

INTRODUCTION

The Wildlife Management Plan is required for a future strategic approach to be adopted in a sanctuary for its conservation and sustenance. In absence of any guideline, it will not be possible for executing different operations on day-to-day basis in a year so as to achieve the objectives. The management plan is formulated to solve the purpose. Chandaka-Dampara forest prior to its sanctuary notification was earlier under Puri division, which was managed under Working Plans during different plan periods giving priority to protection & production. Its management practice was mainly coppice with standard and coppice with reserve systems. Wildlife priority was not given till notification when provision was there to kill animal in the interest of humans. Due to depletion of forests cover and continuous poaching of small herbivores & Carnivores, it was essential for identifying the forest into a sanctuary. The priority on animal was done for its conservation and growth. This sanctuary is thus needed a plan based on which the conservation & development strategy can be designed.

EXECUTIVE SUMMARY

- Chandaka- Dampara Sanctuary near Bhubaneswar represents the northeastern limits of Eastern Ghats. This is now an isolated forest, which once formed a part of vast Eastern Ghats forest and Central Indian Elephant range.
- Chandaka-Dampara forests formed parts of erstwhile Puri Forest Division. Forest blocks of Khurda (old Puri District) have been notified as R.Fs. or D.P.Fs.
- The sanctuary notifications have been issued as under:
 - (1) 8F(W) 16/82. 22569/FFAH, dated 16.08.1982
 - (2) 8F(W) 16/82. 35500/FFAH, dated 21.12.1982
 - (3) 8F (N) 4/88. 13482/FFAH , dated 10.06.1988

The first notification excluded Bharatpur and Jagannathprasad blocks. The second notification added these blocks. The third notification excluded 768.24ha in Sunakhania –I DPF block from the sanctuary so as to make the mining leases renewable.

- The P.A. is located between geographical co-ordinates: 20° -12’-30” and 20°-26’-03” N latitudes and 85⁰-49’-35” and 85⁰- 34’-42” E longitudes.
- The sanctuary area is 193.39 sq. Km. and exists in two parts. The major part contains an area of 172.12 sq. Km. while the other part, Bharatpur- Jagannathprasad sector contain 19.275 sq. Km.
- The sanctuary is administered through 4 Forest Ranges with headquarters at Bhubaneswar, Chandaka, Minchinpatna and Dampara.
- The sanctuary lies partly within Khurda and partly in Cuttack Districts of Orissa state and in close proximity of the state capital, Bhubaneswar. Godibari, the main entrance gate of the sanctuary is respectively about 20 Km. and 16Km. west of Bhubaneswar railway station and air-port.
- Bualigarh and Chudanga garh (Sarangagarh) are sites of two erstwhile forts, remains of which are now included in the sanctuary.
- The sanctuary is surrounded by 57 villages along the boundary. There are 40 villages of Khurda district and 17 villages of Cuttack district which coincides with the

boundary limits of the sanctuary. One village with five hamlets of about 1400 population is still inside the sanctuary.

- The oldest-rock exposed in the area is Athagarh sand stones belonging to Gondwana super group and found in western and northern sectors. The sand stone is medium grained, grey to pink in colour.
- Soil depth is generally good. Sub soil moisture is sufficient to promote good forest cover. Soil humus is practically absent due to ground fire and excessive grazing.
- The land is generally undulating, broken by low hills of moderate slope exceeding 35° with abrupt steep slopes at places. In all, there are 32 small hillocks.
- There are 23 seasonal nalas with thirteen reservoirs in and around the sanctuary. There are 22 man made game tanks created within the sanctuary.
- Flora is moderately diverse with intimate mixture of evergreen and deciduous elements. Thorny bamboo (*Bambusa bambos*) occur pure in valleys and mixed with tree growth on hill slopes.
- Elephant is the keystone or flagship species in the forest ecosystem. Hanuman Langur, the macaque, three deer (spotted deer, barking deer, and mouse deer), wild pig, porcupine and hare form other herbivores. Among carnivores, Panther, sloth bear, hyena, wolf, fox, jackal, mongoose (common, small, ruddy). Civets (small, palm), tree shrew and Pangolins are important.
- The land area of the sanctuary is constituted with seven Reserved Forests over 9,140.81 ha, eleven Demarcated P.F. over 9,219.19 ha, Private land acquired over 53.87 ha, Bhalunka corridor over 19.00 ha, Garjit village over 195.52 ha and other land area connecting Ratanpur and Koduamunda DPFs, Bholia & Daspur R. F.s, Jagannathprasad & Dalua D.P.Fs. over 710.61 ha with a total of 19,339.000 ha or 193.39 sq.Km.
- There are two accommodation watch towers, Four observation watch towers, three rest houses, one bamboo hut/Log hut.
- As per cadre strength, there are 6 Forest Rangers, 18 Foresters and 44 Forest Guards in four Ranges, eleven sections and thirty three beats respectively.

- The total road length is 110.15 Km. out of which 73.50Km. is in Khurda and 36.65 Km. in Cuttack District.
- There are four wheelers, five two wheelers for mobility.
- There are two telephones, ten VHF fixed stations, three vehicle mounted and forty two handheld sets in the division for communication network.

PAST MANAGEMENT PRACTICES

- Strategic location of two large forts, Bualigarh and Chudanga garh during 12th century indicate that the area was then densely forested and preserved as such as a buffer to the forts from invasion by enemies and also as a game reserve.
- During British rule up to 1870, clearance of forests for agriculture was encouraged. Permits for firewood and timber were liberally given to traders of Cuttack, Puri and Ganjam Districts.
- In 1871, restrictions were imposed on forest clearance but toila cultivation was permitted. In 1880, forests were declared protected and toila restricted.
- In 1885, Chandaka, Chudanga, Barapita & Tarkei forests were declared reserved. Demarcation of P.F. blocks was started only in 1916-17, when forest outside R.Fs. started dwindling.
- In 1896, Reserved forest of Chandaka was brought under a working plan, which made light improvement fellings, climber cutting and enrichment planting of Teak.
- From 1905, forests were worked under simple coppice or coppice with standard system on a 30 years rotation. Dampara estate forests were worked on a 40 years rotation under the same system. Later, in Chandaka area, forests were worked under 20 years rotation of simple coppice and 40 years rotation of coppice with standard system in better productive areas.
- Regular Teak plantations were initiated in 1930 in R.Fs. and 1961 onwards in D.P.Fs. Bamboo and cane were worked respectively on a 12 years and 5 year cutting cycle. Toila cultivation was allowed for 2 years in coupes.

- However, promotion of important timber species at the cost of secondary non-marketable species slowly changed the structure and composition of forests (biodiversity) and indirectly the variability in food basket of wild animals.
- Until sixties, the area had good population of Chital. Herds of 20-30 were common sight. Sambar was also present in small numbers. However, Gaur was extinct since forties due to cattle borne epidemic Elephant herds, however, roamed during sixties and seventies in Patia, Ghatikia and Bharatpur areas. The last tigress of the area embraced captivity in 1967 in Nandankanan zoo.

OBJECTIVES

- To protect and progressively develop the forest ecosystem and nurture the biodiversity.
- To mitigate habitat deficiencies of various species of wild animals.
- To restrict the depredating elephants within the Barhapita- Chandaka sector of the sanctuary and contiguous forest/waste lands with a view to minimise depredation and avert man-elephant conflict.
- To facilitate rehabilitation of the families residing in the sanctuary area to outside.
- To harness the potential of the sanctuary for providing eco-tourism services.
- To sustainably develop the socio-buffer in terms of fuel wood, timber and fodder to progressively minimise consumptive use of the sanctuary forest.

PROPOSED MANAGEMENT INTERVENTION

- The entire sanctuary except Bharatpur-Jagannathprasad blocks, Ratanpur D.P.F., Daspur R.F., Churanga RF and forest around Jhumka and Deras reservoirs are included in the core zone. The area of this zone is 15521.63 ha. or 155.22 sq. Km.
- The buffer zone will cover a belt of 5Km. all-round the sanctuary as socio buffer with sanctuary buffer in Bharatpur R.F., Jagannathprasad D.P.F., Daspur R.F., Churanga R.F. Ratanpur D.P.F., and tourism zone around Derras and Jhumka.

- The zone of influence however, spreads beyond the sanctuary to the adjoining villages along with their agricultural fields. It is considered because of elephant behaviour on depredation and is thus spread over 10 km periphery excluding the thickly populated Capital City, Cuttack, Jatni and Athgarh City. The Khurda City is in the influence zone as there is depredation feature is common when the herd move to Barunei hills.
- Regulation of forestry practices are recommended as per density per ha with a standard of 1100 stems or more. The vacant area is proposed with plantation and the bamboo is proposed for opening by removal of mature culms. Dead bamboos will be removed from clumps and clumps thinned to promote formation of new culms to boost browse growth.
- Farm forestry and agro-forestry is proposed on backyard, farm bunds and high lands of private and tenant areas.
- Eco tourism zone is managed in Bharatpur RF, Jagannathprasad DPF and areas around Derras over an area of 2591.56 ha.
- The administrative zone is proposed in the triangular area to the south of Barmunda-Kalinga studio link road, which houses the Divisional office and Asian Elephant Research centre.
- Habitat protection is considered with 10 Anti-poaching squads. Each squad will consist of 5 youth of the locality engaged on a monthly-consolidated wage. Either a Forester or Forest Guard and occasionally the Range Officer of the area will accompany the squad.
- There will be five fire fighting squads consisting of 5 locally engaged youth. Each squad will have a vehicle, shovels, atomizer, fireproof suite etc. They will function under the overall control of the Divisional Forest Officer for 4 months (15th February to 15th June).
- The forest roads over 110.15Km will be maintained regularly. Roads in Bharatpur RF will be strengthened to cover all area.
- Collection of intelligence is vital for detection/prevention of any offence which will be encouraged through incentives.

- Conservation of soil and water for watershed Improvement is proposed in the watershed of Mahanadi, Kuakhai and Daya rivers.
- Improvement of existing water sources will be made by desilting, expansion and check dams. A few game tanks like Saurabila, Golagad, Mundasahi and Bhimakhal may be converted to a water harvesting structure by enlarging the dykes of the dam.
- Area surrounding the large water bodies will be developed in to pasture. Grazing will be regulated.
- Chromolaena weed need to be controlled.
- The rehabilitation of the five hamlets is to be completed on participatory mode.
- Man Animal conflict is to be reduced by erecting barriers, development of corridors and people's participation. Criop insurance to the most affected area is proposed.
- Information, Education and Communication is proposed for better awareness and capacity building.
- Vocational Training is proposed to reduce the dependency and pressure of the local population on the PA. Training on subject socially acceptable and traditionally used will be aimed at like raising of Nursery and planting of required species like bamboos , Casia, Acacia,etc in their back-yards/marginal lands, Hybrid cattle rearing and Poultry/Ducking etc.
- The immunization of cattle population inside sanctuary against these diseases will be taken up.
- The peripheral villagers are to be encouraged to raise their fuel wood plantation in the marginal land / village wasteland to reduce pressure on the sanctuary.
- Health camps are to be conducted in the village where both diagnosis, & curative measures will be taken.
- Quantitative and qualitative monitoring and evaluation of the measures under taken are required not only to measure the results of these initiatives but also to guide the project management authority to assess and evolve further modification.
- Habitat evaluation and analysis will be done to know the deficiency in the sanctuary in terms of cover, food, water, interspersion (intermixing of various forest types and successional stages) and juxtaposition (availability of the first three habitat requirements within the cruising radius/ home range of the species).

- Exposure visit of the staff / villagers will be taken up to get first hand knowledge on sanctuary management practices.
- Staff amenities are to be strengthened with better housing and water supply. The perquisites and rewards are to be encouraged.

Acknowledgement

Elephant of Chandaka forests are a much-maligned lot. They are harassed in their refuse and chased in crop fields. The State Government in 1982 took a landmark decision to declare the degraded forests of Chandaka as a Wildlife Sanctuary to provide a safe haven for elephants and the relief to farmers from crop raiding.

This management plan seeks to make the sanctuary inviolate by consolidating its boundary integrity, beefing up the protection mechanism and resettlement of the families from the central zone of the sanctuary to the outside. The elephant proof barriers will be completed. The biomass needs of the people will be addressed by taking up intensive agro and farm forestry and creation of woodlots in all peripheral villages. Community based ecotourism has remained in focus as an alternative livelihood opportunity for local people through an eco-tourism society to be constituted. Initially the government will create eco-tourism infrastructure to be let out to the society for its maintenance and management on sharing basis. Side by side, SHGs will be prompted in peripheral villages and incentives provided to make the village woman confident and self-reliant. The plan has stout research content. Monitoring of vegetation and animals will be taken up on scientific lines. The research base will be created and several studies of managerial importance will be taken up. Habitat development will only be taken up after proper habitat evaluation studies. I record my deep sense of gratitude to Sri P.N.Padhi, I.F.S. P.C.C.F. Wildlife & C.W.L.W. Orissa, Sri S.B.Samanta, I.F.S. R.C.C.F. Bhubaneswar for their constant encouragement and guidance in drafting the plan initiated by Sri S.K.Mishra. Useful discussion with Sri Kishore Choudhury, Consultant and Dr.R.Sukumar A.E.R.C, IIS Bangalore for providing authentic technical inputs for which I am indebted to them. I greatly acknowledge phytosociological analysis of sanctuary made by Sri Krishna Choudhury of Dept. of Botany, University of Calcutta. Last but not the least, my special thanks to Dr.C.S.Kar Sr.Research officer for his thorough scrutiny of the plan to make it into this shape. Lastly, my thanks are due to my colleagues and friends for their support and encouragement to complete it.

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(A.K.Pattanaik)

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