillars is simply deplorable. Most of the pillars have disappeared and the few that are seen are only the remnants of what used to be a pillar. During the immediate past plan period trenching has been done along the boundary of some of the RFs like Sadangi, Aswakhola, Kapilas, etc, but their maintenance has been neglected. Prevalent encroachment in the division are mainly due to absence of or poor boundary line generalising this retrospection of forest conservation through divisional work plan, from people's interest and FD role standpoint revels some underlying facts, which contributed unilaterally for the failure of forest conservation in Gandia/Joranda-Gandia. Prior to independence colonial interest subdued interest of forest dependant. Forest was exploited with a systematic and deliberate planning. Imperial rule created an impression among all forest dependents, although their using forest through the ages they got no right over forest. Each and
every tree standing on state land is state property, and there
right over these is userfractory. In reference to all local and
national forest law formulated during British rule got a direct
intention to impose colonial economic interest, but it's result
was not only impoverisation of Indian society. The real effect
in view of present researcher was, desocialisation of forest
and forest user's symbiotic relation, and introduction of
commercial value of forest, for which we are suffering till the
date. With the broken traditional relation or pattern of
interaction not only our society lost a forest cover but also
our society lost a balanced, sustainable ecosystem. Every
body making an effort to optimise their economical interest.
They do not found themselves within any ecosystem. They
considered every natural resource were mint for economic
interest. Social, religious, recreational and aesthetic values
of forest were forgotten. Prior to colonial rule there was no
security concern for forest dependent in relation to right over
forest. There right over forest were unilateral, the
requirement of forest dependent were need based. With the
estrangement of people’s right over forest belongingness of
people over forest was ended, with this unsettled relation in-
between forest and it's user. There were no voluntary
protection from people that facilitated imperial rule, local
wood Mafia and every individual to optimise their benefit, in
addition to it; commercialization of forest also opened
another avenue, which transcended need of people to greed
of people.

Some how it was expected with the independence their
shall be some changes to meet urgency, which emerge out of
colonial rule, but in contrary to all urgency and expectation after independence there was change in political situation but the mind set of the government and FD remain unchanged. After independence there was several policies, commission and constitutional amendment were made. Other than 1988 forest policy each and every one were reflection of colonial mindset in relation to defining and understanding forest people relation. With the 1988 forest policy there are some changes at policy level and in the ground but there was no change in mind set of FD official in respect of their work plan, reserve forest, punishment prescribed for forest related offence, recognition of rational need of the people, or concession and userfractory right given over forest and forest produce, to forest dependent, recognition of forest dependent's interest as state interest, policing a common property resource against common user, forest official's faith in protection rather than in integration, forest as a source of revenue generation for state, and etc. Besides these, inadequate staff, inadequate trained staff and inadequate infrastructure also posed some difficulties to give an effective protection for depleting forest resource. Other than this unilateral protection or conservation of forest in government forestland Gandia/Joranda-Gandia got another pattern of forest conservation for which Gandia/Joranda-Gandia was in focus for some time in Orissa, that is community forest management. Some villages of Gandia/Joranda-Gandia were conserving or protecting a few patches of forest for village requirment, which were treated by FD as village west land. Towards the end of seventies,
these forest were started depleting, realising urgency of the
time FD introduced social forestry, some where in first part
of eighties, in order to reduce pressure on reserve forest and
to meet forest based need of the village. Again with the
emergence of 1988 forest policy, JFM was introduced in the
locality with a better humanitarian and pragmatic face.
However, the social forestry is already under the impression
as a failure scheme, and JFM is under implementation, and
both shall be investigated in next chapter at primary level,
taking people, people's participation and role of FD in to
account.
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