

## CHAPTER – 3

### HISTORY OF MANAGEMENT AND PRESENT PRACTICES

#### 3.1. General :

Prior to the constitution of the Satkosia Gorge Sanctuary in 1976, the forest areas were managed by 5 territorial divisions viz. Angul, Athmallik, Athgarh, Boudha and Nayagarh Forest Divisions. At that time the forest areas were known by Reserve Forests, DPFs, and Khesra forests. Separate Working Plans were in operation for the areas coming under a particular territorial divisions.

#### Working Plans for erstwhile Angul (T) Division portion:

Mr. T.I.Peacock's Plan	(1 <sup>st</sup> Working Plan )	1908-09 to 1922-23
Mr. L.R.Sabharwal's Plan	(Preliminary Working Plan)	1922-23 to 1925-26
Mr. W.D.M. Warren's Plan	(A Scheme )	1925-26 to 1927-28
Mr. R.L.Dirry's Plan	(24 Yrs Plan )	1923-24 to 1946-47
Sri Jee's Plan		1944-45 to 1964-65 extended up to 1980-81
Dr. C.R.Mohapatra's Plan	(Revised Plan 1970-1990)	Implemented after 1980-81
Sri B.P.Singh's Plan		90-91 to 99-2000

#### Working Plans for erstwhile Rairakhol Division / Athmallik (T) Division portion:

Mr. S.B.Das's Plan	(1965 to 1985) (Rairakhol Division)
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Mr. Dinesh Singh's Plan	(1985 – 2005) (Athmallik Division)
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**Working Plans for erstwhile Nayagarh Division portion:**

Sri N.C.Bal's Plan	1983-84 to 2002-2003
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**Working Plans for erstwhile Boudh Division portion:**

Sri Basudev Mohapatra's Plan	1975-76 to 1994-95 extended till 2000
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**Working Plans for erstwhile Athgarh Division portion:**

Sri G. Mohapatra's Working Plan	
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In all the above plans, emphasis was given mostly for production of quality timber. Up to Shree Jee's Plan of Angul (T) Division there was no mention about Wildlife Management. Dr. C.R. Mohapatra in his Plan had inserted a chapter on Wildlife Management under Miscellaneous Working Circle. But he had not provided suitable emphasis on the subject. Only the names of Acts and Rules prevailing during that time were mentioned.

Sri B.P. Singh for the first time has included a Wildlife Management Working Circle (over lapping) in his Working Plan. By that time the Satkosia Gorge Sanctuary has already been notified. He had divided the Working Circle into to 2 areas i.e.

- a) Wildlife Management in Sanctuary area.

b) Wildlife Management in other area.

The highlighted Management Prescriptions were as follows :

1. Creation of water holes and of check dams on the Plateaus and higher slopes along nalas to improve water availability in summer.
2. The concept of zonation inside the sanctuary has been felt. He had divided the sanctuary in to four zones, viz. Core zone, Buffer zone, Tourism zone, River zone.

Felling of timber yielding trees above exploitable diameter were allowed even in Core zone without creating any lasting gap in canopy. But no green felling of any kind was allowed in 50 mtr. Width along road, nalla, around game tank, Salt licks and favourite sites of wild animals.

Some other prescriptions were :

- No teak plantation in core area but grass and fruit bearing tree plantation in eroded and blanks were allowed.
- Reduction of cattle population in villages in and around the sanctuary.
- Adequate soil and moisture conservation measures were to be taken during subsidiary silviculture operations (SSO).
- Timber and bamboo working were allowed in sanctuary to be completed before end of February every year.

Prior to 1920, the erstwhile Ruler of Athamallik State had declared the Hatidhara forest as a Reserve for the Wildlife. It was reported that the population

of elephants was enormous in Hatidhara forest leading to elephant catching by Kheda operation there.

There was a ban of shooting of Partridge, Pea fowl and jungle fowl from 1<sup>st</sup> April to 15<sup>th</sup> September in the forests promulgated by the Athmallik State Rulers.

There is no special mention of Wildlife Management in the Rairakhol Plans up to 1964. In the Revised Working Plan of Sri S.B. Das (1965 – 1985), the Wildlife Management was dealt with in a separate chapter (Chapter IX). He had suggested the following measures for the Management of Wildlife:

- To raise anti poaching gates at different places bordering Satkosia Gorge Sanctuary at Kurab and Bipradih.
- To issue shooting permits in a restricted manner and number of such permits should be very small.
- To constitute Hatidhara block into a game sanctuary adjoining to Tikarapara game sanctuary.

In Dinesh Singh's Plan ( 1985 – 2005): Wildlife Management was discussed in Chapter XV. No separate W.C. was formed. Habitat improvement, Infrastructure development, establishment of anti-poaching gates, adequate fire protection measures, raising succulent grasses, salt licks, construction of water holes were some of the suggestions made in the Plan for Wildlife Management. Some of the suggestions were implemented in course of the Plan period, but majority could not be implemented due to paucity of funds.

Sri N.C.Bal in his Working Plan for Nayagarh Division has not kept any Working Circle for Wildlife Management. But he had some prescriptions in general on census operation, Regulation on grazing , Precaution on plantation and grass land development, salt licks, water holes, control burning.

Sri Basudev Mohapatra in his Working Plan for Boudh division applicable to Padmatola R.F. and Arakhapadar R.F. constituting part of the sanctuary did not prescribe any specific working Circle for Wildlife Management. But he has some prescription in general. He has mentioned that Padmatola was notified as a sanctuary vide Notification No.10151/F. 4F. Dt. 22.2.1962 of C..F., Berhampur Circle under Rule 3(1) of the Orissa Government Reserve Forest Shooting Rules, 1938. He has prescribed to renovate the Padmatola game tank and develop few salt licks around it. He had prescribed to construct road, FRH, and watch towers to attract tourists.

Most of the prescriptions of all W.P.OS. could not be implemented in the field due to paucity of funds.

First Management Plan for Satkosia Gorge Sanctuary was prepared by Sri Arun Kumar Mishra, Assistant Conservator of Forests, Satkosia Wildlife Division for the period from 2000 to 2010. Though formal approval has not yet been given, the Government agree in principle all the prescriptions and the Management of the Sanctuary is being carried out as per his prescriptions and Central Government is providing funds under APO as per this plan. This Plan has covered all the aspects of Wildlife Management in general. It lacks some specific recommendations /

prescriptions for carrying out some important activities. Site specific treatments are not prescribed. The Management Plan has been written following the code prescribed by Sri Vishwas B. Sawarkar, Wildlife Institute of India, Dehradun.

He had divided the entire sanctuary area in to 3 zones viz. Core zone or Wilderness Zone (401.28 Sq. Km.), Traditional Use Zone or Multiple Use zone or Apparent Buffer zone (394.24 Sq.Km) and Tourism zone (over lapping (10 Sq.Km Appx). Though the extent has been given, the zone map or description of area under zones were not given as a result the Managers are facing a lot of difficulties to identify the zones.

Problems have been identified but they have not been prioritised following the problem matrix.

Strategies under Zone Plan are as follows :

A. Wilderness Zone :

1. Water resource development – Construction of game tank ,Water storage structures, check dams, Percolation trenches.
2. Vegetation monitoring.
3. Animal health surveillance.

B. Traditional Use Zone :

1. Regulated grazing.
2. Plantation of fast growing fuelwood, fodder, fruit bearing and medicinal plants, insitu conservation of biodiversity.
3. Reclamation of waste land.

4. Community fodder and pasture development.
5. Water harvesting on community base.
6. Eco development activities like,
  - a) Replacement of scrub cattle.
  - b) Fuel wood saving chulla, gober gas.
  - c) Use of Bio fertilizer, organic farming.
7. Weed eradication.
8. Creation of green belt, safety zone, village wood lot.
9. Income generating activities.

C. Tourism Zone (Over lapping):

Development of tourism points, route,

Strategies on Theme Plan are as follows:

1. Protection Plan :
  - a) Deployment of Task Force at 9 different places. Task force consisting of OSAP, Police APR and Forest Department staff.
  - b) Strengthening Protection by deployment of OSAP in Mahanadi River Squad.
  - c) Fishing regulation.
  - d) Reward to informers (strengthening the intelligence system).
2. Forest Fire Control :
  - a) Creation of Disaster Management view point of warning.
  - b) Creating fire lines.

- c) Post Disaster Management.
  - d) Education, Awareness and Training.
  - e) Role of NGOs / Voluntary organisations.
3. Forest Road construction and maintenance (New):
- a) Padmatola – Dipasahi – 7 Kms.
  - b) Kusang – Padmatola – 18 Kms.
4. Habitat Improvement :
- a) Water Resource Management.
  - b) Riparian area and Mesic site Management.
  - c) Special Habitats and unique Habitat Management.
  - d) Weed eradication.
  - e) Eco restoration of degraded forest area.
  - f) Improvement of prey base to attract more carnivores.
  - g) Special Habitat Management for elephants including corridors.
  - h) Canopy manipulation to improve the browser layer.
5. Soil and Moisture Conservation Measures :
- a) Vegetative Silt traps.
  - b) Inverted Bandhera.
  - c) Stream improvement.
6. Grazing and Grass land Management Plan .
7. Animal Health Surveillance :
- a) Artificial insemination.

- b) Providing high yielding milch and drought cattle.
  - c) Wipe out of scrub cattle by castration.
  - d) Encouraging stall feeding.
8. Revival of habitat corridors.
9. Measures to reduce Man – Elephant Conflict:
- i) 20% compassionate amount to be paid within 24 hours of accident and within a week of damage to crops and houses.
  - ii) Driving away of the elephants.
  - iii) Raising fodder plantations and creating water holes for elephants in side the forests.
10. Creation of water reservoirs
11. Relocation of villages outside the sanctuary .
- 2 Revenue villages – Katrang and Raigoda.
  - 3 Forest villages – Tarava, Asanbahali, Bhurkundi
12. Control of grazing.
13. Encroachment.
14. Joint Forest Management.

Prescriptions under Chapter – 7 i.e. Tourism Interpretation and Conservation Education:

- 1. Identification of tourism zones.
- 2. Infrastructural development.

3. Improvement of GRACU cum Mini zoo at Tikarpara.
4. Interpretative strategy.
5. Orientation centre.
6. Visitor centre cum Interpretation centre at Tikarpara.
7. Improvement of Binikei temple.
8. Provision of signages, Trekking route, Nature trail, Audio visual Programme, Nature camp, Rope way, water sports, angling, , Cactic house, Rock garden.

Prescriptions under Chapter – 8- Eco - Development:

1. Generation of employment opportunities through various departmental works.
2. Alternate livelihood like pisciculture, mushroom cultivation, cottage industry, Handicrafts.
3. Education and Training.

Sri A.K.Mishra in his Management Plan has tried to cover all possible strategies on Wildlife Management. But it is silent over the site specific and quantitative approach in his prescription for which the current Plan needs revision.

### **3.2 Timber operation including Bamboo and Firewood harvest.**

#### **3.2.1 Silvicultlural systems and tending operations.**

Prior to 2000, the sanctuary was managed under various Working Plans where all types of timber and bamboo operations were undertaken. The various Working Circles operated in past under different working plans are as follows:

1. Selection Working Circle.
2. Plantation Working Circle.
3. Bamboo Working Circle.
4. Coppice Working Circle.
5. Sal Selection Working Circle.
6. Selection (Misc. Spp.) Working Circle.
7. Teak Plantation Working Circle.
8. Soft wood Working Circle.
9. Rehabilitation Working Circle.
10. Improvement Working Circle.

During Sri B.P.Singh's Plan period, some measures have been taken to increase the percentage of Sal and other semi evergreen species by implementing proper tending, sowing and planting technique. For the first time Teak plantation was not taken up in the Core area. There was no green felling in 50 mtr. width along the road, nalla, around game tanks, wallows, salt licks and favourite places of wild animals.

Moreover the tree felling was totally stopped in accordance with the ban imposed by the Government of Orissa vide their Notification No.27161/F&E Dt.

12.11.1992 and it is extended from time to time till today. All prescriptions are adhered to in the sanctuary area.

### **3.2.2. Even-aged systems and uneven-aged system:**

#### **Plantations:**

Apart from natural forests, there are number of Teak plantations. These have been raised after clear felling the degraded miscellaneous forest.

About 27,000 ha.of Teak Plantations have been raised inside the sanctuary comprising both the Wildlife Divisions. Out of these only 24 ha. Teak Plantation is found in Mahanadi R.F. in Mahanadi Wildlife Division. The details of plantations are provided in **Appendix-13**.

### **3.2.3. Bamboo Working.**

According to ORSAC report Bamboo occupies 832.68 ha of area inside the sanctuary. The prescriptions given to Bamboo Working by various Working Plan Officers are almost identical.

Bamboo working has been forbidden in all the sanctuary area from 1999 – 2000 coupe year as per Letter No. 6F(A)19/99-19253/F&E Dated, Bhubaneswar 26.10.1999 of G.O.O. Forest & Environment dept. insisted upon to exclude the Wildlife Sanctuaries from the working of Bamboo coupes to avoid distress to the Wildlife.

#### **3.2.4. Firewood harvest and collections.**

During timber coupe working, collection of firewood was also an important component. With the moratorium on tree felling, firewood collection has lost relevance. All the people residing within and out side the sanctuary within 10 Kms of radius mostly depend upon the sanctuary for their bonafide fuel wood requirement.

#### **3.3. Non Wood Forest Produce (NWP) / Non-timber forest product (NTFP)**

##### **Collection:**

**Information on Kendu Leaf production for the last five year pertaining to Satkosia Wildlife Division:**

1996	1389.0 Qtls.
1997	1326.0 Qtls.
1998	634.2 Qtls.
1999	1446.6 Qtls.
2000	1280.4 Qtls.

At present collection of MFP including Kendu leaf, Bamboo, Mahua flower has been banned completely from the sanctuary area.

### **3.4. Leases.**

Issuance of leases by the Revenue Dept. for landless people inside sanctuary area has been noticed and objections have been filed. These leases have been issued by changing the status of jungle kism land to non-jungle kism in many cases prior to 1980. This sort of leases might create problem in future as virtually these leases would be legalized after some years and these people would only aid in destruction of forests as this is the easiest means of getting livelihood.

### **3.5. Other Programmes and activities.**

During Dasa Dola celebration in the month of March, thousands of pilgrims assemble at Binikei and Kanakei Temples thereby causing some disturbance to Mahanadi Gorge Ecosystem outside core zone. Forest fire is one of the disturbances.

### **3.6. Forest Protection.**

#### **3.6.1. Legal status.**

Satkosia Gorge Sanctuary has been initially notified vide Government of Orissa, FFAH Deptt. Notification No.12727/FFAH Dt.19.05.1976. As this sanctuary spreads over four revenue districts, the legal procedure for final

notification under Section 26-A of Wildlife (Protection) Act 1972 amended has been seriously jeopardized. The following is the present position:

**Cuttack District Portion:**

As per Letter of A.D.M., Cuttack, addressed to deputy Secretary, FFAH Deptt. copy endorsed to D.F.O., Satkosia Wildlife Division vide Memo No.39 Dt.15.04.1987, proclamation u/s 21 of Wildlife (Protection) Act was issued by Collector, Cuttack on Dt.22.11.85 and objection was not received from any person or institution. Subsequently F.S.O, Cuttack enquired the existence of rights enjoyed by persons and found no objection. Instead of taking next follow-up action, the A.D.M. has requested the Government to take further action as per Wildlife (Protection) Act 1972. Said letter of the ADM, Cuttack is enclosed as **Appendix- 14** .

**Puri District Portion (Now under Nayagarh District):**

As per Letter No.494 Dt.01.09.1989 of F.S.O, Puri addressed to Chief Wildlife Warden, Orissa, proclamation has been made. The Collector, Nayagarh in his letter to the Principal Chief Conservator of Forests (WL), Orissa, copy enclosed to DFO, Satkosia (WL) Division, Angul in his memo No. 1401 (51)

dtd.7.9.06 (Enclosed in **Appendix- 15**) has stated that village like Malisahi, Badamul, Bethiasahi, Muduligadia, Kandha Jillinda, Chhamundia, Haripur, Kanipokhari, Bentapada, Iswarpur, Mskajhulia, Raigadia, Mohanpada, Dasipur, Rajing, Dhobabarei, Kumbhirakhani, Salapaganda, Musuguda, Malaspadar, Sagadbhanga and Bahali are situated adjacent to the boundary of the sanctuary. Village Kuturi is situated by the side of the side of the old Jagannath Sadak which is situated near about 4 kms. away from the boundary. They can simply enjoy the right, title and interest of their own land as per their practice and they will just observe the principles of Wildlife (Protection) Act. Hence, he has suggested after final demarcation of the land by Tahasildar, Daspalla the proposal will be moved U/S 26 A of the Act.

**Phulbani District Portion (Now under Boudh District):**

Proclamation under Section – 21 has been issued.

The Collector, Boudh in his enquiry for settlement of rights etc. in his district portion under Satkosia Gorge Sanctuary for final notification under Wildlife ( Protection) Act, 1972 as required under Section 19 to 25 of the said Act has reported to the Principal Chief Conservator of Forests (Wildlife) Orissa vide letter No. 7706/FS dt. 21.8.98 ( enclosed in **Appendix- 16** ) and to Principal Secretary ,F&E Deptt. Govt. of Orissa in his latest letter No.10999 dtd. 23.3.1999, which is enclosed as **Appendix- 17**.

The extract of said letter is as follows:-

There are 17 revenue villages in Boudh District portion namely, Kumari, Bhabapur, Ghungurmunda, Hatigarh, Budhamba, Nuapada, Semiguda, Siripaju, Geredisahi, Hinjal, Satakhand, Kutibari, Atalsara, Sitalpani, Sunakhania, Ghatagaon and Marada.

The details of the above villages are enumerated as follows as per his report to the PCCF(WL) , Orisa vide his letter No.7706 dtd. 21.8.98.

<u>Village</u>	<u>Population</u>	<u>Rayati land</u>	<u>Govt. land</u>	<u>Total area.</u>
13	3298	2522.84 Ac	4531.83 Ac.	7054.67 Ac.

Sunakhania and Ghatagaon villages are uninhabited. The details of 4 villages as above are as follows:

Name of the village	Population				Rayati land ( in Ac)	Govt. land ( in Ac)	Total ( in Ac)
	SC	ST	Gen	Total			
1. Sitalpani	7	5	14	26	8.37	728.05	736.42
2. Marada	49	-	-	49	11.64	62.36	74.00
3. Sunakhania	-	-	-	-	-	32.09	32.09
4. Ghatagaon	-	-	-	-	-	450.69	450.69
Total	56	5	14	75	20.01	1273.19	1293.20

He suggested for exclusion of 13 peripheral villagers and relocation of 2 revenue villages from Boudh District with proper rehabilitation packages. The uninhabited revenue village will automatically merge with the proposed sanctuary.

**Dhenkanal District Portion (Now under Angul District):**

Proclamation has been issued on Dt.18.11.1997 and enquiry by the Collector, Angul has been completed in between Dt. 8.5.1998 to 29.5.1998. The Collector, Angul vide his Letter No.1188 Dt.24.7.98 in the address of Principal Secretary, F&E Deptt. Orissa has furnished his enquiry report for issue of Final Notification of Satkosia Gorge Sanctuary ( enclosed in **Appendix- 18**).

Following recommendations have been made.

1. Total deletion of 9 (Nine) villages of Athmallik Sub-Division measuring Ac. 2458.82 from the sanctuary area.
2. Exclusion of Ac. 12701.19 from the Sanctuary i.e. total area of 20 villages of Angul Sub-Division.
3. Exclusion of Ac. 534.69 from the Sanctuary, being the area of three Forest Villages that are to be declared as Revenue Villages.
4. Acquisition of Ac. 162.28 of land in village Raigoda through Land Acquisition proceedings for shifting of the village to a new site with rehabilitation benefits as per norms of Water Resources Dept.'s Rehabilitation & Resettlement Plan.
5. He recommended exclusion of Ac. 15694.70 area from the sanctuary and advised equal or more area of Reserved Forest adjacent to the sanctuary having no human habitation to be included in the sanctuary.

### **3.6.2. Hunting.**

No past hunting records are available. However the estimation of Wildlife population prepared during 1986 indicates the abundance of Wildlife at that time.

### **3.6.3. Illegal activities.**

#### **3.6.3.1. Poaching.**

Poaching was rampant inside Satkosia Gorge Sanctuary in the past. The poachers mostly from Narasinghpur and Badamba P.S. area of Cuttack district, Banapur of Nayagarh district and Angul, Purunagarh, Talasira of Angul district frequent to interior pockets of the sanctuary viz. Kuadoli, Katrang, Bipradihi, Majhipada, Labangi, Badkheta areas of the sanctuary. Some poachers of these organised gang have been apprehended and forwarded to trial Courts. Some middlemen are involved in ivory trade and some notorious gang leaders are operating clandestinely for years together. They have not been arrested so far by the Police although many warrants are lying un-executed. For the last 2 years (from 2004) by deployment of some local tribals with their traditional weapons as elephant trackers, the poaching has reduced to phenomenal minimum in this sanctuary. During last 3 years it is noticed that poaching have occurred mostly during summer season, form March to July, when water is available in a limited location. Small incidents of poaching do occur in rest of the year. Poaching of tuskers happens mostly in winter season.

#### **3.6.3.2. Illegal Cutting of trees.**

Human agency is directly responsible for depletion of forests through illicit felling and its removal, uncontrolled grazing, encroachment, girdling and lopping, setting of forest fires, felling of trees for collection of honey, leaves, fruits and barks. With the population explosion and rise of unemployment of the rural youths, the size of this agency is also increasing day by day with the increasing degree of injuries to the forests. Most of the forest blocks are surrounded by thickly populated villages in which poverty and unemployment has widened its base. The illicit felling of selected teak and Sal trees from the forests of Raigoda, Tulka, Baghamunda and Purunakote blocks have started since 1980.

The organised timber smugglers of Narsinghpur area enter in to Tulka R.F. of the sanctuary enmass numbering 50 – 200 with arms and ammunition and terrorise the APR Force, Magistrate, Local Police and Senior Forest Officers in many occasions thereby forcibly plunder the valuable teak trees worth lakhs of rupees at a time despite all possible protests by local forest staff with arms, ammunition and persuasion. In many occasions due to their indiscriminate firing, our forest Staff have been injured and the patrolling vehicle was broken down. This has culminated on Dt.28.10.2000 into a fierce encounter with the forest brigands and hence deployment of OSAP Force was thought warranted. One Sri Bhagaban Majhi, Forest Guard was brutally murdered on 25.04.1999 at Tulka by the smugglers. One OSAP battalion was deployed in this sanctuary from 28.10.2000 to 19.06.2001. During that period, the illicit felling of trees and poaching of wild animals was drastically stopped. During 2003, some armed

security staff, armed home guards were also deployed besides deployment of one section of Police APR in the sanctuary.

The list of some notorious villages involved in timber smuggling and poaching in Satkosia and Mahanadi WL Divisions are enumerated below which are inside the Sanctuary:

Mahanadi Wildlife Division

Badmul, Marada, Chhamundia, Kuturi, Atalasira, Kusanga, Bethia Sahi, Kandha Jillinda, Muduligadia, Kentapada, Kumari, Malisahi, Dhipasahi, Gergedi, Gochhabari

The list of villages situated outside Sanctuary is exhaustive. Names of some notorious villages are worth mentioning:

Angul Division	Athgarh Division	Nayagarh Division
1. Purunagarh	1. Chakragada	1. Banpur
2. Nuakheta	2. Balisahi	2. Manibhadra
3. Saruali	3. Nuagaon	3. Madhya Khanda
4. Bolonga	4. Balikiari	4. Ghughdipada
5. Talasira	5. Nukhapada	
6. Manikjodi	6. Kenagudi	
7. Jarada	7. Kendumula	
	8. Jagannathprasad	
	9. Saradhapur	
	10. Asanania	
	11. Ainsia	
	12. Ulaskote	
	13. Ransinghpur	
	14. Alara	
	15. Nimasahi	
	16. Krushnaprasad	
	17. Narsinghpur	
	18. Barabhaya	
	19. Nuagada	

	20. Mitikapur	
	21. Nakhapada	

The most smuggling prone Forest blocks in this sanctuary are Padmatola R.F., Arakhapadar R.F. & Mahanadi R.F. in Mahanadi Wildlife Division and Tulka R.F., Raigoda R.F., Bolong R.F., Jacobo R.F., Takarsingha R.F. ,Chhotamunda R.F. ,Tainsi R.F., Majhipada R.F., Baghamunda R.F,Kuru R.F. Purunakote R.F. ,Kataranga R.F. and Tikarpada R.F. in Satkosia Wildlife Division.

During 2000, organised armed timber smugglers from Narasinghpur area of Cuttack district entered into Tulka R.F. enmass numbering more than 200 at a time and plundered matured teak plantations in Compt. No. 7 & 8 worth lakhs of rupees. There are innumerable encounters with these notorious forest brigands in presence of APR force, Executive Magistrates, Local Police and Senior Forest Officials. There are incidents of firing and counter firing thereby the situation become alarming. After the last brutal encounter on 28.10.2000, one platoon O.S.A.P. force was deployed at Tulka. Earlier on Dt.25.4.1999, Late Bhagaban Majhi, Forest Guard, Tulka was brutally murdered by timber smugglers. So it was felt essential to constitute three Task Forces for Satkosia with the Chairmanship of three Collectors, viz. Collectors of Angul, Cuttack & Nayagarh for respective areas under their Revenue districts. One action plan was also formulated in pursuant to the meeting chaired by the Chief Secretary on 31.8.2000 for protection of Satkosia Wildlife Sanctuary. Search & seizure operation in well-targeted manner was undertaken on a sustained basis. Frequent patrolling was done with

the help of OSAP Force and many notorious timber smugglers and poachers were arrested. The force was also utilized by adjoining Divisions of the Sanctuary and huge quantity of timber had been recovered then.

### **Vulnerable Places of Illicit felling and Poaching.**

In view of rampant illicit felling, the following places are considered to be vulnerable within the Satkosia Gorge Sanctuary.

#### **1. TULKA.**

At present this Section is the most vulnerable area due to large scale illicit felling of valuable teak trees by the organised armed groups coming from Narsinghpur area of Cuttack District numbering from 100 to 200 at a time through Sisupathar Dam, Balikiari Murujanala and Bhurkundi.

#### **2. RAIGODA.**

Illicit felling in Raigoda Section is frequently done by smugglers of Narasinghpur and Nuagarh area of Cuttack district.

#### **3. LABANGI.**

Armed timber smugglers from Garhtaras, Nuakheta, Bantala of Angul district enter enmasse with bullocks, axe for cutting teak trees numbering from 60 to 80 at a time.

#### **4. ATHARMILE.**

Purunagarh villagers under Angul P.S. come in large group and illicitly fell the teak trees and take away them by their shoulders or by buffalo yokes.

#### **5. KATRANG.**

Poachers and timber smugglers from Jillinda Range and Chamundia Range come in groups for illicit felling and poaching of wild animals.

#### **6. DOLASINGA.**

This is the main timber hoarding and smuggling village close to sanctuary boundary on the western side. Smugglers from Purunagarh area fell tees in Baghamunda RF and pass through Dolasingha.

#### **7. TAINSI.**

Tainsi is another important hoarding and smuggling area at the periphery of the sanctuary. .

#### **8. MAHANADI RIVER.**

River route was then the lifeline of smuggling of timber and kendu leaf in the sanctuary extending from Athmallik up to Balijhari, Narsinghpur and Banpur, outside the sanctuary zone. After formation of Mahanadi river squad from 2001, the smuggling activities have drastically reduced.

#### **9. BALIKIARI (Narsinghpur (West) Range of Athgarh Division, outside the sanctuary).**

Balikiari is strategically located close to Muruja nalla, Tentulibanka which is the main entry point for timber smugglers of Narsinghpur area to enter in to Tulka Forest. Barasingha and Jaypur khola are entry points to Raigoda Forest.

#### **3.6.3.3. Illegal Removal of NWP.**

Hundreds of people from villages out side the sanctuary area resort to illegal cutting and removal of bamboos. This has resulted in depletion of bamboo resources from the sanctuary in the periphery zone, thereby creating problems for the elephants in future. Similarly, fishing though restricted within the Mahanadi Gorge area often disturbs Gharials and Muggers. Many people within the sanctuary collect Honey, Sal leaf, Sal resin, Mahua flower, Muhua seed, Amla, Harida, Bahada, Tendu leaf etc. for their bonafide use.

#### **3.6.3.4. Encroachment and other illegal activities.**

Encroachment is not a problem inside sanctuary.

#### **3.6.4. Domestic livestock grazing.**

There are 99 Revenue villages and 3 Forest villages within the sanctuary. There are 180 revenue villages within 5 Kms. of radius of the sanctuary boundary. The total live stock population of the revenue villages situated inside sanctuary is 35,235, which includes 16,260 Cows, 6,003 buffaloes, 12,107 Goats and 865 Sheep. About equal number of live stock graze inside sanctuary . Goat

population is increasing thus competing with the population of Sambar, Barking deer and other browsers of the sanctuary. Village wise list of domestic live stock population is given in **Appendix- 19**.

Severe damage is caused to the forest crops through grazing by domestic animals. With the increase of human population, population of cattle has also tremendously increased. Large herds of cattle and buffaloes are kept by villagers not only for ploughing agricultural fields or pulling carts or getting milk but also to get more dung for use in their field as they do not spend any thing for survival and maintenance of these cattle. Grazing fees charged earlier was very nominal. These cattle are let loose for grazing and browsing. This uncontrolled grazing and browsing causes severe damage to plantations and natural regeneration of forests. In the process of grazing branches of trees, poles and bamboos are lopped regularly, seedlings trampled and soil compacted with the result that establishment of vegetation becomes more and more difficult. All the forest blocks of the division are prone to heavy grazing and browsing except Raigoda, Tulka and a portion of Purunakote, Baghmunda and Majhipada.

### **3.6.5. Wild Fires.**

The forests inside the sanctuary are dry deciduous with limited patches of moist ones. Due to the prolonged hot-dry weather, the thick cover of fallen leaves in these dry deciduous forests dry up soon and become inflammable. Forest fire

occurs every year, it is man made and some of the forest blocks are burnt. It is all ground fire. Fire causes damage to ground storey of the forests. The factors responsible for are :

- a) In collection of fruits and Mahua flower.
- b) To burn the kendu bushes to get good leaves in some areas.
- c) To get vigorous growth of fodder grass for grazing.
- d) To get ash in agricultural fields.
- e) To drive away wild animals for poaching as the visibility is increased by opening the forest under growth.
- f) To get pleasure of fire in the night.
- g) The villagers set fire the dry leaves while going along the forest roads for marketing, attending yatras without any reason.

During the fire season, forest fire affects about 8 – 10% of sanctuary.

Fire is one of the greatest dangers that the forests of Satkosia Sanctuary encounter from 15<sup>th</sup> of February up to the onset of monsoon. It causes irreparable damages to the young regeneration of seedlings and coppice growth and affects adversely the saplings and poles. The top forest soil is baked and all the available organic matter as well as the micro-fauna of the top soil get destroyed which ultimately affects the general health of the forest vegetation. The trees that withstand the fire hazards normally become defective and develop unsoundness at an early age. This is amply visible in most part of degraded deciduous forests of the sanctuary.

Most of the bamboo brakes suffer a great deal due to forest fire.

Deliberate fire is the principal cause of forest fire in Satkosia Gorge Sanctuary causing temporary migration of wildlife to riparian and moist habitat. Mahanadi river being the principal perennial river most of wildlife wander around this riparian habitat and around its principal tributaries perennial to semi-perennial nature.

### **History of previous events.**

Forest fire becomes a regular feature every summer in Satkosia Gorge Sanctuary. It becomes evident towards the end of winter i.e. onset of summer when the deciduous trees shed their leaves forming a pile of inflammable material on forest floor. These dry leaves, dry branches, dry shrubs and grasses constitute serious fire hazards. First sign of forest fire normally starts along road side and bridle paths.

Repeated forest fire was observed during 1986, 1988, 1998, 2001 drought season when the lethal sun stroke coupled with prolonged dry spell was experienced throughout the sanctuary. During summer of 1999 and 2000, forest fire was less extensive following intermittent showers due to cyclonic rain effect.

### **Nature and extent of losses:**

Colossal loss to the forest wealth is being caused every year due to repeated forest fire. It is not possible to quantify as no such fire relief is provided as it is restricted to forest areas. The destruction caused by forest fire is incalculable as forest provides both tangible as well as intangible benefits.

It has been noticed that during the summer of 2001 felling refuse on forest floor of Tulka created fire hazards. Every year controlled fire along the R.F. boundaries, forest roads, engagement of fire watcher and intermittent cyclonic rain some what helped in reducing the fire effect. Repeated forest fire during 1998 caused considerable damage to natural regeneration, saplings, forest soil, productivity of forest, micro-fauna etc. Forest fire forces the wildlife to migrate to save them from it. Due to loss of fodder and refuge they suffer and become vulnerable to poaching.

**Existing arrangement for preparedness / mitigation / response mechanism:**

By the end of March every year forest fire sweep across forest floor depending on leaf litter and frequency of cyclonic rain. Subsequently during April-May some times another one round of sporadic fire is being noticed depending upon the aforesaid two factors. Controlled fire along the R.F. boundaries, forest roads, engagement of fire watchers, organisation of awareness meetings during February and March bring the forest fire under control. Some traditional firefighting equipments have been provided to the staff but they are not so effective. Firelines are being cleared to a limited scale and limited fire watchers are being engaged to extinguish fire. Besides group patrolling at Range level, mobile patrolling at Divisional level are being organised in fire season. The field staff are being trained to know the fire fighting techniques i.e. counter firing, fire

beating with branches which are the easiest method. Previously, working plan prescriptions were scrupulously observed with respect to boundary line maintenance, creation of external and internal fire line etc. These practices are now observed in a lesser degree due to inadequacy of funds. Posters and signboards are being affixed at prominent places and awareness meetings are being organised to create awareness among people to prevent forest fire.

### **3.6.6. Insect attack and pathological problems.**

#### **3.6.6.1. Insect attack.**

The damage caused to the forests and plantations by defoliators, borers and other insect pests have not been estimated quantitatively. However certain amount of damages are caused to the crop by the following insects.

1.	Hoplocerambyx spinicornis (Sal Heart wood borer)	Causes damage to sal trees.
2.	Weevil(cytotrachelus longipes)	Causes damage to top of new bamboo culm.
3	Estigueno chinensis	Causes tunneling of inter nodes of new culms.
4.	Hapalia machaerlis (Teak skeletonizer)	Causes damage to teak leaves, attack more in Sept – Oct.
5.	Hyblaea pleura (Teak defoliator)	Causes damage to teak leaves. During 15 <sup>th</sup> -20 <sup>th</sup> August,2006 teak plantations of entire sanctuary was infested with defoliators. The leaf turned reddish brown, dried and fallen down. The caterpillars

	<p>were hanging from trees with thread lines excretions from their body. They were in swarms entered in the houses of people and disturbed them.</p>
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### **3.6.6.2. Pathological problems.**

No record is available in support of serious damage of forests due to diseases by pathogens

## **3.7. Tourism.**

### **Satkosia Gorge.**

The narrow ten metre deep half a kilometer wide gorge extending 7 Koshas or 14 miles or 22 kms with a chain of wooded high towering hills on either side of river Mahanadi having crystal-clear water reflecting the hills and leisurely drifting clouds is simply fascinating and absorbing. In particular the sunset over the gorge at Tikarpara presents spectacular view. Here time seems to have frozen in tune with the flow of water. During winter, visitors enjoy basking of Gharials and Muggers on sands of riverbank that too by motor launches available in this division.

### **Existing Scenic spots.**

The following picnic spots are located inside Satkosia Gorge Sanctuary:

#### **1) TIKARPARA.**

Here the scenic beauty of panoramic gorge in river Mahanadi can be most easily viewed. The reflection of towering hills on both sides of the river and the moon light can be enjoyed on still water of the river.

Visitors can also enjoy the following :

- a) Proposed Rescue and Rehabilitation Centre of fresh water reptiles.
- b) Erstwhile Gharial Research Centre with Muggers and Gharials for demonstration purpose.
- c) Temple of Lord Shiva on the bank of river Mahanadi
- d) Natural basking site of crocodiles on sand bed in river.
- e) Flock of migrated birds (Brahminy ducks) in winter.
- f) Cruising in departmentally approved motor boats.
- g) Sylvan beauty of deciduous forests which changes colour with seasons.

## **2) BINIKEI & KANAKEL.**

Temple of Goddess Binkei on the bank of river Mahanadi 8 kms upstreams from Tikarpara in Satkosia Division & Konkei Temple on the bank on opposite side of Binkei temple in Mahanadi Division are places of pilgrimage.

## **3) BALIPUT.**

On river bank famous for picnic and scenic view of river Mahanadi and for chain of remote high hills on both sides of river Mahanadi. It is 20 kms from Tikarpara. A Forest Rest Shed is available there. A new picnic site has been developed near it. There is provision of hill climbing, trekking, rock climbing

to Baigani Pahad near Kamaladiha which is suitable for youths and is a memorable item for eco tourists. Boating / Cruising by fibre motor boat is really memorable.

#### **4) SISUPATHAR.**

There is a dam at Sisupathar village on Suhagi nala. Picnic spots are near the dam site. Tourists can sight wild elephants during summer.

#### **5) TULKA.**

Bhimdhara water fall and Satidhara perennial stream surround the dense forests. A Forest Rest House is there for the tourists. All types of wild animals like Tiger, Leopard, Elephant, Bison, and Deer are sighted in the nearby forests.

#### **6) LABANGI.**

It is very popular for scenic beauty of the forests and high wooded hills. The FRH is very calm and quite. Dense forests with perennial streams bring it to the tourist map. There is a water reservoir, watch tower 2 km away where all types of wild animals can be sighted. Salt licks have been maintained on the bank of the water reservoir there.

## **7) PAMPASAR.**

Bhurbhura Nala area is a good picnic spot 4 Kms away from Pampasar. Forest Rest House is available near entry point check gate at Pampasar. There is a water fall on the nalla with a single stone from where the fall descends.

## **8) BAGHMUNDA.**

The forest of Baghamunda is enjoyable. All types of wild animals are present there. There is one F.R.H. at Baghamunda.

## **9) KANDHAIDA.**

It is 5 Kms away from Hatibari village on Angul Tikarapara PWD road..There is one watch tower there for viewing of the wildlife.Grass land, salt licks are present surrounding the game tank there. All the wild animals are sighted there during summer and winter.

## **10) KADALIKHOLA.**

It is a water reservoir inside Majhipada RF 12 Kms from Karadapada. Watch tower, grass land and artificial salt licks are present there. All types of wild animals are sighted there.

## **11) PADMATOLA.**

It is a scenic spot with water storage structure, watch tower and salt licks. All types of wild animals can be sighted there.

## **12) SITALPANI.**

This is in the zone of tranquility and is a cooler place. The scenic beauty of the place is really enjoyable. A good water reservoir has been dug recently there. All types of wild animals can be sighted there.

## **13) BADAMUL.**

Badmul is on the opposite site of Baliput in Nayagarh district. It is a picnic spot on the bank of river Mahanadi. A watch tower has been constructed on a hill top recently adjacent to irrigation I.B. from where the view of river Mahanadi can be enjoyed. It is a magnificent place and is really enjoyable.

## **14) KANTARSINGHA.**

A watch tower and salt licks, water reservoir complex 3 kms away from Labangi present a panoramic view ideal for tourists for sighting of all types of wild animals.

## **15) HATIGIRIJA.**

A watch tower, water reservoir and salt licks around 3 kms away from Purunakote in Kuru R.F. presents a picturesque view ideal for animal sighting by ecotourists.

## **4. Communication System :**

The entry point of sanctuary i.e. Pamparasar is about 30 kms from Angul to the South and about 160 Kms. From Cuttack and 190 Kms from Bhubaneswar. Angul is well connected by road ( N.H. 42, N.H. 5 and N.H. 6) from Cuttack, Bhubaneswar, Sambalpur, Pallahara, Deogarh and Rourkela and by train from Angul, Sambalpur, Cuttack and Bhubaneswar. Nearest Air Port is Bhubaneswar. Kusanga is the entry point from Boudh district side via Charichhack. Similarly Chhamundia is another entry point from Nayagarh district side located in Mahanadi Wildlife Division side South of river Mahanadi. Baliput is entry place in Cuttack district via Khuntuni, Athgarh and Narsinghpur.

#### **5. Present status.**

Elephants, Gaur, Giant squirrel, Spotted deer, Barking deer, Sambar and the crocodiles are the common wild animals to which a visitor is usually attracted. There are host of other interesting animal life too in the sanctuary which can be encountered during dawn or dusk in a drive.

#### **Water bodies and salt licks :**

1. Kandhaida
2. Kadalikhola
3. Routbahal
4. Buchunda Bhogra
5. Ranibandha
6. Kantarsinga,

7. Takarsingha,
8. Paintiri,
9. Dihasahi,
10. Hatigirija.
11. Rasanda
12. Khujurinala
13. Nadapathar
14. Padmatola.
15. Chhotkei 2 nos.(W.H.S.& Srota India)
16. Badkheta
17. Raigoda
18. Ramimunda
19. Tulka
20. Chhamundia
21. Sitalpani
22. Dihasahi & Asanbahal
23. Bhurkundi

**Watch Towers :**

1. Kandhaida
2. Kadalikhola
3. Padmatola

4. Kantarsingha
5. Hatigiriya
6. Marada

**Eco-Tourism Tower :**

Tikarpada.

**River :**

Mahanadi river.

**Water fall :**

There is one fall Bhimdhara near Tulka in this sanctuary.

**Forest Rest Houses :**

1. Tikarpara
2. Baghmunda
3. Purunakote
4. Tulka
5. Raigoda
6. Labangi
7. Pampasar
8. Baliput
9. Chhamundia

## 10. Jillinda

### **Migratory Birds :**

1. Bramhiny ducks
2. White-eyed pochards
3. Shovellers.

### **6. Present Position of Tourism :**

Tourists from inside and abroad are visiting the sanctuary mainly from October to February. The average number of visitors to this sanctuary is from 25,000 to 35,000 who visit throughout the year and this sanctuary is getting good revenue more than 1 lakh / year. The average statistic of revenue is as follows:

Year	No. of tourists	Revenue in Rs.
1990-2000	16867	
2000-01	12351	-
2001-02	19294	-
2002-03	16414	69,560
2003-04	34015	79,179
2004-05	37818	91,137
2005-06	42318	1,12,612
2006-07	41320	2,90,362

### **7. Present Attraction in Tourism :**

Present attraction of the sanctuary is Tikarpara for its natural beauty, Demonstration Centre at Tikarpada, Gharials and Muggers, Picnic spots, sighting Wildlife from the watch towers located at Kandhaida, Kadalikhola, Hatigiriya,

Kantarsingha , Tikarpara, Marada and Padmatola. Nature trailing inside deep forests of the sanctuary near Purunakote is really refreshing.

Apart from the local visitors, a lot of Bengali tourists usually visit Tikarpara, Labangi, Tulka and Baghmunda. They prefer to stay in 2 to 3 nights and visit inside the sanctuary for sighting of the wild animals. The watch towers and water reservoirs of Kandhaida, Hatigirija, Kadalikhola, Kantarsingha are the major attractions for them.

Now the F.R.H. at Tikarpara, Labangi and Tulka are fitted with solar lights. Best time for visiting the sanctuary is winter.

Contact vehicles are available at Angul who bring the tourists for visiting the sanctuary.

Recently one NGO named Tikarpara Parivesh Paryatan Samiti (TIPPS) has been organised with youths of Tikarpara village. They have committed for all types of services to the ecotourists. They also arrange cooked food for the tourists. They take them to various scenic places, along the nature trails, conduct adventurous trek, take them for animal sighting, help boat riding. They also arrange displaying of traditional folk dances to the tourists.

The TIPPS members arrange utensils, tents, Fuel wood, Water to the tourists. They clean the premises of the picnic site at Tikarapara. In return they get some livelihood support.

### **3.8. Research, Monitoring and Training :**

#### **Tikarpara Crocodile Project :**

Government of Orissa decided to protect Gharials and Muggars left in Satkosia during March 1974. Dr. H.R. Bustard, an F.A.O. Consultant on crocodiles visited the place during June 1974 and recommended for a Conservation Project. The Project started during March 1975. Dr. H.R.Bustard worked as Chief Technical Advisor in the project till 1980.

The project had a three phase plan : Collection of wildly laid eggs for hatching, incubation and rearing of hatchlings up to 1m. long size and releasing the hatchlings in Satkosia Gorge for rehabilitation.

### **3.8.1. Training :**

Although all field staff are trained in forestry yet one has only specialized training in Wildlife. There is an urgent need for training to all staff on wildlife to carry out monitoring operations like vegetation study, habitat quality assessment, use of tranquillization equipment, capture of problematic wild animals and their treatment, use of fire arms etc.

### **3.9. Wildlife Conservation strategies and their evaluation :**

Poaching record is as follows with different wild animals poached in this sanctuary.

Month	2004-05	2005-06	2006-07
April	-	<b>2</b>	<b>3</b>
May	-	<b>1</b>	<b>2</b>
June	<b>1</b>	<b>2</b>	-
July	-	-	-

August	-	1	-
September	-	1	-
October	-	1	-
November	-	-	2
December	-	-	-
January	-	1	-
February	1	-	-
March	1	-	2

Maximum poaching is reported during summer season i.e. from March to June. Last tiger shooting was noticed on 31.3.2007. Elephant poaching was noticed on 19.6.2003, 04.11.2003, 18.01.2004, 26.3.2005, 21.02.2005, 30.9.2004, 10.3.2005, 28..5.2005, 18.6.2005,04.02.2006, 23.3.2006, 17.4.2006, 24.11.2006 & 26.11.2006.

Though patrolling in forest was going on, steps taken were not so significant.

### **3.10. Administrative Set up :**

River Mahanadi nearly divides the sanctuary into two parts, north of river Mahanadi is managed by D.F.O. Satkosia WL Division and South by D.F.O. Mahanadi W.L. Division. D.F.O. is the head of the Division and one A.C.F. in each division assists the D.F.O. in overall supervision of the sanctuary.

Systematic Management of Wildlife of the division started after the area was notified as a Sanctuary in 1976. The sanctuary was under control of ACF, Chandabali long back with headquarters at Angul. In 1985, a separate Wildlife Division with headquarters at Angul was created for intensive management of the

sanctuary. The DFO was having then overlapping jurisdiction over sanctuary portions of Angul, Athmallik, Athgarh, Boudh and Nayagarh Territorial Divisions. He was looking after the Wildlife Management aspects of the sanctuary. During 1999, Government vide their Notification No. 13060/F&E . 8F(WL) Dt.12.7.1999, assigned territorial jurisdiction of the sanctuary to 2 Wildlife Divisions, Satkosia Wildlife Division with headquarters at Angul with Northern part of the sanctuary including the river Mahanadi and Mahanadi Wildlife Division with headquarters at Nayagarh (earlier at Phulbani), assigned the part of the sanctuary South to river Mahanadi in addition to Baispali Sanctuary.

The details of field set up are given below:

<b>Satkosia Wildlife Division, Angul</b>		
<b>Range</b>	<b>Section</b>	<b>Beat</b>
1. Purunakote	1. Tulka (N)	1. Tulka (A) 2. Tulka (B) 3. Tulka (C)
	2. Tulka (S)	3. Tulka (D) 4. Tulka (E) 5. Tulka (F)
	3. Purunakote	7. Chhotkei (A) 8. Chhotkei (B) 9. Purunakote (A) 10. Purunakote (B)
	4. Baghamunda	11. Baghamunda (A) 12. Baghamunda (B) 13. Baghamunda (C)
2. Pampasar	5. Pampasar	14. Pampasar (A) 15. Pampasar (B)

		16. Jagannathpur (A) 17. Jagannathpur (B)
	6. Labangi	18. Labangi (A) 19. Labangi (B) 20. Labangi (C)
	7. Kumuri	21. Kumuri (A) 22. Kumuri (B)
	8. Tarava	23. Tarava (A) 24. Tarava (B)
3. Jillinda	9. Jodum	25. Baliput 26. Kamaladihi 27. Jillinda 28. Sisoopathar
	10. Katrang	29. Katrang (A) 30. Katrang (B) 31. Katrang (B) 32. Siaribhundi
4. Tikarpada	11. Tikarpada	33. Tikarpada (A) 34. Tikarpada (B)
	12. Majhipada	35. Majhipada (A) 36. Majhipada (B) 37. Naleswar
Raigoda	13. Raigoda (E)	38. Raigoda (A) 39. Raigoda (B) 40. Raigoda (C) 41. Raigoda (D)
	14. Raigoda (W)	42. Raigoda (E) 43. Raigoda (F)
	15. Bhurkundi (W)	44. Bhurkundi (A) 45. Bhurkundi (B)
<b>Mahanadi Wildlife Division, Nayagarh</b>		
<b>Range</b>	<b>Section</b>	<b>Beat</b>

1. Chhamundia	1. Badamul	1. Kuturi 2. Badamul 3. Malisah
	2. Chhamundia	4. Chhamundia 5. Rajingi 6. Muduligadia 7. Khandadhua
	3. Dhipisahi	8. Dhipisahi 9. Gergedi
	4. Purunapani	10. Purunapani 11. Malasapadar
2. Kusanga	5. Kusanga	12. Kusanga 13. Nuapada 14. Kumari
	6. Sitalpani	15. Marada 16. Sukhania 17. Sitalpani 18. Atalasar
	7. siripaju	19. Padamatola 20. Siripaju 21. Nandagadu 22. Hinjala

**The existing pattern of staff by hierarchical levels in both the Wildlife Divisions with sanctioned strength, vacancy position is as follows:.**

Name of the Division	Name of the post	Sanctioned strength	Staff in position	Vacancy position
Satkosia	DFO	1	1	-

Wildlife	ACF	1	1	-
Division,	R. O.	7	4	3
Angul	DY.R.O.	1	1	-
	FORESTER	22	14	8
	F.G.	59	25	34
	G.G.	6	3	3
	Bungalow	4	4	-
	Choukidar	1	1	-
	Pool Attendant	1	1	-
	Pumpman	1	-	1
	Jr. Vet Officer	1	-	1
	V.A.S.	1	1	-
	Head Clerk	1	1	-
	Accountant	4	4	-
	Sr. clerk	7	6	1
	Jr. clerk	1	1	-
	Stenographer	1	1	-
	Amin	2	2	-
	Driver	1	1	-
	F.E.O.	5	5	-
	V.F.W.	1	1	-
	Office Choukidar	1	1	-
	Office peon	1	1	-
	Mali	1	1	-
	Sweeper			
Mahanadi	DFO	1	1	-
Wildlife	ACF	1	-	1
Division	R. O.	2	2	-
	Forester	8	2	6

F.G.	32	15	17
G.G.	4	4	-
Head Clerk	1	-	1
Accountant	1	1	-
Sr. clerk	4	2	2
Jr. clerk	7	7	-
Stenographer	1	-	1
Driver	1	1	-
F.E.O.	1	2	-
V.F.W.	4	5	-
Mali	1	1	-
Sweeper	1	1	-

### 3.11. Forest Road :

Badakera – Tikarpara P.W.D. road passes through the sanctuary from Pampasar entry gate in to sanctuary covering 30 Kms. in sanctuary, which is being maintained by the P.W.D. Department of State Government. This road is used by local people day and night. Vegetable traders are also using the road. Hares, snakes, civets are meeting accidents even in nights. One State Transport and two private buses are plying daily. People have tendency to speed up the vehicles in the roads passing through the sanctuary which seem controlled by erection of several speed breaker hoardings.

River View road from Tikarpara to Baliput, 18 Kms long is a fair weather road used for mobile patrolling and for tourists coming from Cuttack district to

Tikarapara. Ramgaon nalla and Katarang nalla are 2 major interruptions. This road gets disrupted during rainy season due to back water of river Mahanadi. Baliput is another entry point in to the sanctuary.

Raigoda is accessible from Angul side through Nuakheta. A forest road starts from Nuakheta to Raigoda 7 kms long. There are several forest roads inside the sanctuary to facilitate movement of villagers dwelling inside. All the forest roads are earthen roads which regularly wash away every year during rainy season and need repairing every year.

There are 237.25 Kms of forest roads, 40 Kms of PWD roads and 33.5 Kms of Panchayat roads inside the sanctuary. Detail break up is given in **Appendix- 20**.

### **Buildings:**

The list of official and residential buildings of the sanctuary including the F.R.Hs are given in **Appendix- 21**.

### **Wireless Network :**

There is a good VHF net work operating inside the sanctuary. Some stations are operated by solar chargers. Base stations are located at Angul, Pampasar, Labangi, Raigoda, Jillinda, Katarang, Baliput, Tikarpara, Majhipada, Purunakote, Tulka, Baghamunda, Jagannathpur, Marada, Badamul, Chhamunda, Kuturi, Nuagarh(Athgarh Dvn.) and Balikiari (Athgarh division). Mobile sets are

fixed in all the 3 jeeps of Satkosia Wildlife Division and one jeep of Mahanadi Wildlife Division. Besides that there are 10 no. of hand sets used by the Officers, Other field staff & staff in river squad..

**Vehicles :**

<b>Satkosia Wildlife Division</b>		<b>Mahanadi Wildlife Division</b>	
1.	Jeep OR-06-C 2339 – 4W Diesel	1.	Bolero
2.	Jeep OR-06-C 5281 – 4W Diesel	2.	Motor cycle (Rajdoot)
3.	Commander Jeep OR 06C 2132		
4.	Motor cycle OR-06-C 2264 Rajdoot	3.	Fibre Boat (10 seater) - 1 no.
5.	Motor cycle OR-06-C 0116 Rajdoot		
6.	Motor Launch Vikrant (Mechanised)		
7.	Motor Launch Basanti (Old Mechanised)		
8.	Fibre Boat Savanna & Maa Baigani (10 seater each)- 2 nos.		
9.	Fibre boat Maa Binikei( 20 seaters) – 1 no.		

It is not possible to run the vehicles in interior pockets of the sanctuary as there is no forest roads there. It is experienced that timber smugglers of Narsinghpur area enter in to sanctuary via Murajanala and the same is not accessible from Tulka side during rainy season. As the timber smugglers and poachers enter in to the sanctuary in mass with lethal weapons .Sufficient jeeps and motor cycles are to be put to action for group patrolling throughout the nook and corner of the sanctuary.

**Check gates :**

Gates are there at all possible entry points into the sanctuary like Pampasar, Chakamunda, Nuakheta, Baliput, Kumuri, Bhurkundi, Badmul, Chhamundia, Kusanga and Sitalpani.

Some unmanned anti-poaching gates have also been erected at places like Tikarpara, Bhurkundi, Siaribhundi, Purunakote, Majhipada, Hatibari, Labangi.

### **3.12. Summary of threats to Wildlife :**

The possible threats in the present context is summarized below:

1. Illicit felling by armed organised timber smugglers in groups.
2. Poaching of elephants and other wild animals done through the local poachers by mafias of Narsinghpur, Badamba, Banapur and Angul.
3. Illegal fishing activities in river Mahanadi.
4. Habitat degradation due to biotic interference viz. grazing, forest fire, collection of small timber, fuel wood, MFP by the villagers.
5. The threats to wild life is compounded by the poor socio economic condition of people in and around the sanctuary.