



WILDLIFE MANAGEMENT PLAN

BONDLA WILDLIFE SANCTUARY



FIRST PLAN: 2021-2031

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EXECUTIVE SUMMARY

WILDLIFE MANAGEMENT PLAN: BONDLA WILDLIFE SANCTUARY

Wildlife management Plan is a guidance and reference document of a protected area. It includes background note, history of management and present practices. It also explains how, when and where to implement various wildlife habitat management practices, by using given resources and involving local community to achieve the objectives of protection, in-situ conservation of wildlife and its habitat. Thus, it serves as an important reference guide to achieve the goals of a Wild life sanctuary.

Bondla Wildlife sanctuary is one of seven ‘protected areas’ in the state of Goa. It is situated in North-eastern region of Goa covering an area of 7.98 square kilometres and located within the Latitudinal extent of 15° 26’ 54.78” N to 15 ° 24’ 42.50” N and Longitudinal extent of 74 ° 7’ 16.36” E to 74 ° 5’ 26.60”E.

The Management plan consists of two parts:

Part 1 - Holds chapters which give the existing situation of management practices of Bondla WLS.

Part 2 - Includes the proposed plan which focuses on the strategies and various theme plans suggested to achieve the objectives.

PART – 1: EXISTING SITUATION (04 CHAPTERS):

Part 1 includes 04 chapters and data given in these 04 chapters is essential to understand the existing situation and practices so that proper planning is done to execute works for future management and planning strategies.

- **Chapter 1: Introduction**

Gives description to the area, the notifications governing Bondla WLS and discusses the existing scenario of access, approach and statement of significance. This chapter gives an overview of multiple values of the WLS such as biodiversity values, socio-economic values, aesthetic values and

scientific values. It concludes with a glimpse of important flagship species of flora and fauna of Bondla WLS.

- **Chapter 2- Background and Attributes**

This chapter enlightens about the legal boundaries and the internal beats made to execute the implantation of management works of the sanctuary. The chapter describes the geology of Bondla with reference to the types of rocks, its terrain, and physiographic information depicted in the form of a map, the contour maps giving a topographic synoptic view of the sanctuary showing gradient of slope. It also gives a picture of the climate of Bondla with respect to rainfall pattern, temperature, wind speed, humidity etc. The chapter discusses the various existing sources of water, both natural and artificial. A drainage map of the place indicating the first, second and third order streams is given which will serve as a reference point for choosing of sites for water holes, construction and managing check dams etc. The background chapter also gives an elaborate account of plants, trees, herbs/shrubs as well as list and photographs of the faunal species of Bondla WLS. Bondla WLS is characterized by high endemism and harbours large number of endemic and scheduled faunal species. The IUCN status of the species is also indicated.

- **Chapter 3: History of Management and Present Practices**

This chapter tells us about the present management techniques adopted and practices followed to achieve the objectives. It discusses various aspects such as enrichment plantation procedures adopted, bamboo workings, programmes and activities, forest projection issues faced and issues pertaining to health of wildlife. It also gives an overview of the tourism facilities and research and monitoring protocols currently adopted. It also discusses the existing habitat management practices along with the constraints or issues faced. Based on the observations of these issues/challenges, strategies to overcome these challenges are given in the proposed plan of Part 2.

- **Chapter 4: The Protected Area and the Interface Land-use Situation.**

This chapter focuses on the existing situation of threats in the zone of influence with emphasis on settlement zones and buffer zone analysis. It briefly gives an insight into development programmes and conservation issues. There are no reported incidences of human-animal conflict in Bondla WLS or illegal settlements, encroachment or destruction by livestock of major threats.

PART – 2: PROPOSED MANAGEMENT PLAN (08 chapters)

Based on the analysis of the existing situation, the following chapters describe the proposed plan.

- **Chapter 5: Plan, Objectives and Problems.**

This chapter lays out the major objectives and tabular representation of issues faced in achieving each objective and a summarised statement of action required. This chapter lays the foundation to chalk out the planning strategies and describe theme plans for the next chapter.

The major objectives given in this chapter are as follows:

1. Conservation of Flora and fauna with special emphasis on threatened and endemic species and medicinal plants.
2. Habitat management for promoting and enhancing wildlife through research and monitoring and community engagement.
3. Watershed and habitat management to prevent soil and moisture conservation.
4. Improvement of infrastructure and communication.
5. Create awareness for promoting wildlife conservation and protection and confidence building measure in the fringe areas.
6. Community participation and engagement in eco development and ecotourism and wildlife management activities.
7. Capacity building for efficient management of the wildlife sanctuary.

- **Chapter 6: The Strategies**

An overview of the strategies for carrying out all the objectives of Bondla Wildlife management is represented in a tabular form. This chapter elaborates various strategies and gives detailed theme plans. This is a very important chapter which describes the following strategies:

- 1) Zonation - zones proposed for execution of management plan are Core zone, buffer zone and ecotourism zone. Zone wise strategies are proposed to bring about the objectives related to protection, conservation and propagation of wildlife. The section also emphasises on the Eco-sensitive Zone for checking that the fringe activities are carried out as per the ESZ notification.
- 2) Theme Plans: described in this chapter include the following:
 - i. Theme plan for Wildlife monitoring, data management- Gives formats to be used for monitoring, plans for population census etc.
 - ii. Theme plan for maintaining viable populations of endangered and threatened species and ensuring Species richness and evenness – gives strategy to ensure adequate food availability to fauna and construction of corridors.
 - iii. Theme Plan for Habitat management – gives strategies for ensuring species richness and evenness, preventing soil erosion, managing forest cover, strategy for weed management etc.
 - iv. Theme plan for Watershed Management – Gives detailed strategies for construction of check dams and a detailed Zonation of watershed for effective management. It also gives a map indicating proposed sites for construction of check dams, based on the physiographic status and contours and drainage system.
 - v. Theme Plan for Improved infrastructure and communication- Briefly describes strategies for strengthening the infrastructural facilities such as IT infrastructure, Veterinary hospital Upgradation, staff amenities, improving communication and repair and maintenance.

- **Chapter 7: Ecotourism**

This chapter deliberates on strategies to facilitate safe and sustainable eco-tourism, create awareness for promoting environmental conservation

and protection and promoting community involvement in ecotourism works. It gives a tabular representation of the objectives related to ecotourism and issues / challenges faced. It also holds a table of objectives and strategies proposed to overcome the challenges/constraints.

Detailed Theme plans discussed in this chapter are as follows:

- i. Theme Plan for restoration/renovation of Nature Trails: Which describes action plan for improvising all the nature trails to make visitors experience more fulfilling.
- ii. Theme Plan for Renovation of Nature Information centre: This discusses how the strategy to be adopted to make this centre it more purposeful and resourceful. A very detailed strategy is described giving details of the type of sections that need to be created.
- iii. Theme Plan for Preventing Habitat Destruction and strengthening ecotourism infrastructure- this describes strategies to facilitate safe and sustainable eco-tourism and minimize negative impacts on the wildlife and environment.
- iv. Theme Plan for Ecotourism packages and Marketing of tourism ventures and training staff – Gives an account of tourism packages which need to be created and modalities that need to be laid out for making it more economically viable and sustainable. It also describes marketing strategy and trainings to be offered to local community to encourage them to be more participative in the ecotourism ventures of Bondla WLS.
- v. Theme Plan for Awareness and sensitization- gives ways and means by which awareness can be brought about to to promote wildlife conservation and sensitization of general public

• **Chapter 8: Ecodevelopment**

This chapter discusses the Eco-development activities to be undertaken and focuses on developing activities to ensure support from the local communities in achieving the management objectives of the sanctuary. It also gives the strategies with focus on creating a congenial relationship between the sanctuary management and the local communities and involves awareness for promoting wildlife conservation and protection and confidence building measure in the fringe areas. Theme plans for Community

participation and engagement in eco development and ecotourism and wildlife management activities given are:

- i) Theme Plan for Village level micro level planning (MLP)
- ii) Theme Plan for community Involvement and engagement
- iii) Theme plan for promoting Publicity and awareness

- **Chapter 9: Training and Research**

This chapter describes the broad areas of research that needs to be carried out in order to address the issues and constraints in achieving the objective of the WLS. The focus of research suggested to be undertaken are in tune with achieving the major objective of enabling assessment of the physical and biological resources, planning for conservation of these resources and monitoring the health of the habitat. The outcome of the proposed research shall positively contribute to effective management planning. This chapter also discusses strategies for Monitoring and review of management and conservation works and the broad areas for capacity building workshops and trainings to be held for the front line forest workers and officials.

- **Chapter 10- Organisation and Administration**

This chapter gives an overview of the structure of the administrative setup and the job responsibilities, and suggestions pertaining to staffing pattern and infrastructural up-gradation, essential for effective management and productive outcome.

- **Chapter 11: Budget**

This chapter summarises the works that need to be undertaken in a decadal timeline and the rough estimate of the work execution cost.

- **Chapter 12: the Schedule of Operations and Miscellaneous regulations**

This chapter gives the control forms which give an insight into types of works that need to be carried out.

PART – I

BONDLA WILDLIFE SANCTUARY:

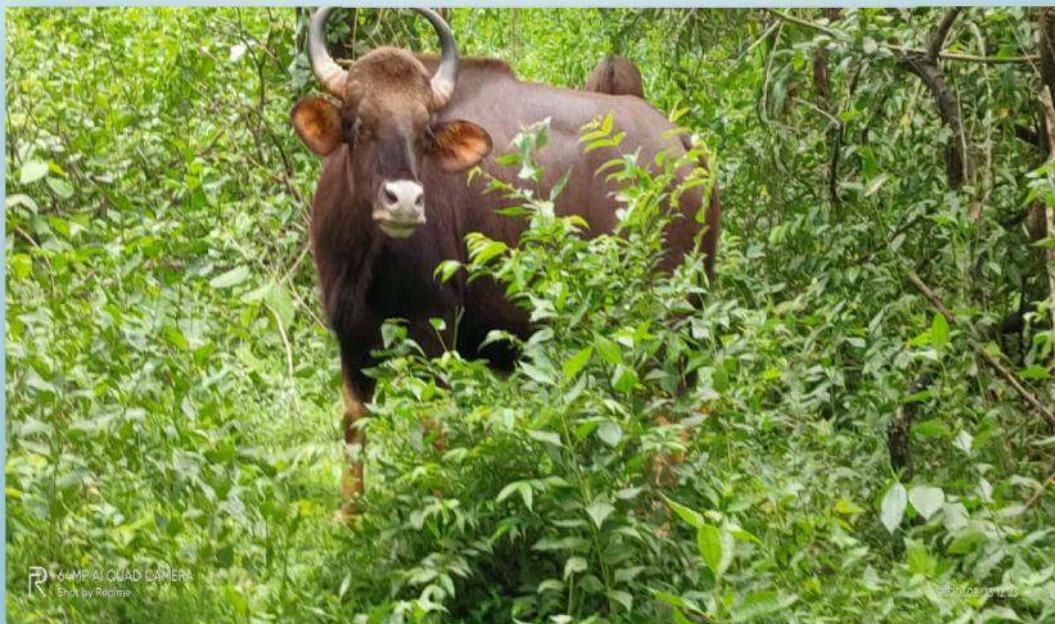
EXISTING SITUATION



CHAPTER - 1

INTRODUCTION TO

BONDLA WILDLIFE SANCTUARY



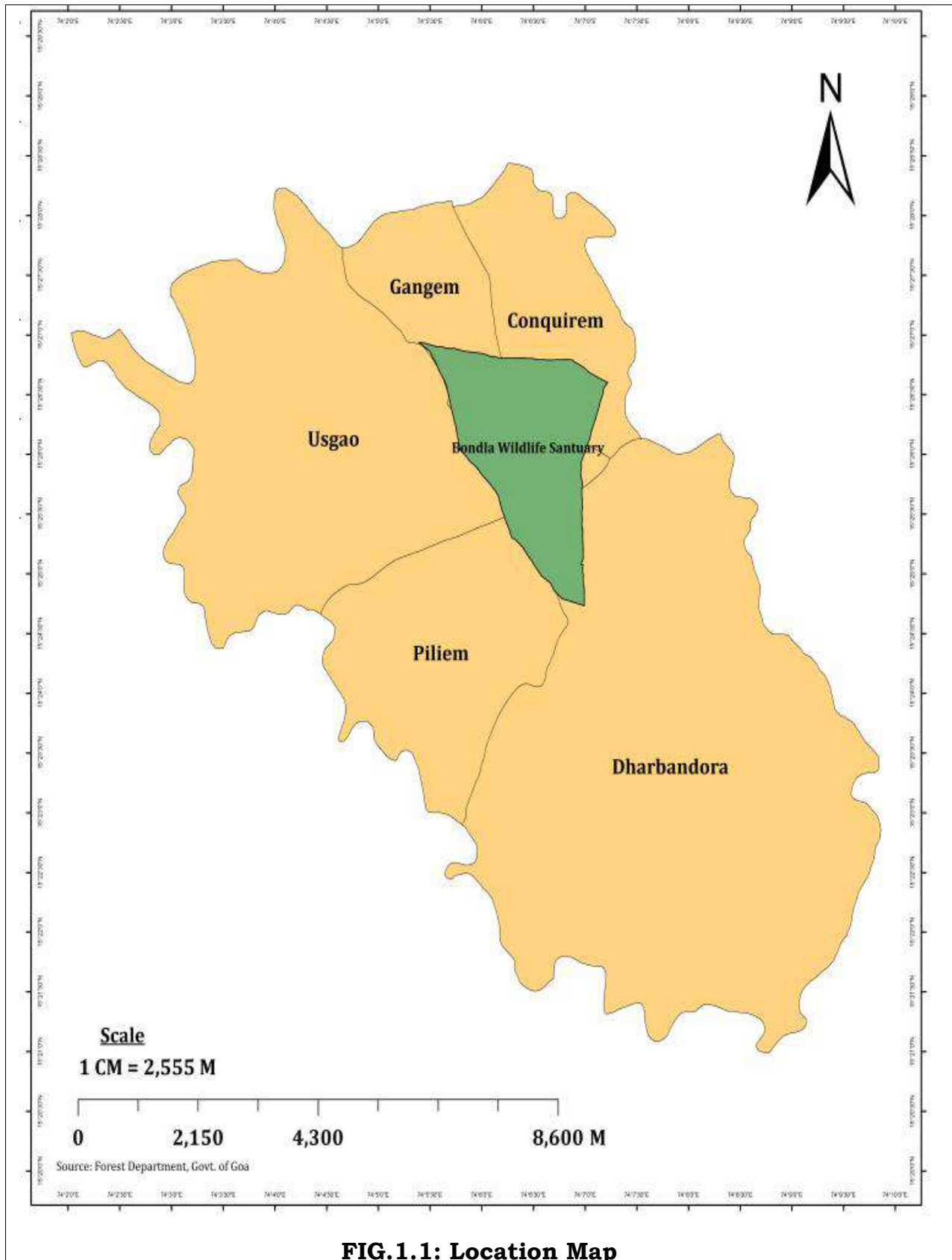
CHAPTER 1: INTRODUCTION TO THE BONDLA WILDLIFE SANCTUARY

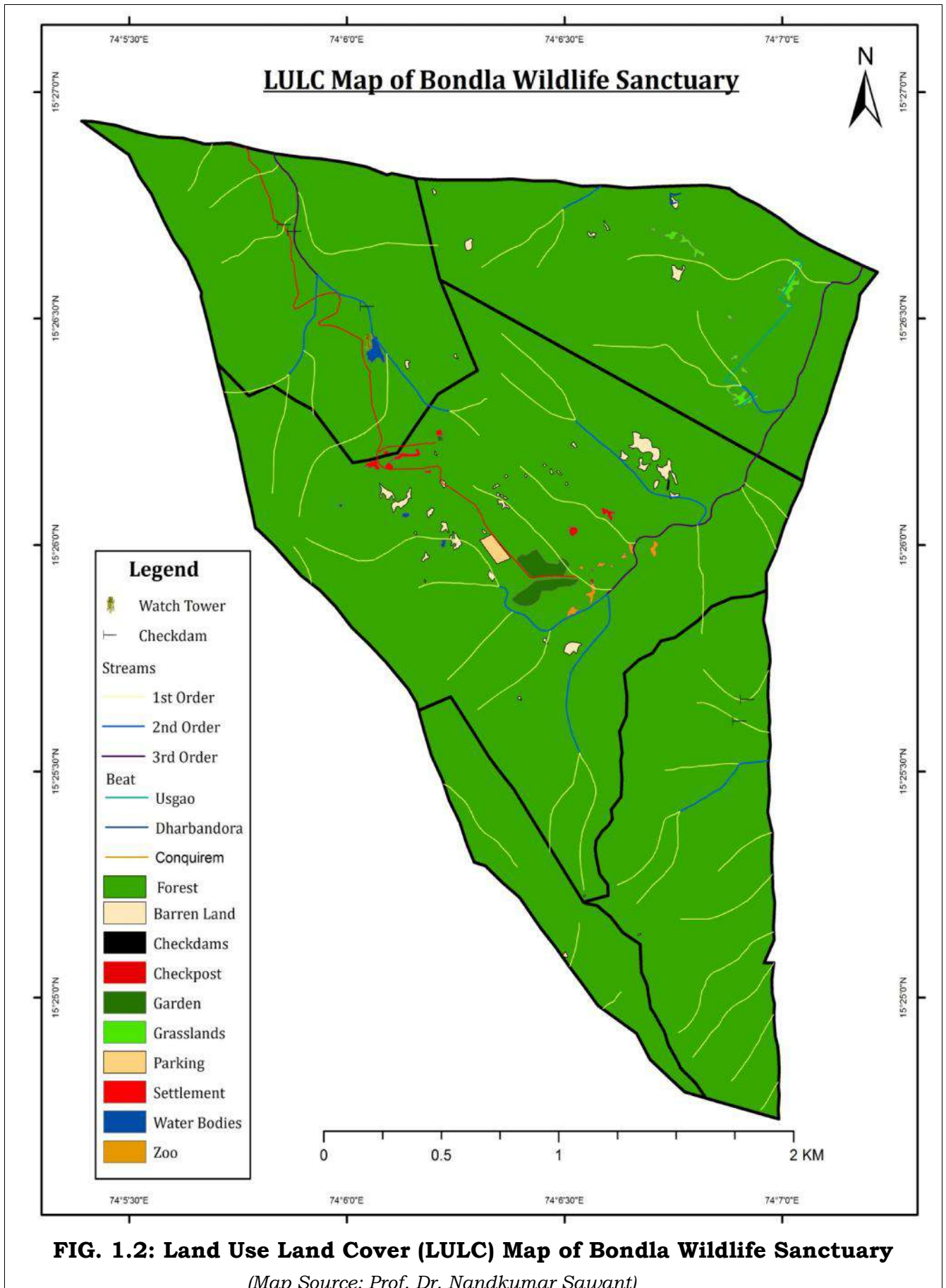
1.1 Name, Location, Constitution and Extent, Notification

1.1.1 Name, Location

Bondla Wildlife Sanctuary is a picturesque area exhibiting a beautiful, lush green landscape. The Sanctuary is situated in North-eastern region of Goa covering an area of 7.98 square kilometres. It is nestled in a valley and forms a part of the contiguous Western Ghats landscape. The protected area was designated as a “Game Sanctuary” in April 1969 under sections 18 and 19 of the Goa, Daman and Diu Wild Animals and Wild Birds protection Act, 1965. The Forest Department, Government of Goa further designated the sanctuary as an animal rescue center. It was further accorded the status of “Small Zoo” by the Central Zoo Authority in the year 2006. Another step taken by the authorities of the sanctuary was to establish an in-house rescue center to treat wounded and rescued animals. Animals such as Indian Leopards (*Panthera pardus fusca*) and Marsh Crocodiles (*Crocodylus palustris*) have been rescued from human habitation and rehabilitated in the area.

Bondla Wildlife Sanctuary in Goa is located at the junction of three Talukas viz. Ponda, Darbandora (earlier a part of Sanguem) and Sattari. The area lies within the Latitudinal extent 15° 26’ 54.78” N to 15 ° 24’ 42.50” N and Longitudinal extent of 74 ° 7’ 16.36” E to 74 ° 5’ 26.60”E. It is more akin to a natural park in that it is essentially maintained as zoological park and botanical garden. A forest corridor of North Goa Forest division connects Bondla Wildlife Sanctuary with the larger, contiguous forest landscape of Bhagwan Mahavir Wildlife Sanctuary and Mollem National park.





1.1.2 Constitution and Extent

Bondla Wildlife sanctuary is one of seven Protected Areas in the state of Goa. Other protected areas, in Goa include Mhadei Wildlife Sanctuary, Bhagwan Mahavir Wildlife Sanctuary, Bhagwan Mahavir Wildlife National Park, Cotigao Wildlife Sanctuary, Dr. Salim Ali Bird Sanctuary and Netravali Wildlife Sanctuary. Bondla Wildlife Sanctuary is situated in North-eastern region of Goa covering an area of 7.98 sq. Kms. This area falls in Usgao-Ganjam Village Panchayat of Ponda Taluka.

1.1.3 Notification

Bondla Wildlife Sanctuary was declared as a “Game Sanctuary” vide notification DF-894-FOR-67 dated 3rd April 1969 (*Annexure-1*), issued under sections 18 and 19 of the Goa, Daman and Diu Wild Animals and Wild Birds protection Act, 1965. In 2003, the boundaries of “Bondla Wildlife Sanctuary” were notified by the Government of Goa vide notification of Government Gazette series III No. 29 dated 16th October 2003(*Annexure-2*) issued under section 26/A, sub-section 1, clause (a) of the Wildlife Protection Act, 1972. Vide notification S.O. 615 (E) dated 25/1/2015 an area with an extent of one kilometer of land or the water body, whichever is near to the Bondla Wildlife Sanctuary was declared, as the Eco-sensitive Zone (*Annexure 3 and 4*). Activities permitted in Eco-sensitive Zone are prescribed in the notification of Ministry of Environment and forest number S.O 615 dated 25/01/2015. (*Annexure 5 and 6*). Protection of Ridge habitat linking Bondla to Madei and Bhagwan Mahaveer WLS and national park is notified under clause (g) of section 38-O of Wildlife Protection Act, 1972(53 of 72). The major functions of the forest department and Goa state Forest Policy-2009, notified by the Government of Goa vide notification of Government Gazette series I No. 1 of 07/04/2011(*Annexure 7*).

1.2. Approach and access

Bondla Wildlife Sanctuary is an ideal destination for a day trip. The road that leads to Bondla wildlife sanctuary is pristine with lush green vegetation. There is an all-season metal road that connects Bondla to nearest human

inhabitation. These road offshoots at Ganjem to connect the wildlife sanctuary (Ganjem- Bondla approximately at a distance of 4km).

1.2.1 By Road

Bondla wildlife sanctuary is about 50 km from Panaji, the capital city of Goa and 38 km from Margao, the district headquarter of South Goa district. It is located 20 km to the east of Ponda, the Taluka headquarter of Ponda Taluka.

- Route: Margao – Ponda – Usgao – Ganjem-Bondla (38km)
- Route: Panaji – Ponda – Usgao – Ganjem – Bondla (50km)
- Route: Mollem – Satpal – Sancorda – Shivdem – Bondla (20km)

1.2.2 By Air

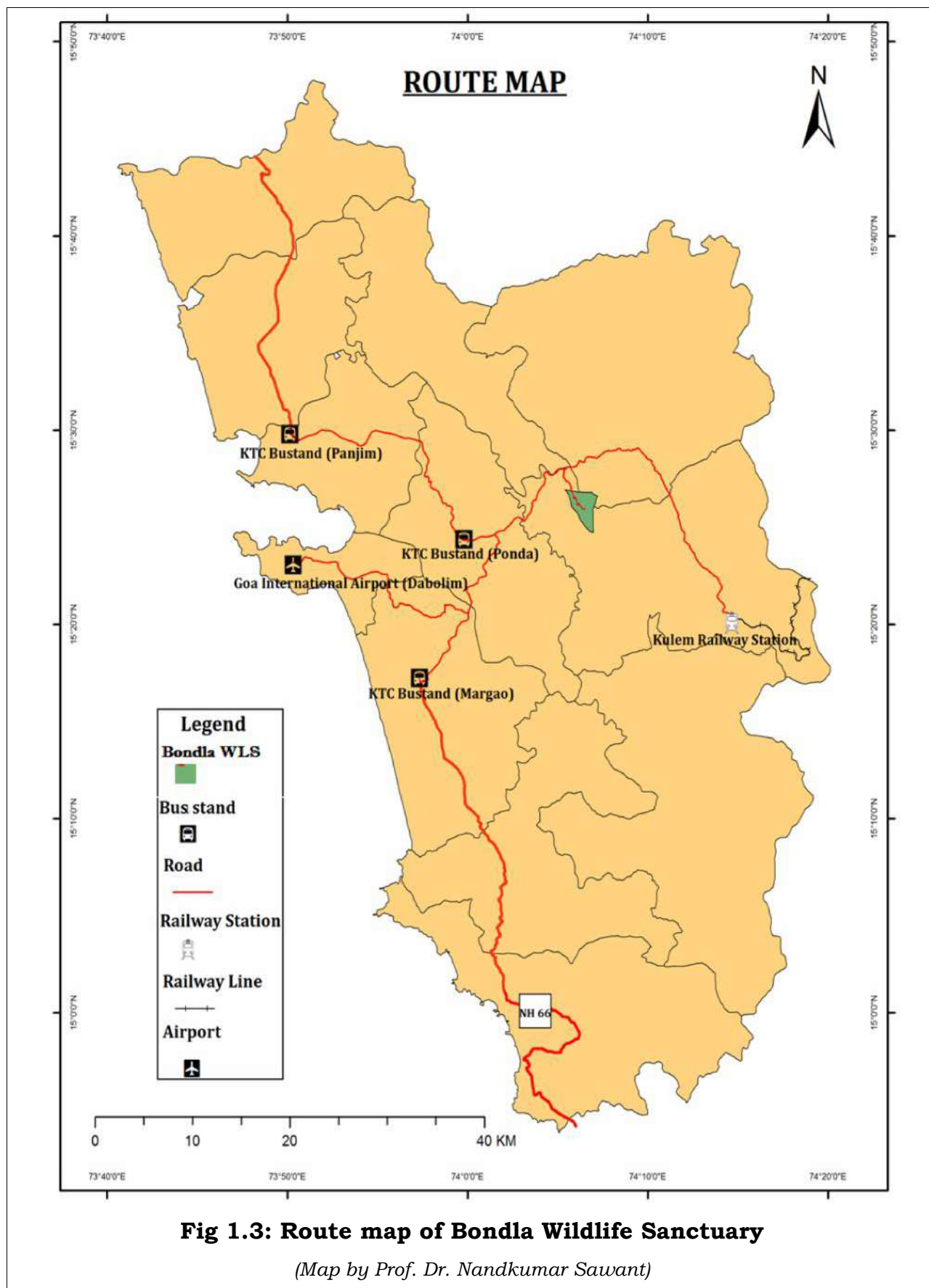
The nearest airport to the sanctuary is Goa International Airport situated at Dabolim, Goa. Flights to and from this airport link the state of Goa with various national and international destinations.

- Route: Goa International Airport.
 - o Road transport from Airport---Ponda---Usgao---Ganjem---Bondla (49km).
- Train – Airport to Madgaon by Bus – Madgaon..Collem (Kullem) ---Mollem---Sancorda----Shivdem---Bondla (28km).

1.2.3 By Rail

The nearest Railway station is Kullem. It links Marmugao, Goa to Londa, Karnataka as a part of South Western Railway Division.

- Route: Collem (Kullem) ---Mollem---Sancorda----Shivdem---Bondla (28km).



1.3 Statement of significance

Bondla Wildlife Sanctuary is located along the windward side of the Western Ghats mountain range. The sanctuary and its surrounding landscape harbor a rich diversity of flora and fauna. In terms of dominant plant species, this region is predominantly occupied by moist deciduous forests with small patches of semi-evergreen forests and cane along the forest streams. The dominant tree species are *Terminalia crenulata* (referred to as the state tree of Goa) and Rosewood (*Dalbergia sissoo*). Furthermore, the Bondla Zoological Park harbors several birds, reptiles and mammals. In addition, the botanical garden, Nature Information Centre (NEC) and the various nature trails dispersed within the sanctuary prove to be a vital hub for tourism, education, outreach, and research. Bondla Wildlife sanctuary is one of the richest biodiversity site with endemic faunal species and also is a home to many IUCN listed birds and animals. The significance of Bondla WLS can be inferred from the values obtained it as discussed below:

1.3.1 Values of the protected Area

Conservation of biodiversity of species, genetic diversity within species and of habitats and ecosystems, underpins ecosystem function (*Cardinale et al. 2012*). Effectively managed protected areas are vital tools for safeguarding biodiversity, maintaining balance of ecosystem, preservation of the habitats, building resilience to climate change, maintaining the quality of water, conserving natural and genetic resources. Bondla WLS is characterized by high endemism. It has biodiversity values, socio economic & cultural values, catchment values, human ecological values, aesthetic values, and scientific values. Pointers on these are discussed below:

1.3.1.1 Bio-diversity values

- The area is covered with moist deciduous forests with intermittent patches of bamboo undergrowth.
- Many endemic faunae are seen in Bondla, which includes endemic amphibians, mammals, and birds. Common mammals include Gaur, Sambar, Wild Boar and spotted deer.

- Many endemic species of birds are reported in Bondla Wildlife Sanctuary. The sanctuary has a rich avian diversity which includes Velvet fronted Nuthatch, Malabar Trogons, Greater Golden back Woodpecker, Bar-Winged Flycatcher-Shrike, Indian Cormorants, Jerdon's Leafbird, Golden-fronted Leafbird, Grey-fronted green pigeon, Ruby throated yellow bulbul, Indian scimitar babbler, Oriental dwarf kingfisher, Rusty-tailed Flycatchers, Wood Sandpiper, Jungle Bush Quail, Short-toed Snake-Eagle, Common Buzzard, Savanna Nightjar etc.
- The sanctuary boasts a rich diversity of butterflies. These organisms can be found within varied habitat types, viz. woodland, orchards and formal gardens.

		
Gray-fronted Green-Pigeon	Golden-fronted Leafbird	Velvet fronted Nuthatch
		
Common Garden Lizard	Bar-Winged Flycatcher-Shrike	Crocodile
		
Frog	Bronzeback tree snake	Indian Bison

Fig. 1.4: Biodiversity of Bondla Wildlife Sanctuary

Photography – Dr. Nandini Vaz Fernandes

1.3.1.2 Socio Economic & Cultural values

- Bondla Wildlife Sanctuary is very rich in biodiversity, being part of the Hotspots of Western Ghats. It harbors endemic species and rich floral and faunal diversity. Bondla Wildlife Sanctuary also harbors the only Zoological Park in the state of Goa, which is a major attraction for ecotourism related activities. The zoological park encourages zoo visits, birding and wildlife photography. It also carries out general sensitization programmes on wildlife importance and conservation for students and community.
- Siddha Temple that lies within the complex of the zoo and is the most historic religious monument which has its religious beliefs associated. The Temple is dedicated to Lord Shiva, and during the annual fair, thousands of devotees visit the temple. The visitors are not only from the neighboring villages but across the state of Goa and beyond. The temple complex has a well with a water point at the low base.
- Ganesh Temple: It is believed that the workers/ forest officials discovered this Ganesh idol in the sanctuary. This idol is now installed in the servant/ laborer's quarters. The other two religious sites are Gajalaxmi and Vetat Batal.

1.3.1.3 Catchment values

- Engagement of local populous for maintenance of wildlife sanctuary.
- The hilly terrain of the sanctuary provides water divide and water distribution through innumerable stream that flow in different directions, especially during the monsoon season.

1.3.1.4 Human ecological values

- Protected areas provide income through contractual jobs to local communities residing within the vicinity of Bondla Wildlife sanctuary.
- The rich flora and dense forest cover enrich the quality of air and form critical carbon stores and thus maintain healthy ecosystems, by sequestering additional carbon.
- The villages surrounding the Bondla WLS have greatly contributed to the conservation of biodiversity.

1.3.1.5 Aesthetic values

- Perceptions of beauty are culturally formed. Protected areas have a rich faunal and floral biodiversity which serves as an avenue of recreation of the mind.
- Presence of water bodies and flowing picturesque streams are also of aesthetic value.
- Presence of botanical and formal garden where number of rare tree and plants species that make these gardens a paradise. The beautiful and colorful flowers make the gardens a delight to the eye.



**Fig. 1.5: Aesthetic Value
(Ecotourism complex)**

1.3.1.6 Scientific values

- Protected areas provide an ideal location for ecological research as they are often in pristine condition. Bondla has a high potential for wildlife, plant research and education.
- Management of the wildlife sanctuary is also required to focus on proper scientific planning as regards construction of check dams, trenches, sunken pits at appropriate locations, after proper scientific analysis of geographical aspects.
- Studies on soil moisture, in-situ conservation, man-animal conflicts, ecotourism initiatives and assessment of carrying capacity needs to be undertaken for effective management of WLS.

1.3.2 Important species of the sanctuary:

1.3.2.1 Flora

Bondla Wildlife Sanctuary has abundant vegetation. The area is covered with moist deciduous forests, grass, moss etc. Flora comprises of moist deciduous forests, besides some riparian patches.

Some of the common trees found here include the State tree of Goa *Terminalia Crenulata* (Crocodile Bark tree), *Terminalia paniculata* (Kindai), *Terminalia tomentosa* (Matti), *Terminalia bellirica* (Ghoting), *Langerstroemia lanceolate* (Nano), *Dalbergia Latifolia* (Shesham), *Dalbergia sisso* (shishoo), *Adina cordifolia* (Haldu), *Emblica officinalis* (Awala), *Alstonia scholaris* (Santon), *Gmelina arborea* (Shivan), *Syzygium Jambos* (Jamba).

Besides trees, there are medicinal herbs and roots that are native to Goa's tropical forests.



Fig. 1.6: Glimpse of the Flora of Bondla Wildlife Sanctuary

1.3.2.2 Mammals and Birds

Gaur (*Bos gaurus*), is the state animal and Ruby throated yellow bulbul is the state bird of Goa. These are observed in Bondla wildlife sanctuary, besides endemic fauna. Bondla is also represented by a large number of mammals. The more common species include Malabar Giant Squirrel (*Ratufa indica*), Gaur (*Bos gaurus*), Spotted Deer (*Axis axis*), Sambar (*Rusa unicolor*), Indian boar (*Sus scrofa cristatus*), Golden Jackal (*Canis aureus*), Indian Leopard (*Panthera pardus fusca*) and Civet spp. Mammals such as *A. axis*, *R. unicolor*, *S. scrofa cristatus* are common in the interior of the park that is designated as a deer park. In addition, *B. gaurus* and *C. aureus* are secretive but uncommon. Furthermore, *R. indica* is a common resident found mostly in the habitats surrounding the zoological park. The presence of *A. aureus* and *P. padrusfusca* was confirmed through indirect evidences such as scat and pugmarks.



Bonnet macaque



Four Horned Antelope



Leopard



Sambar Deer



Spotted Deer



Langur

Fig. 1.7: Glimpse of the mammals of Bondla Wildlife Sanctuary
Photography – Dr. Nandini Vaz Fernandes

A total of 258 resident, endemic, migratory and passage species have been recorded in the sanctuary. Species diversity of birds is high between January to May and September to December. Furthermore, important species such as Sri

Lanka frogmouth (*Batrachostomus moniliger*), White-rumped vulture (*Gyps bengalensis*), Black eagle (*Ictinaetus malaiensis*), Black-backed dwarf kingfisher (*Ceyx erithaca*) and Blue-eared kingfisher (*Alcedo meninting*) have been recorded here.



Golden Oriole



Malabar Trogon



Greater Goldenback Woodpecker



Small minivet

Fig. 1.8: Glimpse of the Avifauna of Bondla Wildlife Sanctuary
Photography – Dr. Nandini Vaz Fernandes

CHAPTER 2: BACKGROUND INFORMATION AND ATTRIBUTES



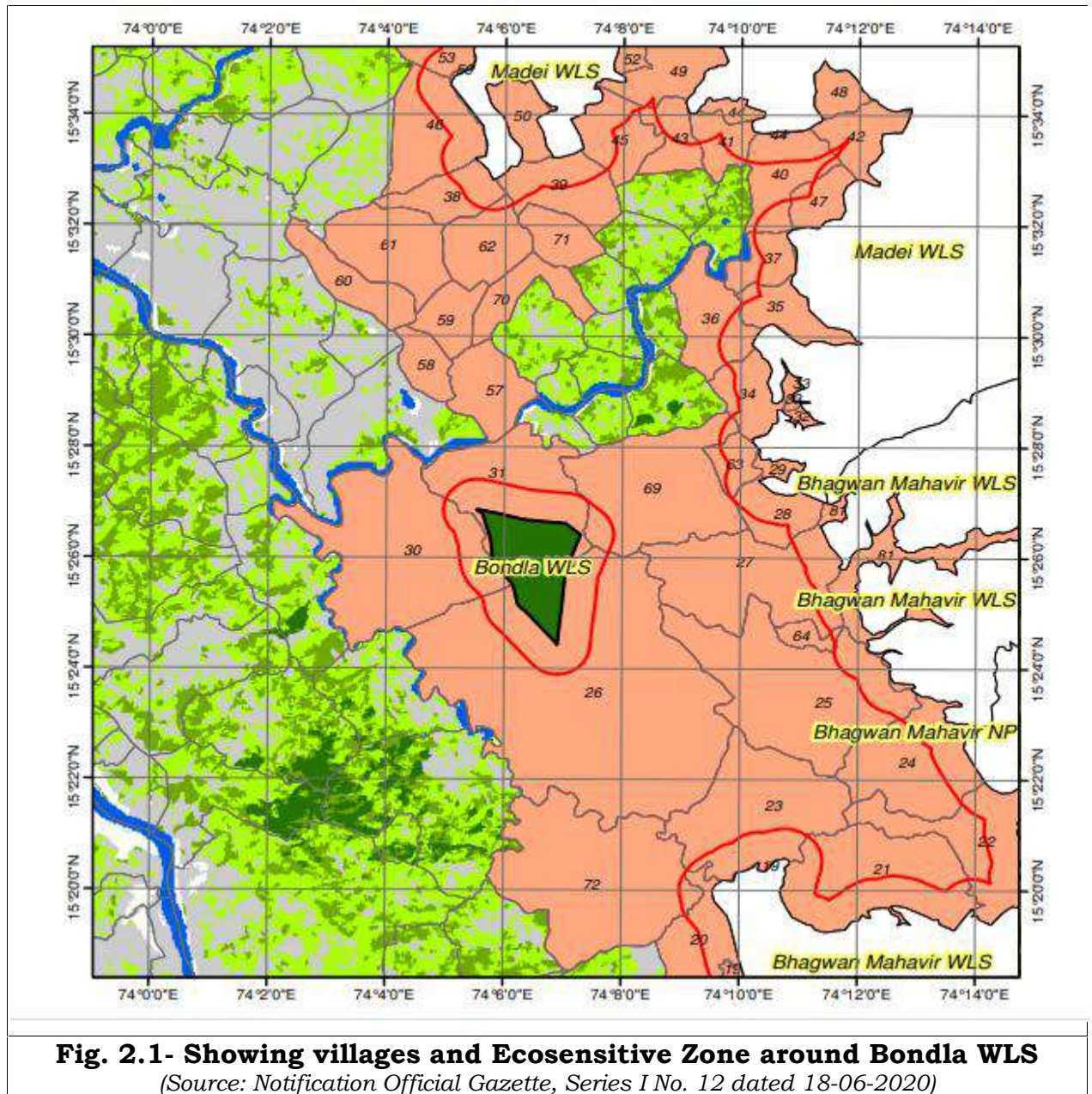
2.1. Boundaries

2.1.1. Legal Boundaries

Bondla Wildlife Sanctuary is located in Guleli village of Ponda Taluka. Its buffer zone consists of reserved forests. The sanctuary is surrounded by various villages and geological entities:

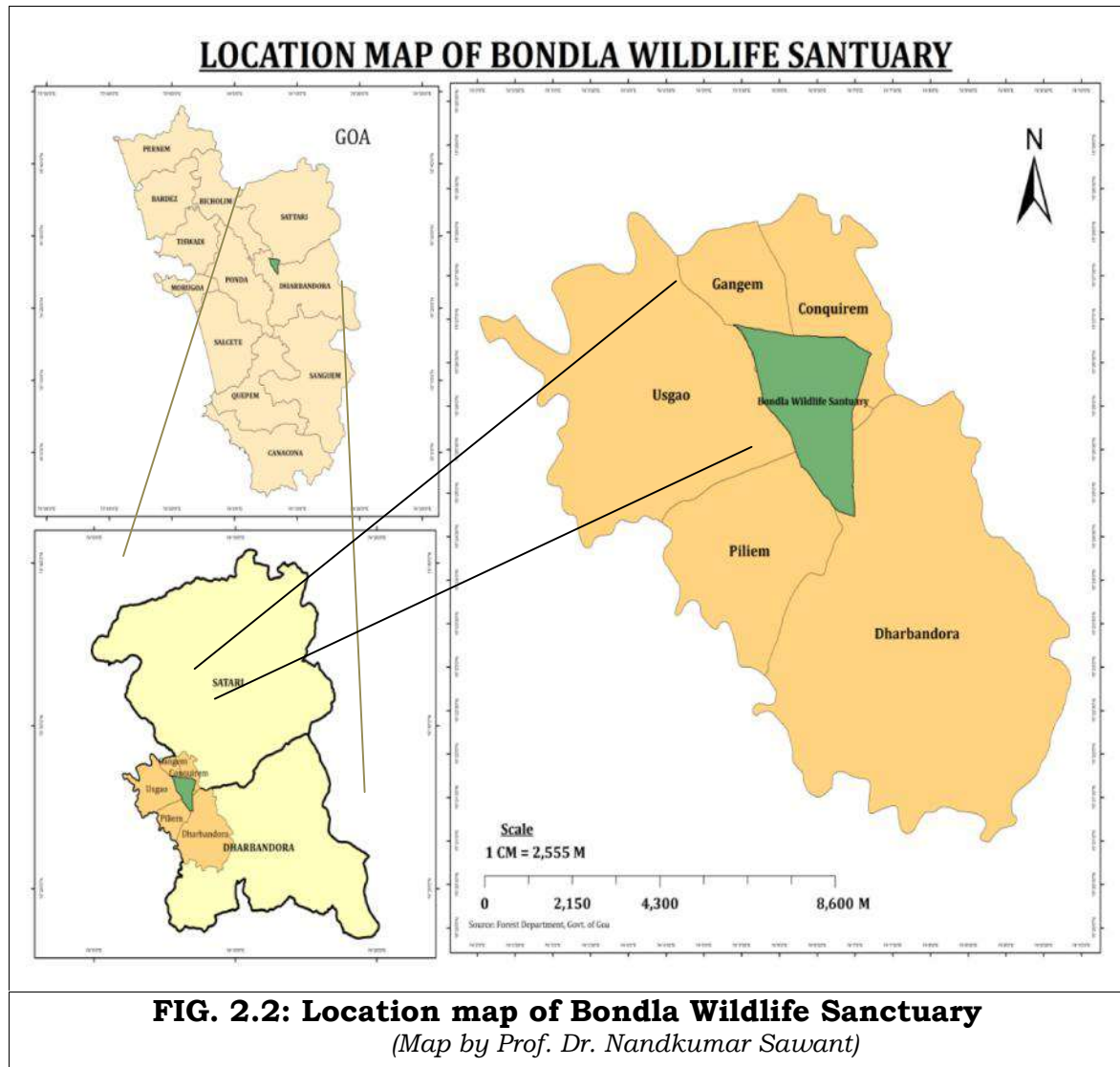
- a) **North:** In the North, it is surrounded by Ganjem, Melaulim and Gotaikhawada villages. A few streams of Mhadei river flow from the North towards the sanctuary.
- b) **South:** In the South, it is surrounded by Darbandora Taluka. The National Highway NH 4A that connects Panaji to Belagavi passes through Usagao-Tisk and runs along the southern part of the sanctuary.
- c) **West:** The western boundary is surrounded by Usagao-Tisk village.
- d) **East:** The main river that flows through the region is the Mhadei river. This river has a sub-tributary known as Ragada Nadi. The streams of Ragada Nadi penetrate from the eastern side and reach Bondla Wildlife Sanctuary.

The four villages viz. Dharbandora, Usagao, Gotaikhawada and Melaulim encompass the 1 km buffer zone whereas, other villages, such as Pissurlem partly encompass the buffer zone(Fig. 2.1)



2.1.2. The boundary descriptions of the Bondla Wildlife Sanctuary are as follows:

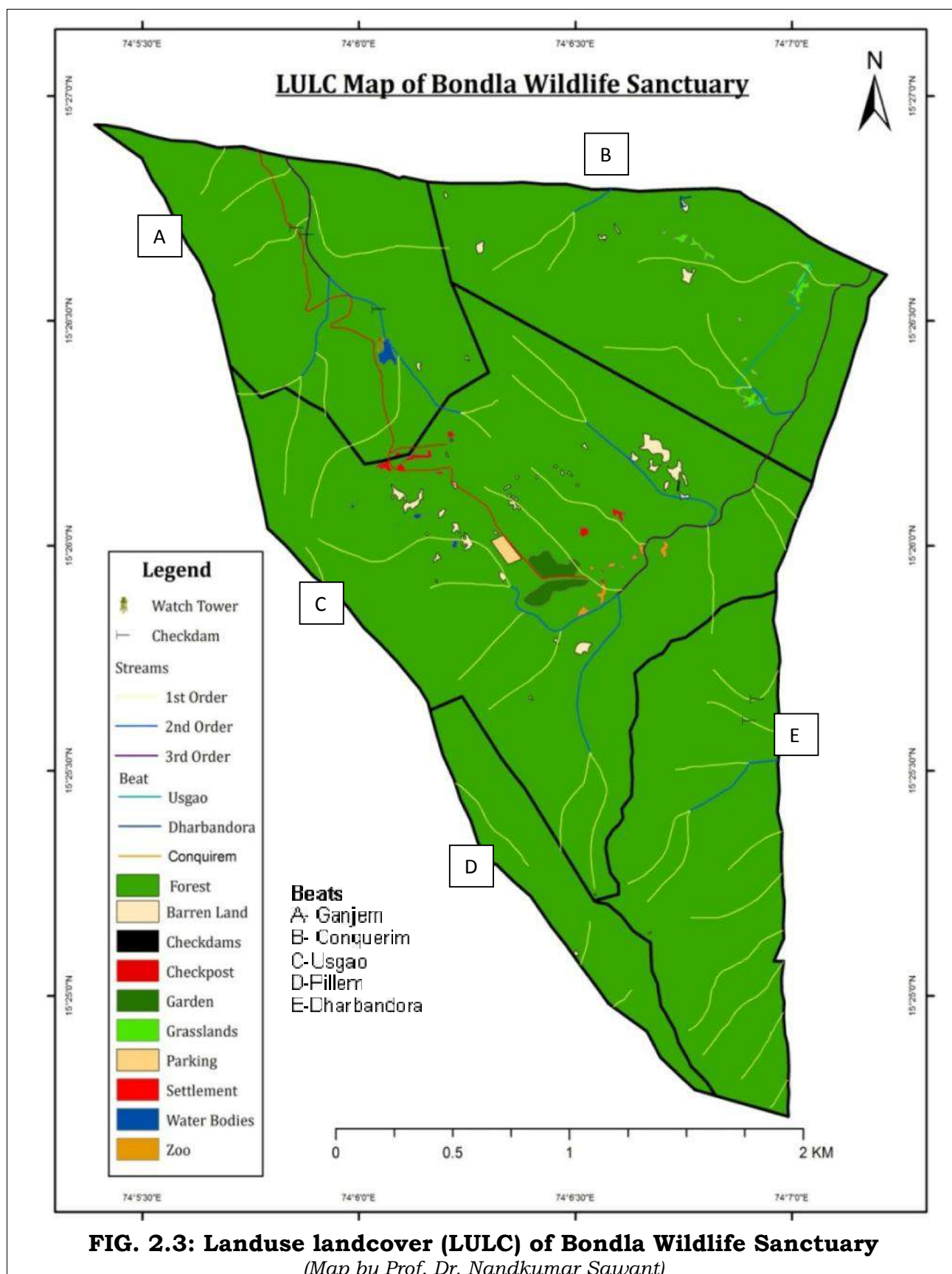
Bondla WLS is roughly triangular with its base facing north and the apex facing south.

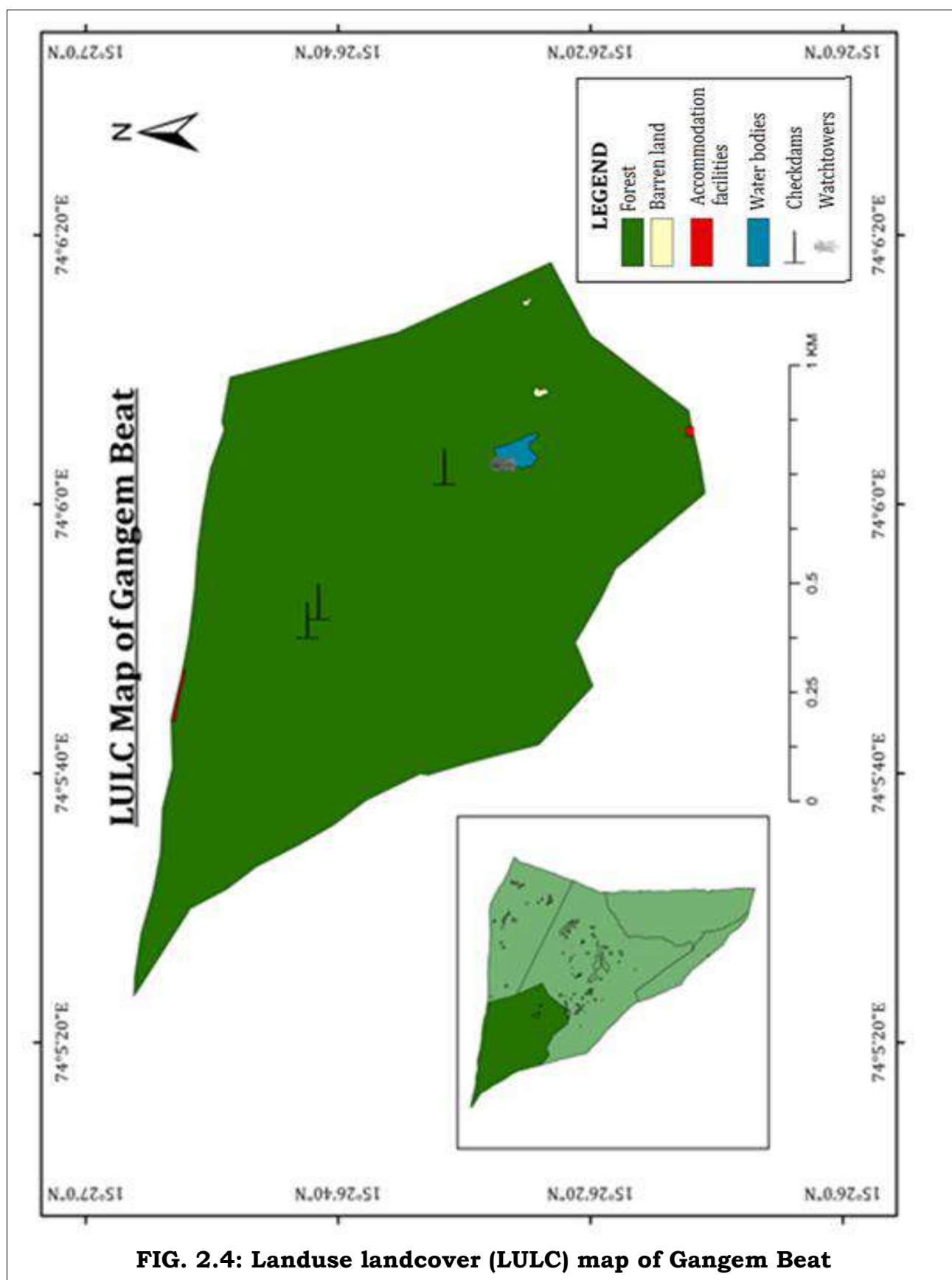


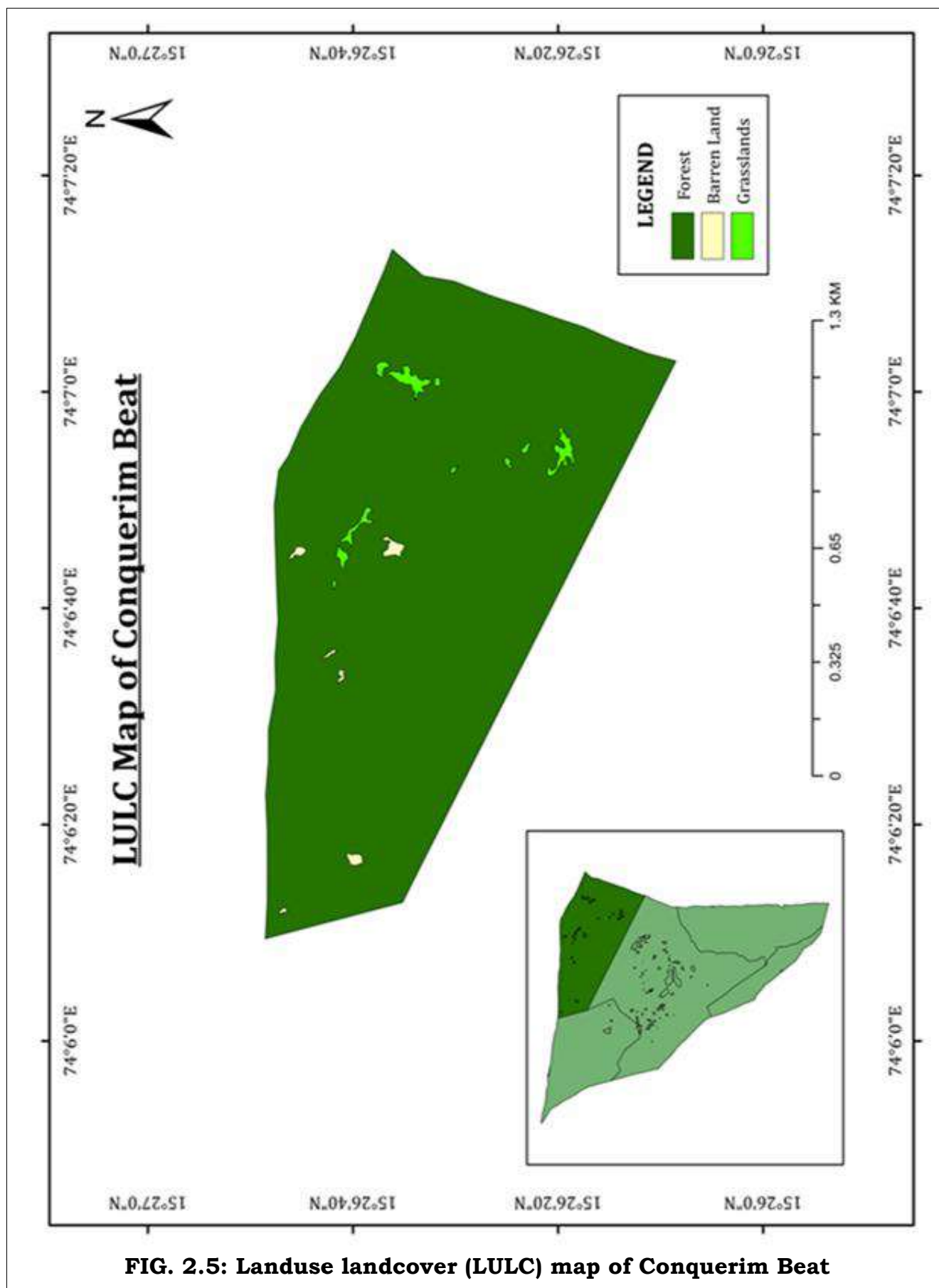
- a) **North:** The Northern portion of the wildlife sanctuary is shared with two villages Ganjem and Conquirem of Sattari taluka. Here, a buffer of 1km is maintained as eco-sensitive zone.
- b) **East:** The eastern part of the wildlife sanctuary is bounded by river Ragada, a tributary of river Mhadei which flows to the north of Bondla wildlife sanctuary. Politically, the eastern region shares a common boundary with Conquirem village of Sattari Taluka and Darbandora village of Darbandora Taluka.
- c) **West:** Towards the west, it shares its boundary line with Usgao and Piliem villages. Here, in some regions, it has a buffer of 1km which is considered under the eco sensitive zone.

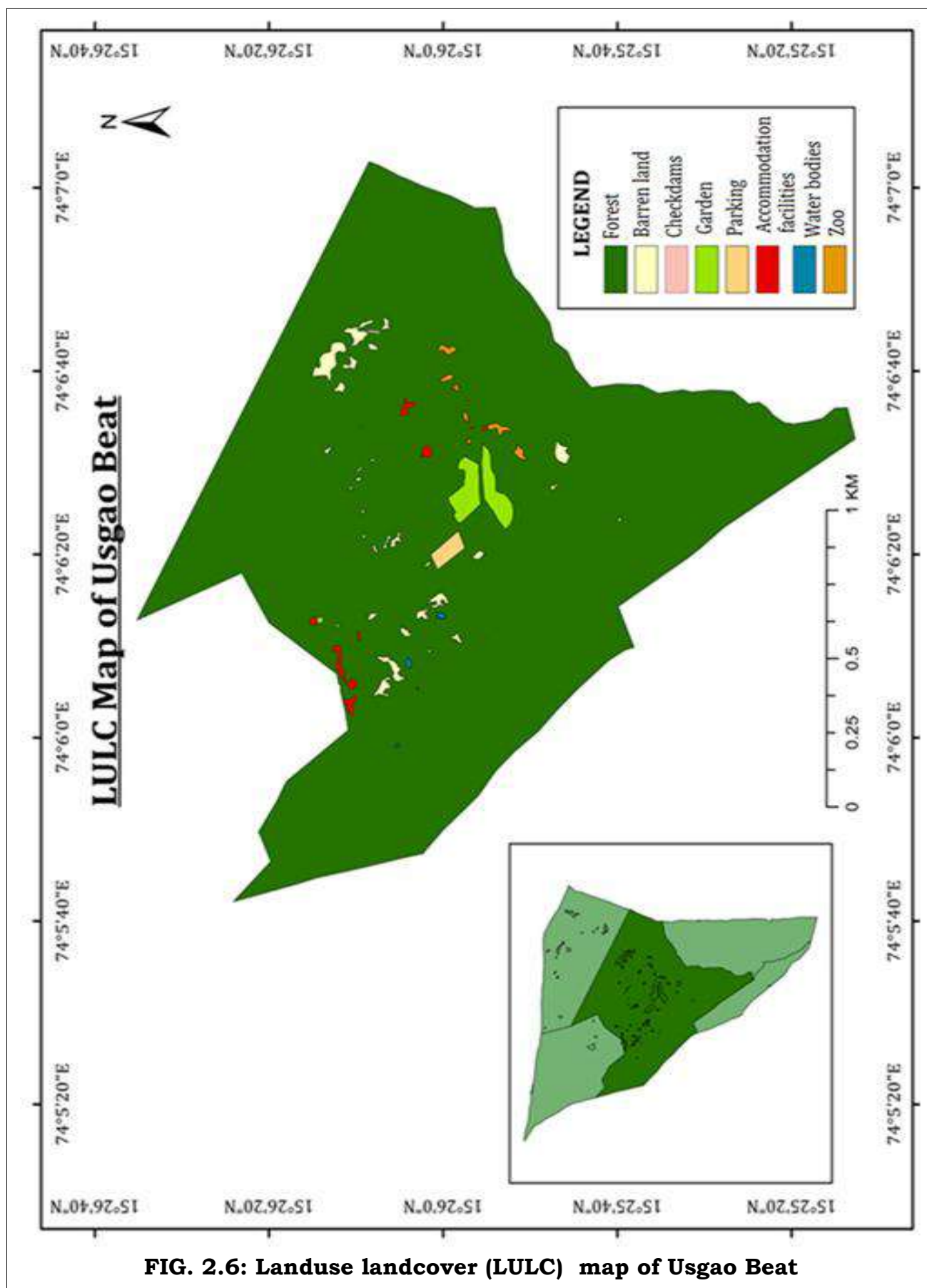
2.1.3. Internal Boundaries

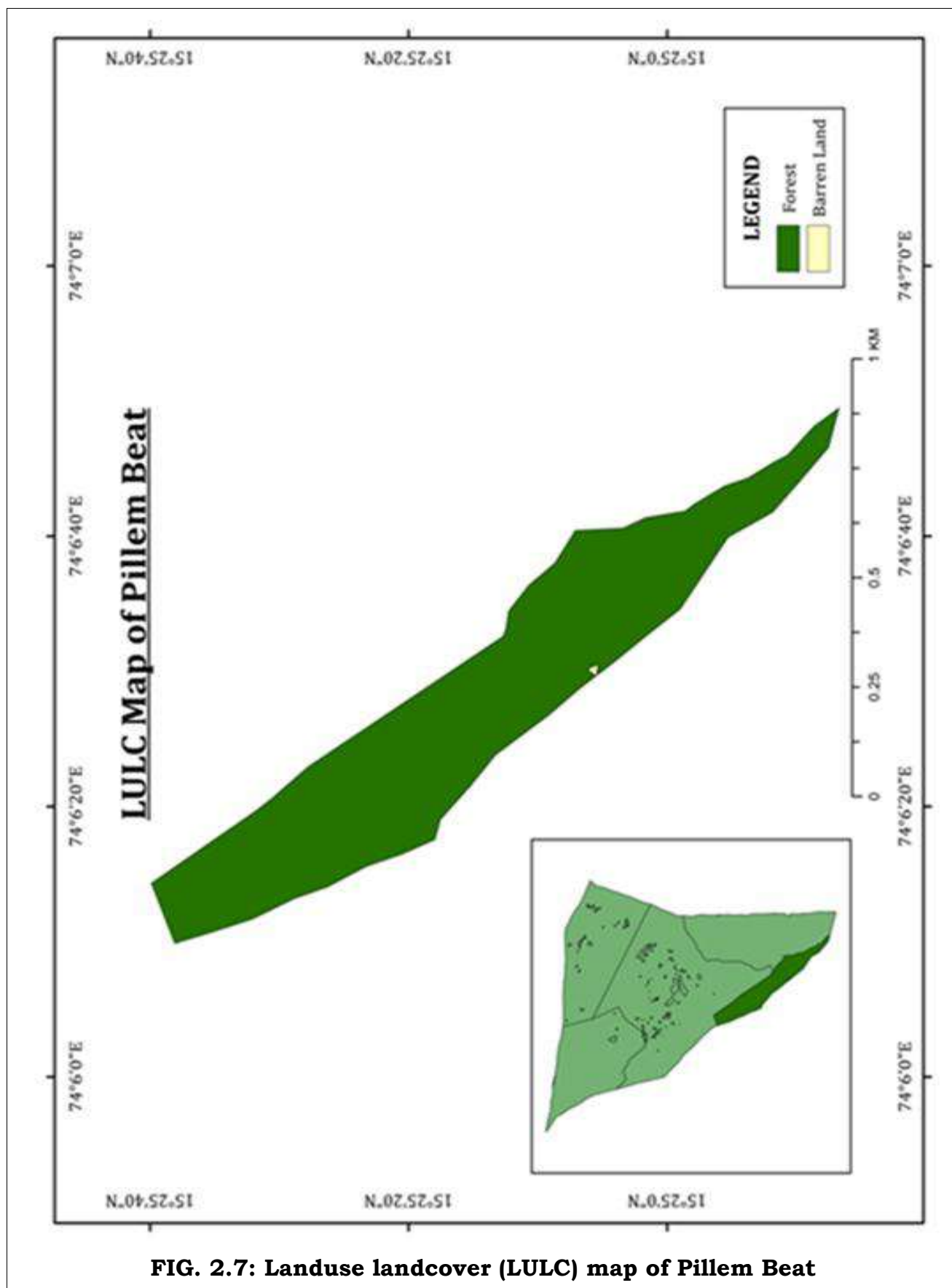
The land-use land cover map of Bondla Wildlife Sanctuary given below, gives an insight into the internal boundaries.

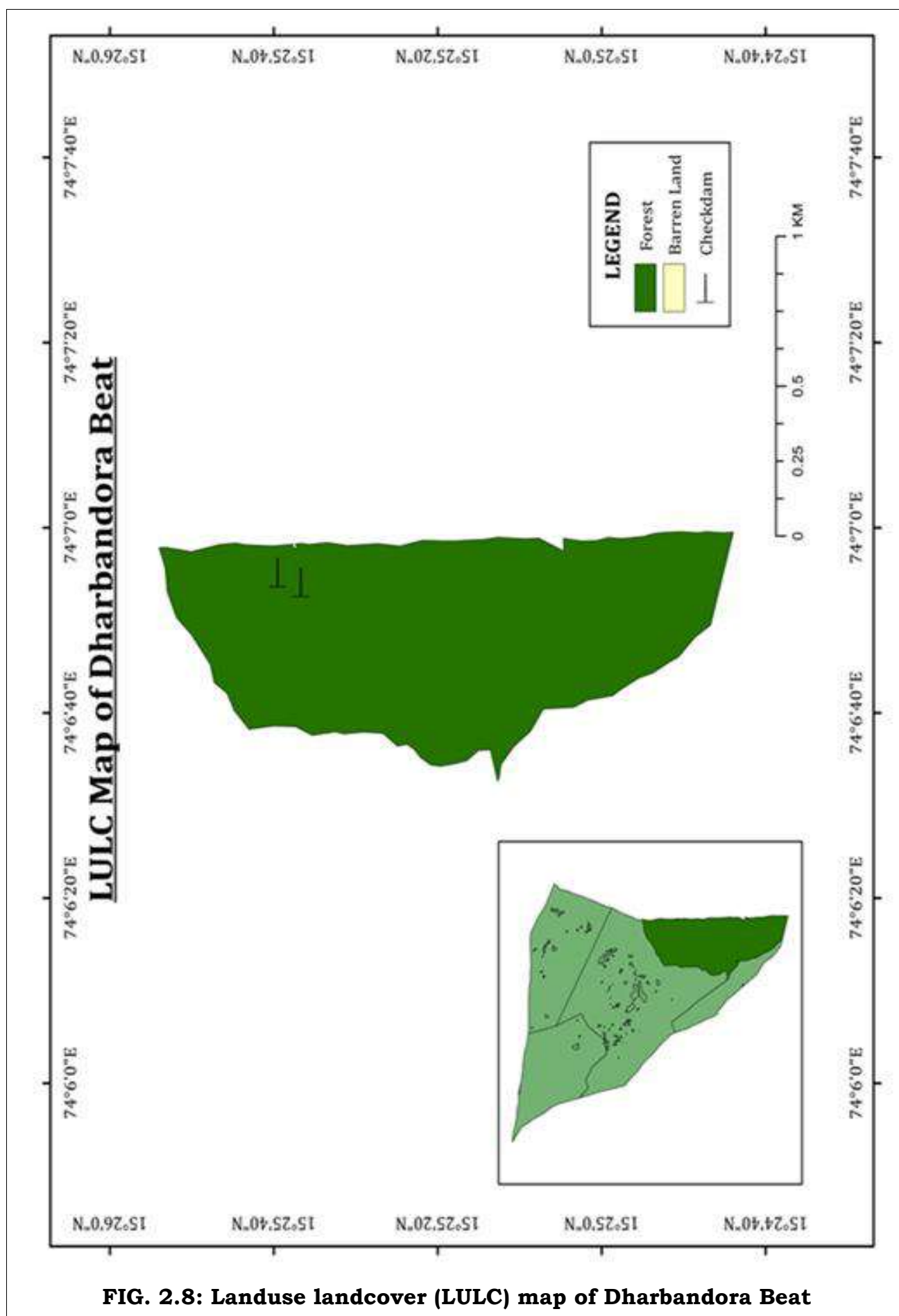












Talukawise forest area of Bondla wildlife sanctuary includes the following:

Table 2.1: Talukawise forest area of Bondla wildlife sanctuary		
Sanctuary	Name of the taluka	Area in Ranges
Bondla Wildlife Sanctuary	Sattari	141.00ha
	Ponda	568.00 ha
	Dharbandora (Previously Sanguem)	86.00ha
<i>Source: North Goa Forest Division Working Plan</i>		

2.2 Geology, Rock and Soil

The lithology of various geological formations in Bondla is given below:

2.2.1 Rocks: Rocks seen in Goa include groups such as Pre-cambrian formation, Deccan trap basalt and Laterite. Rocks seen in bondla include the following:

- 1) Quartz-Chlorite-Sericite-schist: these are pale grey, fine grained schistose rocks. At places it shows intercalations of quaerzite and Quartz-Chlorite-schist. Basically composed of quartz, sericite, chlorite, biotite with small amount of epidote, zoisite and ilmenite. The predominant minerals are quartz and sericite.
- 2) Phyllite: These are hard, compact fine grained grey rocks when fresh. When altered, it is usually soft, fariable and shows variety of shades of red depending on the degree of alteration.
- 3) Dunite: It is greyish green medium grained hard and compact rock made up of subhedral crystals of olivine which makes up the framework of the rock.
- 4) Peridotite: It is a coarse grained grey rock consiting of olivine, chromite and chlorite.
- 5) Chromatite: This rock is fine grained, hard massive and dark grey in colour. It is made up of chromite and some altered silicates.
- 6) Pyroxenite: this rock is melanocratic, coarse grained, hard, compact and dark green in colour. It is made up of clinopyroxene, opaques and plagioclase.
- 7) Troctolite: It is coarse grained, hard and compact rock made up of cululus plagioclase, olivines and opaques.

- 8) Gabbro: The gabbroic rocks constitute the upper zone of the complex. They vary between gabbros, olivine gabbros, gabbronorites and leucogabbros. Bondla mafic-ultramafic complex is a layered intrusion that consists predominantly of peridotites and gabbronorites (*Arolkar DP, 1995*).



Fig. 2.9: Glimpse of type of rocks in Bondla Wildlife Sanctuary
(Photography: Nandini Vaz Fernandes)

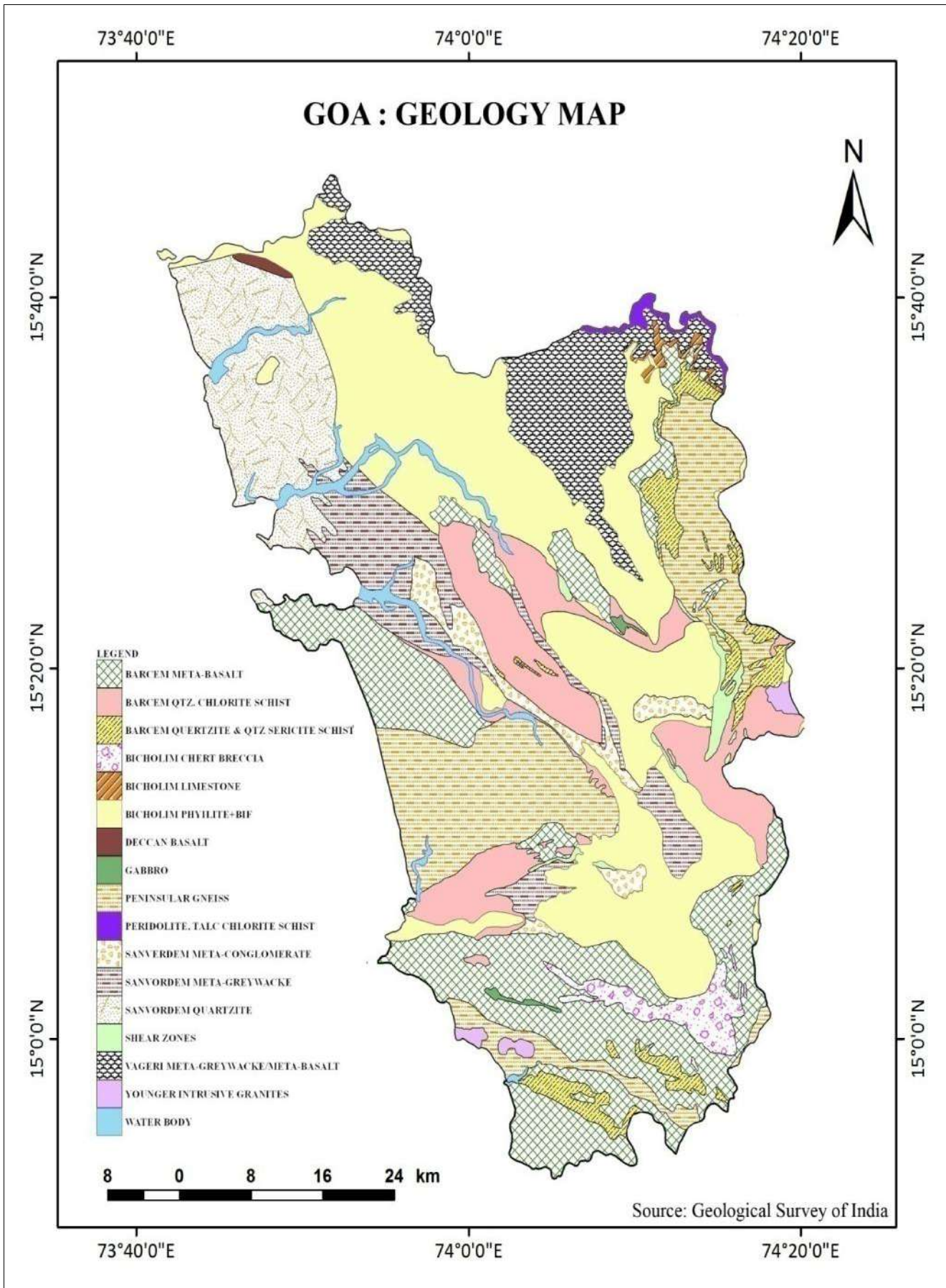


Fig. 2.10: Rocks in Goa
(Source- Geological Survey of India)

2.2.2 Sand: Most parts of the division have reddish brown laterite loamy soil. Silty clay loam, sandy loam is also seen in valleys and low areas. Hill tops are covered with shallow red brown laterite loam. Soil is generally rich in sesquioxides (oxides of iron and aluminium). This area is largely composed of laterite and alluvial soil. The soil is deep, purely drained, and permeable. It is high in humus content and organic matter.

2.3 Terrain

2.3.1 Physiographic information

Bondla wildlife sanctuary lies as a trough pan surrounded by hillocks of varied heights/ altitude. The physiographic area of Bondla wildlife sanctuary has a gradient of slope from the south west to the east. Highest altitude recorded is 400 m above mean sea level and is towards the south-west of Bondla WLS (Fig. 2.1).

The sanctuary is characterized by an elongated escarpment towards the east. In the northern region, two small hillocks interspaced by seasonal streams can be noticed. The central portions are relatively gentle than the other portions of the sanctuary. The southern triangular portion of the sanctuary, the Piliem and Dharbandora Beat, has the highest elevation of the sanctuary, reaching 400 metres above mean sea level. Basically, it is a hillock, elevated towards the Piliem village and sloppy towards the central portion, where the Zoo is located. Due to the topography, accordingly the drainage pattern has evolved.

Further towards the North west of the sanctuary, Usgao and Ganjem beat, an elongated ridge runs along the boundary of the sanctuary. This ridge is marked with two prominent spot heights i.e. 236 meters and 375 meters above mean sea level. Eventually, this part of the sanctuary has the steepest gradient of slope. Towards the North, the Conquerim beat, an elongated ridge protrudes in the sanctuary. A water stream separates the ridge that runs in the North west portion. The prominent spot height is 256 meters above mean sea level and gradient of slope tapers towards the east, as one can see the contours widely spaced. The mid portion of the sanctuary is the convergence of the all the hillocks and ridges, forming a trough.

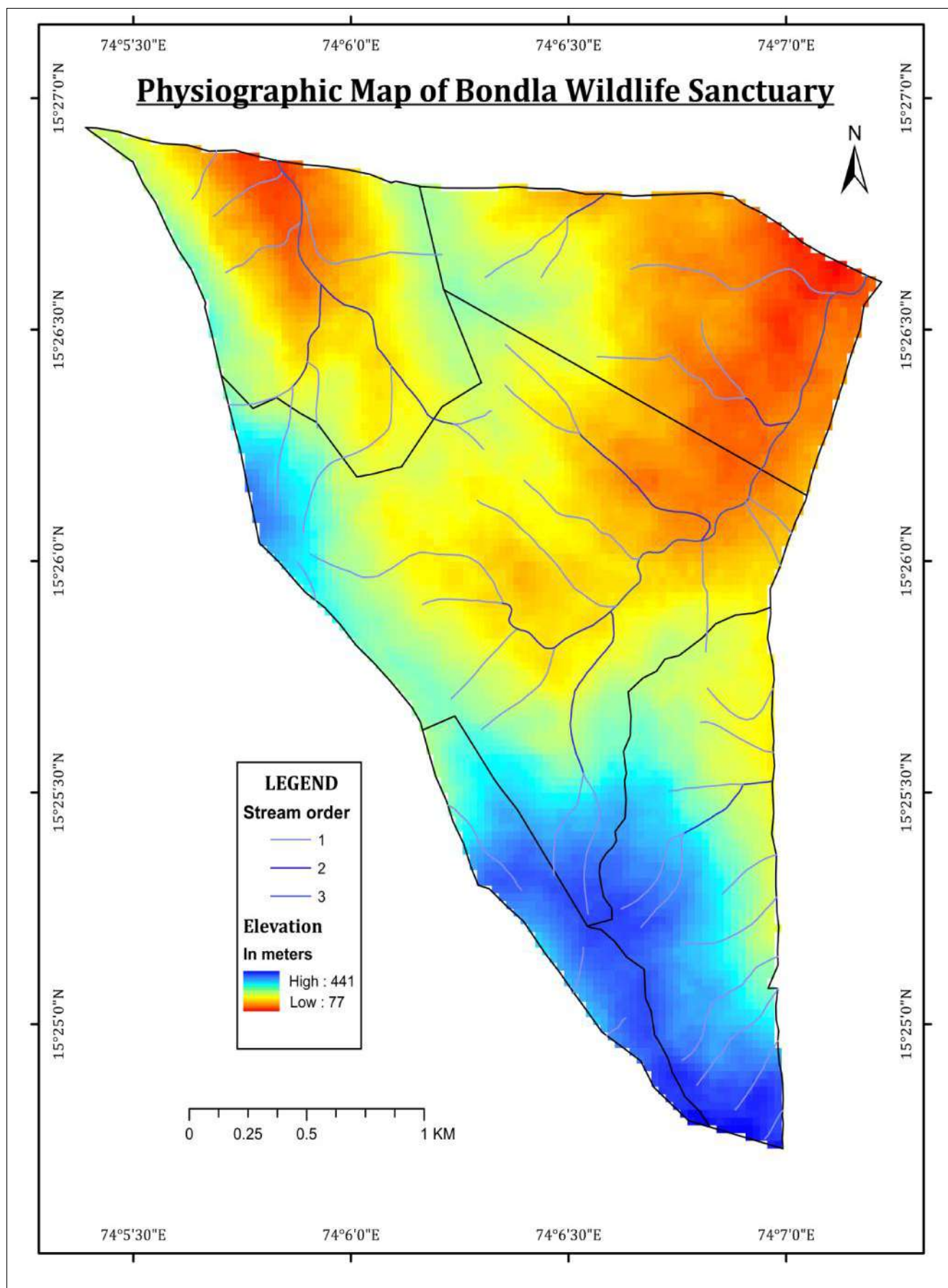


Fig. 2.11: Physiographic Map of Bondla
(Map by Prof. Dr. Nandkumar Sawant)

Overall, the area has an undulating topography with hillocks and escarpments and form a part of the diverse ecosystem of the Western Ghats. The topographical variation within this area is between 60 m to 400 m above mean sea level. The average is 275 to 300 m above mean sea level.

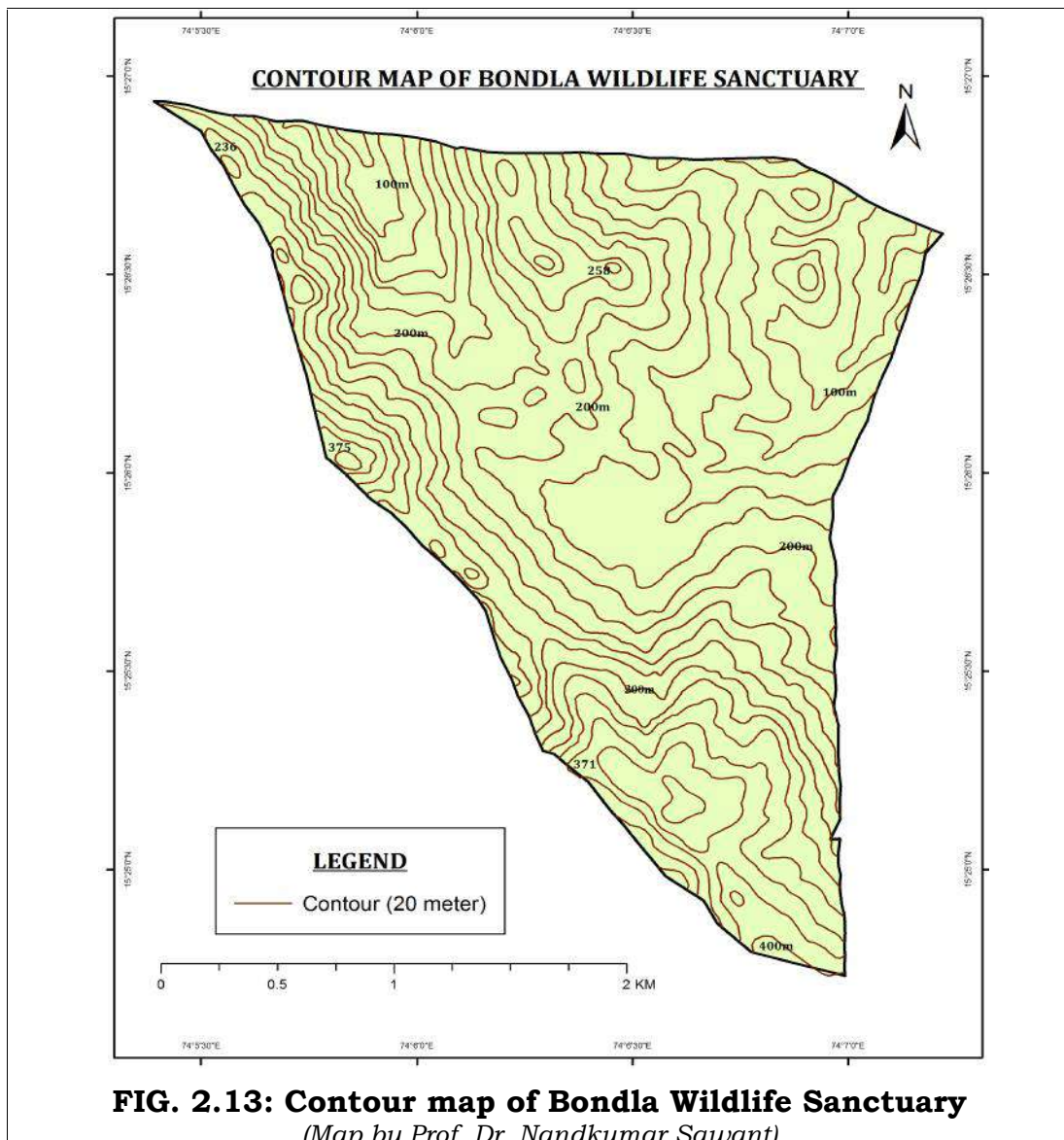
Bondla wildlife sanctuary lies as a trough pan surrounded by hillocks of varied altitude. The gradient of slope is from south west to Eastern portion from the highest altitude is around 400m above mean sea level. The sanctuary is characterized by an elongated escarpment towards the east and marked by an altitude of 400 m. In the northern portion, two small hillocks interspersed by seasonal streams can be noticed. The central portions are relatively gentle than the other portions of the sanctuary.

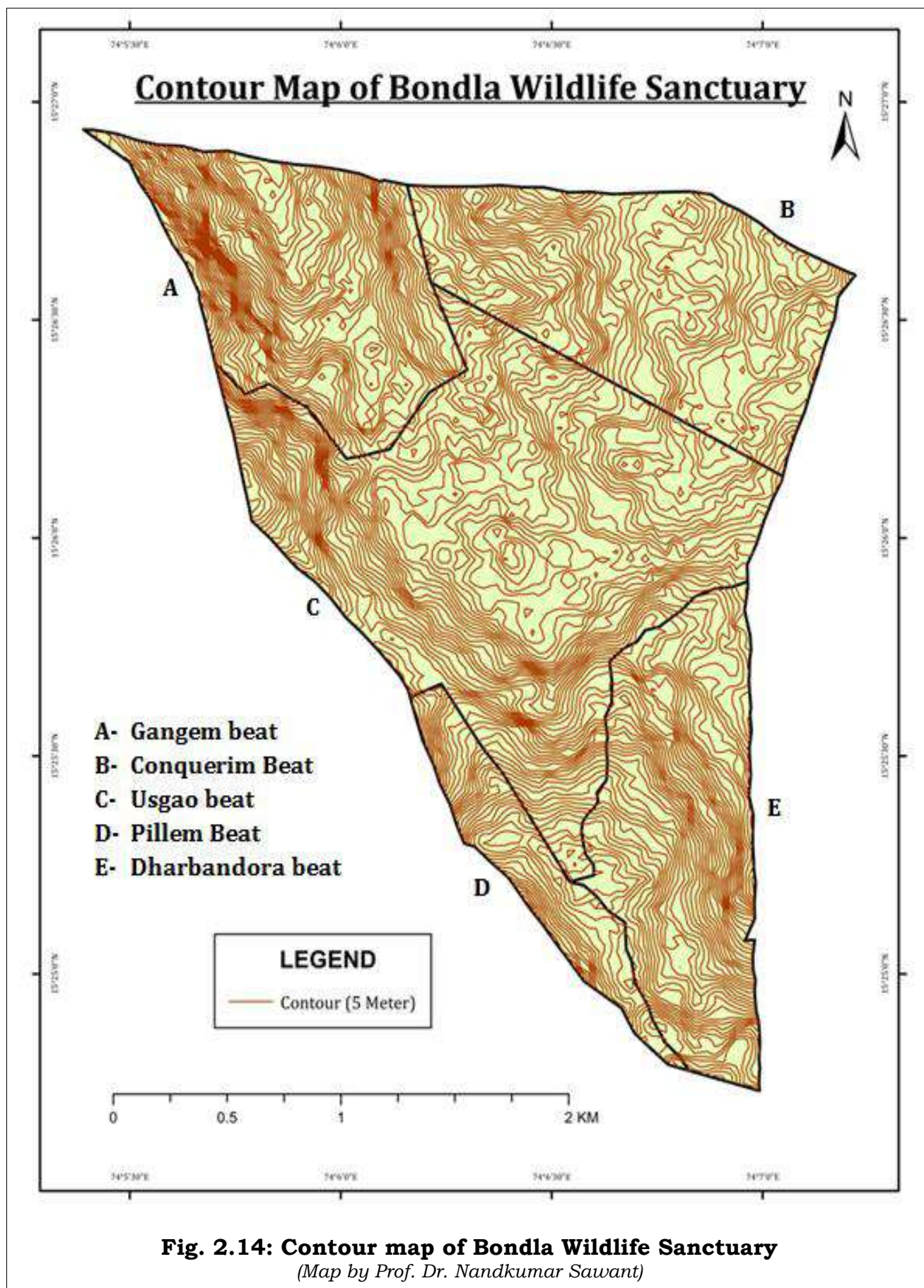


Fig. 2.12: Terrain in Bondla WLS (undulating topography)
(Photography: Dr.Nandini Vaz Fernandes)

2.3.2. Contour Map of Bondla WLS

The contour map has been prepared on the basis of the toposheet published by the survey of India in the year 1967. The contour maps interval fig 2.12 is 20 m and Fig.2.13 is 05m. The topographic synoptic view of the sanctuary shows gradient of slope from South West portion to North East, contours ranging from 400 MSL to 60 MSL. The smallness of the sanctuary cannot be undermined in the context of topographical variation. An elongated ridge runs in North West to South East in the western portion of the sanctuary, marked by prominent hillocks with spot heights 236, 371, 375 and 455 Metres above mean Sea Level. These hillocks are interspersed by small swift flowing non perennial streams. The central portion of the sanctuary shows relatively gentle slope with wide spaced contours on the map. This forms the trough and also the convergence for the streams.





2.4. Climate

Goa, being in the tropics is flanked by the Arabian Sea and the Western Ghats. It is characterized by tropical, maritime monsoon type of climate. It receives regular and sufficient rainfall (350 cm – 400cm) annually during the southwest monsoon season. The temperatures remain equitable throughout the year without a marked variation. The mean temperature varies between 24° and 32° C. The climate is generally pleasant especially from mid-October to mid-February.

2.4.1. Rainfall pattern and distribution

The mean annual rainfall received is nearly 300cm. Due to the geographic influence; the rainfall rapidly increases from the coast to the Western Ghats. Along the coast, the average rainfall is 250–280cm but at the foothills of Sahyadris it exceeds 400–450cm. The monsoons commence in the first week of June but prior to this there are pre-monsoon showers in late May. July to September are the wettest months, and by late September or early October, the monsoons withdraw. It is interesting to note that the places closest to the sea have the lowest rainfall and least variation in temperature. This variance increases as one moves from the coast towards the interiors.



FIG. 2.15: Rainfall Pattern at Bondla Wildlife Sanctuary
(Prepared based on data from worldweatheronline.com)

2.4.2. Humidity

Due to its closeness to the sea, it is generally humid. During the monsoons, the humidity is above 90% and during the summers, it is generally above 60%. The weather is pleasant towards the latter part of the monsoons and during the winter, the scenic beauty, festive moods, and pleasant weather attract large volumes of tourists to this sub-tropical paradise.



FIG. 2.16: Humidity at Bondla Wildlife Sanctuary

(Prepared based on data from worldweatheronline.com)

2.4.3. Temperature

There is extraordinarily little variation in temperature. Round the year, the mean average temperature varies between 24° C and 27° C. January is the coldest month with the mean daily temperature around 22° C - 24° C and May is the warmest, experiencing mean daily temperature around 32°C - 34°C.

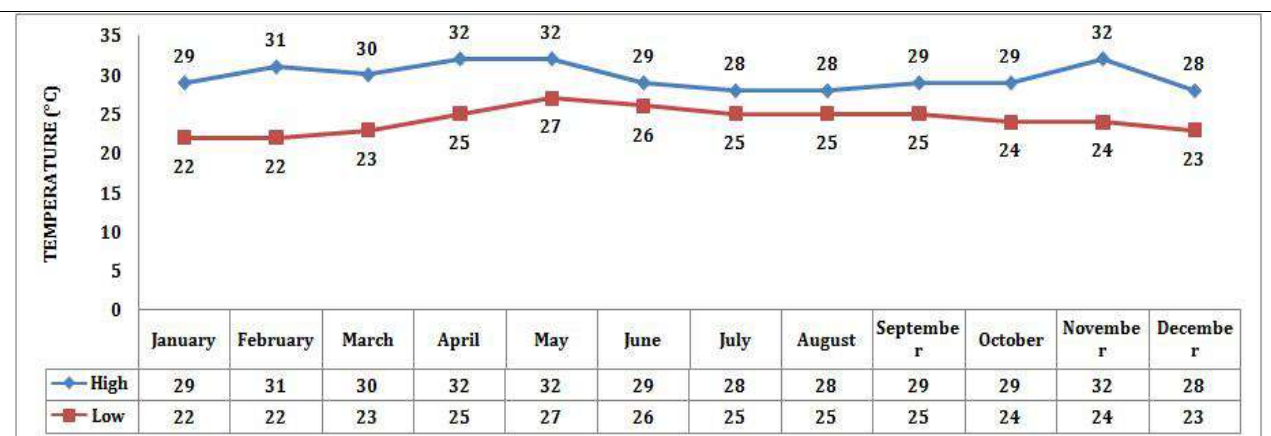
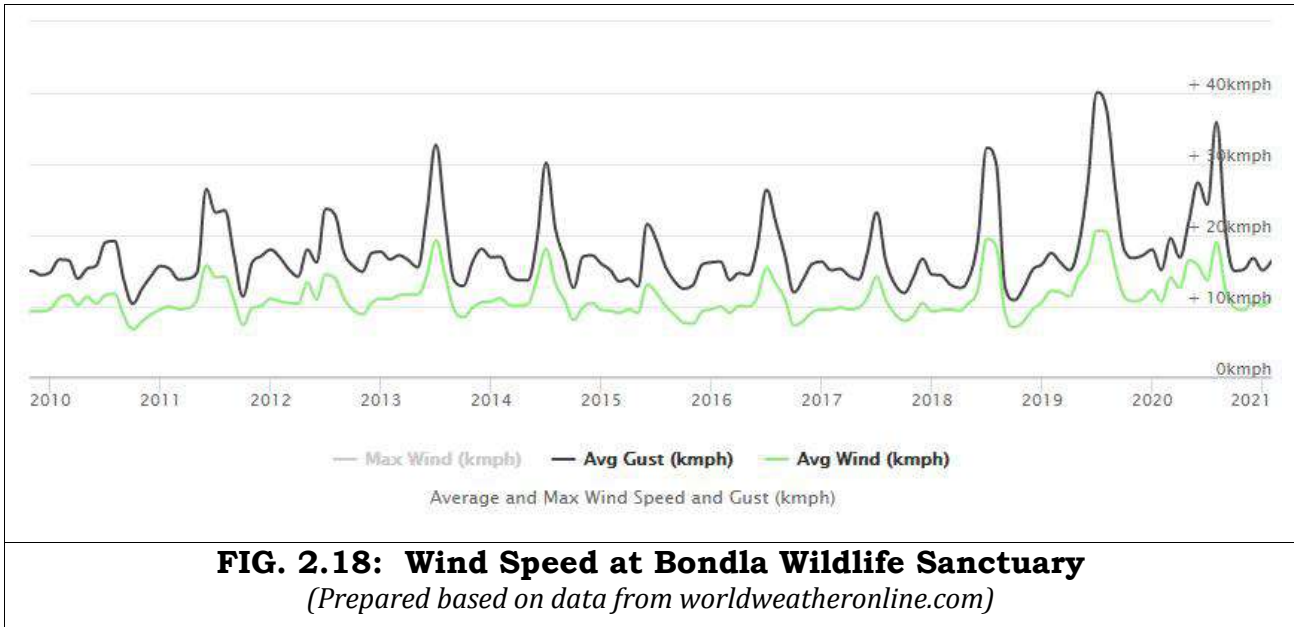


FIG. 2.17: Temperature at Bondla Wildlife Sanctuary

(Prepared based on data from worldweatheronline.com)

2.4.4. Wind Speed

The maximum wind speed was observed in the monsoons, where in the maximum speed recorded ranged from an average of 18 - 20 kmph.



2.5. Water Source

2.5.1 Natural Water Sources

This includes streams, springs, and ponds. Some of these are perennial and some are seasonal. The main streams which flows out of sanctuary area are *Ganjemnallah* and *Shivedemnallah*, both nallahs drain out of the sanctuary and area seasonal in natures during rainfall it carries gushing waters from sanctuary area. The Shivdem Nallah has much bigger water catchment area then *Ganjemnallah*. The *Ganjemnallah* flows towards western aspect of sanctuary and further it joins River Madei at place in Ganjem Village. Whereas *Shivdemnallah* or “*Nirvashachowal*” drains towards northren direction in During monsoon water drains out into Arabian sea from these rivers, but in summer season flow is reduced resulting in formation of stagnant pools of water in the river bed. There are various springs located in deep valleys of Wildlife sanctuary, among these some perennial springs are strategically tapped and converted into water holes. The some of natural water holes existing in Bondla Wildlife Sanctuary were used by freedom fighters during Goa liberation movement, hence these waterholes are named after them like “*Desaiachey Udak*” and “*Kushtobache Udak*” apart from

this two there are also many other perennial waterholes situated and maintained by Bondla. There exists one water hole near Sidha temple in Bondla Wildlife sanctuary which is considered as sacred and women are not allowed near these waterholes. Due to the perennial nature of these water holes the entire area has semi evergreen trees species, and as the area is considered as sacred this trees remain protected. List of natural Water holes in given in Table 2.2.

TABLE 2.2: Existing Location of Natural water bodies		
Place	Status	Location
Desaicheyudak water hole	Natural	Deer safari
Kushtobachewater hole	Natural	Near Dormitory
Siddha Hill water hole	Natural	Siddha
Chanodyacheudakwater hole	Natural	Near middle pump
Roinicheudak water hole	Natural	Pilliem hill

TABLE 2.3: Existing location of crocodile pond		
Place	Latitude	Longitude
Crocodile pond	N 15 ⁰ 26' 24.1"	E 074 ⁰ 06' 02.7"

2.5.2 Artificial Water Sources

In areas where there is water scarcity during pinch period, artificial water holes are constructed. Each can store few litres to thousands of liters of water. The artificial water sources are in the form of tanks and vasant bandhara (seasonal check dams). In Bondla the biggest artificial water hole which was created way back in 1978 is presently referred to as crocodile pond, this has concrete structure permanent dam structure with proper sluice gates to regulate water but presently the gates are not operational and it was de-silted in year 2008 wherein huge amount of silt was mechanically removed and used in gardening. Theses structure not only retains water and as provided ideal habitat for crocodiles which were released in it in year 2010. But this reservoir is helping in recharging water table and its effect can be seen in lower stream which flows till February. These bandharas impound huge amount of water which caters to wildlife and has helped in enriching soil moisture, thus increasing green cover. The some of bigger artificial water holes created by depart were in year 2009 at various location this

were made up of RCC and this were saucer shaped structures spread over the area of sanctuary and were connected with piped water so that it can be filled in summer and it will quench their water. The dimension of this water holes were about 6 mts in diameter and depth of 1.80 meters , but in 2010 it was noted lot of hooved animals were find it difficult to move out of this waterholes as it was getting very slippery so many of this waterholes were abandoned and some were modified to decrease depth of them.

In addition, there are two artificial water Ponds near the Deer safari. Due to the presence of the water bodies, many animals come to drink water. Water which flows from streams is purified and the same given is to the animals.

TABLE 2.4: Existing Location of Artificial water bodies		
Place	Status	Location
Den water hole	Artificial	Near Restaurant
Safari water hole	Artificial	Deer safari
Madhalo water hole	Artificial	Near middle pump
Rangeracheudak water hole	Artificial	Behind RFO quarter
Dotoracheudak water hole	Artificial	Near Veterinary Clinic

These waterholes attract lot of wildlife, and are also favorite haunts of the predators in the pinch period. Smaller herbivores like Mouse deer, Chowsingha, Barking deer graze the green flush of nutritious vegetation around these water-bodies, and also feed on many species of aquatic plants found there.

Another significance of some of these water-bodies is that they also provide Wallowing ground for Wild boars and Sambars. In rutting season wallowing is important activity in sambar stags hence the water holes play important roles in breeding biology of sambars.

2.5.3. Drainage

The area is well drained by rivers and streams. The main river i.e. Mhadei, is in near proximity to the northern boundary and its tributary Ragada river, lining the northern and eastern boundary, flows in eastern region.

In order to overcome water scarcity due to drying up of natural water bodies and streams during the summer season, artificial waterholes are made. Check Dams are constructed in the upper streams, so that the water can percolate into the ground and recharge the ground water table. This helps to reduce soil erosion by reducing water flow velocity. In 2018-2019, loose boulder check dams were constructed in Usgao and Dharbandora Beats. There are three and four check dams in Usgao and Dharbandora, respectively. In addition, there are four Gabion check dams in the Usgao beat of Bondla wildlife sanctuary. In 2019-2020, four loose boulder check dams were constructed in Ganjem Beat, three in Usgao beat and three in Dharbandora Beat of Bondla Wildlife sanctuary.

Table 2.5: Streams in Bondla Wildlife Sanctuary

Sl. No.	Name of streams	Status	Location
1.	Nirvashachowal	Seasonal	Shivdem
2.	Ghotmaddinallah	Seasonal	Shivdem
3.	Gavyachitaalnallah – 1	Seasonal	Shivdem
4.	Gavyachitaalnallah – 2	Seasonal	Shivdem
5.	Zoo nallah – 1	Seasonal	Zoo section
6.	Zoo nallah – 2	Seasonal	Zoo section
7.	Deer park Safari nallah– 01	Seasonal	Deer Safari
8.	Ganjem side nallah – 1	Seasonal	Ganjem
9.	Ganjem side nallah – 2	Seasonal	Ganjem
10.	Ganjem side nallah –3	Seasonal	Ganjem
11.	Garden nallah – 01	Seasonal	Garden section

Table 2.6: Existing Watch Towers in Bondla Wildlife Sanctuary

Sr. no.	Name of watch tower	Location	Status
1	Valley view watch tower	Leopard trail	Pucca R.C.C.
2	Lake view watch tower	Near lakeBondla	Steel Fabricated
3	Waterhole view watch tower	Near labour colony	Steel Fabricated

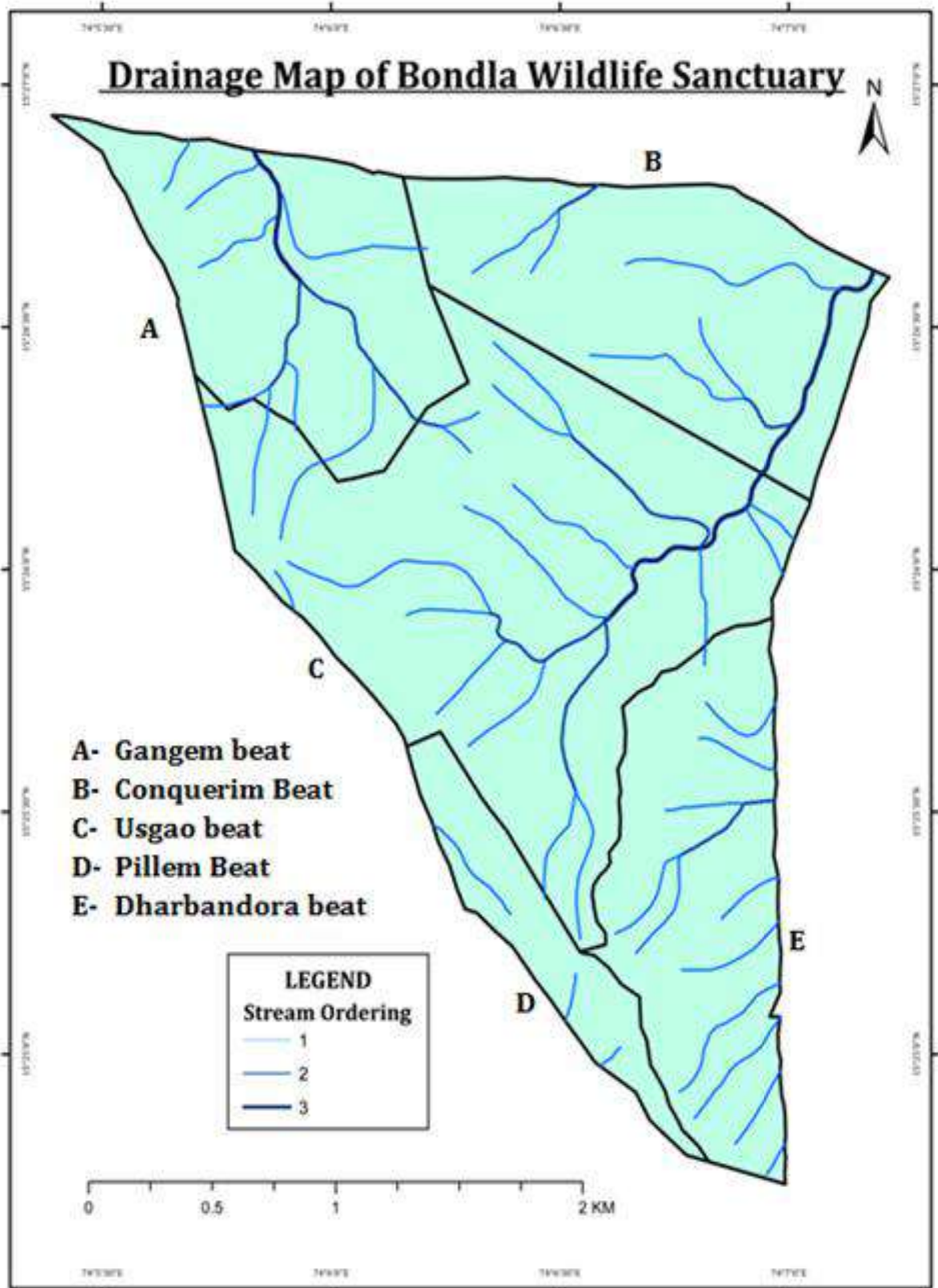


FIG.2.19: Drainage Map Of Bondla Wildlife Sanctuary

(Map by Prof. Dr. Nandkumar Sawant)

TABLE 2.7: Existing location of check dams constructed in year 2018-2019

Place	Beats	Latitude	Longitude	Length (mtrs)	Width (mtrs)
Loose boulder check dams in Usgao Beat (3)	1	N 15 ⁰ 26' 57.1"	E 074 ⁰ 06' 33.2"	8.00	1.00
	2	N 15 ⁰ 26' 11.1"	E 074 ⁰ 06' 38.3"	8.00	1.00
	3	N 15 ⁰ 26' 14.5"	E 074 ⁰ 06' 35.4"	7.00	1.00
Loose boulder check dams in Dharbandora Beat (4)	1	N 15 ⁰ 25' 46.3"	E 074 ⁰ 06' 57.0"	15.00	1.50
	2	N 15 ⁰ 25' 73.3"	E 074 ⁰ 06' 92.9"	14.00	1.50
	3	N 15 ⁰ 25' 64.3"	E 074 ⁰ 06' 92.7"	14.00	1.25
	4	N 15 ⁰ 25' 39.7"	E 074 ⁰ 06' 53.1"	15.00	1.30
Gabion check dams in Usgao Beat (4)	1	N 15 ⁰ 26' 12.0"	E 074 ⁰ 06' 37.6"	8.00	1.00
	2	N 15 ⁰ 26' 09.0"	E 074 ⁰ 06' 44.3"	12.00	1.00
	3	N 15 ⁰ 26' 07.4"	E 074 ⁰ 06' 44.2"	8.00	1.00

TABLE 2.8: Existing location of a check dams constructed in year 2019-2020

Place	Beats	Latitude	Longitude	Length (mtrs)	Width (mtrs)
Loose boulder check dams in Ganjem Beat (4 No.)	1	N 15 ⁰ 26' 40.3"	E 74 ⁰ 05' 51.8"	12.00	1.50
	2	N 15 ⁰ 26' 36.3"	E 074 ⁰ 05' 53.5"	9.00	1.40
	3	N 15 ⁰ 26' 31.5"	E 74 ⁰ 05' 59.8"	10.00	1.50
	4	N 15 ⁰ 26' 30.6"	E 74 ⁰ 06' 00.5"	10.00	1.40
Loose boulder check dams in Dharbandora Beat (3)	1	N 15 ⁰ 25' 46.4"	E 074 ⁰ 06' 56.2"	15.00	1.20
	2	N 15 ⁰ 25' 44.1"	E 074 ⁰ 06' 55.4"	15.00	1.10
	3	N 15 ⁰ 25' 38.7"	E 074 ⁰ 06' 55.4"	14.00	1.40
Loose boulder check dams in Usgao Beat (3)	1	N 15 ⁰ 26' 09.7"	E 074 ⁰ 06' 41.7"	9.00	1.00
	2	N 15 ⁰ 26' 09.8"	E 074 ⁰ 06' 40.9"	6.00	1.00
	3	N 15 ⁰ 26' 10.9"	E 074 ⁰ 06' 38.2"	7.00	1.00



Fig. 2.20: Glimpse of Check dams at Bondla Wildlife Sanctuary

(Photography: Dr. Nandini Vaz Fernandes)

2.6. Range of Wildlife, Status, Distribution and Habitat

Bondla Wildlife Sanctuary provides a wide range of habitat to amphibians, reptiles, birds, mammals, and a large group of invertebrates.

2.6.1. VEGETATION

The forests of Goa are typical of the Western Ghats (Southern Maharashtra and Karnataka). The forest diversity is mainly due to the variation in altitude, soil character and slope. Three major types of plant communities are found within Bondla Wildlife Sanctuary viz. grasslands, woodlands, and semi-evergreen forests.

2.6.1.1. FLORA

Flora is comprised of moist deciduous forests with riparian habitat patches. Some of the common trees found here include the Crocodile Bark tree (*Terminalia Crenulata*), Rosewood, Lagerstroemia, Kindal, Jamba (*Syzygium Jambos*), Mimusops, Orchards and bamboo. Bondla Wildlife Sanctuary has abundant vegetation. The area is covered with moist deciduous forests, grass, moss etc. Flora comprises of moist deciduous forests, besides some riparian patches. Some of the common trees found here include the State tree of Goa *Terminalia Crenulata* (Crocodile Bark tree), *Terminalia paniculata* (Kindai), *Terminalia tomentosa* (Matti),

Terminalia bellirica (Ghoting), *Langerstroemia lanceolate* (Nano), *Dalbergia Latifolia* (Shesham), *Dalbergia sisso* (shishoo), *Adina cordifolia* (Haldu), *Emblica officinalis* (Awala), *Macaranga peltata* (Chanado), *Gmelina arborea* (Shivan), *Syzygium Jambos* (Jamba), *Dillenia pentagyna* (Karmal), *Careya arborea* (Kumbyo). Besides trees, there are medicinal herbs and roots that are native to Goa's tropical forests. Common climbers include *Calycopteris floribunda* (Uski).

TABLE 2.9: Details of Flora of Bondla Wildlife Sanctuary		
Sr. No.	Vernacular Name	Scientific Name
1.	Khair	<i>Acacia catechu</i>
2.	Hedu	<i>Adina cardifolia</i>
3.	Shiras	<i>Albizia lebbak</i>
4.	Saton	<i>Alstonia scholaris</i>
5.	Salai	<i>Aporusa lindleyana</i>
6.	Phanas	<i>Artocarpus integrifolia</i>
7.	Ottamb	<i>Artocarpus lakoocha</i>
8.	Nimb	<i>Azadirachta indica</i>
9.	Apto	<i>Bauhinia racemosa</i>
10.	Savar	<i>Bombax ceiba</i>
11.	KhatemAsan/Katekavanch	<i>Bridelia retusa</i>
12.	Chara	<i>Buchnanania lanzan</i>
13.	Palas	<i>Butea monospermum</i>
14.	Phalyo	<i>Callicarpa tomentosa</i>
15.	Undi	<i>Callophyllum inophyllum</i>
16.	Uski	<i>Calycopteris floribunda</i>
17.	Panshi, Makadbhiran	<i>Carallia branhiata</i>
18.	Kumbyo	<i>Careya arborea</i>
19.	Birlo mad	<i>Caryota urens</i>
20.	Bayo, Balo	<i>Cassia fistula</i>
21.	Savar	<i>Ceiba pentandra</i>
22.	Shisham	<i>Dalbergia latifolia</i>
23.	Kanranj	<i>Derris scandens</i>
24.	Karmal	<i>Dillenia pentagyna</i>

TABLE 2.9: Details of Flora of Bondla Wildlife Sanctuary		
Sr. No.	Vernacular Name	Scientific Name
25.	Rumad	<i>Ficus glomerata</i>
26.	Pipal	<i>Ficus religiosa</i>
27.	Bhiran	<i>Garcinia indica</i>
28.	Shivan	<i>Gmelina arborea</i>
29.	Dhaman	<i>Grewia tillifolia</i>
30.	Kivan	<i>Helicters isora</i>
31.	Kudo	<i>Holarrhena antidysentrica</i>
32.	Bibo	<i>Holigarnia arnottiana</i>
33.	Vamolo	<i>Holoptelia integrifolia</i>
34.	Pav	<i>Hopea wightiana</i>
35.	Khast, Kavat	<i>Hydnocarpus laurifolia</i>
36.	Nano	<i>Lagerstroemia lanceolata</i>
37.	Taman	<i>Lagerstroemia parviflora</i>
38.	Moi	<i>Lannea coromandalica</i>
39.	Jino/ Dino	<i>Leea indica</i>
40.	Chandado	<i>Macaranga peltata</i>
41.	Ambo	<i>Mangifera indica</i>
42.	Onval	<i>Mimusops elengi</i>
43.	Kalamb	<i>Mitragyna parvifolia</i>
44.	Miryo, Mirio	<i>Polyalthia fragrans</i>
45.	Asan	<i>Pterocarpus marsupium</i>
46.	Kharshing	<i>Radermachera xylocarpa</i>
47.	Gel	<i>Randia deumatorum</i>
48.	Uro	<i>Sapium insigne</i>
49.	Ashoka	<i>Saracca indica</i>
50.	Kasamb	<i>Schleichera oleosa</i>
51.	Biboi	<i>Semecarpus anacardium</i>
52.	Ran Ambado	<i>Spondeas acuminate</i>
53.	Ambado	<i>Spondeas mangifera</i>
54.	Nagin	<i>Sterculia foetida</i>
55.	Kulinder	<i>Sterculia guttata</i>

TABLE 2.9: Details of Flora of Bondla Wildlife Sanctuary		
Sr. No.	Vernacular Name	Scientific Name
56.	Dhavoruk, Pandruk	<i>Sterculia urens</i>
57.	Kusgo	<i>Sterospermum suaveolens</i>
58.	Kajro, Karo	<i>Strychnos nux-vomica</i>
59.	Bhedus	<i>Sygzium caryophyallatum</i>
60.	Jambul	<i>Sygzium cumini</i>
61.	Kudo	<i>Tabernamontana heyneana</i>
62.	Chinch	<i>Tamarindus indicus</i>
63.	Saylo	<i>Tectona grandis</i>
64.	Goting	<i>Teminalia bellarica</i>
65.	Kindal	<i>Teminalia paniculata</i>
66.	Marat	<i>Teminalia tomentosa</i>
67.	Hirda, Huradi	<i>Terminalia chebula</i>
68.	Bomovaropetari	<i>Trewia nudiflora</i>
69.	Bavalgi	<i>Vitex altissima</i>
70.	Zambo	<i>Xylia xylocarpa</i>
71.	Tirpal	<i>Zanthoxylum retsa</i>
72.	Kalokona	<i>Ixora brackiata</i>
SHRUBS		
73.	Aduso	<i>Adathoda vasica</i>
74.	Phatrphala	<i>Bridelia stipularis</i>
75.	Rui	<i>Calatrophis gigantea</i>
76.	Uski	<i>Calatrophis floribunda</i>
77.	Karvanda, kanda	<i>Carissa caronda</i>
78.	Taykhilo	<i>Cassia tora</i>
79.	Bharmgi	<i>Clerodentdrum indicum</i>
80.	Pitkoli	<i>Ixora coccinea</i>
81.	Baknal	<i>Lobelia nicotianaefolia</i>
82.	Asale, chivara	<i>Moullava spicata</i>
83.	Bemdarli	<i>Pothos scandens</i>
84.	Nimgud	<i>Vitex negundo</i>
85.	Kanera	<i>Zizhuphus oenoplia</i>

TABLE 2.9: Details of Flora of Bondla Wildlife Sanctuary		
Sr. No.	Vernacular Name	Scientific Name
86.	Churna	<i>Zizhuphus rugosa</i>
HERBS		
87.	Aghado	<i>Achyranthes aspera</i>
88.	Suran	<i>Amorphophallus campanulatus</i>
89.	Shatavari	<i>Asparagus racemosus</i>
90.	Velu	<i>Bambusa arundinacea</i>
91.	Punarvana	<i>Boerhavia diffusa</i>
92.	Gundhurichi bhaji	<i>Centella asiatica</i>
93.	Haryali	<i>Cynodon dactylon</i>
94.	Mako	<i>Eclipta alba</i>
95.	Wagchampo	<i>Gloriosa superb</i>
96.	Dudshiri	<i>Hemidesmus indicus</i>
97.	Tumbo	<i>Leucas aspera</i>
98.	Ortelamv	<i>Menthe arvensis</i>
99.	Ramtulus	<i>Ocimum americanum</i>
100.	Tulas	<i>Ocimum sanctum</i>
101.	Atki	<i>Rauvolfia serpentina</i>
102.	Ghot vel or karval kamti	<i>Similax zeylantica</i>
103.	Karad	<i>Themeda cymbaria</i>
104.	Karad	<i>Themeda triandra</i>

Following are images of the floral diversity of Bondla Wildlife Sanctuary. The Predominant tree species observed are:

Table 2.10: Predominant Trees of Bondla WLS	
1. <i>Terminalia Crenulata</i> (Crocodile Bark tree),	7. <i>Adina cordifolia</i> (Haldu),
2. <i>Terminalia paniculata</i> (Kindai),	8. <i>Emblica officinalis</i> (Awala),
3. <i>Terminalia tomentosa</i> (Matti),	9. <i>Macaranga peltata</i> (Chanado),
4. <i>Terminalia bellirica</i> (Ghoting),	10. <i>Gmelina arborea</i> (Shivan),
5. <i>Langerstroemia lanceolate</i> (Nano),	11. <i>Xylia xylocarpa</i> (Zambo),
6. <i>Dalbergia Latifolia</i> (Shesham),	12. <i>Dillenia pentagyna</i> (Karmal),
	13. <i>Careya arborea</i> (Kumbyo)

FIG.2.21: GLIMPSE OF FLORA OF BONDLA WILDLIFE SANCTUARY
(Photography: Nandini Vaz Fernandes and Paresh Porob)



FIG.2.21: GLIMPSE OF FLORA OF BONDLA WILDLIFE SANCTUARY

(Photography: Nandini Vaz Fernandes)



2.6.2. ANIMALS/FAUNA

Several biodiversity assessments have been carried out in the park. These assessments involve systematic surveys carried out by the Forest Department and researchers; as well as non-systematic assessments conducted by non-professionals via. Citizen science initiatives.

Bondla is characterized by high endemism and harbors large number of endemic and scheduled faunal species.

2.6.2.1 Endemic Species:

Endemic birds include Malabar Trogon, Malabar Gray Hornbill, Malabar Pied-Hornbill, Malabar Barbet, White-cheeked Barbet, Malabar Parakeet, Malabar Woodshrike, Malabar Lark, Gray-headed Bulbul, Flame-throated Bulbul, Square-tailed Bulbul, Dark-fronted Babbler, Malabar Starling, White-bellied Blue Flycatcher, Crimson-backed Sunbird, Loten's Sunbird, Vigors's Sunbird, Nilgiri Wood-Pigeon, Gray-fronted Green-Pigeon and Sri Lanka Frogmouth.

2.6.2.2 IUCN listed faunal species:

Vulnerable mammals at Bondla include *Bos gaurus* (Gaur), *Rusa unicolor* (Sambar), *Macaca radiate* (Bonnet macaque), *Panthera pardus* (Leopard) and *Presbytis entellus* (Langur). Endangered mammals harboured at Bondla include *Cuon alpinus* (Wild Dog), *Manis crassicaudata* (Pangolin), *Panthera tigris* (Tiger), *Loris tardigradus* (Loris). Near Threatened species include *Hyaena hyaena* (Striped hyaena).

Vulnerable avian species include *Buceros bicornis* (Great Hornbill), *Ciconia episcopus* (Woolly-necked Stork), *Clanga hastata* (Indian Spotted Eagle) and *Clanga clanga* (Greater Spotted Eagle). Endangered species seen is *Aquila nipalensis* (Steppe Eagle). Near Threatened species seen in Bondla are *Sterna aurantia* (River Tern), *Threskiornis melanocephalus* (Black-headed Ibis), *Lophotriorchis kienerii* (Rufous-bellied Eagle), *Psittacula eupatria* (Alexandrine Parakeet) and *Anthracoceros coronatus* (Malabar Pied-Hornbill).

2.6.2.3 Mammals

Bondla is represented by a large number of mammals. The more common species include Malabar Giant Squirrel (*Ratufa indica*), Gaur (*Bos gaurus*), Spotted

Deer (*Axis axis*), Sambar (*Rusa unicolor*), Indian boar (*Sus scrofa cristatus*), Golden Jackal (*Canis aureus*), Indian Leopard (*Panthera pardus fusca*) and Civet spp. Mammals such as *A. axis*, *R. unicolor*, *S. scrofa cristatus* are common in the interior of the park that is designated as a deer park. In addition, *B. gaurus* and *C. aureus* are secretive but uncommon. Furthermore, *R. indica* is a common resident found mostly in the habitats surrounding the zoological park. The presence of *A. aureus* and *P. padrus fusca* was confirmed through indirect evidences such as scat and pugmarks.

TABLE 2.11: LIST OF MAMMALS RECORDED

Sr. No.	Scientific Name	Common Name	Vernacular name	Status (As per IUCN red list Data book)
1.	<i>Panthera pardus</i>	Leopard	Bibto wagh	Vulnerable
2.	<i>Bos gaurus</i>	Gaur	Govo redo	Vulnerable
3.	<i>Cuon alpinus</i>	Wild Dog	<i>Deucolo kolsundo</i> or	Endangered
4.	<i>Rusa unicolor</i>	Sambar	Meru	Vulnerable
5.	<i>Presbytis entellus</i>	Common Langur	Vanor	Vulnerable
6.	<i>Loris tardigradus</i>	Loris	Van manus	Endangered
7.	<i>Lutrogale perspicillata</i>	Smooth coated otter	Udh	Vulnerable
8.	<i>Macacaradiata</i>	Bonnet macaque	Khete, Makod	Vulnerable
9.	<i>Manis crassicaudata</i>	Pangolin	Therio	Endangered
10.	<i>Hyaena hyaena</i>	Striped hyaena	Bhalu or Yeul	Near Threatened
11.	<i>Axis axis</i>	Spotted Deer	Cheetal	Least Concern
12.	<i>Bandicota indica</i>	Bandicoot rat	Kolundir	Least Concern
13.	<i>Canis aureus</i>	Golden Jackal	Kolo	Least Concern
14.	<i>Canis aureus</i>	Jackal	Colo	Least Concern
15.	<i>Cynopterus brachyotis</i>	Indian fulvous fruit bat	Pakho	Least Concern

TABLE 2.11: LIST OF MAMMALS RECORDED

Sr. No.	Scientific Name	Common Name	Vernacular name	Status (As per IUCN red list Data book)
16.	<i>Funambulus palmarum</i>	Three stripped palm squirrel	Channi, Khar	Least Concern
17.	<i>Felis chaus</i>	Jungle cat	Baul mazor	Least Concern
18.	<i>Herpestes edwardsii</i>	Common mongoose	Mungoos	Least Concern
19.	<i>Histrics indica</i>	Porcupine	Sal, Salinder	Least Concern
20.	<i>Lepus nigricollis</i>	Black napped Hare	Sonso	Least Concern
21.	<i>Megaderma spasma</i>	Vampire bat	Vagul	Least Concern
22.	<i>Muntiacus muntjak</i>	Barking deer	Bhekaro	Least Concern
23.	<i>Mus booduga</i>	Indian field mouse	Undir	Least Concern
24.	<i>Pteropus giganteus</i>	Flying Fox	Pakho	Least Concern
25.	<i>Petaurista philippensis</i>	Indian Giant flying squirrel	Ud pakho	Least Concern
26.	<i>Paradoxurus hermaphroditus</i>	Common Palm Civet	Katanoor	Least Concern
27.	<i>Rattus rattus</i>	House rat	Undir	Least Concern
28.	<i>Ratufa indica</i>	Malabar Giant Squirrel	Shekru	Least Concern
29.	<i>Sus scrofa cristatus</i>	Indian Boar	Ran dukor	Least Concern
30.	<i>Suncus murinus</i>	Asian house shrew	chunchunderi	Least Concern
31.	<i>Moschiola indica</i>	Mouse deer	Pisoi	Least Concern
32.	<i>Viverricula indica</i>	Small indian civet	Javade	Least Concern

Fig. 2.22: SOME MAMMALS OF BONDLA
(Photography: Dr. Nandini Vaz Fernandes and Paresh Porob)



Sambar Deer



Indian Bison



Langur



Bonnet macaque



Four horned Antelope



Wild Boar

Fig. 2.22: SOME MAMMALS OF BONDLA
(Photography: Dr. Nandini Vaz Fernandes and Paresh Porob)



Spotted Deer



Leopard



Indian Grey mongoose



Indian Palm Squirrel



Malabar Giant Squirrel



Malabar Giant Squirrel

2.6.2.4: AMPHIBIANS

Table 2.12. AMPHIBIANS

Sr.No	Common name	Scientific name	Vernacular name
1	Indian toad	<i>Duttaphrynus melanosticus</i>	Manaki
2	Indian bull frog	<i>Hoplobatrachus tigerinus</i>	Bebo
3	Indian skipper frog	<i>Euphlyctis cyanophlyctis</i>	Bebki
4	Indian burrowing frog	<i>Trompterna sps</i>	Bebki
5	Malabar gliding frog	<i>Phacophorus malabaricus</i>	Bebki
6	Fungoid frog	<i>Rana malabarica</i>	Bebki
7	Gray tree frog		Bebki
8	Smith's litter frog	<i>Leptobrachium smithi</i>	Bebki
9	Matheran leaping frog	<i>Indirana leithi</i>	Bebki
10	Short palmed cricket frog	<i>Minervarya brevipalmata</i>	Bebki
11	Indian dot frog	<i>Ramanella marmorata</i>	Bebki

Fig 2.23: AMPHIBIANS OF BONDLA WILDLIFE SANCTUARY



2.6.2.5: REPTILES

Table 2.13. REPTILES

Sr.No	Common name	Scientific name	Vernacular name
1	Vine snake	<i>Ahaetulla nasutus</i>	Harvel, haryali
2	Buff stripe/ keel back	<i>Amphiesma stolatum</i>	Yevale
3	Common Indian cat snake	<i>Boiga trigonata</i>	
4	Common Indian Krait	<i>Bungurus caeruleus</i>	Kaner
5	Golden backed tree snake	<i>Chrysopelea ornata</i>	
6	Bronze backed tree snake	<i>Dendrelaphis tristis</i>	Naneti, nanado
7	Saw scaled viper	<i>Echis carinatus</i>	Phoorshe
8	Common sand boa	<i>Gongylophis conicus</i>	Sulo
9	Indian spectacled cobra	<i>Naja naja</i>	Nag, parro
10	King cobra	<i>Ophiophagus hannah</i>	Nagin, Dom
11	Indian Rat snake	<i>Ptyas mucosa</i>	Dhivodd, Dhaman
12	Indian Rock python	<i>Python molurus</i>	Har, Mayndol
13	Malabar pit viper	<i>Trimeresurus malabaricus</i>	Chapade
14	Marsh Crocodile	<i>Crocodylus palustris</i>	Mange, muggar
15	Rouxii lizard	<i>Calotes rouxii</i>	Sheddo
16	Garden lizard	<i>Calotes vericolor</i>	Sheddo
17	Flying lizard	<i>Draco dusumieri</i>	Pavto
18	Bronze skink	<i>Mabuya macularia</i>	Shirli

Fig 2.24: REPTILES OF BONDLA WILDLIFE SANCTUARY



©Siddesh Naik

Bronzebacked tree snake



©Nandini Vaz F

Skink



©Nandini Vaz F

Crocodile



©Nandini Vaz F

Garden Lizard



©Paresh Porob

Green Wine Snake



©Paresh Porob

Indian spectacled cobra

2.6.2.6 AVIFAUNA

A total of 258 resident, endemic, migratory and passage species have been recorded in the sanctuary. Species diversity of birds is high between January to May and September to December. Furthermore, important species such as Sri Lanka frogmouth (*Batrachostomus moniliger*), white-rumped vulture (*Gyps bengalensis*), black eagle (*Ictinaetus malaiensis*), black-backed dwarf kingfisher (*Ceyx erithaca*) and blue eared kingfisher (*Alcedo meninting*) have been recorded here (Data collected from field study by forest officials, management plan team and citizen science database ebird.org).

Endemic birds include Malabar Trogon, Malabar Gray Hornbill, Malabar Pied-Hornbill, Malabar Barbet, White-cheeked Barbet, Malabar Parakeet, Malabar Woodshrike, Malabar Lark, Gray-headed Bulbul, Flame-throated Bulbul, Square-tailed Bulbul, Dark-fronted Babbler, Malabar Starling, White-bellied Blue Flycatcher, Crimson-backed Sunbird, Loten's Sunbird, Vigors's Sunbird, Nilgiri Wood-Pigeon, Gray-fronted Green-Pigeon and Sri Lanka Frogmouth.

TABLE 2.14: LIST OF BIRDS RECORDED IN BONDLA WILDLIFE SANCTUARY

Sr. No.	Common Name	Scientific Name	IUCN Status
Endangered, Vulnerable and Threatened Birds			
1.	Rufous-bellied Eagle	<i>Lophotriorchis kienerii</i>	Near Threatened
2.	Indian Spotted Eagle	<i>Clanga hastata</i>	Vulnerable
3.	Greater Spotted Eagle	<i>Clanga clanga</i>	Vulnerable
4.	Steppe Eagle	<i>Aquila nipalensis</i>	Endangered
5.	Alexandrine Parakeet	<i>Psittacula eupatria</i>	Near threatened
6.	Great Hornbill	<i>Buceros bicornis</i>	Vulnerable
7.	Malabar Pied-Hornbill	<i>Anthracoceros coronatus</i>	Near threatened
8.	River Tern	<i>Sterna aurantia</i>	Near Threatened
9.	Woolly-necked Stork	<i>Ciconia episcopus</i>	Vulnerable
Endemic Species of Birds			
10.	Malabar Trogon	<i>Harpactes fasciatus</i>	Least Concern
11.	Malabar Barbet	<i>Psilopogon malabaricus</i>	Least Concern
12.	Malabar Gray Hornbill	<i>Ocyrceros griseus</i>	Least Concern
13.	Malabar Pied-Hornbill	<i>Anthracoceros coronatus</i>	Near threatened

TABLE 2.14: LIST OF BIRDS RECORDED IN BONDLA WILDLIFE SANCTUARY

Sr. No.	Common Name	Scientific Name	IUCN Status
14.	White-cheeked Barbet	<i>Psilopogon viridis</i>	Least Concern
15.	Malabar Parakeet	<i>Psittacula columboides</i>	Least Concern
16.	Malabar Woodshrike	<i>Tephrodornis sylvicola</i>	Least Concern
17.	Malabar Lark	<i>Galerida malabarica</i>	Least Concern
18.	Gray-headed Bulbul	<i>Brachypodius priocephalus</i>	Least Concern
19.	Flame-throated Bulbul	<i>Rubigula gularis</i>	Least Concern
20.	Square-tailed Bulbul	<i>Hypsipetes ganeesa</i>	Least Concern
21.	Dark-fronted Babbler	<i>Rhopocichla atriceps</i>	Least Concern
22.	Malabar Starling	<i>Sturnia blythii</i>	Least Concern
23.	White-bellied Blue Flycatcher	<i>Cyornis pallidipes</i>	Least Concern
24.	Crimson-backed Sunbird	<i>Nectarinia minima</i>	Least Concern
25.	Loten's Sunbird	<i>Nectarinia lotenia</i>	Least Concern
26.	Vigors Sunbird	<i>Aethopyga vigorsii</i>	Least Concern
27.	Nilgiri Wood-Pigeon	<i>Columba elphinstonii</i>	Least Concern
28.	Gray-fronted Green-Pigeon	<i>Treron affinis</i>	Least Concern
29.	Sri Lanka Frogmouth	<i>Batrachostomus moniliger</i>	Least Concern
Other Birds of Bondla Wildlife Sanctuary			
30.	Wood Sandpiper	<i>Tringa glareola</i>	Least Concern
31.	Lesser Adjutant	<i>Leptoptilos javanicus</i>	Least Concern
32.	Little Cormorant	<i>Microcarbo melanoleucos</i>	Least Concern
33.	Cattle Egret	<i>Bubulcus ibis</i>	Least Concern
34.	Indian Pond-Heron	<i>Ardeola grayii</i>	Least Concern
35.	Black-winged Kite	<i>Elanus caeruleus</i>	Least Concern
36.	Oriental Honey-buzzard	<i>Pernis ptilorhynchus</i>	Least Concern
37.	Crested Serpent-Eagle	<i>Spilornis cheela</i>	Least Concern
38.	Changeable Hawk-Eagle	<i>Nisaetus cirrhatus</i>	Least Concern
39.	Legge's Hawk-Eagle	<i>Nisaetus kelaarti</i>	Least Concern
40.	Black Eagle	<i>Spizaetus tyrannus</i>	Least Concern
41.	Booted Eagle	<i>Hieraaetus pennatus</i>	Least Concern
42.	Bonelli's Eagle	<i>Aquila fasciata</i>	Least Concern
43.	White-eyed Buzzard	<i>Butastur teesa</i>	Least Concern
44.	Crested Goshawk	<i>Accipiter trivirgatus</i>	Least Concern
45.	Shikra	<i>Accipiter badius</i>	Least Concern
46.	Besra	<i>Accipiter virgatus</i>	Least Concern
47.	Black Kite	<i>Milvus migrans</i>	Least Concern
48.	Brahminy Kite	<i>Haliastur rindus</i>	Least Concern
49.	White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	Least Concern
50.	Barn Owl	<i>Tyto alba</i>	Least Concern
51.	Indian Scops-Owl	<i>Otus bakkamoena</i>	Least Concern

TABLE 2.14: LIST OF BIRDS RECORDED IN BONDLA WILDLIFE SANCTUARY

Sr. No.	Common Name	Scientific Name	IUCN Status
52.	Oriental Scops-Owl	<i>Otus sunia</i>	Least Concern
53.	Brown Fish-Owl	<i>Ketupa zeylonensis</i>	Least Concern
54.	Jungle Owlet	<i>Glaucidium radiatum</i>	Least Concern
55.	Spotted Owlet	<i>Athene brama</i>	Least Concern
56.	Brown Wood-Owl	<i>Strix leptogrammica</i>	Least Concern
57.	Brown Boobook	<i>Ninox scutulata</i>	Least Concern
58.	Eurasian Hoopoe	<i>Upupa epops</i>	Least Concern
59.	Indian Gray Hornbill	<i>Ocyrceros birostris</i>	Least Concern
60.	Common Kingfisher	<i>Alcedo atthis</i>	Least Concern
61.	Blue-eared Kingfisher	<i>Alcedo meninting</i>	Least Concern
62.	Black-backed Dwarf-Kingfisher	<i>Ceyx erithaca</i>	Least Concern
63.	Stork-billed Kingfisher	<i>Pelargopsis capensis</i>	Least Concern
64.	White-throated Kingfisher	<i>Halcyon smyrnensis</i>	Least Concern
65.	Pied Kingfisher	<i>Ceryle rudis</i>	Least Concern
66.	Blue-bearded Bee-eater	<i>Nyctyornis athertoni</i>	Least Concern
67.	Green Bee-eater	<i>Merops orientalis</i>	Least Concern
68.	Blue bearded Bee-eater	<i>Nyctyornis athertoni</i>	Least Concern
69.	Chestnut-headed Bee-eater	<i>Merops leschenaulti</i>	Least Concern
70.	Indian Roller	<i>Coracias benghalensis</i>	Least Concern
71.	Coppersmith Barbet	<i>Psilopogon haemacephalus</i>	Least Concern
72.	Brown-headed Barbet	<i>Psilopogon zeylanicus</i>	Least Concern
73.	Eurasian Wryneck	<i>Jynx torquilla</i>	Least Concern
74.	Speckled Piculet	<i>Picumnus nominatus</i>	Least Concern
75.	Heart-spotted Woodpecker	<i>Hemicircus canente</i>	Least Concern
76.	Brown-capped Woodpecker	<i>Yungipicus nanus</i>	Least Concern
77.	Greater Flameback	<i>Chrysocolaptes guttacristatus</i>	Least Concern
78.	White-naped Woodpecker	<i>Chrysocolaptes festivus</i>	Least Concern
79.	Rufous Woodpecker	<i>Micropternus brachyurus</i>	Least Concern
80.	Black-rumped Flameback	<i>Dinopium benghalense</i>	Least Concern
81.	White-bellied Woodpecker	<i>Dryocopus javensis</i>	Least Concern
82.	Eurasian Kestrel	<i>Falco tinnunculus</i>	Least Concern
83.	Amur Falcon	<i>Falco amurensis</i>	Least Concern
84.	Eurasian Hobby	<i>Falco Subbuteo</i>	Least Concern
85.	Peregrine Falcon	<i>Falco peregrinus</i>	Least Concern
86.	Rose-ringed Parakeet	<i>Psittacula krameri</i>	Least Concern
87.	Plum-headed Parakeet	<i>Psittacula cyanocephala</i>	Least Concern
88.	Vernal Hanging-Parrot	<i>Loriculus vernalis</i>	Least Concern
89.	Indian Pitta	<i>Pitta brachyuran</i>	Least Concern

TABLE 2.14: LIST OF BIRDS RECORDED IN BONDLA WILDLIFE SANCTUARY

Sr. No.	Common Name	Scientific Name	IUCN Status
90.	Small Minivet	<i>Pericrocotus cinnamomeus</i>	Least Concern
91.	Orange Minivet	<i>Pericrocotus flammeus</i>	Least Concern
92.	Large Cuckooshrike	<i>Coracina macei</i>	Least Concern
93.	Black-headed Cuckooshrike	<i>Lalage melanoptera</i>	Least Concern
94.	Indian Golden Oriole	<i>Oriolus kundoo</i>	Least Concern
95.	Black-napped Oriole	<i>Oriolus chinensis</i>	Least Concern
96.	Black-hooded Oriole	<i>Oriolus xanthornus</i>	Least Concern
97.	Ashy Woodswallow	<i>Artamus fuscus</i>	Least Concern
98.	Common Woodshrike	<i>Tephrodornis pondicerianus</i>	Least Concern
99.	Bar-winged Flycatcher-shrike	<i>Hemipus picatus</i>	Least Concern
100.	Common Iora	<i>Aegithina tiphia</i>	Least Concern
101.	Spot-breasted Fantail	<i>Rhipiduraal bogularis</i>	Least Concern
102.	Black Drongo	<i>Dicrurus macrocercus</i>	Least Concern
103.	Ashy Drongo	<i>Dicrurus leucophaeus</i>	Least Concern
104.	White-bellied Drongo	<i>Dicrurus caerulescens</i>	Least Concern
105.	Bronzed Drongo	<i>Dicrurus aeneus</i>	Least Concern
106.	Hair-crested Drongo	<i>Dicrurus hottentottus</i>	Least Concern
107.	Greater Racket-tailed Drongo	<i>Dicrurus paradiseus</i>	Least Concern
108.	Black-naped Monarch	<i>Hypothymis azurea</i>	Least Concern
109.	Indian Paradise-Flycatcher	<i>Terpsiphone paradisi</i>	Least Concern
110.	Brown Shrike	<i>Lanius cristatus</i>	Least Concern
111.	Long-tailed Shrike	<i>Lanius schach</i>	Least Concern
112.	Rufous Treepie	<i>Dendrocitta vagabunda</i>	Least Concern
113.	House Crow	<i>Corvus splendens</i>	Least Concern
114.	Large-billed Crow	<i>Corvus macrorhynchos</i>	Least Concern
115.	Gray-headed Canary-Flycatcher	<i>Culicica paceylonensis</i>	Least Concern
116.	Indian Yellow Tit	<i>Machlolophus aplonotus</i>	Least Concern
117.	Sykes's Short-toed Lark	<i>Calandrella dukhunensis</i>	Least Concern
118.	Common Tailorbird	<i>Orthotomus sutorius</i>	Least Concern
119.	Gray-breasted Prinia	<i>Prinia hodgsonii</i>	Least Concern
120.	Ashy Prinia	<i>Prinia socialis</i>	Least Concern
121.	Plain Prinia	<i>Prinia inornata</i>	Least Concern
122.	Thick-billed Warbler	<i>Arundina xaedon</i>	Least Concern
123.	Booted Warbler	<i>Hippolais caligata</i>	Least Concern
124.	Blyth's Reed Warbler	<i>Acrocephalus dumetorum</i>	Least Concern

TABLE 2.14: LIST OF BIRDS RECORDED IN BONDLA WILDLIFE SANCTUARY

Sr. No.	Common Name	Scientific Name	IUCN Status
125.	Clamorous Reed Warbler	<i>Acrocephalus stentoreus</i>	Least Concern
126.	Dusky Crag-Martin	<i>Ptyonoprogne concolor</i>	Least Concern
127.	Barn Swallow	<i>Hirundo rustica</i>	Least Concern
128.	Wire-tailed Swallow	<i>Hirundo smithii</i>	Least Concern
129.	Red-rumped Swallow	<i>Cecropisd aurica</i>	Least Concern
130.	Streak-throated Swallow	<i>Petrochelidonfluvicola</i>	Least Concern
131.	Common House-Martin	<i>Delichon urbicum</i>	Least Concern
132.	Red-vented Bulbul	<i>Pycnonotus cafer</i>	Least Concern
133.	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	Least Concern
134.	White-browed Bulbul	<i>Pycnonotus luteolus</i>	Least Concern
135.	Yellow-browed Bulbul	<i>Iole indica</i>	Least Concern
136.	Yellow-browed/Hume's Warbler	<i>Phylloscopus inornatus</i>	Least Concern
137.	Tytler's Leaf Warbler	<i>Phylloscopus tytleri</i>	Least Concern
138.	Sulphur-bellied Warbler	<i>Phylloscopus griseolus</i>	Least Concern
139.	Green Warbler	<i>Phylloscopus nitidus</i>	Least Concern
140.	Greenish Warbler	<i>Phylloscopus trochiloides</i>	Least Concern
141.	Large-billed Leaf Warbler	<i>Phylloscopus magnirostris</i>	Least Concern
142.	Western Crowned Warbler	<i>Phylloscopus occipitalis</i>	Least Concern
143.	Indian White-eye	<i>Zosterops palpebrosus</i>	Least Concern
144.	Tawny-bellied Babbler	<i>Dumetia hyperythra</i>	Least Concern
145.	Indian Scimitar-Babbler	<i>Pomatorhinus horsfieldii</i>	Least Concern
146.	Puff-throated Babbler	<i>Pellorneum ruficeps</i>	Least Concern
147.	Brown-cheeked Fulvetta	<i>Alcippe poioicephala</i>	Least Concern
148.	Jungle Babbler	<i>Turdoides striata</i>	Least Concern
149.	Velvet-fronted Nuthatch	<i>Sitta frontalis</i>	Least Concern
150.	Rosy Starling	<i>Sturnus roseus</i>	Least Concern
151.	Brahminy Starling	<i>Sturnia pagodarum</i>	Least Concern
152.	Chestnut-tailed Starling	<i>Sturnia malabarica</i>	Least Concern
153.	Common Myna	<i>Acridotheres tristis</i>	Least Concern
154.	Jungle Myna	<i>Acridotheres fuscus</i>	Least Concern
155.	Orange-headed Thrush	<i>Geokichla citrina</i>	Least Concern
156.	Indian Blackbird	<i>Turdus simillimus</i>	Least Concern
157.	Tickell's Thrush	<i>Turdus unicolor</i>	Least Concern
158.	Asian Brown Flycatcher	<i>Muscicapa dauurica</i>	Least Concern
159.	Brown-breasted Flycatcher	<i>Muscicapa muttui</i>	Least Concern
160.	Indian Robin	<i>Copsychus fulicatus</i>	Least Concern
161.	Oriental Magpie-Robin	<i>Copsychus saularis</i>	Least Concern
162.	White-rumpedShama	<i>Copsychus malabaricus</i>	Least Concern
163.	Tickell's Blue Flycatcher	<i>Cyorni stickelliae</i>	Least Concern

TABLE 2.14: LIST OF BIRDS RECORDED IN BONDLA WILDLIFE SANCTUARY

Sr. No.	Common Name	Scientific Name	IUCN Status
164.	Verditer Flycatcher	<i>Eumyias thalassinus</i>	Least Concern
165.	Indian Blue Robin	<i>Larvivora brunnea</i>	Least Concern
166.	Malabar Whistling-Thrush	<i>Myophonus horsfieldii</i>	Least Concern
167.	Ultramarine Flycatcher	<i>Ficedula supercilialis</i>	Least Concern
168.	Rusty-tailed Flycatcher	<i>Ficedula ruficauda</i>	Least Concern
169.	Taiga Flycatcher	<i>Ficedula albicilla</i>	Least Concern
170.	Red-breasted Flycatcher	<i>Ficedula parva</i>	Least Concern
171.	Black Redstart	<i>Phoenicurus ochrurus</i>	Least Concern
172.	Blue-capped Rock-Thrush	<i>Monticola cinclorhyncha</i>	Least Concern
173.	Siberian Stonechat	<i>Saxicola maurus</i>	Least Concern
174.	Pied Bushchat	<i>Saxicola caprata</i>	Least Concern
175.	Thick-billed Flowerpecker	<i>Dicaeum agile</i>	Least Concern
176.	Pale-billed Flowerpecker	<i>Dicaeum erythrorhynchos</i>	Least Concern
177.	Nilgiri Flowerpecker	<i>Dicaeum concolor</i>	Least Concern
178.	Purple-rumped Sunbird	<i>Leptocoma zeylonica</i>	Least Concern
179.	Purple Sunbird	<i>Cinnyris asiaticus</i>	Least Concern
180.	Little Spiderhunter	<i>Arachnothera longirostra</i>	Least Concern
181.	Asian Fairy-bluebird	<i>Irena puella</i>	Least Concern
182.	Jerdon's Leafbird	<i>Chloropsis jerdoni</i>	Least Concern
183.	Golden-fronted Leafbird	<i>Chloropsis aurifrons</i>	Least Concern
184.	Baya Weaver	<i>Ploceus philippinus</i>	Least Concern
185.	White-rumped Munia	<i>Lonchura striata</i>	Least Concern
186.	Black-throated Munia	<i>Lonchura kelaarti</i>	Least Concern
187.	Scaly-breasted Munia	<i>Lonchura punctulata</i>	Least Concern
188.	Tricolored Munia	<i>Lonchura Malacca</i>	Least Concern
189.	Yellow-throated Sparrow	<i>Gymnoris xanthocollis</i>	Least Concern
190.	Forest Wagtail	<i>Dendronanthus indicus</i>	Least Concern
191.	Gray Wagtail	<i>Motacilla cinerea</i>	Least Concern
192.	Western Yellow Wagtail	<i>Motacilla flava</i>	Least Concern
193.	White-browed Wagtail	<i>Motacilla maderaspatensis</i>	Least Concern
194.	Black-headed Bunting	<i>Emberiza melanocephala</i>	Least Concern
195.	Lesser Whistling-Duck	<i>Dendrocygna javanica</i>	Least Concern
196.	Indian Peafowl	<i>Pavo cristatus</i>	Least Concern
197.	Red Spurfowl	<i>Galloperdix spadicea</i>	Least Concern
198.	Gray Junglefowl	<i>Gallus sonneratii</i>	Least Concern
199.	Rock Pigeon	<i>Columba livia</i>	Least Concern
200.	Oriental Turtle-Dove	<i>Streptopelia orientalis</i>	Least Concern
201.	Eurasian Collared-Dove	<i>Streptopelia decaocto</i>	Least Concern
202.	Red Collared-Dove	<i>Streptopelia tranquebarica</i>	Least Concern
203.	Spotted Dove	<i>Spilopelia chinensis</i>	Least Concern

TABLE 2.14: LIST OF BIRDS RECORDED IN BONDLA WILDLIFE SANCTUARY

Sr. No.	Common Name	Scientific Name	IUCN Status
204.	Asian Emerald Dove	<i>Chalcophaps indica</i>	Least Concern
205.	Mountain Imperial-Pigeon	<i>Ducula badia</i>	Least Concern
206.	Greater Coucal	<i>Centropus sinensis</i>	Least Concern
207.	Blue-faced Malkoha	<i>Phaenicophaeus viridirostris</i>	Least Concern
208.	Pied Cuckoo	<i>Clamator jacobinus</i>	Least Concern
209.	Asian Koel	<i>Eudynamys scolopaceus</i>	Least Concern
210.	Banded Bay Cuckoo	<i>Cacomantis sonneratii</i>	Least Concern
211.	Gray-bellied Cuckoo	<i>Cacomantis passerinus</i>	Least Concern
212.	Fork-tailed Drongo-Cuckoo	<i>Surniculus dicruroides</i>	Least Concern
213.	Large Hawk-Cuckoo	<i>Hierococcyx sparveroides</i>	Least Concern
214.	Common Hawk-Cuckoo	<i>Hierococcyx varius</i>	Least Concern
215.	Indian Cuckoo	<i>Cuculus micropterus</i>	Least Concern
216.	Common Cuckoo	<i>Cuculus canorus</i>	Least Concern
217.	Jungle Nightjar	<i>Caprimulgus indicus</i>	Least Concern
218.	Jerdon's Nightjar	<i>Caprimulgus atripennis</i>	Least Concern
219.	Savanna Nightjar	<i>Caprimulgus affinis</i>	Least Concern
220.	White-rumped Needletail	<i>Zoonavena sylvatica</i>	Least Concern
221.	Indian Swiftlet	<i>Aerodramus unicolor</i>	Least Concern
222.	Alpine Swift	<i>Apus melba</i>	Least Concern
223.	Little Swift	<i>Apus affinis</i>	Least Concern
224.	Asian Palm-Swift	<i>Cypsiurus balasiensis</i>	Least Concern
225.	Crested Treeswift	<i>Hemiproctus coronata</i>	Least Concern
226.	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	Least Concern
227.	Slaty-legged Crake	<i>Rallina eurizonoides</i>	Least Concern
228.	Red-wattled Lapwing	<i>Vanellus indicus</i>	Least Concern
229.	Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>	Least Concern
230.	Common Sandpiper	<i>Tringa hypoleucos</i>	Least Concern
231.	Blue rock thrush	<i>Monticola solitarius</i>	Least Concern
232.	Blue-throated flycatcher	<i>Cyornis rubeculoides</i>	Least Concern
233.	Spotted Flycatcher	<i>Muscicapa striata</i>	Least Concern
234.	Southern Hill Myna	<i>Gracula indica</i>	Least Concern
235.	Quaker tit babbler	<i>Alcippe poioicephala</i>	Least Concern
236.	Yellow-fronted pied woodpecker	<i>Leiopicus mahrattensis</i>	Least Concern
237.	Yellow footed green pigeon	<i>Treron phoenicoptera</i>	Least Concern
238.	Common Swift	<i>Apus apus</i>	Least Concern
239.	Common Buzzard	<i>Buteo buteo</i>	Least Concern

Fig 2.25: AVIFAUNA OF BONDLA WILDLIFE SANCTUARY



©Nandini Vaz F

Small Minivet



©Paresh Porob

Peacock



©Siddesh Naik

White Breasted Kingfisher



©Nandini Vaz F

White Cheeked Barbet



©Siddesh Naik

Blue bearded Beeeater



©Siddesh Naik

Shikra

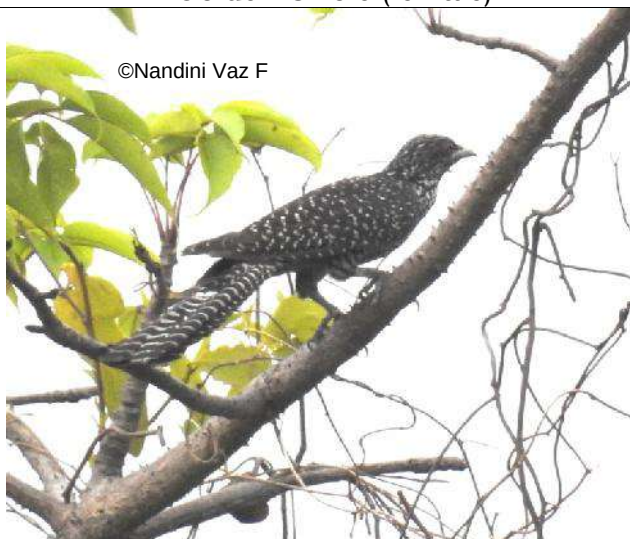
Fig 2.25: AVIFAUNA OF BONDLA WILDLIFE SANCTUARY



Golden Oriole (female)



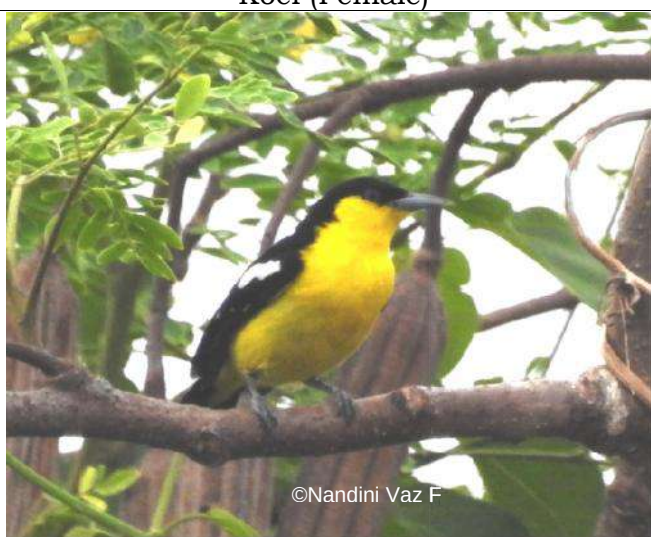
Golden Oriole (male)



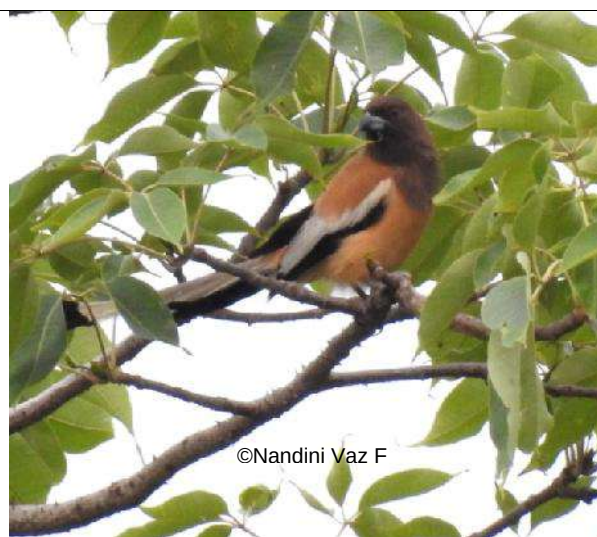
Koel (Female)



Koel (male)



Common Iora



Rufous Treepie

Fig 2.25: AVIFAUNA OF BONDLA WILDLIFE SANCTUARY



©Nandini Vaz F

Scaly Breasted Munia



©Nandini Vaz F

White rumped Munia



Jerdon's Leafbird



©Nandini Vaz F

Golden-fronted leafbird



©Nandini Vaz F

©Nandini Vaz F

Greater Goldenback Woodpecker(male)



©Nandini Vaz F

Greater Goldenback Woodpecker(female)

Fig 2.25: AVIFAUNA OF BONDLA WILDLIFE SANCTUARY



Malabar Trogon(female)



Bar-Winged Flycatcher-Shrike



Vigors sunbird



Velvet-fronted Nuthatch



Purple-rumped sunbird



Purple Sunbird

Fig 2.25: AVIFAUNA OF BONDLA WILDLIFE SANCTUARY



Indian Jungle Crow



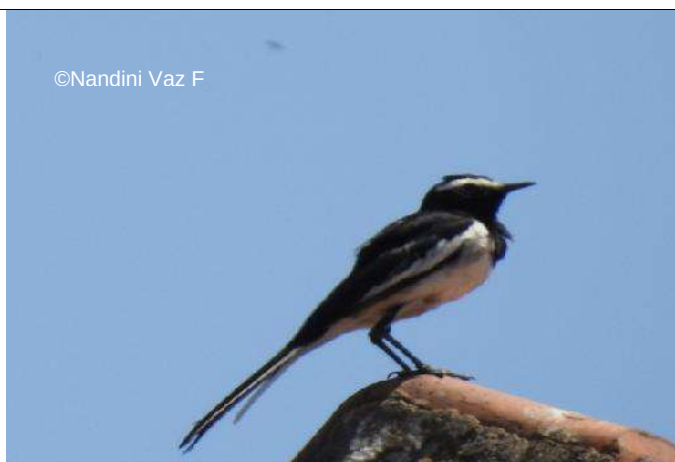
Crow Pheasant



Jungle Babbler



Tailor bird



Whitebrowed Wagtail



Indian robin

Fig 2.25: AVIFAUNA OF BONDLA WILDLIFE SANCTUARY

©Nandini Vaz F

©Nandini Vaz F



Ashy Prinia



Magpie Robin



Red Vented Bulbul



Red whiskered Bulbul



Grey-Fronted Green Pigeon



Chestnut tailed Starling

Fig 2.25: AVIFAUNA OF BONDLA WILDLIFE SANCTUARY



Brahminy Kite



Pariah Kite



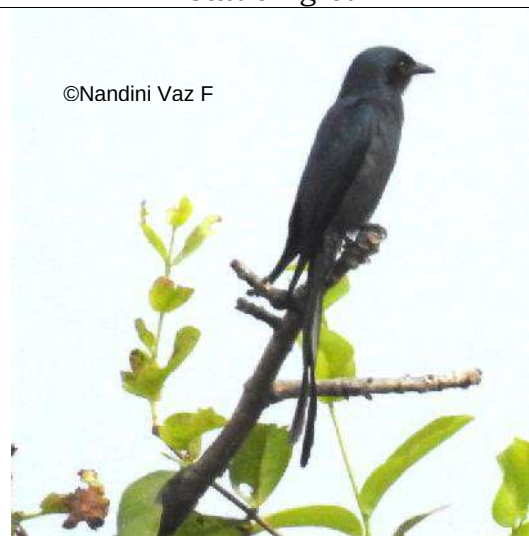
Little Cormorant



Cattle Egret



Ashy Drongo



Black Drongo

Fig 2.25: AVIFAUNA OF BONDLA WILDLIFE SANCTUARY



Siberian Stonechat



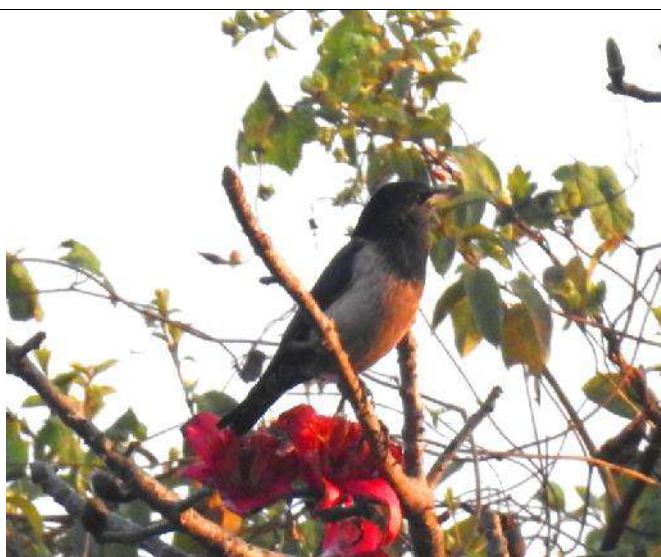
Chestnut Headed Bee Eater



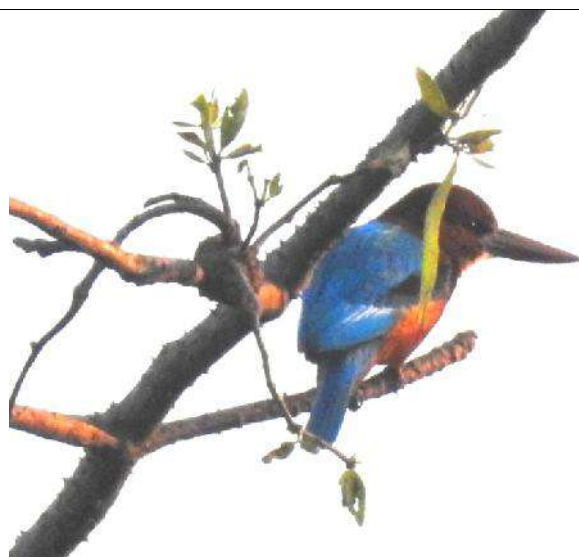
House Sparrow (female)



House Sparrow (male)



Rosy Starling



White breasted Kingfisher

CHAPTER 3: HISTORY OF MANAGEMENT AND PRESENT PRACTICES



CHAPTER 3: HISTORY OF MANAGEMENT AND PRESENT PRACTICES

3.1. General

3.1.1 Bondla Wildlife Sanctuary Establishment

Bondla Wildlife Sanctuary was designated as a “Game Sanctuary” vide notification DF-894-FOR-67 dated 3rd April 1969 issued under sections 18 and 19 of the Goa, Daman and Diu Wild Animals and Wild Birds protection Act, 1965. In 2003, the boundaries of “Bondla Wildlife Sanctuary” were notified by the Government of Goa vide notification of Government Gazette series III No. 29 dated 16th October 2003 and subsequently Vide notification S.O. 615 (E) dated 25/1/2015 an area with an extent of one kilometer of land or the water body, whichever is near to the Bondla Wildlife Sanctuary was declared, as the Eco-sensitive Zone.

All existing practices are discussed in this Chapter.

3.1.2 Past Management Plans:

This is the first Management Plan for Bondla Wildlife Sanctuary for 10 year period from 2021-2031. The management was based on the working plans approved.

3.2 Timber Operations Including Bamboo and Firewood Harvest

In Bondla wildlife sanctuary, there are no timber operations. As a policy decision, endemic and fruit bearing plants are grown in the sanctuary enabling the animals to feed on natural sources of food found within geographical areas of wildlife sanctuary. Trees that are felled due to age or uprooted due to natural phenomena like torrential rains are kept in-situ to degrade naturally. Therefore, this wildlife sanctuary does not have any problems of firewood harvest.

3.2.1 Silvicultural Systems and Tending Operations:

No silvicultural systems exist for timber production in the Bondla wildlife sanctuary. Silviculture is the practice of controlling the growth, composition/structure, and quality of forests to meet values and needs, specifically timber production. Therefore, objective at Bondla WLS is to manipulate forest vegetation through prescriptions to fulfill various objectives such as sustaining wildlife habitat, maintaining hydrological processes, restoring ecosystems and conserving biodiversity.

Enrichment plantations are taken up annually and are protected using fencing of natural material.



Fig. 3.1: Afforestation present Practice

Enrichment plantation- Afforestation process followed

- 625 saplings per hectare.
- Spacing 4 x 4 metres.
- Cycle of 2-3 years for replacement/regeneration.
- Each year 02 hectare plantation carried out.
- Protective fencing of Natural material used.
- Grasslands are maintained as feeding grounds for herbivores.

3.2.2 Even-aged Systems and Uneven-aged Systems

NIL

3.2.3 Bamboo Working

Plantation of Bamboo is carried out annually as regeneration activity. Bamboo plantations are mostly located at the Conquerim beat, which is included in Conquerim village. In fact the name of village ‘Conquerim’ itself is derived from ‘bamboo’.

Common bamboo species grown are:

- 1) Chiva – *Ocytenanthera ritcheyi*
- 2) Manis – *Dendrecalamus strictus*
- 3) Velus – *Bambusa arunidinacea*

Bamboos are in demand for rural handicraft industries and scaffolding in the construction works.

3.2.4 Firewood Harvest and Collection

No such activity permitted

3.3 Non Wood Forest Produce (NWP) Collection

No such activity permitted

3.4 Leases

Nil

3.5 Other Programmes and Activities

Bondla Wildlife Sanctuary organizes ‘Nature’ awareness camps for nearby villagers and school students where village level awareness camps, spot drawing competitions, essay writing competitions, cycle rallies for nature awareness, best of waste campaigns, nature awareness trips are conducted. These activities are organized by the staff/forest officials of the sanctuary.

Wildlife documentaries are also shown to students, teachers and their parents to create awareness about forest and wildlife. These are conducted at the Nature Information Centre. Some of the activities conducted are as follows: Wildlife week (Oct 1st week), Study trips, Bird festival, Nature trail, Freelance

photography-Bird watching, sampling /research/Geological surveys by NGOs/research centres.

3.6 Forest Protection

3.6.1 Legal Status

Bondla WLS has its legal boundaries notified as given in chapter 1. Eco-Sensitive Zone was thereafter notified as an area with an extent of one kilometer of land or the water body, whichever is near to the Bondla Wildlife Sanctuary vide notification S.O. 615 (E) dated 25/1/2015. The human settlements are in close proximity and lie in the ECZ also. Therefore, proper management and awareness programmes need to be organized for the local communities to sensitize them about conservation aspects and regulations governing the same. No conflicts have been reported.

3.6.2 Hunting

No hunting activities observed.

3.6.3 Poaching and Other Illegal Activities

Nil.

3.6.3.1 Poaching

No report of poaching incidence recorded.

3.6.3.2 Illegal Activities

3.6.3.2.1 Illegal Cutting of Trees

The wildlife sanctuary has no reported cases of illegal cutting of trees. Trees that are felled due to their age or uprooted due to natural phenomena like torrential rains are kept in-situ to degrade naturally.

3.6.3.2.2 Removal of NWP encroachment and other illegal activities.

Removal of firewood by local dwellers is nil.

3.6.4 Livestock Grazing

Cattle of the locals graze in the settlement areas and so there are no observations of livestock grazing from adjoining villages.

3.6.5 Forest fires

Sporadic cases of forest fires are reported which are minimal. A wildfire is an unplanned fire that burns forests and other wild lands such as shrubs or grassland communities. Bondla Wildlife Sanctuary is located amidst villages such as Ganjem, Guleli, Usgao and Dharbandora. Wildfires are often caused on account of human activities in the surrounding villages. Villagers from these areas have an agrarian base, practicing rain fed agriculture (paddy) and plantation (coconut and cashew). During the summers, the vegetation in the privately owned properties is lit on fire, especially the sugarcane fields. In most cases, the villagers keep the fire under control but at times due to gushing winds, the sparks of fire blow towards the reserved forest areas and towards the Sanctuary.



Fig. 3.2: Creation of a disruption zone space – A Practice followed to prevent spread of fire

Present practice: There is a reporting system through an app. The forest officials have devised technique of controlling or combating the fire the fire proactively, but this is constant threat during the summer season. Also, presently technique of creation of disruption zone is followed to prevent spread of fire.

3.6.6 Insect Attacks and Pathological Problems (GM)

No insect attacks or pathological problems are reported at Bondla Wildlife sanctuary. The flora at the Bondla wildlife Sanctuary show sporadic cases of being infested with termites. However this is not a serious threat. Also there is widespread distribution of termite mounds observed. Rhinoceros beetle infestation on plants is also reported.



Fig. 3.3: Termite infestation

3.6.7 Wildlife Health

In Bondla wildlife sanctuary, the presence of a veterinary hospital is an important component in the zoological park to ensure proper health of the animals. Here experts are required to look after the wellbeing of the animals. The sanctuary has a veterinary doctor as well as veterinary nurse to attend too health

issues of the animals. There is no recorded incidence of major health issue or communicable diseases of animals at the sanctuary.

3.6.8 Interagency Programmes and Problems

There is no operation of non governmental agencies in the sanctuary. For community involvement in ecotourism related activities and maintenance of the sanctuary there is association of the forest department with the local Panchayats. Furthermore, environmental NGOs and other scientific organizations are also associated for research activities. No activities are observed militating with the wildlife conservation objectives.

3.7 Tourism

The sanctuary is a paradise for nature lovers due to the presence of the zoological park, botanical gardens, deer safari and nature trails. Bondla is home to a variety of birds, both resident and migratory.

3.7.1 Existing Accommodation facilities:

Tourist cottages and dormitories have been setup by the Forest department to provide stay and encourage nature exploration. Visitors visit the sanctuary mostly between October and April as the weather during this period remains pleasant, offering an enjoyable nature experience. The Sanctuary also makes a great location for school picnics. Furthermore, due to the large number of bird species that reside here, it a paradise for bird watchers and ornithologists. Furthermore, the zoological park houses several native and nonnative species. This is an important aspect where the general populous can learn observe the species up close and learn about their morphology, habits and habitat.

Table 3.1: Accommodation Facility at the Sanctuary

Sr.No.	Accommodation	
1	Dormitory	Dormitory 1 Dormitory 2
2	Cottages:	A Suite (A1, A2) B Suite (B1, B2) C Suite (C 1, C 2) R1, R2 Hornbill 1, Hornbill 2

Table 3.2: Occupancy in cottages and Dormitories at Bondla.

Sr. No.	Year	Occupancy		Total occupancy During the year
		Foreign	Indian	
1	2	4	5	6
1	2015-16	46	1970	2016
2	2016-17	47	1552	1599
3	2017-18	41	1656	1697
4	2018-19	36	1512	1548
5	2019-20	40	1209	1249

Table 3.3: Visitors report at Bondla.

Sr. No.	Year	Visitors		Total visitors During the year
		Foreign	Indian	
1	2	4	5	6
1	2015-16	-	1224	1224
2	2016-17	-	1647	1647
3	2017-18	58	1442	1500
4	2018-19	816	924	1740
5	2019-20	5	1397	6985

3.7.2 Nature Trails and ZOO

There are several hiking and trekking trails that crisscross through the ecotourism zone. Ecotourism activities are encouraged because of the zoo. Also the endemic birds and butterflies and trails are major attraction for nature photography lovers. There are 06 Nature trails in the ecotourism zone.

Table 3.4: Nature Trails at Bondla.

No.	Name of the trail	Distance
Trail 1	Hospital to Shivdem Checkpost	2.3 Kms
Trail 2	Deer Safari / Ring road trail	1.4 kms
Trail 3	Crocodile nature trail- Damsite view point to Checkpost	1.19 kms
Trail 4	Trojan Nature Trail - Crocodile pond to Dormitory.	1.2 kms
Trail 5	Drongo nature trail- Dormitory to Crocodile pond via labour colony.	1.5 kms
Trail 6	Leopard Nature Trail (Near Damsite view point to Shivdem	5 kms



Trail 1: Hospital to Shivdem Checkpost



Trail 2: Deer Safari



Trail 3: Damsite view point to Ganjem Checkpost



Trail 4: Crocodile pond to Dormitory



Trail 5 and 6: Dormitory to Crocodile pond via labour colony



Fig. 3.4: Glimpse of the Nature Trails at Bondla.



Fig. 3.5: Zoo at Bondla.

3.7.3 The Nature Information Centre also acts as a viable tool for people to learn about nature and wildlife. The information centre needs attention with respect to making it more purposeful and resourceful.



Fig. 3.6: Glimpse of the Nature Information Center

3.8 Research Monitoring and Training

The present practice of training and status of research activities is described below:

3.8.1 Research and Monitoring

Wildlife monitoring is essential for keeping track of animal movement pattern, population demographics, habitat utilization and poaching incidents. the sanctuary does not have a research wing or research personnel. However, research by scientists and academicians is permitted.

However consolidated reports and database of research documents is generally lacking.

Monitoring is the core activity of biodiversity conservation. Essentially monitoring consists of making reliable observations from nature to detect measure, assess and draw conclusions as to how species and ecosystems are changing through time and space if any. It is important to track status of endangered Monitoring of wildlife at Bondla wildlife sanctuary is mainly focused

on larger mammals and birds. No formal formats available for noting citing of animals/fauna when on-site inspection. Forest officials on duty prepare their own formats of recording citing of animals in wild.

Comprehensive survey of biological diversity is lacking, though the area is rich in terms of both floral and faunal diversity. Research section needs to be strengthened.

3.8.2 Training

Training activities should be organized to train staff on technical or administrative aspects of the profession through guidance and for providing encouragement and opportunities for practice. The staff is given regular trainings and need based capacity building workshops are conducted especially related to wildlife monitoring, and management. Division wise refresher courses are organized for training the staff after every two years. Capacity building camps and workshops are planned and organized regularly as per the requirement and to adapt to integration of technology.

Specific objective based training programme needs to be undertaken based on the overall objective of the wildlife sanctuary.

3.9 Wildlife Conservation Strategies and their Evaluation

Annual work plan includes conservation objectives and strategies for conservation of biodiversity. The nutritional requirements, health requirements etc are also catered to. The strategies adopted are for habitat management and protection and enrichment of flora, and creative conducive environment for protection and ensuring healthy populations of faunal diversity.

3.9.1 Existing Habitat management practices:

3.9.1.1 Existing Enrichment Programmes

Annually, the officials undertake forest enrichment plantation exercise. A patch of Wildlife Sanctuary is selected, usually 2-3 hectares per year and plantation is undertaken. The chief features are as follows:

- In each hectare, 625 saplings are planted.

- Saplings chosen are heterogeneous. Both wild and fruit bearing trees are planted (e.g. Jackfruit, Mango and Jamun).
- The saplings are planted adopting Quadrant method of 4x4 m spacing.
- Protective fencing of natural material is constructed to increase the survival rate of the plant saplings in the initial years.
- For the same patch, this exercise is carried out for 2-3 years, to increase the density and variety of vegetation (biodiversity) to ensure species diversity and richness.
- In 2019, nearly 1500 saplings were planted.
- Deweeding works are carried out regularly. Works of *Eupatorium* removal were undertaken regularly.

3.9.1.2 Forest Protection:

Various protocols of forest protection are carried out. For the purpose of protection and monitoring, there are check posts and watch towers. Camps are also conducted when needed.



Fig. 3.7: Check Post

3.9.1.3 Water Recharge

The forest officials have taken initiative of ground water recharge and rejuvenation of the natural water bodies through construction of bhandaras (check dams) storage/ restoration of natural water bodies, digging of trenches and

sunken pits. Along the contours, cross sectional to the gradient, trenches and sunken pits are dug. This enables water recharge and minimizes surface erosion.

Water recharging works are carried out to ensure that sufficient ground water will be available for the natural water bodies and artificially created water holes during summer.



Fig. 3.8: Trenches made for water recharging

3.9.1.4 Construction of Check Dams (*Bhandharas*)

- Constructed at a suitable site in the upper streams.
- Usually length is 20-25 m and Height 3-4 m.
- Purely constructed using local material/ basalt boulders.
- Use of local labor.
- Construction time 2-3 weeks (determined by various controlling factors).
- Advantages:
 - i. Availability of water to animals beyond monsoon season.
 - ii. Ground water recharge.
 - iii. Humus based slit deposited



Fig. 3.9: Check dams

3.9.1.5 *Rejuvenation of natural water bodies*

Water is one of the basic needs for the flora and fauna of a given habitat. Fortunately, due to its tropical location and monsoonal effect, there is copious rainfall. However, as Bondla Wildlife Sanctuary has an undulating topography, there is excessive run off. Post monsoon especially, during summer, there is shortage of water. Revival of natural bodies is one way of mitigating the problem, which is carried out as regularly.

- Presently there are two natural water bodies.
- Site chosen wherever water is stagnant.
- Animal safety priority- Ponds are shallow, gradient is gentle and ground clearance around the pond.
- Natural filters constructed in the upper streams.
- Excessive water regulated.

3.9.2 Existing Nutritional requirement practices (food and water):

Fruiting trees are propagated to provide food for the animals as part of the enrichment plantation programme. As a strategy to keep animals within the wildlife sanctuary and reserved forest, the forest department have revealed natural ponds as well as constructed artificial water ponds to cater to the water requirement of the animals.

Artificial Salt licks are also laid at specific sites to provide essential elements such as phosphorus and the bio-metal required for bone, muscle and other growth in deer and other wildlife.



Fig.3.10:Artificial water bodies created to cater to requirements of animals

3.10 Administrative set up

Details of the staff, administrative infrastructure and amenities for staff are discussed below:

3.10.1 Staff:

The administrative setup of the existing staff engaged in the management of Bondla WLS is given in Fig.3.7. All personnel are assigned specific duties based on the cadre.

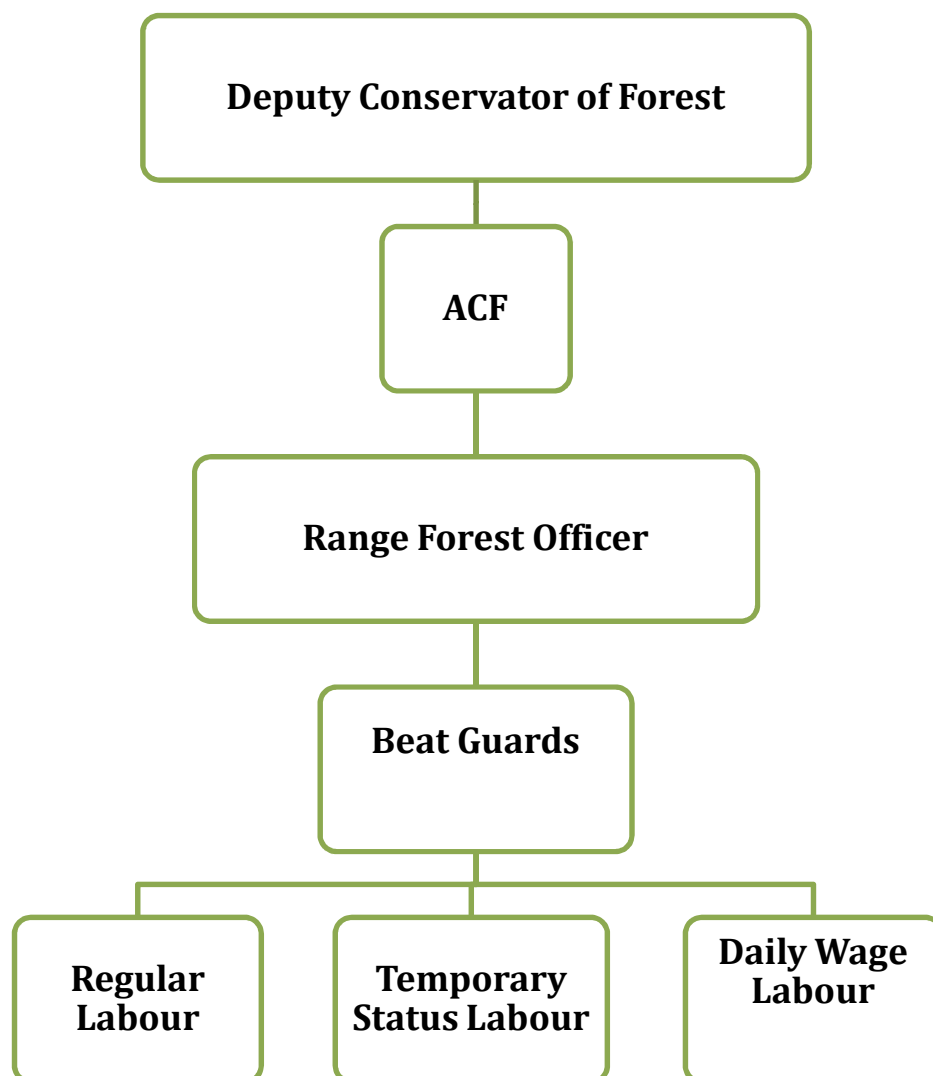


Fig. 3.11: Administrative setup for Bondla WLS

Table 3.5: Existing staff strength of Bondla	
Designation	Existing Staff
Zoo Manager	01
Range Forest Officer	01
Round Forester	04
Forest Guard	10
Veterinary Officer (On contract)	01
Veterinary Assistant	01
Driver	02
Animal Attendant	01
Mahout	04
Room Bearer	01
Room Servant	01
Cook	01
Regular Labourers	22
Temporary Status Labourers	19
Daily Wage Labourers	43

3.10.2 Existing Infrastructure

The range office is housed centrally and harbors a small library. Work force is adequate and supplemented with temporary labour.

The existing infrastructure includes the administrative block with office and library, ecotourism infrastructure in the form of dormitory and cottages, labour colony. The WLS also has a veterinary hospital and a canteen. For promoting ecotourism and for monitoring wildlife there are three watch towers.

However infrastructure of the office requires to be upgraded with technology based infrastructure and gadgets for field monitoring activities.

3.10.3 Existing Amenities to the staff

1) Residential accommodation is provided to the staff based on the requirement. Most of the staff members reside on the outskirts of the sanctuary or in its vicinity. The accommodation facilities need regular repair

and maintenance. Presently the accommodation facilities are in a highly dilapidated condition and many are unoccupied.

2) Drinking Water

Clean and hygienic drinking water is made available to the staff at the official premises.

3.10.4 Mobility:

For execution of wildlife protection works, there are two Mahindra carrier vehicles.



Fig. 3.12. Vehicles of Bondla WLS

3.11 Communication

Bondla WLS has both telephonic, wireless and internet facilities. BSNL network is mostly available as compared to other network which is poor. There is a need to enhance the connectivity which is essential for effective protection of the area especially if the administrative system needs to be digitalized for management and monitoring of its activities. Fire alarm communication is also lacking. The major communication means is by VHF communication network. However it needs maintenance.

3.11.1 Patrolling tracks

Patrolling track is usually the track from the ZOO to Shivde gate located in Gangem beat,

3.11.2 Wireless network

There is low or no network connectivity within the sanctuary. This is a challenge in the communication and reporting by the officials during their beats (daily rounds) or in case of emergency like animal rescue and forest fire. Installation of mobile tower to enhance connectivity in the area is suggested.

3.11.3 Vehicles

Vehicles may pose a risk to wildlife within the limits of the wildlife sanctuary. Although there are appropriate signages, it is important to check for speeding in the sanctuary. As the terrain is undulated, it is difficult to gauge the roads and therefore may lead to accidents. Thus, it is suggested that safety protocols are put into place to mitigate the issue. In addition to this, it is also suggested that vehicular number is recorded in the sanctuary.

3.12 Summary of Threats to Wildlife

The possible threats observed are summarized as follows:

3.12.1 Quarrying Activity

In 2012, the mines and geology department permitted basaltic quarrying approximately 1.5 km away from the boundary of Bondla Wildlife Sanctuary at Conquirem, Guleli village- Sattari District. The anthropogenic activity has directly/indirectly affected the environmental ecosystem through blasting noise pollution, restricted the mobility of animals in the buffer zone, destruction of forest and removal of soil cover.

Though not under the jurisdiction of Bondla Wildlife Sanctuary, the forest officials are monitoring the status of the quarry through Google maps and recording GPS points. A fence also has been installed at the distance of 1km. The Status has been in-situ but from the environmental perspective, it has hindered the forest continuity, thereby restricting the free movement of animals. Secondly, especially during the monsoons, due to open surface, there is significant surface erosion and subsequent siltation. Lastly, from the view of perspective planning,

the existing leased quarry would be a hindrance in expansion of Bondla Wildlife Sanctuary.

3.12.2 Forest Fires

Bondla Wildlife Sanctuary is located amidst villages such as Ganjem, Usgao, Dharbandora. These villages have an agrarian base, practicing rain fed agriculture (paddy) and plantation (coconut and cashew). During the summers, the vegetation in the reserved forest and privately owned properties is lit on fire. In most cases, the villagers keep the fire under control but at times due to gushing winds, sparks of fire migrate towards the forest areas and toward the sanctuary (Fig. 3.9). Till date, there have been sporadic cases and the forest officials have engaged and there is also a reporting system through an application. In the past, the officials have combated the fire proactively, but this is constant threat during the summer season.



Fig. 3.13. Burning of dry vegetation on the outskirts of the WLS

3.12.3 Soil erosion and soil loss

Bondla Wildlife Sanctuary has an undulating topography, varied contours, interspersed with streams, mostly seasonal. This region also experiences torrential rains during the monsoons, averaging 350-400 cm annually. These two factors (topography and rainfall) impact heavy surface erosion.

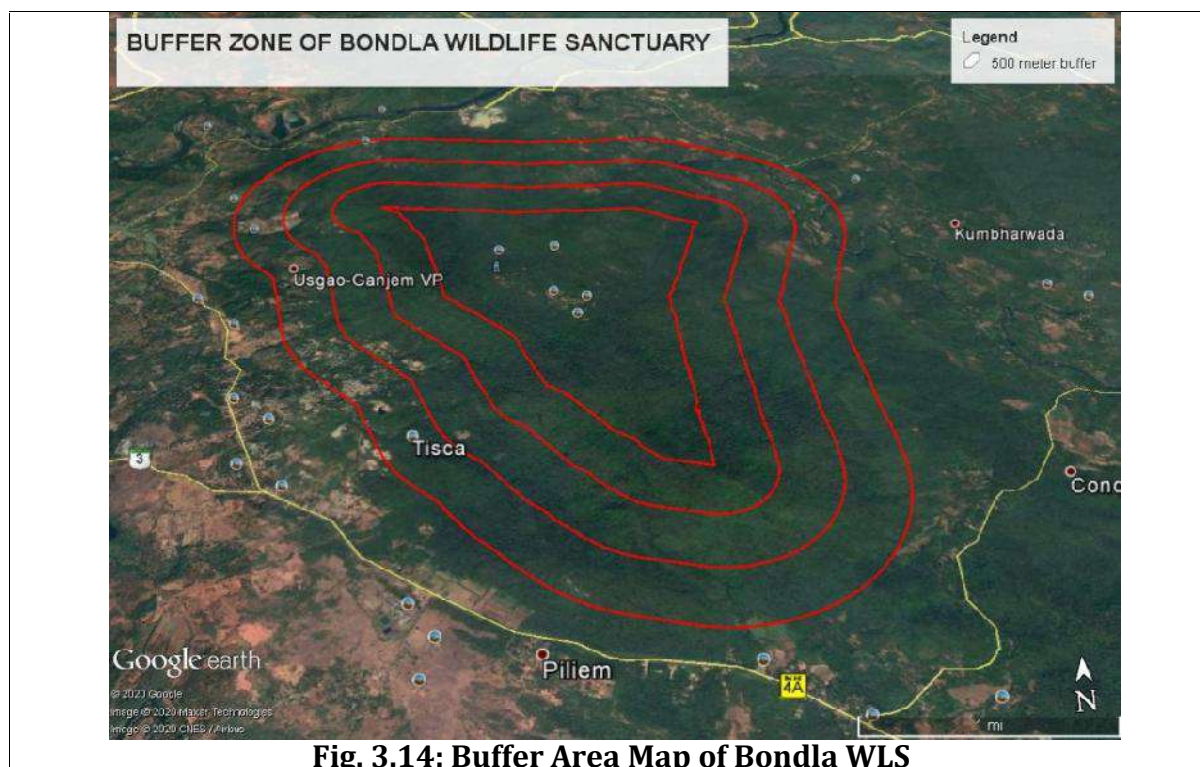
Surface run-off results in removal of organic matter (humus), soil cover and felling of trees in the upper portions and siltation in the river beds in the lower portions.

3.12.4 Water loss/ Surface drainage and run off

Bondla Wildlife Sanctuary lies between the watershed of River Mhadei and Ragada. Numerous streams of order 1 and 2 feed these tributaries. This excessive surface run off results in heavy loss of soil moisture and water in the sanctuary. The officials have undertaken construction of Bhandharas and restoration of natural water points, but this is insufficient and therefore artificial water points have been created. Perspective planning demands watershed planning.

3.12.5 Threat of encroachment

The boundaries of the sanctuary are not demarcated. The area on the outskirts has no restricted activities. Therefore there is a possible encroachment threat from Usgao-gangem and also from Khumbarwada regions (Fig. 3.9). To curb this there is a need to demarcate boundaries and erect boundary pillars.



CHAPTER 4

THE PROTECTED AREA

AND

THE INTERFACE LANDUSE

SITUATION



CHAPTER 4: THE PROTECTED AREA AND THE INTERFACE LANDUSE SITUATION

There are no reported incidences of human-animal conflict in Bondla WLS or illegal settlements, encroachment or destruction by livestock. The buffer zones are prone to dynamics due to the intricate topography, diversity of ecosystem and anthropogenic activity. The buffer zone of Bondla wildlife sanctuary extent 1 km from the border line. Beyond the buffer zone, the landscape is characterized by scattered plantations, mainly Cashew plantation, and large number of rural settlements-

4.1 The Existing Situation of Threats in the Zone of Influence

Bondla Wildlife Sanctuary is surrounded by a RF/ PF buffer of 1km. Beyond this, there are settlements, agricultural lands, plantations, and other economic activities like quarrying.

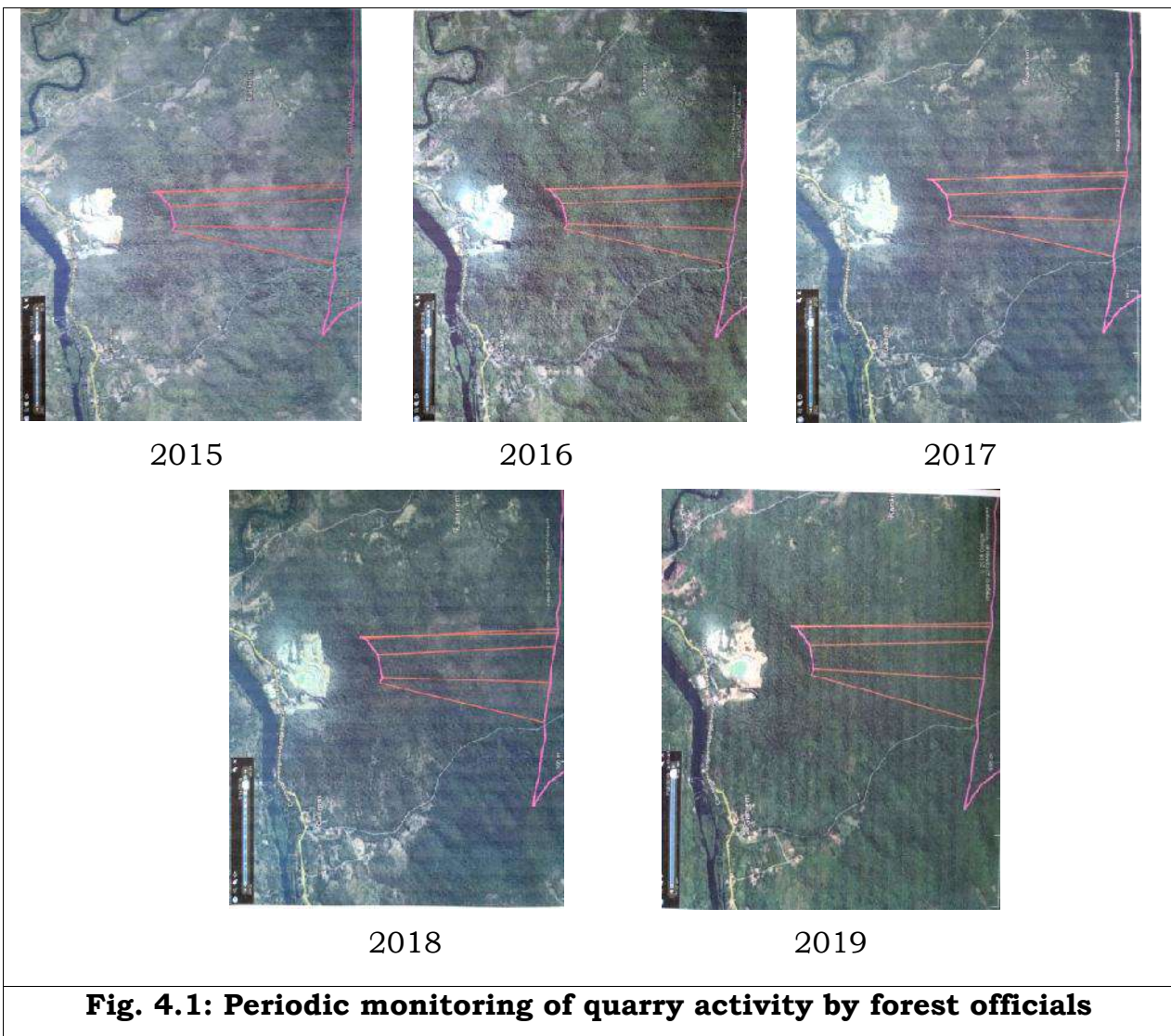
4.1.1 Settlement Zones:

The prominent villages are Ganjem, Guleli, Tisk - Usgao, Dharbandora. Towards Dharbandora, there are fields of sugarcane cultivation and the Sanjivini sugar factory. The Bagasse or the residue of sugarcane attracts forest animals as it is in the vicinity of the zone of influence. However, providing wild animals with easy access for food may potentially be more harmful to the ecosystem:

- Consumption of such food may affect the health of the animals.
- Animals may lose their fear of humans and potentially show aggression in proximity.
- Such activities may lead to public health concerns.

However there has been decrease in the sugarcane cultivation as the Sanjivani factory has been closed. Furthermore, in 2012, the mines and geology department permitted basaltic quarrying approximately 1.5 km away from the boundary of Bondla Wildlife Sanctuary at Conquirem, Guleli village- Sattari District.

4.1.2 Quarry: The anthropogenic activity has directly/indirectly affected the environmental ecosystem through blasting noise pollution, restricted the mobility of animals in the buffer zone, destruction of forest and removal of soil cover. Though not under the jurisdiction of Bondla Wildlife Sanctuary, the forest officials are monitoring the status of the quarry through Google maps and recording GPS points. A fence also has been installed at the distance of 1km. The Status has been in-situ but from the environmental perspective, it has hindered the forest continuity, thereby restricting the free movement of animals. Secondly, especially during the monsoons, due to open surface, there is significant surface erosion and subsequent siltation.



4.1.3 Buffer zone analysis:

The Eco-Sensitive Zone (ESZ) is marked vide notification S.O.615 (E) dated 25/01/2015 (Annexure-4) declaring an area with an extent of one kilometer of land or water body, whichever is near to the Bondla Wildlife Sanctuary as the Eco-Sensitive Zone. The central Govt. in the Ministry of Environment, Forests and Climate Change has constituted a Committee called State Level Eco-sensitive Zone Monitoring Committee for effective monitoring of all ESZ around the National Parks and Wildlife sanctuaries in the state of Goa vide notification no. S.O.221(E) dated 23/01/2015 and *Notification Official Gazette, Series I No. 12 dated 18-06-2020* (Annexure 5).

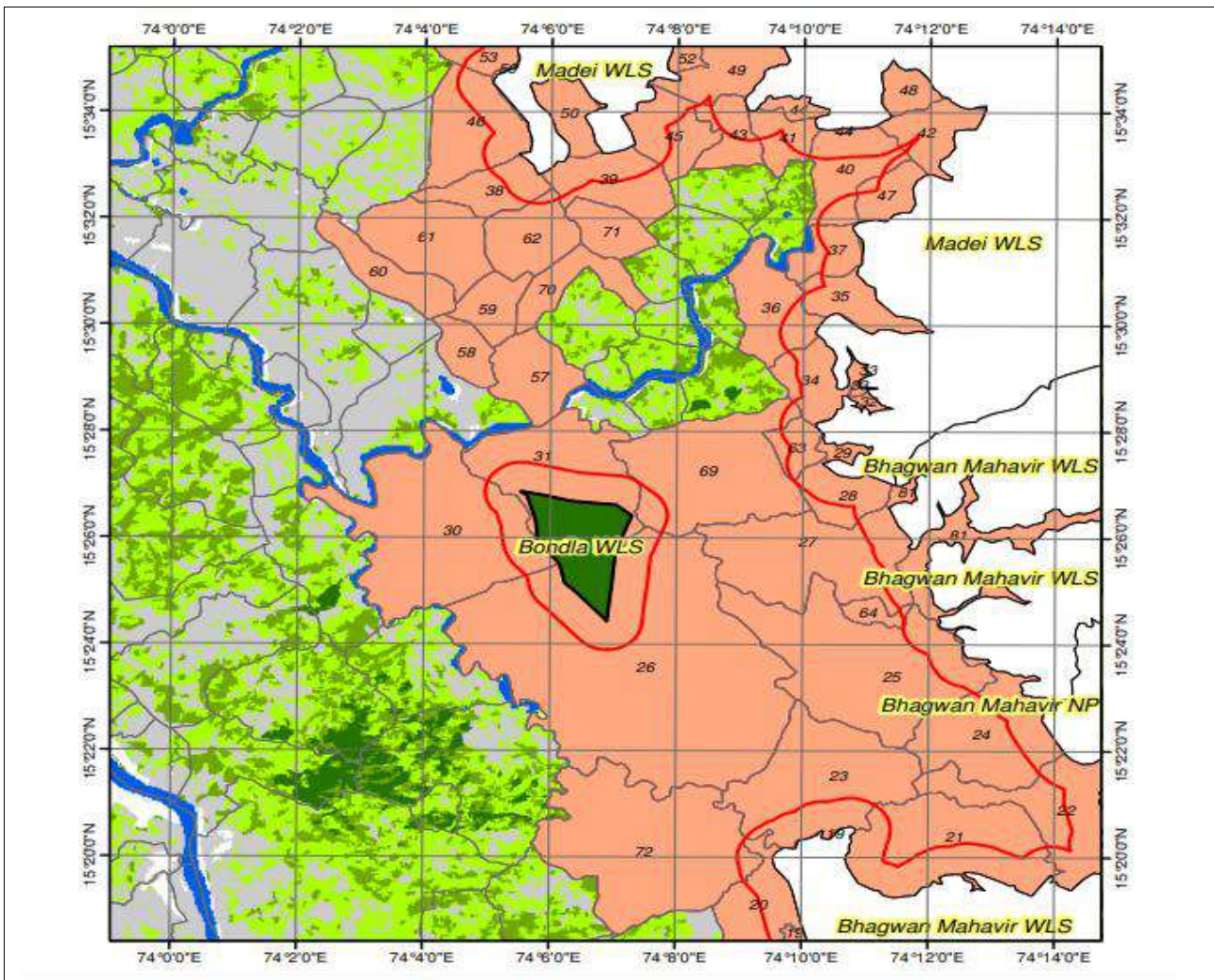


Fig. 4.2- Showing villages and Ecosensitive Zone around Bondla WLS

(Source: *Notification Official Gazette, Series I No. 12 dated 18-06-2020*)

Activities in the peripheral zone have a huge impact on the conservation efforts of a Wildlife sanctuary. The buffer zone of the wildlife sanctuary extends

into residential areas where the rules and regulations pertaining to the sanctuary cannot be enforced. The Forest Department has little or no control on the activities that take place in this region. Therefore, it is suggested that strict protocols be enforced in the buffer zone to control these anthropogenic activities. Furthermore, if strict regulation cannot be enforced, activities for residential area cleanliness, pollution mitigation and wildlife protection can be emphasized.

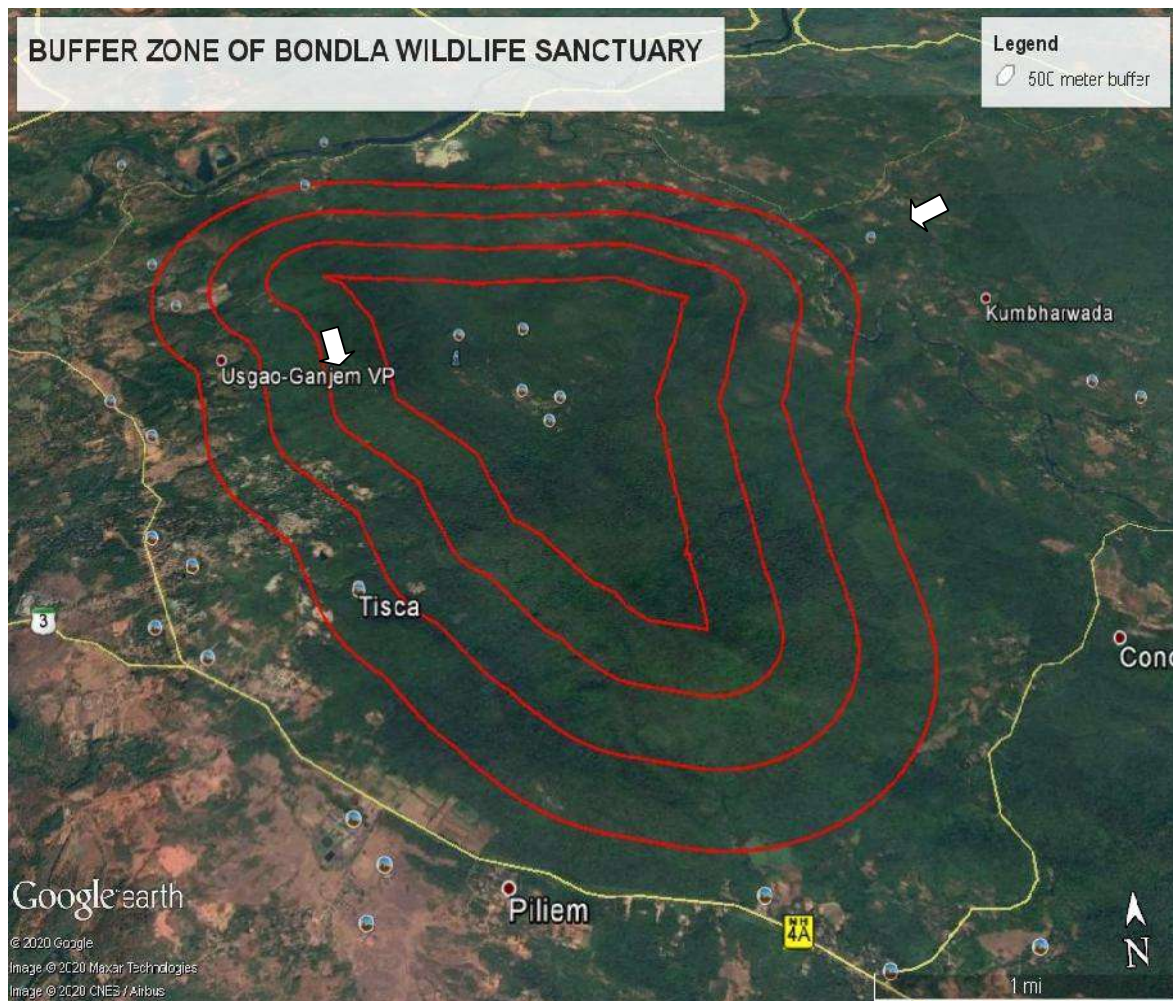


Fig. 4.3: Buffer Zone Map of Bondla WLS

4.2 The Development Programmes and Conservation Issues

4.2.1 Development programmes

There are seven villages that fringe the sanctuary. The means of livelihood of the population is subsistence agriculture, plantation and working in service sector. There is increasing trend of people shifting towards non-agriculture activities.

Overall, the socio- economic condition of the population is generally good and therefore there is always shortage of daily wage labourers for the development activities within the wildlife sanctuary. Local labourers are available for forest operations for planting, weeding and nursery works. Minimum rates of wages for casual labourers is as per the notification issued by Govt. from time to time, which is comparatively lower than the wages received by them for mining related works or other jobs. Therefore shortage of labour is felt. Hence, a strong sustainable development model through local people participation needs to be developed.

4.2.2 Conservation issues

The forest officials undertake multiple development programmes for the conservation of biodiversity, control soil erosion and water recharge. Construction of check dams, digging of sunken pits and trenches and increasing the biodiversity is continuous process and has to be done annually. This requires planning, execution, and allocation of require funds. Major issues are availability of stony material for construction of check dams and regular participation of local people in manual work as daily wage laborers.

The conservation efforts taken up by the department needs to be continuous and should have clear achievable goals and vision. As there was no management plan in the past, there were lot of constraints to have a holistic plan of execution.

This management plan prescribed in the further chapters defines the objectives and goals for implementation.

PART – II

PROPOSED

MANAGEMENT



VISION STATEMENT

“Conservation of ecological diversity by sustainable, development of the habitats so as to protect and conserve wildlife, support ecotourism, promote nature education and increase community participation in management works”



CHAPTER 5: PLAN OBJECTIVES AND PROBLEMS



CHAPTER 5: VISION, OBJECTIVES, ISSUES AND PROBLEMS

5.1 THE VISION

“Conservation of ecological diversity by sustainable development of the habitat so as to protect and conserve wildlife, promote nature education and wildlife research” “Conservation of ecological diversity by sustainable, development of the habitats so as to protect and conserve wildlife, support ecotourism, promote nature education and increase community participation in management works”

5.2 OBJECTIVES

Bondla Wildlife sanctuary is bestowed with abundant biodiversity. The existing condition can be enhanced further to not only achieve the primary goals of conservation and protection, but also to ensure that strategic efforts are made to enhance the existing resources. Effectively managed protected areas are vital tools for safeguarding biodiversity, maintaining balance of ecosystem, preservation of the habitats, building resilience to climate change, maintaining the quality of water, conserving natural and genetic resources. Bondla WLS is characterized by high endemism. Therefore strategies of habitat management are vital. Furthermore, the Bondla Zoological Park harbors live type specimens of several birds, reptiles and mammals found in the sanctuary and the greater landscape of Goa. Further the sanctuary also has a botanical garden, Nature Information Centre (NIC) and the various nature trails. Therefore the management plan also focuses on strategies of revenue generation through community involvement and promoting sustainable ecotourism activities.

The major objectives are as follows:

1. Conservation of Flora and fauna with special emphasis on threatened and endemic species and medicinal plants.
2. Habitat management for promoting and enhancing wildlife through research, monitoring and community engagement.
3. Watershed and habitat management.
4. Improvement of infrastructure, communication and connectivity.
5. Create awareness for promoting wildlife conservation and protection and confidence building measure in the fringe areas.
6. Encourage Community participation in eco-development and ecotourism activities.
7. Provide for Capacity building for efficient management of the wildlife sanctuary.

Considering these objectives, the existing practices and the threats and opportunities, the following plan is proposed. These strategies need to be considered as a guiding document.

Detailed modalities of the strategies are explained in Chapter-6.

5.3 PROBLEMS IN ACHIEVING THE OBJECTIVES

Objective 1: Conservation of Flora and fauna with special emphasis on threatened and endemic species and medicinal plants.

Sr. No.	Existing Issues /Problems/Challenges	Action Required
1	Inadequate data on Species richness and evenness of flora and fauna and	• Carrying out extensive population estimations at regular intervals. • Wildlife monitoring and data management • Create database to record sightings of flora and fauna • Maintain viable populations of endangered and threatened species.

Sr. No.	Existing Issues /Problems/Challenges	Action Required
2	Inadequate data on flagship and endemic, IUCN listed species	• Periodic wildlife estimation for larger carnivores such as Indian Leopard and Golden Jackal. • Annual estimation of wild ungulates such as Gaur, Spotted Deer and Sambar. • Annual bird estimation, preferably in the winter season. • Annual estimation and intensive studies on Malabar Giant squirrels and mouse deer. • Geo-tagging of important habitats having clusters of medicinal plants. • Geo-tagging of IUCN listed flora.
3	Ensuring adequate food availability to fauna	• More provisions to be made in term of plantation of fruit trees, grassland etc for propagation of specific species of mammals and mineral requirements for ensuring good health of fauna.
4	Inadequate research on biodiversity of WLS	Research should be undertaken to address the issue of inadequate information on biodiversity and faunal distribution and adduce useful information for effective management. • Encourage research by researchers to collect and collate baseline data of important species in the WLS. • Define broad areas and seek research proposals on the same to solve real time problems faced in the sanctuary. • Conduct periodic review of flora and fauna and undertake research on population monitoring of selected species of flora and fauna.

Objective 2: Habitat management for promoting and enhancing wildlife through research, monitoring and community engagement.

Sr. No.	Existing Issues /Problems/Challenges	Action Required
1	Habitat improvement	Biodiversity Enrichment plantation to be undertaken to: • Ensure species richness and diversity. • Control invasive and undesired floral species. • Grassland management. • Ensuring adequate fruit bearing and foliage. • Internal Zonation of WLS is required for effective monitoring and execution of conservation works. • Monitoring of harmful insects and pathogens as per the requirement. • Plantation of soil binding and moisture conserving flora (trees, grasses, herbs, shrubs) needs to be promoted. • Need for increasing the grassland cover and shrubs.
2	Lack of data on periodical changes of floral constitution	• Study on Periodical change in species composition of flora is needed. • Data on seasonal habitat changes to be collected and analyzed.
3	Lack of Formal procedure for recording sightings of fauna and data on flora except weekly dairy.	• Standard format is required for data recording of flora and fauna for regular monitoring.

Sr. No.	Existing Issues /Problems/Challenges	Action Required
4	Sporadic cases of forest fires (<i>Threat to habitat</i>).	• Maintenance of the fire lines. • Mechanized fire extinguishing equipment needed. • Wireless system and better network connectivity needed to facilitate communication in case of fire accidents. • Process of formal documentation of fire incidences required. • App based reporting system to mitigate spread of fires. • Need for watch tower to monitor wildfire incidences.
5	Monitoring Formats for regular reporting, studying and for research purpose are to be made.	Monitoring format need to be formulated. • For Regular record keeping of observations of fauna, flora, and habitat changes. • Requirements for habitat management interventions and maintenance.
6	No Formal Review format for monitoring effectiveness of implementation of management works	• Periodic SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) to be undertaken. • Review management practices and infrastructure of the sanctuary. • Annual and Three-year periodic review of Protected Areas on parameters such as: - o Status of management, - o Protection, - o Habitat restoration,

Sr. No.	Existing Issues /Problems/Challenges	Action Required
		- o Diversity indices, - o Conservation of threatened and indicator species, - o Adequacy of infrastructure, staff and financial resources - o Socio-economic status of local communities. - o Engagement/participation of local communities. ➤ Impact monitoring: Measuring conservation target – checking changes in conservation targets (find cause, plan target and check threats and interventions). ➤ Outcome monitoring: Measuring changes in the level of threats – checking levels of threats.
7	Inadequate research on habitat impact and long term changes in the WLS	• Department should encourage research by experts/researchers / institutions/ organizations/NGOs. • Research should be undertaken to monitor impact/habitat changes and spatiotemporal data of water sources, habitats, etc to generate maps for effective habitat management.

Objective 3: Watershed and habitat management.

Sr. No.	Existing Issues /Problems/Challenges	Action Required
1	Drying up of water bodies in summer.	• Desiltation, Restoration and enhancement of water sources to be done at regular intervals. • Water recharging works need to be carried out to ensure that sufficient ground water is available for the natural and artificially created water holes during summer also. • Certain management interventions such as creation of Ponds, waterhole help the wildlife disperse uniformly and avail the full benefit of the habitat. • New large water bodies to be created (Artificial Lake), in the top down watershed approach to develop habitat for aquatic animals/birds and for ground water recharging.
2	Placement / location of check dams.	• Annual inventory of status of existing check dams to be carried out. • Additional check dams to be constructed. • Digging of Sunken ponds to be undertaken extensively to minimize surface water loss and ground water recharge. • Water to be supplied to inaccessible areas during dry season.

Objective 4: Improvement of infrastructure, communication and connectivity.

Sr. No.	Existing Issues /Problems/Challenges	Action Required
1	Inadequate Administrative infrastructure	• Infrastructure of the office to be upgraded with technology based infrastructure and gadgets for field monitoring activities. • Sectional classification with Good working environment may be ensured by providing basic amenities/facilities to staff.
2	Inadequate maintenance of staff quarters / buildings	• Residential quarters to be refurbished/ renovated / maintained on regular basis.
3	Erratic communication	• Low or no network connectivity within the sanctuary. • Presently Handheld transceivers are used for communication. Need to be upgraded to wireless system as effective communication will reduce the reaction time in case of emergencies. • Installation of mobile tower to enhance connectivity in the area is suggested. • Mobile tower required to enhance connectivity for operation of app based wildlife monitoring. • App based monitoring is recommended Fire alarm communication.

Sr. No.	Existing Issues /Problems/Challenges	Action Required
4	Inadequate ecotourism infrastructure	• Nature information centre needs to be renovated and developed as per the suggestions given in chapter 6. • Nature trails need to be upgraded • Digitalized online system of booking online facilities and ecotourism packages need to be worked out (IT infrastructure). • Existing watch towers need to be maintained regularly. One additional watch tower needs to be constructed.
5	No Research and monitoring wing.	• Collaborative research needs to be encouraged with experts/researchers / institutions/ organizations/NGOs to carry out research related to effective conservation / management/monitoring etc. • Create repository of research and data resource of Bondla WLS.

Objective 5: Create awareness for promoting environmental conservation and protection and confidence building measure in the fringe areas.

Sr. No.	Existing Issues /Problems/Challenges	Action Required
1	Inadequate activities for promoting awareness and confidence building measure in the fringe areas/community involvement.	Need to Organize awareness programmes involving community. Suggestive activities: • Hold periodic competitions and programmes for student community.

Sr. No.	Existing Issues /Problems/Challenges	Action Required
		• Promote more newspaper articles on wildlife conservation reflecting initiatives and ventures of forest department. • Brochures/pamphlets on benefits of nature trails, nature photography, wildlife etc. • Continue with the annual events such as wildlife week, vana-mahotsava and Bird festival.
2	Lack of community participation in management of the sanctuary.	• Promote environmental conservation, by local villages located along the periphery of the protected area. • Promote environmental conservation in schools for school children.
3	Accidental fire incidences from peripheral region to zones of WLS	• Need to bring about awareness to prevent spread of fire from peripheral regions due to anthropogenic activities.

Objective 6: Encourage community participation in eco-development and ecotourism activities.

Sr. No.	Existing Issues /Problems/Challenges	Action Required
1	Inadequate data on visitor carrying capacity.	• Assess the visitor numbers and fix the carrying capacity. • This is essential to ensure least damage to the habitat and least disturbance to wildlife.
2	Inadequate measures to control habitat degradation by visitors/tourists,	• Create awareness among visitors. • Install sign boards of Dos and Dont's. • Install adequate number of dustbins. • Conduct regular cleanliness drives. • Mechanism required curbing littering of habitat.
4	Inadequate Ecotourism facilities for enhancing visitors' experience	• Signages to Understand visitor obligations and responsibilities needed. • Nature Information centre needs to be upgraded to provide appropriate information: • Section for brochures on trails, flagship flora and fauna. • Infographic section of all flagship species of plants and animals • Memento section/Souvenir Shop required. • Library section. • Nature Trails need to be upgraded: • Display signs and signages need to installed at the start point of each trail. • Signages/Display Boards of

Sr. No.	Existing Issues /Problems/Challenges	Action Required
		information of flagship species of plants and animals. • Proper demarcation of the trail tracks is needed. • Regular maintenance of trails is required.
5	Insufficient Community involvement in ecotourism works	• Conservation programmes must attempt to enhance livelihood opportunities. • Need to create stronger associations with the local Panchayat. • Liaise with local Panchayat and ‘Self Help Groups’ and ‘Eco-development committees’ for managing cultural activities and ecotourism ventures of Bondla WLS. • Vocational training to make saleable handicrafts and food products to be promoted for sale in souvenir section of nature information centre. • Involve community for restoration of degraded habitats • Train local youth as ‘Nature guides’ to be involved in ecotourism activities of the WLS.

Objective 7: Provide for capacity building for efficient management.

Sr. No.	Existing Issues /Problems/Challenges	Action Required
1	Capacity building for staff	Various capacity building training programmes recommended for efficient management are as follows: - o Training on Legal aspects - Preparing offence case papers, forest and wildlife article, acts and rules, etc. - o Training in handling of equipments/weapons and maintenance. - o Maintenance of wireless equipment and such as audio-visual aids. - o Training to staff on GPS use in wildlife monitoring. - o Training in firefighting. - o Basic training in Species identification. - o Monitoring and data collection. - o Training on wildlife evidences, collection of biological materials and their interpretation. - o Animal health and nutritional requirements. - o Animal behavior, food habits and habitat requirements - o Data recording of Population dynamics & wildlife estimation. - o Training as ‘guides’ and execution of ecotourism related activities. - o Basic training in first aid for self and first aid/post mortem techniques for animals (Health care of animals). - o Basic training in civil construction

CHAPTER 6

THE STRATEGIES



CHAPTER 6: THE STRATEGIES

6.1 Boundaries

Bondla wildlife sanctuary lies as a trough pan surrounded by hillocks of varied heights/ altitude. The physiographic area of Bondla wildlife sanctuary has a gradient of slope from the south west to the east. Highest altitude recorded is 400 m above mean sea level and is towards the south-west of Bondla WLS. The sanctuary is characterized by an elongated escarpment towards the east. In the northern region, two small hillocks interspaced by seasonal streams can be noticed. The central portions are relatively gentle than the other portions of the sanctuary. The southern triangular portion of the sanctuary, the Piliem and Dharbandora Beat, has the highest elevation of the sanctuary, reaching 400 metres above mean sea level. Basically, it is a hillock, elevated towards the Piliem village and sloppy towards the central portion, where the Zoo is located. Due to the topography, accordingly the drainage pattern has evolved.

Further towards the North west of the sanctuary, Usgao and Ganjem beat, an elongated ridge runs along the boundary of the sanctuary. This ridge is marked with two prominent spot heights i.e. 236 meters and 375 meters above mean sea level. Eventually, this part of the sanctuary has the steepest gradient of slope.

Towards the North, the Conquerim beat, an elongated ridge protrudes in the sanctuary. A water stream separates the ridge that runs in the North west portion. The prominent spot height is 256 meters above mean sea level and gradient of slope tapers towards the east, as one can see the contours widely spaced. The mid portion of the sanctuary is the convergence of the all the hillocks and ridges, forming a trough. This is marked with gentle rolling topography with part of the portion flat land, ideally chosen for the zoo.

The Bondla Wildlife Sanctuary is in Guleli village of Ponda and is surrounded by Ganjem, Gotikhawada and Melaulim villages in the north, Dharbandora in the south, Usgao village on the west. The National Highway (NH 4A) that connects Panjim - Belagavi road passes from Usgao Tisk is on southern part of the sanctuary. The main river that flows in the region is Mhadei river, which has a sub tributary known as Ragada Nadi. The streams of Ragada penetrate from the eastern side and of sanctuary and few streams of Mhadei River from the north.

The boundaries of the sanctuary are not demarcated. The area on the outskirts has no restricted activities. Therefore there is a possible encroachment threat from Usgao-gangem and also from Khumbarwada regions. To curb this there is a need to demarcate boundaries and erect boundary pillars.

An overview of the strategies for carrying out all the objectives of Bondla Wildlife management is given below:

Table 6.1: Summary of Objectives and Strategies		
	Objective	Strategy
1)	Conservation of Flora and fauna with special emphasis on threatened and endemic species and medicinal plants.	Chapter 6
2)	Habitat management for promoting and enhancing wildlife through research, monitoring and community engagement.	Chapter 6
3)	Watershed and habitat management	Chapter 6
4)	Improvement of infrastructure, communication and connectivity.	Chapter 6
5)	Create awareness for promoting wildlife conservation and protection and confidence building measure in the fringe areas	Chapter 7
6)	Encourage Community participation in eco-development and ecotourism activities.	Chapter 8
7)	Provide for Capacity building for efficient management of the wildlife sanctuary.	Chapter 9

Theme plans for achieving objective 1 – 4 are discussed in this chapter.

Theme plans for achieving objective 5, 6 and 7 are deliberated in chapter 7, 8 and 9 respectively.

6.2 Zonation

For the purpose of execution of management plan based on topography, forest diversity and ecotourism activities, following internal Zonation is recommended. The internal Zonation proposed will be discussed with beats as reference points to enable effective implementation of the management plan.

The zones suggested are:

- 1) Core Wilderness Zone**
- 2) Buffer zone**
- 3) Ecotourism Zone**

Besides, for the purpose of monitoring of activities around the sanctuary, the ESZ zone notified will also be considered for community involvement works.

6.3 ZONE PLANS

The plan proposes specific strategies to be adopted based on specific zones (Table 6.2). The zones proposed for execution of management plan are:

1. Core Wilderness Zone
2. Buffer zone
3. Ecotourism Zone

Table 6.2: Area of Core, Buffer and Ecotourism Zones in the Beats				
Beat	Zone wise area in square kilometers			
	Core Zone	Buffer zone	Ecotourism zone	Total Area of the beat
Pillem	0.5	--	--	0.50
Dharbandora	1.2	0.14	--	1.34
Comnquirem	1.6	--	--	1.60
Ganjam	0.84	0.46	0.04	1.34
Usgao	0.4	1.25	1.55	3.20
	4.54	1.85	1.59	7.98

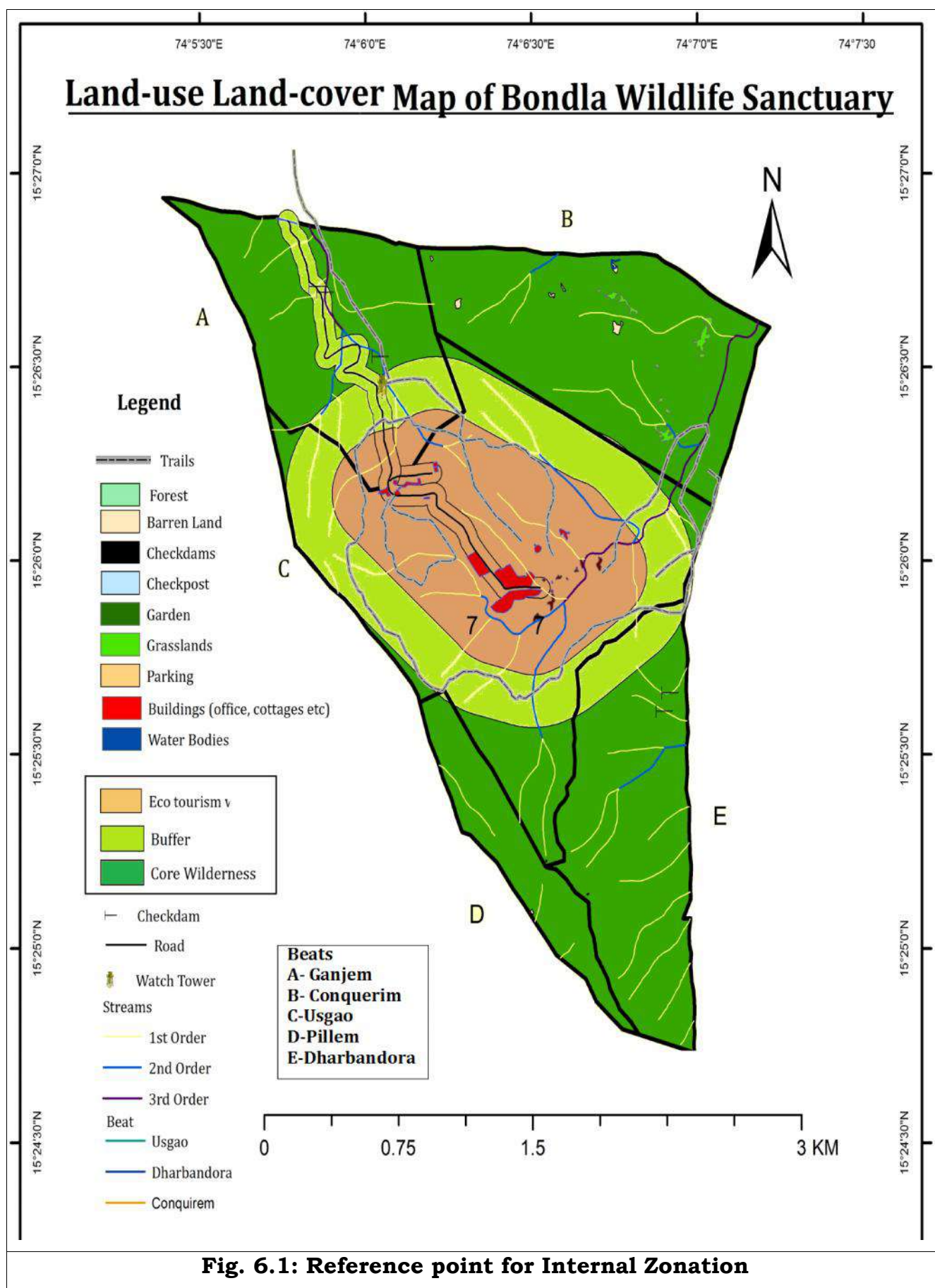
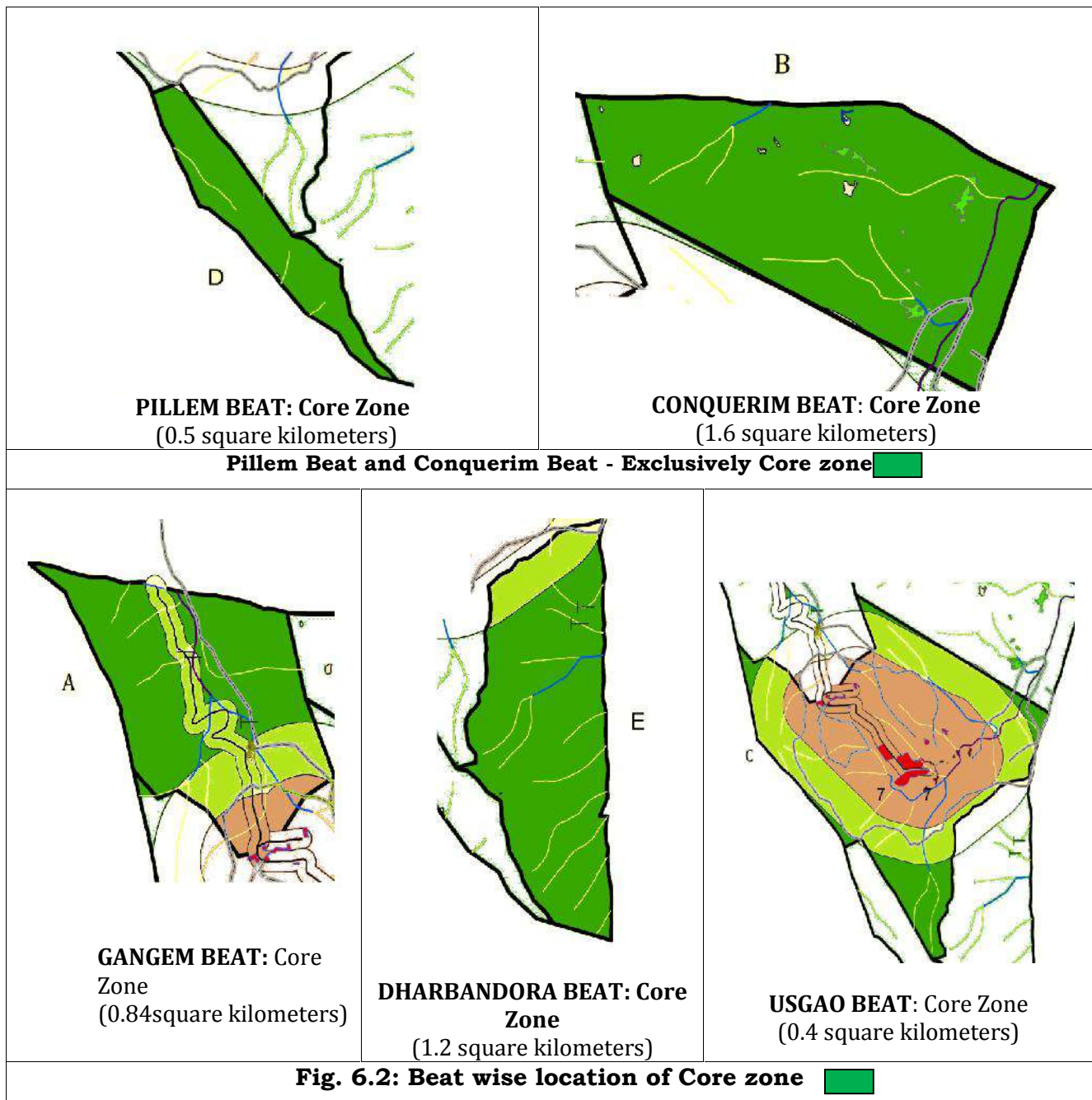


Fig. 6.1: Reference point for Internal Zonation

6.3.1 Zone 1: Core Wilderness zone (4.54 square kilometers)

The purpose of the core wilderness zone is to bring about the objectives related to complete protection, conservation and propagation of wildlife with least human interference or disturbances. However, some level of management interventions is necessary to maintain the integrity of core areas such as all forms of protection.

Core wilderness zone includes parts of Gangem beat, conquerim beat, Pillem beat and Dharbhandora beat (Fig. 6.2). Total area of Core zone extends upto 4.54 square kilometers.



The main objective of constituting this core zone is to preserve biodiversity in as natural a condition as possible, by providing full protection. Priority should be given for protection and propagation of flora and fauna in this unperturbed environment.

Core zone should focus on achieving the following objectives:

1. Conservation of Flora and fauna with special emphasis on threatened and endemic species and medicinal plants.
2. Habitat management for promoting and enhancing wildlife through research and monitoring and community engagement.
3. Watershed and habitat management to prevent soil and moisture conservation.

It should exclude unwanted visitation by tourists and has to be maintained in its pristine condition to enable wildlife to thrive and propagate. Natural vegetation needs to be protected and enhanced. Major works to be carried out in this zone should be as follows:

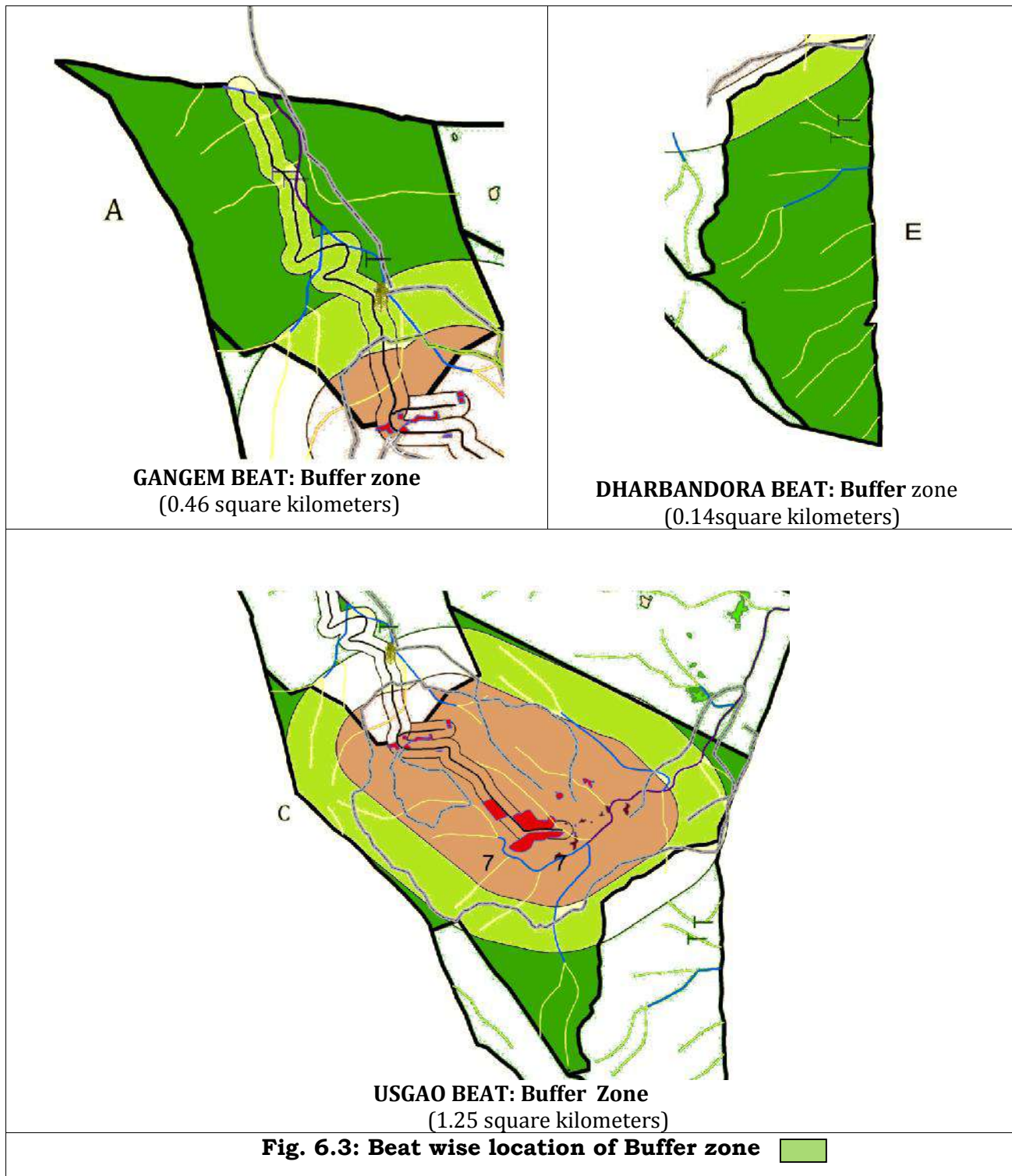
Table 6.3: Major works to be carried out in the Core Wilderness zone

Sr. No.	Objective	Strategies/Plan
1	Conservation of Flora and fauna with special emphasis on threatened and endemic species and medicinal plants.	1) Efforts to ensure Ensuring Species richness and evenness. 2) Carrying out extensive population surveys at regular intervals. 3) Maintain viable populations of endangered and threatened species
2	Habitat management for promoting and enhancing wildlife through research, monitoring and community engagement.	4) Create database to record sightings of flora and fauna 5) Wildlife monitoring and data management.
3	Watershed and habitat management.	

Theme plans are described in the later part of this chapter.

6.3.2 Zone 2: Buffer Zone (1.85 square kilometers)

Buffer zone is the demarcated area of the sanctuary which includes minimal activities besides major objective of conservation works. Activities in this zone should be carried out considering the requirement for habitat management for achieving the objectives of Bondla WLS (Table 6.4). Total area of buffer zone extends upto 1.85 square kilometers. Beat wise distribution of the buffer zone is depicted in Fig. 6.3.



6.3.2.1: Activities to be carried out in the Buffer Zone

As per the objectives, major activities that need to be carried out in the buffer zone are as follows:

- i. Soil and Water conservation works
- ii. Habitat improvement
- iii. Restoration of habitats
- iv. Maintenance of water holes
- v. Forest protection
- vi. Protection from wild fires
- vii. Infrastructure maintenance.

Table 6.4: Major works to be carried out in the Buffer zone

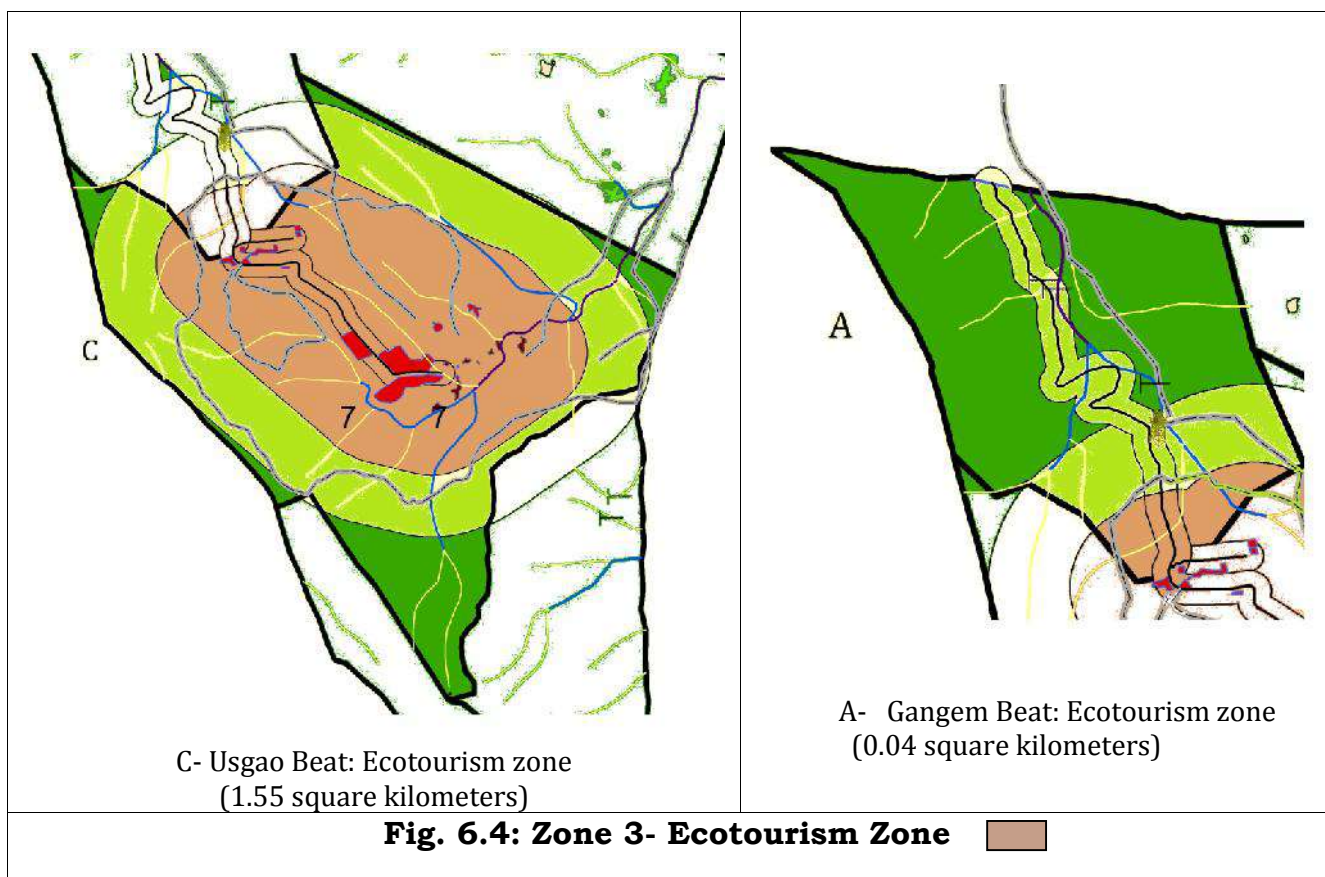
Sr. No.	Objective	Strategies/Plan
1	Conservation of Flora and fauna with special emphasis on threatened and endemic species and medicinal plants.	1) Efforts to ensure Ensuring Species richness and evenness. 2) Carrying out extensive population estimations at regular intervals. 3) Maintain viable populations of endangered and threatened species
2	Habitat management for promoting and enhancing wildlife through research, monitoring and community engagement.	4) Create database to record sightings of flora and fauna 5) Wildlife monitoring and data management. Ensuring adequate fruit bearing and foliage.
3	Watershed and habitat management.	6) Checking changes in conservation targets (find cause, plan target and check threats and interventions).
4	Improvement of infrastructure, communication and connectivity.	7) Carry out management interventions such as creation of Ponds, waterhole help the wildlife disperse uniformly and avail the full benefit of the habitat. 8) Periodically upgrade and maintain infrastructure.

Theme plans are described in the later part of this chapter.

6.3.3 Zone 3: Ecotourism Zone (Usgao Beat) (1.59 square kilometers)

Ecotourism zone is located in the Usgao beat and a small area of Gangem beat. Total area of the Ecotourism zone extends upto 1.59 square kilometers. Most of the ecotourism related activities are centered in this zone. This area has a Bondla Zoological Park which harbors several species of birds, reptiles and mammals found in the sanctuary and the greater landscape of Goa. In addition, botanical garden, Nature Information Centre (NIC) and the various nature trails dispersed within the sanctuary are concentrated in this area. It also harbors the administrative block and the accommodation facilities. Only regulated ecotourism is permitted in this zone.

Thus the management plan for this zone focuses on strategies of community involvement for promoting sustainable ecotourism activities, besides conservation works. The activities planned in this zone should have minimal impact on the core objectives of WLS.



6.3.3.1: Activities to be carried out in the Ecotourism Zone

Table 6.5: Major works to be carried out in the Ecotourism zone		
Sr. No.	Objective	Strategies/Plan
1	Conservation of Flora and fauna with special emphasis on threatened and endemic species and medicinal plants.	1) Efforts to ensure Species richness and evenness. 2) Maintain viable populations of endangered and threatened species
2	Habitat management for promoting and enhancing wildlife through research, monitoring and community engagement.	3) Wildlife monitoring and data management. 4) Periodically upgrade and maintain infrastructure.
3	Community participation in ecodevelopment and ecotourism related activities.	5) Need to involve community in ecotourism activities and conduct more awareness programmes for community. 6) Liaise with local Panchayat and ‘Self Help Groups’ and ‘Eco-development committees’ for managing cultural activities and ecotourism ventures of Bondla WLS and management activities of Bondla WLS. 7) Need to organize more awareness programmes involving community.
<i>Theme plans are described in the later part of this chapter.</i>		

6.4: THEME PLANS

The theme plans for achieving objective 1-5 focusing on conservation of biodiversity, habitat management, improved infrastructure and communication and creating awareness on wildlife conservation is discussed in this section. The objectives covered under these theme plans are:

- 1) Conservation of Flora and fauna with special emphasis on threatened and endemic species and medicinal plants.
- 2) Habitat management for promoting and enhancing wildlife through research, monitoring and community engagement.
- 3) Watershed and habitat management.
- 4) Improvement of infrastructure, communication and connectivity.
- 5) Create awareness for promoting wildlife conservation and protection and confidence building measure in the fringe areas.

Theme plans described here are:

- 1) Theme plan for Wildlife monitoring, data management
- 2) Theme plan for maintaining viable populations of endangered and threatened species and ensuring Species richness and evenness.
- 3) Theme Plan for Habitat management
- 4) Theme plan for Watershed Management
- 5) Theme Plan for Improved infrastructure and communication

Theme plans for Ecotourism, Ecodevelopment, Research, and Monitoring are described in chapter 7, 8 and 9 respectively.

6.4.1: Theme plan for Wildlife monitoring and data management

The information that wildlife monitoring generates can only be put to use if it is collected in a systematic manner and made available in a timely way. Therefore, a formal final reporting format is needed and digitalization of data essential for periodic report generation.

6.4.1.1 Data management and database creation

At present there is no formal data record format, other than field diary method of data collection. The forest/beat guards on duty need to enter their daily record in a formal data record format which can then be digitalized to create a database of the flora and fauna.

The following format may be considered for data collection and maintenance of record:

Table 6.6: Formats for Data recording								
Format i: Field diary Record of Faunal diversity								
Date	Animal	IUCN status	Monitoring method (transect walk/	Recorded by (Name and designation)	Area landmark/ beat	GPS point	Additional comment (comment on gender/ feeding/behaviour observed)	Photo

Format ii: Field diary Record of Floral diversity								
Date	Plant /Tree /Shrub	IUCN status	Recorded by (Name and designation)	Area landmark/ beat	GPS point	Use	Additional comment (comment on Health condition/age observed)	Photo

Data should be collected through field diary method, photo documentation, transect walks, block counts, etc.

- 1) Field diary method – observe and record changes in the use of resources, abundance of species.
- 2) Photo documentation – Documents habit changes over a period of time.
- 3) Transect walk method/Block count – Monitoring during patrolling via petrol routes/ survey routes. Periodic surveys by line personnel and staff or researchers.

This data needs to be analyzed and digitalized for the ease of further analysis and monitoring. It will also serve as a basis for enhancing populations of endemic, endangered and threatened species of Bondla.

Alternatively Web-based app, would certainly be the most efficient way of generation reports for analysis.

6.4.1.2 Extensive Population Estimations

Population estimations are essential to ascertain population-status of a species in an area. Determining Population estimation is essential to know the status of an organism, habitat distribution, reproductive behaviour and number. Both floral as well as faunal population diversity needs to be recorded. Studies should include species distribution, species richness and species evenness.

- i) Flora: Exercise of Floral diversity assessment studies should be carried out. Identification of all species of medicinal plants located in the sanctuary needs to be undertaken. Geo-tagging of important habitats having clusters of medicinal plants needs to be done.
- ii) Fauna: Extensive population surveys are required for larger carnivores, birds, amphibians, arachnids and insects.
 - a) Periodic Survey/ population estimations of Indian Leopard, Golden Jackal, Gaur, Spotter Deer and Sambar
 - b) Species richness assessments of bird population need to be undertaken. Seasonal assessments will enable to record representative and migratory species.
 - c) Annual population estimations and intensive studies on the Flagship species - Malabar Giant squirrel should be undertaken.
 - d) Study on reduction in Mouse deer population.
 - e) Create conducive habitat for propagation of endemic species.
 - f) Appropriate population estimation methods may be followed as given in table 6.7.

Table 6.7: Population estimations Methods

Direct Methods	Indirect Methods
1. Total count	1. The king strip population estimations
2. Drive Count	2. Sight and Re-sight Methods
3. Roadside count	3. Pugmark Population estimations
4. Waterhole Technique	4. Sampling for Tiger and Other Carnivore Sign Encounter Rate
5. Pellet Group Count	5. Sampling for Ungulate Encounter Rates
6. Camera-trap method	
7. Bird population estimations / operations	

Suitable technique from the list of direct and indirect methods may be followed. For larger mammals, pugmark count and camera trap method may be most preferred. For birds, encounter rate survey method, call count etc may be used.

Table 6.8: Date Sheet for Tiger & Other Carnivore Sign Encounter Rate

Observers name ----- Start Time ----- Date End Time : Forest Circle :..... Forest Division: Range -----. Beat ----- Total Kms. Walked -----Km. Times Spent in any other activity -----Min.						
Sr. no	Time	Comp. No.	Species/carnivore	Sign type	GPS	Remark

6.4.2: Theme plan for maintaining viable populations of endangered and threatened species and ensuring Species richness and evenness

6.4.2.1 Ensuring adequate food availability and care to fauna

There is a need for increasing the Fruit-bearing trees for target species and increasing grassland cover and shrubs.

- i. Bamboo plantation should be taken up to create bamboo cover in the Pillem, Dharbandora and Gangem beat.
- ii. Salt licks to be placed at various locations of the sanctuary. Salt licks will provide the minimum micronutrient requirement to the animals.
- iii. Grassland cover should be increased in all the 04 beats for propagation of specific species of mammals.
- iv. More provisions to be made in terms of plantation of fruit trees, Catering to food habits of herbivores: Plantation of local flora such as *Terminalia paniculata* (Kindai), *Terminalia tomentosa* (Matti), *Terminalia bellirica* (Ghoting), *Langerstroemia lanceolate* (Nano), *Dalbergia Latifolia* (Shesham), *Dalbergia sisso* (shishoo), *Acacia catechu* (Khair), *Adina cordifolia* (Haldu), *Emblica officinalis* (Awala), *Alstonia scholaris* (Santon), *Gmelina arborea* (Shivan) etc should be done.
- v. Detailed survey needs to be undertaken to check the number and location of fodder plants. This will help to plan annual maintenance and restoration.
- vi. The type of trees/plants/shrubs selected should be based on the food habits of specific herbivorous and frugivorous fauna.
- vii. Enhancing medical facility for wildlife at the veterinary hospital is recommended.
- viii. For mineral requirements for ensuring good health of wildlife, salt licks need to be placed at various locations of the sanctuary.
- ix. Arrangements need to be done to create more artificial water holes to alleviate shortage of water during the summer season.

6.4.3: Theme Plan for Habitat management

Natural regeneration should be encouraged as indigenous vegetation is most suited to withstand adverse impacts of nature to which Bondla is prone to. The habitat should be improved to make habitat more suitable, maintain hydrological processes, restore ecosystems and conserve biodiversity.

6.4.3.1 Ensuring species richness and evenness:

The practice currently followed need to be continued. Major plant communities found are trees, shrubs and grasses. Vegetation is however dominated by trees. Grassland cover needs to be expanded. Barren Land spots in all the 05 beats can be considered for promotion of shrubs or grass. Enrichment plantation should be undertaken to promote variety rather than monoculture. Biodiversity Enrichment plantation should be undertaken to:

- a) Ensure species richness and diversity.
- b) Control invasive and undesired floral species.
- c) Grassland management.
- d) Ensuring adequate fruit bearing and foliage.

Types of plantations to be carried out should be with a focus of facilitating enrichment of biodiversity of Western Ghats. Plantations carried out should involve propagation of indigenous plants which should be regenerated in the plant nursery.

6.4.3.2 Preventing soil erosion:

In order to check loss of top soil and leaching of nutrients, soil and moisture conservation such as check dams, gully checks, gully plugging etc have to be done. Suitable soil conservation measures should be adopted:

- a. Mechanical
 - i. Contour trenching
 - ii. Contour bunding
 - iii. Construction of Check-dams/spurs
- b. Vegetative:
 - i. Plantation of soil binding and moisture conserving flora (trees, grasses, herbs, shrubs) need to be promoted.

6.4.3.3 Strategy for Weed management:

Necessary measure needs to be taken to control weed propagation. Eupatorium is the major invasive weed predominant in the sanctuary. Eupatorium do not allow regeneration of native species as they grow even in non-fertile and open areas. They produce chemicals in the leaves and stems which suppress the growth of other plants. More concerted efforts are needed to eliminate these weeds from the eco-system. Besides weeds, invasive species such as old Eucalyptus, Acacia etc, may be harvested and replaced with high value indigenous forestry species as they are responsible for suppression of natural regeneration. Growth and propagation of Eupatorium should be controlled.

Method:

- 1) Uprooting method - Root fragments must be removed to prevent re-sprouting.
- 2) Uprooting Time: removing weed at proper time is essential to control the weed populations. Deweeding procedures need to be undertaken before flowering of Eupatorium.
- 3) Biological Control- Use of *Pareuchaetes pseudoinsulata* (Lepidoptera: Arctiidae) for control of Eupatorium was carried out in some countries. *Pareuchaetes pseudoinsulata* feed voraciously on terminal and axillary buds and leaves of *Chromolena odorata*. However, since it is not a native species, biological control is not recommended.

6.4.3.4 Strategy to combat Forest fires:

Process of formal documentation of fire incidences required. Updated fire extinguishing equipment needed. Updated wireless system and better network connectivity is required to facilitate communication in case of fire incidences. App based reporting system to mitigate spread of fires.

Need for another watch tower to monitor forest fire incidences. Annual maintenance of the fire lines is essential.

6.4.3.5 Research:

Research should be undertaken to address habitat management related questions, and adduce useful information to upgrade the quality of habitat for effective management. Details are discussed in chapter 9.

6.4.3.6 Review of effectiveness of strategies:

Annual as well as three-year periodic review of Protected Areas is required to check the effectiveness of strategies and propose changes based on the outcome of monitoring and research. Focus of review should be on Impact and Outcome monitoring based on the parameters such as:

- Status of management,
- Protection,
- Habitat restoration,
- Diversity indices,
- Conservation of threatened and indicator species.
- Adequacy of infrastructure, staff and financial resources

Detailed theme plan for review is described in chapter 9.

6.4.4: Theme plan for Watershed Management

Soil and water conservation structures like construction of check dams across streams, creation of new artificial and natural water tanks at strategic locations, and the desilting and deepening of existing water tanks and check dams are the major works to be carried out inside the sanctuary with the purpose of providing drinking water source to animals and subsequently increase the water table thereby positively contributing to the micro climate.

Bondla wild life Sanctuary is characterized by undulating topography with torrential rains during the monsoon season. Several short and swift streams criss-cross the area and therefore, proper land-management practice has to undertake for several factors. i.e. to hold water and let it percolate into the ground, ground water recharge, cease gully erosion, and reduce the amount of surface run-off.

Based on the stream order, Bondla Wildlife sanctuary has mainly 1st and 2nd stream order in the relatively higher slopes and only at the in the Ganjem beat and Dharbandora, third order streams can be found. Most of the streams are semi – perennial, except a few. Accordingly, based on the topographical analysis Gully plugs, Loose Stone check dams and Gabion check dams are suggested. Masonry check dams can also be undertaken, if needed.

Further, apart from construction of dams, creation of new artificial and natural water tanks at strategic locations, and the desilting and deepening of existing water tanks and check dams are the major works to be carried out inside the sanctuary with the purpose of providing drinking water source to animals and subsequently increase the water table thereby positively contributing to the micro climate.

6.4.4.1 Construction of Check Dams:

For the purpose of planning watershed management, Zonation based on the topography and drainage network is proposed. The area of the sanctuary can be divided in five zones of water conservation and watershed.

Considering the heavy rains in Bondla, as part of soil water conservation, filling, shaping and diversions alone will not suffice to control gullies. Additional gully control and slope stabilization measures, such as check dams, trenches, sunken pits and re-vegetation, should be undertaken.

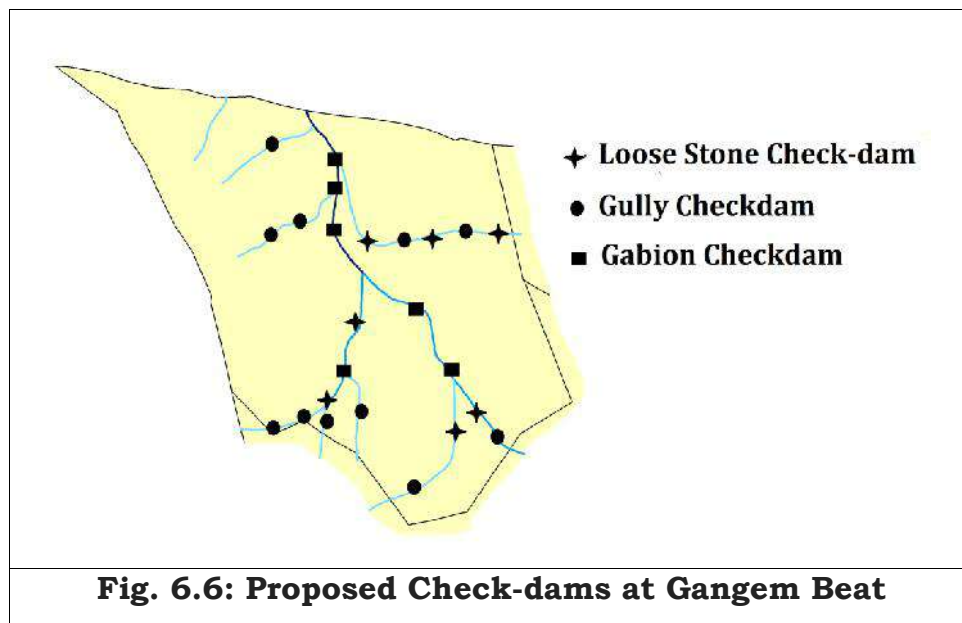
In gully control, structural measures such as woven-wire, loose stone and boulder check dams constructed across the gully bed can stop channel and lateral erosion. By reducing the original gradient of the gully channel, check dams diminish the velocity of water flow and the erosive power of run-off. Check dams, collect and hold soil and moisture in the bottom of the gully. Tree seedlings, as well as shrub planted in gullies can grow and it can be a binding force to reduce soil erosion. Construction of Check dams over small streams or rivulets will not only improve the water availability throughout the year for Wildlife but also prevent soil erosion.

6.4.4.1.1 Zonation for watershed management:

The sanctuary can be divided in the following zones of water shed for water conservation based on the topography and morphometric of the stream orders.

a) WS Zone 1: North West Zone - Covering Gangem Beat

Five streams drain the area with order 1, 2 and 3 (Fig 6.1). They are seasonal and cover the north western part of wildlife sanctuary, flowing from South–East to North–West. Presently there are three check dams constructed across the main stream. Considering the topography and the surface run–off, it is suggested to construct at least three check dams across the third order stream and alternate combo of loose stone check dams and Gully plugs across first and second order streams. It is suggested to construct 11 gully plugs and 7 loose structure dams in the upper ridge portions, as indicated in Fig. 6.1.

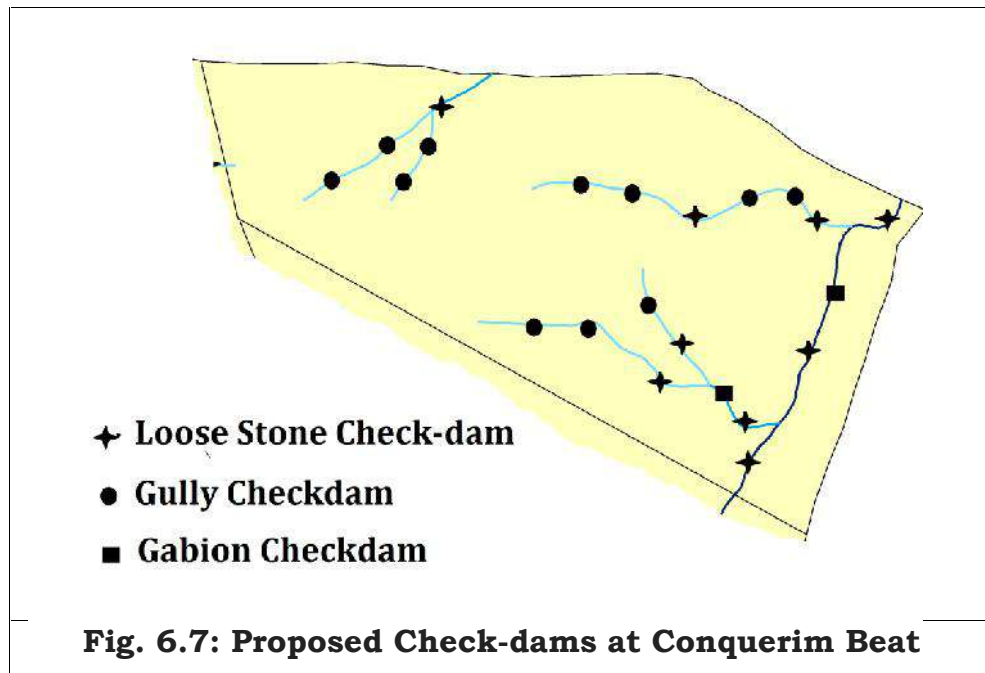


b) WS Zone 2: North East Zone - Covering Conquerim Beat

This zone is characterized by five first order streams, two second order streams and one third order stream. The third order stream is continuation of the stream that originates in the Usgao beat. Two streams, flowing from west to east, join the left bank of the third order stream.

Considering the topographical variation and length of the streams, 11 gully plugs are proposed across all the first order streams. Where the length of the

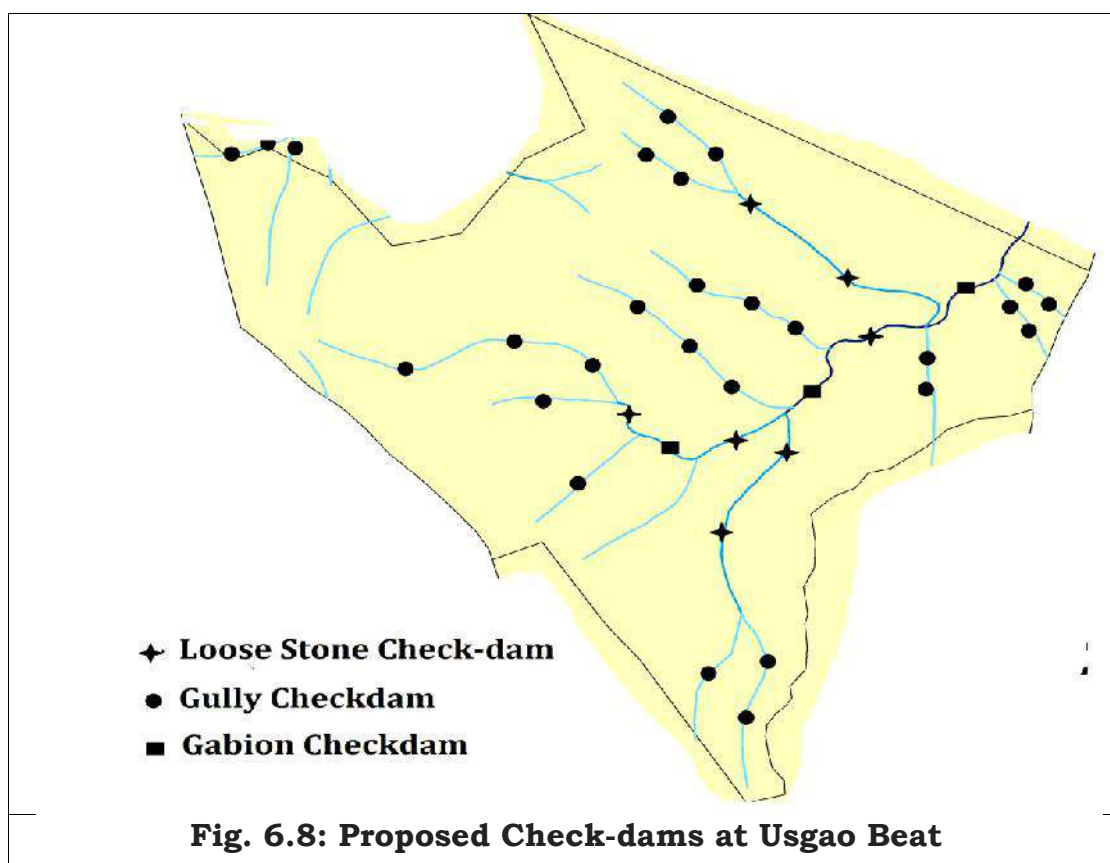
first order stream is lengthy and where two streams join to form second order streams, loose stone check dams are suggested and across the third order stream, one gabion dam is recommended.



c) WS Zone 3: Central Zone – Covering Usagao Beat.

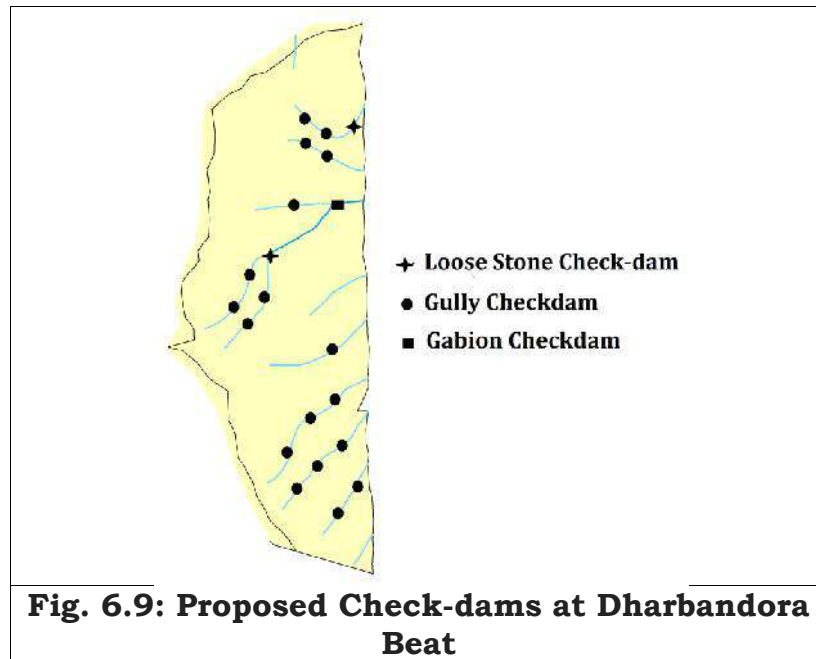
Between the two escarpments lies the shallow pan shaped low land , therefore several first and second order streams gush downstream to form the third order stream that flows South West to North East. The streams are largely semi perennial and seasonal and therefore to increase water recharge and conservation, two check dams and artificial ponds are constructed and sunken pits are dug at several locations. However, during the summer season, there is scarcity of water.

Considering the length of the third order stream, which is approximately 2 kms, flowing in the central portion of the WLS, construction of three gabion dams is suggested. Seven Loose stone dams are recommended across the second order streams and third order stream. 24 gully plugs to be constructed across all the first order streams. One check dam needs to be constructed on the third order stream, in the northern most portion of the Conquerim beat.



d) WS Zone 4: Southern East zone - Dharbandora beat

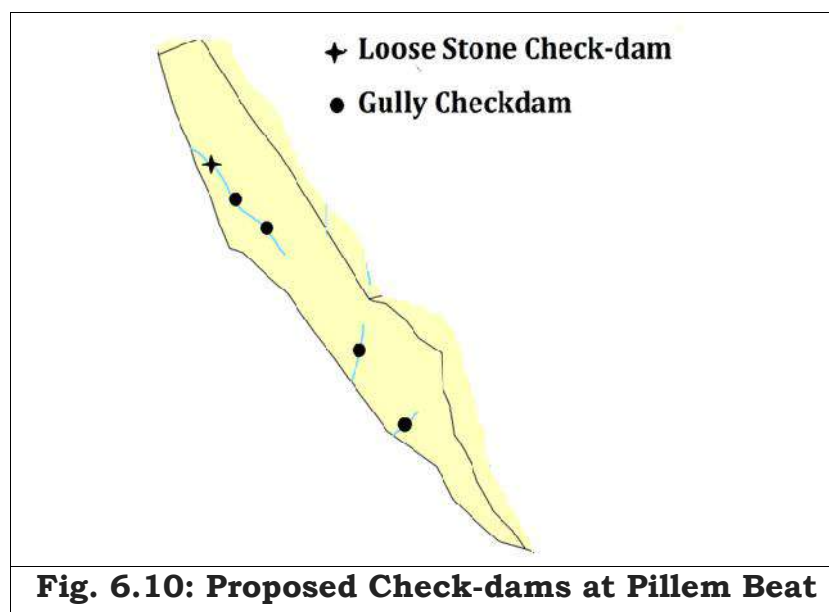
This zone consists of sloppy terrain with highest contour height of 400 meter in southern region of the wildlife sanctuary. The streams are small, swift and non perennial in nature. Only stream order 1 and 2 are observed in this portion. The general orientation of flow is south west to east. In the Dharbandora beat, there are two check dams. There are no remarkable water conservation activities in this area so it is suggested to construct one gabion check dam on the second order stream. Several gully plugs are recommended across all the first order streams along the eastern border of the Dharbandora (Fig. 6.1). Two loose stone dam can be also constructed on the second order stream and across the northern most streams.



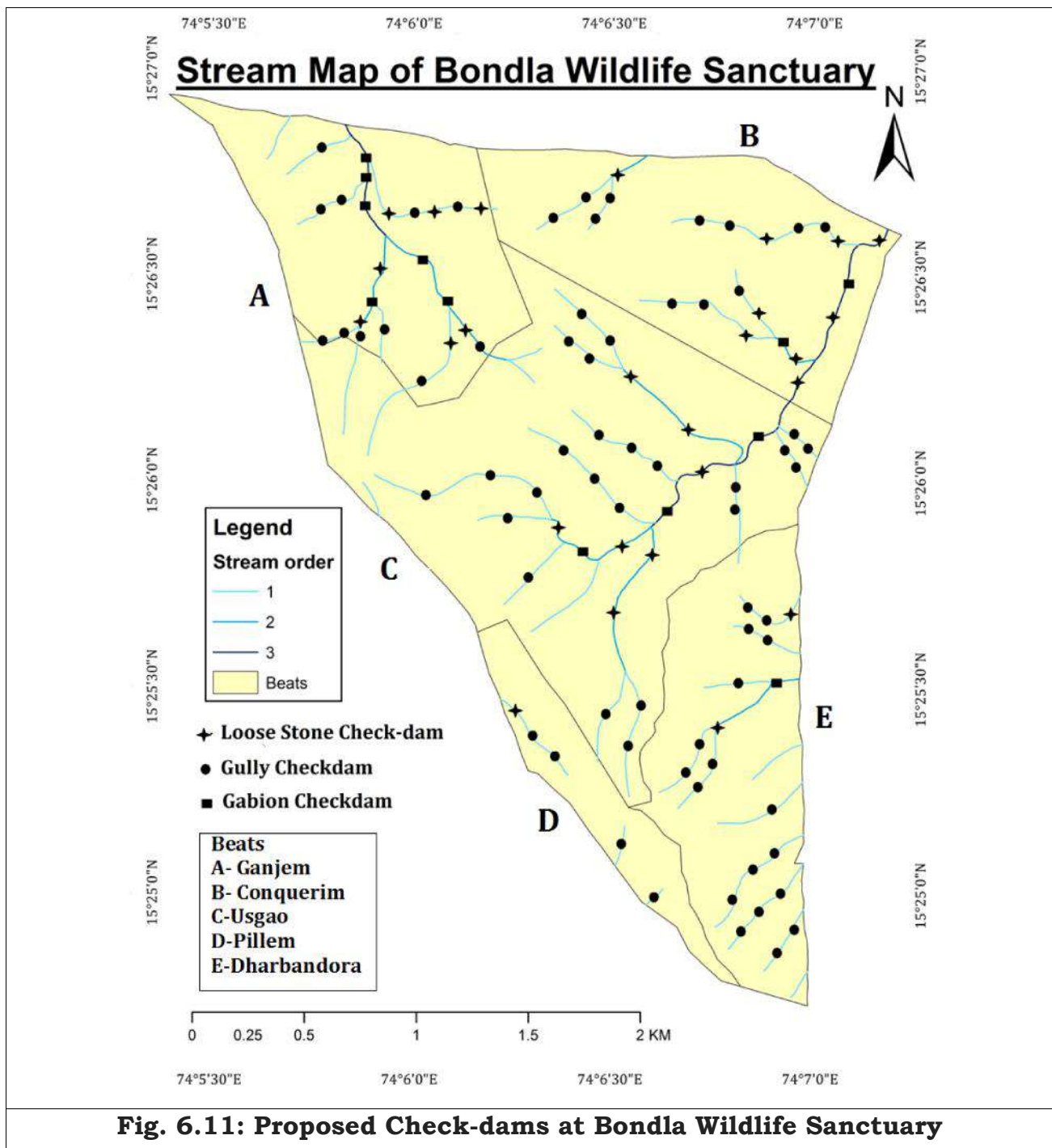
e) WS Zone 5: Southern West zone–Pillem beat

This zone consists of longitudinal sloppy terrain with relatively higher altitude southern west portion of the wildlife sanctuary. Distinctly there are three small streams which are small, swift and non perennial in nature. Only stream order 1 can be observed in this portion. The general orientation of flow is east to west, indicating the stream outflow from the sanctuary, therefore efforts to conserve water is essential.

Presently, there is no water conservation activity in this area so it is suggested to construct one loose stone check dam and around 4 gully plugs to be constructed.



To obtain satisfactory results from structural measures, a series of gully pugs and several check dams should be constructed for each portion of the stream bed. A check-dam should have a spillway in the center to discharge water and shoulders on either side to prevent water cutting around. The width and depth of the spillway will be determined by the width of the gully and the discharge rate. Maintenance for structural measures must be continued for at least two years after the treatment year. Treated areas must be inspected at least once a year.



6.4.4.2 Water Recharge

There are many tanks and check dams created inside the sanctuary which are mostly seasonal. A few perennial water points act as water sources for faunal population of the sanctuary. However, there is a need of more such water points. Need for identifying water recharge points, promoting watershed management, making provision for water scarcity during summer. The following measures need to be taken:

- i) Creating waterholes: Restoration and enhancement of water sources by creating more artificial water holes/ponds to alleviate shortage of water during the summer season should be considered. Creating waterholes at crucial points will help the wildlife disperse uniformly and avail the full benefit of the habitat.
- ii) Desiltation, restoration and enhancement of water sources need to be done. Ponds should be de-silted on a cycle of five years as a part of the works in the compartment.
- iii) Ground water: Water recharging works need to be carried out to ensure that sufficient ground water will be available for the natural water bodies and artificially created water holes during summer. Digging of Sunken ponds to be undertaken extensively to minimize surface water loss and ground water recharge.
- iv) Water pipeline: Provision to be made to supply Piped water to inaccessible areas during dry season especially in those areas where waterholes dry up in summers.
- v) Review and plan for check dam construction: Annual inventory of status of existing check dams needs to be carried out. Based on the observations plan for additional check dams to be constructed at strategic locations should be made. Construction of check dams should be based on the topography as is indicated in the contour map and physiographic map (Fig. 6.12)

6.4.5 Theme Plan for Improved infrastructure, communication and connectivity

6.4.5.1 Digitalization and IT based Infrastructure and other equipments/needs:

- a) Office requires to be upgraded with technology based on the infrastructure and gadgets for field monitoring activities.
- b) To accommodate data records, necessary infrastructure needs to be upgraded.
- c) Sectional classification with help desk is required in the administrative block.
- d) App based monitoring systems are recommended for monitoring of wildlife, habitats, fire incidences etc.
- e) Digitalized online system of booking online facilities and ecotourism packages need to be worked out (IT infrastructure).
- f) Other equipments: Tranquilizing equipments, cages and nets are required for capturing injured animals for treatment.
- g) Development of fodder nursery at Conquerim for supply of green fodder for free ranging herbivores.

6.4.5.2 Staff Amenities:

- Residential quarters to be renovated so that the staff is available in case of any emergencies.
- The patrolling staffs need to be adequately equipped with rifle, wireless and torch lights. Firearms like double barrel breech loading guns and rifles with adequate ammunitions should be provided to the field staff and the staff should be trained in the use and maintenance of firearms to effectively deal with the situation.

6.4.5.3 Improving communication:

- a) Installation of mobile tower is required to enhance connectivity in the area and for operation of app based wildlife monitoring.

- b) Presently Handheld transceivers are used for communication. Need to be upgraded to wireless system as effective communication will reduce the reaction time in case of emergencies.
- c) Installation of mobile tower to enhance connectivity in the area may be considered.

6.4.5.4 Vehicles:

- a) Provision of sufficient light and heavy vehicles should be made for effective control over the forest area. Forest range should be provided with one light and one heavy vehicle including two additional motorcycles for patrolling.

6.4.5.5 Repair/New construction works:

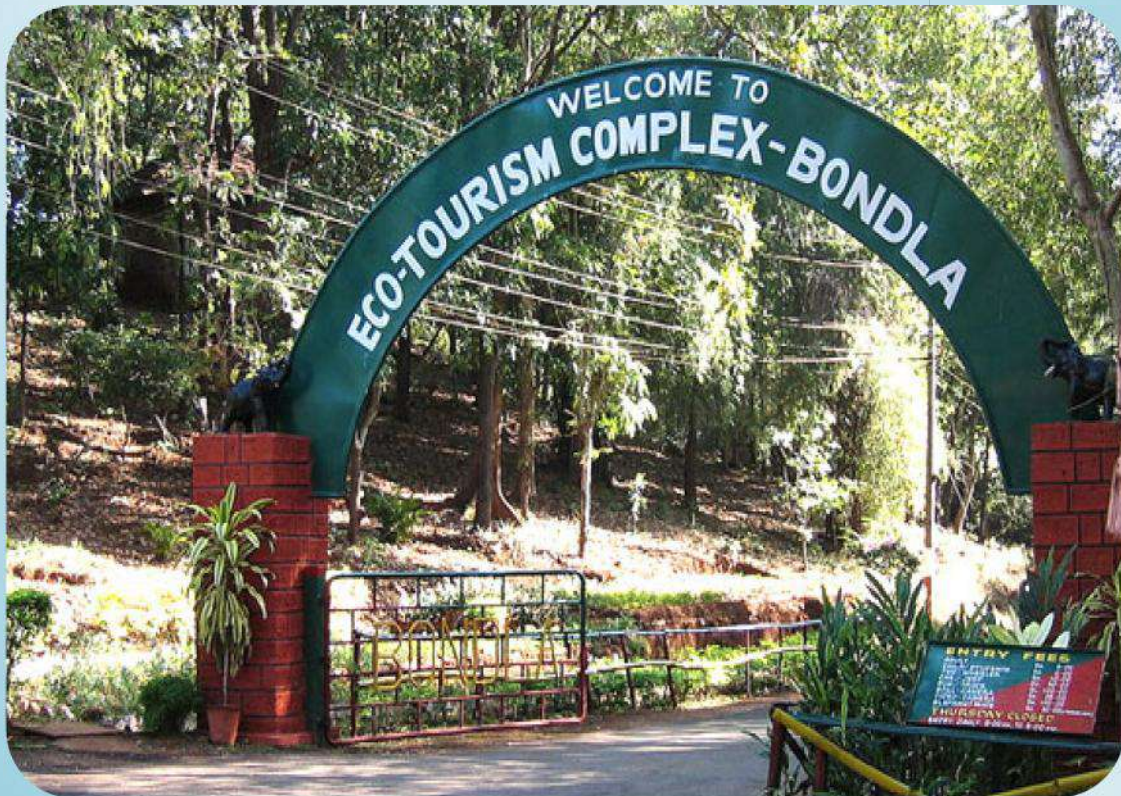
- a) Need for repairing the crocodile trail platform. Proper assessment of the main structure is advised. If the main structure and the beams are strong then only the decking needs to be replaced. A board indicating number of tourists allowed on the deck at a time for safety purpose.
- b) All watch towers need maintenance. An additional watch tower needs to be constructed.
- c) Nature Information centre needs to be upgraded to provide appropriate information as per the theme plan given in chapter 7.
- d) Nature trails need to be upgraded as per the theme plan given in chapter 7.
- e) No new roads are to be constructed as the existing roads are adequate.
- f) Research to be encouraged for the effectiveness of conservation works of wildlife. Details of this are discussed in Chapter 9.

Theme plans for Ecotourism, Ecodevelopment, Research, Monitoring:

Theme plans for achieving objective 5, 6 and 7 are deliberated in chapter 7, 8 and 9 respectively.

CHAPTER 7

ECOTOURISM, INTERPRETATION AND CONSERVATION EDUCATION



CHAPTER 7: ECOTOURISM, INTERPRETATION AND CONSERVATION EDUCATION

7.1 General

The undulating topography, scenic splendor, salubrious weather, diverse biodiversity lapped in the lower ridges of Western Ghats and Midland region of Goa can be promoted as an eco tourism destination. However, this has to be augmented with tourist facilities and strongly propagate conservation and awareness programme. The Bondla wildlife sanctuary has the presence of Zoo, botanical gardens, deer safari and natural trails can undeniably be promoted as an eco tourism destination. The zoo of Bondla exists within the larger confines of the wildlife sanctuary and also home to animals and birds. To increase eco tourism in Bondla wildlife sanctuary, specific strategies need to be adopted as wilderness based recreation is an important value. It can directly benefit the cause of conservation, bring about economic benefit to local communities and open the way for conservation education of local people and visitors.

Bondla Wildlife sanctuary is bestowed with abundant biodiversity. The existing condition can be enhanced further to not only achieve the primary goals of conservation and protection, but also to ensure that strategic efforts are made to enhance the existing resources. It needs to be restated that effectively managed protected areas are vital tools for safeguarding biodiversity, maintaining balance of ecosystem, preservation of the habitats, building resilience to climate change, maintaining the quality of water, conserving natural and genetic resources. Bondla WLS is characterized by high endemism. Therefore strategies of habitat management are vital. Furthermore, the Bondla Zoological Park harbors live type specimens of several birds, reptiles and mammals found in the sanctuary and the greater landscape of Goa. The sanctuary also has a botanical garden, Nature Information Centre (NIC) and the various nature trails. Therefore, the management plan focuses on strategies of revenue generation through community involvement and promoting sustainable ecotourism activities.

7.2 Objectives related to Ecotourism

The objectives of Bondla Wildlife Sanctuary related to ecotourism are as follows:

1. Create awareness for promoting wildlife conservation and protection and confidence building measure in the fringe areas.
2. Encourage Community participation in eco-development and ecotourism activities.

7.2.1: Broad outline

Outline of the problems and plan is given in Chapter 5. Details of the objectives are discussed below:

1) Facilitate safe and sustainable eco-tourism.

Bondla WLS aims to sensitize the visitors towards nature conservation and provide wilderness experience to the nature loving visitors and enable them to have a better understanding of diversity of Bondla Wildlife sanctuary. The plan also focuses on initiatives to facilitate safe and sustainable eco-tourism and minimize negative impacts on the wildlife and environment while promoting ecotourism.

2) Create awareness for promoting environmental conservation and protection.

The management plan also focuses on achieving the objective of creating awareness on nature conservation through various on-site and off-site activities/programmes.

3) Community involvement

Initiatives to promote community involvement in ecotourism related activities and general management works of the WLS is needed.

7.3 Issues/Problems/Challenges

The major problems in achieving its objectives of bringing about effective implementation of ecotourism, nature education and awareness programmes in Bondla Wildlife Sanctuary are listed as follows:

Sr. No.	Objective	Issues/Problems/Challenges
1	Inadequate Community participation and engagement in ecotourism activities.	1. Little or no community involvement in ecotourism related activities. 2. Lack of proper defined protocols for promoting nature trails ventures or nature photography or Zoo visits. This needs to be streamlined considering the objectives. 3. Less number of staffs or untrained staff to address diverse needs of creating awareness, monitoring ecotourism ventures etc. 4. Local community lack expertise as trained nature guides or in participative ecotourism activities.
2	Insufficient initiatives of promoting awareness for promoting environmental conservation and protection.	5. Limited awareness programmes conducted to promote wildlife conservation and sensitization of general public. 6. Inadequate data on carrying capacity: Carrying capacity of visitor per day is not fixed.
3	Inadequate Ecotourism infrastructure	7. Inadequate infrastructure facilities and lack of well designed tourism packages etc. Cottages and facilities need to be upgraded. 8. Interpretation center/information centre needs immediate Upgradation. Focus should be to provide information or awareness on the biodiversity of the sanctuary. Lack of information in the form of booklets, pamphlets or posters on the biodiversity of the sanctuary.

Strategies for addressing these issues/problems are discussed below. Theme plans for specific aspect are also discussed in detail.

7.4 The Strategies

Strategies for promoting ecotourism are laid out in the following chapter with special focus on achieving the objectives.

Sr.N o.	Objective	Strategy
1	Inadequate Community participation and engagement in ecotourism activities.	Promoting community involvement in ecotourism works a) WLS has to be considered as community asset rather than only as a national asset. b) Encourage involvement of local community to be more involved in participative conservation and tourism promotion works. Theme plan for the same is given in point 7.4.3.
2	Insufficient initiatives of promoting awareness for promoting environmental conservation and protection.	Awareness and sensitization Programmes: a) To create awareness on nature conservation through various on-site and off-site activities/programmes. b) Conduct nature awareness camps or study tour for students of various educational institutions and even general public. c) Programmes to gain the cooperation of the public and NGOs. Theme plan for the same is given in point 7.4.2
3	Inadequate Ecotourism infrastructure	Strategy for Promoting Ecotourism ventures and infrastructure: a) Nature Trails: Nature Trails need to be upgraded. Theme plan is given in point 7.4.1.1 b) Information centre: Information centre needs to be upgraded to provide appropriate information.

		The center needs to be renovated to make it more purposeful and resourceful. Theme plan for the same is given in point 7.4.1.2 c) Preventing habitat destruction and strengthening ecotourism infrastructure: To protect the habitat from destruction the ecotourism zone needs to have Signages of Dos and Dots. Also carrying capacity of the area needs to be determined. Theme plan for the same is given in point 7.4.1.3 Infrastructure Upgradation: Watch towers need to be upgraded for promoting ecotourism as well as for monitoring wildfires. Ecotourism packages and Marketing of tourism ventures: There is lack of well designed tourism packages etc. Tourism packages should be created and modalities need to be laid out for making it more economically viable and sustainable. Theme plan for the same is given in point 7.4.1.4.

7.4.1 ECOTOURISM THEME PLANS:

7.4.1.1: Promoting Ecotourism ventures and infrastructure

A lot needs to be done to promote sustainable ecotourism in Bondla without disturbing the habitat and the wildlife. The WLS at present has inadequate publicity facilities, lacks sufficient purposeful signages, brochures, pamphlets and proper publicity of ecotourism facilities on the web-site. As a result the actual tourism potential of the sanctuary is not properly harnessed. The following theme plans are suggested for promoting ecotourism.

7.4.1.1.1: Theme Plan for Restoration/renovation of Nature Trails:

The existing 06 Nature trails need immediate attention to make them more beneficial to the tourists. There is a need for repairing crocodile trail platform. Proper assessment of the main structure is advised. If the main structure and the beams are strong then only the decking needs to be replaced. A board indicating number of tourists allowed on the deck at a time for safety purpose needs to be displayed.

No.	Name of the trail	Distance
Trail 1	Hospital to Shivdem Checkpost	2.3 Kms
Trail 2	Deer Safari / Ring road trail	1.4 kms
Trail 3	Crocodile nature trail- Damsite view point to Ganjem Checkpost	1.19 kms
Trail 4	Trogan Nature Trail - Crocodile pond to Dormitory.	1.2 kms
Trail 5	Drongo nature trail- Dormitory to Crocodile pond via labour colony.	1.5 kms
Trail 6	Leopard Nature Trail (Near Damsite view point to Shivdem check post)	5 kms

Nature trails are popular for wildlife viewing, walking and hiking. Tourism needs to be developed with the aim to provide wilderness experience to genuine enthusiasts in particular and to the interested public in general. All the 06 trails need to be developed to attain its objective. The following strategy is recommended:

- i) **Sustainable Trail tread:** All trails need to be redeveloped using natural material to create a low negative impact and give natural-looking path with minimal disturbance to vegetation. A sustainable trail needs to be designed which has least maintenance and can withstand severe weather conditions and erosional impact, especially during the monsoons. The primary key to develop a sustainable trail is to build it on the side of the ridge, slightly slanted outward, and kept clear of rocks, branches or other debris several yards on both side of the trail. Local material should be used for the repairs and maintenance of the trail paths. Lateritic material is abundantly found locally could be used for base line,

with over lay of soil and silt. Regular maintenance of tread of the trails is required. *(Ideal sustainable trail tread preparing protocol: Mineral soil - composed primarily of sand (0.05 to 2.0 mm – coarse texture), silt (0.002 to 0.05 mm – medium texture) and clay (0.002 mm – fine texture). Soil with a high percentage of silt, moderate percentage of sand and small percentage of clay makes a very durable tread).*

To give comfort to the visitors, rest areas may be placed at suitable locations. These need to be made of natural material (Refer fig. 7.1).



Fig. 7.1: Sample structures for Rest areas on the trail

- ii) **Trail Signs:** Trail maps, trail head marker and/or bulletin boards are useful for conveying information to visitors about the trail. Four types of signs may be needed: Trailhead sign, confidence markers, directional signs and warning signs.

a) Trailhead sign: Needs to be placed at the beginning of the trail. It should show trail route, key features along the trail, a “you are here” mark, north arrow and map scale or distances along major trail segments (Refer Figure 7.2 for sample of trailhead sign). Display Boards of information of flagship species of plants and animals at the start point are also helpful.

Drongo Nature Trail

what to expect to see...

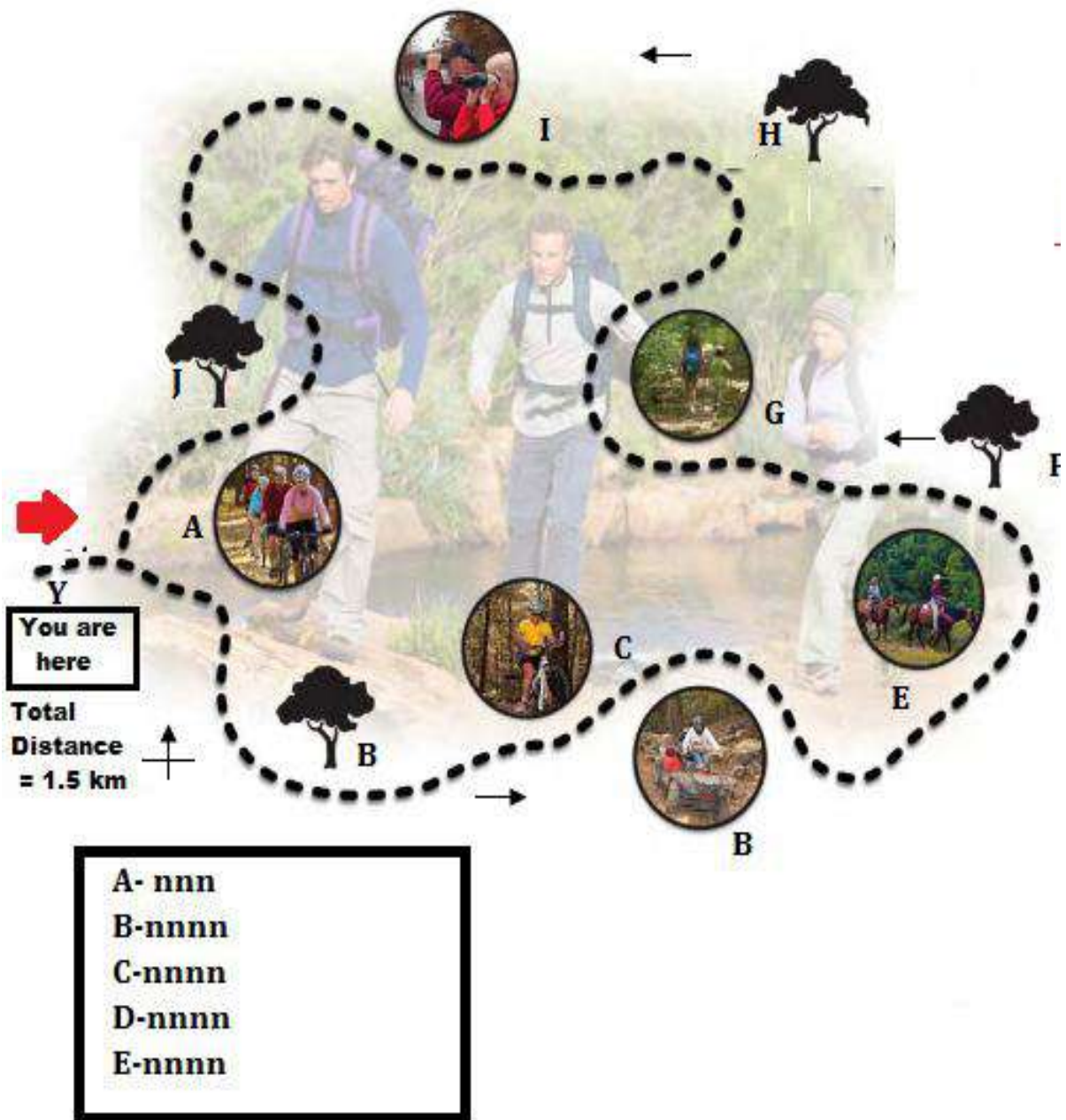


Fig. 7.1. Sample of Trailhead Sign

The entrance of the trail can also be made more appealing with arches of natural material.(refer fig. 7.2 for sample)



Fig. 7.2: Sample of arches of natural material at the start point of the trail

- b) Confidence markers: The red and green confidence markers placed at every 50m need to be repainted periodically. Confidence markers ensure that the trail user is on the right path of the trail. Confidence markers need to be placed strategically along the trail after 50m or at significant turns or where tread is indistinct. Besides rocks, paint marks on trees may be used.

- c) Directional signs: A directional marker is needed to direct trail users to the trailhead or at a sharp bend, fork or trail crossing. These signs should be placed at trail intersections, and should provide information about where each trail leads and how far away the next significant feature can be found.
- d) Warning signs: Warnings, including hazards along the trail (e.g. Poisonous plants, venomous snakes, dangerous animals, steep cliffs, falling rocks, unsafe drinking water) and environmental features that must be protected (e.g. fragile vegetation, rare animals, natural spring).

Sample warning signs:	“Stay on the trail. Protect the fragile glade”
	“Stay on the trail. Strong water currents!”
	“Stay on the trail. Do not trample vegetation”

7.4.1.1.2: Theme Plan for Renovation of Nature Information centre:

The nature information centre needs attention with respect to making it more purposeful and resourceful. Renovation of the existing interpretation center to provide information on the sanctuary and its biodiversity value is recommended. The entire block has to be reorganized and additional sections need to be added to make it more effective to serve its purpose.

The information centre should ideally consist of the following zones:

- 1) Information section: This section needs to be equipped with resources such as pamphlets/booklets/posters to provide information on the faunal and floral diversity. Both, education as well as publicity materials such as leaflets, brochures pamphlets, posters, etc of trails of the ecotourism ventures for various target groups should be showcased and sold at a minimum cost. Alternatively these can be provided at a fee along with the ecotourism packages.

- 2) Infographic gallery–This section should have exhibition gallery, which displays the fauna and flora of Bondla WLS. These Infographic boards of flagship species of plants and animals should be able to create a landmark experience and awareness on the local biodiversity and nature. Hanging exhibits may be used to save space(Refer Fig. 7.3).
- 3) Auditorium- A mini-auditorium of 100 seater capacity needs to be part of the nature interpretation centre. Necessary interpretation materials/wildlife movies, documentaries etc may be featured in the auditorium for effectively interpreting the values of PA/ different groups of plants and animals. Alternatively an Audiovisual room may be developed with equipments - TV, LCD projector, Computer etc for serving the same objective.
- 4) Library section: This small section need to have information on wildlife of Bondla/Goa, Books related to wildlife, Monographs, Publications on Bondla wildlife sanctuary and research journals for those interested in further details about the flora and fauna.
- 5) Souvenir section – As a memory or a gift to be given, every visitor would like to take a memento or souvenir of the place visited. A souvenir shop at the WLS would serve this purpose. The souvenir shop would display for sale specially designed items like key chains, mugs, T shirts , pens , plaque .etc

This section could also exhibit and sell local products (fruits, kokum, etc) from the forest or the products made by local community associated with the Bondla WLS. It can harbor locally made artifacts depicting the endemic fauna of Bondla which can be serving as souvenirs.

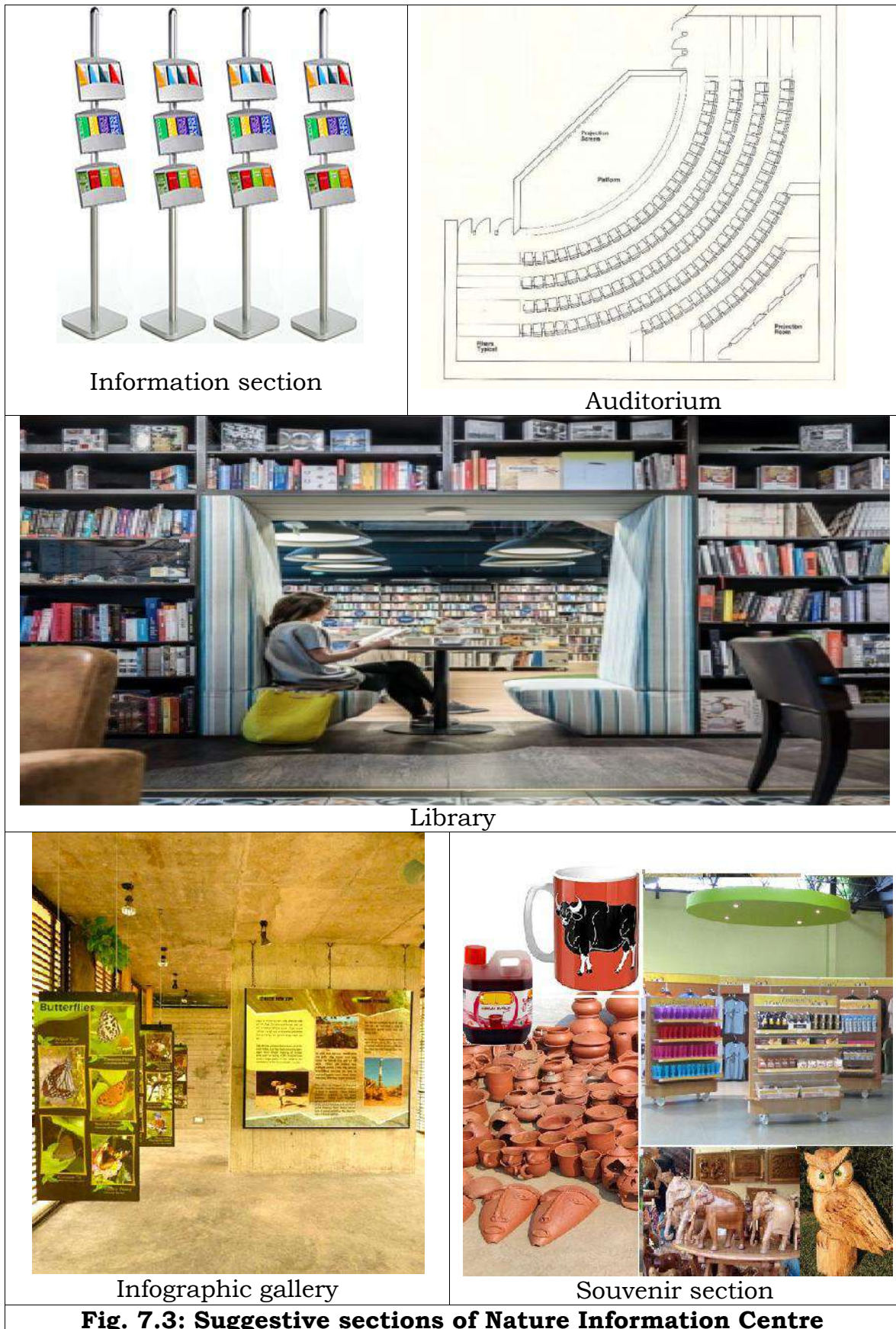


Fig. 7.3: Suggestive sections of Nature Information Centre

7.4.1.2: Theme Plan for Preventing Habitat Destruction and strengthening ecotourism infrastructure

To facilitate safe and sustainable eco-tourism and minimize negative impacts on the wildlife and environment while promoting ecotourism, utmost care needs to be taken to ensure protection of the habitat.

- a) A document of 'Code of conduct for Ecotourism in Goa' needs to be prepared for the visitors. ENVIS centre on Ecotourism' Sikkim may be referred to as a sample. The same is available at:
<http://scstsenvis.nic.in/index1.aspx?lid=718&mid=1&langid=1&linkid=442>
- b) There is a need to develop appropriate hoardings/signages Displaying DO's and Don'ts to be placed in strategic locations. Suggestive list of Dos and Don'ts is as follows:

Do's :

1. Allow the flora and fauna to flourish in its natural environment
2. The use of polythene and plastics is unhealthy for the environment.
3. Kindly use only if necessary.
4. 3.Carry away all non-degradable litter-empty bottles, tins, polythene bags etc and dispose at appropriate place .
5. Maintain silence, animals love peace.
6. When taking photographs, respect privacy; ask for prior permission.
7. Follow all guidelines given in the 'Code of Conduct' document given by Goa forest department.

Don'ts :

1. Do not litter the surroundings with pet bottles, wrappers or plastic.
2. Using pollutants, such as detergent, in streams or springs is prohibited.
3. Do not destroy the forest wealth of the Western Ghats which are our heritage.
4. Do not leave smoldering cigarettes or make open fires in the forests.
5. Do not consume alcohol, drugs or any other intoxicant.

6. Do not listen to radios, tape recorders or any other electronic entertainment equipment at high volume to avoid noise disturbing wildlife

Besides hoardings, flyers of Dos and Don'ts need to be given to the tourists as part of the ecotourism package kit.

c) Waste disposal: A system for waste management may be introduced. Plastic should be totally prohibited in the Sanctuary. Monkey proof waste bins may be located at strategic locations in the eco-tourism zone. Option of composting of Canteen waste generated may be considered.

d) Carrying Capacity: An exercise of determining the 'Tourist carrying capacity'/'Physical Carrying capacity of tourists needs to be conducted for Bondla WLS. Once carrying capacity is determined, it will ensure sustainable ecotourism without causing destruction of the physical, economic or socio-cultural environment. Mowforth and Munt formula may be used to determine the carrying capacity.

Eg: This is normally assumed to be around 1m per person.

"PCC per a day = area (in metres squared) x visitors per metre x daily duration" (Mowforth and Munt).

e) Infrastructure Development

- i) Cottages, Dormitories and other facilities: There are cottages and dormitories where stay can be arranged.
- ii) Watch tower: There are two watch towers in eco-tourism zone, one tower constructed using wooden materials near crocodile pond to observe the movement of crocodile and another constructed from concrete to observe the wild animals and natural scenery. All watch towers need to be upgraded.
- iii) Roads: The existing roads in the tourism zone need to be maintained during the monsoons which can cause damage to these roads.

7.4.1.3: Theme Plan for Ecotourism packages and Marketing of tourism ventures and training staff

Well designed tourism packages etc. should be created and modalities need to be laid out for making it more economically viable and sustainable. This revenue generating potential should be tapped owing to the richness of endemic wildlife at Bondla Wildlife Sanctuary.

a) Ecotourism packages:

The community needs to be involved in the ecotourism related activities at Bondla. All the packages need to be operated through various 'Eco-development Committees' in the Sanctuary under the supervision of Forest Department. This will also serve as an additional employment opportunity to the local people there by increasing their living standards. Transportation charge will be extra according to the packages. The packages need to be publicized on the website of the forest department. The packages should have closely knitted involvement of the local community so that the works will be carried out by the community under the supervision of the forest officials.

There is a need to plan out a full-fledged document on the modalities of different packages and their tariffs and revenue sharing between the Eco-development Committees' and the forest department.

Prospective packages which may be considered are listed below:

- 1) Photography
 - a. Bird photography package
 - b. Amphibians Photography
 - c. Floral Diversity
- 2) Nature Trails (06 Trails)
- 3) Zoo Visit
- 4) Experience wilderness (Nature Trails+ Night safari+ Birding+ Cultural programme+ Local cuisine + stay in cottages).
- 5) Home-Stay package (Nature Trails+ Night safari+ Birding+ Cultural programme+ Local cuisine with Home stays)....

Some reference pointers may be obtained from the following:

- 1) <https://shendurney.com/wp-content/uploads/2014/08/inside.jpg>
- 2) <http://ecotourism.bhupalpally.com/booking/home/packages>

b) Marketing:

Marketing is essential to promote ecotourism and give wider publicity to the ventures offered at the Sanctuary. Different means by which marketing can be done are listed below:

1. Portal on the website depicting relevant information on the Sanctuary may be developed and updated periodically. The present website needs to be upgraded to provide information regarding the faunal diversity and awareness camps to the public, nature trails and the different packages offered.
2. Digitalized online system of online booking of facilities and ecotourism packages along with provision for online payment need to be worked out (IT infrastructure).
3. Develop education / publicity materials such as leaflets, brochures, pamphlets, posters, etc for various target groups and also to be displayed on the website.
4. Publish annual report on the various tourism programmes to boost tourism.

c) Training staff and community:

Since there is no specialized staff designated for conducting education and awareness programmes, a proposal may be moved for creation of a post of forest official to oversee the research and ecotourism works for the Sanctuary. Alternatively, the forest guards may be assigned this work as additional duty.

- I. **Staff Training:** The existing staff members are not trained in organizing awareness programmes. Therefore there is a need to provide proper training to the staff members involved in organizing the awareness programmes.

- II. **Training the locals in eco tourism:** there is a need to constitute 'Economic development Committees' in the surrounding villages. Since this is commercial venture, the locals needs to accept and develop professional outlook of eco tourism. This can be done by organizing workshops that practically prepares them for their new assignment

Staff and EDC members involved in conduct of nature education activities may be given training in communication skills and education and interpretation and responsibilities.

7.4.2: Theme Plan for Awareness and sensitization

More awareness programmes to be conducted to promote wildlife conservation and sensitization of general public. The following strategies may be followed to promote awareness and sensitization of general public:

- 1) Periodic competitions and programmes for academic community.
- 2) More newspaper articles on wildlife conservation and initiatives and ventures of forest department.
- 3) Awareness on benefits of nature trails and nature photography.
- 4) Continue the good works of annual events such as wildlife week and Bird festival at all the WLS.
- 5) Promoting and publicizing the protected areas to a wide range of stakeholders.
- 6) In addition to the general nature education camps, paid camps and eco-restoration camps may be organized for different target groups.

Detailed theme plan on awareness and sensitization is described in chapter 8.

7.4.3: Theme Plan for Community participation

Conservation programmes must attempt to reconcile livelihood security with wildlife protection. Involving community for restoration of degraded habitats outside protected areas and making them aware of PA objectives including the control of fire, prevention of overgrazing, disease and poaching is needed.

To enhance community involvement, it is essential to create stronger associations with the local Panchayat. Connecting with local communities living in the fringe of the sanctuary to understand their culture, handicrafts, cuisine, folklore, traditional knowledge etc. This will enable to prepare the tourism product, and thereby create an opportunity for the locals to collaborate and support eco tourism in the sanctuary.

Liaise with local Panchayat and interested group of individual to form ‘Eco-development Committee’ for managing cultural activities and ecotourism ventures of Bondla WLS should be initiated.

Detailed theme plan for community participation is given in Chapter 8-Ecodevelopment

CHAPTER 8: ECODEVELOPMENT



CHAPTER 8: ECO DEVELOPMENT

Eco development can be undertaken within the Wildlife Sanctuary, buffer zone (Eco sensitive zone) and in the catchment/ fringe areas/ villages of the sanctuary. These objectives of eco-development are focused on developing activities to ensure support from the local communities in achieving the management objectives of the sanctuary. It also deals with focus on creating a congenial relationship between the sanctuary management and the local communities.

The major objectives are as follows:

8.1 OBJECTIVES

1. Create awareness for promoting wildlife conservation and protection and confidence building measure in the fringe areas.
2. Community participation and engagement in eco development and ecotourism and wildlife management activities.

The strategies suggested to achieve the objective of eco-development includes means to preserve, conserve and enhance existing resource, develop People's-Participation (PP) Model by engaging local people in conservative activities and engage community (*students, visitors, researchers, naturalists etc*) through awareness programme and environmental education.

8.2 SPECIFIC ISSUES

There are seven villages that fringe that sanctuary. The means of livelihood of this populace is subsistence agriculture, plantation, working in service sector. There is increasing trend of people shifting towards non - agriculture activities. Overall, the socio- economic condition of the population is generally good and therefore there is always shortage of daily wages laborers for the eco- development activities within the wildlife sanctuary. Therefore, sustainable development model through local people participation needs to be developed.

Specific issues faced are as listed as follows:

1. Less participation of locals in works of management of forest.
2. Reluctance to take up jobs at the WLS
3. Little or no much awareness on conservation works of objectives of WLS.
4. No training for involvement or participation in activities related to WLS.
5. No formal organization / group to be involved in ecodevelopment

8.3 BROAD STRATEGIES

Participation of the locals of the adjoining villages could be ensured only through programmes for their socio economic enhancement. Broad strategies to tackle the specific issues and carry out the objectives of the WLS as discussed below:

8.3.1 Create awareness for promoting wildlife conservation and protection and confidence building measure in the fringe areas.

- i. Encourage village eco-development program which specify measurable action by villagers to strengthen conservation effort of the forest management.
- ii. Conduct programmes to increase awareness.
- iii. Periodic competitions and programmes for academic community.
- iv. Involve community for restoration of degraded habitats outside protected areas.

8.3.2 Community awareness and involvement/ engagement in eco development

- i. Formulation of Ecodevelopment Committees and Self-Help groups in the villages.
- ii. Conduct participatory micro-planning and provide implementation support for eco- development.
- iii. Training of the Local villagers on various aspects of ecotourism.
- iv. Have a revenue sharing model of people's participation in ecodevelopment.
- v. Conservation programmes must attempt to reconcile livelihood security with wildlife protection

8.4 VILLAGE LEVEL SITE SPECIFIC STRATEGIES

The main objectives related to eco-development are:

1. Create awareness for promoting wildlife conservation and protection and confidence building measure in the fringe areas.
2. Community participation and engagement in eco development and ecotourism and wildlife management activities

8.4.1 Methodology to be adopted for Eco- development

Eco - development guidelines issued by the Government of India need to be followed.

- a) Eco-development guidelines issued by the government to be adhered to and strictly followed.
- b) Formation of Ecodevelopment Committees and Self-Help groups for planning and decision making.
- c) To ensure peoples participation, Participatory Rural Appraisal method/ techniques to be used mainly Focus group discussions; transect walk, resource mapping and demographics.
- d) Engagement of the self help group (SHG), NGO's, Panchayat in deliberation of programmes to be undertaken by the officials of wildlife sanctuary.

8.4.2 Participatory Micro-Planning and Implementation Process:

Micro-planning support team may be composed of protected area personnel, Ecodevelopment Committees; Self-help groups, NGOs etc. Micro-plan should be accommodating all issues such as guidelines, investment criteria, training program, schedule, and commitment etc so as to ensure achieving the set objectives. Micro-plan should also have clear information on objectives, activities proposed, mutual obligations, approved investments, schedule, monitoring and evaluation mechanism, indicators of success.

8.4.2.1 Theme Plan for Village level micro level planning (MLP)

Using people's participation model, village Panchayat can be used for developing eco-development plan. Therefore it is essential to formulate:

- 1) 'Eco-Development Committees' (EDC) in the villages and so also
- 2) Self-Help Groups (SHGs).

Micro level planning should be undertaken by the EDC and should focus on the following:

- i. Resource mapping,
- ii. Engagement of local people in eco- tourism
- iii. Participating in execution of eco-development projects within the wildlife sanctuary.
- iv. Planning Training programmes.
- v. Preparing schedule

Overall, MLP will ensure that all objectives are fulfilled. The focus of eco-development has been adequate and rational utility of the natural resources enabling to maintain the ecosystem at the local level. Therefore, it is prudent to engage the local community in eco-development related activities. The effective way is to involve these communities as partners in conservation and protection of forest and provide them as a source of alternative source of income. This can be done by having a good coordination between the WLS officials and EDCs of the village Panchayat.

8.4.2.2 Theme Plan for community Involvement and engagement

In order to achieve desired partnership of the local in the eco-development of the region, the following can be considered. Participation of the locals of the adjoining villages could be ensured only through programmes for their socio economic enhancement. This requires special programmes for capacity building and income generation with proper institutional set up and mechanism for monitoring the effectiveness of the programmes. Accordingly, following eco-development activities/initiatives are proposed for improving the status of those dependent communities.

A long term relationship needs to be developed between the forest officials and the local communities for their engagement in eco development. This would be feasible with a strong committed network of individuals from the surrounding villagers with strong social and communication skills, who would be the link between the forest officials and local communities. The ultimate aim is to develop positive relationship and positive engagement in initiatives taken by the forest department

1. Engaging the local population in the eco-development programmes/schemes:

- Involve local people in works of the sanctuary like forestry, restoration of walking trails, building of check dams, digging of sunken ponds and trenches.
- Involving community for restoration of degraded habitats outside protected areas.
- Involve local communities and make them aware of PA objectives including the control of fire, prevention of overgrazing, disease and poaching.
- Engaging the members of **Ecodevelopment committee** members (EDCs) as protection watchers.
- Establishment of **Self Help Groups** that would take up activities that would help better development and functioning of the sanctuary.
- Capacity building to resolve issues between the forest officials and villagers like human-wildlife conflicts, land disputes.

2. Enable locals in seeking alternative livelihoods:

- Eco-development activities need to be carried out to ensure productivity, income generation as alternative means of livelihood, adequate employment in forestry and allied activities in a sustainable way.

i) As labourers:

- o Continue the practice of employing for forestry works within the Sanctuary. This includes digging of sunken ponds, tree plantation, construction of check dams, annual maintenance work etc.

- o More than 40 labourers are engaged as daily wage earners but there could be more intense engagement through promotion of eco- tourism.
- o Involvement in management of ecotourism packages has been detailed in Chapter 7

ii) As ecotourist Guides:

- o Training of the village youths to be guides for visitors.
- o The forest officials and EDC should conduct short term training programme/ Courses where the locals youth are trained to became guide and disseminate knowledge of flora and fauna to the school children/ visitors.
- o These village youth can be registered after suitable orientation to be engaged as guide for the visitors.
- o These guides need to be trained to interpret the nature and communicate it to the visitors in a most effective ways.

iii) For local handicraft supply:

- o The locals can make local handicrafts to be sold in the souvenir section of the nature information centre.
- o Local people or village organizations/EDC also can display their cultural heritage folk dance/folk lore etc to the tourists at the nature information centre.

This type of tourism product will create the foundation for reciprocal relationship where in local communities will be involved in sustenance of local culture and so also preservation of nature for future generations. It will also help tourists to connect with local communities living in the fringe of the sanctuary and understand their culture, handicrafts, cuisine, folklore, traditional knowledge etc.

iv) Skill development training programmes:

- o Participation of the local community could be ensured through programmes for their socio economic upliftment.

- o Specific training programmes/workshops should be conducted for the local community to empower them for taking up organic farming, mushroom cultivation, intensive horticulture, apiculture, management of land-use system etc.
- o Vocational training to make saleable handicrafts and food products.
- o Staff and EDC members involved in conduct of nature education activities may be given training in communication skills and education and interpretation.
- o Providing assistance for improving agriculture produce and better marketing of products through value addition and organic certification.

v) In Ecotourism Sector :

With the help of the EDC and Local Self Help Groups, local community can be involved in eco tourism and eco development works. In order for community-based eco tourism to be successful it is entirely dependent on cooperative ownership, leadership and partnership. Local communities need to take responsibility of their own tourism product and the forest officials associate to show case the product.

- o Liaise with Self-Help groups for providing local cuisine for tourists.
- o Liaise with Self-Help groups for managing cultural activities and ecotourism ventures of Bondla WLS.
- o Engage local community as guides
- o Share local unique attributes in terms of cuisine, folklore, handicrafts, and agro products.
 - Sale of locally made handicrafts and food products in Nature information centre.
 - Artisans performing these folk dances and folklore need to be identified by the EDC. Thus locals can provide services as artists for cultural shows. Local folk dances such as dhalo and shigmo fugdi and folk plays such as natkam can be promoted.

- o Involve local Panchayat and EDC to identify houses for Home-stay. A revenue sharing mechanism may be generated as discussed in Chapter 7.

These are list of activities which will create an opportunity for employment, or alternative means of generating income for locals. Depicting relevant information of opportunities for community engagement and awareness on the website of the sanctuary would also be ideal.

8.4.2.3 Theme plan for promoting Publicity and awareness

Need to organize more awareness programmes involving community. At global, national and regional level, there is a growing concerned of environment and therefore environment awareness forms the key for sustainable development. Inclusive approach can be adopted by engaging stakeholders (students, NGO's etc).

a) Encouraging villagers towards green initiatives:

- o Increasing plantation of fruit bearing trees, growing food crops organically, adopting water conservation methods and waste management.
- o Promote environmental conservation, by local villages located along the periphery of the protected area by carrying out plantation drives in the peripheral forest area with the help of local villagers.
- o Encouraging Afforestation and conservation works by local community on the periphery. Creating a reward based system to encourage conservation drives by local community.

b) Awareness programmes and competitions

- o Promote environmental conservation programmes in the local schools for school children.

- o Organize Periodic competitions and programmes for academic community. Organizing competitions at different level like poster making, video making, quiz etc.
- o Nature awareness camps may be organized for the students as they can be exposed to flora-fauna diversity. In addition to the general nature education camps, paid Nature awareness camps and eco-restoration camps may be organized for different target groups.
- o Awareness camps on importance of protected areas and need for conservation at Panchayat level for the villagers.
- o Continue the good works of annual events such as wildlife week and Bird festival at all the WLS.
- o Conducting and promoting research on various aspects of wildlife.

c) Preparation of Publicity material:

- o More newspaper articles on wildlife conservation and initiatives and ventures of forest department should be featured on local newspapers.
- o For Promoting and publicizing the protected areas to a wide range of stakeholders, the website should be regularly updated.
- o Necessary interpretation materials/wildlife movies, documentaries etc may be produced for effectively interpreting the values of PA/ different groups of plants and animals.
- o Develop and distribute education /publicity materials such as leaflets, brochures, pamphlets, posters, etc for various target groups.
- o Mobile exhibitions - A mobile extension unit for carrying out outreach activities may be set in place with sufficient infrastructure facilities and staff/guides.
- o Upgrading the website to make it more informative. E-brochures of ecotourism packages, awareness on benefits of nature trails and nature photography.
- o Encouraging publishing of research works and books on wildlife. All publications related to the PA needs to be made available in the library section of Nature information centre.

8.5 Monitoring and Evaluation

The urgency is to gain the confidence of the local people by involving them in activities of the sanctuary and methodically educating the locals regarding the importance of declaring the wildlife Sanctuary. Their co-operation is very much needed for the effective protection of wildlife

Also, there is a need for having a monitoring and evaluation mechanism for all the eco-development programmes to keep a right track on the activities through timely corrective measures.

8.5.1 Monitoring Team

The monitoring team should consist of representatives from:

- Non-Governmental Organizations.
- Representatives of EDCs
- Forest Officials

Some of the monitoring and evaluation activities required to be carried out are as follows:

- o There is a need to prepare monitoring formats to keep check on the execution of eco-development activities. This need to be checked regularly and the progress of the activities need to be regularly evaluated on the basis of set indicators of successes.
- o The micro plans of Eco Development committees need to be revisited and evaluated following the guidelines for participatory forest management. Funds available with the Departments, NGOs and other external funding agencies, even Government of India can be explored to initiate some eco development activities.
- o Research can be done to evaluate the effectiveness of the initiatives by survey method.

Thus formal system of checking the progress of the activities, execution plans and regular evaluation of the same is needed for future planning and ensuring that the community develops positive relationship and engagement with the forest officials of Bondla wildlife century.

Detailed theme plan for monitoring is given in Chapter 9

CHAPTER 9

RESEARCH, MONITORING AND TRAINING



CHAPTER 9

RESEARCH, MONITORING AND TRAINING

Research, monitoring and training plays important role in conservation of biodiversity. Research is to study and solve problems concerning the conservation of protected areas. Monitoring is to detect the change in biodiversity and training helps to enhance the skills. Research at Bondla wildlife sanctuary is currently poor on account of lack of clarity of the objective. Therefore, there is an urgent need to prepare roadmap of broad areas of research that needs to be carried out. The outcome of any research related to Bondla WLS should address the issues and constraints in achieving the objective of the WLS and therefore positively contribute to effective management planning.

Periodic monitoring of activities is essential as it helps in assessing the health of the ecosystem and effectiveness of implementation of initiatives.

To ensure effective implementation of the prescriptions, training the front line forest workers and officials is essential.

The major objectives for which strategies are suggested in this chapter are:

1. Promote research related to biodiversity and habitat management.
2. Monitoring and review of management and conservation works
3. Provide for capacity building for efficient management.

The strategies for achieving these three objectives of Research, Monitoring and training are discussed below:

9.1 RESEARCH

Research section needs to be enhanced considerably at Bondla wildlife Sanctuary. The focus of research undertaken should be with the major objective of

enabling assessment of the physical and biological resources, planning for conservation of these resources and monitoring the health of the habitat.

9.1.1 THEME PLAN FOR PROMOTING BIODIVERSITY RESEARCH TO ENHANCE PROTECTION OF WILDLIFE.

Inorder to promote biodiversity research, there is basic need to develop infrastructure and allocate funds for research activities at Bondla WLS.

9.1.1.1 Encourage Wildlife Research :

- i. Initiate linkages with academic and research institutions to facilitate research works.
- ii. Department should encourage research by experts/researchers / institutions/ organizations/NGOs for Bondla WLS.
- iii. Research should be undertaken to monitor impact/habitat changes and spatiotemporal data of water sources, habitats, etc to generate maps for effective habitat management.
- iv. Besides the data collected by field guards/forest officials need to be analyzed periodically.
- v. Identifying research areas based on the annual and periodic review reports.
- vi. Encourage research publication of findings in journals, periodicals and books.

9.1.1.2 Allocate Funds for Research:

Adequate funds should be provided for executing various works for consolidation of research wing on the following issues.

- 1) Funds allocation for Research Projects
- 2) Funds allocation for publications

9.1.1.3 Thrust areas of Research:

Research needs to be something that can directly contribute towards improvement of management. The term ‘research’ needs to be interpreted in a broad sense that includes management intervention experiments. Surveys and inventories(checklist of flora and fauna), along with project oriented

research should all be clubbed together under the sobriquet ‘research’. Both Long term and Short Term research projects need to be carried out. Some of the thrust areas are indicated below:

a) Short Term Research Projects (Duration: 24 months)

1. Study and document the local knowledge pertaining to biodiversity in the local communities residing in and around the Protected Area.
2. Study the economic, social and ecological impact of tourism on the sanctuary.
3. Identification of the high altitude grass, herb and shrub species.
4. Study the exotic and weed species around the sanctuary and their distribution range.
5. Study the impact of unmanaged fires on health soil, by monitoring the burnt and unburnt areas.
6. Study the ecology and plant animal interaction.
7. Geospatial analysis for watershed planning
8. Geo-tagging of animal sighting sites
9. Site suitability of artificial corridor for animal mobility
10. Booklet on Avifauna of Bondla
11. Booklet on Flagship Species of flora and fauna in Bondla WLS.
12. Ecotourism Pamphlet on details of Nature trails with geospatial information and flagship species.
13. Home-range and movement patterns of Gaurs and leopards
14. Documentation of Reptiles in Bondla WLS.

b) Long Term Research Projects (48 months)

1. Scientific study and documentation of flagship and non-flagship species of mammals viz. Gaur, Spotted Deer, Sambar, Leopards and Malabar Giant Squirrel.
2. Study of Population dynamics of mammals in Bondla WLS.
3. Study of food habits and nutritional requirements of species of Malabar giant squirrel and the Indian Gaur in different season.
4. Evaluate the status of endangered Monitoring of wildlife
5. Comprehensive survey of diversity of Amphibians

6. Comprehensive survey of diversity of mammals.
7. Comprehensive survey of diversity of Birds
8. Comprehensive survey of diversity of Flora
9. Identify and establish the current level of security and nature of threats to the Fauna.
10. Periodic review of flora and fauna to correlate the same with IUCN red data list (every three years).
11. Study of food chain/food web and its effect of population dynamics
12. Site suitability mapping/ habitat suitability of specific faunal community.
13. Landuse/landcover changes in peripheral/buffer zone of the sanctuary.
14. Mapping of the villages to assess the spatio - temporal changes of the land use/ land cover (LULC) in these villages.

The outcome of all these projects will be directly used for better management of the WLS.

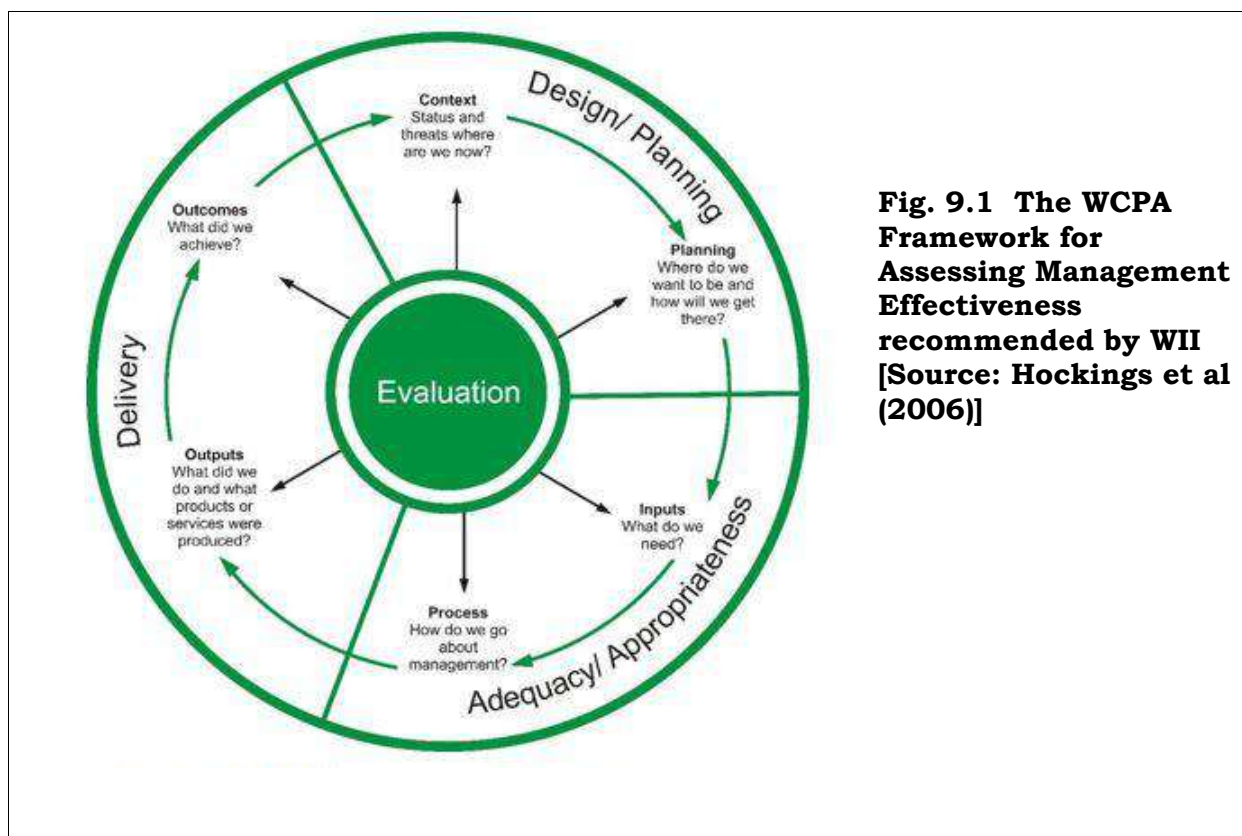
9.2 MONITORING AND REVIEW

Sanctuary is an area which is of adequate ecological, faunal, floral, geomorphological, natural or zoological significance. The Sanctuary is declared for the purpose of protecting, propagating or developing wildlife or its environment. Certain rights of people living inside the Sanctuary could be permitted. The primary goal of monitoring and review process is to investigate if the WLS has achieved these goals and objectives agreed upon. The assessment process of India's National Park and Wildlife Sanctuaries adopted from IUCN WCPA (World Commission on Protected Areas) framework of MEE should be followed. The Zoo of Bondla Wildlife Sanctuary needs to be assessed as per the Management Effectiveness Evaluation of Indian Zoos (MEE-ZOO) framework of MoEF&CC which proposes guidelines, criteria and indicators for evaluation of zoos of the country in a manner which is discrete, holistic and independent.

Monitoring should be done as per the MEE framework which will help to understand the strengths and weaknesses of Bondla WLS (Table 9.1). The WCPA Framework sees management as a process or cycle with six distinct stages, or elements (Fig. 9.1).

1. It begins with establishing the context of existing values and threats,
2. progresses through planning and
3. allocation of resources (inputs)
4. as a result of management actions (process) and
5. eventually produces goods and services (outputs)
6. that result in impacts or outcomes.

There are 32 'Headline Indicators' developed under six elements of MEE framework suitable in Indian context for evaluation.



Elements of evaluation	Explanation	Criteria that are Assessed	Focus of evaluation
Context	<i>Where are we now?</i> Assessment of importance, threats and policy environment	- Significance - Threats - Vulnerability - National context - Partners	Status
Planning	<i>Where do we want to be?</i> Assessment of protected area design and planning	- Protected area legislation and policy - Protected area system design - Reserve design - Management planning	Appropriateness
Inputs	<i>What do we need?</i> Assessment of resources needed to carry out management	- Resourcing of agency - Resourcing of site	Resources
Processes	<i>How do we go about it?</i> Assessment of the way in which management is conducted	- Suitability of management processes	Efficiency and appropriateness
Outputs	<i>What were the results?</i> Assessment of the implementation of management programmes and actions; delivery of products and services	- Results of management actions - Services and products	Effectiveness
Outcomes	<i>What did we achieve?</i> Assessment of the outcomes and the extent to which they achieved objectives	- Impacts: effects of management in relation to objectives	Effectiveness and appropriateness

Table 9.1. The Six elements and headline indicators of MEE framework for Assessing Management Effectiveness
(Source: Stolton et al. 2007)

Framework Element Number	Framework Element Name	Number of Questions (a)	Maximum Mark per question (b)	Total (a x b)	Marks obtained for the Element	Overall Score
1.	Context	03	10	30		%
2.	Planning	09	10	90		
3.	Inputs	06	10	60		
4.	Process	05	10	50		
5.	Outputs	04	10	40		
6.	Outcomes	05	10	50		
Total		32		320		

Table 9.2: MEE Score Table for 32 Headline Indicators

Rapid Expert based scorecard based Online participation of assessment is recommended.

All the theme-plans laid out in the management plan should be executed as per the internal Zonation marked based on the beats. Zone wise execution of strategies is required for effective monitoring and execution of management plan.

To check the effectiveness of the management plan and evaluate if the objectives of the plans are achieved, there has to be a review and monitoring system in place.

9.2.1 Theme plan for Review and Monitoring:

1) Monitoring: Monitoring needs to be done based on data collected. Wildlife monitoring and data maintenance format given. There has to be progressive and regular checks on all parameter to ensure effective implementation of the management plan. Alternatively, monitoring data may be obtained through research projects that may be carried out by researchers/experts, based on data collected by forest officials.

- Type of monitoring should include:
- o **Impact monitoring:** Measuring conservation target – checking changes in conservation targets (find cause, plan target and check threats and interventions).
 - o **Outcome monitoring:** Measuring changes in the level of threats – checking levels of threats.
 - o **Monitoring of habitats** as well as biodiversity and infrastructure is essential.
 - o **Performance monitoring** - Measuring the implementation of interventions.

Table 9.3 FACTORS TO BE MONITORED

1. Climate 2. Soil contamination 3. Natural and human-induced disturbances; 4. Phenological observations (long series of phenological observations may be used to detect climate variability and/or climate change) 5. Population size and area occupied; 6. Pests and diseases 7. Invasive species	
Habitat Monitoring 1. Quantity 2. Area 3. Quality: physical attributes • Geological (E.g. presence of bare rock or deep peat); • Water (E.g. presence of open water or depth of water table).	Quality: Composition 1. Communities 2. Richness or diversity; 3. Typical, keystone or indicator species; 4. Presence-absence of species 5. Frequency 6. Density
Quality: structure 1. Inter-habitat (landscape) scale (E.g. fragmentation, habitat mosaics). 2. Intra-habitat scale I) Macro-scale • Horizontal (E.g. plant community mosaics) • Vertical (E.g. ground-, shrub- and tree-layer topography) II) Micro-scale • Horizontal (E.g. patches of short and tall vegetation) • Vertical (E.g. within-layer topography).	Quality: Dynamics and functions 1. Succession; 2. Reproduction or regeneration; 3. Cyclic change and patch dynamics. 4. Quality: function 5. Physical and biochemical (e.g. soil stabilization, carbon sinks) 6. Ecosystem processes.

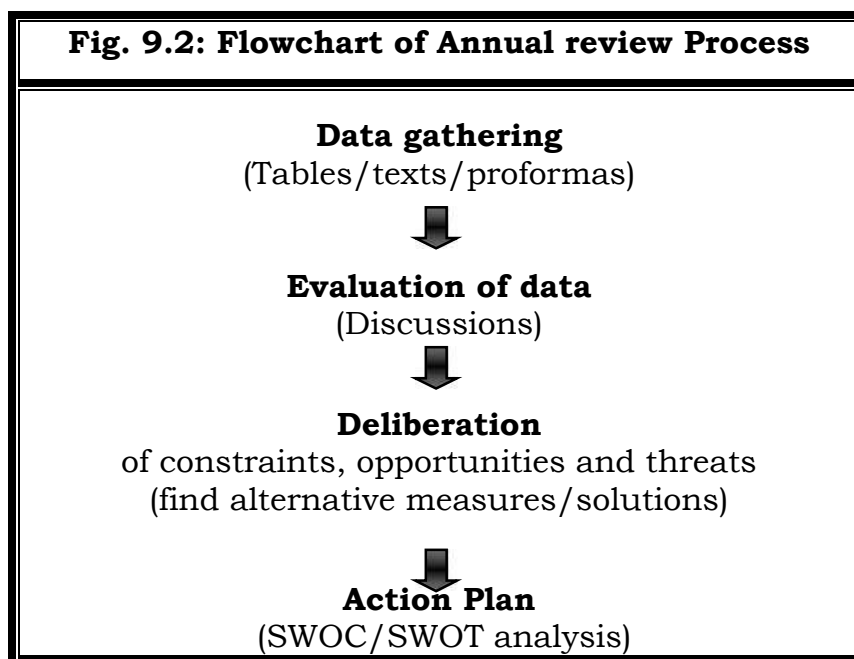
2) Review process:

Periodic review of the management practices and infrastructure is essential. All data obtained during monitoring has to be maintained and digitalized and subjected to analysis.

a) Annual Review:

Measures to check effectiveness of implantation of the works of management plan, annual review is required so as to take corrective measures if need be. For this purpose the following protocol needs to be followed:

- Record keeping of floral and faunal data as per the formats to be tabulated and digitized.
- Diary record of observations of field duty guards to be tabulated and digitized.
- Weekly or bimonthly ‘Group discussions’ should be held to collect feedback on various factors monitored and strategies implemented.
- ‘Annual report’ needs to be prepared based on the outcome of various factors monitored. The report should also highlight how objectives of WLS were fulfilled.
- o Thereafter, an action plan needs to be prepared, which will serve as a mechanism to learn from the experience and modify future practices accordingly. This needs SWOT/SWOC analysis.



b) Three year mid review

SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) needs to be undertaken annually.

- Review of Impact monitoring: Measuring conservation target – checking changes in conservation targets (find cause, plan target and check threats and interventions).
- Review of Outcome monitoring: Measuring changes in the level of threats – checking levels of threats.
- Parameters for periodic review are:
 1. Status of management
 2. Protection
 3. Habitat restoration
 4. Diversity indices
 5. Conservation of threatened and indicator species
 6. Adequacy of infrastructure, staff and financial resources
 7. Socio-economic status of local communities

Tabular format needs to be devised to keep a check on achievement of the objectives as is indicated in chapter 5.

9.3 TRAINING

Various training programmes need to be organized for the staff to improve the skills in different activities

9.3.1 Theme Plan for Capacity building:

Various capacity building training programmes are recommended for efficient management are as follows:

1. Training on Legal aspects - Preparing offence case papers, forest and wildlife article, acts and rules, etc.
2. Training in handling of equipments/weapons and maintenance.
3. Maintenance of wireless equipment and such as audio-visual aids.
4. Training to staff on GPS use in wildlife monitoring.
5. Training in firefighting.
6. Basic training in Species identification.
7. Monitoring and data collection.

8. Training on wildlife evidences, collection of biological materials and their interpretation.
9. Animal health and nutritional requirements.
10. Animal behavior, food habits and habitat requirements
11. Data recording of Population dynamics & wildlife estimation.
12. Training as 'guides' and execution of ecotourism related activities.
13. Basic training in first aid for self and first aid/post mortem techniques for animals (Health care of animals).
14. Basic training in civil construction
15. Tourist management
16. Use of apps used in monitoring
17. Training in Fire fighting and fire management
18. Training in preparation of offense case papers and legal aspects.
19. Training on risk assessment analysis for staff.
20. Training for all staff on health and safety parameters when handling wildlife.

CHAPTER 10

ORGANISATION AND ADMINISTRATION



CHAPTER 10

ORGANISATION AND ADMINISTRATION

The Main objective of administration is to ensure and manage the administrative staff of the wildlife sanctuary.

10.1 STRUCTURE AND RESPONSIBILITIES

The existing organizational set up for management of Bondla Wildlife Sanctuary is as follows:

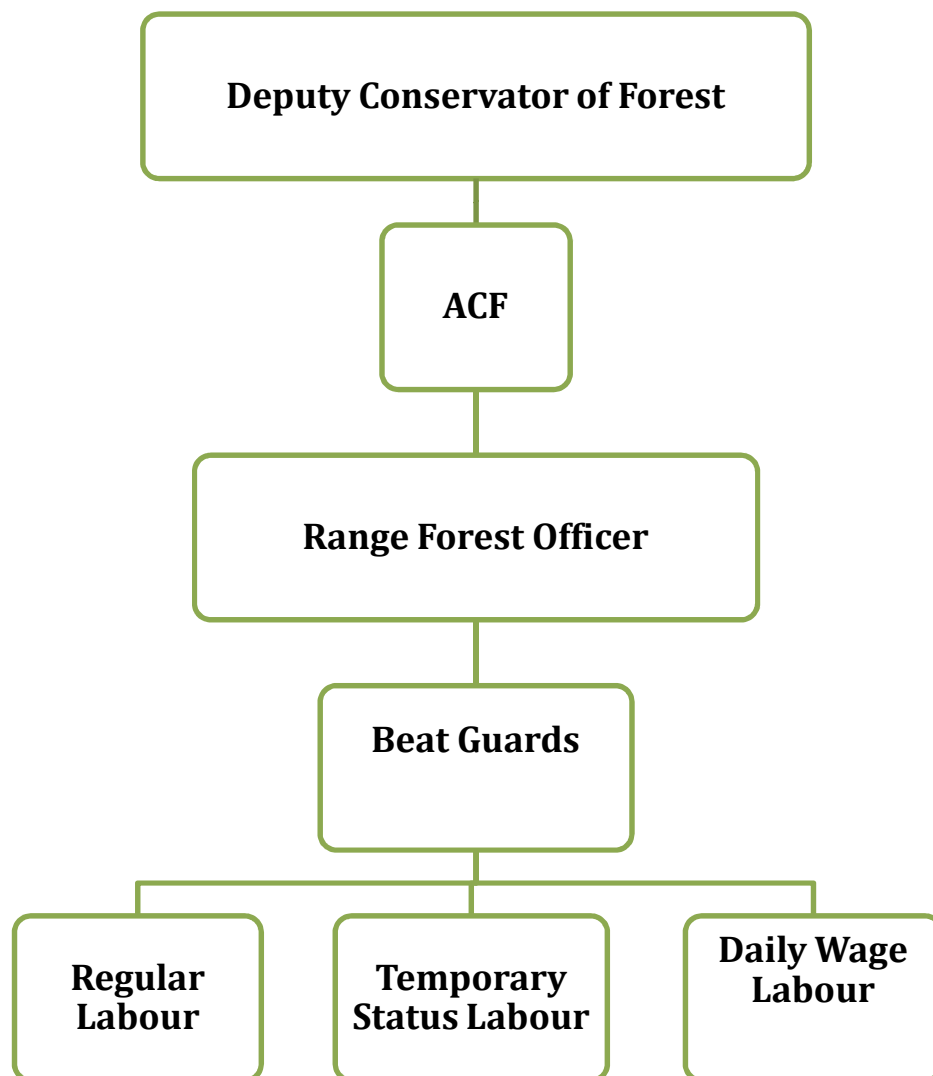


Fig. 10.1: Administrative Setup for Bondla WLS

10.1.1 Staffing pattern

The present staff strength and proposed additional staff is given as follows:

Table 10.1 Present staff strength and Proposed additional staff		
Designation	Existing Staff	Proposed additional staff
Zoo Manager	01	
Range Forest Officer	01	
Range Forester	04	
Forest Guard	10	
Veterinary Officer (On contract)	01	
Veterinary Assistant	01	01
Driver	02	
Animal Attendant	01	01
Mahout	04	
Room Bearer	01	01
Room Servant	01	01
Cook	01	01
Regular Labourers	22	03
Temporary Status Labourers	19	06
Daily Wage Labourers	43	
Research personnel	Nil	02

a) Job responsibilities:

- The Bondla Wildlife Sanctuary staff manages and looks after the sanctuary. The sanctuary is administered by a deputy conservator of Forest.
- Planning, directing, evaluating and coordinating operations for protection and investigation of forest offence in particular range is done by Range officer.

- Forest beat guards is charge of plantation works, renewal of boundary marks etc.
- Veterinary officer (Doctor) and veterinary assistant look after the health care of the animals, taking care of injured, sick or diseased animals in the sanctuary.
- Proposed research personnel will have the following job responsibilities:
 - o Data collection of monitoring works and its analysis.
 - o Identifying research areas based on the annual and periodic review reports.
 - o Prepare a long-term vision to guide research activities and plan annual research work plan.
 - o Encouraging publishing of research findings in journals, periodicals and books.
 - o Carrying out in-house research with respect to animal interactions and regular monitoring activities by forest guards, and enhancing ecodevelopment initiatives.
 - o Help in carrying out analysis of data collected by range officer of keeping track of animal movement pattern, population demographics, and habitat utilization.
 - o Initiate linkages with academic

10.2 STAFF AMENITIES

10.2.1 EXISTING INFRASTRUCTURE:

- a) Office:** The range office is housed centrally and harbors a small library. Work force is adequate and supplemented with temporary labour. However infrastructure of the office requires to be upgraded with technology based infrastructure and gadgets for field monitoring activities.
- b) Staff Quarters:** The accommodation facilities need regular repair and maintenance.

- c) Canteen:** The existing canteen needs to be upgraded with compatible designed furniture, drinking water filters and washrooms. Proper waste disposal of canteen waste needs to be considered (Composting for solid waste, filtration for liquid waste).
- d) Nature information centre:** Needs to be upgraded as per the theme plan given in chapter 7.
- e) Existing watch towers:** Needs to be renovated.

10.2.2 NEW CONSTRUCTION:

a) Research Wing:

- 1) Research cubicles and a small analysis laboratory for basic research procedures needs to be established.
- 2) Research assistant/ librarian to carry out research related activities and community awareness programme.
- 3) A full fledged library with books related to flora and fauna of Goa is required.
- 4) A conference room for discussions and deliberations of researchers is mandated with provisions for audio-visual facilities.

b) Need for construction of one more watch tower: there is a need for new watch tower near the Shivde gate basically to monitor and check forest fires and also to monitor illegal activities/ encroachments etc.

c) Mobile Tower: There is a need to enhance the connectivity which is essential for effective protection of the area. There is low or no network connectivity within the sanctuary. This is an challenge in the communication and reporting by the officials during their beats (daily rounds) or in case of emergency like animal rescue and forest fire.

Installation of mobile tower to enhance connectivity in the area is suggested.

- d) Drinking Water:** More points for Clean and hygienic drinking water need to be made available to the staff at the official premises.
- e) For Mobility:** For execution of wildlife protection works, an additional heavy vehicle is required equipped with facilities for transporting water to remote section of the WLS where there is scarcity of water in the summers.

CHAPTER 11
THE BUDGET

CHAPTER 11 THE BUDGET

11 The Budget

Any modification in the proposed annual budget can be accepted with due approval of the Chief Warden, as per specific requirements and if specific need arises.

Plan Budget summary:

The year wise plan budget for the Bondla Wildlife Sanctuary would be as follows:

Sr. No.	Year	Non-Recurring Budget estimate (in Lakhs)	Recurring Budget estimate (in Lakhs)	Total estimate (in Lakhs)	Remarks
1	1 st Year	163.8	217.18	380.98	The budget proposed may vary based on the specific requirement of execution works as suggested in the management plan and as per the annual escalations of costing. Additional funds can be proposed annually accordingly. Note: Any modification in the proposed annual budget can be accepted with due approval of the Chief Warden, as per specific requirements and if specific need arises
2	2 nd Year	173.8	114.21	288.01	
3	3 rd Year	158.43	134.07	292.5	
4	4 th Year	184.47	173.21	357.68	
5	5 th Year	122.18	159.08	281.26	
6	6 th Year	115.61	246.44	362.05	
7	7 th Year	112.68	222.17	334.85	
8	8 th Year	107.16	191.14	298.3	
9	9 th Year	133.61	215.16	348.77	
10	10 th Year	140.5	354.12	494.62	
	TOTAL	1412.24	2026.78	3439.02	
GRAND TOTAL		Rs. 3439.02 Lakhs			

11.1 THE PLAN BUDGET

Sr. No.	Strategy	Action Plan	Cumulative target (for 10 years)	Non-Recurring Year wise targets										Location	Budget Requirement
				2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31		
1	Augmentation of Water	Creation of Artificial water holes	20 Nos.	3.00	3.30	3.63	3.99	4.39	4.83	5.31	5.84	6.42	7.06	Refer theme plan ppg.138	47.77 lakh
		Creation of artificial lake	02 Nos.	--	10	--	--	--	10	-	--	--	--	Site suitability check to be carried out	20 lakh
		Water recharge works/rain water harvesting	01 No.	--	1.00	--	--	--	--	--	--	-	--		1.00 lakh
2	Soil and Water Conservation	Creation of Gully plug Check Dams	66	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	Refer proposed location map ppg.138	20.00 lakh
		Creation of Loose stone check dams	10 nos.	5.00	5.50	6.05	6.66	7.33	8.07	8.88	9.77	10.75	11.83		79.84 lakh
		Creation of Gabion Check dams	10 nos.	7.00	7.70	8.47	9.32	10.25	11.28	12.41	13.65	15.02	16.52		111.62 lakh
		Construction of concrete retaining wall for nallah	01	--	10	--	--	--	--	--	--	--	--		10 Lakh

Sr. No.	Strategy	Action Plan	Cumulative target (for 10 years)	Non-Recurring Year wise targets										Location	Budget Requirement
				2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31		
3	Restoration of Habitat	Plantation of soil binding and moisture conserving flora	09 Acres	01	--	01	--	01	--	01	--	01	--		05 lakh
		Removal of invasive species & de-weeding	40 hectares	5.70	6.27	6.90	7.59	8.35	9.19	10.11	11.12	12.23	13.45		90.91 lakh
		Restoration of grass cover	07 Ha	2.10	2.31	2.54	2.79	3.07	3.38	3.72	4.09	4.50	4.95		33.45 lakh
4	Habitat Improvement	Propagation of specific fruit bearing plants	05 zones	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		05 lakh
		Enrichment plantation	Need based	1.50	1.65	1.82	2.00	2.20	2.42	2.66	2.93	3.22	3.54		23.94 lakh
		Nursery propagation – specific plants	5 Lakh	5.00	5.50	6.05	6.66	7.33	8.07	8.88	9.77	10.75	11.83		79.84 lakh
		Bamboo plantations	100 saplings	0.65	0.72	0.79	0.87	0.96	1.06	1.17	1.29	1.42	1.56	Pillem, Dharbandora and Gangem beat	10.49 lakh
		Increasing grass plots/shrub/herb cover	15 Ha	0.5	0.55	0.61	0.67	0.74	0.81	0.89	0.98	1.08	1.19		8.02 lakh

Sr. No.	Strategy	Action Plan	Cumulative target (for 10 years)	Non-Recurring Year wise targets										Location	Budget Requirement
				2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31		
5	Forest Protection	Fire extinguishers	10 Nos.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		10 lakhs
		Vehicle with water tanker	01	15.00	--	--	--	--		--	--	--	-		15 lakh
		Procurement of Vehicle for patrolling purpose	01	--	--	--	--	--	15	--	--	--	-		15 lakh
		Procurement of two wheeler for patrolling purpose	02	--	--	--	1	--		--	--	--	-		2.5
		Procurement of arms and ammunition for Patrolling purpose		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25		2.5 lakh
6	Wildlife Management	Research projects to enhance wildlife management		05	05	05	05	05	05	03	03	03	03		42 Lakhs
		Procurement of Leopard trap and bait cage for Bondla wildlife sanctuary		1.00	2.00	--	--	3.00	--	--	4.00	--	1.00		11 lakh
		Procurement of GPS for wildlife management purpose		0.60	--	--	1.20	--	--	--	2.00	--	0.60		4.4 lakh
		Procurement of 4 camera traps for monitoring wildlife		1.20	--	--	--	2.40	--	--	--	3.60	--		7.2 lakh
		Waterholes and salt licks	20	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02		0.20 lakh

Sr. No.	Strategy	Action Plan	Cumulative target (for 10 years)	Non-Recurring Year wise targets										Location	Budget Requirement
				2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31		
7	Wildlife Rescue / rehabilitation	Self protections gears and rescue equipments for staff		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25		2.5 lakh
		Procurement of rescue cages		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00		50.00 lakh
		Construction of Shed for housing Rescue cages		15.00	--	--	--	--	-	-	-	-	-		15.00 lakh
		Construction of store room for storing rescue equipments		15.00	-	-	-	-	-	-	-	-	-		15.00 lakh
		Construction of rescue enclosure for rescued animals		-	-	-	30.00	-	-	-	-	-	-		30.00 lakh
		Procurement of Drugs for treatment of rescued animals		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00		50.00 lakh
8	Infrastructure Development	Construction of new septic tanks for cottages at ecotourism complex.				2.00				2.50			3.00		7.50 lakh
		Laying of New pipeline for staff quarters in Bondla	100 mts	2.00			2.00			2.00			2.00		08 lakh
		Laying of New pipeline for Dormitories in Bondla	100 mts	2.00			2.00			2.00			2.00		08 lakh

Sr. No.	Strategy	Action Plan	Cumulative target (for 10 years)	Non-Recurring Year wise targets										Location	Budget Requirement
				2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31		
9	Boundary demarcation	Boundary demarcation works	12 kms	0.88	0.97	1.07	1.18	1.30	1.43	1.57	1.73	1.90	2.09		14.12 lakh
10	Mobility	Purchase of new 04 wheeler vehicles		15.00				15.00					15.00		45 lakh
11	Communication	Purchase of Gadgets for field monitoring (PPS, scope, head torch, Camera traps etc)	10 camera traps, 10 PPS	1	1	1	1	1	1	1	1	1	1		10 lakh
		Mobile Tower	01 No	--	--	25	--	--	--	--	--	--	--		25 lakhs
		VHF communication hand held receivers		1	--	1	--	1	--	1	--	1	--		5 lakhs
		Updating website as per theme plan on Pg. 141		1	--	0.25	--	0.25	--	0.25	--	0.25	--	Refer theme plan pg. 159	02 lakh
		Online portal – for booking of ecotourism packages and facilities		1.5	1.5	--	0.5	--	0.5	--	0.5	--	0.5	Refer theme plan pg. 159	05 lakh
		Apps for reporting system(monitors activities)		8.0	--	2.0	--	4.0	--	6.0	--	8.0	--	Refer theme plan pg. 159	28 lakh

Sr. No.	Strategy	Action Plan	Cumulative target (for 10 years)	Non-Recurring Year wise targets										Location	Budget Requirement
				2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31		
12	Ecotourism	Upgradation of nature trails/ trekking trails/birdwalk trails		6.55	7.21	7.93	8.72	9.59	10.55	11.61	12.77	14.05	15.46	Rebuilding as per theme plan pg.150	104.44 lakhs
		Creation of Information centre resources: pamphlets, brochures, maps.	Cost per year	01	01	01	--	01	--	0.5	--	0.5	--	As per theme plan Pg. 154	05 lakhs
		Creation of Infographic gallery- at nature information centre	Cost per year	10.0	10.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	As per theme plan Pg. 154	24 lakhs
		Creation of Information centre resources: library books	Cost per year	02	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	As per theme plan Pg. 154	06.5lakhs
		Creation and Erection of Signages as per theme plan	Cost per year	2.5	--	3	--	3.5	--	4.5	--	5.0	--	As per theme plan Pg. 154, 157	18.5lakhs
		Creation of souvenir section in the Information centre	Cost per year	1	1	1	1	1	1	1	1	1	1	As per theme plan Pg. 154	10 Lakh
		New watch tower	3nos	6	--	--	--	7	--	--	--	7	--	Usgao beat,	20 lakh
		Expansion of Information center infrastructure with 01 Auditorium and 03 other sections	As per theme plan	--	70	50	70	--	--	--	--	--	--	As per theme plan Pg. 154	190 lakhs
		Publication - Book /Monographs/ pocket diaries on wildlife of Bondla	Need based/ proposals	1	1	1	1	1	1	1	1	1	1		10 lakh

Sr. No.	Strategy	Action Plan	Cumulative target (for 10 years)	Non-Recurring Year wise targets										Location	Budget Requirement
				2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31		
13	Ecodevelopment	Trainings: for locals (guides, souvenir making, local product packaging)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		05 lakhs
		Associations with schools and colleges – for competitions and programmes		0.20	0.20	0.30	0.30	0.40	0.40	0.50	0.50	0.60	0.60		4lakh
		Mobile exhibitions		0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20		2 lakh
		Data analysis – Monitoring and review (associate with researchers/academicians)		--	1	1	1	2	1	1	2	1	2		12 lakh
		Memento procurement from community for Souvenir Shop required.		1	1	1	1	1	1	1	1	1	1		10 Lakh
		‘Self Help Groups’ and ‘Eco-development committees’ works		0.20	0.20	0.30	0.30	0.40	0.40	0.50	0.50	0.60	0.60		4lakh
		Vocational training to locals to make saleable (souvenir section of nature information centre)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		05 lakhs
		Train local youth as ‘Nature guides’		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		05 lakhs
		Total Amount in Lakhs (Non-recurring)		163.8	173.8	158.43	184.47	122.18	115.61	112.68	107.16	133.61	140.5		1412.24

Sr. No.	Strategy	Action Plan	Cumulative target (for 10 years)	Recurring Year wise targets										Location	Budget Requirement
				2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31		
1	Augmentation of Water	Desilting works of water bodies		4.00	4.40	4.84	5.32	5.85	6.44	7.08	7.79	8.57	9.43		63.72 lakh
		Maintenance of pump station at Ganjem		--	1.00		1.00		1.00		1.00		1.00		05 lakh
		Maintenance of Water tanks/Sumps	05 nos.	5.00			5.50			6.05			6.66		23.21 lakh
		Maintenance of water pipeline supplying water to Staff colony		2.00			2.00			2.00			2.00		08 lakh
2	Soil and Water Conservation	Maintenance of gully and loose rubble checkdams		3.00	3.00	4.00	4.00	5.00	5.00	5.00	6.00	6.00	6.00		47 lakh
		Maintenance of gabion structures		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00		20 lakh
3	Restoration of Habitat	Labour for general Maintenance of habitat		1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50		32.50 lakh
4	Habitat Improvement	Labour for habitat improvement and Plantation, manual uprooting invasive species		1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50		32.50 lakh

Sr. No.	Strategy	Action Plan	Cumulative target (for 10 years)	Recurring Year wise targets										Location	Budget Requirement
				2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31		
5	Forest Protection	Maintenance of firelines	22 kms	1.61	1.77	1.95	2.15	2.37	2.61	2.87	3.16	3.48	3.83		25.80 lakh
		Maintenance of Checkposts at Ganjem & shivdem	02 nos.	2.00	2.20	2.42	2.66	2.93	3.22	3.54	3.89	4.28	4.71		31.85 lakh
		Maintenance of road side signages		2.00	2.20	2.42	2.66	2.93	3.22	3.54	3.89	4.28	4.71		31.85 lakh
		maintenance of four wheeler used for protection purpose	03 nos.	3.00	3.30	3.63	3.99	4.39	4.83	5.31	5.84	6.42	7.06		47.77 lakh
		Deployment of Trekkers for watch ward at chekposts.	08 nos.	10.14	11.15	12.27	13.50	14.85	16.34	17.97	19.77	21.75	23.93		161.67 lakh
		Deployment of daily wage labourer for fire watcher	04 nos.	2.53	2.78	3.06	3.37	3.71	4.08	4.49	4.94	5.43	5.97		40.36 lakh
6	Wildlife Management	Desilting of Natural water holes	05 nos.	0.60	0.66	0.73	1.60	0.81	0.89	0.98	1.08	1.19	1.31		9.85 lakh
		Maintenance of Artificial water holes	08 nos.	4.00	4.40	4.84	5.32	5.85	6.44	7.08	7.79	8.57	9.43		63.72 lakh
7	Wildlife Rescue / rehabilitation	Maintenance and treatment of rescued animals		1.50	1.70	1.90	2.10	2.30	2.50	2.70	2.90	3.10	3.30		24 lakh
		Maintenance of Trap cages		1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50		32.50 lakh
		Deployment Personnel for Rescue work		1.40	1.80	2.20	2.60	3.00	3.40	3.80	4.20	4.60	5.00		32 lakh
		Deployment Personnel for maintaining rescued animals		1.40	1.80	2.20	2.60	3.00	3.40	3.80	4.20	4.60	5.00		32 lakh

Sr. No.	Strategy	Action Plan	Cumulative target (for 10 years)	Recurring Year wise targets										Location	Budget Requirement
				2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31		
8	Capacity Building	CB Workshops (Refer list in chapter 9)	No. per year	03	03	03	03	03	03	03	03	03	03		30 lakhs
9	Publicity and Awareness	Sensitization /awareness programmes		2.5	5	7.5	10	12	14	15	16	18	20	Ganjem,	120 Lakhs
		Bird festival		10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00		100 lakhs
		Wildlife week		3.00	3.30	3.63	3.99	4.39	4.83	5.31	5.84	6.42	7.06		47.77 lakhs
		Vanamahotsava		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		5.00 lakh
		Awareness camps	10No.	1	1	1	1	1	1	1	1	1	1		10 lakh
		Printing Publicity materials/mobile exhibitions		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		5.00 lakh
		Nature camps		1	1	1	1	1	1	1	1	1	1		10 lakh

Sr. No.	Strategy	Action Plan	Cumulative target (for 10 years)	Recurring Year wise targets										Location	Budget Requirement
				2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31		
10	Infrastructure maintenance	Maintenance of check posts/gates/patrolling stations	04 nos.	2.50	2.50	3.00	3.00	3.00	3.00	3.50	3.50	3.50	3.50		31 lakh
		Office Upgradation – IT based as per theme plan on Pg. 141			04		04		04		04		04	Administrative block	20 lakh
		Maintenance of A type Quarter	07 nos.	35	-	-	-	-	38.50	-	-	-	42.35		115.85 lakh
		Maintenance of C type Quarter	02 nos.	10	-	-	-	-	11.00	-	-	-	12.10		33.10 lakh
		Maintenance of D type Quarter	02 nos.	10	-	-	-	-	11.00	-	-	-	12.10		33.10 lakh
		Maintenance of Range Forest office	01 no.	5.00	-	-	-	-	5.50	-	-	-	6.05		16.55 lakh
		Maintenance of Nature Information centre	01 no.	5.00	-	-	-	-	5.50	-	-	-	6.05		16.55 lakh
		Maintainence of Restaurant Building	01 no.	10	-	-	-	-	11.00	-	-	-	12.10		33.10 lakh
11	Boundary demarkation	Maintenance of Boundary demarcation works	12 kms	1.00	1.10	1.21	1.33	1.46	1.61	1.77	1.95	2.13	2.34		15.90 lakh
12	Mobility	Repair and maintenance of four wheelers	03 nos.	3.00	3.30	3.63	3.99	4.39	4.83	5.31	5.84	6.42	7.06		47.77 lakh
		Repair and maintenance of two wheelers	04 nos.	2.00	2.20	2.42	2.66	2.93	3.22	3.54	3.89	4.28	4.71		31.85 lakh

Sr. No.	Strategy	Action Plan	Cumulative target (for 10 years)	Recurring Year wise targets										Location	Budget Requirement
				2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31		
13	Communication	Maintenance of Server for website/Apps for reporting system (monitoring activities)	Cost per year	5.00		5.00		5.00		5.00		5.00		Refer theme plan pg. 159	25 lakh
		Updating the website/app	Cost per year	1		0.25		0.25		0.25		0.25		Refer theme plan pg. 159	02 lakh
14	Ecotourism	Maintenance of nature trails/ trekking trails/birdwalk trails	60	6 trail Renovation	6 trail maintenance	6 trail maintenance	6 trail maintenance	6 trail maintenance	6 trail maintenance	6 trail maintenance	6 trail maintenance	6 trail maintenance	6 trail maintenance	Renovation as per theme plan pg.150	15 lakhs
		Maintenance of Information centre	Cost per year	01		01		01		0.5		0.5		As per theme plan Pg. 154	04 lakhs
		Maintenance of Signages	Cost per year	2.5		3		3.5		4.5		5.0		As per theme plan Pg. 154, 157	18.5 lakhs
		View line maintenance		1.50	1.65	1.82	2.00	2.20	2.42	2.66	2.93	3.22	3.54		23.94 lakh
		Maintenance of Watch towers	15nos	3		3		3		3		3			15 lakh
		Maintenance of cottages	12 nos.	24			26.40			29.04			31.94		111.38 lakh
		Maintenance of Gardens		5.00	5.50	6.05	6.66	7.33	8.06	8.87	9.76	10.74	11.81		79.78 lakh

Sr. No.	Strategy	Action Plan	Cumulative target (for 10 years)	Recurring Year wise targets										Location	Budget Requirement
				2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31		
15	Ecodevelopment	Trainings: for locals (guides, souvenir making, local product packaging)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		10 lakhs
		Maintenance of gardens		10	11.00	12.10	13.31	14.64	16.10	17.71	19.48	21.43	23.57		159.34 lakh
		Associations with schools and colleges		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		10 lakhs
14	Miscellaneous	Emergency situation/Disaster management fund/ Structural maintenance not listed.		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00		50.00 lakh
		Stationary / Software upgradation/		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		5.00 lakh
		Servicing of gadgets and equipments		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		5.00 lakh
		Conveyance and hospitality		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		5.00 lakh
	Total Amount in Lakhs (Recurring)			217.18	114.21	134.07	173.21	159.08	246.44	222.17	191.14	215.16	354.12		2026.78

CHAPTER 12
THE SCHEDULE OF
OPERATIONS AND
MISCELLANEOUS
REGULATIONS

CHAPTER 12

THE SCHEDULE OF OPERATIONS AND MISCELLANEOUS REGULATIONS

12.1 The Schedule

First plan - 10 years period

12.2 Record of Deviations and Implemented Targets

- Any modification in the proposed annual budget can be accepted with due approval of the Chief Warden, as per specific requirements and if specific need arises. Special requirements arising due to any natural calamities/disasters may be accommodated with due approval of the Chief Warden.

12.3 Record of Employment Potential

- NA

12.4 Control Forms

Since this is the first draft of WMP of Bondla, the components of the control form columns may not be applicable for this plan.

FORM WM-1
CREATION OF NEW ARTIFICIAL WATERHOLES

Sr. No	Category	Year	Location	Cost	Performance
1	2	3	4	5	6
1	Excavation	2021-22 to 2030-31	02 nos. new artificial water holes each year in Bondla WLS as per the available site.	3.00 lakh each approx. with 10% increased every year.	

FORM WM-1.1**MAINTENANCE OF WATERHOLES : NATURAL**

Sr. No.	Category	Perennial or seasonal	Location	Year	Nature of work	Cost	Performance
1	2	3	4	5	6	7	8
1	Natural	Perennial	1) Desaicheyudak water hole in Deer safari-Usgao Beat. 2) Kushtobache water hole near Dormitory-Usgao Beat. 3) Siddha hill water hole near Siddha temple-Usgao Beat. 4) Chanodyacheudak water hole near middle pump- Ganjem Beat. 5) Roinicheudak water hole in Pilliem hill-Pilliem Beat.	2021-22 and following years till 2030	De-silting of natural water holes by manually removing silt from water holes and transporting and stacking of silt away from water holes. Cleaning the surrounding lift litter and other debris. Dry stone pitching in mud mortar along the seasonal Bandhara and water holes.	11745/- each. Total- 58725/- with 10% increased every year.	

FORM WM - 1.2**MAINTENANCE OF WATERHOLES : ARTIFICIAL**

Sr. No.	Category	Perennial or seasonal	Location	Year	Nature of work	Cost	Performance
1	2	3	4	5	6	7	8
1	Artificial	-	Bondla WLS	2021-22 and following years till 2030	Maintenance of artificial water holes-08 nos. and subsequent water holes developed during following years at Bondla WLS.	0.50 lakh each water hole with 10% increased every year.	-

FORM WM – 2**RESTORATION OF HABITAT : WEED CONTROL, INITIAL OPERATION**

Sr. No.	Location and name of site	Year	Extent of area(ha)	Species of weed	Operation	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9
1	Ganjam, Usgao and Dharbandora & Conquirem Beat of Bondla WLS.	2021-22 till 2030	40 Ha	Eradication of eupatorium weeds at Bondla WLS.	Single operation	5.70 lakh	14175/-with 10% increased every year.	
2	Conquirem Beat of Bondla WLS.	2021-22 till 2030	10 Ha	Eradication of strobilanthus weeds at Bondla WLS.	Single operation	5.70 lakh	14175/-with 10% increased every year.	

FORM WM - 2.1
RESTORATION OF HABITAT : WEED CONTROL, SUBSEQUENT OPERATIONS

Sr. No.	Location and name of site	Year	Extent of area (ha)	Complete or partial coverage	Species of weed	Operation	Total cost	Cost per ha	Remark
1	2	3	4	5	6	7	8	9	10
1	Ganjem, Usgao and Dharbandor a & Conquirem Beat of Bondla WLS.	2021-22 till 2030	40 Ha	partial	Eradication of eupatorium weeds at Bondla WLS.	1 st operation	5.70 lakh	14175/- with 10% increase every year.	

FORM WM - 2.2
RESTORATION OF HABITAT : CONTROL OF REGENERATION OF WOODY SPECIES IN GRASSLANDS

Sr. No.	Location & name of site	Year	Extent of area (ha)	Species controlled	Operation	Total cost	Cost per (ha)	Remarks
1	2	3	4	5	6	7	8	9
1	Usgao Beat	2021-22 till 2030	03 Ha	Bamboo & Chanado	Eradication of other species and planting of local grass species.	0.90 lakh	0.30 lakh each with 10% increased every year.	
2	Conquirem beat	2021-22 till 2030	02 Ha	Bamboo & Chanado	Eradication of other species and planting of local grass species.	0.60 lakh	0.30 lakh each with 10% increased every year.	
3	Conquirem beat	2021-22 till 2030	02 Ha	Bamboo & Chanado	Eradication of other species and planting of local grass species.	0.60 lakh	0.30 lakh each with 10% increased every year.	

FORM WM - 2.3
RESTORATION OF HABITAT : PRESCRIBED BURNING

Sr. No.	Location & name of site	Year	Extent of area (ha)	Area treated (ha)	Period	Total cost	Cost per (ha)	Remarks
1	2	3	4	5	6	7	8	9
1	Boundary of Bondla WLS & from Ganjem to Shivdem check post at Bondla WLS.	2021-22 to 2030-31	17 R.kms	17 R.kms	18 days/kms	123930/-	7290/- with 10% increased every year.	

FORM WM - 2.4
RESTORATION OF HABITAT : SOIL CONSERVATION MEASURES - INITIAL OPERATIONS
AND SUBSEQUENT MAINTENANCE

Check dams

Sr. No.	Location & name of site	Year	Extent of area (ha)	Area treated (ha)	Operations	Total cost	Cost per (ha)	Remarks
1	2	3	4	5	6	7	8	9
1	Ganjam, Usgao, Conquirem and Dharbandora Beat of Bondla WLS.	2021-22 to 2030-31	10 nos. as per the availability of site.	10 nos. as per the availability of site.	New Construction of Gabion check dams at Bondla WLS and subsequent maintenance every year.	7.00 lakh & 4.00 lakh	0.70 lakh & 0.40 lakh for maintenance with 10% increased every year.	
2	Ganjam, Usgao, Conquirem and Dharbandora Beat of Bondla WLS.	2021-22 to 2030-31	10 nos. as per the availability of site.	10 nos. as per the availability of site.	New Constructions of dry/loose boulder check dams at Bondla WLS.	5.00 lakh & 3.00 lakh	0.50 lakh & 0.30 lakh for maintenance with 10% increased every year.	

FORM WM - 2.5
RESTORATION OF HABITAT : PLANTING, SOWING - INITIAL OPERATION

Sr. No.	Location	Year	Extent of area (ha)	Species	Planting stock	Spacing	Operations	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9	10	11
1	Bondla WLS.	2021-22 To 2030-31	02 Ha gap plantation every year as per availability of site and subsequent maintenance every year	Maintenance of mixed fruit bearing at Bondla Wildlife Sanctuary .	Nursery	Gap planting	Planting and maintenance	3.00 lakh	1.5 lakh with 10% increase every year.	

FORM WM - 2.6
RESTORATION OF HABITAT : RESPONSE OF PLANTINGS, SOWINGS AND
SUBSEQUENT OPERATIONS

Sr. No.	Location	Year	Extent of area (ha)	Species	Survival %	Casualty replacement	Operations	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9	10	11
	Bondla WLS.	2021-22 to 2030-31	02 Ha as per above column .	Mixed fruit bearing.	80%	20%	1 st year & 2 nd year	0.80 lakh	40500 with 10% increase every year.	

FORM WM - 2.7
RESTORATION OF HABITAT : AREA UNDER PROTECTION/CLOSURE

Sr.No.	Location	Year	Extent of area (ha)	Description of site	Regulation or protection measures	Response	Remarks
1	2	3	4	5	6	7	8
1	Usgao Beat	2021-22 till 2030	03 Ha	Bamboo & Chanado	Brushwood fencing for protection against livestock grazing.	0.40 lakh	20500/- with 10% increase every year.
2	Conquirem beat	2021-22 till 2030	02 Ha	Bamboo & Chanado	Brushwood fencing for protection against livestock grazing.	0.40 lakh	20500/- with 10% increase every year.
3	Conquirem beat	2021-22 till 2030	02 Ha	Bamboo & Chanado	Brushwood fencing for protection against livestock grazing.	0.40 lakh	with 10% increase every year.

FORM WM - 3
ANIMALS : MEASURING TRENDS IN POPULATIONS (YEAR)

Year:

Sr. No.	Species	Population estimation Methodology	Adult		Sub- adult		Yearlings	Fawns	Cubs	Total	Remark
			Male	Female	Male	Female					
1	2	3	4	5	6	7	8	9	10	11	12
1	Wild animals, grass and tress species.	Transect line method	-	-	-	-	-	-	-	-	As per the direct and indirect sighting.

FORM WM - 3.1
ANIMALS : NEW RECORDS

Year:

Sr. No.	Species	Location	Year	How discovered	Details of number, age, sex	Habitat description	Remarks
1	2	3	4	5	6	7	8
-	-	-	-	-	-	-	

Note:- No record available.

FORM WM - 3.2
ANIMALS : MORTALITY OTHER THAN THAT ATTRIBUTABLE TO AN OFFENCE

Year:

Sr. No.	Species	Location	Year	Sex and age	Number	Discovered in what condition	Cause of mortality	Remarks
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	-

Note:- No record available.

FORM WM - 3.3**ANIMALS : MORTALITY ATTRIBUTED TO POACHING OR AN ACT OF VANDALISM****Year:**

Sr. No.	Species	Location	Cause of mortality				Remarks
			Number	Sex	age	Class	
1	2	3	4				5
-	-	-	-	-	-	-	

Note:- No record available.**FORM WM - 3.4****ANIMALS : PREDATION ON DOMESTIC LIVESTOCK BY WILD CARNIVORES****Year:**

Sr.No.	Range	Month	Category of livestock killed	Location	Numbers	Ex gratia Payment(Rs)	Carnivore involved	No. of cases undecided	Remarks
1	2	3	4	5	6	7	8	9	10
-	-	-	-	-	-	-	-	-	

Note:- No record available.

FORM WM - 3.5
ANIMALS : KILLING OF A HUMAN BY WILDLIFE OR INJURY CAUSED

Year:

Sr. No	Range	Month	No. of incidents	No. of people killed, age & sex	Location circumstance & species	No. of people injured, age and sex	Location circumstance and species	Ex gratia Payment (Rs)
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	

Note:- No record available.

FORM WM - 3.6
ANIMALS : WILDLIFE DAMAGE TO PRIVATE OR PUBLIC PROPERTY

Year:

Sr. No	Range	Month	The category of property	Extent of damage	Species involved and number	Remark
1	2	3	4	5	6	7
-	-	-	--	-	-	-

Note:- No record available.

FORM WM - 4
PLANTS : NEW RECORDS

Sr. No	Family	Species	Year	Location	Habitat	Status	Remark
1	2	3	4	5	6	7	8
-	-	-	-	-	-	-	-

Note:- No record available.

FORM WM - 4.1
PLANTS : DISEASE AND MORTALITY

Sr. No.	Species	Location	Year	Particulars of disease morbidity and mortality	Area affected	Remark
1	2	3	4	5	6	7
-	-	-	-	-	-	-

Note:- No record available.

FORM WM - 4.2
PLANTS : ILLEGAL AND LEGAL COLLECTION

Sr. No.	Year	Species	Location	Details of material	Quantity	Trade particular	Remarks
1	2	3	4	5	6	7	8
-	-	-	-	-	-	-	-

Note:- No record available.

FORM WM - 4.3
TIMBER OUT-TURN AND REVENUE
YEAR

Sr. No.	Range	Timber Species	Volume extracted amt in grade	Volume auctioned amt in grade	Amount (Rs)	Price/cmt/(Rs) grade	Unauctioned Volume cmt in grade
1	2	3	4	5	6	7	8
-	-	-	-	-	-	-	-

Note:- No commercial felling of trees as per the law.

FORM WM - 4.4
FIREWOOD OUT-TURN AND REVENUE
YEAR AND DEPOT

Sr. no.	Range	Firewood species	Volume extracted cmt.	Volume auctioned cmt.	Amount (Rs)	Price/ cmt(Rs)	Disposal pattern of firewood in cmt.	
							Local	Other areas
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	-

Note:- No commercial felling of trees as per the law.

FORM WM - 4.5
OUT-TURN OF CHARCOAL AND REVENUE
YEAR AND DEPOT

Sr.No.	Range	Species used	Volume tonnes	Converted charcoal quantity tonnes	Conversion factor	Quantity sold	Total amount per tonne (Rs)	Disposal pattern in tonnes	
								Local	Other area
1	2	3	4	5	6	7	8	9	10
-	-	-	-	-	-	-	-	-	-

Note:- No commercial felling of trees as per the law.

FORM WM - 4.6
Extraction of bamboo and disposal
Year

Sr. No	Range	Species	Quantity extracted by category		Disposal, non-commercial by quantity		Revenue realized (Rs)		Undisposed quantity	
			Commercial	Non-commercial	Locally	Other areas	commercial 1	Non commercial 1	Commercial	Non-commercial 1
1	2	3	4	5	6	7	8	9	10	11
-	-	-	-	-	-	-	-	-	-	-

Note:- No record available.

FORM WM - 4.7
DISTRIBUTION OF FOREST PRODUCE UNDER NISTAR AND OTHER CONCESSIONS
INCLUDING FREE GRANT
YEAR

Sr.No.	Range	Produce	Species	Quantity	village	No. of families	Revenue	Free of change qty.
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	-

Note:- No record available.

FORM WM - 4.8
NWP COLLECTION : PLANTS AND OTHER PRODUCE
YEAR

Sr No.	Range	Kind of produce	Species	Quantity	Revenue realised	Free of change quantity	Agency involved	
							Local people	Outsiders
1	2	3	4	5	6	7	8	
-	-	-	-	-	-	-	-	

Note:- Harvesting of plants and other produce is prohibited as per law.

FORM WM - 5
GRAZING OF DOMESTIC LIVESTOCK
YEAR

Sr. No.	Grazing unit No.	List of villages in the unit	Village- wise listed population of cattle	Capacity of the unit (cattle units) and number of cattle grazing	Total cattle units grazed		Remark
					Legal	Illegal	
1	2	3	4	5	6	7	7
-	-	-	-	-	-	-	-

Note:- No record available.

FORM WM - 6
INTER-AGENCY PROGRAMMES : AGENCIES AND SCHEMES (GOVERNMENT)
YEAR

Sr.No.	Name of agency	Central or state	Number and name of scheme operated	Physical and financial targets		Area & location	Remarks
				Given	Achieved		
1	2	3	4	5	6	7	8
-	-	-	-	-	-	-	

Note:- No record available.

FORM WM - 6.1
PROGRAMMES OF NGOS
YEAR

Sr.No	Name of agency	HQ location	Nature of the scheme operated	Physical/financial targets		Area and location	Remarks
				Given	Achieved		
1	2	3	4	5	6	7	8
-	-	-	-	-	-	-	

Note:- As per the availability of speaker and funds.

FORM WM - 7**CONSTRUCTION*/MAINTENANCE* OF INFRASTRUCTURE : ROADS & BRIDGES (*EXISTING/NEW)****YEAR: 2021-22 to 2030-31**

Sr. No.	Category	Range	Surface	Name or number	Length covered (km)	Cross drainage works bridges or culverts with types	Total cost and status
1	2	3	4	5	6	7	8
1	Fair weather road from Shivdem check post to Dharbandora gate Bondla.	Bondla WLS	Fair weather mud road	01 no. road	05 R.kms	-	5.00 lakh

FORM WM - 7.1
CONSTRUCTION*/MAINTENANCE* OF INFRASTRUCTURE : BUILDINGS (*EXISTING/NEW)
YEAR: 2021-22 to 2030-31

Sr. No.	Range	Nature of the building	Location	Types of construction	Numbers	Total cost	status
1	2	3	4	5	6	7	8
1	Bondla	Extension of toilet facilities for NEC at Bondla.	Bondla WLS	Extension	01 no.	5.00 lakh	Repair work can be taken as per the
2	Bondla	Repair and maintenance of A type quarters at Bondla.	Bondla WLS	Existing	07 nos.	35.00 lakh	
3	Bondla	Repair and maintenance of B type quarters at Bondla.	Bondla WLS	Existing	01 no.	5.00 lakh	
4	Bondla	Repair and maintenance of C type quarters at Bondla.	Bondla WLS	Existing	02 nos.	10.00 lakh	
5	Bondla	Repair and maintenance of D type quarters at Bondla.	Bondla WLS	Existing	02 no.	20.00 lakh	
6	Bondla	Maintenance of office store room for Range Forest Officer at Bondla.	Bondla WLS	Existing	01 no.	5.00 lakh	
7	Bondla	Roofing and maintenance of labour shed for Eco-Tourism complex at Bondla.	Bondla WLS	Existing	01 no.	5.00 lakh	
8	Bondla	Construction of store room for Ecotourism Complex at Bondla.	Bondla WLS	New	01 no.	4.00 lakh	
9	Bondla	Construction of ramp with S.S. railing for differently abled persons for cottages and Dormitories at Bondla.	Bondla WLS	New		5.00 lakh	

10	Bondla	Maintenance of bathroom chambers and soak pits for Ecotourism cottages at Bondla.	Bondla WLS	Existing	01 no.	5.00 lakh	conditions of building.
11	Bondla	Repair and maintenance of filtration unit water tank at Bondla.	Bondla WLS	Existing	01 no.	5.00 lakh	
12	Bondla	Maintenance and repair of roofing for Den Restaurant at Bondla.	Bondla WLS	Existing	01 no.	5.00 lakh	
13	Bondla	Maintenance of kitchen for Den Restaurant at Bondla.	Bondla WLS	Existing	01 no.	5.00 lakh	
14	Bondla	Extension of toilet facilities for RFO office and soak pit at Bondla.	Bondla WLS	New	01 no.	5.00 lakh	
15	Bondla	Repair and maintenance of attached room of Nature Education Centre at Bondla.	Bondla WLS	Existing	01 no.	2.50 lakh	
16	Bondla	Creation of Pump House at Ganjem Bondla.	Bondla WLS.	New	01 no.	30 lakh	

FORM WM - 7.2
DEVELOPMENT*/MAINTENANCE* OF INFRASTRUCTURE : COMMUNICATION (*EXISTING/NEW)
YEAR 2021-22 to 2030-31

Sr. No.	Range	Type of facility	Location	Numbers	cost	Advantage gained	Remarks
1	2	3	4	5	6	7	8
1	Bondla WLS	Wireless system	Bondla	02 nos. wireless Base station, 12 nos. wireless handsets.	2.00 lakh for repair and maintenance	Communication purpose	

FORM WM - 7.3
DEVELOPMENT*/MAINTENANCE* OF INFRASTRUCTURE : VEHICLES (*EXISTING/NEW)
YEAR 2021-22

Sr. No.	Kind of vehicle	Number	HQ if any	Intended use	Cost	Remarks
1	2	3	4	5	6	7
1	Heavy vehicles	02 nos.	RFO office	Parking of bus & truck.		Existing
2	Light vehicles	02 nos.	RFO office	Parking shed for staff vehicles at Bondla.	10.00 lakh	New

FORM WM - 7.4
DEVELOPMENT OF INFRASTRUCTURE : MANPOWER RECRUITMENT*/EXISTING MANPOWER*
YEAR 2021-22 to 2030-31

Sr. No.	Category of post	Number	status		Scale pay	Intended Deployment/deployed as	Remarks
			Recruited	Vacant			
1	2	3	4	5	6	7	8
1	Round Forester	03 nos.				Supervise the Beat of Bondla Wildlife Sanctuary.	New staff may be deputed as per the work load.
2	Forest Guard	04 nos.				Incharge of Beat of Bondla Wildlife Sanctuary.	
3	Trekkers on daily wage basis	05 nos.			405/- per day for Daily Wages Labourer with 10% increase every year.	Watch and ward, check encroachment, illegal felling, wildlife movement, beating of forest fires whenever needed, collection of waste, accompany executive staff during patrolling and students for Nature trails of Ganjem, Usgao, Conquirem, Dharbandora and Pilliem beat of Bondla Wildlife Sanctuary.	
4	Fire Watchers on daily wages basis	05 nos.			405/- per day for Daily Wages Labourer with 10% increase every year.	Watch and ward, check encroachment, illegal felling, wildlife movement, beating of forest fires whenever needed, collection of waste, accompany executive staff during patrolling and students for Nature trails at Bondla Wildlife Sanctuary.	

FORM WM - 7.5

**DEVELOPING INFRASTRUCTURE : CONSTRUCTION OF BOUNDARIES, FENCES, CPTS, EPTS, EXCLOSURES,
ENCLOSURES (*EXISTING/NEW)
YEAR 2021-22 to 2030-31**

Sr. No.	Category of construction	Range	Location	Length(meter)	Numbers	Specification	Remarks
1	2	3	4	5	6	7	8
1	Maintenance of forest boundary by clearance at Bondla WLS.	Bondla WLS.	Bondla	12 R.kms	01 no.	Reconstruction of damaged pillars and clearance of vegetation for bearing.	

FORM WM - 7.6
DEVELOPING INFRASTRUCTURE : FIRELINES (*EXISTING/NEW)
YEAR 2021-22 to 2030-31

Sr. no.	Range	Fireline category and width	Name of points connected	Length (meters)	Cost	Remarks
1	2	3	4	5	6	7
1	Bondla WLS.	Roadside-Outer line 05 mtrs wide	Ganjem check post to Shivdem check post of Bondla WLS.	10 R.kms.	72900/- with 10% increase every year.	
2	Bondla WLS	Boundary of Bondla WLS.	Boundary of Bondla WLS.	12 R.kms.	87480/- with 10% increase every year.	

FORM WM - 8
TOURISM YEAR

Total number of visitors all categories:- 1402 nos.

Name of complex :- Bondla WLS.

Total revenue earned: 28040.00 (2019-2020)

Sr. No.	The category of visitors by month & number					Indian			No. day visitors	No. staying overnight And revenue
	Adult			children	Foreigners	Rural	Urban	Revenue		
	Month	Male	Female							
1	2	3	4	5	6	7	8	9	10	11
1	April 2019	43			05			960		63 25500/-
2	May 2019	13						260		32 34600/-
3	June 2019	27						540		197 38300/-
4	July 2019	24						480		19 36200/-
5	August 2019	14						280		66 25200/-
6	September 2019	55						1100		35 8800/-
7	October 2019	62						1240		89 22650/-
8	November 2019	161						3220		112 24400/-
9	December	110						2200		41

CHAPTER 12: THE SCHEDULE OF OPERATIONS AND MISCELLANEOUS REGULATIONS

MANAGEMENT PLAN - BONDLA WILDLIFE SANCTUARY

	2019								70800/-
10	January 2020	120						2400	201 202700/-
11	February 2020	713						14260	323 109700/-
12	March 2020	55						1100	71 15100/-
	Total	1397			05			28,040.00	

Note:- The total number of visitors for next few year cannot be defined, however annual increase of 10% may be consider.

FORM WM - 8
TOURISM YEAR

Total number of visitors all categories:- 79,331 nos.

Name of complex :- Bondla Zoo.

Total revenue earned: 46,12,105/- (2019-2020)

Total Revenue earned: 48,12,100/- (2019-2020)										
Sr. No.	The category of visitors by month & number					Indian			No. day visitors	No. staying overnight And revenue
	Adult			children	Foreigners	Rural	Urban	Revenue		
	Month	Male	Female							
1	2	3	4	5	6	7	8	9	10	11
1	April 2019	8523						476215		63 25500/-
2	May 2019	10038						576370		32 34600/-
3	June 2019	7698						464455		197 38300/-
4	July 2019	2407						164660		19 36200/-
5	August 2019	1700						128505		66 25200/-
6	September 2019	2620						155290		35 8800/-
7	October 2019	2077						128845		89 22650/-
8	November 2019	7991						436830		112 24400/-

9	December 2019	14752						605080		41 70800/-
10	January 2020	8829						576675		201 202700/-
11	February 2020	9333						484390		323 109700/-
12	March 2020	3363						202890		71 15100/-
	Total									

Note:- The total number of visitors for next few year cannot be defined, however annual increase of 10% may be consider.

FORM WM - 8.1
TOURISM : USE OF TOURIST FACILITIES - LODGING
YEAR: 2019-2020

Name of complex: Ecotourism complex Bondla.

Class of accommodation: Non AC rooms

Capacity (beds): 02 beds for each room.

Sr. No.	Month	Month capacity (beds/month)	Occupancy (beds/month)		Total occupancy During the month(beds/month)
			Foreign	Indian	
1	2	3	4	5	6
1	April 2019		-	63	63
2	May 2019		-	32	32
3	June 2019		-	197	197
4	July 2019		-	19	19
5	August 2019		-	66	66
6	September 2019		-	35	35
7	October 2019		-	89	89
8	November 2019		4	108	112
9	December 2019		-	41	41
10	January 2020		34	167	201
11	February 2020		-	323	323
12	March 2020		2	69	71

Note:- The total number of visitors for next few year cannot be defined, however annual increase of 10% may be consider.

FORM WM - 8.2
TOURISM : USE OF TOURIST FACILITIES - FIELD TRIPS
YEAR

Name of complex:- Bondla

Sr. No.	Month	Riding elephant use. Month trip capacity	Utilisation	Revenue (Rs)	Use of PA bus/es. Month trip capacity	Utilisation	Revenue (Rs)	Use of month trip quantum	Guides utilisation	Revenue (Rs)
1	2	3	4	5	6	7	8	9	10	11
-	-	-	-	-	-	-	-	-	-	-

FORM WM - 8.3
ECO-TOURISM - PARTNERS
YEAR

Sr. No.	Identity of eco-tourism entrepreneur	Infrastructure	Programmes	Investment	Kind and extent of benefits to local people	Benefit to PA & resources
1	2	3	4	5	6	7
-	-	-	-	-	-	

Note:- NIL.

FORM WM - 8.4 (A) & (B)
ECO-TOURISM : VISITOR ASPIRATIONS
YEAR

Visitor category	No.	Interested in									
		Plant s	Bird watchi ng	Animal sightin g	Photograp hy	Sketchi ng	Scenic place	Cultural /historical sites	Pilgrimage	Trekkin g	Other
Adult Male Female Children											
Foreigne r Male Female Children											
1	2	3	4	5	6	7	8	9	10	11	12

Note:- No record available.

FORM WM - 9
OUTBREAK OF FIRES
YEAR

Sr. No.	Range	Location	Extent (ha)	Dates		Reasons	Estimated loss	Remarks
				Detected	controlled			
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	

Note:- No record available.

FORM WM - 10
OFFENCE CASES DETECTED
YEAR

Sr. No.	Range	Category	Numbers	Number of cases decided		Number of cases under process	Number of cases compounded	Remarks
				Successful	Faliure			
1	2	3	4	5	6	7	8	9
1	Bondla WLS.	Under Wildlife Protection Act, 1972. ROC No.1/BON/2012- 13 24.07.12. Nilesh Gaonkar Seized of 81 nos. small mushroom buds near middle water tank at Bondla Wildlife Sanctuary.	01	01	-	-	01	

FORM WM - 11
INCENTIVES AND REWARDS/AWARDS
YEAR

Sr. No.	Range	Number of recipients : incentives/reward for detecting offences	No. of recipients award for outstanding service	Kind of award	Number of recipients	Remarks
1	2	3	4	5	6	7
-	-	-	-	-	-	

Note:- No record available.

FORM WM - 12
RESEARCH PROJECTS UNDER IMPLEMENTATION THROUGH PA MANPOWER WITH OR WITHOUT
COLLABORATION WITH OTHER AGENCIES
YEAR

Sr. No.	Title	Completed	Ongoing	New	Status	Financial outlay (Rs)	Expenditure incurred (Rs)	Remarks
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	

Note:- No record available.

FORM WM - 12.1
RESEARCH PROJECTS UNDER IMPLEMENTATION BY OTHER AGENCIES
YEAR

Sr. No.	Title	Completed	Ongoing	New	Status	Financial outlay (Rs)	Expenditure incurred (Rs)	Remarks
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	

Note:- No record available.

FORM WM - 13
SURVEY AND INVENTORIES
YEAR

Sr. No.	Title of survey, inventory activity	Completed	Ongoing	New	By PA	By other agency	Remarks
1	2	3	4	5	6	7	8
-	-	-	-	-	-	-	

FORM WM - 14
THE MONITORING PROGRAMME
YEAR

Sr. No.	Title of the programme	Date of initiation	Responsible agency	Technique	Status of collaboration and analysis of data	Remarks
1	2	3	4	5	6	7
-	-	-	-	-	-	

FORM WM - 15
ECO-DEVELOPMENT PROGRAMME : TARGETS AND IMPLEMENTATION
YEAR

Sr. No.	Nature of the programme	Sector (Central/State) or NGO sponsored	Target set		Achievements		Village (Buffer/ enclaved)	Remarks
			Physical	Physical	Physical	Financial		
1	2	3	4	5	6	7	8	9
1	Eco-development & ecotourism services (Capacity building and training at Bondla on 19.01.2017 under CAMPA.	CAMPA	-	-	-	4880.00		Eco-development programme may be under taken as an when required.

FORM WM - 16
PROGRESS OF ALL STRATEGIES UNDER THE ZONE AND THEME PLANS
YEAR

Sr. No.	Zone/Theme	Nature of strategy	Target as per the schedule of operations/APO*		Achievement		Location	Remarks
			Physical	Financial	Physical	Financial		
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	

FORM WM - 17
PROGRESS OF LEGAL SETTLEMENTS UNDER THE WILDLIFE (PROTECTION) ACT 1972 IN CONTEXT OF
ATTAINMENT OF THE STATUS OF A WLS/NP
YEAR

Sr. No.	Nature of settlement/ enquiry & section under the Act	Progress achieved till the commencement of the year under report	Progress achieved during the year	Remarks
1	2	3	4	5
-	-	-	-	-

FORM WM - 18
A SUMMARY OF ALLOTMENT OF FUNDS, REVENUE AND EXPENDITURE
YEAR

Sr. No.	Plan/non-plan/ any other grant	Sector Central/State/other	Allotment received		Expenditure Incurred		Revenue realised	Remarks
			Non-recurrent	Recurrent	Non-recurrent	Recurrent		
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	

FORM LS - 1
EXISTING CORRIDORS - CONSERVATION INPUTS REQUIRED

Sr. No.	Identity of the corridor	Length/section	Nature of Inputs/treatment	Target	Agency/cies identified	Constraints	Anticipated investment
1	2	3	4	5	6	7	8
-	-	-	-	-	-	-	

FORM LS - 2
EXISTING CORRIDORS - CONSERVATION INPUTS ACCOMPLISHED

Sr. No.	Identity of the corridor	Length/ section addressed	Nature of Inputs/treatment	Agency	Target set	Achievement	Constraints	Investment	Remarks
1	2	3	4	5	6	7	8	9	10
-	-	-	-	-	-	-	-	-	

FORM LS - 3
EXISTING CORRIDORS - MONITORING HABITAT RECOVERY

Sr. No.	Identity of the corridor	Length/ section monitored	Inputs/treatment that had been provided	Monitoring technique/process	Indicators of recovery	Nature of progress	Constraints	Remarks
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	

FORM LS - 4
POTENTIAL CORRIDORS - CONSERVATION INPUTS REQUIRED

Sr. No.	Identity of the corridor	Length/section	Nature of inputs/treatment	Target	Agency/cies identifies	Constraints	Anticipated investment
1	2	3	4	5	6	7	8
-	-	-	-	-	-	-	

FORM LS - 5
POTENTIAL CORRIDORS - CONSERVATION INPUTS ACCOMPLISHED
YEAR

Sr. No.	Identity of the corridor	Length/section addressed	Nature of inputs/treatment	Agency	Target set	Achievements	Constraints	Investment	Remarks
1	2	3	4	5	6	7	8	9	10
-	-	-	-	-	-	-	-	-	

FORM LS - 6
POTENTIAL CORRIDORS - MONITORING HABITAT RECOVERY
YEAR

Sr. No.	Identity of the corridor	Length /section monitored	Inputs/treatment that had been provided	Monitoring technique /process	Indicators of recovery	Nature of progress	Constraints	Remarks
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	

FORM LS - 7
CONNECTING MULTI-AGENCY PROGRAMS IN LANDSCAPE BASED PLANNING
PARTNERS DURING YEAR :

Sr. No.	District	Sector Central/ State/Other (specify)	Agency & Work area/speciality	Program coverage	Agreed input and mechanism	Financial implications /investment & source
1	2	3	4	5	6	7
-	-	-	-	-	-	

FORM LS - 8
MONITORING EXTENT AND QUALITY OF MULTI-AGENCY PROGRAMS
YEAR

Sr. No.	District	Sector/Central/State/ Other (specify)	Agency	Objectives & targets	Achievement and standard	Constraints	Extent of investment	Remarks
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	

12.5 Maintenance of Compartment Histories**NA****12.6 A Pocket Field Guide for Plan Implementation****NA**

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ANNEXURE-1

All correspondence referring to announcements and subscription of Government Gazette must be addressed to its Administration office. Literary publications will be advertised free of charge provided two copies are offered.

Toda a correspondência relativa a anúncios e à assinatura do *Boletim Oficial* deve ser dirigida à Administração da Imprensa Nacional. As publicações literárias de que se receberem dois exemplares anunciam-se gratuitamente.



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GOVERNMENT GAZETTE

BOLETIM OFICIAL

GOVERNMENT OF INDIA

MINISTRY OF FINANCE

(Department of Revenue and Insurance)

New Delhi, dated the 15th February, 1969
26th Magha, 1890 Saka

Notification

Fin(Rev)/2-35/CE/5/421/69

Central Excise

G. S. R. — In exercise of the powers conferred by sub-rule (1) of rule 8 of the Central Excise Rules, 1944 the Central Government being satisfied that the recent floods in the State of Gujarat were in the nature of a major calamity, hereby exempts:

- (i) Cement;
- (ii) Asbestos Cement sheets; and
- (iii) Galvanised iron sheets;

donated during the period commencing from 31st August, 1968 and ending with 30th April, 1969 for construction of huts for flood affected people in that state from the whole of the duty of excise leviable thereon:

Provided that —

- (a) it is certified by the manufacturer of the goods in question on the relevant clearance documents that the goods are intended to be donated for relief of the flood affected people in the said State of Gujarat, without discrimination on grounds of religion, race or caste or any of them and distributed free without making any charge therefor,
- (b) the goods are sent directly from the factory of manufacture to the Collector of the District (in which the huts are to be constructed) authorised by the State Government of Gujarat,
- (c) the manufacturer produces before the Central Excise Officer incharge of his factory within two months of the date of re-

moval of the goods from the factory or such extended period as the Collector of Central Excise may allow a certificate from the District Collector that the goods have been received by him.

Sd/-

A. S. BERAR

Deputy Secretary to the Government of India.

GOVERNMENT OF GOA, DAMAN AND DIU

Special Department

Notification

OSD/RRVS/14/68

In exercise of the powers conferred by the proviso to article 309 of the Constitution read with Government of India, Ministry of External Affairs letter No. F.7(11)/62-Goa dated 25th July, 1963, the Administrator of Goa, Daman and Diu is pleased to make the following rules amending the Goa Government Printing Press (Assistant Manager Post) Recruitment Rules 1966, issued under Notification dated 12th August, 1966 and published in Government Gazette Series I No. 24 dated 15th September, 1966 namely: —

1. *Short title and commencement:* — (i) These rules may be called Goa Government, Printing Press (Assistant Manager's Post) Recruitment (First Amendment) Rules 1969.

(ii) They shall come into force at once.

2. In the schedule attached to the said Notification for the existing entry in column 11 substitute:—

Promotion: —

Chief of Composing Section, Chief of Binding Section, Chief of Printing Section, Engraver and Head Clerk in the Government Printing Press with 5 years Service in the grades.

Transfer on Deputation: —

Suitable officer holding analogous post in the Central/State Government (Period deputation ordinarily not exceeding 3 years).

3. In the Notification dated 12th August 1966 referred to above add the following as Rule 6: —

"6. *Power to relax:* Where the Lt. Governor of Goa, Daman and Diu is of the opinion that it is necessary or expedient so to do, he may, by order, for reasons to be recorded in writing and in consultation with the Union Public Service Commission, relax any of the provisions of these rules with respect to any class or category of persons/posts".

By order and in the name of the Administrator of Goa, Daman and Diu.

G. K. Bhanot
Chief Secretary

Panaji, 26th March, 1969.
5th Chaitra, 1891.

Notification

OSD/RRVS/31/68

In exercise of the powers conferred by the proviso to article 309 of the Constitution, read with the Government of India, Ministry of Home Affairs Notification No. F.1/29/68-GP dated 29th June, 1968, the Administrator of Goa, Daman and Diu is pleased to make the following rules amending the Goa, Daman and Diu Administration, Goa Medical College, Class I (Gazetted) posts Recruitment rules, 1968, issued under Notification of even number dated 5th October, 1968 and published in Government Gazette Series I, No. 33 dated 14th November, 1968 namely:—

1. *Short Title and Commencement:*— (i) These rules may be called Goa, Daman and Diu Administration, Goa Medical College Class I (Gazetted) posts Recruitment (First Amendment) Rules, 1969.

(ii) They shall come into force at once.

2. In the Schedule attached to the said Notification against the posts at Serial No. 2,

(i) In column 1 after the existing entry add: «Radiology-1»

(ii) In column 2 after the existing entry substitute: «19».

By order and in the name of the Administrator of Goa, Daman and Diu.

G. K. Bhanot
Chief Secretary

Panaji, 3rd March, 1969.
12th Phalguna, 1890.

Notification

OSD/RRVS/3(a)/67

In exercise of the powers conferred by the proviso to article 309 of the Constitution, read with the Government of India, Ministry of External Affairs letter no. F.7(11)/62-Goa dated the 25th July 1963, the Administrator of Goa, Daman and Diu is pleased to make the following rules relating to the Class III, non-ministerial non-gazetted posts under the Directorate of Industries and Mines under the Government of Goa, Daman and Diu.

1. *Short title.*— These rules may be called Goa, Government, Industries and Mines Department, Class III (non-ministerial, non-gazetted) posts Recruitment Rules 1969.

2. *Application.*— These rules shall apply to the posts specified in column 1 of the Schedule to these rules.

3. *Number, classification and scale of pay.*— The number of posts, classification of the said posts and the scales of pay attached thereto shall be as specified in columns 2 to 4 of the said Schedule.

4. *Method of recruitment, age limit and other qualifications.*— The method of recruitment to the said posts, age limit, qualifications and other matters connected therewith shall be as specified in columns 5 to 13 of the aforesaid Schedule.

Provided that,

(a) the maximum age limit specified in the Schedule in respect of direct recruitment may be relaxed in the case of candidates belonging to the Scheduled Castes and Scheduled Tribes and other special categories in accordance with the orders issued by the Government from time to time; and

(b) no male candidate, who has more than one wife living and no female candidate, who has married a person having already a wife living, shall be eligible for appointment, unless the Government, after having been satisfied that there are special grounds for doing so, exempts any such candidate from the operation of this rule.

5. These rules will come into effect from the date of the Notification and will relate to appointments to the various posts made on or after this date. An appointment made prior to this date through a duly constituted Staff Selection Board/Departmental Promotion Committee will be deemed to be a regular appointment, notwithstanding any provisions contained in these rules, and the probation period in that case will extend to six months only from the date of this notification.

By order and in the name of the Administrator of Goa, Daman and Diu.

D. V. Sawant, Under Secretary (Appointments).
Panaji, 16th January, 1969.
26th Pausa, 1890.

SCHEDULE

Name of the post	No. of posts	Classification	Scale of Pay	Whether Selection Post or non-Selection Post	Age for direct recruits	Educational and other qualifications required for direct recruits	Whether age and educational qualifications prescribed for the persons recruited will apply in the case of promotions	Period of probation, if any	Method of recruitment whether by direct recruitment or by promotion/transfer/deputation/other means and vacancies to be filled by various methods	In case of recruitment, by promotion/transfer/deputation/other means, to be made	If a DPC exists, what is its composition making recruitment	Circumstances in which U. P. S. C. is to be considered in making recruitment
1	2	3	4	5	6	7	8	9	10	11	12	13
1. Mechanic Grade II	One	Class III (non-ministerial, non-gazetted)	Rs. 125-3-131-4-155.	Selection Post	30 years and below.	Essential: Certificate Course in Mechanics from a recognised Institution preferably with practical experience of at least two years as a mechanic in a Workshop of repute. Desirable: Persons having Matriculation or equivalent qualification.	Not Applicable.	2 years	By direct recruitment.	Not applicable.	Not applicable.	As required under the rules.
2. Plater	Two	Do	Do	Do	Do	Essential: Certificate Course in Electroplating from a recognised Institution preferably with practical experience of at least two years in an Electroplating Section. Desirable: Persons having Matriculation or equivalent qualification.	Do	Do	Do	Do	Do	Do
3. Polisher	One	Do	Rs. 110-3-131	Do	Do	Experience in polishing of at least two years in an Electroplating Department. Desirable: Persons having education upto Middle Class.	Do	Do	Do	Do	Do	Do
4. Welder	One	Do	Do	Do	Do	Certificate Course in Welding from a recognised Institution with practical experience of at least 2 years as a Welder in Welding Section. Desirable: Persons having education upto Middle Class.	Do	Do	Do	Do	Do	Do

Notification

OSD/RRVS/11/67

In exercise of the powers conferred by the proviso to article 309 of the Constitution, read with the Government of India, Ministry of External Affairs letter no. F.7(11)/62-Goa dated the 25th July 1963, the Administrator of Goa, Daman and Diu is pleased to make the following rules relating to the recruitment to the Class III posts in the Directorate of Health Services under the Government of Goa, Daman and Diu.

1. **Short title.**—These rules may be called Goa Government, Directorate of Health Services, Class III (non-ministerial, non-gazetted) posts Recruitment Rules, 1969.

2. **Application.**—These rules shall apply to the posts specified in column 1 of the Schedule to these rules.

3. **Number, classification and scale of pay.**—The number of posts, classification of the said posts and the scales of pay attached thereto shall be as specified in columns 2 to 4 of the said Schedule.

4. **Method of recruitment, age limit and other qualifications.**—The method of recruitment of the said posts, age limit, qualifications and other matters connected therewith shall be as specified in columns 5 to 13 of the aforesaid Schedule.

Provided that,

(a) the maximum age limit specified in the Schedule in respect of direct recruitment may be relaxed in the case of candidates belonging to the Scheduled Castes and Scheduled Tribes and other special categories in accordance with the orders issued by the Government from time to time; and

(b) no male candidate, who has more than one wife living and no female candidate, who has married a person having already a wife living, shall be eligible for appointment, unless the Government, after having been satisfied that there are special grounds for doing so, exempts any such candidate from the operation of this rule.

5. These rules will come into effect from the date of the Notification and will relate to appointments to the various posts made on or after this date.

G. K. Bhanot
Chief Secretary

Panaji, 19th February, 1969.
30th Magha, 1890.

SCHEDULE

1	2	3	4	5	6	7	8	9	10	11	12	13
Name of the post	No. of posts	Classification	Scale of Pay	Whether Selection Post or non-Selection Post	Age for direct recruits	Educational and other qualifications required for direct recruits	Whether age and educational qualifications prescribed for the direct recruitment process will apply in the case of promotees	Period of probation, if any	Method of recruitment whether by direct recruitment or by promotion or by deputation/transfer, and percentage of the vacancies to be filled by various methods	In case of recruitment by promotion/deputation/transfer, grades from which promotion/deputation/transfer to be made	If a DFG exists, what is its position making recruitment	Circumstances in which U. P. S. C. is to be consulted in making recruitment
1. Sanitary Inspector.	14	Class III (Non-ministerial non-gazetted).	Rs. 150-5-475-6-205-EB-7-240-8-256-EB-8-280.	N. A.	25 years or below.	1. Matriculation or equivalent. 2. Successful completion of sanitary inspectors Course from a recognised Institution. 3. Knowledge of local languages. Desirable: Experience in Rural Health Centres/Teaching Hospital.	N. A.	Two years.	By direct recruitment.	N. A.	N. A.	As required under the rules.
2. Auxiliary Nurse Midwife.	81	Do	Rs. 110-4-150-EB-4-170-5-180.	N. A.	30 years or below.	1. Auxiliary Nurse Midwives Course from a recognised Institution. 2. Certificate in Midwifery. 3. Knowledge of local languages.	N. A.	Do	Do	Do	Do	Do

Notification

OSD/RRVS/10/66

In exercise of the powers conferred by the proviso to article 309 of the constitution read with the Government of India, Ministry of External Affairs letter No. F.7(11)/62-Goa dated 25th July, 1963, the Administrator of Goa, Daman and Diu is pleased to make the following rules amending the Goa Government, Directorate of Land Survey (non-gazetted, non-ministerial posts) Recruitment Rules 1966 issued under Notification dated 4th July, 1966 and published in Government Gazette, Series I, No. 19, dated 11th August, 1966 read with the amendment published in the Government Gazette, Series I, No. 7, dated 16th May, 1968 namely:—

1. Short title and commencement:—

- (i) These rules may be called the Goa Government, Directorate of Land Survey (non-gazetted, non-ministerial posts) Recruitment (third amendment) Rules 1969.
- (ii) They shall come into force at once.

2. In the schedule attached to the said Notification against post of Field Surveyor at serial No. 8.

- (a) For the existing entry in column 2. substitute: "144".
- (b) For the existing entry in column 4. substitute:

"Rs. 150-5-175-6-205-EB-7-240 (plus Theodolite allowance of Rs. 30 per mensem to those entrusted with theodolite survey work).

- (c) For the existing entry in column 7. substitute:

"(i) S.S.C. or 5th year Lyceum or an equivalent qualification.

- (ii) Persons knowing the regional languages namely Konkani/Marathi will be given preference.

Note: The candidates will be deemed to have completed satisfactorily the period of probation only after they have passed the qualifying examination for Field Surveyors held by the Land Survey Department".

G. K. Bhanot
Chief Secretary

Panaji, 1st April, 1969.
11th Chaitra, 1891.

Revenue Department

Notification

DF-894-FOR-67

In exercise of the powers conferred by Section 18 of the Wild Animals and Wild Birds Protection Act, 1965, and in pursuance of Section 19 of the said Act, the Administrator of Goa, Daman and Diu hereby

notifies the following area comprising of the Reserve Forest of Bondla in Ponda Range, admeasuring 7.95 square kilometres and delimited by the boundaries mentioned below as a Game Sanctuary:—

Boundaries

North: Peak No. 150, Peak No. 107, Peak No. 260 and Peak No. 236.

South: Peak 461.

East: Peak No. 139, Peak No. 150 and Peak No. 178.

West: Peak No. 404, Peak 371, Peak No. 272, Peak No. 375 and Peak No. 284.

and further directs that the Collector of Goa, shall enquire into and determine the existence, nature and extent of any rights alleged to exist in favour of any person in or over the land comprised within the limits of such area and deal with the same as provided in the said Act.

By order and in the name of the Administrator of Goa, Daman and Diu.

W. G. Ranadive, Secretary (Revenue).

Panaji, 22nd March, 1969.

1st Chaitra, 1891.

Notification

LSG/MUN/485/68

Government Notification No. LQN 4 dated 8-1-1965 published in the Government Gazette, Series I, page 70, dated 21-1-1965, issued under section 4 of the Land Acquisition Act, 1894 in respect of the land specified in the schedule appended thereto is hereby cancelled.

By order and in the name of the Lt. Governor of Goa, Daman and Diu,

W. G. Ranadive, Secretary (Revenue).

Panaji, 25th March, 1969.

4th Chaitra, 1891.

Labour and Information Department

Mormugao Port Trust

Notification

MPT/IGA(E. 986)/69

As required under Section 124(1) of the Major Port Trusts Act, 1963, it is hereby notified that the Central Government vide Ministry of Transport and Shipping's letter No. 7-PE(28)/67 dated the 7th February, 1969, have accorded approval to the amendments to the Mormugao Port Employees' (Contributory Provident Fund) Regulations, 1965 and the Mormugao Port Employees' (Contributory Provident Fund Special Contribution) Regulations, 1966 published in the Government Gazettes Nos. 34

ANNEXURE-2

Panaji, 16th October, 2003 (Asvina 24, 1925)

SERIES III No. 29

OFFICIAL GAZETTE



GOVERNMENT OF GOA

Note:- There is one Supplementary issue to the Official Gazette, Series III, No. 28, dated 9-10-2003 namely, Supplement dated 9-10-2003 from pages 243 to 244 regarding Public Notice from Office of the Sr. Superintendent of Police, CID., Department of Home (Home—General Division).

GOVERNMENT OF GOA

Department of Forest

Notification

No. 7-51-2001-02/FD/2362

Whereas the Government of Goa vide Notification issued under Sections 18 and 19 of the Goa, Daman and Diu Wild Animals and Wild Birds Protection Act, 1965 (Act 21 of 1965) and published under No. DF-894-FOR-67 dated 22-3-1969 in the Official Gazette, Series I, No. 1, dated 3-4-1969, notified its decision to declare certain area as specified in that Notification and in Schedule hereto as a "Game Sanctuary".

And, whereas, in the meantime, the Government of India has enacted the Wild Life (Protection) Act, 1972 (Act 53 of 1972) (hereinafter called as the "said Act") and in terms of Section 66 of the said Act, as from the commencement of the said Act, every other Act relating to any matter contained in the said Act and in force in a State shall to the extent to which that Act or any provision contained therein corresponds, or is repugnant, to said Act or any provision contained in the said Act, stands repealed and any Notification issued under the Act so repealed, be deemed to have been issued under the corresponding provisions of the said Act and shall continue to be in force.

And, whereas, the area as specified in the Schedule hereto (hereinafter called as the "said area"), is not a reserved forest or the territorial waters.

And, whereas, in view of aforesaid provision of the said Act, the Notification dated 22-3-1969 remained in force and, therefore, a proclamation dated 3-3-1979 was issued under Section 21 of the said Act, inviting claims of interested parties on the said area.

And, whereas two months period fixed by the said Act for preferring claims has elapsed and no claims were received on the said area.

And, whereas, the Government of Goa considers that the said area is of adequate ecological, faunal, floral, geomorphological, natural or zoological significance, for the purpose of protecting, propagating or developing wild life and its environment.

Now, therefore, in exercise of the powers conferred by clause (a) of sub-section (1) of Section 26A of the Wild Life (Protection) Act, 1972 (Central Act 53 of 1972), the Government of Goa hereby declares that the said area specified in Schedule hereto shall be a Bondla Wild Life Sanctuary from the date of publication of this Notification in the Official Gazette.

SCHEDULE

Area 5.68 sq. kms.

The area of plot (C) covering Survey No. 34(Part) and Survey No. 35(Part), admeasuring 1.35 sq. kms. of Gangem Village, Ponda Taluka and Survey Nos. 222(Part), 219 and 220(Part) of Usgao Village, Ponda Taluka, admeasuring 3.14 sq. kms. and Survey No. 21(Part) of Dharbandora Village, admeasuring 1.19 sq. kms. The boundary description of the plot (C) is as below:

**BOUNDARY DESCRIPTION OF PLOT C (GANGEM, USGAO, DHARBANDORA) OF
BONDLA WILD LIFE SANCTUARY**

Sr. No.	From Pillar	To Pillar	Distance in Metre	Direction in Degrees		Nature of the boundary line to next pillar	Nature of Pillar	Total No. of Pillar	Remarks
				Forward Bearing	Backward Bearing				
1	2	3	4	5	6	7	8	9	10
92	1	2	101.00	180.00	360.00	Cleared	Granite Stone Pillar	143	
93	2	3	102.00	180.00	360.00				
94	3	4	103.00	180.00	360.00				
95	4	5	54.00	180.00	360.00				
96	5	6	47.00	180.00	360.00				
97	6	7	94.50	180.00	360.00				
98	7	8	99.50	180.00	360.00				
99	8	9	40.00	180.00	360.00				
100	9	10	63.00	180.00	360.00				
101	10	11	77.50	180.00	360.00				
102	11	12	113.00	180.00	360.00				
103	12	13	75.40	180.00	360.00				
104	13	14	94.40	180.00	360.00				
105	14	15	69.00	180.00	360.00				
106	15	16	56.00	180.00	360.00				
107	16	17	65.00	180.00	360.00				
108	17	18	37.00	180.00	360.00				
109	18	19	60.00	180.00	360.00				
110	19	20	55.50	180.00	360.00				
111	20	21	41.50	180.00	360.00				
112	21	22	56.10	180.00	360.00				
113	22	23	57.00	180.00	360.00				
114	23	24	39.500	180.00	360.00				
115	24	25	90.500	180.00	360.00				
116	25	26	50.600	180.00	360.00				
117	26	27	44.400	180.00	360.00				
118	27	28	41.500	180.00	360.00				
119	28	29	28.00	180.00	360.00				
120	29	30	63.00	180.00	360.00				
121	30	31	38.80	180.00	360.00				
122	31	32	41.10	180.00	360.00				
123	32	33	65.60	180.00	360.00				
124	33	34	61.50	180.00	360.00				
125	34	35	41.00	180.00	360.00				
126	35	36	65.50	180.00	360.00				
127	36	37	42.00	180.00	360.00				
128	37	38	260.00	180.00	360.00				
129	38	39	125.00	314.00	134.00				
130	39	39 A	200.00	253.00	73.00				
131	39 A	39 B	55.00	259.00	79.00				
132	39 B	P118	35.00	40.00	221.00				
133	P118	P117	69.70	19.00	199.00				
134	P117	P116	59.60	31.00	211.00				
135	P116	P115	58.00	64.00	244.00				
136	P115	P114	56.40	43.00	223.00				
137	P114	P113	26.30	49.00	229.00				
138	P113	P112	94.10	326.00	146.00				
139	P112	P111	88.30	316.00	136.00				
140	P111	P110	33.70	335.00	155.00				
141	P110	P109	74.50	331.00	151.00				
142	P109	P108	57.50	343.00	163.00				
143	P108	P107	82.10	295.00	115.00				

1	2	3	4	5	6	7	8	9	10
144	P107	P106	28.00	327.00	147.00				
145	P106	P105	94.10	350.00	170.00				
146	P105	P104	57.40	336.00	156.00				
147	P104	P103	114.90	354.00	174.00				
148	P103	P102	86.80	303.00	123.00				
149	P102	P101	121.20	324.00	144.00				
150	P101	P100	40.00	266.00	86.00				
151	P100	P99	81.00	325.00	145.00				
152	P99	P98	62.00	325.00	145.00				
153	P98	P97	43.00	325.00	145.00				
154	P97	P96	80.00	325.00	145.00				
155	P96	P95	60.00	325.00	145.00				
156	P95	P94	70.00	325.00	145.00				
157	P94	P93	60.00	325.00	145.00				
158	P93	P92	60.00	325.00	145.00				
159	P92	P91	80.00	325.00	145.00				
160	P91	P90	76.00	325.00	145.00				
161	P90	P89	90.00	325.00	145.00				
162	P89	P88	95.00	325.00	145.00				
163	P88	P87	74.00	325.00	145.00				
164	P87	P86	90.00	325.00	145.00				
165	P86	60 A	325.00	242.00	62.00				
166	60 A	61	60.00	340.00	160.00				
167	61	62	136.00	316.00	136.00				
168	62	63	100.00	316.00	136.00				
169	63	64	100.00	316.00	136.00				
170	64	65	100.00	316.00	136.00				
171	65	66	100.00	316.00	136.00				
172	66	67	100.00	316.00	136.00				
173	67	68	64.00	316.00	136.00				
174	68	69	100.00	316.00	136.00				
175	69	70	100.00	316.00	136.00				
176	70	71	17.00	316.00	136.00				
177	71	72	80.00	348.00	168.00				
178	72	73	100.00	348.00	168.00				
179	73	74	100.00	348.00	168.00				
180	74	75	100.00	348.00	168.00				
181	75	76	100.00	348.00	168.00				
182	76	77	100.00	348.00	168.00				
183	77	78	100.00	348.00	168.00				
184	78	79	101.00	348.00	168.00				
185	79	80	100.00	348.00	168.00				
186	80	81	101.00	348.00	168.00				
187	81	82	16.00	348.00	168.00				
188	82	83	45.00	335.00	155.00				
189	83	84	100.00	335.00	155.00				
190	84	85	100.00	335.00	155.00				
191	85	86	100.00	335.00	155.00				
192	86	87	100.00	335.00	155.00				
193	87	88	100.00	335.00	155.00				
194	88	89	100.00	335.00	155.00				
195	89	90	239.00	309.00	129.00				
196	90	91	45.00	100.00	280.00				
197	91	92	100.00	100.00	280.00				
198	92	93	100.00	100.00	280.00				
199	93	94	100.00	100.00	280.00				
200	94	95	99.00	100.00	280.00				
201	95	96	100.00	105.00	285.00				
202	96	97	103.00	88.00	268.00				
203	97	98	102.00	100.00	280.00				

1	2	3	4	5	6	7	8	9	10
204	98	99	100.00	100.00	280.00				
205	99	100	100.00	100.00	280.00				
206	100	101	95.00	96.00	276.00				
207	101	102	95.00	97.00	277.00				
208	102	103	97.00	97.00	277.00				
209	103	104	97.00	108.00	288.00				
210	104	C117	440.00	166.00	346.00				
211	C117	C116	892.00	118.00	298.00				
212	C116	136	880.00	118.00	298.00				
213	136	137	100.00	200.00	20.00				
214	137	138	104.00	203.00	23.00				
215	138	139	30.00	200.00	20.00				
216	139	140	70.00	202.00	22.00				
217	140	141	102.00	196.00	16.00				
218	141	1	92.00	202.00	22.00				

By order and in the name of the Governor of Goa.

Panaji, 25th September, 2003.— The Under Secretary (Forest), V. R. Ghaisas.

Department of Transport

Office of the District Magistrate, South Goa District

Notification

No. 37/43/2003/MAG

Read:- Letter No. PWD/WD XXI (PHE)/F. 3072/445/02-03 dated 3-9-2003 from the Executive Engineer, Works Division XXI (PHE), Public Works Department, Fatorda, Margao-Goa.

Whereas, the Executive Engineer, WD XXI (PHE), P. W. D., Fatorda, Margao, vide his above letter has submitted a proposal for temporary closure of a stretch of Margao-Ponda road from Jawaharlal Nehru Stadium, Fatorda to the P. W. D. Office Complex to facilitate construction of Manholes in the Central Zone.

And whereas, I am satisfied that the above public road is required to be closed for all vehicular traffic while the proposed construction of Manhole is executed for a period of two months from 7-10-2003 to 6-12-2003.

Now, therefore, in exercise of the powers conferred under Sections 115 and 116 of Motor Vehicles Act, 1988 (Central Act of 1988) read with Government Notification No. 5/28/88/TPT(Part) dated 26th September, 1989, I, J. B. Singh, District Magistrate, South Goa District, Margao do hereby notify temporary closure of stretch of Margao-Ponda road as indicated in Column 1 of the Schedule shown below for a period shown in Column 2 of the Schedule.

SCHEDULE

Road Section	Period during which is closed	No. & specification of Sign Boards
1	2	3
A Stretch of Margao-Ponda road from Southern Cross road leading to Jawaharlal Nehru Stadium to Cross road at Northern Boundary of P.W.D. Office Complex at Fatorda.	7-10-2003 to 6-12-2003	1) A Sign Board at Arlem junction with "Road Closed from P. W. D. Complex". 2) One Sign Board with "Road Closed" each at the Southern Cross road at Jawaharlal Nehru Stadium, Fatorda and at the Cross road at the Northern boundary at P. W. D. Office. 3) One Sign Board "Road Closed from Nehru stadium" at Swimming Pool junction at Fatorda.

All the vehicular traffic during the above period shall be diverted through the road from N. H. 17 at Dr. Dulapkar's House to Arlem junction via Ambaji and from Arlem junction through Eastern Bye-Pass.

The Executive Engineer, P. W. D., WD XXI (PHE), Fatorda, Margao should display necessary Sign Boards as indicated in the Schedule and install proper barricades display illuminative lights during night time on either end of the notified stretch of road.

The P. I. Traffic, Margao, should post adequate Traffic Police at strategic points at Arlem junction, at Old Market Circle and Swimming Pool junction for regulating traffic.

The work of construction of Manhole should be completed within the notified period of two months.

Margao, 1st October, 2003.— The District Magistrate, J. B. Singh.

ANNEXURE-3

Panaji, 24th August, 2017 (Bhadra 2, 1939)

SERIES II No. 21

OFFICIAL GAZETTE



GOVERNMENT OF GOA

PUBLISHED BY AUTHORITY

Note:- There are four Extraordinary issues to the Official Gazette, Series II No. 20 dated 17-08-2017 as follows:

- (1) *Extraordinary dated 18-08-2017 from pages 1431 to 1432 regarding Corrigendum from Department of Elections.*
- (2) *Extraordinary (No. 2) dated 18-08-2017 from pages 1433 to 1436 regarding Notification from Department of Commercial Taxes & Orders from Department of Home.*
- (3) *Extraordinary (No. 3) dated 21-08-2017 from pages 1437 to 1438 regarding Direction from Department of Elections.*
- (4) *Extraordinary (No. 4) dated 22-08-2017 from pages 1439 to 1440 regarding Order from Department of Home.*

GOVERNMENT OF GOA

Department of Environment

Notification

No. 134-10-2015/STE-DIR/366

Whereas, the Ministry of Environment, Forests and Climate Change, Government of India vide following notifications has notified an area around the boundaries of the Wildlife Sanctuaries/National Park/Bird Sanctuary in the State of Goa, as the Eco-sensitive Zone:-

1. S. O. 221(E) dated 23-1-2015 declaring an area with an extent of one kilometre of land or the water body, whichever is near to the Bhagwan Mahaveer Wildlife Sanctuary and National Park in the State of Goa, as the Eco-sensitive Zone.
2. S. O. 615 (E) dated 25-1-2015 declaring an area with an extent of one kilometre of land or the water body, whichever is near to the Bondla Wildlife Sanctuary in the State of Goa, as the Eco-sensitive Zone.
3. S. O. 555 (E) dated 17-2-2015 declaring an area with an extent of one kilometre of land or the water body, whichever is near to the

Netravali Wildlife Sanctuary in the State of Goa, as the Eco-sensitive Zone.

4. S. O. 607 (E) dated 24-2-2015 declaring an area up to the river bank abutting the Dr. Salim Ali Bird Sanctuary on the three sides of the said Sanctuary and to the extent of 100 mtrs. on the eastern side towards Chorao village from the Sanctuary in the State of Goa as the Eco-sensitive Zone.
5. S. O. 608 (E) dated 24-2-2015 declaring an area with an extent of one kilometre of land or the water body, whichever is near to the Cotigao Wildlife Sanctuary in the State of Goa, as the Eco-sensitive Zone.
6. S. O. 616 (E) dated 25-2-2015 declaring an area with an extent of one kilometre of land or the water body, whichever is near to the Madhei Wildlife Sanctuary in the State of Goa, as the Eco-sensitive Zone.

And whereas, the Central Government in the Ministry of Environment, Forests and Climate Change has constituted a Committee called the State Level Eco-sensitive Zone Monitoring Committee for effective monitoring of all notified Eco-Sensitive Zone around the National Parks and Wildlife Sanctuaries in the State of Goa vide Notification number S.O. 221 (E) dated 23rd January, 2015. The said Committee is also specified in the para 5 of all the aforementioned six notifications.

And whereas, the constitution of the aforementioned State Level Eco-sensitive Zone Monitoring Committee for the State of Goa provides that the Government of Goa shall nominate three members in the Committee for a term of one year, as indicated herebelow:-

- i) one representative of Non-Government organisation working in the field of environment (for a term of one year) Member.

ANNEXURE-4



Government of Goa

Department of Environment

Opp. Saligao Seminary, Saligao, Bardez – Goa. 403511

Phone nos. 0832-2407189, 2407187, 2407580 Fax no. 0832-2407176

e-mail: dir-ste.goa@nic.in

No: 118-10-2015/STE-DIR/61

Date: 17/04/2015

NOTIFICATION

WHEREAS, the Ministry of Environment, Forests and Climate Change, Government of India vide following notifications has notified an area around the boundaries of the Wildlife Sanctuaries / National Park / Bird Sanctuary in the State of Goa, as the Eco-sensitive Zone:-

1. S.O. 221(E) dated 23/1/2015 declaring an area with an extent of one kilometre of land or the water body, whichever is near to the Bhagwan Mahaveer Wildlife Sanctuary and National Park in the State of Goa, as the Eco-sensitive Zone.
2. S.O. 615 (E) dated 25/1/2015 declaring an area with an extent of one kilometre of land or the water body, whichever is near to the Bondla Wildlife Sanctuary in the State of Goa, as the Eco-sensitive Zone.
3. S.O. 555 (E) dated 17/2/2015 declaring an area with an extent of one kilometre of land or the water body, whichever is near to the Netravali Wildlife Sanctuary in the State of Goa, as the Eco-sensitive Zone.
4. S.O. 607 (E) dated 24/2/2015 declaring an area up to the river bank abutting the Dr. Salim Ali Bird Sanctuary on the three sides of the said Sanctuary and to the extent of 100 mtrs on the eastern side towards Chorao village from the Sanctuary in the State of Goa as the Eco-sensitive Zone.
5. S.O. 608 (E) dated 24/2/2015 declaring an area with an extent of one kilometre of land or the water body, whichever is near to the Cotigao Wildlife Sanctuary in the State of Goa, as the Eco-sensitive Zone
6. S.O. 616 (E) dated 25/2/2015 declaring an area with an extent of one kilometre of land or the water body, whichever is near to the Madhei Wildlife Sanctuary in the State of Goa, as the Eco-sensitive Zone.

AND WHEREAS, the Central Government in the Ministry of Environment, Forests and Climate Change has constituted a Committee called the State Level Eco-sensitive Zone Monitoring Committee for effective monitoring of all notified Eco-Sensitive Zone around the National Parks and Wildlife Sanctuaries in the State of Goa vide notification number S.O. 221 (E), dated 23rd January, 2015. The said Committee is also specified in the para 5 of all the aforementioned six notifications.

AND WHEREAS, the constitution of the aforementioned State Level Eco-sensitive Zone Monitoring Committee for the State of Goa provides that the Government of Goa shall nominate three members in the Committee for a term of one year, as indicated here below:-

- i) one representative of Non-Government organisation working in the field of environment (for a term of one year)- Member.
- ii) one representative of community based organisation nominated by the State Government (for a term of one year) – Member.

- iii) one expert in Ecology from reputed Institution or University of the State of Goa to be nominated by Government of Goa (for a term of one year) – Member.

NOW THEREFORE, in pursuance of the notification number S.O. 221 (E) dated 23rd January 2015 and para 5 of aforementioned six notifications issued by the Ministry of Environment, Forests & Climate Change; the Government of Goa hereby nominates the following person to be members of the State Level Eco-Sensitive Zone Monitoring Committee for a period of one year from the date of publication of this Notification in the Official Gazette:-

Members Nominated:

- (i) Mr. Sandeep Azrenkar, Member – Nisarga Nature Club, Mapusa – Goa - representative of Non-Government organisation working in the field of environment
- (ii) Mr. Milind Gadgil, C/o. Parshuram Grameen Vikas Saunstha, Brahmakarmali, Valpoi - representative of community based organisation nominated by the State Government.
- (iii) Prof. M. K. Janarthnam, Dean, Faculty of Life Sciences & Environment, Goa University - expert in Ecology from reputed Institution or University of the State of Goa to be nominated by Government of Goa.

**By Order and in the name of
the Governor of Goa.**

Sd/-

(Srinet Kothwale)

**Director / Ex-Officio Joint Secretary (Env.)
Government of Goa**

(Published in Series II No 9 dated 28/05/2015)

ANNEXURE-5 and 6



भारत का राजपत्र The Gazette of India

असाधारण

EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (ii)
PART II—Section 3—Sub-section (ii)

प्राधिकार से प्रकाशित

PUBLISHED BY AUTHORITY

सं. 445]

नई दिल्ली, बुधवार, फरवरी 25, 2015/फाल्गुन, 06, 1936

No.445]

NEW DELHI, WEDNESDAY, FEBRUARY 25, 2015/PHALGUNA 06, 1936

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 25 फरवरी, 2015

का.आ. 615(अ).—भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय ने एक प्रारूप अधिसूचना का.आ. 633 (अ) तारीख 3 मार्च, 2014 भारत के राजपत्र, असाधारण में प्रकाशित किया था, जिसमें गोवा राज्य के बोंदला वन्य जीव अभयारण्य के चारों ओर पारिस्थितिकीय संवेदी जोन को प्रस्तावित किया गया, जिसके द्वारा उन सभी व्यक्तियों से, जिनके उससे प्रभावित होने की संभावना थी, उस तारीख से, जिसको भारत के राजपत्र में प्रकाशित रूप में उक्त अधिसूचना की प्रतियां जनता को उपलब्ध करा दी गई थीं, साठ दिन की समाप्ति के पूर्व आपेक्ष और सुझाव मांगे गए थे ;

और, उक्त अधिसूचना को अंतर्विष्ट करने वाले राजपत्र की प्रतियां 3 मार्च, 2014 को जनता को उपलब्ध कराई गई थीं ;

और, प्रारूप अधिसूचना के जवाब में सभी व्यक्तियों तथा पणधारियों से प्राप्त सभी आक्षेपों और सुझावों पर केन्द्रीय सरकार द्वारा सम्यक रूप से विचार कर लिया गया है ;

और, अब केन्द्र सरकार समझती है, बोंदला वन्य जीव अभयारण्य गोवा राज्य में उत्तरी गोवा जिले में 15° 26' 54.78 उ. " और 15° 24' 42.50 " उत्तरी अक्षांश और 74° 7' 16.36 " और 74° 5' 26.60 " के मध्य स्थित है तथा जिसका विस्तार 7.98 वर्ग किलोमीटर के क्षेत्र में विस्तारित है, पश्चिमी घाट का एक महत्वपूर्ण भाग है जो जैव विविधता में समृद्ध है ;

और, अभयारण्य में वन्य जीवों जैसे भारतीय गवल, तेंदुआ, पिसुरी हिरण, चित्तिदार हिरण, सांभर हिरण, काला तेंदुआ आदि संकटापन्न प्रजातियों और इस क्षेत्र की वनस्पति आर्द्र पर्णपाती प्रकार के वन द्वारा व्यपदिष्ट की जाती है ;

और, इस वन्य जीव अभयारण्य के वन, वर्षा को अवरुद्ध करते हैं और भू-जलभृत की पुनःप्राप्ति में सहायता करते हैं और भूमि कटाव को कम करके गाद निकालने के संबंध में नदियों और सरिताओं का संरक्षण करते हैं और चारों तरफ फैली हुई सरिताओं के सुव्यवस्थित ऐसा नेटवर्क रखते हैं जो प्रकृति में बारहमासी या अर्द्ध बारहमासी या मौसमी होते हैं, खुशावती और खांडेपार नदियों का संभरण करती हैं ;

अतः, यह आवश्यक है कि बोंदला वन्य जीव अभयारण्य के चारों ओर के संरक्षित क्षेत्र को पारिस्थितिकी और पर्यावरण के दृष्टिकोण से एक पारिस्थितिक संवेदी क्षेत्र के रूप में संरक्षित और संधारित किया जाए; जिसकी विस्तार एवं सीमाएं, इस अधिसूचना के पैरा 1 में निर्दिष्ट हैं और उद्योगों अथवा उद्योगों के वर्गों के संचालनों तथा प्रक्रियाओं को कथित पारिस्थितिक संवेदी क्षेत्र में प्रतिशेध किया जाए;

6. पर्यावरण समाघात निर्धारण अधिसूचना, 2006 (पारिस्थितिक संवेदी जोनवार) के अधीन न आने वाली गतिविधियों की संविधा के मामलों का सारांश। ब्यौरे एक पृथक् उपाबंध के रूप में उपाबद्ध किए जा सकते हैं।
7. पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 19 के अधीन दर्ज की गई शिकायतों का सारांश (पारिस्थितिक संवेदी जोनवार)
8. कोई अन्य महत्वपूर्ण विषय।

MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 25th January, 2015

S.O. 615(E).— WHEREAS, a draft notification, for declaration of Eco-sensitive Zone around Bondla Wildlife Sanctuary in Goa, was published in the Gazette of India, Extraordinary, vide notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 633 (E) dated 3rd March 2014, inviting objections and suggestions from all persons likely to be affected thereby within a period of sixty days from date on which copies of the Gazette containing the said notification were made available to the public;

AND WHEREAS, copies of the Gazette containing the said notification were made available to the public on the 3rd March, 2014;

AND WHEREAS, all objections and suggestions received from all persons and stakeholders in response to the draft notification have been duly considered by the Central Government;

AND WHEREAS, the Central Government considers that the Bondla Wildlife Sanctuary, Goa lying between latitudes 15° 26' 54.78" N and 15° 24' 42.50" N and longitudes 74° 7' 16.36" E and 74° 5' 26.60" E in the North Goa District of Goa State and extending over an area of 7.98 square kilometres, is an essential part of the Western Ghats, which is rich in biodiversity;

AND WHEREAS, the sanctuary inhabits the endangered species of wildlife like Indian bison, panther, mouse deer, spotted deer, sambhar deer, black panther, etc. and the flora of this area is represented by moist deciduous forest type;

AND WHEREAS, the forest of this Sanctuary intercepts rainfall and helps recharge ground water aquifer and protects rivers and streams against siltation by minimizing soil erosion and has a well knit network of streams spreading throughout, which are perennial or semi perennial or seasonal in nature, feeding Kushawati and Khandepar rivers;

AND WHEREAS, it is necessary to conserve and protect the area the extent and boundary of which is specified in paragraph 1 of this notification around the Bondla Wildlife Sanctuary as Eco-sensitive Zone from ecological and environmental point of view and to prohibit industries or class of industries and their operations and processes in the said Eco-sensitive zone;

NOW, THEREFORE, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area with an extent of one kilometre of land or the water body, whichever is nearer to the boundary of the Bondla Wildlife Sanctuary in the State of Goa, as the Eco-sensitive Zone, details of which are as under, namely:-

1. **Extent and Boundaries of Eco-sensitive Zone.**— (1) The extent of Eco-sensitive Zone shall be one kilometre of land or the water body whichever is nearer to the boundary of the Bondla Wildlife Sanctuary within the State of Goa.
- (2) The Eco-sensitive Zone is bounded on the North by areas of the villages Gangem, Conquirem and Melauli, on the South and West by the areas of the villages Dharbandora, Piliem and Usgaon, on the East by areas of the Villages Dharbandora and Melauli; the Ragada Nadi, a tributary of Madei River enters into the Eco-sensitive Zone on the East and passes along the Eco-sensitive Zone boundary from East towards North at few places.
- (3) The map of Eco-sensitive Zone boundary is appended to this notification as **Annexure I**. List of latitudes and longitudes of prominent points on the boundary of the ESZ is appended to this notification as **Annexure II**.
- (4) The list of villages falling partially within Eco-sensitive Zone boundary is given at **Annexure III**.
- (5) The list of villages given in Annexure III shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

2. Zonal Master Plan for the Eco-sensitive Zone.- (1) The State Government shall for the purpose of effective management of the Eco-sensitive Zone, prepare a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for the consideration and approval of the Ministry of Environment, Forest and Climate Change, Government of India in consultation with local people and all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development, Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

(2) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.

(3) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, man-made heritage sites, natural heritage sites, mining leases in operation, lakes and other water bodies.

(4) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.

(5) The Zonal Master Plan shall contain the measures as may be specified by the Central Government or the State Government, for regulation of activities specified under column (2) of the table specified in paragraph 4.

(6) The Zonal Master Plan so prepared shall be co-terminus with the regional development plan.

(7) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), referred to in paragraph 5, for carrying out its functions of monitoring under the provisions of this notification.

3. Measures to be taken by State Government.- The State Government shall take the following measures for giving effect to the provisions of this notification, namely:-

(1) Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or industrial related development activities:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, to meet the residential needs of local residents, and for the activities listed at item numbers 24, 26, 28 and 31 in column (2) of the Table in paragraph 4, namely:-

- (i) Small scale industries not causing pollution,
- (ii) Rainwater harvesting,
- (iii) Cottage industries including village industries, and
- (iv) Eco-friendly cottages for temporary occupation of tourists such as tents, wooden houses, etc. for Eco-friendly tourism activities:

Provided further that no use of tribal land shall be permitted for commercial and industrial development activities without the prior approval of the State Government and without compliance to the provisions of Article of 244 of the Constitution of India or the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007) as amended time to time:

Provided also that any error appearing in the land records within the Eco-sensitive Zone shall be corrected by the State Government, after obtaining the views of SESZMC, once in each case and the correction of said error shall be intimated to the Central Government in the Ministry of Environment, Forest and Climate Change:

Provided also that the above correction of error shall not include change of land use in any case except as provided under this sub-paragraph.

(2) The catchment areas of all natural springs shall be identified and plans for their conservation and rejuvenation shall be incorporated in the Zonal Master Plan and the guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.

(3) The activity relating to tourism within the Eco-sensitive Zone which shall form part of the Zonal Master Plan shall be as under, namely:-

(a) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in accordance with the guidelines issued by the Central Government in the Ministry of Environment, Forest and Climate Change and by the National Tiger Conservation Authority, with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;

(b) new construction of any kind shall not be permitted within the Eco-sensitive Zone except for eco-friendly accommodation like tents, wooden houses or thatched roofs for temporary occupation of tourists and for eco-friendly tourism activities;

(c) till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC.

(4) All sites of valuable natural heritage in the Eco-sensitive Zone such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. shall be identified and preserved and proper plan shall be drawn up for their protection and conservation, within six months from the date of publication of this notification and such plan shall form part of the Zonal Master Plan.

(5) Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(6) The Environment Department of the State Government shall draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.

(7) The Environment Department of the State Government shall draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.

(8) The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) and the rules made thereunder.

(9) Disposal of solid wastes shall be as under:-

(i) the solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* notification number S.O. 908 (E), dated the 25th September 2000 as amended from time to time;

(ii) the local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components;

(iii) the biodegradable material shall be recycled preferably through composting or vermiculture;

(iv) the inorganic material shall be disposed of in an environmentally acceptable manner.

(10) The bio-medical waste disposal in the Eco-sensitive Zone shall be carried out as per the provisions of the Bio-Medical Waste (Management and Handling) Rules, 1998 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* Notification number S.O. 630(E), dated the 20th July, 1998 as amended from time to time.

(11) The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment, Forests and Climate Change, SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

4. List of activities prohibited or to be regulated within the Eco-sensitive Zone.-All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 (29 of 1986) and the rules made thereunder and be regulated in the manner specified in the Table below, namely:-

TABLE

S.No.	Activity	Remarks
(1)	(2)	(3)
Prohibited Activities		
1.	Commercial Mining, stone quarrying and crushing units.	All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect.
2.	Setting up of saw mills.	Prohibited (except as otherwise provided) as per applicable laws.
3.	Setting up of industries causing water or air or soil or noise pollution.	Prohibited (except as otherwise provided) as per applicable laws.
4.	Commercial establishment of hotels and resorts.	New commercial establishment, such as hotels and resorts shall be prohibited within the Eco-sensitive Zone with immediate effect.
5.	Commercial use of firewood.	Prohibited (except as otherwise provided) as per applicable laws.

6.	Establishment of new major hydroelectric projects.	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the Eco-sensitive Zone is prohibited with immediate effect, except the micro hydel power projects (Up to 100KW) or the mini hydel power projects (from 101 to 2000KW), which would serve the energy needs of the local communities, subject to the consent of the concerned Gram Sabha and all other requisite clearances.
7.	Use or production of any hazardous substances.	Prohibited (except as otherwise provided) as per applicable laws.
8.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Prohibited (except as otherwise provided) as per applicable laws.
9.	New wood based industry.	No establishment of new wood based industry shall be permitted within the limits of Eco-sensitive Zone with immediate effect.
10.	Construction activities	New construction of any kind shall be prohibited within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 26, 28 and 31 and in the case of activities listed at item number 24, the construction activity shall be regulated and kept at the minimum.
11.	Use of plastic carry bags	Prohibited (except as otherwise provided) as per applicable laws.
12.	Brick kilns	Prohibited (except as otherwise provided) as per applicable laws.
Regulated Activities		
13.	Felling of trees.	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
14.	Commercial water resources including ground water harvesting.	(a) The extraction of surface water and ground water shall be permitted only for <i>bona fide</i> agricultural use and domestic consumption of the occupier of the land. (b) Extraction of surface water and ground water for industrial or commercial use including the amount that can be extracted shall require prior written permission from the concerned Regulatory Authority. (c) No sale of surface water or ground water shall be permitted. (d) Steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
15.	Erection of electrical cables and telecommunication towers.	Promote underground cabling.
16.	Fencing of existing premises of hotels and lodges.	Regulated under applicable laws.
17.	Widening and strengthening of existing roads and construction of new roads.	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
18.	Movement of vehicular traffic at night.	Regulated for commercial purpose as per applicable laws.
19.	Introduction of exotic species.	Regulated under applicable laws
20.	Undertaking activities related to tourism like over-flying the National Park area by hot-air balloons, etc.	Regulated under applicable laws
21.	Protection of hill slopes and river banks.	Regulated under applicable laws
22.	Discharge of treated effluents in natural water bodies or land area.	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
23.	Commercial Sign boards and hoardings.	Regulated under applicable laws
24.	Small scale industries not causing pollution.	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment.
25.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	Regulated under applicable laws
26.	Eco-tourism activities including eco tourist lodges, restaurant and recreational facilities	As per Zonal Master Plan.

	including spa, swimming pool, gymnasium in temporary structures made of cloth or wood or particle board such as tents etc.	
Promoted Activities		
27.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted under applicable laws.
28.	Rain water harvesting.	Shall be actively promoted.
29.	Organic farming.	Shall be actively promoted.
30.	Adoption of green technology for all activities.	Shall be actively promoted.
31.	Cottage industries including village artisans, etc.	Shall be actively promoted.

5. State Level Eco-sensitive Zone Monitoring Committee:- (1)

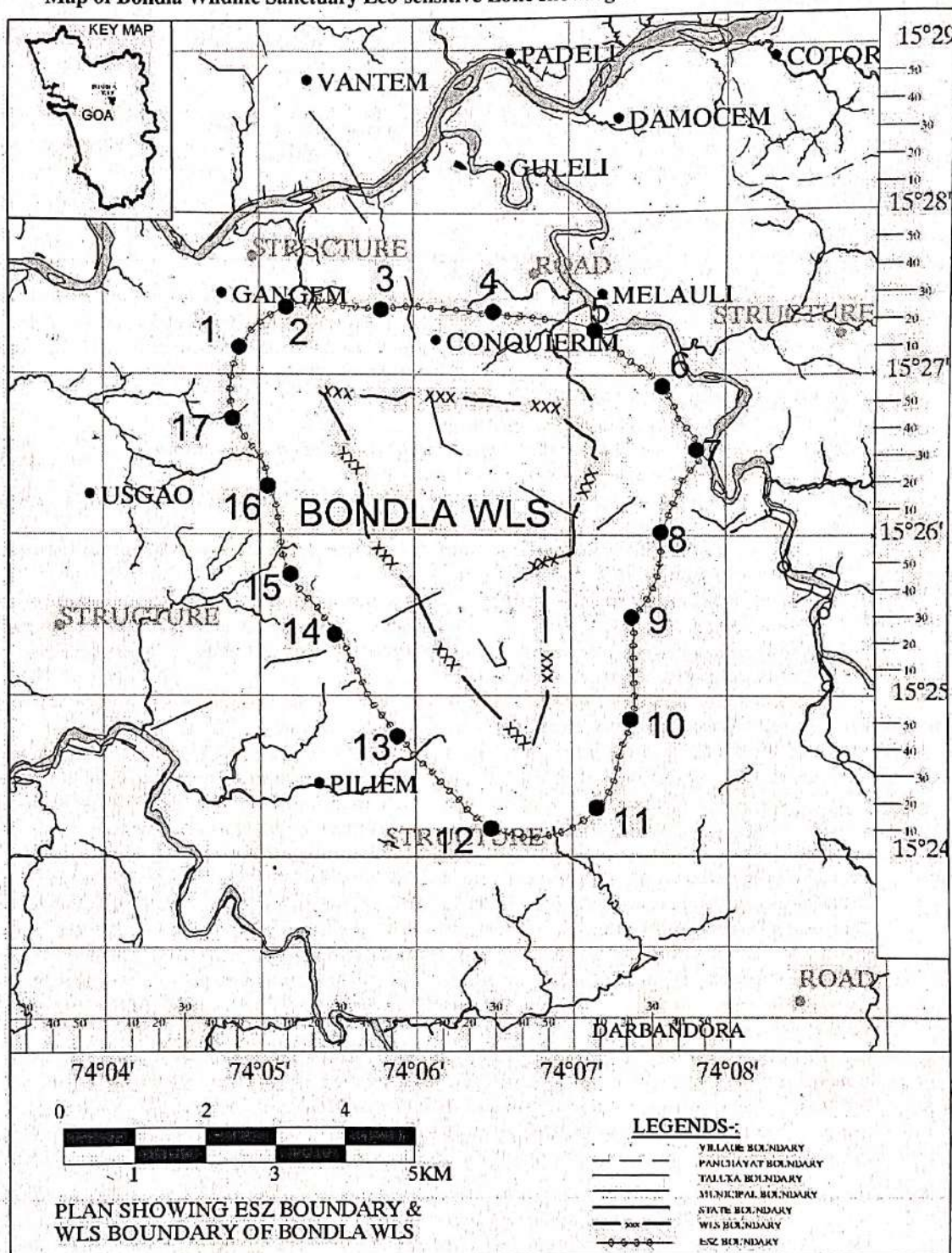
The Central Government in the Ministry of Environment, Forest and Climate Change, for effective monitoring of the Eco-sensitive Zones around National Parks and Wildlife Sanctuaries, has constituted a Committee called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa vide notification number S.O. 221 (E), dated the 23rd January 2015, published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii) comprising of the following members, and to perform the following functions, namely:-

- (i) Chief Secretary, Government of Goa- Chairman;
 - (ii) representative of the Ministry of Environment, Forest and Climate Change- Member;
 - (iii) Member Secretary, State Pollution Control Board-Member;
 - (iv) one representative of Non-governmental Organisations working in the field of environment to be nominated by the Government of Goa (for a term of one year)- Member;
 - (v) one representative of community based organisation nominated by the State Government (for a term of one year)- Member;
 - (vi-xiv) Principal Secretaries of the Government of Goa from Departments of Forest and Environment, Rural Development, Agriculture, Urban Development, Housing, Mining, Ports, Transport and Revenue- Members;
 - (xv) one expert in Ecology from reputed Institution or University of the State of Goa to be nominated by Government of Goa (for a term of one year) - Member;
 - (xvi) Chief Conservator of Forests (WL) and Chief Wildlife Warden, Government of Goa- Member Secretary.
- (2) The SESZMC shall monitor the compliance of the provisions of this notification.
 - (3) The activities that are covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment, Forest and Climate Change for prior environmental clearance under the provisions of the said notification.
 - (4) The activities that are not covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the concerned regulatory authorities.
 - (5) The Member Secretary of the SESZMC or the concerned Collector or the concerned park in-charge shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.
 - (6) The SESZMC may invite representatives or experts from concerned Departments, representatives from Industry Associations or concerned stakeholders to assist in its deliberations depending on the requirements on issue to issue basis.
 - (7) The SESZMC shall submit the annual action taken report of its activities as on 31st March of every year by 30th June of that year to the Central Government in the Ministry of Environment, Forest and Climate Change as per pro forma given in **Annexure IV**.
 - (8) The Central Government in the Ministry of Environment, Forests and Climate Change may give such directions, as it deems fit, to the SESZMC for effective discharge of its functions.
6. The provisions of this notification shall be subject to the orders passed by the Hon'ble Supreme Court of India or the High Court or National Green Tribunal as the case may be, in respect of matters covered under this notification.

[F. No. 25/36/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

Map of Bondla Wildlife Sanctuary Eco-sensitive Zone showing Latitudes- Longitudes



Annexure II
List of latitudes and longitudes of prominent points on the boundary of the ESZ of Bondla Wildlife Sanctuary

S. No.	Description	Latitude	Longitude
1		15°27'9.84"N	74° 5'5.95"E
2		15°27'25.94"N	74° 5'25.56"E
3		15°27'24.13"N	74° 6'1.49"E
4		15°27'23.38"N	74° 6'44.61"E
5	RIVER	15°27'20.78"N	74° 7'11.36"E
6		15°26'58.13"N	74° 7'48.52"E
7	RIVER	15°26'36.46"N	74° 7'57.03"E
8		15°26'2.01"N	74° 7'48.61"E
9		15°25'29.17"N	74° 7'38.71"E
10		15°24'51.35"N	74° 7'36.81"E
11		15°24'18.85"N	74° 7'23.15"E
12		15°24'25.65"N	74° 6'28.87"E
13		15°24'48.35"N	74° 6'4.52"E
14		15°25'30.46"N	74° 5'38.15"E
15		15°25'44.26"N	74° 5'25.91"E
16		15°26'15.79"N	74° 5'16.86"E
17		15°26'40.96"N	74° 5'5.95"E

Annexure III**List of villages falling within the Bondla Wildlife Sanctuary Eco-sensitive Zone**

List of Villages partially within the ESZ Boundary

S. No.	Village Name
1	Usgao
2	Ganjam
3	Conquirem
4	Melaluli
5	Pilliem
6	Darbandora

Annexure IV**Pro forma of Action Taken Report: - State Level Eco-sensitive Zone Monitoring Committee.-**

1. Number and date of Meetings
2. Minutes of the meetings: Mention main noteworthy points. Attached Minutes of the meeting on separate Annexure.
3. Status of preparation of Zonal master Plan including Tourism master Plan (Eco-sensitive Zone wise)
4. Summary of cases dealt for rectification of error apparent on face of land record. (Eco-sensitive Zone wise). Details may be attached as Annexure
5. Summary of cases scrutinized for activities covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise). Details may be attached as separate Annexure.
6. Summary of case scrutinized for activities not covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise). Details may be attached as separate Annexure.
7. Summary of complaints lodged under Section 19 of Environment (Protection) Act, 1986. (Eco-sensitive Zone wise).
8. Any other matter of importance.

ANNEXURE-6

Panaji, 25th June, 2020 (Asadha 4, 1942)

SERIES I No. 13

OFFICIAL GAZETTE

GOVERNMENT OF GOA



PUBLISHED BY AUTHORITY

NOTE

There are two Extraordinary issues to the Official Gazette, Series I No. 12 dated 18-06-2020, namely:—

(1) Extraordinary dated 19-06-2020 from pages 335 to 336, Notification No. 5-7-2020-Fin(DMU) regarding Market Borrowing Programme from Department of Finance (Debt Management Division).

(2) Extraordinary (No. 2) dated 22-06-2020 from pages 337 to 338, Notifications regarding Goa GST from Department of Finance (Revenue & Control) Division.

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7. Sports & Youth Affairs Director	Ord.- GFDC/04/02/2017(Part-I)/ /442	Creation of posts.	440
8. Tourism Director/Jt. Secy.	Ord.- 1/1(43)/2020/DT-541	Creation of posts.	441
9. Govt. Printing Press	—	Note	442

GOVERNMENT OF GOA

Department of Agriculture
Directorate of Agriculture

Notification

3/3/Hort/SSS/2/2020-21/D.Agr/140

Sub: Assured Price for Agricultural Produce.

Ref: Notification No. 3/3/Hort/SSS/2/2016-
-17/D.Agr/129 dated 26th July, 2016
published in the Official Gazette,
Series I No. 19 dated 11-08-2016.

AMENDMENT

The Notification referred above is amended
as below:

Clause 4 (ii) (a) is replaced and shall be
read as "Benefit of Assured Price shall be
provided to the coconut sold to registered
traders to the extent of difference between
assured rate of Rs. 12/- and the price received
per nut by the farmer".

Clause 4 (ii) (e) is replaced and shall be
read as "The average minimum price fixed
per coconut will not be less than Rs. 6/- per
nut and the maximum assured price to be

paid to an individual farmer shall not exceed Rs. 3.00 lakhs”.

Clause 4 (iii) (a) is replaced as shall be read as “Benefit of Assured Price of Rs. 125/- shall be provided to raw cashewnut sold by farmers to the extent of difference between Rs. 125/- per kg. and the price received per kg. by the farmer. The price received shall be actual price received by sale or average rate for the week notified by the Goa State Agricultural Marketing Board (GSAMB) whichever is higher. In case the rates are not notified for the week by GSAMB, the last rates as notified would be considered as rate of sale in the market.

Clause 4 (iii) (c) is added after clause 4 (iii) (b) and shall be read as The maximum limit of difference amount between the assured price of Rs. 125/- and the actual sale price below the assured price shall be Rs. 25/- per kg.

Clause 4 (vi) is replaced and shall be read as “Benefit of Assured Price of Rs. 100/- per kg. of Alendo shall be provided to Alendo sold by the grower to the extent of difference between Rs. 100/- per kg. and actual price received per kg. by the farmer from sale to co-operative societies. A maximum of 800 kgs. from one ha. of area shall be provided with the benefit.

Minimum quantity to be sold by farmer to avail benefit shall not be less than 50 kgs.

Other contents of the notification remain the same. This amendment shall come into force with effect from the financial year 2020-21 onwards.

This issues with the approval of the Cabinet conveyed vide communication No. 1/16/2020-GAD-II dated 24-04-2020 from the General Administration Department, Secretariat, Porvorim-Goa and concurrence of the Finance (Expenditure) Department vide their U.O. No. 1400068943 dated 21-04-2020.

By order and in the name of the Governor of Goa.

Nevil Alphonso, Director & ex officio Joint Secretary (Agriculture).

Tonca-Caranzalem, 18th June, 2020.

Department of Fisheries

Directorate of Fisheries

Order

DF/GB/FISH BUYING AGENTS/
/2020-21/1212

Ref. Order No. DF/GB/FISH BUYING AGENTS
2020-21/1090 date 12-06-2020.

Administrative approval of Government is hereby accorded for

1. Registration of Fish Trader trading in fish in the State and Registration of all Fish Vendors who are involved in selling fish in the State.
2. The registration fees for Fish Traders in the State are as follows:

Registration Fees	Rs. 2 lakhs per year
Security Deposit	Rs. 20,000/-

3. Registration fees for all Fish Vendors are as follows:

Sr. No.	Category	Fees per year
1.	Fish seller in market and any other public places	Rs. 100/-
2.	Mobile fish seller with basket on head	Rs. 100/-
3.	Fish seller with bicycle	Rs. 200/-
4.	Fish seller with two wheeler	Rs. 500/-
5.	Fish seller with three wheeler	Rs. 1000/-
6.	Fish seller with four wheeler	Rs. 5000/-

This issued with the approval of the Government vide inward No. 2536/F dated 27-04-2020.

This order supersedes the earlier order No. DF/GB/FISH BUYING AGENTS/2020-21/1090 date 12-06-2020.

By order and in the name of the Governor of Goa.

Dr. Shamila Monteiro, Director & ex officio Joint Secretary (Fisheries).

Panaji, 17th June, 2020.

Department of Environment and Climate Change

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Notification

1/24/2010/STE-DIR/148

The following Notification published in the Gazette of India is hereby published for the general information of public:—

- (1) S.O. 633(E) dated 03-03-2014;
- (2) S.O. 634(E) dated 03-03-2014;
- (3) S.O. 630(E) dated 03-03-2014;
- (4) S.O. 631(E) dated 03-03-2014;
- (5) S.O. 632(E) dated 03-03-2014;
- (6) S.O. 635(E) dated 03-03-2014;
- (7) S.O. 615(E) dated 25-01-2015;
- (8) S.O. 616(E) dated 25-02-2015;
- (9) S.O. 221(E) dated 23-01-2015;
- (10) S.O. 608(E) dated 24-02-2015;
- (11) S.O. 555(E) dated 17-02-2015;
- (12) S.O. 607(E) dated 24-02-2015;

By order and in the name of the Governor of Goa.

Johnson B. Fernandes, Director/Joint Secretary (Environment & CC).

Porvorim, 2nd June, 2020.

MINISTRY OF ENVIRONMENT AND FORESTS**NOTIFICATION**

New Delhi, the 3rd March, 2014

S.O. 633(E).—The following draft of the notification, which the Central Government proposes to issue in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) is hereby published, as required under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, for the information of the public likely to be affected thereby; and notice is hereby given that the said draft notification shall be taken into consideration on or after the expiry of a period of sixty days from the date on which copies of the Gazette of India containing this notification are made available to the Public;

Any person interested in making any objections or suggestions on the proposals contained in the draft notification may forward the same in writing, for consideration of the Central Government within the period so specified to the Secretary, Ministry of Environment and Forest, Paryavaran Bhawan, CGO Complex, Lodi Road, New Delhi-110 003, or at e-mail address:- esz-mef@nic.in.

Draft Notification

WHEREAS, the Bondla Wildlife Sanctuary, Goa lying between latitudes 15° 26' 54.78" N and 15° 24' 42.50" N and longitudes 74° 7' 16.36" E and 74° 5' 26.60" E in the North Goa District of Goa State and extending over an area of 7.98 square kilometres, is an essential part of the Western Ghats, which is rich in biodiversity;

AND WHEREAS, the sanctuary inhabits the endangered species of wildlife like Indian bison, panther, mouse deer, spotted deer, sambhar deer, black panther, etc. and the flora of this area is represented by moist deciduous forest type;

AND WHEREAS, the forest of this Sanctuary intercepts rainfall and helps recharge ground water aquifer and protects rivers and streams against siltation by minimizing soil erosion and has a well knit network of streams spreading throughout, which are perennial or semi perennial or seasonal in nature, feeding Kushawati and Khandepar rivers;

AND WHEREAS, it is necessary to conserve and protect the area around the protected area of Bondla Wildlife Sanctuary as Eco-sensitive Zone from ecological and environmental point of view;

NOW, THEREFORE, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area of one kilometre all along the periphery of the boundary of the Bondla Wildlife Sanctuary in the State of Goa as the Eco-sensitive Zone, details of which are as under as under, namely:-

1. Extent and Boundaries of Eco-sensitive Zone.- (1) The extent of Eco-sensitive Zone is one kilometre uniformly all along the periphery of the boundary of the Bondla Wildlife Sanctuary within the State of Goa.

(2) The Eco-sensitive Zone is bounded on the North by areas of the villages Gangem, Conquirem and Melauli, on the South and West by the areas of the villages Dharbandora, Piliem and Usgaon, on the East by areas of the Villages Dharbandora and Melauli; the Ragada Nadi, a tributary of Madei River enters into the Eco-sensitive Zone on the East and passes along the Eco-sensitive Zone boundary from East towards North at few places.

(3) The map of Eco-sensitive Zone boundary together with its latitudes and longitudes is appended to this notification as **Annexure I**.

(4) The list of four villages namely, Usgao, Darbandora, Gotiakhadilwada and Melauli of Dharbandora Taluka situated outside the boundary of the Bondla Wildlife Sanctuary and falling within the Bondla Wildlife Sanctuary Eco-sensitive Zone alongwith their longitudes and latitudes at prominent points are appended to this notification as **Annexure II**.

(5) The list of villages as given in Annexure II shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

(6) The ridge habitat linking Bondla to Madei and Bhagwan Mahaveer Wildlife Sanctuary and National Park shall be protected for its corridor value under clause (g) of section 38-O of Wildlife Protection Act, 1972 (53 of 1972).

2. Zonal Master Plan for the Eco-sensitive Zone.- (1) For the purpose of effective management of the Eco-sensitive Zone, the State Government shall prepare, in consultation with local people, a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for the consideration and approval of the Ministry of Environment and Forests, Government of India.

(2) The Zonal Master Plan shall be prepared with the involvement of all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development, Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

(3) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.

(4) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, mining leases in operation, lakes and other water bodies.

(5) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.

(6) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), as referred to in para 4, for carrying out its functions of monitoring under the provisions of this notification.

(7) The Zonal Master Plan shall indicate measures and lay down stipulations for regulation of activities under column (4) of the Table specified in para 3.

(8) Change of land use of forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes into areas for commercial or industrial related development activities shall not be permitted in the Eco-sensitive Zone:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, only to meet the residential needs of the local residents arising due to the natural growth of existing local population including the activities listed at item numbers 11, 24 and 25, relating to rainwater harvesting, cottage industries including village artisans etc., and small scale industries not causing pollution respectively, specified in column (2) of the Table in para 3:

Provided further that no change in use of land from tribal usage to non-tribal usage shall be permitted without the prior approval of the State Government and without compliance of the provisions of the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007).

(9) The Central Government and the State Government may specify such other measures, as may be considered necessary, for giving effect to the provisions of this notification.

(10) **Natural Springs.-** The catchment areas of all springs shall be identified and plans for their conservation and rejuvenation of those that have run dry, in their natural setting shall be incorporated in the Zonal Master Plan and the strict guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.

(11) **Tourism.-** The activity relating to tourism within Eco-sensitive Zone shall be as under, namely:-

(i) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in line with the central guidelines issued by the National Tiger Conservation Authority, Ministry of Environment and Forests and the Ministry of Tourism, Government of India with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;

(ii) no new construction of any kind shall be allowed within the Eco-sensitive Zone;

(iii) till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC;

(iv) the tourism activities shall also form a component of the Zonal Master Plan.

(12) **Natural Heritage.-** The sites of valuable natural heritage in the Eco-sensitive Zone shall be identified and incorporated in the Zonal Master Plan; all the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. in the Eco-sensitive Zone shall be preserved; the State Government shall draw up proper plan for their protection and conservation within six months from the date of publication of this Notification and such plans shall form part of the Zonal Master Plan.

(13) **Man-made heritage sites.-** Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(14) **Noise pollution.-** The Environment Department or the State Forest Department of Goa shall be the authority to draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981).

(15) **Air Pollution.-** The Environment Department or the State Forest Department of Goa shall be the authority to draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981.

(16) **Discharge of effluents.-** The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974).

(17) **Solid Wastes.-** (1) The solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Central Government vide notification number S.O. 908 (E), dated the 25th September 2000.

(2) The local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components.

(3) The biodegradable material shall be recycled preferably through composting or vermiculture.

(4) The inorganic material shall be disposed of in an environmentally acceptable manner.

(18) **Vehicular Traffic.**- The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment and Forests, the SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

3. Activities to be prohibited and regulated within the Eco-sensitive Zone.- All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 and be regulated in the manner specified in the Table below, namely:-

Table

S.No.	Activity	Prohibited	Regulated	Permitted	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
1.	Commercial Mining, stone quarrying and crushing units.	Yes	-	-	(a) All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect.
2.	Felling of trees.	-	Yes	-	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government; (b) the felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
3.	Setting up of saw mills.	Yes	-	-	Prohibited with immediate effect.
4.	Setting up of industries causing water or air or soil or noise pollution.	Yes	-	-	Prohibited with immediate effect.
5.	Commercial establishment of hotels and resorts.	Yes	-	-	No new commercial establishment such as hotels and resorts shall be permitted within the Eco-sensitive Zone with immediate effect.
6.	Commercial use of firewood.	Yes	-	-	Prohibited with immediate effect.
7.	Commercial water resources including ground water harvesting.	-	Yes	-	(a) The extraction of surface water and ground water shall be allowed only for <i>bona fide</i> agricultural use and domestic consumption of the occupier of the land; (b) the extraction of surface water and ground water for industrial or commercial use including the amount that can be extracted, shall require prior written permission from the concerned Regulatory Authority; (c) no sale of surface water or ground water shall be permitted; (d) steps shall be taken to prevent contamination or pollution of water from any source including agriculture.

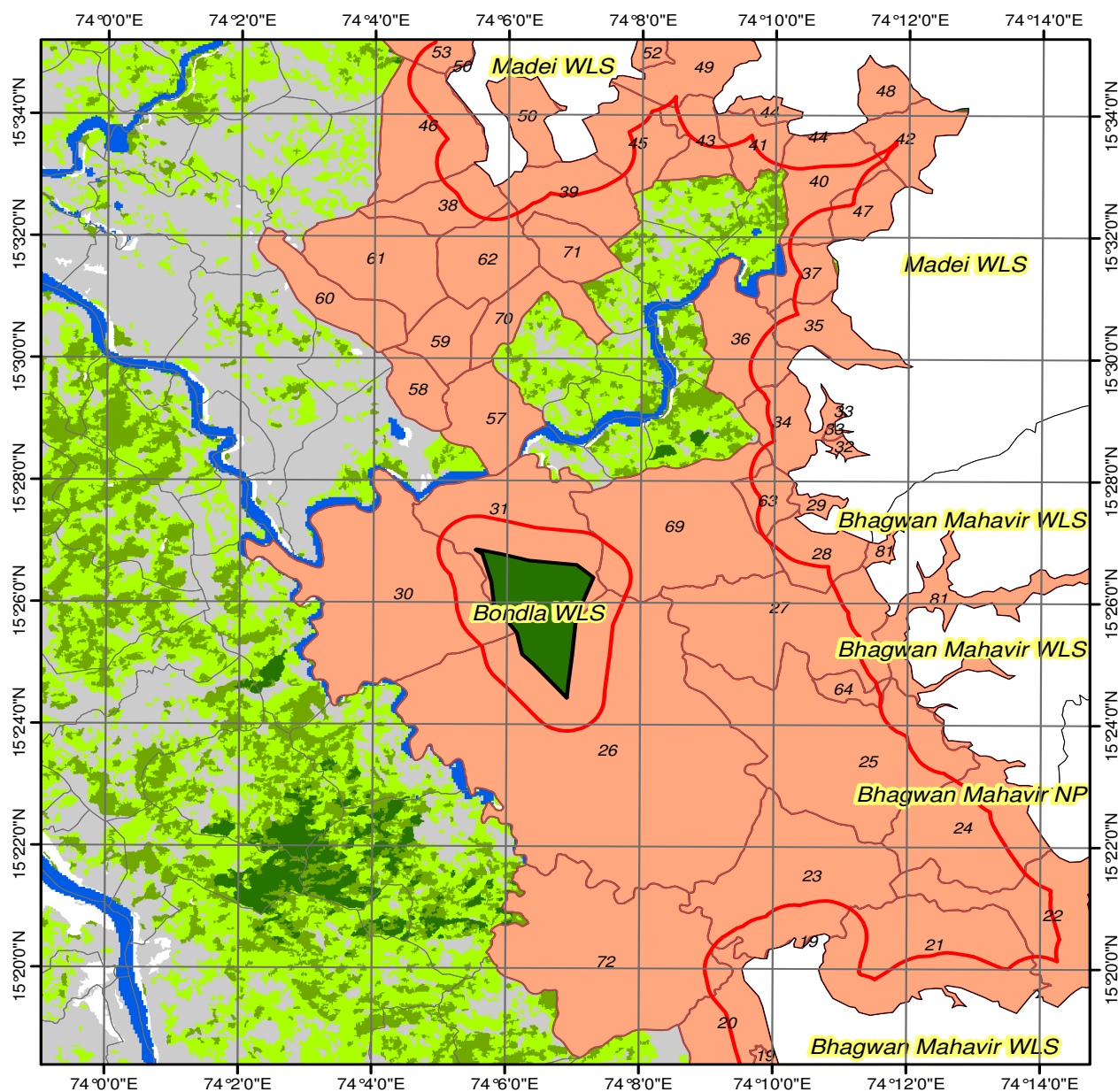
8.	Establishment of new major hydroelectric projects.	Yes	-	-	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the Eco-sensitive Zone is prohibited with immediate effect except the micro hydel power projects (Up to 100KW) or the mini hydel power projects (from 101 to 2000KW), which would serve the energy needs of the local communities, subject to consent of the concerned Gram Sabha and all other requisite clearances.
9.	Erection of electrical cables and telecommunication towers.	-	Yes	-	Promote underground cabling.
10.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	-	-	Yes	
11.	Rain water harvesting.	-	-	Yes	Shall be actively promoted.
12.	Fencing of existing premises of hotels and lodges.	-	Yes	-	
13.	Organic farming.	-	-	Yes	Shall be actively promoted.
14.	Widening and strengthening of existing roads and construction of new roads.	-	Yes	-	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
15.	Movement of vehicular traffic at night.	-	Yes	-	For commercial purpose.
16.	Introduction of exotic species.	-	Yes	-	
17.	Use or production of any hazardous substances.	Yes	-	-	Prohibited with immediate effect
18.	Undertaking activities related to tourism like over-flying the National Park area by hot-air balloons, etc.	-	Yes	-	
19.	Protection of hill	-	Yes	-	

	slopes and river banks.				
20.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Yes	-	-	Prohibited with immediate effect
21.	Discharge of treated effluents in natural water bodies or land area.	-	Yes	-	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
22.	Commercial Sign boards and hoardings.	-	Yes	-	
23.	Adoption of green technology for all activities.	-	-	Yes	Shall be actively promoted.
24.	Cottage industries including village artisans, etc.	-	-	Yes	
25.	Small scale industries not causing pollution.	-	Yes	-	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment.
26.	New wood based industry.	Yes	-	-	No establishment of new wood based industry shall be permitted within the limits of Eco-sensitive Zone with immediate effect.
27.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	-	Yes	-	
28.	Construction activities	Yes	-	-	No new construction of any kind shall be allowed within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 11 and 24. In the case of activities listed at item number 25, the construction activity shall be regulated and kept at the minimum.
29.	Use of plastic carry bags.	Yes	-	-	Prohibited with immediate effect.
30.	Brick kilns.	Yes	-	-	Prohibited with immediate effect.

- 4. State Level Eco-sensitive Zone Monitoring Committee.-** (1) The Central Government shall, for effective monitoring of the Eco-sensitive Zone, constitute a Committee to be called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa which shall comprise of:-
- (i) Chief Secretary, Government of Goa- Chairman;
 - (ii) representative of the Ministry of Environment and Forests, Regional Office, Bangalore- Member;
 - (iii) representative of the State Pollution Control Board-Member;
 - (iv) one representative of Non-governmental Organizations working in the field of environment to be nominated by the Government of Goa- Member;
 - (v) one representative of community based organization nominated by the State Government-Member;
 - (vi) five representatives of the Government of Goa from Departments of Rural Development, Agriculture, Urban Development and Housing, Mining and Ports and Transport-Members;
 - (vii) one expert in Ecology from reputed Institution or University of the State of Goa- Member;
 - (viii) concerned District Collector-Member;
 - (ix) concerned Wildlife Warden – Member; and
 - (x) Director, Department of Environment, Government of Goa – Member Secretary.
- (2) The SESZMC shall monitor the compliance of the provisions of this notification.
- (3) The activities that are covered in the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except the prohibited activities as specified in column(3) of the Table under para 3, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment and Forests for prior environmental clearances under the provisions of the said notification.
- (4) The activities that are not covered in the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 but are falling in the Eco-sensitive Zone, except the prohibited activities as specified in column(3) of the Table under para 3, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the concerned Regulatory Authorities.
- (5) The Chairman or the Member Secretary of the SESZMC shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.
- (6) The SESZMC may invite representatives or experts from concerned Departments, representatives from Industry Associations or concerned stakeholders to assist it in its deliberations depending on the requirements on issue to issue basis.
- (7) The SESZMC shall submit the annual action taken report of its activities by 31st March of every year to the Central Government in the Ministry of Environment and Forests.
- (8) The Central Government in the Ministry of Environment and Forests may give such directions, as it deems fit, to the SESZMC for effective discharge of its functions.
5. The provisions of this Notification are subject to the orders, if any, passed, or to be passed, by the Hon'ble Supreme Court of India or the High Court.

Annexure I

Map of Bondla Wildlife Sanctuary Eco-sensitive Zone showing



Latitudes-Longitudes.

LEGEND

	ESZ Boundary (1 km Radial Distance)	Forest Cover (FSI)
	Protected Areas	 Moderately Dense
	Village boundaries	 Open
	Eco-sensitive Villages	 Very Dense
	Water bodies	 Non-forest

Annexure II**List of villages falling within the Eco-sensitive Zone alongwith their longitudes and latitudes of prominent points**

List of Villages partially within the ESZ Boundary

Village ID	Village Name	Longitude	Latitude
26	DARBANDORA	74.12273	15.3929
30	Usgaon	74.06997	15.43558
31	Gotiakhadilwada	74.10235	15.45583
69	MELAVALI	74.14275	15.45413

List of Villages not within ESZ Boundary but having
Corridor value

Village ID	Village Name	Longitude	Latitude
57	Vante Gaonkarwada	74.09542	15.484
58	Panse	74.07736	15.49142
59	Wagure	74.08457	15.50575
60	Ovalaven	74.05667	15.51641
61	Pissurle	74.06768	15.52635
70	HASOLE	74.106	15.51227
71	Valpoy	74.11521	15.52975

[F. No. 25/36/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

MINISTRY OF ENVIRONMENT AND FORESTS

NOTIFICATION

New Delhi, the 3rd March, 2014

S.O. 634(E).—The following draft of the notification, which the Central Government proposes to issue in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) is hereby published, as required under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, for the information of the public likely to be affected thereby; and notice is hereby given that the said draft notification shall be taken into consideration on or after the expiry of a period of sixty days from the date on which copies of the Gazette of India containing this notification are made available to the Public;

Any person interested in making any objections or suggestions on the proposals contained in the draft notification may forward the same in writing, for consideration of the Central Government within the period so specified to the Secretary, Ministry of Environment and Forest, Paryavaran Bhawan, CGO Complex, Lodi Road, New Delhi-110 003, or at e-mail address:- esz-mef@nic.in.

Draft Notification

WHEREAS, the Dr. Salim Ali Bird Sanctuary, Goa lying between latitudes $15^{\circ} 31' 36.03''$ N and $15^{\circ} 30' 35.35''$ N and longitudes $73^{\circ} 52' 14.31''$ E and $73^{\circ} 50' 44.12''$ E in the North Goa District of Goa State and extending over an area of 1.78 square kilometres, is a rich mangrove formation at the confluence of Mapusa river and Mandovi river.

AND WHEREAS, the sanctuary exclusively shelters varieties of amphibians, otters, crocodiles, varieties of fish, aquatic birds, shore birds and arboreal birds and reptiles, fruit bat (*Pteropus* spp.) commonly occur in the area, migratory birds, adjutant storks and raptorial birds like osprey visit the protected area annually;

AND WHEREAS, the mangrove forest of this sanctuary holds and protects the rich soil underneath from washing away and provides exclusively excellent place for the said varieties of wildlife to breed and shelter;

AND WHEREAS it is necessary to conserve and protect the area around the protected area of Dr. Salim Ali Bird Sanctuary as Eco-sensitive Zone from ecological and environmental point of view;

NOW, THEREFORE, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area of one kilometre all along the periphery of the boundary of the Dr. Salim Ali Bird Sanctuary in the State of Goa as the Eco-sensitive Zone, details of which are as under, namely:—

1. **Extent and Boundaries of Eco-sensitive Zone.**— (1) The extent of Eco-sensitive Zone is one kilometre uniformly all along the periphery of the boundary of the Dr. Salim Ali Bird Sanctuary within the State of Goa.
- (2) The Eco-sensitive Zone is bounded on the three sides i.e, North, West and South by the Mapusa river and the Mandovi river and the village Chorao of Tiswadi Taluka is located towards the Eastern side.
- (3) The map of Eco-sensitive Zone boundary together with its latitudes and longitudes is appended to this notification as **Annexure I**.
- (4) The Chorao village of Tiswadi Taluka situated outside the boundary of the Dr. Salim Ali Bird Sanctuary and falling within the Dr. Salim Ali Bird Sanctuary Eco-sensitive Zone alongwith their longitudes and latitudes at prominent points are appended to this noitfication as **Annexure II**.

(5) The list of village(s) given in Annexure II shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

2. Zonal Master Plan for the Eco-sensitive Zone.- (1) For the purpose of effective management of the Eco-sensitive Zone, the State Government shall prepare, in consultation with local people, a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for the consideration and approval of the Ministry of Environment and Forests, Government of India.

(2) The Zonal Master Plan shall be prepared with the involvement of all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development, Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

(3) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.

(4) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, mining leases in operation, lakes and other water bodies.

(5) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.

(6) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), as referred to in para 4, for carrying out its functions of monitoring under the provisions of this notification.

(7) The Zonal Master Plan shall indicate measures and lay down stipulations for regulations of activities under column (4) of the Table specified in para 3.

(8) Change of land use of forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes into areas for commercial or industrial related development activities shall not be permitted in the Eco-sensitive Zone:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, only to meet the residential needs of the local residents arising due to the natural growth of existing local population including the activities listed at item numbers 11, 24 and 25, relating to rainwater harvesting, cottage industries including village artisans etc. and small scale industries not causing pollution, respectively, as specified in column (2) of the Table in para 3:

Provided further that no change in use of land from tribal usage to non-tribal usage shall be permitted without the prior approval of the State Government and without compliance of the provisions of the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007).

(9) The Central Government and the State Government may specify such other measures, as may be considered necessary, for giving effect to the provisions of this notification.

(10) **Natural Springs.-** The catchment areas of all springs shall be identified and plans for their conservation and rejuvenation of those that have run dry, in their natural setting shall be incorporated in the Zonal Master Plan and the strict guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.

(11) **Tourism.-** The activity relating to tourism within Eco-sensitive Zone shall be as under, namely:-

(i) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in line with the central guidelines issued by the National Tiger Conservation Authority, Ministry of Environment and Forests and the Ministry of Tourism, Government of India with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;

(ii) no new construction of any kind shall be allowed within the Eco-sensitive Zone;

(iii) till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC;

(iv) the tourism activities shall also form a component of the Zonal Master Plan.

(12) **Natural Heritage.-** The sites of valuable natural heritage in the Eco-sensitive Zone shall be identified and incorporated in the Zonal Master Plan; all the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. in the Eco-sensitive Zone shall be preserved; the State Government shall draw up proper plan for their protection and conservation within six months from the date of publication of this Notification and such plans shall form part of the Zonal Master Plan.

(13) **Man-made heritage sites.-** Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(14) **Noise pollution.-** The Environment Department or the State Forest Department of Goa shall be the authority to draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981(14 of 1981).

(15) **Air Pollution.-** The Environment Department or the State Forest Department of Goa shall be the authority to draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981.

(16) **Discharge of effluents.-** The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974(6 of 1974).

(17) **Solid Wastes.-** (1) The solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Central Government vide notification number S.O. 908 (E), dated the 25th September 2000.

(2) The local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components.

(3) The biodegradable material shall be recycled preferably through composting or vermiculture.

(4) The inorganic material shall be disposed of in an environmentally acceptable manner.

(18) **Vehicular Traffic.-** The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment and Forests, the SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

3. Activities to be prohibited and regulated within the Eco-sensitive Zone.- All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 and be regulated in the manner specified in the Table below, namely:-

TABLE

S.No. (1)	Activity (2)	Prohibited (3)	Regulated (4)	Permitted (5)	Remarks (6)
1.	Commercial Mining, stone quarrying and crushing units.	Yes	-	-	(a) All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect.
2.	Felling of trees.	-	Yes	-	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government; (b) the felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
3.	Setting up of saw mills.	Yes	-	-	Prohibited with immediate effect.
4.	Setting up of	Yes	-	-	Prohibited with immediate effect.

	industries causing water or air or soil or noise pollution.				
5.	Commercial establishment of hotels and resorts.	Yes	-	-	No new commercial establishment such as hotels and resorts shall be permitted within the Eco-sensitive Zone with immediate effect.
6.	Commercial use of firewood.	Yes	-	-	Prohibited with immediate effect.
7.	Commercial water resources including ground water harvesting.	-	Yes	-	(a) The extraction of surface water and ground water shall be allowed only for <i>bona fide</i> agricultural use and domestic consumption of the occupier of the land; (b) the extraction of surface water and ground water for industrial or commercial use including the amount that can be extracted, shall require prior written permission from the concerned Regulatory Authority; (c) no sale of surface water or ground water shall be permitted; (d) steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
8.	Establishment of new major hydroelectric projects.	Yes	-	-	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the Eco-sensitive Zone is prohibited with immediate effect, except the micro hydel power projects (Up to 100KW) or the mini hydel power projects (from 101 to 2000KW), which would serve the energy needs of the local communities, subject to consent of the concerned Gram Sabha and all other requisite clearances.
9.	Erection of electrical cables and telecommunication towers.	-	Yes	-	Promote underground cabling.
10.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	-	-	Yes	
11.	Rain water	-	-	Yes	Shall be actively promoted.

	harvesting.				
12.	Fencing of existing premises of hotels and lodges.	-	Yes	-	
13.	Organic farming.	-	-	Yes	Shall be actively promoted.
14.	Widening and strengthening of existing roads and construction of new roads.	-	Yes	-	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
15.	Movement of vehicular traffic at night.	-	Yes	-	For commercial purpose.
16.	Introduction of exotic species.	-	Yes	-	
17.	Use or production of any hazardous substances.	Yes	-	-	Prohibited with immediate effect
18.	Undertaking activities related to tourism like over-flying the National Park area by hot-air balloons, etc.	-	Yes	-	
19.	Protection of hill slopes and river banks.	-	Yes	-	
20.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Yes	-	-	Prohibited with immediate effect
21.	Discharge of treated effluents in natural water bodies or land area.	-	Yes	-	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
22.	Commercial Sign boards and hoardings.	-	Yes	-	
23.	Adoption of green technology for all activities.	-	-	Yes	Shall be actively promoted.
24.	Cottage industries including village artisans, etc.	-	-	Yes	
25.	Small scale industries not causing pollution.	-	Yes	-	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture,

					horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment.
26.	New wood based industry.	Yes	-	-	No establishment of new wood based industry shall be permitted within the limits of Eco-sensitive Zone with immediate effect.
27.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	-	Yes	-	
28.	Construction activities	Yes	-	-	No new construction of any kind shall be allowed within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 11 and 24. In the case of activities listed at item number 25, the construction activity shall be regulated and kept at the minimum.
29.	Use of plastic carry bags.	Yes	-	-	Prohibited with immediate effect.
30.	Brick kilns.	Yes	-	-	Prohibited with immediate effect.
31.	Transportation by waterways.	-	Yes	-	
32.	Traditional fishing.	-	-	Yes	Permitted with restrictions and laws prevailing in the State.
33.	Fishing by trawlers in untraditional manner as a large scale commercial activity.	Yes	-	-	Prohibited with immediate effect.

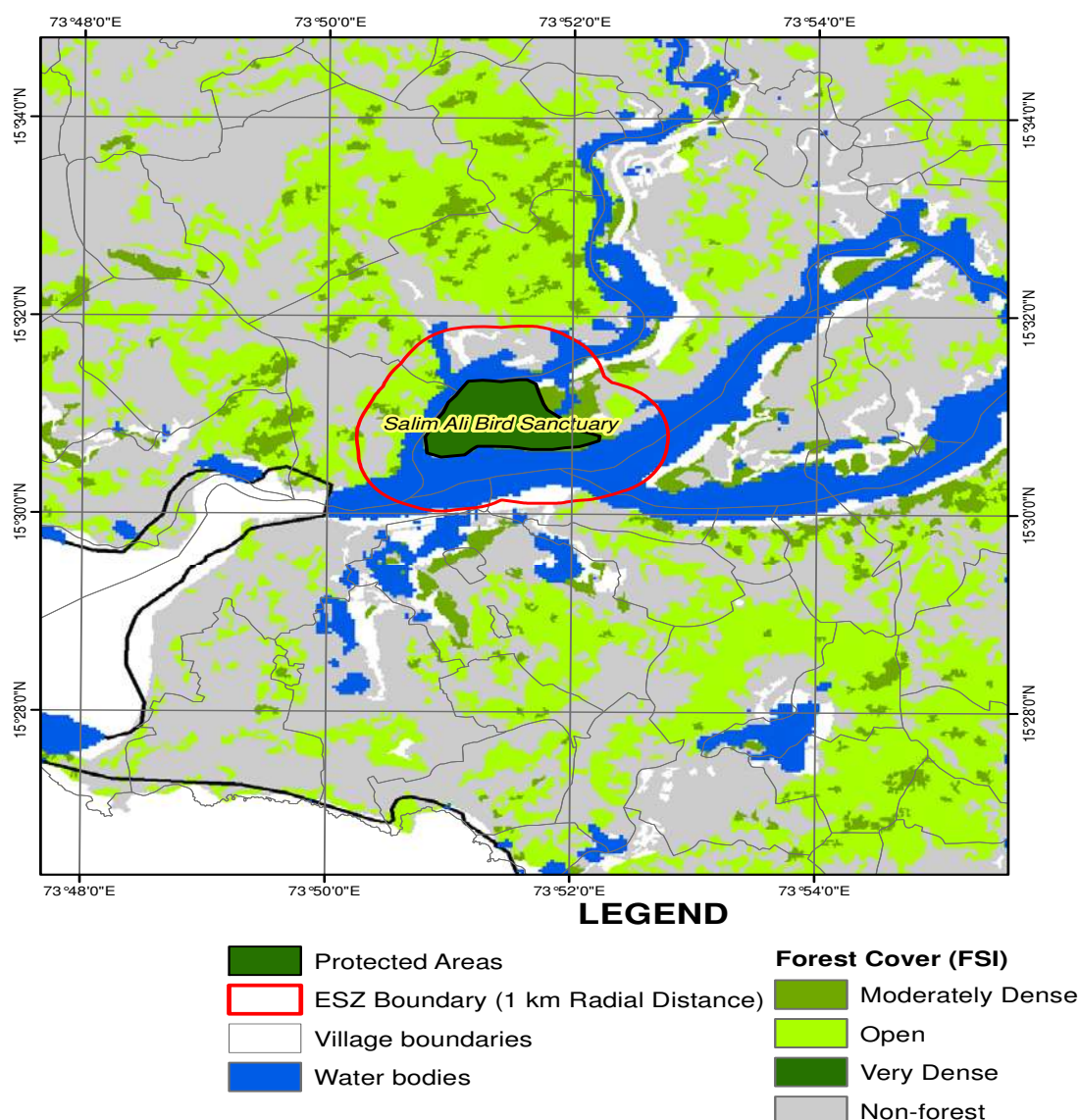
4. State Level Eco-sensitive Zone Monitoring Committee.- (1) The Central Government shall, for effective monitoring of the Eco-sensitive Zone, constitute a Committee to be called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa which shall comprise of:-

- (i) Chief Secretary, Government of Goa- Chairman;
- (ii) Representative of the Ministry of Environment and Forests, Regional Office, Bangalore- Member;
- (iii) Representative of the State Pollution Control Board-Member;
- (iv) One representative of Non-governmental Organizations working in the field of environment to be nominated by the Government of Goa- Member;
- (v) One representative of community based organization nominated by the State Government-Member;
- (vi) Five representatives of the Government of Goa from Departments of Rural Development, Agriculture, Urban Development and Housing, Mining and Ports and Transport-Members;
- (vii) One expert in Ecology from reputed Institution or University of the State of Goa- Member;
- (viii) Concerned District Collector-Member;
- (ix) Concerned Wildlife Warden – Member; and
- (x) Director, Department of Environment, Government of Goa – Member Secretary.

(2) The SESZMC shall monitor the compliance of the provisions of this notification.

(3) The activities that are covered in the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except the prohibited activities as specified in column (3) of the Table under para 3, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment and Forests for prior environmental clearances under the provisions of the said notification.

- (4) The activities that are not covered in the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 but are falling in the Eco-sensitive Zone, except the prohibited activities as specified in column(3) of the Table under para 3, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the concerned Regulatory Authorities.
 - (5) The Chairman or the Member Secretary of the SESZMC shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.
 - (6) The SESZMC may invite representatives or experts from concerned Departments, representatives from Industry Associations or concerned stakeholders to assist it in its deliberations depending on the requirements on issue to issue basis.
 - (7) The SESZMC shall submit the annual action taken report of its activities by 31st March of every year to the Central Government in the Ministry of Environment and Forests.
 - (8) The Central Government in the Ministry of Environment and Forests may give such directions, as it deems fit, to the SESZMC for effective discharge of its functions.
5. The provisions of this Notification are subject to the orders, if any, passed, or to be passed, by the Hon'ble Supreme Court of India or the High Court.

Annexure I**Map of Dr. Salim Ali Bird Sanctuary Eco-sensitive Zone showing latitudes-longitudes**

Village falling within the Dr. Salim Ali Wildlife Sanctuary Eco-sensitive Zone alongwith their longitudes and latitudes of prominent points

PROMINENT POINTS IN THE VILLAGES OF ESZ OF DR. SALIM ALI WLS				
S.No.	Village Name	Description	Latitude	Longitude
1.	Chorao	Chorao Ferry	15°30'21.06"N	74°51'51.22"E

[F. No. 25/37/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

MINISTRY OF ENVIRONMENT AND FORESTS

NOTIFICATION

New Delhi, the 3rd March, 2014

S.O.630(E).— The following draft of the notification, which the Central Government proposes to issue in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) is hereby published, as required under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, for the information of the public likely to be affected thereby; and notice is hereby given that the said draft notification shall be taken into consideration on or after the expiry of a period of sixty days from the date on which copies of the Gazette of India containing this notification are made available to the Public;

Any person interested in making any objections or suggestions on the proposals contained in the draft notification may forward the same in writing, for consideration of the Central Government within the period so specified to the Secretary, Ministry of Environment and Forest, Paryavaran Bhawan, CGO Complex, Lodi Road, New Delhi-110 003, or at e-mail address:- esz-mef@nic.in.

Draft Notification

WHEREAS, the Cotigao Wildlife Sanctuary, Goa lying between latitudes 15° 2' 43.25'' N and 14° 55' 33.54'' N and longitudes 74° 15' 55.07'' E and 74° 7' 22.20'' E in the South Goa District of Goa State and extending over an area of 85.65 square kilometres, is an essential part of the Western Ghats, which is rich in biodiversity;

And whereas, the sanctuary inhabits the endangered species of wildlife like Indian bison, tiger, panther, mouse deer, black panther, slender loris, bear, wild dog, etc;

And whereas, the forest of this Sanctuary intercepts rainfall and helps recharge ground water aquifer and protects rivers and streams against siltation by minimising soil erosion and has a well knit network of streams spreading throughout which are perennial or semi perennial or seasonal in nature, feeding Cotigao river, its tributaries and the various other water bodies including wells situated in the low lying areas;

And whereas, it is necessary to conserve and protect the area around the Cotigao Wildlife Sanctuary as Eco-sensitive Zone from ecological and environmental point of view;

Now, therefore, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area of three kilometres all along the periphery of the boundary of the Cotigao Wild Life Sanctuary in the State of Goa as the Eco-sensitive Zone, details of which are as under, namely:—

1. Extent and Boundaries of Eco-sensitive Zone.- (1) The extent of Eco-sensitive Zone is three kilometres uniformly all along the periphery of the boundary of the Cotigao Wildlife Sanctuary within the State of Goa. (2) The Eco-sensitive Zone is bounded on the North by Netravali Wild Life Sanctuary, on the South by Karnataka State, on the East by the Cotigao Wild Life Sanctuary and on the West by remaining part of Cotigao, Poinguinim and Gaodongrem villages.

(3) The map of Eco-sensitive Zone boundary together with its latitudes and longitudes is appended to this notification as **Annexure I**.

(4) The list of the three villages namely Poingoinim, Gaodongrem, and Cotigao situated outside the boundary of the Cotigao Wildlife Sanctuary and partially falling within the Cotigao Wildlife Sanctuary Eco-sensitive Zone alongwith their longitudes and latitudes at prominent points are appended to this notification as **Annexure II**.

(5) The list of villages as given in Annexure II shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

2. Zonal Master Plan for the Eco-sensitive Zone.- (1) For the purpose of effective management of the Eco-sensitive Zone, the State Government shall prepare, in consultation with local people, a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for the consideration and approval of the Ministry of Environment and Forests, Government of India.

(2) The Zonal Master Plan shall be prepared with the involvement of all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development, Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

(3) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.

(4) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, mining leases in operation, lakes and other water bodies.

(5) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.

(6) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), as referred to in para 4, for carrying out its functions of monitoring under the provisions of this notification.

(7) The Zonal Master Plan shall indicate measures and lay down stipulations for regulation of activities under column (4) of the Table specified in para 3.

(8) Change of land use of forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes into areas of commercial or industrial related development activities shall not be permitted in the Eco-sensitive Zone:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, only to meet the residential needs of the local residents arising due to the natural growth of existing local population including the activities listed at item numbers 11, 24 and 25, relating to rainwater harvesting, cottage industries including village artisans etc. and small scale industries not causing pollution, respectively, as specified in column (2) of the Table in para 3:

Provided further that no change in use of land from tribal usage to non-tribal usage shall be permitted without the prior approval of the State Government and without compliance of the provisions of the law for the time being in force including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007).

(9) The Central Government and the State Government may specify such other measures, as may be considered necessary, for giving effect to the provisions of this notification.

(10) Natural Springs.- The catchment areas of all springs shall be identified and plans for their conservation and rejuvenation of those that have run dry, in their natural setting shall be incorporated in the Zonal Master Plan and the strict guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.

(11) **Tourism.-** The activity relating to tourism within Eco-sensitive Zone shall be as under, namely:-

- (i) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in line with the central guidelines issued by the National Tiger Conservation Authority, Ministry of Environment and Forests and the Ministry of Tourism, Government of India with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;
- (ii) no new construction of any kind shall be allowed within the Eco-sensitive Zone;
- (iii) till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC;
- (iv) the tourism activities shall also form a component of the Zonal Master Plan.

(12) **Natural Heritage.-** The sites of valuable natural heritage in the Eco-sensitive Zone shall be identified and incorporated in the Zonal Master Plan; all the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. in the Eco-sensitive Zone shall be preserved; the State Government shall draw up proper plan for their protection and conservation within six months from the date of publication of this Notification and such plans shall form part of the Zonal Master Plan.

(13) **Man-made heritage sites.-** Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(14) **Noise pollution.-** The Environment Department or the State Forest Department of Goa shall be the authority to draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981(14 of 1981).

(15) **Air Pollution.-** The Environment Department or the State Forest Department of Goa shall be the authority to draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981.

(16) **Discharge of effluents.-** The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974(6 of 1974).

(17) **Solid Wastes.-** (1) The solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Central Government vide notification number S.O. 908 (E), dated the 25th September 2000.

(2) The local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components.

(3) The biodegradable material shall be recycled preferably through composting or vermiculture.

(4) The inorganic material shall be disposed of in an environmentally acceptable manner.

(18) **Vehicular Traffic.-** The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment and Forests, the SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

3. Activities to be prohibited and regulated within the Eco-sensitive Zone.- All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 and be regulated in the manner specified in the Table below, namely: —

TABLE

S.No.	Activity	Prohibited	Regulated	Permitted	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
1.	Commercial Mining, stone quarrying and crushing units.	Yes	-	-	(a) All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect.
2.	Felling of trees.	-	Yes	-	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government; (b) the felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
3.	Setting up of saw mills.	Yes	-	-	Prohibited with immediate effect.
4.	Setting up of industries causing water or air or soil or noise pollution.	Yes	-	-	Prohibited with immediate effect.
5.	Commercial establishment of hotels and resorts.	Yes	-	-	No new commercial establishment such as hotels and resorts shall be permitted within the Eco-sensitive Zone with immediate effect.
6.	Commercial use of firewood.	Yes	-	-	Prohibited with immediate effect.
7.	Commercial water resources including ground water harvesting.	-	Yes	-	(a) The extraction of surface water and ground water shall be allowed only for <i>bona fide</i> agricultural use and domestic consumption of the occupier of the land; (b) the extraction of surface water and ground water for industrial or commercial use including the amount that can be extracted, shall require prior written permission from the concerned Regulatory Authority; (c) no sale of surface water or ground water shall be permitted; (d) steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
8.	Establishment of new major hydroelectric projects.	Yes	-	-	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the Eco-sensitive Zone is prohibited with immediate effect, except the micro hydel power projects (Up to 100KW) or the mini hydel power projects (from 101 to 2000KW), which would serve the energy needs of the local communities, subject to consent of the concerned Gram Sabha and all other requisite clearances.

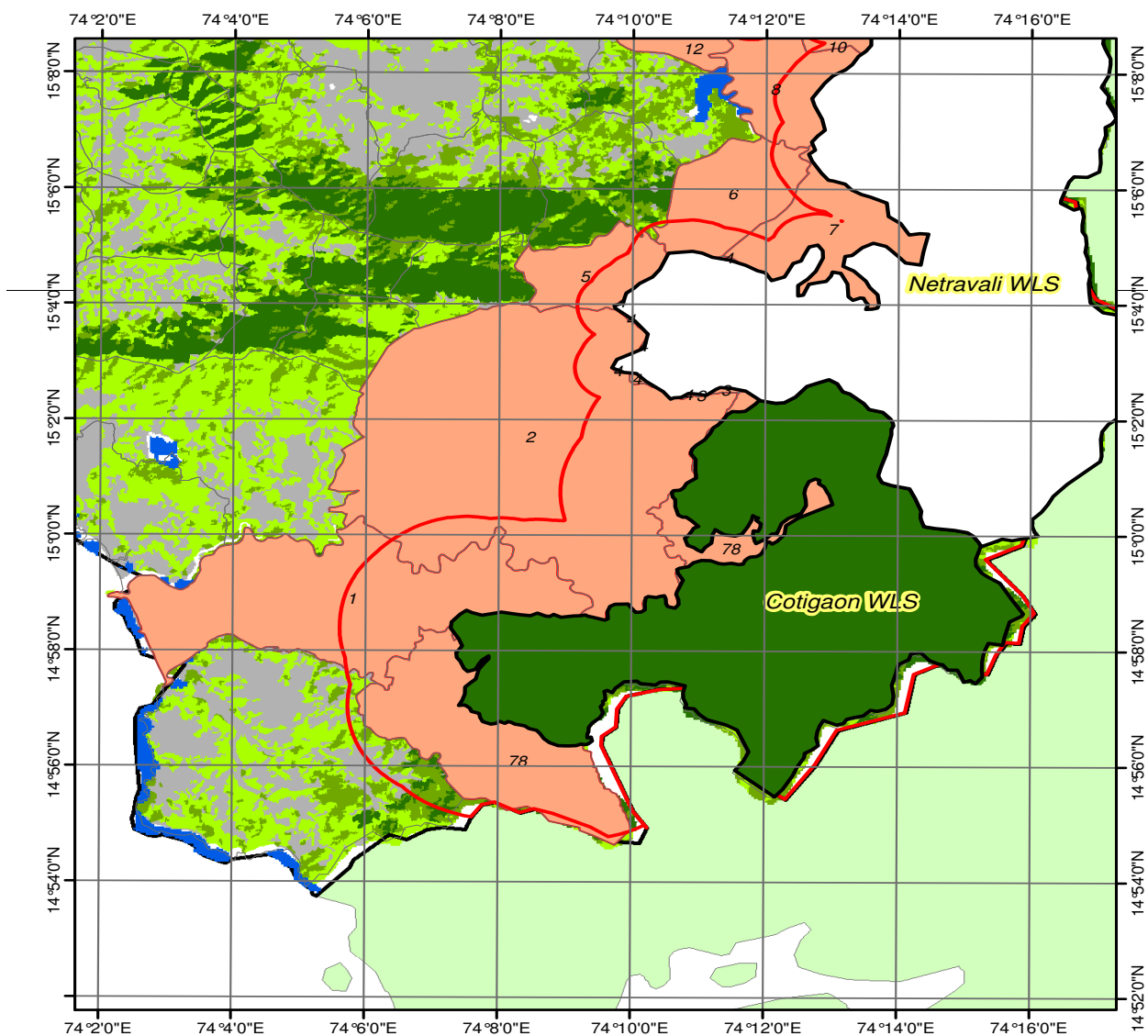
9.	Erection of electrical cables and tele-communication towers.	-	Yes	-	Promote underground cabling.
10.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	-	-	Yes	
11.	Rain water harvesting.	-	-	Yes	Shall be actively promoted.
12.	Fencing of existing premises of hotels and lodges.	-	Yes	-	
13.	Organic farming.	-	-	Yes	Shall be actively promoted.
14.	Widening and strengthening of existing roads and construction of new roads.	-	Yes	-	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
15.	Movement of vehicular traffic at night.	-	Yes	-	For commercial purpose.
16.	Introduction of exotic species.	-	Yes	-	
17.	Use or production of any hazardous substances.	Yes	-	-	Prohibited with immediate effect
18.	Undertaking activities related to tourism like over-flying the National Park area by hot-air balloons, etc.	-	Yes	-	
19.	Protection of hill slopes and river banks.	-	Yes	-	
20.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Yes	-	-	Prohibited with immediate effect
21.	Discharge of treated effluents in natural water bodies or land area.	-	Yes	-	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
22.	Commercial Sign boards and hoardings.	-	Yes	-	
23.	Adoption of green technology for all activities.	-	-	Yes	Shall be actively promoted.
24.	Cottage industries including village artisans, etc.	-	-	Yes	
25.	Small scale industries not causing pollution.	-	Yes	-	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment.
26.	New wood based industry.	Yes	-	-	No establishment of new wood based industry shall be permitted within the limits of Eco-sensitive Zone with immediate effect.

27.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	-	Yes	-	
28.	Construction activities	Yes	-	-	No new construction of any kind shall be allowed within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 11 and 24. In the case of activities listed at item number 25, the construction activity shall be regulated and kept at the minimum.
29.	Use of plastic carry bags.	Yes	-	-	Prohibited with immediate effect.
30.	Brick kilns.	Yes	-	-	Prohibited with immediate effect.

4. State Level Eco-sensitive Zone Monitoring Committee.- (1) The Central Government shall, for effective monitoring of the Eco-sensitive Zone, constitute a Committee to be called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa which shall comprise of:-

- (i) Chief Secretary, Government of Goa- Chairman;
 - (ii) Representative of the Ministry of Environment and Forests, Regional Office, Bangalore- Member;
 - (iii) Representative of the State Pollution Control Board- Member;
 - (iv) One representative of Non-governmental Organizations working in the field of environment to be nominated by the Government of Goa- Member;
 - (v) One representative of community based organization nominated by the State Government- Member;
 - (vi) Five representatives of the Government of Goa from Departments of Rural Development, Agriculture, Urban Development and Housing, Mining and Ports and Transport- Members;
 - (vii) One expert in Ecology from reputed Institution or University of the State of Goa- Member;
 - (viii) Concerned District Collector- Member;
 - (ix) Concerned Wildlife Warden- Member; and
 - (x) Director, Department of Environment, Government of Goa- Member Secretary.
- (2) The SESZMC shall monitor the compliance of the provisions of this notification.
 - (3) The activities that are covered in the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except the prohibited activities as specified in column(3) of the Table under para 3, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment and Forests for prior environmental clearances under the provisions of the said notification.
 - (4) The activities that are not covered in the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 but are falling in the Eco-sensitive Zone, except the prohibited activities as specified in column(3) of the Table under para 3, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the concerned Regulatory Authorities.
 - (5) The Chairman or the Member Secretary of the SESZMC shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.
 - (6) The SESZMC may invite representatives or experts from concerned Departments, representatives from Industry Associations or concerned stakeholders to assist it in its deliberations depending on the requirements on issue to issue basis.
 - (7) The SESZMC shall submit the annual action taken report of its activities by 31st March of every year to the Central Government in the Ministry of Environment and Forests.

- (8) The Central Government in the Ministry of Environment and Forests may give such directions, as it deems fit, to the SESZMC for effective discharge of its functions.
5. The provisions of this Notification are subject to the orders, if any, passed, or to be passed, by the Hon'ble Supreme Court of India or the High Court.

Annexure I**Map of Cotigaon Eco-sensitive Zone boundary****LEGEND**

- ESZ Boundary (3 km Radial)
- Protected Areas
- Village boundaries
- Eco-sensitive Villages
- Water bodies

Forest Cover (FSI)

- Moderately Dense
- Open
- Very Dense
- Non-forest

Annexure II

List of the villages falling within the Cotigao Wildlife Sanctuary Eco-sensitive Zone alongwith their longitudes and latitudes of prominent points**List of Villages partially within the ESZ Boundary**

Village ID	Village Name	Longitude	Latitude
1	Poingunin	74.09336	14.98153
2	Gaundongren	74.14025	15.02487
78	Contigao	74.14111	14.95118

[F. No. 25/32/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

MINISTRY OF ENVIRONMENT AND FORESTS**NOTIFICATION**

New Delhi, the 3rd March, 2014

S.O.631(E).— The following draft of the notification, which the Central Government proposes to issue in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) is hereby published, as required under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, for the information of the public likely to be affected thereby; and notice is hereby given that the said draft notification shall be taken into consideration on or after the expiry of a period of sixty days from the date on which copies of the Gazette of India containing this notification are made available to the Public;

Any person interested in making any objections or suggestions on the proposals contained in the draft notification may forward the same in writing, for consideration of the Central Government within the period so specified to the Secretary, Ministry of Environment and Forest, Paryavaran Bhawan, CGO Complex, Lodi Road, New Delhi-110 003, or at e-mail address:- esz-mef@nic.in.

Draft Notification

WHEREAS, the Netravali Wildlife Sanctuary, Goa lying between latitudes 15° 16' 7.80" N and 14° 59' 54.49" N and longitudes 74° 19' 3.75" E and 74° 10' 6.66" E in the South Goa District of Goa State and extending over an area of 211.05 square kilometres, is an essential part of the Western Ghats, which is rich in biodiversity;

AND WHEREAS, the sanctuary inhabits the endangered species of wildlife like Indian bison, tiger, panther, mouse deer, black panther, slender loris, wild dogs, bears, etc.;

AND WHEREAS, the forest of this Sanctuary intercepts rainfall and helps recharge ground water aquifer and protects rivers and streams against siltation by minimising soil erosion and has a well knit network of streams spreading throughout which are perennial or semi perennial or seasonal in nature, feeding Netravali river, salaulim reservoir and its canals;

AND WHEREAS, it is necessary to conserve and protect the area around the protected area of Netravali Wildlife Sanctuary as Eco-sensitive Zone from ecological and environmental point of view;

NOW, THEREFORE, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area of one kilometre all along the periphery of the boundary of the Netravali Wild Life Sanctuary, in the State of Goa as the Eco-sensitive Zone, the details of which are as under, namely:-

1. Extent and Boundaries of Eco-sensitive Zone.- (1) The extent of Eco-sensitive Zone is one kilometre uniformly all along the periphery of the boundary of the Netravali Wildlife Sanctuary within the State of Goa.

(2) The Eco-sensitive Zone is bounded on the North by the boundary of the Bhagwan Mahaveer Wildlife Sanctuary, on the South by the boundary of Cotigao Wildlife Sanctuary, on the East by the boundary of Netravali Wild Life Sanctuary and on the West by Salaulim reservoir and the balance areas of villages of Sanguem Taluka.

(3) The map of Eco-sensitive Zone boundary together with its latitudes and longitudes is appended to this notification as **Annexure I**.

(4) The list of five villages namely Nune, Dongar, Vilyan, Bati, Kumbari, situated outside the boundary of the Netravali Wildlife Sanctuary and completely falling within the Netravali Wildlife Sanctuary Eco-sensitive Zone boundary and the list of thirteen villages falling partially within the Eco-sensitive Zone boundary of the Netravali Wildlife Sanctuary alongwith their longitudes and latitudes at prominent points are appended to this notification as **Annexure II**.

(5) The list of villages as given in Annexure II shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

2. Zonal Master Plan for the Eco-sensitive Zone.- (1) For the purpose of effective management of the Eco-sensitive Zone, the State Government shall prepare, in consultation with local people, a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for the consideration and approval of the Ministry of Environment and Forests, Government of India.

(2) The Zonal Master Plan shall be prepared with the involvement of all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development, Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

(3) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.

(4) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, mining leases in operation, lakes and other water bodies.

(5) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.

(6) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), as referred to in para 4, for carrying out its functions of monitoring under the provisions of this notification.

(7) The Zonal Master Plan shall indicate measures and lay down stipulations for regulation of activities under column (4) of the Table specified in para 3.

(8) Change of land use of forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes into areas for commercial or industrial related development activities shall not be permitted in the Eco-sensitive Zone:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, only to meet the residential needs of the local residents arising due to the natural growth of existing local population including the activities listed at item numbers 11, 24 and 25, relating to rainwater harvesting, cottage industries including village artisans etc. and small scale industries not causing pollution respectively, as specified in column (2) of the Table in para 3:

Provided further that no change in use of land from tribal usage to non-tribal usage shall be permitted without the prior approval of the State Government and without compliance of the provisions of the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007).

(9) The Central Government and the State Government may specify such other measures, as may be considered necessary, for giving effect to the provisions of this notification.

(10) **Natural Springs.-** The catchment areas of all springs shall be identified and plans for their conservation and rejuvenation of those that have run dry, in their natural setting shall be incorporated in the Zonal Master Plan and the strict guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.

(11) **Tourism.-** The activity relating to tourism within Eco-sensitive Zone shall be as under, namely:-

(i) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in line with the central guidelines issued by the National Tiger Conservation Authority, Ministry of Environment and Forests and the Ministry of Tourism, Government of India with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;

(ii) no new construction of any kind shall be allowed within the Eco-sensitive Zone;

(iii) till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC;

(iv) the tourism activities shall also form a component of the Zonal Master Plan.

(12) **Natural Heritage.-** The sites of valuable natural heritage in the Eco-sensitive Zone shall be identified and incorporated in the Zonal Master Plan; all the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. in the Eco-sensitive Zone shall be preserved; the State Government shall draw up proper plan for their protection and conservation within six months from the date of publication of this Notification and such plans shall form part of the Zonal Master Plan.

(13) **Man-made heritage sites.-** Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(14) **Noise pollution.-** The Environment Department or the State Forest Department of Goa shall be the authority to draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981).

(15) **Air Pollution.-** The Environment Department or the State Forest Department of Goa shall be the authority to draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981.

(16) **Discharge of effluents.-** The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974(6 of 1974).

(17) **Solid Wastes.-** (1) The solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Central Government vide notification number S.O. 908 (E), dated the 25th September 2000.

(2) The local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components.

(3) The biodegradable material shall be recycled preferably through composting or vermiculture.

(4) The inorganic material shall be disposed of in an environmentally acceptable manner.

(18) **Vehicular Traffic.-** The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment and Forests, the SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

3. Activities to be prohibited and regulated within the Eco-sensitive Zone.- All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 and be regulated in the manner specified in the Table below, namely:-

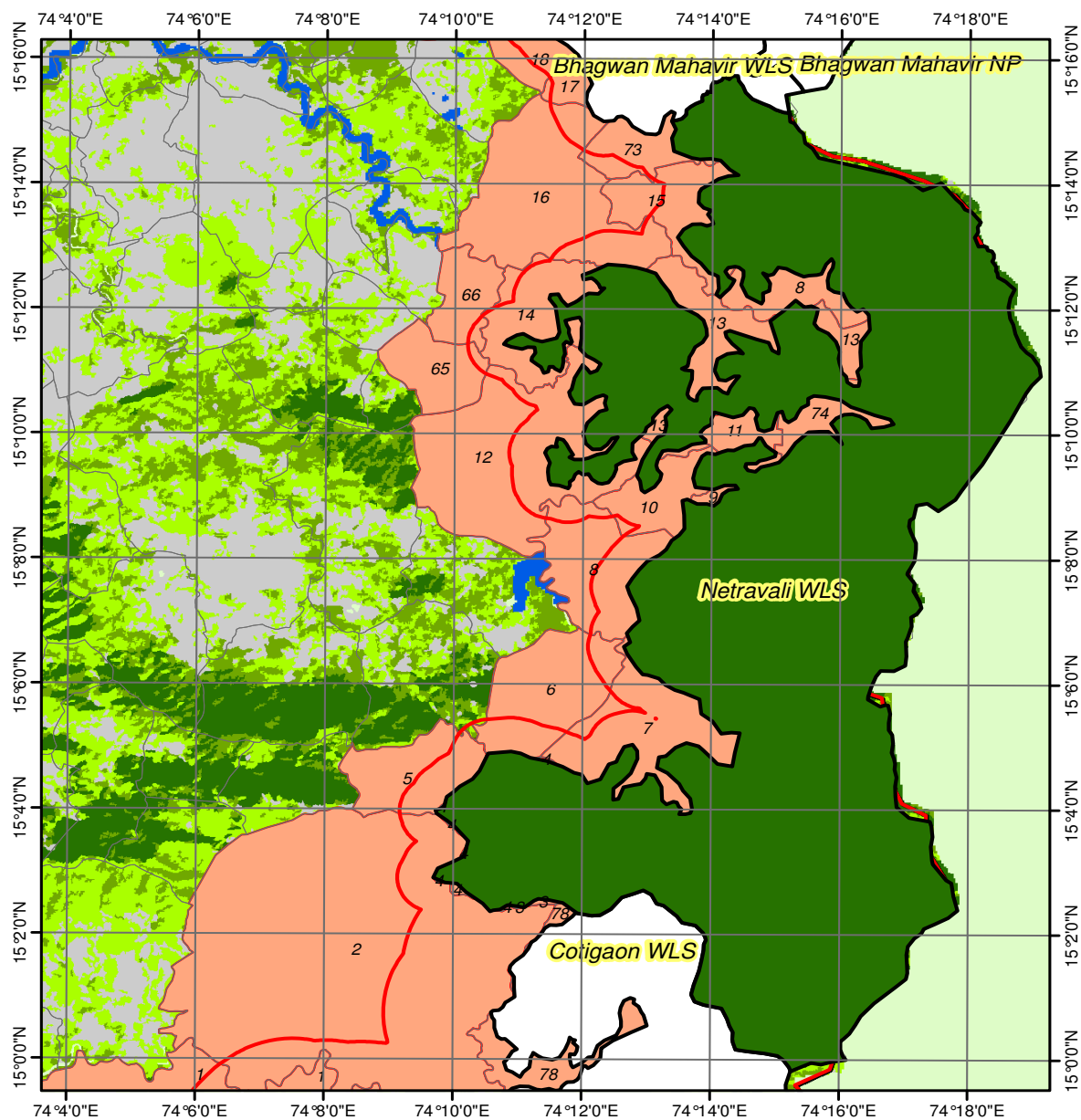
Table

S.No.	Activity	Prohibited	Regulated	Permitted	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
1.	Commercial Mining, stone quarrying and crushing units.	Yes	-	-	(a) All new mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect.
2.	Felling of trees.	-	Yes	-	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government; (b) the felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
3.	Setting up of saw mills.	Yes	-	-	Prohibited with immediate effect.
4.	Setting up of industries causing water or air or soil or noise pollution.	Yes	-	-	Prohibited with immediate effect.
5.	Commercial establishment of hotels and resorts.	Yes	-	-	No new commercial establishment such as hotels and resorts shall be permitted within the Eco-sensitive Zone with immediate effect.
6.	Commercial use of firewood.	Yes	-	-	Prohibited with immediate effect.
7.	Commercial water resources including	-	Yes	-	(a) The extraction of surface water and ground water shall be allowed only for

	ground water harvesting.				<i>bona fide</i> agricultural use and domestic consumption of the occupier of the land; (b) the extraction of surface water and ground water for industrial or commercial use including the amount that can be extracted, shall require prior written permission from the concerned Regulatory Authority; (c) no sale of surface water or ground water shall be permitted; (d) steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
8.	Establishment of new major hydroelectric projects.	Yes	-	-	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the Eco-sensitive Zone is prohibited with immediate effect, except the micro hydel power projects (Up to 100KW) or the mini hydel power projects (from 101 to 2000KW), which would serve the energy needs of the local communities, subject to consent of the concerned Gram Sabha and all other requisite clearances.
9.	Erection of electrical cables and telecommunication towers.	-	Yes	-	Promote underground cabling.
10.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	-	-	Yes	
11.	Rain water harvesting.	-	-	Yes	Shall be actively promoted.
12.	Fencing of existing premises of hotels and lodges.	-	Yes	-	
13.	Organic farming.	-	-	Yes	Shall be actively promoted.
14.	Widening and strengthening of existing roads and construction of new roads.	-	Yes	-	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
15.	Movement of vehicular traffic at night.	-	Yes	-	For commercial purpose.
16.	Introduction of exotic	-	Yes	-	

	species.				
17.	Use or production of any hazardous substances.	Yes	-	-	Prohibited with immediate effect.
18.	Undertaking activities related to tourism like over-flying the National Park area by hot-air balloons, etc.	-	Yes	-	
19.	Protection of hill slopes and river banks.	-	Yes	-	
20.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Yes	-	-	Prohibited with immediate effect.
21.	Discharge of treated effluents in natural water bodies or land area.	-	Yes	-	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
22.	Commercial Sign boards and hoardings.	-	Yes	-	
23.	Adoption of green technology for all activities.	-	-	Yes	Shall be actively promoted.
24.	Cottage industries including village artisans, etc.	-	-	Yes	
25.	Small scale industries not causing pollution.	-	Yes	-	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment.
26.	New wood based industry.	Yes	-	-	No establishment of new wood based industry shall be permitted within the limits of Eco-sensitive Zone with immediate effect.
27.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	-	Yes	-	
28.	Construction activities	Yes	-	-	No new construction of any kind shall be allowed within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 11 and 24. In the case of activities listed at item number 25, the construction activity shall be regulated and kept at the minimum.
29.	Use of plastic carry bags	Yes	-	-	Prohibited with immediate effect.
30.	Brick kilns	Yes	-	-	Prohibited with immediate effect.

- 4. State Level Eco-sensitive Zone Monitoring Committee.-** (1) The Central Government shall, for effective monitoring of the Eco-sensitive Zone, constitute a Committee to be called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa which shall comprise of:-
- (i) Chief Secretary, Government of Goa- Chairman;
 - (ii) representative of the Ministry of Environment and Forests, Regional Office, Bangalore –Member;
 - (iii) representative of the State Pollution Control Board-Member;
 - (iv) one representative of Non-governmental Organizations working in the field of environment to be nominated by the Government of Goa – Member;
 - (v) one representative of community based organization nominated by the State Government– Member;
 - (vi) five representatives of the Government of Goa from Departments of Rural Development, Agriculture, Urban Development and Housing, Mining and Ports and Transport– Members;
 - (vii) one expert in Ecology from reputed Institution or University of the State of Goa- Member;
 - (viii) concerned District Collector-Member;
 - (ix) concerned Wildlife Warden– Member; and
 - (x) Director, Department of Environment, Government of Goa– Member Secretary.
- (2) The SESZMC shall monitor the compliance of the provisions of this notification.
- (3) The activities that are covered in the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except the prohibited activities as specified in column(3) of the Table under para 3, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment and Forests for prior environmental clearances under the provisions of the said notification.
- (4) The activities that are not covered in the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 but are falling in the Eco-sensitive Zone, except the prohibited activities as specified in column(3) of the Table under para 3, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the concerned Regulatory Authorities.
- (5) The Chairman or the Member Secretary of the SESZMC shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.
- (6) The SESZMC may invite representatives or experts from concerned Departments, representatives from Industry Associations or concerned stakeholders to assist it in its deliberations depending on the requirements on issue to issue basis.
- (7) The SESZMC shall submit the annual action taken report of its activities by 31st March of every year to the Central Government in the Ministry of Environment and Forests.
- (8) The Central Government in the Ministry of Environment and Forests may give such directions, as it deems fit, to the SESZMC for effective discharge of its functions.
5. The provisions of this Notification are subject to the orders, if any, passed, or to be passed, by the Hon'ble Supreme Court of India or the High Court.

Annexure I**Map of Netravali Wildlife Sanctuary Eco-sensitive Zone showing Latitudes-Longitudes.****LEGEND**

	Protected Areas		Moderately Dense
	ESZ Boundary (1 km Radial Distance)		Open
	Village boundaries		Very Dense
	Eco-sensitive Villages		Non-forest
	Water bodies		

Annexure-II**List of the villages falling within the Eco-sensitive Zone alongwith their longitudes and latitudes of prominent points****List of Villages completely within the ESZ Boundary**

Village ID	Village Name	Longitude	Latitude
3	Nune	74.18979	15.04173
9	Dongar	74.23344	15.15034
11	Vilyan	74.24121	15.16634
13	Bati	74.23885	15.19268
74	Kumbari	74.26151	15.1706

List of Villages partially within the ESZ Boundary

Village ID	Village Name	Longitude	Latitude
2	Gaundongren	74.14025	15.02487
5	Bambubouthan	74.15644	15.07647
6	Digali	74.19111	15.09817
7	Netravli	74.21531	15.087
8	Portem	74.21696	15.15098
10	Naiquinim	74.21901	15.14984
12	Kurdi	74.18097	15.16037
14	Salavli	74.18737	15.19831
15	Todov	74.22185	15.22779
16	Ugem	74.19099	15.22965
65	Udana	74.1616	15.18388
66	Shelpe	74.16915	15.203
73	PATIEM	74.21284	15.24238

[F. No. 25/33/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

MINISTRY OF ENVIRONMENT AND FORESTS

NOTIFICATION

New Delhi, the 3rd March, 2014

S.O. 632(E).— The following draft of the notification, which the Central Government proposes to issue in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) is hereby published, as required under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, for the information of the public likely to be affected thereby; and notice is hereby given that the said draft notification shall be taken into consideration on or after the expiry of a period of sixty days from the date on which copies of the Gazette of India containing this notification are made available to the Public;

Any person interested in making any objections or suggestions on the proposals contained in the draft notification may forward the same in writing, for consideration of the Central Government within the period so specified to the Secretary, Ministry of Environment and Forest, Paryavaran Bhawan, CGO Complex, Lodi Road, New Delhi-110 003, or at e-mail address:- esz-mef@nic.in.

Draft Notification

Whereas, the Madei Wildlife Sanctuary, Sattari, Goa lying between latitudes $15^{\circ} 40' 56.58''$ N and $15^{\circ} 27' 12.64''$ N and longitudes $74^{\circ} 16' 55.70''$ E and $74^{\circ} 5' 2.58''$ E in the North Goa District of Goa State and extending over an area of 208.48 square kilometres, is an essential part of the Western Ghats, which is rich in biodiversity;

And Whereas, the Wrongton's free tailed bat is the species of vital importance in Madei Wildlife Sanctuary, besides some of the most endangered species like Indian gaur, tiger, panther, mouse deer, wild dogs, etc. are also found in this sanctuary;

And Whereas, the forest of this Sanctuary intercepts rainfall and helps recharge ground water aquifer and protects rivers and streams against siltation by minimising soil erosion and has a well knit network of streams spreading throughout, which are perennial or semi perennial or seasonal in nature, feeding Madei river, Anjunem reservoir and its canals;

And Whereas, it is necessary to conserve and protect the area around the Madei Wildlife Sanctuary as Eco-sensitive Zone from ecological and environmental point of view;

Now, Therefore, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area of one kilometre all along the periphery of the boundary of the Madei Wildlife Sanctuary in the State of Goa as the Eco-sensitive Zone, details of which are as under, namely:-

1. **Extent and Boundaries of Eco-sensitive Zone.**- (1) The extent of Eco-sensitive Zone is one kilometre uniformly all along the periphery of the boundary of the Madei Wildlife Sanctuary within the State of Goa.

(2) The Eco-sensitive Zone is bounded on the North by Maharashtra State boundary, on the South by the boundary of Bhagwan Mahaveer Wildlife Sanctuary, on the East by the villages of Karnataka State and on the West by the Anjunem reservoir and its canals and areas of the villages of Sattari Taluka; the Mahadei river, a tributary of Madei River is joins the Eco-sensitive Zone on the East and passes along the Eco-sensitive Zone boundary from the East towards West at few places and the Anjunem reservoir is within the Eco-sensitive Zone towards West.

(3) The map of Eco-sensitive Zone boundary together with its latitudes and longitudes is appended to this notification as **Annexure I**.

(4) The list of thirty five villages situated outside the boundary of the Madei Wildlife Sanctuary and falling within the Madei Wildlife Sanctuary Eco-sensitive Zone alongwith their longitudes and latitudes at prominent points are appended to this notification as **Annexure II**.

(5) The list of villages given in Annexure II shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

(6) The ridge habitat linking Bondla to Madei and Bhagwan Mahaveer Wildlife Sanctuary and National Park shall be protected for its corridor value under clause (g) of section 38-O of the Wildlife (Protection) Act, 1972 (53 of 1972).

2. **Zonal Master Plan for the Eco-sensitive Zone.**- (1) For the purpose of effective management of the Eco-sensitive Zone, the State Government shall prepare, in consultation with local people, a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for the consideration and approval of the Ministry of Environment and Forests, Government of India.

(2) The Zonal Master Plan shall be prepared with the involvement of all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development,

Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

(3) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.

(4) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, mining leases in operation, lakes and other water bodies.

(5) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.

(6) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), as referred to in para 4, for carrying out its functions of monitoring under the provisions of this notification.

(7) The Zonal Master Plan shall indicate measures and lay down stipulations for regulation of activities under column (4) of the Table specified in para 3.

(8) Change of land use of forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes into areas for commercial or industrial related development activities shall not be permitted in the Eco-sensitive Zone:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, only to meet the residential needs of the local residents arising due to the natural growth of existing local population including the activities listed at item numbers 11, 24 and 25, relating to rainwater harvesting, cottage industries including village artisans etc. and small scale industries not causing pollution, respectively, as specified in column (2) of the Table in para 3:

Provided further that no change in use of land from tribal usage to non-tribal usage shall be permitted without the prior approval of the State Government and without compliance of the provisions of the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007).

(9) The Central Government and the State Government may specify such other measures, as may be considered necessary, for giving effect to the provisions of this notification.

(10) **Natural Springs.-** The catchment areas of all springs shall be identified and plans for their conservation and rejuvenation of those that have run dry, in their natural setting shall be incorporated in the Zonal Master Plan and the strict guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.

(11) **Tourism.-** The activity relating to tourism within Eco-sensitive Zone shall be as under, namely:-

(i) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in line with the central guidelines issued by the National Tiger Conservation Authority, Ministry of Environment and Forests and the Ministry of Tourism, Government of India with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;

(ii) no new construction of any kind shall be allowed within the Eco-sensitive Zone;

(iii) till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC;

(iv) the tourism activities shall also form a component of the Zonal Master Plan.

(12) **Natural Heritage.-** The sites of valuable natural heritage in the Eco-sensitive Zone shall be identified and incorporated in the Zonal Master Plan; all the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. in the Eco-sensitive Zone shall be preserved; the State Government shall draw up proper plan for their protection and conservation within six months from the date of publication of this Notification and such plans shall form part of the Zonal Master Plan.

(13) **Man-made heritage sites.-** Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(14) **Noise pollution.-** The Environment Department or the State Forest Department of Goa shall be the authority to draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981).

(15) **Air Pollution.-** The Environment Department or the State Forest Department of Goa shall be the authority to draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981.

(16) **Discharge of effluents.**—The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974).

(17) **Solid Wastes.**—(1) The solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Central Government vide notification number S.O. 908 (E), dated the 25th September 2000.

(2) The local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components.

(3) The biodegradable material shall be recycled preferably through composting or vermiculture.

(4) The inorganic material shall be disposed of in an environmentally acceptable manner.

(18) **Vehicular Traffic.**— The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment and Forests, the SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

3. Activities to be prohibited and regulated within the Eco-sensitive Zone.— All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 and be regulated in the manner specified in the Table below, namely:-

Table

S.No. (1)	Activity (2)	Prohibited (3)	Regulated (4)	Permitted (5)	Remarks (6)
1.	Commercial Mining, stone quarrying and crushing units.	Yes	-	-	(a) All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect.
2.	Felling of trees.	-	Yes	-	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government; (b) the felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
3.	Setting up of saw mills.	Yes	-	-	Prohibited with immediate effect.
4.	Setting up of industries causing water or air or soil or noise pollution.	Yes	-	-	Prohibited with immediate effect.
5.	Commercial establishment of hotels and resorts.	Yes	-	-	No new commercial establishment such as hotels and resorts shall be permitted within the Eco-sensitive Zone with immediate effect.
6.	Commercial use of firewood.	Yes	-	-	Prohibited with immediate effect.
7.	Commercial water resources including ground water harvesting.	-	Yes	-	(a) The extraction of surface water and ground water shall be allowed only for bona fide agricultural use and domestic consumption of the occupier of the land; (b) the extraction of surface water and ground water for industrial or commercial use including the amount that can be extracted, shall require prior written permission from the concerned

					Regulatory Authority; (c) no sale of surface water or ground water shall be permitted; (d) steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
8.	Establishment of new major hydroelectric projects.	Yes	-	-	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the Eco-sensitive Zone is prohibited with immediate effect, except the micro hydel power projects (Up to 100 KW) or the mini hydel power projects (from 101 to 2000 KW), which would serve the energy needs of the local communities, subject to consent of the concerned Gram Sabha and all other requisite clearances.
9.	Erection of electrical cables and telecommunication towers.	-	Yes	-	Promote underground cabling.
10.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	-	-	Yes	
11.	Rain water harvesting.	-	-	Yes	Shall be actively promoted.
12.	Fencing of existing premises of hotels and lodges.	-	Yes	-	
13.	Organic farming.	-	-	Yes	Shall be actively promoted.
14.	Widening and strengthening of existing roads and construction of new roads.	-	Yes	-	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
15.	Movement of vehicular traffic at night.	-	Yes	-	For commercial purpose.
16.	Introduction of exotic species.	-	Yes	-	
17.	Use or production of any hazardous substances.	Yes	-	-	Prohibited with immediate effect
18.	Undertaking activities related to tourism like over-flying the National Park area by	-	Yes	-	

	hot-air balloons, etc.				
19.	Protection of hill slopes and river banks.	-	Yes	-	
20.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Yes	-	-	Prohibited with immediate effect
21.	Discharge of treated effluents in natural water bodies or land area.	-	Yes	-	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
22.	Commercial Sign boards and hoardings.	-	Yes	-	
23.	Adoption of green technology for all activities.	-	-	Yes	Shall be actively promoted.
24.	Cottage industries including village artisans, etc.	-	-	Yes	
25.	Small scale industries not causing pollution.	-	Yes	-	Non-polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment.
26.	New wood based industry.	Yes	-	-	No establishment of new wood based industry shall be permitted within the limits of Eco-sensitive Zone with immediate effect.
27.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	-	Yes	-	
28.	Construction activities	Yes	-	-	No new construction of any kind shall be allowed within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 11 and 24. In the case of activities listed at item number 25, the construction activity shall be regulated and kept at the minimum.
29.	Use of plastic carry bags.	Yes	-	-	Prohibited with immediate effect.
30.	Brick kilns.	Yes	-	-	Prohibited with immediate effect.

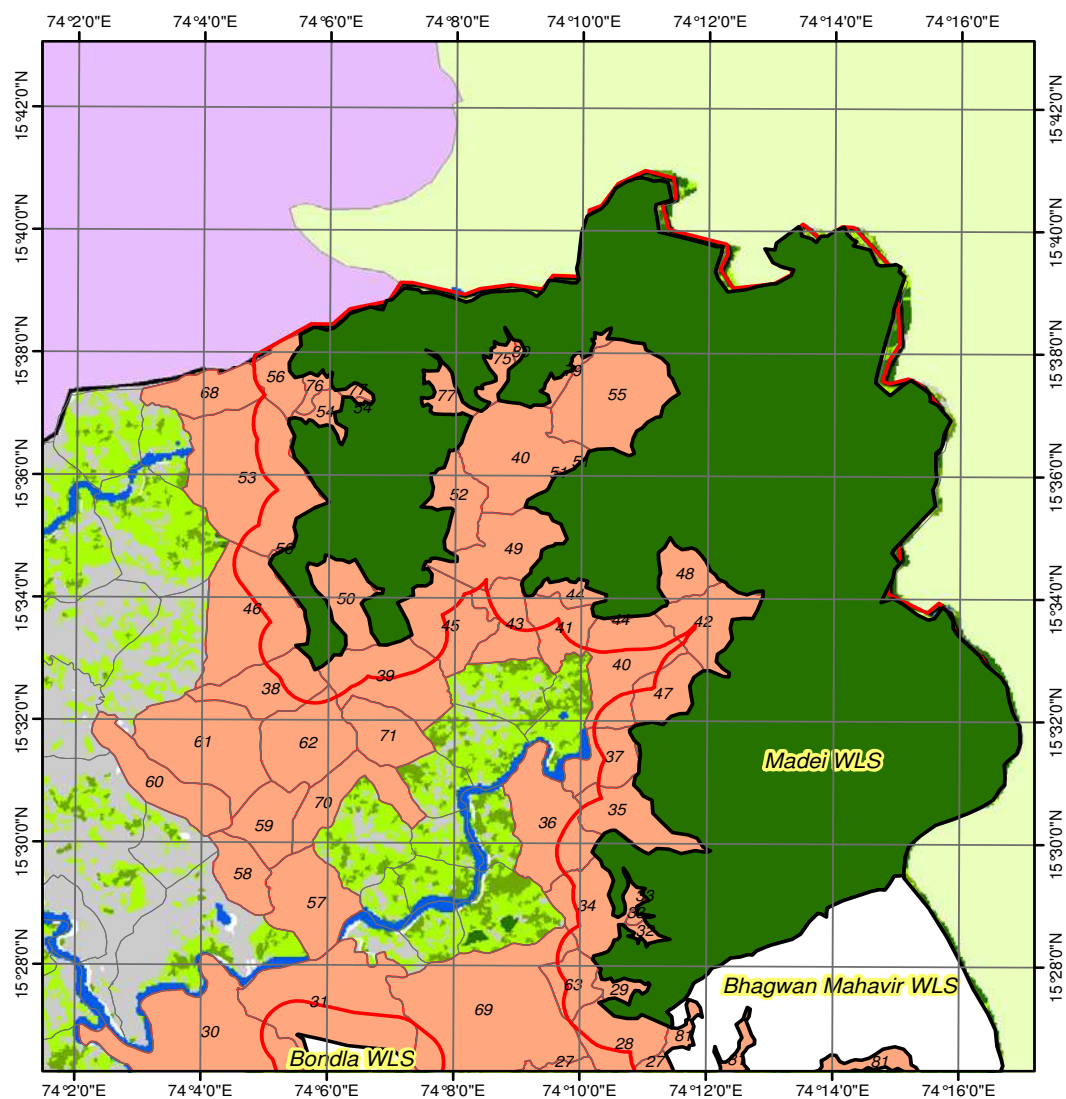
- 4. State Level Eco-sensitive Zone Monitoring Committee.-** (1) The Central Government shall, for effective monitoring of the Eco-sensitive Zone, constitute a Committee to be called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa which shall comprise of:-

- (i) Chief Secretary, Government of Goa- Chairman;
 - (ii) Representative of the Ministry of Environment and Forests, Regional Office, Bangalore– Member;
 - (iii) Representative of the State Pollution Control Board- Member;
 - (iv) One representative of Non-governmental Organizations working in the field of environment to be nominated by the Government of Goa– Member;
 - (v) One representative of community based organization nominated by the State Government- Member;
 - (vi) Five representatives of the Government of Goa from Departments of Rural Development, Agriculture, Urban Development and Housing, Mining and Ports and Transport- Members;
 - (vii) One expert in Ecology from reputed Institution or University of the State of Goa- Member;
 - (viii) Concerned District Collector- Member;
 - (ix) Concerned Wildlife Warden– Member; and
 - (x) Director, Department of Environment, Government of Goa– Member Secretary.
- (2) The SESZMC shall monitor the compliance of the provisions of this notification.
 - (3) The activities that are covered in the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except the prohibited activities as specified in column (3) of the Table under para 3, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment and Forests for prior environmental clearances under the provisions of the said notification.
 - (4) The activities that are not covered in the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 but are falling in the Eco-sensitive Zone, except the prohibited activities as specified in column (3) of the Table under para 3, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the concerned Regulatory Authorities.
 - (5) The Chairman or the Member Secretary of the SESZMC shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.
 - (6) The SESZMC may invite representatives or experts from concerned Departments, representatives from Industry Associations or concerned stakeholders to assist it in its deliberations depending on the requirements on issue to issue basis.
 - (7) The SESZMC shall submit the annual action taken report of its activities by 31st March of every year to the Central Government in the Ministry of Environment and Forests.
 - (8) The Central Government in the Ministry of Environment and Forests may give such directions, as it deems fit, to the SESZMC for effective discharge of its functions.

The provisions of this Notification are subject to the orders, if any, passed, or to be passed, by the Hon'ble Supreme Court of India or the High Court.

Annexure I

Map of the Madei Wildlife Sanctuary Eco-sensitive Zone showing Latitudes-Longitudes



LEGEND

	Protected Areas		Moderately
	ESZ Boundary (1 km Radial)		Open
	Village		Very Dense
	Eco-sensitive		Non-forest
	Water bodies		

Annexure-II

List of villages falling within the Madei Wildlife Sanctuary Eco-sensitive Zone alongwith their longitudes and latitudes of prominent points

List of Villages completely within the ESZ Boundary

Village ID	Village Name	Longitude	Latitude
29	GAVANE	74.17689	15.46087
32	AASSODE	74.18375	15.47573
33	SIRSODE	74.18154	15.4803
44	Karambali Bramha	74.1684	15.56766
48	Maloli	74.1936	15.57358
50	Jarma	74.10352	15.56673
54	Gulle	74.09901	15.61613
75	IVRE BUDRUK	74.14446	15.62861
76	Kelavade	74.09576	15.623
77	Charavade	74.12604	15.62241
79	GOALI	74.16412	15.62884
80	IVRE KHURD	74.14983	15.63381

List of Villages partially within the ESZ Boundary

Village ID	Village Name	Longitude	Latitude
28	MALPON	74.17678	15.44692
34	SHELPI KHURD	74.16986	15.48303
35	Karambali Buzruk	74.17985	15.50679
36	VELGUE	74.15774	15.50555
37	Sanvarde	74.17272	15.52243
38	BHuipal	4.08431	15.54246
39	Mausi	74.11672	15.54429
40	Dogarvada	74.16196	15.58071
41	Ambede	74.16079	15.5586
42	Uste	74.2003	15.56064
43	Hedode	74.14674	15.5596
45	Koparde	74.13108	15.56036
46	Salili	74.07867	15.56142
47	Sonal	74.18898	15.54145
49	Naneli	74.14601	15.58022
52	Pali	74.13415	15.59265
53	Bayalvada	74.07873	15.59958
55	Rive	74.17471	15.62139
56	Anjune	74.08717	15.62664
62	Kumar Khand	70.09432	15.52734
63	AMBELI	74.16486	15.46215
68	Shiroli	74.06764	15.62236
69	MELAVALI	74.14275	15.45413

[F. No. 25/35/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

MINISTRY OF ENVIRONMENT AND FORESTS

NOTIFICATION

New Delhi, the 3rd March, 2014

S.O. 635(E).—The following draft of the notification, which the Central Government proposes to issue in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) is hereby published, as required under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, for the information of the public likely to be affected thereby; and notice is hereby given that the said draft notification shall be taken into consideration on or after the expiry of a period of sixty days from the date on which copies of the Gazette of India containing this notification are made available to the Public;

Any person interested in making any objections or suggestions on the proposals contained in the draft notification may forward the same in writing, for consideration of the Central Government within the period so specified to the Secretary, Ministry of Environment and Forest, Paryavaran Bhawan, CGO Complex, Lodi Road, New Delhi-110 003, or at e-mail address:- esz-mef@nic.in.

Draft Notification

Whereas, the Bhagwan Mahaveer Wildlife Sanctuary & National Park, Goa lying between latitudes 15° 29' 30.47" N and 15° 15' 9.29" N and longitudes 74° 20' 10.01" E and 74° 29' 26.27" E in the North Goa District of Goa State and extending over an area of 240 square kilometres, is an essential part of the Western Ghats, which is rich in biodiversity.

And whereas, out of the 240 square kilometres of original protected area, an area of 107 square kilometres has been carved out and constituted as a National Park thereby dividing the Sanctuary into two parts;

And whereas, the protected areas inhabits the endangered species of wildlife like Indian bison, tiger, panther, mouse deer, black panther, slender loris, wild dog, sloth bear, etc;

And whereas, the forest of these protected areas intercepts rainfall and helps recharge ground water aquifer and protects rivers and streams against siltation by minimising soil erosion and has a well knit network of streams spreading throughout which are perennial or semi perennial or seasonal in nature, feeding Zuari river, Mandovi river and its canals;

And whereas it is necessary to conserve and protect the area around the Bhagwan Mahaveer Wildlife Sanctuary and National Park as Eco-sensitive Zone from ecological and environmental point of view;

Now, therefore, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area of one kilometre all along the periphery of the boundary of the Bhagwan Mahaveer Wildlife Sanctuary and National Park in the State of Goa as the Eco-sensitive Zone, details of which are as under, namely:-

1. **Extent and Boundaries of Eco-sensitive Zone.**—(1) The extent of Eco-sensitive Zone is one kilometre uniformly all along the periphery of the boundary of the Bhagwan Mahaveer Wildlife Sanctuary and National Park within the State of Goa.

(2) The Eco-sensitive Zone is bounded on the North by the boundary of Madei Wildlife Sanctuary, on the South by the boundary of Netravali Wildlife Sanctuary, on the East by the boundary of Bhagwan Mahaveer Wildlife Sanctuary and National Park and on the West by areas of the villages of Dharbandora Taluka, Sattari Taluka and Sanguem Taluka; the Dudhsagar river, originating from the Bhagwan Mahaveer National Park passes through the Eco-sensitive Zone towards West along the Eco-sensitive Zone boundary and Bhagwan Mahavir Sanctuary boundary.

(3) The map of Eco-sensitive Zone boundary together with its latitudes and longitudes is appended to this notification as **Annexure I**.

(4) The list of four villages falling completely within the Eco-sensitive Zone boundary and the list of fourteen villages falling partially within Eco-sensitive Zone boundary of the Bhagwan Mahaveer Wildlife Sanctuary and National Park and falling within the Bhagwan Mahaveer Wildlife Sanctuary and National Park Eco-sensitive Zone alongwith their longitudes and latitudes at prominent points are appended to this notification as **Annexure II**.

(5) The list of villages given in Annexure II shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

(6) The ridge habitat linking Bondla to Madei and Bhagwan Mahaveer Wildlife Sanctuary and National Park shall be protected for its corridor value under clause (g) of section 38-O of the Wildlife (Protection) Act, 1972 (53 of 1972).

2. **Zonal Master Plan for the Eco-sensitive Zone.**— (1) For the purpose of effective management of the Eco-sensitive Zone, the State Government shall prepare, in consultation with local people, a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for the consideration and approval of the Ministry of Environment and Forests, Government of India.

(2) The Zonal Master Plan shall be prepared with the involvement of all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development, Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

(3) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.

(4) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, mining leases in operation, lakes and other water bodies.

(5) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.

(6) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), as referred to in para 4 for carrying out its functions of monitoring under the provisions of this notification.

(7) The Zonal Master Plan shall indicate measures and lay down stipulations for regulation of activities under column (4) of the Table specified in para 3.

(8) Change of land use of forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes into areas for commercial or industrial related development activities shall not be permitted in the Eco-sensitive Zone:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, only to meet the residential needs of the local residents arising due to the natural growth of existing local population including the activities listed at item numbers 11, 24 and 25, relating to rainwater harvesting, cottage industries including village artisans etc. and small scale industries not causing pollution, respectively, as specified in column (2) of the Table in para 3:

Provided further that no change in use of land from tribal usage to non-tribal usage shall be permitted without the prior approval of the State Government and without compliance of the provisions of the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007).

(9) The Central Government and the State Government may specify such other measures, as may be considered necessary, for giving effect to the provisions of this notification.

(10) **Natural Springs.-** The catchment areas of all springs shall be identified and plans for their conservation and rejuvenation of those that have run dry, in their natural setting shall be incorporated in the Zonal Master Plan and the strict guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.

(11) **Tourism.-** The activity relating to tourism within Eco-sensitive Zone shall be as under, namely:-

(i) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in line with the central guidelines issued by the National Tiger Conservation Authority, Ministry of Environment and Forests and the Ministry of Tourism, Government of India with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;

(ii) no new construction of any kind shall be allowed within the Eco-sensitive Zone;

(iii) till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC;

(iv) the tourism activities shall also form a component of the Zonal Master Plan.

(12) **Natural Heritage.-** The sites of valuable natural heritage in the Eco-sensitive Zone shall be identified and incorporated in the Zonal Master Plan; all the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. in the Eco-sensitive Zone shall be preserved; the State Government shall draw up proper plan for their protection and conservation within six months from the date of publication of this Notification and such plans shall form part of the Zonal Master Plan.

(13) **Man-made heritage sites.-** Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(14) **Noise pollution.-** The Environment Department or the State Forest Department of Goa shall be the authority to draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981).

(15) **Air Pollution.-** The Environment Department or the State Forest Department of Goa shall be the authority to draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981.

(16) **Discharge of effluents.-** The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974).

(17) **Solid Wastes.-** (1) The solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Central Government vide notification number S.O. 908 (E), dated the 25th September 2000.

(2) The local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components.

(3) The biodegradable material shall be recycled preferably through composting or vermiculture.

(4) The inorganic material shall be disposed of in an environmentally acceptable manner.

(18) **Vehicular Traffic.**— The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment and Forests, the SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

3. Activities to be prohibited and regulated within the Eco-sensitive Zone.— All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 and be regulated in the manner specified in the Table below, namely:—

S. No.	Activity	Prohibited	Regulated	Permitted	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
1.	Commercial Mining, stone quarrying and crushing units.	Yes	-	-	(a) All new mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect.
2.	Felling of trees.	-	Yes	-	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government; (b) the felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
3.	Setting up of saw mills.	Yes	-	-	Prohibited with immediate effect.
4.	Setting up of industries causing water or air or soil or noise pollution.	Yes	-	-	Prohibited with immediate effect.
5.	Commercial establishment of hotels and resorts.	Yes	-	-	No new commercial establishment such as hotels and resorts shall be permitted within the Eco-sensitive Zone with immediate effect.
6.	Commercial use of firewood.	Yes	-	-	Prohibited with immediate effect.
7.	Commercial water resources including ground water harvesting.	-	Yes	-	(a) The extraction of surface water and ground water shall be allowed only for <i>bona fide</i> agricultural use and domestic consumption of the occupier of the land; (b) extraction of surface water and ground water for industrial or commercial use including the amount that can be extracted, shall require prior written permission from the concerned Regulatory Authority; (c) no sale of surface water or ground water shall be permitted; (d) steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
8.	Establishment of new major hydroelectric projects.	Yes	-	-	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the

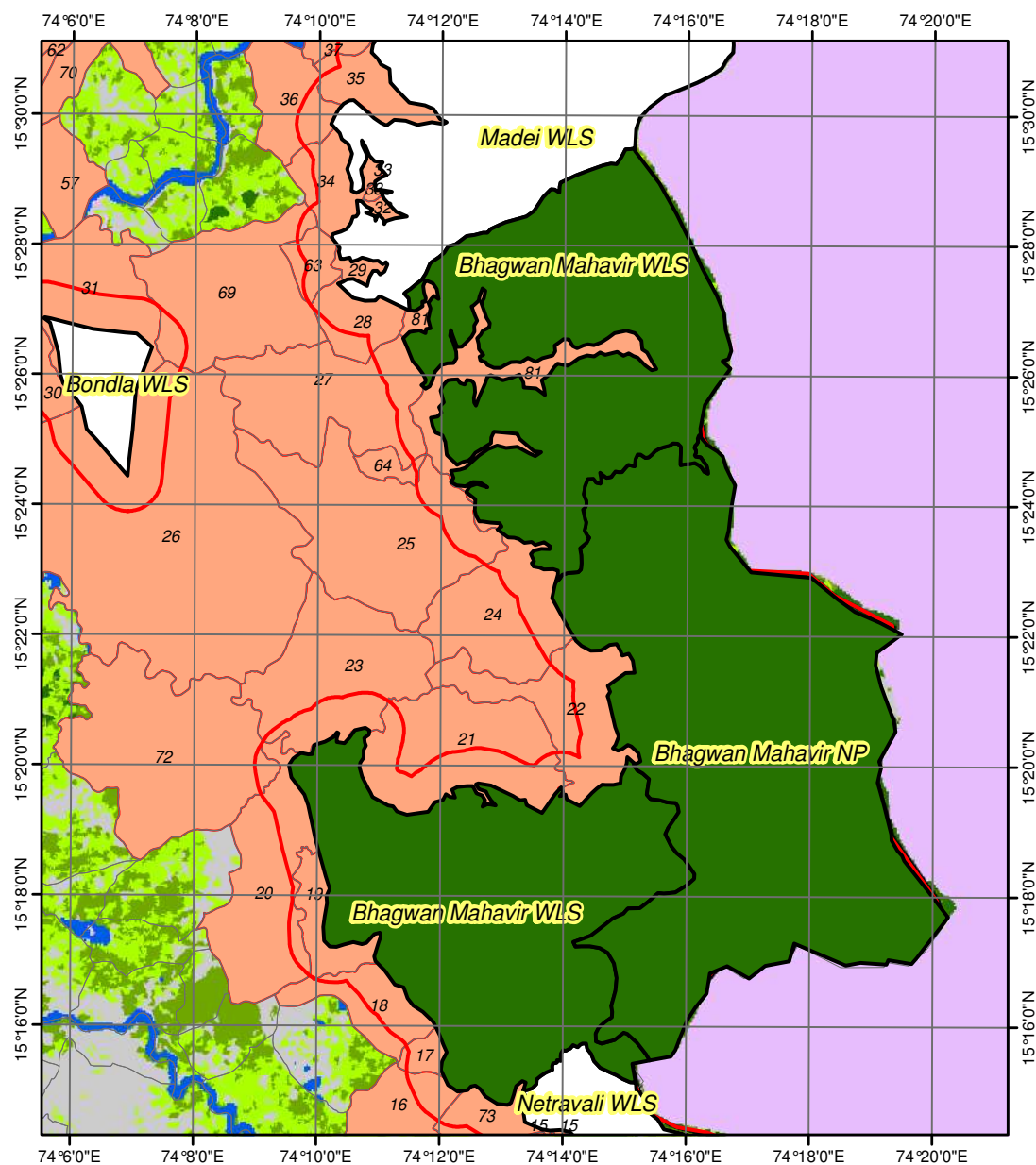
					Eco-sensitive Zone is prohibited with immediate effect, except the micro hydel power projects (Up to 100KW) or the mini hydel power projects (from 101 to 2000KW), which would serve the energy needs of the local communities, subject to consent of the concerned Gram Sabha and all other requisite clearances.
9.	Erection of electrical cables and telecommunication towers.	-	Yes	-	Promote underground cabling.
10.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	-	-	Yes	
11.	Rain water harvesting.	-	-	Yes	Shall be actively promoted.
12.	Fencing of existing premises of hotels and lodges.	-	Yes	-	
13.	Organic farming.	-	-	Yes	Shall be actively promoted.
14.	Widening and strengthening of existing roads and construction of new roads.	-	Yes	-	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
15.	Movement of vehicular traffic at night.	-	Yes	-	For commercial purpose.
16.	Introduction of exotic species.	-	Yes	-	
17.	Use or production of any hazardous substances.	Yes	-	-	Prohibited with immediate effect.
18.	Undertaking activities related to tourism like over-flying the National Park area by hot-air balloons, etc.	-	Yes	-	
19.	Protection of hill slopes and river banks.	-	Yes	-	
20.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Yes	-	-	Prohibited with immediate effect.
21.	Discharge of treated effluents in natural water bodies or land area.	-	Yes	-	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
22.	Commercial Sign boards and hoardings.	-	Yes	-	
23.	Adoption of green technology for all activities.	-	-	Yes	Shall be actively promoted.
24.	Cottage industries including village artisans, etc.	-	-	Yes	
25.	Small scale industries not causing pollution.	-	Yes	-	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and

					which do not cause any adverse impact on environment.
26.	New wood based industry.	Yes	-	-	No establishment of new wood based industry shall be permitted within the limits of Eco-sensitive Zone with immediate effect.
27.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	-	Yes	-	
28.	Construction activities	Yes	-	-	No new construction of any kind shall be allowed within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 11 and 24. In the case of activities listed at item number 25, the construction activity shall be regulated and kept at the minimum.
29.	Use of plastic carry bags	Yes	-	-	Prohibited with immediate effect.
30.	Brick kilns	Yes	-	-	Prohibited with immediate effect.

4. State Level Eco-sensitive Zone Monitoring Committee.- (1) The Central Government shall, for effective monitoring of the Eco-sensitive Zone, constitute a Committee to be called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa which shall comprise of:-

- (i) Chief Secretary, Government of Goa- Chairman;
 - (ii) representative of the Ministry of Environment and Forests, Regional Office, Bangalore –Member;
 - (iii) representative of the State Pollution Control Board-Member;
 - (iv) one representative of Non-governmental Organizations working in the field of environment to be nominated by the Government of Goa – Member;
 - (v) one representative of community based organization nominated by the State Government– Member;
 - (vi) five representatives of the Government of Goa from Departments of Rural Development, Agriculture, Urban Development and Housing, Mining and Ports and Transport– Members;
 - (vii) one expert in Ecology from reputed Institution or University of the State of Goa- Member;
 - (viii) concerned District Collector-Member;
 - (ix) concerned Wildlife Warden– Member; and
 - (x) Director, Department of Environment, Government of Goa– Member Secretary.
- (2) The SESZMC shall monitor the compliance of the provisions of this notification.
 - (3) The activities that are covered in the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except the prohibited activities as specified in column(3) of the Table under para 3, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment and Forests for prior environmental clearances under the provisions of the said notification.
 - (4) The activities that are not covered in the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 but are falling in the Eco-sensitive Zone, except the prohibited activities as specified in column(3) of the Table under para 3, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the concerned Regulatory Authorities.
 - (5) The Chairman or the Member Secretary of the SESZMC shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.
 - (6) The SESZMC may invite representatives or experts from concerned Departments, representatives from Industry Associations or concerned stakeholders to assist it in its deliberations depending on the requirements on issue to issue basis.
 - (7) The SESZMC shall submit the annual action taken report of its activities by 31st March of every year to the Central Government in the Ministry of Environment and Forests.

- (8) The Central Government in the Ministry of Environment and Forests may give such directions, as it deems fit, to the SESZMC for effective discharge of its functions.
5. The provisions of this Notification are subject to the orders, if any, passed, or to be passed, by the Hon'ble Supreme Court of India or the High Court.

Annexure I**Map of Bhagwan Mahaveer Wildlife Sanctuary & National Park Eco-sensitive Zone showing Latitudes-Longitudes****LEGEND**

 ESZ Boundary (1 km Radial distance)	Forest Cover (FSI)
 Protected Areas	 Moderately Dense
 Village boundaries	 Open
 Eco-sensitive Villages	 Very Dense
 Water bodies	 Non-forest

Annexure II

List of villages falling within the Bhagwan Mahavir Wildlife Sanctuary and National Park Eco-sensitive Zone alongwith their longitudes and latitudes of prominent points

List of Villages completely within the ESZ Boundary

Village ID	Village Name	Longitude	Latitude
29	GAVANE	74.17689	15.46087
32	AASSODE	74.18375	15.47573
33	SIRSODE	74.18154	15.4803
81	Surla	74.21397	15.43183

List of Villages partially within the ESZ Boundary

Village ID	Village Name	Longitude	Latitude
16	Ugem	74.19099	15.22965
17	MALINGEM	74.19578	15.25922
18	DUDAL	74.18048	15.27171
19	Colem	74.16887	15.29323
20	SANTONA	74.15277	15.30123
21	SHIGAON	74.20525	15.33697
22	KOLEM	74.23264	15.34796
23	SANGOD	74.1718	15.35707
24	MOLEN	74.2161	15.37162
25	SAKVORDE	74.18199	15.39463
27	AALOT	74.16917	15.42709
64	PANAS	74.18562	15.41006
72	KODLI	74.12519	15.33727
73	PATIEM	74.21284	15.24238

[F. No.25/34/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 25th January, 2015

S.O. 615(E).— WHEREAS, a draft notification, for declaration of Eco-sensitive Zone around Bondla Wildlife Sanctuary in Goa, was published in the Gazette of India, Extraordinary, *vide* notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 633 (E) dated 3rd March 2014, inviting objections and suggestions from all persons likely to be affected thereby within a period of sixty days from date on which copies of the Gazette containing the said notification were made available to the public;

AND WHEREAS, copies of the Gazette containing the said notification were made available to the public on the 3rd March, 2014;

AND WHEREAS, all objections and suggestions received from all persons and stakeholders in response to the draft notification have been duly considered by the Central Government;

AND WHEREAS, the Central Government considers that the Bondla Wildlife Sanctuary, Goa lying between latitudes 15° 26' 54.78" N and 15° 24' 42.50" N and longitudes 74° 7' 16.36" E and 74° 5' 26.60" E in the North Goa District of Goa State and extending over an area of 7.98 square kilometres, is an essential part of the Western Ghats, which is rich in biodiversity;

AND WHEREAS, the sanctuary inhabits the endangered species of wildlife like Indian bison, panther, mouse deer, spotted deer, sambhar deer, black panther, etc. and the flora of this area is represented by moist deciduous forest type;

AND WHEREAS, the forest of this Sanctuary intercepts rainfall and helps recharge ground water aquifer and protects rivers and streams against siltation by minimizing soil erosion and has a well knit network of streams spreading throughout, which are perennial or semi perennial or seasonal in nature, feeding Kushawati and Khandepar rivers;

AND WHEREAS, it is necessary to conserve and protect the area the extent and boundary of which is specified in paragraph 1 of this notification around the Bondla Wildlife Sanctuary as Eco-sensitive Zone from ecological and environmental point of view and to prohibit industries or class of industries and their operations and processes in the said Eco- sensitive zone;

NOW, THEREFORE, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area with an extent of one kilometre of land or the water body, whichever is nearer to the boundary of the Bondla Wildlife Sanctuary in the State of Goa, as the Eco-sensitive Zone, details of which are as under, namely:-

1. **Extent and Boundaries of Eco-sensitive Zone.**- (1) The extent of Eco-sensitive Zone shall be one kilometre of land or the water body whichever is nearer to the boundary of the Bondla Wildlife Sanctuary within the State of Goa.

(2) The Eco-sensitive Zone is bounded on the North by areas of the villages Gangem, Conquirem and Melauli, on the South and West by the areas of the villages Dharbandora, Piliem and Usgaon, on the East by areas of the Villages Dharbandora and Melauli; the Ragada Nadi, a tributary of Madei River enters into the Eco-sensitive Zone on the East and passes along the Eco-sensitive Zone boundary from East towards North at few places.

(3) The map of Eco-sensitive Zone boundary is appended to this notification as **Annexure I**. List of latitudes and longitudes of prominent points on the boundary of the ESZ is appended to this notification as **Annexure II**.

(4) The list of villages falling partially within Eco-sensitive Zone boundary is given at **Annexure III**.

(5) The list of villages given in Annexure III shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

2. Zonal Master Plan for the Eco-sensitive Zone.- (1) The State Government shall for the purpose of effective management of the Eco-sensitive Zone, prepare a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for the consideration and approval of the Ministry of Environment, Forest and Climate Change, Government of India in consultation with local people and all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development, Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

(2) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.

(3) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, man-made heritage sites, natural heritage sites, mining leases in operation, lakes and other water bodies.

(4) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.

(5) The Zonal Master Plan shall contain the measures as may be specified by the Central Government or the State Government, for regulation of activities specified under column (2) of the table specified in paragraph 4.

(6) The Zonal Master Plan so prepared shall be co-terminus with the regional development plan.

(7) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), referred to in paragraph 5, for carrying out its functions of monitoring under the provisions of this notification.

3. Measures to be taken by State Government.-The State Government shall take the following measures for giving effect to the provisions of this notification, namely:-

(1) Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or industrial related development activities:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, to meet the residential needs of local residents, and for the activities listed at item numbers 24, 26, 28 and 31 in column (2) of the Table in paragraph 4, namely:-

- (i) Small scale industries not causing pollution,
- (ii) Rainwater harvesting,
- (iii) Cottage industries including village industries, and
- (iv) Eco-friendly cottages for temporary occupation of tourists such as tents, wooden houses, etc. for Eco-friendly tourism activities:

Provided further that no use of tribal land shall be permitted for commercial and industrial development activities without the prior approval of the State Government and without compliance to the provisions of Article 244 of the Constitution of India or the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007) as amended time to time:

Provided also that any error appearing in the land records within the Eco-sensitive Zone shall be corrected by the State Government, after obtaining the views of SESZMC, once in each case and the correction of said error shall be intimated to the Central Government in the Ministry of Environment, Forest and Climate Change:

Provided also that the above correction of error shall not include change of land use in any case except as provided under this sub-paragraph.

(2) The catchment areas of all natural springs shall be identified and plans for their conservation and rejuvenation shall be incorporated in the Zonal Master Plan and the guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.

(3) The activity relating to tourism within the Eco-sensitive Zone which shall form part of the Zonal Master Plan shall be as under, namely:-

(a) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in accordance with the guidelines issued by the Central Government in the Ministry of Environment, Forest and Climate Change and by the National Tiger Conservation Authority, with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;

(b) new construction of any kind shall not be permitted within the Eco-sensitive Zone except for eco-friendly accommodation like tents, wooden houses or thatched roofs for temporary occupation of tourists and for eco-friendly tourism activities;

(c) till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC.

(4) All sites of valuable natural heritage in the Eco-sensitive Zone such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. shall be identified and preserved and proper plan shall be drawn up for their protection and conservation, within six months from the date of publication of this notification and such plan shall form part of the Zonal Master Plan.

(5) Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(6) The Environment Department of the State Government shall draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.

(7) The Environment Department of the State Government shall draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.

(8) The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) and the rules made thereunder.

(9) Disposal of solid wastes shall be as under:-

(i) the solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* notification number S.O. 908 (E), dated the 25th September 2000 as amended from time to time;

(ii) the local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components;

(iii) the biodegradable material shall be recycled preferably through composting or vermiculture;

(iv) the inorganic material shall be disposed of in an environmentally acceptable manner.

(10) The bio-medical waste disposal in the Eco-sensitive Zone shall be carried out as per the provisions of the Bio-Medical Waste (Management and Handling) Rules, 1998 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* Notification number S.O. 630(E), dated the 20th July, 1998 as amended from time to time.

(11) The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment, Forests and Climate Change, SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

4. List of activities prohibited or to be regulated within the Eco-sensitive Zone.-All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 (29 of 1986) and the rules made thereunder and be regulated in the manner specified in the Table below, namely:-

TABLE

S.No.	Activity	Remarks
(1)	(2)	(3)
Prohibited Activities		
1.	Commercial Mining, stone quarrying and crushing units.	All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect.
2.	Setting up of saw mills.	Prohibited (except as otherwise provided) as per applicable laws.
3.	Setting up of industries causing water or air or soil or noise pollution.	Prohibited (except as otherwise provided) as per applicable laws.
4.	Commercial establishment of hotels and resorts.	New commercial establishment such as hotels and resorts shall be prohibited within the Eco-sensitive Zone with immediate effect.
5.	Commercial use of firewood.	Prohibited (except as otherwise provided) as per applicable laws.

6.	Establishment of new major hydroelectric projects.	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the Eco-sensitive Zone is prohibited with immediate effect, except the micro hydel power projects (Up to 100KW) or the mini hydel power projects (from 101 to 2000KW), which would serve the energy needs of the local communities, subject to the consent of the concerned Gram Sabha and all other requisite clearances.
7.	Use or production of any hazardous substances.	Prohibited (except as otherwise provided) as per applicable laws.
8.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Prohibited (except as otherwise provided) as per applicable laws.
9.	New wood based industry.	No establishment of new wood based industry shall be permitted within the limits of Eco-sensitive Zone with immediate effect.
10.	Construction activities	New construction of any kind shall be prohibited within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 26,28 and 31 and in the case of activities listed at item number 24, the construction activity shall be regulated and kept at the minimum.
11.	Use of plastic carry bags	Prohibited (except as otherwise provided) as per applicable laws.
12.	Brick kilns	Prohibited (except as otherwise provided) as per applicable laws.
Regulated Activities		
13.	Felling of trees.	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
14.	Commercial water resources including ground water harvesting.	(a) The extraction of surface water and ground water shall be permitted only for <i>bona fide</i> agricultural use and domestic consumption of the occupier of the land. (b) Extraction of surface water and ground water for industrial or commercial use including the amount that can be extracted shall require prior written permission from the concerned Regulatory Authority. (c) No sale of surface water or ground water shall be permitted. (d) Steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
15.	Erection of electrical cables and telecommunication towers.	Promote underground cabling.
16.	Fencing of existing premises of hotels and lodges.	Regulated under applicable laws.
17.	Widening and strengthening of existing roads and construction of new roads.	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
18.	Movement of vehicular traffic at night.	Regulated for commercial purpose as per applicable laws.
19.	Introduction of exotic species.	Regulated under applicable laws
20.	Undertaking activities related to tourism like over-flying the National Park area by hot-air balloons, etc.	Regulated under applicable laws
21.	Protection of hill slopes and river banks.	Regulated under applicable laws
22.	Discharge of treated effluents in natural water bodies or land area.	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
23.	Commercial Sign boards and hoardings.	Regulated under applicable laws
24.	Small scale industries not causing pollution.	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment.
25.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	Regulated under applicable laws
26.	Eco-tourism activities including eco tourist lodges, restaurant and recreational facilities	As per Zonal Master Plan.

	including spa, swimming pool, gymnasium in temporary structures made of cloth or wood or particle board such as tents etc.	
Promoted Activities		
27.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted under applicable laws.
28.	Rain water harvesting.	Shall be actively promoted.
29.	Organic farming.	Shall be actively promoted.
30.	Adoption of green technology for all activities.	Shall be actively promoted.
31.	Cottage industries including village artisans, etc.	Shall be actively promoted.

5. State Level Eco-sensitive Zone Monitoring Committee:- (1)

The Central Government in the Ministry of Environment, Forest and Climate Change, for effective monitoring of the Eco-sensitive Zones around National Parks and Wildlife Sanctuaries, has constituted a Committee called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa vide notification number S.O. 221 (E), dated the 23rd January 2015, published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii) comprising of the following members, and to perform the following functions, namely:-

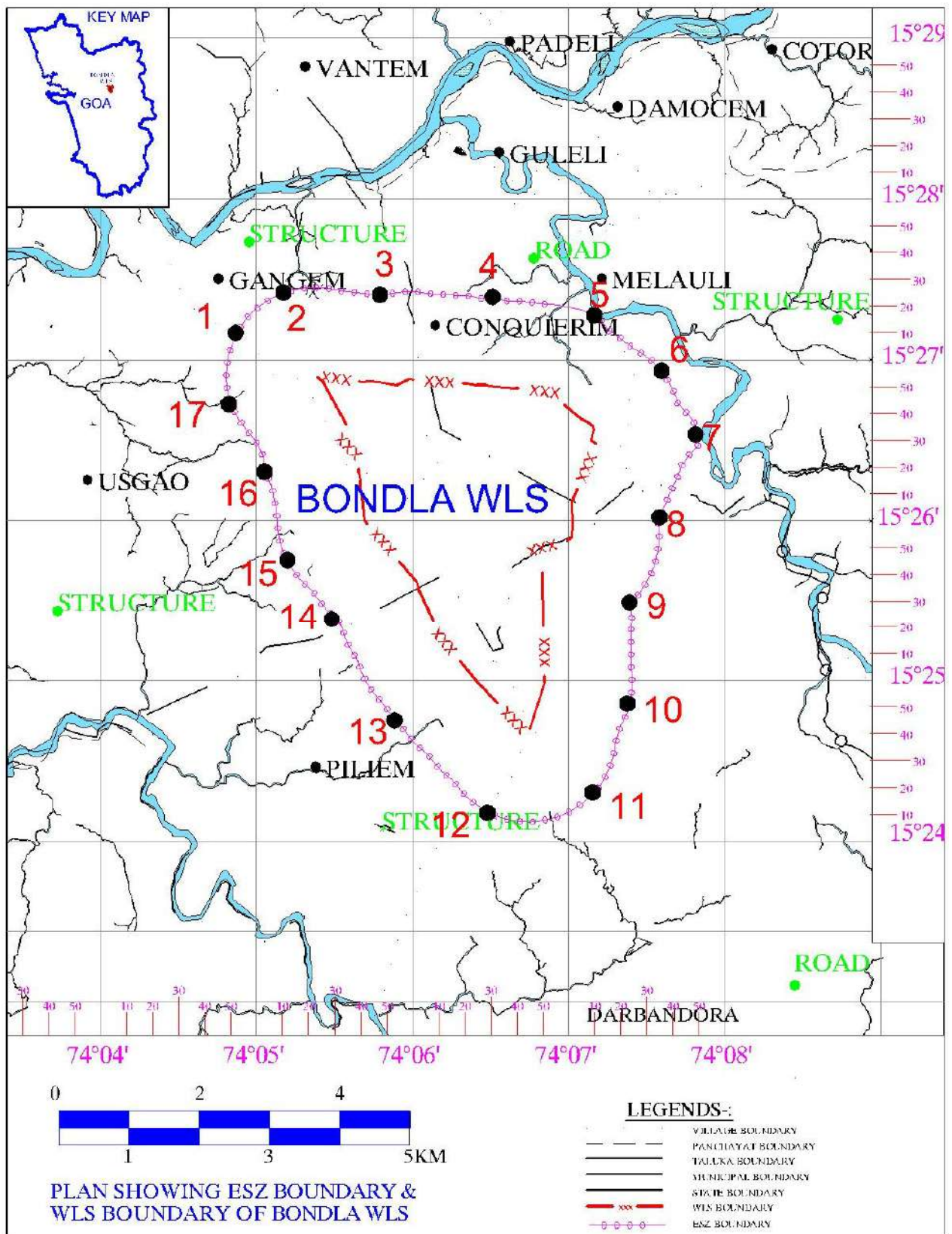
- (i) Chief Secretary, Government of Goa- Chairman;
 - (ii) representative of the Ministry of Environment, Forest and Climate Change- Member;
 - (iii) Member Secretary, State Pollution Control Board-Member;
 - (iv) one representative of Non-governmental Organisations working in the field of environment to be nominated by the Government of Goa (for a term of one year)- Member;
 - (v) one representative of community based organisation nominated by the State Government (for a term of one year)- Member;
 - (vi-xiv) Principal Secretaries of the Government of Goa from Departments of Forest and Environment, Rural Development, Agriculture, Urban Development, Housing, Mining, Ports, Transport and Revenue- Members;
 - (xv) one expert in Ecology from reputed Institution or University of the State of Goa to be nominated by Government of Goa (for a term of one year) - Member;
 - (xvi) Chief Conservator of Forests (WL) and Chief Wildlife Warden, Government of Goa- Member Secretary.
- (2) The SESZMC shall monitor the compliance of the provisions of this notification.
 - (3) The activities that are covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment, Forest and Climate Change for prior environmental clearance under the provisions of the said notification.
 - (4) The activities that are not covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the concerned regulatory authorities.
 - (5) The Member Secretary of the SESZMC or the concerned Collector or the concerned park in-charge shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.
 - (6) The SESZMC may invite representatives or experts from concerned Departments, representatives from Industry Associations or concerned stakeholders to assist in its deliberations depending on the requirements on issue to issue basis.
 - (7) The SEZMC shall submit the annual action taken report of its activities as on 31st March of every year by 30th June of that year to the Central Government in the Ministry of Environment, Forest and Climate Change as per pro forma given in **Annexure IV**.
 - (8) The Central Government in the Ministry of Environment, Forests and Climate Change may give such directions, as it deems fit, to the SESZMC for effective discharge of its functions.
6. The provisions of this notification shall be subject to the orders passed by the Hon'ble Supreme Court of India or the High Court or National Green Tribunal as the case may be, in respect of matters covered under this notification.

[F. No. 25/36/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

Annexure I

Map of Bondla Wildlife Sanctuary Eco-sensitive Zone showing Latitudes- Longitudes



Annexure II

List of latitudes and longitudes of prominent points on the boundary of the ESZ of Bondla Wildlife Sanctuary

S. No.	Description	Latitude	Longitude
1		15°27'9.84"N	74° 5'5.95"E
2		15°27'25.94"N	74° 5'25.56"E
3		15°27'24.13"N	74° 6'1.49"E
4		15°27'23.38"N	74° 6'44.61"E
5	RIVER	15°27'20.78"N	74° 7'11.36"E
6		15°26'58.13"N	74° 7'48.52"E
7	RIVER	15°26'36.46"N	74° 7'57.03"E
8		15°26'2.01"N	74° 7'48.61"E
9		15°25'29.17"N	74° 7'38.71"E
10		15°24'51.35"N	74° 7'36.81"E
11		15°24'18.85"N	74° 7'23.15"E
12		15°24'25.65"N	74° 6'28.87"E
13		15°24'48.35"N	74° 6'4.52"E
14		15°25'30.46"N	74° 5'38.15"E
15		15°25'44.26"N	74° 5'25.91"E
16		15°26'15.79"N	74° 5'16.86"E
17		15°26'40.96"N	74° 5'5.95"E

Annexure III

List of villages falling within the Bondla Wildlife Sanctuary Eco-sensitive Zone

List of Villages partially within the ESZ Boundary

S. No.	Village Name
1	Usgao
2	Ganjem
3	Conquirem
4	Melaluli
5	Pilliem
6	Darbandora

Annexure IV**Pro forma of Action Taken Report: - State Level Eco-sensitive Zone Monitoring Committee.-**

1. Number and date of Meetings
2. Minutes of the meetings: Mention main noteworthy points. Attached Minutes of the meeting on separate Annexure.
3. Status of preparation of Zonal master Plan including Tourism master Plan (Eco-sensitive Zone wise)
4. Summary of cases dealt for rectification of error apparent on face of land record. (Eco-sensitive Zone wise). Details may be attached as Annexure
5. Summary of cases scrutinized for activities covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise). Details may be attached as separate Annexure.
6. Summary of case scrutinized for activities not covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise). Details may be attached as separate Annexure.
7. Summary of complaints lodged under Section 19 of Environment (Protection) Act, 1986. (Eco-sensitive Zone wise).
8. Any other matter of importance.

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
NOTIFICATION

New Delhi, the 25th February, 2015

S.O. 616(E).—Whereas, a draft notification, for declaration of Eco-sensitive Zone around Madei Wildlife Sanctuary in Goa, was published in the Gazette of India, Extraordinary, *vide* notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 632(E), dated 3rd March, 2014, inviting objections and suggestions from all persons likely to be affected thereby within a period of sixty days from date on which copies of the Gazette containing the said notification were made available to the public;

And Whereas, copies of the Gazette containing the said notification were made available to the public on the 3rd March, 2014;

And Whereas, all objections and suggestions received in response to the draft notification have been duly considered by the Central Government;

And Whereas, the Central Government considers that the Madei Wildlife Sanctuary, Sattari, Goa lying between latitudes 15° 40' 56.58" N and 15° 27' 12.64" N and longitudes 74° 16' 55.70" E and 74° 5' 2.58" E in the North Goa District of Goa State and extending over an area of 208.48 square kilometres, is an essential part of the Western Ghats, which is rich in biodiversity;

And Whereas, the Wrington's free tailed bat is the species of vital importance in Madei Wildlife Sanctuary, besides some of the most endangered species like Indian gaur, panther, mouse deer, wild dogs, etc. are also found in this sanctuary;

And Whereas, the forest of this Sanctuary intercepts rainfall and helps recharge ground water aquifer and protects rivers and streams against siltation by minimising soil erosion and has a well knit network of streams spreading throughout, which are perennial or semi perennial or seasonal in nature, and feed into Madei river, Anjunem reservoir and its canals;

And Whereas, it is necessary to conserve and protect the area the extent and boundary of which is specified in paragraph 1 of this notification around the Madei Wildlife Sanctuary as Eco-sensitive Zone from ecological and environmental point of view and to prohibit industries or class of industries and their operations and processes in the said Eco-sensitive zone;

Now, Therefore, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area to an extent of one kilometre of land or the water body, whichever is nearer to the boundary of the Madei Wildlife Sanctuary in the State of Goa, as the Eco-sensitive Zone, details of which are as under, namely:—

1. **Extent and Boundaries of Eco-sensitive Zone.**—(1) The extent of Eco-sensitive Zone shall be one kilometre of land or the water body whichever is nearer to the boundary of the Madei Wildlife Sanctuary within the State of Goa.

(2) The Eco-sensitive Zone is bounded on the North by Maharashtra State boundary, on the South by the boundary of Bhagwan Mahaveer Wildlife Sanctuary, on the East by the villages of Karnataka State and on the West by the Anjunem reservoir and its canals and areas of the villages of Sattari Taluka; the Mahadei river, a tributary of Madei River joins the Eco-sensitive Zone on the East and passes along the Eco-sensitive Zone boundary from the East towards West at few places and the Anjunem reservoir is within the Eco-sensitive Zone towards West.

(3) The map of Eco-sensitive Zone boundary is appended to this notification as **Annexure I**. List of latitudes and longitudes of prominent points on the boundary of the ESZ is appended to this notification as **Annexure II**.

(4) The list of villages falling within Eco-sensitive Zone is given at **Annexure III**.

(5) The list of villages given in Annexure III shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

2. **Zonal Master Plan for the Eco-sensitive Zone.**—(1) The State Government shall for the purpose of effective management of the Eco-sensitive Zone, prepare a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for the consideration and approval of the Ministry of Environment, Forests and Climate Change, Government of India in consultation with local people and all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development, Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

(2) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.

(3) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, man-made heritage sites, natural heritage sites, mining leases in operation, lakes and other water bodies.

(4) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.

(5) The Zonal Master Plan shall contain the measures as may be specified by the Central Government or the State Government, for regulation of activities specified under column (2) of the table specified in paragraph 4.

(6) The Zonal Master Plan so prepared shall be co-terminus with the regional development plan.

(7) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), referred to in paragraph 5, for carrying out its functions of monitoring under the provisions of this notification.

3. **Measures to be taken by State Government.**—The State Government shall take the following measures for giving effect to the provisions of this notification, namely:—

(1) Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or industrial related development activities:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, to meet the residential needs of local residents, and for the activities listed at item numbers 24, 26, 28 and 31 in column (2) of the Table in paragraph 4, namely:—

- (i) Small scale industries not causing pollution,
- (ii) Rainwater harvesting,
- (iii) Cottage industries including village industries, and
- (iv) Eco-friendly cottages for temporary occupation of tourists such as tents, wooden houses, etc. for Eco-friendly tourism activities:

Provided further that no use of tribal land shall be permitted for commercial and industrial development activities without the prior approval of the State Government and without compliance to the provisions of Article of 244 of the Constitution of India or the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007) as amended time to time:

Provided also that any error appearing in the land records within the Eco-sensitive Zone shall be corrected by the State Government, after obtaining the views of SESZMC, once in each case and the correction of said error shall be intimated to the Central Government in the Ministry of Environment, Forest and Climate Change:

Provided also that the above correction of error shall not include change of land use in any case except as provided under this sub-paragraph.

(2) The catchment areas of all natural springs shall be identified and plans for their conservation and rejuvenation shall be incorporated in the Zonal Master Plan and the guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.

(3) The activity relating to tourism within the Eco-sensitive Zone which shall form part of the Zonal Master Plan shall be as under, namely:—

(a) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in accordance with the guidelines issued by the Central Government in the Ministry of Environment, Forest and Climate Change and by the National Tiger Conservation Authority, with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;

(b) new construction of any kind shall not be permitted within the Eco-sensitive Zone except for eco-friendly accommodation like tents, wooden houses or thatched roofs for temporary occupation of tourists and for eco-friendly tourism activities;

(c) till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC.

(4) All sites of valuable natural heritage in the Eco-sensitive Zone such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. shall be identified and preserved and proper plan shall be drawn up for their protection and conservation, within six months from the date of publication of this notification and such plan shall form part of the Zonal Master Plan.

(5) Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(6) The Environment Department of the State Government shall draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.

(7) The Environment Department of the State Government shall draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.

(8) The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) and the rules made thereunder.

(9) Disposal of solid wastes shall be as under:—

(i) the solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* notification number S.O. 908 (E), dated the 25th September, 2000 as amended from time to time;

(ii) the local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components;

(iii) the biodegradable material shall be recycled preferably through composting or vermiculture;

(iv) the inorganic material shall be disposed of in an environmentally acceptable manner.

(10) The bio-medical waste disposal in the Eco-sensitive Zone shall be carried out as per the provisions of the Bio-Medical Waste (Management and Handling) Rules, 1998 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* Notification number S.O. 630 (E), dated the 20th July, 1998 as amended from time to time.

(11) The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment, Forests and Climate Change, SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

4. List of activities prohibited or to be regulated within the Eco-sensitive Zone.-All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 (29 of 1986) and the rules made thereunder and be regulated in the manner specified in the Table below, namely:—

TABLE

S.No.	Activity	Remarks
(1)	(2)	(3)
Prohibited Activities		
1.	Commercial Mining, stone quarrying and crushing units.	All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect
2.	Setting up of saw mills.	Prohibited (except as otherwise provided) as per applicable laws.
3.	Setting up of industries causing water or air or soil or noise pollution.	Prohibited (except as otherwise provided) as per applicable laws.
4.	Commercial establishment of hotels and resorts.	New commercial establishment such as hotels and resorts shall be prohibited within the Eco-sensitive Zone with immediate effect.
5.	Commercial use of firewood.	Prohibited (except as otherwise provided) as per applicable laws.
6.	Establishment of new major hydroelectric projects.	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the Eco-sensitive Zone is prohibited with immediate effect, except the micro hydel power projects (Up to 100KW) or the mini hydel power projects (from 101 to 2000KW), which would serve the energy needs of the local communities, subject to the consent of the concerned Gram Sabha and all other requisite clearances.
7.	Use or production of any hazardous substances.	Prohibited (except as otherwise provided) as per applicable laws.
8.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Prohibited (except as otherwise provided) as per applicable laws.
9.	New wood based industry.	No establishment of new wood based industry shall be permitted within the limits of Eco-sensitive Zone with immediate effect.
10.	Construction activities	New construction of any kind shall be prohibited within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 26, 28 and 31 and in the case of activities listed at item number 24, the construction activity shall be regulated and kept at the minimum.
11.	Use of plastic carry bags	Prohibited (except as otherwise provided) as per applicable laws.
12.	Brick kilns	Prohibited (except as otherwise provided) as per applicable laws.
Regulated Activities		
13.	Felling of trees.	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government. (b) The felling of trees shall be regulated in accordance with the

		provisions of the concerned Central or State Act and the rules made thereunder.
14.	Commercial water resources including ground water harvesting.	(a) The extraction of surface water and ground water shall be permitted only for <i>bona fide</i> agricultural use and domestic consumption of the occupier of the land. (b) Extraction of surface water and ground water for industrial or commercial use including the amount that can be extracted shall require prior written permission from the concerned Regulatory Authority. (c) No sale of surface water or ground water shall be permitted. (d) Steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
15.	Erection of electrical cables and telecommunication towers.	Promote underground cabling.
16.	Fencing of existing premises of hotels and lodges.	Regulated under applicable laws.
17.	Widening and strengthening of existing roads and construction of new roads.	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
18.	Movement of vehicular traffic at night.	Regulated for commercial purpose as per applicable law.
19.	Introduction of exotic species.	Regulated under applicable laws
20.	Undertaking activities related to tourism like over-flying the National Park area by hot-air balloons, etc.	Regulated under applicable laws
21.	Protection of hill slopes and river banks.	Regulated under applicable laws
22.	Discharge of treated effluents in natural water bodies or land area.	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
23.	Commercial Sign boards and hoardings.	Regulated under applicable laws
24.	Small scale industries not causing pollution.	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment.
25.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	Regulated under applicable laws
26.	Eco-tourism activities including eco tourist lodges, restaurant and recreational facilities including spa, swimming pool, gymnasium in temporary structures made of cloth or wood or particle board such as tents etc.	As per Zonal Master Plan.
Promoted Activities		
27.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted under applicable laws.
28.	Rain water harvesting.	Shall be actively promoted.
29.	Organic farming.	Shall be actively promoted.
30.	Adoption of green technology for all activities.	Shall be actively promoted.
31.	Cottage industries including village artisans, etc.	Shall be actively promoted.

- 5. State Level Eco-sensitive Zone Monitoring Committee:—**(1) The Central Government in the Ministry of Environment, Forest and Climate Change, for effective monitoring of the Eco-sensitive Zones around National

Parks and Wildlife Sanctuaries, has constituted a Committee called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa vide notification number S.O. 221(E), dated the 23rd January, 2015, published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii) comprising of the following members, and to perform the following functions, namely:-

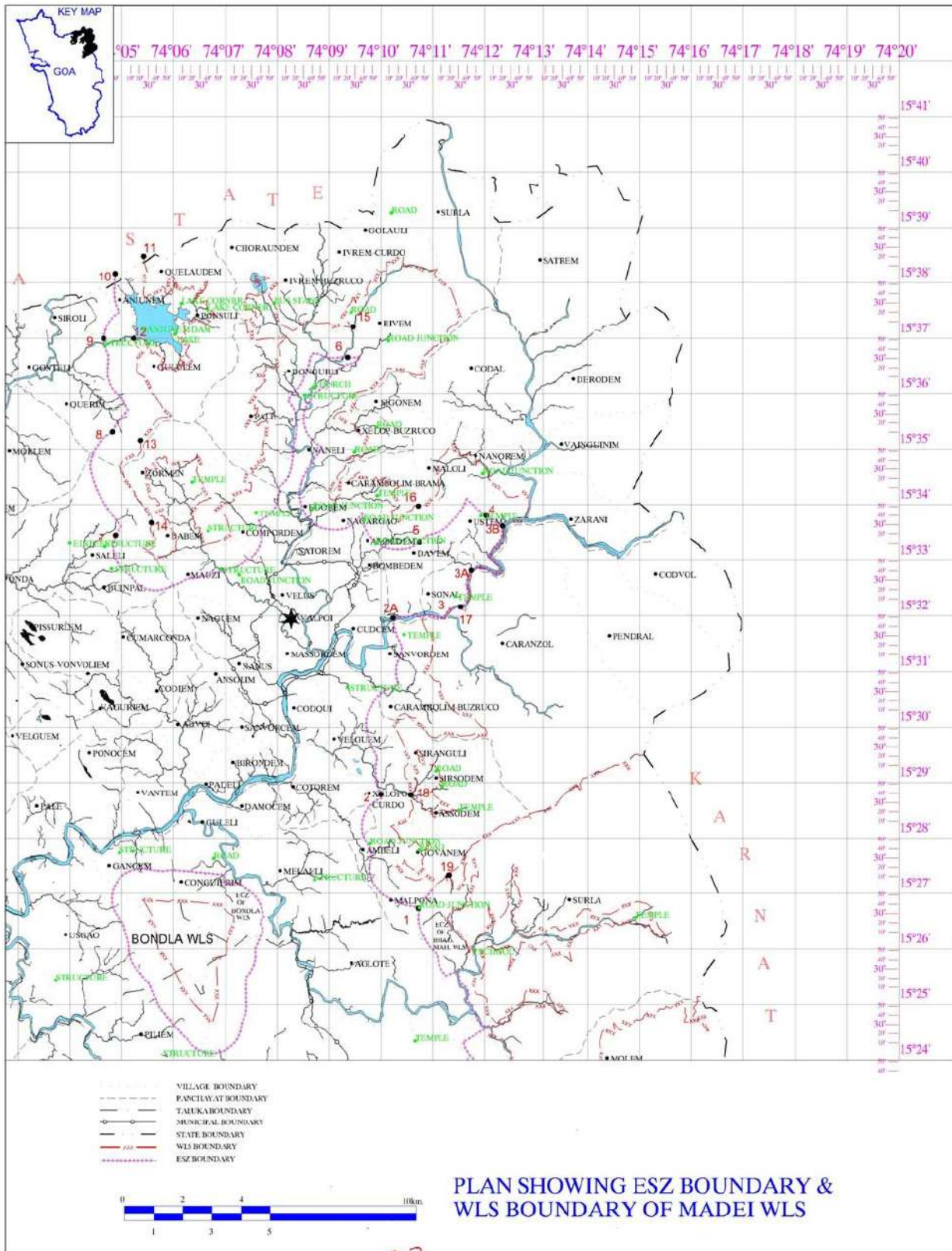
- (i) Chief Secretary, Government of Goa- Chairman;
 - (ii) Representative of the Ministry of Environment, Forest and Climate Change- Member;
 - (iii) Member Secretary, State Pollution Control Board-Member;
 - (iv) One representative of Non-governmental Organisations working in the field of environment to be nominated by the Government of Goa (for a term of one year)– Member;
 - (v) One representative of community based organisations nominated by the State Government (for a term of one year)– Member;
 - (vi-xiv) Principal Secretaries of the Government of Goa from Departments of Forest and Environment, Rural Development, Agriculture, Urban Development, Housing, Mining, Ports, Transport and Revenue – Members;
 - (xv) One expert in Ecology from reputed Institution or University of the State of Goa to be nominated by Government of Goa (for a term of one year) - Member;
 - (xvi) Chief Conservator of Forests (WL) and Chief Wildlife Warden, Government of Goa– Member Secretary.
- (2) The SESZMC shall monitor the compliance of the provisions of this notification.
 - (3) The activities that are covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533 (E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment, Forest and Climate Change for prior environmental clearance under the provisions of the said notification.
 - (4) The activities that are not covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the concerned regulatory authorities.
 - (5) The Member Secretary of the SESZMC or the concerned Collector or the concerned park in-charge shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.
 - (6) The SESZMC may invite representatives or experts from concerned Departments, representatives from Industry Associations or concerned stakeholders to assist in its deliberations depending on the requirements on issue to issue basis.
 - (7) The SESZMC shall submit the annual action taken report of its activities as on 31st March of every year by 30th June of that year to the Central Government in the Ministry of Environment, Forest and Climate Change as per pro forma given in **Annexure IV**.
 - (8) The Central Government in the Ministry of Environment, Forests and Climate Change may give such directions, as it deems fit, to the SESZMC for effective discharge of its functions.
6. The provisions of this notification shall be subject to the orders passed by the Hon'ble Supreme Court of India or the High Court or National Green Tribunal as the case may be, in respect of matters covered under this notification.

[F. No. 25/35/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

Annexure I

Map of Madei Wildlife Sanctuary Eco-sensitive Zone showing Latitudes-Longitudes



Annexure II

List of latitudes and longitudes of prominent points on the boundary of the ESZ of Madei Wildlife Sanctuary

S. No.	Description	Latitude	Longitude
1	ROAD	15°26'51.80"N	74°10'12.72"E
2	ROAD	15°28'39.16"N	74° 9'54.27"E
2A	RIVER	15°31'54.55"N	74°10'2.95"E
3	RIVER	15°32'5.29"N	74°11'21.42"E
3A	RIVER	15°32'49.27"N	74°11'50.82"E
3B	RIVER	15°33'36.55"N	74°12'22.95"E
4	ROAD	15°33'40.55"N	74°11'54.37"E
5	ROAD	15°33'11.87"N	74°10'37.94"E
6	ROAD	15°36'31.11"N	74° 9'13.98"E
7	PADDY CENTER	15°33'17.55"N	74° 4'47.43"E
8	HILLY AREA	15°35'9.23"N	74° 4'43.38"E
9	ROAD	15°36'50.26"N	74° 4'33.07"E
10	END POINT	15°38'0.35"N	74° 4'45.76"E
11	WLS MAHARASHTRA BORDER	15°38'21.41"N	74° 5'29.24"E
12	WLS BOUNDARY	15°36'55.66"N	74° 5'20.41"E
13	WLS BOUNDARY	15°34'49.44"N	74° 4'48.60"E
14	WLS BOUNDARY	15°33'42.47"N	74° 5'38.06"E
15	WLS BOUNDARY	15°37'13.18"N	74° 9'25.19"E
16	WLS BOUNDARY	15°33'47.58"N	74°10'50.96"E
17	WLS BOUNDARY	15°32'5.29"N	74°11'21.42"E
18	WLS BOUNDARY	15°28'45.34"N	74°10'37.90"E
19	WLS BOUNDARY	15°27'15.04"N	74°11'16.98"E

Annexure III

List of villages falling within the Madei Wildlife Sanctuary Eco-sensitive Zone

List of Villages completely falling within the ESZ Boundary

S. No.	Village Name
1	Rivem

List of Villages partially within the ESZ Boundary

S. No.	Village Name
1	Anjunem
2	Ponsuli
3	Quelaudem
4	Gullullem
5	Querim
6	Zorme
7	Saleli
8	Bhuimpal
9	Dabem
10	Mauxi
11	Compordem
12	Naneli
13	Pale
14	Dongurli
15	Choraundem
16	Golauli

17	Edorem
18	Carambolim-Bramma
19	Nagargao
20	Ambedem
21	Satorem
22	Davem
23	Ustem
24	Maloli
25	Sanvordem
26	Carambolim-Buzrucco
27	Velguem
28	Siranguli
29	Sirsodem
30	Assodem
31	Xelopo-Curdo
32	Govanem
33	Ambeli
34	Malpona
35	Surla

Annexure IV**Proforma of Action Taken Report: - State Level Eco-sensitive Zone Monitoring Committee.-**

1. Number and date of Meetings
2. Minutes of the meetings: Mention main noteworthy points. Attached Minutes of the meeting on separate Annexure.
3. Status of preparation of Zonal master Plan including Tourism master Plan (Eco-sensitive Zone wise)
4. Summary of cases dealt for rectification of error apparent on face of land record. (Eco-sensitive Zone wise).
Details may be attached as Annexure
5. Summary of cases scrutinized for activities covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise).
Details may be attached as separate Annexure.
6. Summary of case scrutinized for activities not covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise).
Details may be attached as separate Annexure.
7. Summary of complaints ledged under Section 19 of Environment (Protection) Act, 1986. (Eco-sensitive Zone wise).
8. Any other matter of importance.

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 23rd January, 2015

S.O. 221(E).—Whereas, the Bhagwan Mahaveer Wildlife Sanctuary and National Park, Goa lying between latitudes 15° 29' 30.47" N and 15° 15' 9.29" N and longitudes 74° 20' 10.01" E and 74° 29' 26.27" E in the North Goa District of Goa State and extending over an area of 240 square kilometres, is an essential part of the Western Ghats, which is rich in biodiversity;

And whereas, out of the 240 square kilometres of original Bhagwan Mahaveer Wildlife Sanctuary, an area of 107 square kilometres was carved out and constituted as a National Park thereby dividing the Sanctuary into two parts;

And whereas, the endangered species of wildlife like Indian bison, panther, mouse deer, black panther, slender loris, wild dog, sloth bear, etc inhabits the Protected Areas;

And whereas, the forest of these Protected Areas intercepts rainfall and helps recharge ground water aquifer and protects rivers and streams against siltation by minimising soil erosion and has a well knit network of streams spreading throughout which are perennial or semi perennial or seasonal in nature, feeding Zuari river, Mandovi river and its canals;

And whereas, it is necessary to conserve and protect the area around the Bhagwan Mahaveer Wildlife Sanctuary and National Park as Eco-sensitive Zone from ecological and environmental point of view;

And whereas, a draft notification under sub-section (1) read with clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) was published in the Gazette of India, Extraordinary, *vide* notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 635(E), dated the 3rd March, 2014, as required under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, inviting objections and suggestions from all persons likely to be affected thereby within a period of sixty days from date on which copies of the Gazette containing the said notification were made available to the public;

And whereas, copies of the Gazette containing the said notification were made available to the public on the 3rd March, 2014 along with the corrigendum issued *vide* notification number S.O. 831(E), dated 19th March, 2014;

And whereas, all objections and suggestions received in response the draft notification have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area to an extent of one kilometre of land or the water body, whichever is nearer to the boundary of the Bhagwan Mahaveer Wildlife Sanctuary and National Park in the State of Goa, as the Eco-sensitive Zone, details of which are as under, namely:—

1. Extent and Boundaries of Eco-sensitive Zone.—(1) The extent of Eco-sensitive Zone shall be one kilometre of land or the water body whichever is nearer to the boundary of the Bhagwan Mahaveer Wildlife Sanctuary and National Park in the State of Goa.

(2) The Eco-sensitive Zone is bounded on the North by the boundary of Madei Wildlife Sanctuary, on the South by the boundary of Netravali Wildlife Sanctuary, on the East by the boundary of Bhagwan Mahaveer Wildlife Sanctuary and National Park and on the West by areas of the villages of Dharbandora Taluka, Sattari Taluka and Sanguem Taluka; the Dudhsagar river, originating from the Bhagwan Mahaveer National Park passes through the Eco-sensitive Zone towards West along the Eco-sensitive Zone boundary and Bhagwan Mahavir Sanctuary boundary.

(3) The map of Eco-sensitive Zone boundary is appended to this notification as **Annexure I**. List of latitudes and longitudes of prominent points on the boundary of the ESZ is appended to this notification as **Annexure II**.

(4) The list of sixteen villages falling partially within Eco-sensitive Zone boundary is given at **Annexure III**.

(5) The list of villages given in Annexure III shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

2. Zonal Master Plan for the Eco-sensitive Zone.- (1) The State Government shall for the purpose of effective management of the Eco-sensitive Zone, prepare a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for consideration and approval of the Ministry of Environment, Forests, and Climate Change, Government of India in consultation with local people and with the involvement of all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development, Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

(2) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.

(3) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, man-made heritage sites, natural heritage sites, mining leases in operation, lakes and other water bodies.

(4) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.

(5) The Zonal Master Plan shall contain the measures as may be specified by the Central Government or the State Government, for regulation of activities specified under column (2) of the table specified in paragraph 4.

(6) The Zonal Master Plan so prepared shall be co-terminus with the regional development plan.

(7) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), as referred to in para 5, for carrying out its functions of monitoring under the provisions of this notification.

3. Measures to be taken by State Government.- The State Governments shall take the following measures for giving effect to the provisions of this notification, namely:—

(1) Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or industrial related development activities:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, to meet the residential needs of the local residents, and for the activities listed at item numbers 24, 26, 28 and 31 in column (2) of the Table in paragraph 4, namely:-

- (i) Small scale industries not causing pollution,
- (ii) Rainwater harvesting, and
- (iii) Cottage industries including village industries,
- (iv) Ecofriendly cottages for temporary occupation of tourists such as tents, wooden houses, etc. for Eco-friendly tourism activities:

Provided further that no change in use of land from tribal usage to non-tribal usage shall be permitted without the prior approval of the State Government and without compliance of the provisions of the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007):

Provided also that any error appearing in the land records within the Eco-sensitive Zone shall be corrected by the State Government, after obtaining the views of SESZMC, only once in each case and the correction of said error shall be intimated to the Central Government in the Ministry of Environment, Forest and Climate Change:

Provided also that the above correction of error shall not include change of land use in any case except as provided under this sub-paragraph.

(2) The catchment areas of all natural springs shall be identified and plans for their conservation and rejuvenation shall be incorporated in the Zonal Master Plan and the strict guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.

(3) The activity relating to tourism within the Eco-sensitive Zone which shall form part of the Zonal Master Plan shall be as under, namely:-

(a) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in accordance with the guidelines issued by the Central Government in the Ministry of Environment, Forests and Climate Change and by the National Tiger Conservation Authority, with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;

(b) New construction of any kind shall not be allowed within the Eco-sensitive Zone except for eco-friendly accommodation like tents, wooden houses or thatched roofs for temporary occupation of tourists and for eco-friendly tourism activities:

(c) Till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC.

(4) All sites of valuable natural heritage in the Eco-sensitive Zone such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. shall be identified and preserved and proper plan shall be drawn up for their protection and conservation, within six months from the date of publication of this notification and such plan shall form part of the Zonal Master Plan.

(5) Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(6) The Environment Department of the State Government shall draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981(14 of 1981).

(7) The Environment Department of the State Government shall draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981).

(8) The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974).

(9) Disposal of solid wastes shall be as under:-

(i) The solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* notification number S.O. 908(E), dated the 25th September, 2000;

(ii) the local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components;

(iii) The biodegradable material shall be recycled preferably through composting or vermiculture;

(iv) the inorganic material shall be disposed of in an environmentally acceptable manner.

(10) The bio-medical waste disposal in the Eco-sensitive Zone shall be carried out as per the provisions of the Bio-Medical Waste (Management and Handling) Rules, 1998 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* Notification number S.O. 630(E), dated the 20th July, 1998.

(11) The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment, Forests and Climate Change, SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

4. List of activities prohibited or to be regulated within the Eco-sensitive Zone.-All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 (29 of 1986) and be regulated in the manner specified in the Table below, namely:—

TABLE

S.No.	Activity	Remarks
(1)	(2)	(3)
Prohibited Activities		
1.	Commercial Mining, stone quarrying and crushing units.	(a) All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect: Provided that the existing mines may be phased out within a period of ten years subject to the Supreme Court modifying its interim order dated 4.8.2006 in I.A. 1000 in Writ Petition 202 of 1995 (T.N. Godavarman Vs. Union of India) and its order in Writ Petition 435 of 2012 in the matter of Goa Foundation Vs Union of India: Provided further that the State Government shall ensure a proper and rigorous mine closure plan for rehabilitation and ecological restoration of the mined out area which shall be completed as early as possible as per Indian Bureau of Mines norms.
2.	Setting up of saw mills.	Prohibited with immediate effect.
3.	Setting up of industries causing water or air or soil or noise pollution.	Prohibited with immediate effect.
4.	Commercial establishment of hotels and resorts.	New commercial establishment such as hotels and resorts shall be prohibited within the Eco-sensitive Zone with immediate effect.
5.	Commercial use of firewood.	Prohibited with immediate effect.
6.	Establishment of new major hydroelectric projects.	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the Eco-sensitive Zone is prohibited with immediate effect, except the micro hydel power projects (Up to 100KW) or the mini hydel power projects (from 101 to 2000KW), which would serve the energy needs of the local communities, subject to the consent of the concerned Gram Sabha and all other requisite clearances.
7.	Use or production of any hazardous substances.	Prohibited with immediate effect
8.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Prohibited with immediate effect.
9.	New wood based industry.	Establishment of new wood based industry shall be prohibited within the limits of Eco-sensitive Zone with immediate effect.
10.	Construction activities	No new construction of any kind shall be prohibited within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 26, 28 and 31 and in the case of activities listed at item number 24, the construction activity shall be regulated and kept at the minimum.
11.	Use of plastic carry bags	Prohibited with immediate effect.
12.	Brick kilns	Prohibited with immediate effect.
Regulated Activities		
13.	Felling of trees.	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
14.	Commercial water resources including ground water harvesting.	(a) The extraction of surface water and ground water shall be allowed only for <i>bona fide</i> agricultural use and domestic consumption of the occupier of the land (b) extraction of surface water and ground water for industrial or commercial

		use including the amount that can be extracted, shall require prior written permission from the concerned Regulatory Authority. (c) No sale of surface water or ground water shall be permitted. (d) Steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
15.	Erection of electrical cables and telecommunication towers.	Promote underground cabling.
16.	Fencing of existing premises of hotels and lodges.	
17.	Widening and strengthening of existing roads and construction of new roads.	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
18.	Movement of vehicular traffic at night.	For commercial purpose.
19.	Introduction of exotic species.	
20.	Undertaking activities related to tourism like over-flying the National Park area by hot-air balloons, etc.	
21.	Protection of hill slopes and river banks.	
22.	Discharge of treated effluents in natural water bodies or land area.	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
23.	Commercial Sign boards and hoardings.	
24.	Small scale industries not causing pollution.	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment.
25.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	
26.	Eco-tourism activities including eco tourist lodges, restaurant and recreational facilities including sap, swimming pool, gymnasium in temporary structures made of cloth or wood or particle board such as tents etc.	As per tourism master plan
Promoted Activities		
27.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	
28.	Rain water harvesting.	Shall be actively promoted.
29.	Organic farming.	Shall be actively promoted.
30.	Adoption of green technology for all activities.	Shall be actively promoted.
31.	Cottage industries including village artisans, etc.	

5. State Level Eco-sensitive Zone Monitoring Committee.- (1) The Central Government in the Ministry of Environment, Forest and Climate Change, for effective monitoring of all notified Eco-sensitive Zones around the National Parks and Wildlife Sanctuaries in the state of Goa, hereby constitutes a Committee

called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa comprising of the following members, namely:-

- (i) Chief Secretary, Government of Goa- Chairman;
- (ii) Representative of the Ministry of Environment, Forests and Climate Change –Member;
- (iii) Member Secretary, State Pollution Control Board-Member;
- (iv) One representative of Non-governmental Organizations working in the field of environment, nominated by the Government of Goa (for a term of one year)– Member;
- (v) One representative of community based organization nominated by the State Government (for a term of one year)– Member;
- (vi) Principal Secretaries of the Government of Goa from Departments of Forest, Environment, Rural Development, Agriculture, Urban Development and Housing, Mining and Ports and Transport, Revenue– Members;
- (vii) One expert in Ecology from reputed Institution or University of the State of Goa nominated by the State Government (for a term of one year) - Member;
- (viii) Chief Conservator of Forests (WL) and Chief Wildlife Warden, Government of Goa– Member Secretary.

(2) The function of the SESZMC shall be as under:

(a) The SESZMC shall monitor the compliance of the provisions of Notifications declaring Eco-sensitive Zones around National Park and Wildlife Sanctuaries in the State of Goa including this notification.

(b) All activities that are covered under the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling within such Eco-sensitive Zones as are notified by the Central Government by issuing notification in the Gazette of India in respect of the National Parks and Wildlife Sanctuaries in the State of Goa, except for the prohibited activities specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and refer the same to the Central Government in the Ministry of Environment, Forest and Climate Change for prior environmental clearances under the provisions of the said notification.

(c) The activities that are not covered under the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 but are falling within such Eco-sensitive Zones as are notified by the Central Government by issuing notification in the Gazette of India in respect of the National Parks and Wildlife Sanctuaries in the State of Goa, except for the prohibited activities specified in the Table under paragraph 4 thereof, shall be scrutinized by the SESZMC based on the actual site-specific conditions and refer the same to the concerned regulatory authorities.

(d) The Member Secretary of the SESZMC or the concerned Collector or the concerned park in-charge shall be competent to file complaint under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.

(e) The SESZMC may invite representatives or experts from concerned Departments, Industry Associations or concerned stakeholders to assist it in its deliberations depending on the requirements on issue to issue basis.

(f) The SESZMC shall submit the annual action taken report of its activities as on 31st March of every year by 30th June of that year to the Central Government in the Ministry of Environment, Forests and Climate Change as per pro forma given in **Annexure IV**.

(g) The Central Government in the Ministry of Environment, Forests and Climate Change may give such directions, as it may deem fit, to the SESZMC for effective discharge of its functions.

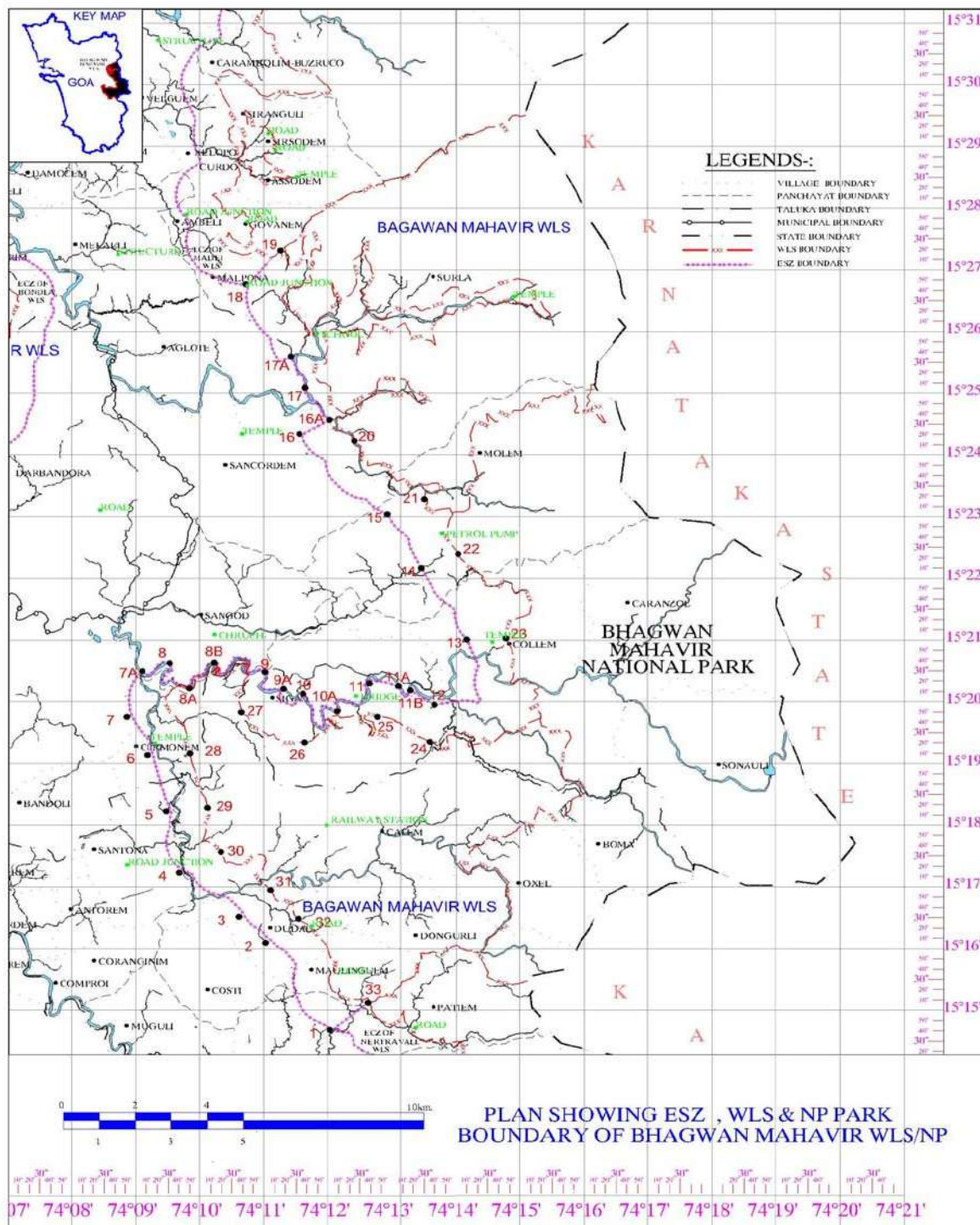
6. The provisions of this notification shall be subject to the orders passed by the Hon'ble Supreme Court of India or the High Court or National Green Tribunal (NGT) as the case may be, in respect of matters covered under this notification.

[F. No. 25/34/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

Annexure I

**Map of Bhagwan Mahaveer Wildlife Sanctuary & National Park Eco-sensitive Zone showing
Latitudes-Longitudes**



Annexure II

CO-ORDINATES OF PROMINENT POINTS			
S. No.	Description	Latitude	Longitude
1	PLANTATION	15°14'32.12"N	74°11'55.78"E
2	ROAD	15°15'58.19"N	74°10'58.55"E
3	ROAD	15°16'23.40"N	74°10'33.37"E
4	RAILWAY ROAD	15°17'5.93"N	74° 9'38.10"E
5	ROAD	15°18'5.77"N	74° 9'25.42"E
6	ROAD	15°19'0.17"N	74° 9'8.32"E
7	ROAD	15°19'37.55"N	74° 8'48.79"E
7A	RIVER	15°20'27.07"N	74° 9'5.03"E
8	RIVER	15°20'49.63"N	74° 9'40.75"E
8A	RIVER	15°20'12.15"N	74° 9'48.20"E
8B	RIVER	15°20'36.59"N	74°10'13.28"E
9	RIVER	15°20'41.92"N	74°11'7.41"E
9A	RIVER	15°20'11.85"N	74°11'19.26"E
10	RIVER	15°20'7.80"N	74°11'48.41"E
10A	RIVER	15°19'50.54"N	74°12'9.19"E
11	RIVER	15°20'10.67"N	74°12'34.26"E
11A	RIVER	15°20'12.43"N	74°13'6.80"E
11B	RIVER	15°20'12.11"N	74°13'15.51"E
12	ROAD	15°19'47.29"N	74°13'31.47"E
13	ROAD	15°20'51.63"N	74°14'1.11"E
14	ROAD	15°21'58.72"N	74°13'19.14"E
15	PADDY CORNER	15°22'52.60"N	74°12'47.45"E
16	PADDY CORNER	15°23'53.72"N	74°11'35.05"E
16A	RIVER	15°24'34.13"N	74°12'1.38"E
17	RIVER	15°25'5.24"N	74°11'36.97"E
17A	RIVER	15°25'37.06"N	74°11'27.73"E
18	MADEI-BHAWGAN ESZ	15°26'51.80"N	74°10'12.72"E
19	MADEI-BHAWGAN WLS	15°27'15.04"N	74°11'16.98"E
20	WLS BOUNDARY	15°24'7.47"N	74°12'31.77"E
21	WLS BOUNDARY	15°23'9.15"N	74°13'27.37"E
22	WLS BOUNDARY	15°22'11.43"N	74°13'59.18"E
23	WLS BOUNDARY	15°21'1.53"N	74°14'42.51"E
24	WLS BOUNDARY	15°19'21.93"N	74°13'28.54"E
25	WLS BOUNDARY	15°19'48.95"N	74°12'41.04"E
26	WLS BOUNDARY	15°19'31.54"N	74°11'58.74"E
27	WLS BOUNDARY	15°19'57.69"N	74°10'50.58"E
28	WLS BOUNDARY	15°19'8.06"N	74° 9'50.22"E
29	WLS BOUNDARY	15°18'20.49"N	74° 9'57.43"E
30	WLS BOUNDARY	15°17'29.83"N	74°10'19.74"E
31	WLS BOUNDARY	15°16'54.18"N	74°11'5.25"E
32	WLS BOUNDARY	15°16'24.77"N	74°11'35.11"E
33	BHAGWAN-NETRAVALI WLS	15°15'10.83"N	74°12'33.08"E

Annexure III

List of villages falling within the Bhagwan Mahaveer Wildlife Sanctuary and National Park Eco-sensitive Zone

List of Villages partially within the ESZ Boundary

S. No.	Village Name
1	Aglote
2	Sancordem
3	Mollem
4	Surla

5	Collem
6	Sigao
7	Codli
8	Cormonem
9	Santona
10	Calem
11	Dudal
12	Maulinguem
13	Uguem
14	Melauli
15	Govanem
16	Patiem

Annexure IV**Proforma of Action Taken Report: - State Level Eco-sensitive Zone Monitoring Committee.-**

1. Number and date of Meetings
2. Minutes of the meetings: Mention main noteworthy points. Attached Minutes of the meeting on separate Annexure.
3. Status of preparation of Zonal master Plan including Tourism master Plan (Eco-sensitive Zone wise)
4. Summary of cases dealt for rectification of error apparent on face of land record. (Eco-sensitive Zone wise).
Details may be attached as Annexure
5. Summary of cases scrutinized for activities covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise).
Details may be attached as separate Annexure.
6. Summary of case scrutinized for activities not covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise).
Details may be attached as separate Annexure.
7. Summary of complaints ledged under Section 19 of Environment (Protection) Act, 1986. (Eco-sensitive Zone wise).
8. Any other matter of importance.

MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 24th February, 2015

S.O.608(E).— Whereas, a draft notification, for declaration of Eco-sensitive Zone around Cotigao Wildlife Sanctuary in Goa, was published in the Gazette of India, Extraordinary, *vide* notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 630 (E) dated 3rd March 2014, inviting objections and suggestions from all persons likely to be affected thereby within a period of sixty days from date on which copies of the Gazette containing the said notification were made available to the public;

And Whereas, copies of the Gazette containing the said notification were made available to the public on the 3rd March, 2014;

And Whereas, all objections and suggestions received from all persons and stakeholders in response to the draft notification have been duly considered by the Central Government;

And Whereas, the Central Government considers that the Cotigao Wildlife Sanctuary, Goa lying between latitudes 15° 2' 43.25" N and 14° 55' 33.54" N and longitudes 74° 15' 55.07" E and 74° 7' 22.20" E in the South Goa District of Goa State and extending over an area of 85.65 square kilometres, is an essential part of the Western Ghats, which is rich in biodiversity;

And Whereas, the sanctuary inhabits the endangered species of wildlife like Indian bison, panther, mouse deer, black panther, slender loris, bear, wild dog, etc;

And Whereas, the forest of this Sanctuary intercepts rainfall and helps recharge ground water aquifer and protects rivers and streams against siltation by minimising soil erosion and has a well knit network of streams spreading throughout which are perennial or semi perennial or seasonal in nature, feeding Cotigao river, its tributaries and the various other water bodies including wells situated in the low lying areas;

And Whereas, it is necessary to conserve and protect the area the extent and boundary of which is specified in paragraph 1 of this notification around the Cotigao Wildlife Sanctuary as Eco-sensitive Zone from ecological and environmental point of view and to prohibit industries or class of industries and their operations and processes in the said Eco-sensitive zone;

Now, Therefore, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area to an extent of one kilometre of land or the water body, whichever is nearer to the boundary of the Cotigao Wildlife Sanctuary in the State of Goa, as the Eco-sensitive Zone (herein after referred to as Eco-sensitive Zone) details of which are as under, namely:-

1. Extent and Boundaries of Eco-sensitive Zone. - (1) The extent of Eco-sensitive Zone shall be one kilometre of land or the water body whichever is nearer to the boundary of the Cotigao Wildlife Sanctuary within the State of Goa.

(2) The Eco-sensitive Zone is bounded on the North by Netravali Wild Life Sanctuary, on the South by Karnataka State, on the East by the Cotigao Wild Life Sanctuary and on the West by remaining part of Cotigao, Poinguinim and Gaodongrem villages.

(3) The map of Eco-sensitive Zone boundary is appended to this notification as **Annexure I**. List of latitudes and longitudes of prominent points on the boundary of the ESZ is appended to this notification as **Annexure II**.

(4) The list of villages falling within Eco-sensitive Zone is given at **Annexure III**.

(5) The list of villages given in Annexure III shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

2. Zonal Master Plan for the Eco-sensitive Zone. - (1) The State Government shall for the purpose of effective management of the Eco-sensitive Zone, prepare a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for the consideration and approval of the Ministry of Environment, Forest and Climate Change, Government of India in consultation with local people and all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development, Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

(2) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.

(3) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, man-made heritage sites, natural heritage sites, mining leases in operation, lakes and other water bodies.

(4) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.

(5) The Zonal Master Plan shall contain the measures as may be specified by the Central Government or the State Government, for regulation of activities specified under column (2) of the table specified in paragraph 4.

(6) The Zonal Master Plan so prepared shall be co-terminus with the regional development plan.

(7) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), referred to in paragraph 5, for carrying out its functions of monitoring under the provisions of this notification.

3. **Measures to be taken by State Government.**—The State Government shall take the following measures for giving effect to the provisions of this notification, namely:—

(1) Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or industrial related development activities:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, to meet the residential needs of local residents, and for the activities listed at item numbers 24, 26, 28 and 31 in column (2) of the Table in paragraph 4, namely:—

(i) Small scale industries not causing pollution,

(ii) Rainwater harvesting,

(iii) Cottage industries including village industries, and

(iv) Ecofriendly cottages for temporary occupation of tourists such as tents, wooden houses, etc. for Eco-friendly tourism activities:

Provided further that no use of tribal land shall be permitted for commercial and industrial development activities without the prior approval of the State Government and without compliance to the provisions of Article 244 of the Constitution of India or the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007) as amended from time to time:

Provided also that any error appearing in the land records within the Eco-sensitive Zone shall be corrected by the State Government, after obtaining the views of SESZMC, once in each case and the correction of said error shall be intimated to the Central Government in the Ministry of Environment, Forest and Climate Change:

Provided also that the above correction of error shall not include change of land use in any case except as provided under this sub-paragraph.

(2) The catchment areas of all natural springs shall be identified and plans for their conservation and rejuvenation shall be incorporated in the Zonal Master Plan and the guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.

(3) The activity relating to tourism within the Eco-sensitive Zone which shall form part of the Zonal Master Plan shall be as under, namely:—

(a) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in accordance with the guidelines issued by the Central Government in the Ministry of Environment, Forest and Climate Change and by the National Tiger Conservation Authority, with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;

(b) new construction of any kind shall not be permitted within the Eco-sensitive Zone except for eco-friendly accommodation like tents, wooden houses or thatched roofs for temporary occupation of tourists and for eco-friendly tourism activities;

(c) till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC.

(4) All sites of valuable natural heritage in the Eco-sensitive Zone such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. shall be identified and preserved and proper plan shall be drawn up for their protection and conservation, within six months from the date of publication of this notification and such plan shall form part of the Zonal Master Plan.

(5) Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(6) The Environment Department of the State Government shall draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.

(7) The Environment Department of the State Government shall draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.

(8) The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974(6 of 1974) and the rules made thereunder.

(9) Disposal of solid wastes shall be as under:-

(i) the solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* notification number S.O. 908 (E), dated the 25th September, 2000 as amended from time to time;

(ii) the local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components;

(iii) the biodegradable material shall be recycled preferably through composting or vermiculture;

(iv) the inorganic material shall be disposed of in an environmentally acceptable manner.

(10) The bio-medical waste disposal in the Eco-sensitive Zone shall be carried out as per the provisions of the Bio-Medical Waste (Management and Handling) Rules, 1998 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* Notification number S.O. 630(E), dated the 20th July, 1998 as amended from time to time.

(11) The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment, Forests and Climate Change, SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

4. List of activities prohibited or to be regulated within the Eco-sensitive Zone.-All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 (29 of 1986) and the rules made thereunder and be regulated in the manner specified in the Table below, namely:-

TABLE

S.No.	Activity	Remarks
(1)	(2)	(3)
Prohibited Activities		
1.	Commercial Mining, stone quarrying and crushing units.	All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect.
2.	Setting up of saw mills.	Prohibited (except as otherwise provided) as per applicable laws.
3.	Setting up of industries causing water or air or soil or noise pollution.	Prohibited (except as otherwise provided) as per applicable laws.
4.	Commercial establishment of hotels and resorts.	New commercial establishment such as hotels and resorts shall be prohibited within the Eco-sensitive Zone with immediate effect.
5.	Commercial use of firewood.	Prohibited (except as otherwise provided) as per applicable laws.
6.	Establishment of new major hydroelectric projects.	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the Eco-sensitive Zone is prohibited with immediate effect, except the micro hydel power projects (Up to 100KW) or the mini hydel power projects (from 101 to 2000KW), which would serve the energy needs of the local communities, subject to the consent of the concerned Gram Sabha and all other requisite clearances.
7.	Use or production of any hazardous	Prohibited (except as otherwise provided) as per applicable

	substances.	laws.
8.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Prohibited (except as otherwise provided) as per applicable laws.
9.	New wood based industry.	No establishment of new wood based industry shall be permitted within the limits of Eco-sensitive Zone with immediate effect.
10.	Construction activities	New construction of any kind shall be prohibited within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 26,28 and 31 and in the case of activities listed at item number 24, the construction activity shall be regulated and kept at the minimum.
11.	Use of plastic carry bags	Prohibited (except as otherwise provided) as per applicable laws.
12.	Brick kilns	Prohibited (except as otherwise provided) as per applicable laws.
Regulated Activities		
13.	Felling of trees.	(a) There shall be no felling of trees in the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
14.	Commercial water resources including ground water harvesting.	(a) The extraction of surface water and ground water shall be permitted only for <i>bona fide</i> agricultural use and domestic consumption of the occupier of the land. (b) Extraction of surface water and ground water for industrial or commercial use including the amount that can be extracted shall require prior written permission from the concerned Regulatory Authority. (c) No sale of surface water or ground water shall be permitted. (d) Steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
15.	Erection of electrical cables and telecommunication towers.	Promote underground cabling.
16.	Fencing of existing premises of hotels and lodges.	Regulated under applicable laws.
17.	Widening and strengthening of existing roads and construction of new roads.	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
18.	Movement of vehicular traffic at night.	Regulated for commercial purpose as per applicable laws.
19.	Introduction of exotic species.	Regulated under applicable laws
20.	Undertaking activities related to tourism like over-flying the National Park area by hot-air balloons, etc.	Regulated under applicable laws

21.	Protection of hill slopes and river banks.	Regulated under applicable laws
22.	Discharge of treated effluents in natural water bodies or land area.	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
23.	Commercial Sign boards and hoardings.	Regulated under applicable laws
24.	Small scale industries not causing pollution.	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment.
25.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	Regulated under applicable laws
26	Eco-tourism activities including eco tourist lodges, restaurant and recreational facilities including spa, swimming pool, gymnasium in temporary structures made of cloth or wood or particle board such as tents etc.	As per Zonal Master Plan.
Promoted Activities		
27.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted under applicable laws.
28.	Rain water harvesting.	Shall be actively promoted.
29.	Organic farming.	Shall be actively promoted.
30.	Adoption of green technology for all activities.	Shall be actively promoted.
31.	Cottage industries including village artisans, etc.	Shall be actively promoted.

5. State Level Eco-sensitive Zone Monitoring Committee:- (1)

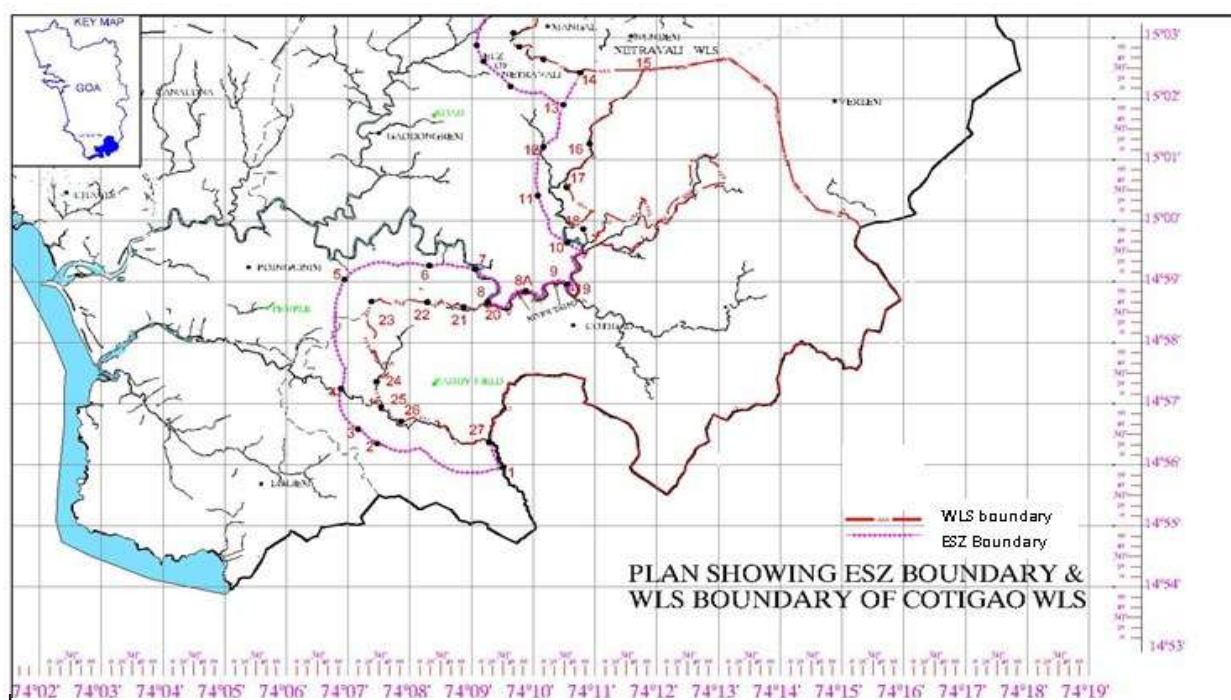
The Central Government in the Ministry of Environment, Forest and Climate Change, for effective monitoring of the Eco-sensitive Zones around National Parks and Wildlife Sanctuaries, has constituted a Committee called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa vide notification number S.O. 221 (E), dated the 23rd January 2015, published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii) comprising of the following members, and to perform the following functions, namely:-

- (i) Chief Secretary, Government of Goa- Chairman;
- (ii) representative of the Ministry of Environment, Forest and Climate Change- Member;
- (iii) Member Secretary, State Pollution Control Board-Member;
- (iv) one representative of Non-governmental Organisations working in the field of environment to be nominated by the Government of Goa (for a term of one year)– Member;
- (v) one representative of community based organisation nominated by the State Government (for a term of one year)– Member;
- (vi-xiv) Principal Secretaries of the Government of Goa from Departments of Forest and Environment, Rural Development, Agriculture, Urban Development, Housing, Mining, Ports, Transport and Revenue– Members;
- (xv) one expert in Ecology from reputed Institution or University of the State of Goa to be nominated by Government of Goa (for a term of one year) - Member;

- (xvi) Chief Conservator of Forests (WL) and Chief Wildlife Warden, Government of Goa— Member Secretary.
- (2) The SESZMC shall monitor the compliance of the provisions of this notification.
- (3) The activities that are covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment, Forest and Climate Change for prior environmental clearance under the provisions of the said notification.
- (4) The activities that are not covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the concerned regulatory authorities.
- (5) The Member Secretary of the SESZMC or the concerned Collector or the concerned park in-charge shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.
- (6) The SESZMC may invite representatives or experts from concerned Departments, representatives from Industry Associations or concerned stakeholders to assist in its deliberations depending on the requirements on issue to issue basis.
- (7) The SESZMC shall submit the annual action taken report of its activities as on 31st March of every year by 30th June of that year to the Central Government in the Ministry of Environment, Forest and Climate Change as per pro forma given in **Annexure IV**.
- (8) The Central Government in the Ministry of Environment, Forest and Climate Change may give such directions, as it deems fit, to the SESZMC for effective discharge of its functions.
6. The provisions of this notification shall be subject to the orders passed by the Hon'ble Supreme Court of India or the High Court or National Green Tribunal as the case may be, in respect of matters covered under this notification.

[F.No.25/32/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

Annexure I**Map of Cotigao Wildlife Sanctuary Eco-sensitive Zone showing Latitudes-Longitudes**

Annexure II

List of latitudes and longitudes of prominent points on the boundary of the ESZ of Cotigao Wildlife Sanctuary

S.NO	Description	Latitude	Longitude
1	STARTING POINT	14°55'50.57"N	74° 9'32.95"E
2	PADDY CENTER	14°56'13.76"N	74° 7'31.63"E
3	ROAD	14°56'27.51"N	74° 7'13.06"E
4	ROAD	14°57'7.30"N	74° 6'56.48"E
5	ROAD	14°58'54.32"N	74° 6'59.36"E
6	ROAD	14°59'8.57"N	74° 8'21.12"E
7	ROAD	14°59'5.09"N	74° 9'5.05"E
8	RIVER TALPONA	14°58'38.04"N	74° 9'18.21"E
8A	RIVER TALPONA	14°58'49.62"N	74° 9'45.15"E
9	RIVER TALPONA	14°58'49.40"N	74°10'33.65"E
10	RIVER TALPONA	14°59'31.13"N	74°10'33.83"E
11	ROAD	15° 0'17.29"N	74°10'5.55"E
12	PADDY CENTER	15° 1'5.26"N	74°10'10.92"E
13	PEAK	15° 1'46.39"N	74°10'29.78"E
14	PEAK WLS	15° 2'33.77"N	74°10'58.35"E
15	NETRAVALI -COTIGAO	15° 2'30.00"N	74°11'44.27"E
16	WLS Boundary	15° 1'38.61"N	74°11'11.06"E
17	WLS Boundary	15° 0'58.06"N	74°10'49.53"E
18	WLS Boundary	14°59'28.07"N	74°10'43.80"E
19	WLS Boundary	14°58'49.40"N	74°10'33.65"E
20	WLS Boundary	14°58'38.04"N	74° 9'18.21"E
21	WLS Boundary	14°58'37.76"N	74° 9'6.44"E
22	WLS Boundary	14°58'39.71"N	74° 8'25.67"E
23	WLS Boundary	14°58'41.74"N	74° 7'23.28"E
24	WLS Boundary	14°57'3.13"N	74° 7'21.08"E
25	WLS Boundary	14°56'54.14"N	74° 7'39.07"E
26	WLS Boundary	14°56'44.66"N	74° 7'48.17"E
27	WLS Boundary	14°56'26.06"N	74° 9'15.10"E

Annexure III**List of villages falling within the Cotigao Wildlife Sanctuary Eco-sensitive Zone**

List of Villages partially within the ESZ Boundary

S. No.	Village Name
1	Poinguinim
2	Cotigao
3	Gaondongrem

Annexure IV

Proforma of Action Taken Report: - State Level Eco-sensitive Zone Monitoring Committee.-

1. Number and date of Meetings
2. Minutes of the meetings: Mention main noteworthy points. Attached Minutes of the meeting on separate Annexure.
3. Status of preparation of Zonal master Plan including Tourism master Plan (Eco-sensitive Zone wise)
4. Summary of cases dealt for rectification of error apparent on face of land record. (Eco-sensitive Zone wise).
Details may be attached as Annexure
5. Summary of cases scrutinized for activities covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise).
Details may be attached as separate Annexure.
6. Summary of case scrutinized for activities not covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise).
Details may be attached as separate Annexure.
7. Summary of complaints lodged under Section 19 of Environment (Protection) Act, 1986. (Eco-sensitive Zone wise).
8. Any other matter of importance.

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE**NOTIFICATION**

New Delhi, 17th February, 2015

S.O. 555(E).—WHEREAS, a draft notification, for declaration of Eco-sensitive Zone around Netravali Wildlife Sanctuary in Goa, was published in the Gazette of India, Extraordinary, *vide* notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 631 (E), dated the 3rd March 2014, inviting objections and suggestions from all persons likely to be affected thereby within a period of sixty days from date on which copies of the Gazette containing the said notification were made available to the public;

AND WHEREAS, copies of the Gazette containing the said notification were made available to the public on the 3rd March, 2014;

AND WHEREAS, all objections and suggestions received from all persons and stakeholders in response to the draft notification have been duly considered by the Central Government;

AND WHEREAS, the Central Government considers that the Netravali Wildlife Sanctuary, Goa lying between latitudes 15° 16' 7.80" N and 14° 59' 54.49" N and longitudes 74° 19' 3.75" E and 74° 10' 6.66" E in the South Goa District of Goa State and extending over an area of 211.05 square kilometres, is an essential part of the Western Ghats, which is rich in biodiversity;

AND WHEREAS, the sanctuary harbours the endangered species of wildlife like Indian bison, panther, mouse deer, black panther, slender loris, wild dogs, bears, etc.;

AND WHEREAS, the forest of this Sanctuary intercepts rainfall and helps recharge ground water aquifer and protects rivers and streams against siltation by minimising soil erosion and has a well knit network of streams spreading throughout which are perennial or semi perennial or seasonal in nature, feeding Netravali river, the Salaulim reservoir and its canals;

AND WHEREAS, it is necessary to conserve and protect the area the extent and boundary of which is specified in paragraph 1 of this notification around the Netravali Wildlife Sanctuary as Eco-sensitive Zone from ecological and environmental point of view and to prohibit industries or class of industries and their operations and process in the said Eco- sensitive zone;

NOW, THEREFORE, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area to an extent of one kilometre of land or the water body, whichever is nearer to the boundary of the Netravali Wildlife Sanctuary in the State of Goa, as the Eco-sensitive Zone (herein after referred to as Eco-sensitive Zone) details of which are as under, namely:-

1. Extent and Boundaries of Eco-sensitive Zone. - (1) The extent of Eco-sensitive Zone shall be one kilometre of land or the water body whichever is nearer to the boundary of the Netravali Wildlife Sanctuary in the State of Goa.

- (2) The Eco-sensitive Zone is bounded on the North by the boundary of the Bhagwan Mahaveer Wildlife Sanctuary, on the South by the boundary of Cotigao Wildlife Sanctuary, on the East by the boundary of Netravali Wild Life Sanctuary and on the West by Salaulim reservoir and the balance areas of villages of Sanguem Taluka.
- (3) The map of Eco-sensitive Zone boundary is appended as **Annexure I**. List of latitudes and longitudes of prominent points on the boundary of the ESZ is appended as **Annexure II**.
- (4) The list of villages falling within Eco-sensitive Zone boundary is given at **Annexure III**.
- (5) The list of villages given in Annexure III shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

2. Zonal Master Plan for the Eco-sensitive Zone. - (1) The State Government shall for the purpose of effective management of the Eco-sensitive Zone, prepare a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for the consideration and approval of the Ministry of Environment, Forests and Climate Change, Government of India in consultation with local people and all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development, Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

- (2) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.
- (3) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, man-made heritage sites, natural heritage sites, mining leases in operation, lakes and other water bodies.
- (4) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.
- (5) The Zonal Master Plan shall contain the measures as may be specified by the Central Government or the State Government, for regulation of activities specified under column (2) of the table specified in paragraph 4.
- (6) The Zonal Master Plan so prepared shall be co-terminus with the regional development plan.
- (7) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), referred to in paragraph 5, for carrying out its functions of monitoring under the provisions of this notification.

3. Measures to be taken by State Government. - The State Government shall take the following measures for giving effect to the provisions of this notification, namely:-

(1) Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or industrial related development activities:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, to meet the residential needs of local residents, and for the activities listed at item numbers 24, 26, 28 and 31 in column (2) of the Table in paragraph 4, namely:-

- (i) Small scale industries not causing pollution,
- (ii) Rainwater harvesting,
- (iii) Cottage industries including village industries, and
- (iv) Ecofriendly cottages for temporary occupation of tourists such as tents, wooden houses, etc. for Eco-friendly tourism activities:

Provided further that no use of tribal land shall be permitted for commercial and industrial development activities without the prior approval of the State Government and without compliance of the provisions of Article of 244 of the Constitution of India or the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007) as amended time to time:

Provided also that any error appearing in the land records within the Eco-sensitive Zone shall be corrected by the State Government, after obtaining the views of SESZMC, once in each case and the correction of said error shall be intimated to the Central Government in the Ministry of Environment, Forest and Climate Change:

Provided also that the above correction of error shall not include change of land use in any case except as provided under this sub-paragraph.

- (2) The catchment areas of all natural springs shall be identified and plans for their conservation and rejuvenation shall be incorporated in the Zonal Master Plan and the guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.
- (3) The activity relating to tourism within the Eco-sensitive Zone which shall form part of the Zonal Master Plan shall be as under, namely:-
 - (a) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in accordance with the guidelines issued by the Central Government in the Ministry of Environment, Forest and Climate Change and by the National Tiger Conservation Authority, with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;
 - (b) new construction of any kind shall not be permitted within the Eco-sensitive Zone except for eco-friendly accommodation like tents, wooden houses or thatched roofs for temporary occupation of tourists and for eco-friendly tourism activities;
 - (c) till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC.
- (4) All sites of valuable natural heritage in the Eco-sensitive Zone such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. shall be identified and preserved and proper plan shall be drawn up for their protection and conservation, within six months from the date of publication of this notification and such plan shall form part of the Zonal Master Plan.
- (5) Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be indentified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

- (6) The Environment Department of the State Government shall draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.
- (7) The Environment Department of the State Government shall draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.
- (8) The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974(6 of 1974) and the rules made thereunder.
- (9) Disposal of solid wastes shall be as under:-
 - (i) the solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* notification number S.O. 908 (E), dated the 25th September 2000 as amended from time to time;
 - (ii) the local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components;
 - (iii) the biodegradable material shall be recycled preferably through composting or vermiculture;
 - (iv) the inorganic material shall be disposed of in an environmentally acceptable manner.
- (10) The bio-medical waste disposal in the Eco-sensitive Zone shall be carried out as per the provisions of the Bio-Medical Waste (Management and Handling) Rules, 1998 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* Notification number S.O. 630(E), dated the 20th July, 1998 as amended from time to time.
- (11) The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment, Forests and Climate Change, SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

4. List of activities prohibited or to be regulated within the Eco-sensitive Zone.-All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 (29 of 1986) and the rules made thereunder and be regulated in the manner specified in the Table below, namely:—

TABLE

S.No.	Activity	Remarks
(1)	(2)	(3)
Prohibited Activities		
1.	Commercial Mining, stone quarrying and crushing units.	(a) All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect: Provided that the existing mines may be phased out within a period of ten years subject to the Supreme Court modifying its interim order dated 4.8.2006 in I.A. 1000 in Writ Petition 202 of 1995 (T.N. Godavarman Vs. Union of India) and its order in Writ Petition 435 of 2012 in the matter of Goa Foundation Vs Union of India: Provided further that the State Government shall ensure a proper and rigorous mine closure plan for rehabilitation and ecological restoration of the mined out area which shall be completed as early as possible as per Indian Bureau of Mines norms.

2.	Setting up of saw mills.	Prohibited (except as otherwise) as per applicable laws.
3.	Setting up of industries causing water or air or soil or noise pollution.	Prohibited (except as otherwise) as per applicable laws.
4.	Commercial establishment of hotels and resorts.	New commercial establishment such as hotels and resorts shall be prohibited within the Eco-sensitive Zone with immediate effect.
5.	Commercial use of firewood.	Prohibited (except as otherwise) as per applicable laws.
6.	Establishment of new major hydroelectric projects.	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the Eco-sensitive Zone is prohibited with immediate effect, except the micro hydel power projects (Up to 100KW) or the mini hydel power projects (from 101 to 2000KW), which would serve the energy needs of the local communities, subject to the consent of the concerned Gram Sabha and all other requisite clearances.
7.	Use or production of any hazardous substances.	Prohibited (except as otherwise) as per applicable laws.
8.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Prohibited (except as otherwise) as per applicable laws.
9.	New wood based industry.	No establishment of new wood based industry shall be permitted within the limits of Eco-sensitive Zone with immediate effect.
10.	Construction activities	New construction of any kind shall be prohibited within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 26, 28 and 31 and in the case of activities listed at item number 24, the construction activity shall be regulated and kept at the minimum.
11.	Use of plastic carry bags	Prohibited (except as otherwise) as per applicable laws.
12.	Brick kilns	Prohibited (except as otherwise) as per applicable laws.
Regulated Activities		
13.	Felling of trees.	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
14.	Commercial water resources including ground water harvesting.	(a) The extraction of surface water and ground water shall be permitted only for <i>bona fide</i> agricultural use and domestic consumption of the occupier of the land. (b) Extraction of surface water and ground water for industrial or commercial use including the amount that can be extracted shall require prior written permission from the concerned Regulatory Authority. (c) No sale of surface water or ground water shall be permitted. (d) Steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
15.	Erection of electrical cables and telecommunication towers.	Promote underground cabling.
16.	Fencing of existing premises of hotels and lodges.	Regulated under applicable laws.
17.	Widening and strengthening of existing roads and construction of new roads.	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.

18.	Movement of vehicular traffic at night.	Regulated for commercial purpose as per applicable law.
19.	Introduction of exotic species.	Regulated under applicable laws
20.	Undertaking activities related to tourism like over-flying the National Park area by hot-air balloons, etc.	Regulated under applicable laws
21.	Protection of hill slopes and river banks.	Regulated under applicable laws
22.	Discharge of treated effluents in natural water bodies or land area.	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
23.	Commercial Sign boards and hoardings.	Regulated under applicable laws
24.	Small scale industries not causing pollution.	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment.
25.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	Regulated under applicable laws
26.	Eco-tourism activities including eco tourist lodges, restaurant and recreational facilities including spa, swimming pool, gymnasium in temporary structures made of cloth or wood or particle board such as tents etc.	As per Zonal Master Plan.
Promoted Activities		
27.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted under applicable laws.
28.	Rain water harvesting.	Shall be actively promoted.
29.	Organic farming.	Shall be actively promoted.
30.	Adoption of green technology for all activities.	Shall be actively promoted.
31.	Cottage industries including village artisans, etc.	Shall be actively promoted.

5. State Level Eco-sensitive Zone Monitoring Committee:- (1)

The Central Government in the Ministry of Environment, Forest and Climate Change, for effective monitoring of the Eco-sensitive Zones around National Parks and Wildlife Sanctuaries, has constituted a Committee called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa vide notification number S.O. 221(E), dated the

23rd January 2015, published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii) comprising of the following members, and to perform the following functions, namely:—

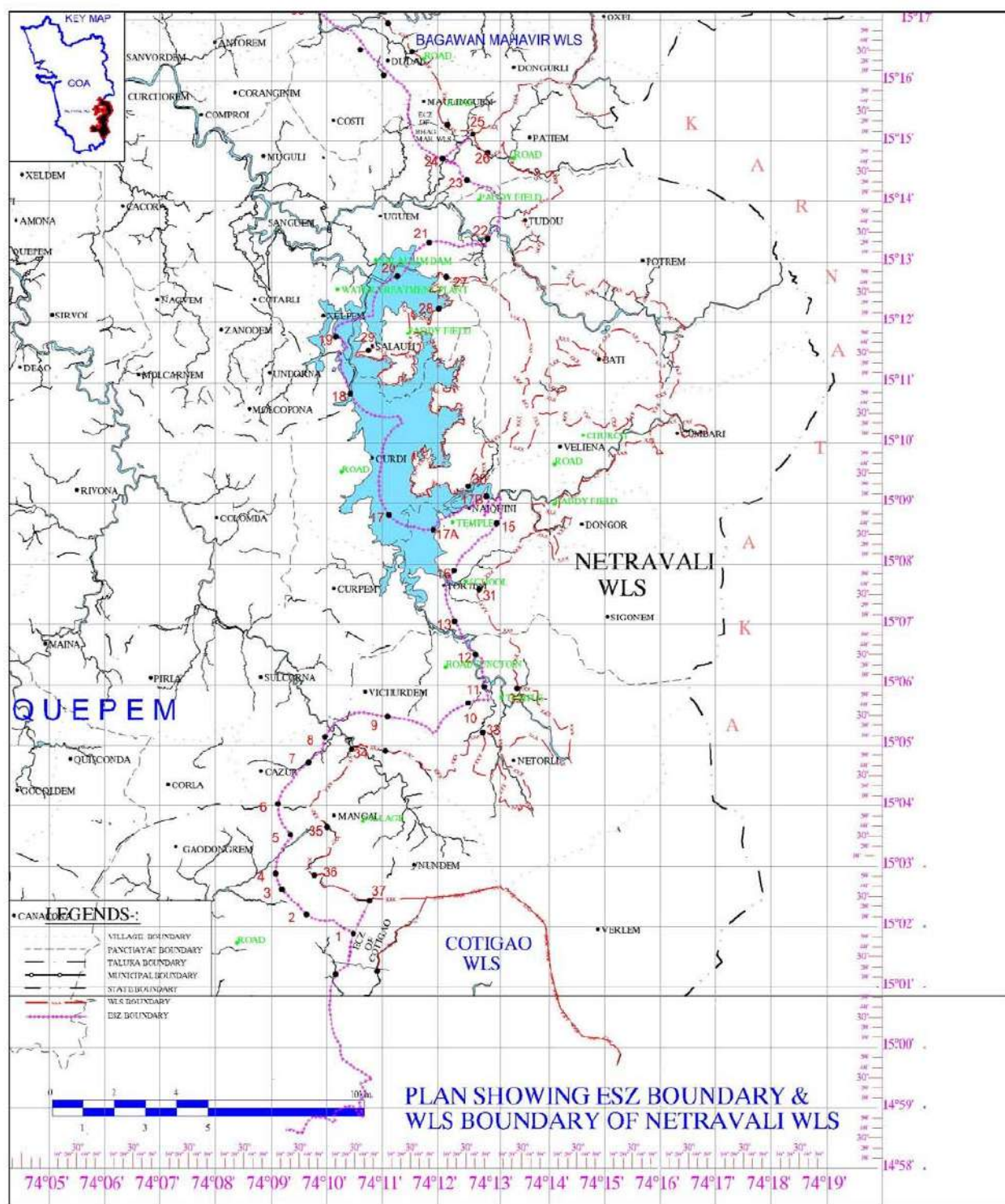
- (i) Chief Secretary, Government of Goa- Chairman;
 - (ii) representative of the Ministry of Environment, Forest and Climate Change- Member;
 - (iii) Member Secretary, State Pollution Control Board-Member;
 - (iv) one representative of Non-governmental Organisations working in the field of environment to be nominated by the Government of Goa (for a term of one year) – Member;
 - (v) one representative of community based organisation nominated by the State Government (for a term of one year)– Member;
 - (vi-xiv) Principal Secretaries of the Government of Goa from Departments of Forest and Environment, Rural Development, Agriculture, Urban Development, Housing, Mining, Ports, Transport and Revenue– Members;
 - (xv) one expert in Ecology from reputed Institution or University of the State of Goa to be nominated by Government of Goa (for a term of one year) - Member;
 - (xvi) Chief Conservator of Forests (WL) and Chief Wildlife Warden, Government of Goa– Member Secretary.
- (2) The SESZMC shall monitor the compliance of the provisions of this notification.
 - (3) The activities that are covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment, Forest and Climate Change for prior environmental clearance under the provisions of the said notification.
 - (4) The activities that are not covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the concerned regulatory authorities.
 - (5) The Member Secretary of the SESZMC or the concerned Collector or the concerned park in-charge shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.
 - (6) The SESZMC may invite representatives or experts from concerned Departments, representatives from Industry Associations or concerned stakeholders to assist in its deliberations depending on the requirements on issue to issue basis.
 - (7) The SEZMC shall submit the annual action taken report of its activities as on 31st March of every year by 30th June of that year to the Central Government in the Ministry of Environment, Forest and Climate Change as per pro forma given in **Annexure IV**.
 - (8) The Central Government in the Ministry of Environment, Forests and Climate Change may give such directions, as it deems fit, to the SESZMC for effective discharge of its functions.
6. The provisions of this notification shall be subject to the orders passed by the Hon'ble Supreme Court of India or the High Court or National Green Tribunal as the case may be, in respect of matters covered under this notification.

[F. No. 25/33/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

Annexure I

Map of Netravali Wildlife Sanctuary Eco-sensitive Zone showing Latitudes-Longitudes



Annexure II

List of latitudes and longitudes of prominent points on the boundary of the Eco-sensitive Zone of Netravali Wildlife Sanctuary

s. no	Description	Latitude	Longitude
1	PEAK	15° 1'46.39"N	74° 10'29.78"E
2	ROAD	15° 2'4.78"N	74° 9'38.81"E
3	PADDY CENTER	15° 2'29.23"N	74° 9'12.61"E
4	ROAD	15° 2'45.01"N	74° 9'5.95"E
5	ROAD	15° 3'23.85"N	74° 9'21.36"E
6	ROAD	15° 3'54.33"N	74° 9'8.24"E
7	ROAD	15° 4'35.74"N	74° 9'40.51"E
8	ROAD	15° 5'1.35"N	74° 9'58.19"E
9	ROAD	15° 5'21.67"N	74° 11'4.65"E
10	ROAD	15° 5'35.33"N	74° 12'31.42"E
11	PADDY CENTER	15° 5'51.51"N	74° 12'48.72"E
12	ROAD	15° 6'23.38"N	74° 12'39.29"E
13	ROAD	15° 6'56.03"N	74° 12'16.98"E
14	ROAD	15° 7'46.75"N	74° 12'16.15"E
15	ROAD	15° 8'33.46"N	74° 13'1.54"E
16	ROAD	15° 8'33.24"N	74° 12'32.51"E
17	RIVER CORNER	15° 8'41.99"N	74° 11'5.33"E
17A	RIVER CORNER	15° 8'34.42"N	74° 11'32.14"E
17B	RIVER CORNER	15° 9'0.42"N	74° 12'29.64"E
18	RIVER CORNER	15° 10'42.00"N	74° 10'24.03"E
19	RIVER CORNER	15° 11'30.58"N	74° 9'55.56"E
20	RIVER CORNER	15° 12'38.70"N	74° 11'14.16"E
21	ROAD	15° 13'12.17"N	74° 11'47.93"E
22	PADDY CENTER	15° 13'15.98"N	74° 12'50.55"E
23	PADDY CORNER	15° 14'14.49"N	74° 12'27.97"E
24	NETRAVALI-BHAGWAN ESZ	15° 14'32.12"N	74° 11'55.78"E
25	NETRAVALI-BHAGWAN WLS	15° 15'10.83"N	74° 12'33.08"E
26	WLS BOUNDARY	15° 14'49.61"N	74° 12'54.77"E
27	WLS BOUNDARY	15° 12'36.03"N	74° 12'45.13"E
28	WLS BOUNDARY	15° 12'14.47"N	74° 12'5.54"E
29	WLS BOUNDARY	15° 11'37.15"N	74° 10'56.23"E
30	WLS BOUNDARY	15° 9'16.30"N	74° 12'31.40"E
31	WLS BOUNDARY	15° 7'35.36"N	74° 12'44.31"E
32	WLS BOUNDARY	15° 5'53.25"N	74° 13'37.74"E
33	WLS BOUNDARY	15° 5'14.54"N	74° 12'44.62"E
34	WLS BOUNDARY	15° 4'47.24"N	74° 10'25.71"E
35	WLS BOUNDARY	15° 3'31.23"N	74° 10'10.73"E
36	WLS BOUNDARY	15° 2'47.78"N	74° 9'53.63"E
37	WLS BOUNDARY	15° 2'38.58"N	74° 10'17.28"E

Annexure III**List of villages falling within the Netravali Wildlife Sanctuary Eco-sensitive Zone**

List of Villages partially within the ESZ Boundary

S. No.	Village Name
1	Patiem
2	Uguem
3	Tudou
4	Xelpem
5	Salauli
6	Potrem
7	Bati
8	Viliena
9	Cumbari
10	Curdi
11	Naiquinim
12	Dongor
13	Portem
14	Sigonem
15	Vichundrem
16	Cazur

Annexure IV**Proforma of Action Taken Report: - State Level Eco-sensitive Zone Monitoring Committee.-**

1. Number and date of Meetings
2. Minutes of the meetings: Mention main noteworthy points. Attached Minutes of the meeting on separate Annexure.
3. Status of preparation of Zonal master Plan including Tourism master Plan (Eco-sensitive Zone wise)
4. Summary of cases dealt for rectification of error apparent on face of land record. (Eco-sensitive Zone wise).
Details may be attached as Annexure
5. Summary of cases scrutinized for activities covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise).
Details may be attached as separate Annexure.
6. Summary of case scrutinized for activities not covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise).
Details may be attached as separate Annexure.
7. Summary of complaints lodged under Section 19 of Environment (Protection) Act, 1986. (Eco-sensitive Zone wise).
8. Any other matter of importance.

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 24th February, 2015

S.O. 607(E).—WHEREAS, a draft notification, for declaration of Eco-sensitive Zone around Dr. Salim Ali Bird Sanctuary in Goa, was published in the Gazette of India, Extraordinary, *vide* notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 634 (E) dated 3rd March, 2014, inviting objections and suggestions from all persons likely to be affected thereby within a period of sixty days from date on which copies of the Gazette containing the said notification were made available to the public;

AND WHEREAS, copies of the Gazette containing the said notification were made available to the public on the 3rd March, 2014;

AND WHEREAS, all objections and suggestions received from all persons and stakeholders in response to the draft notification have been duly considered by the Central Government;

AND WHEREAS, the Central Government considers that the Dr. Salim Ali Bird Sanctuary (hereinafter referred to as Sanctuary), Goa lying between latitudes 15° 31' 36.03" N and 15° 30' 35.35" N and longitudes 73° 52' 14.31" E and 73° 50' 44.12" E in the North Goa District of Goa State and extending over an area of 1.78 square kilometres, is a rich mangrove formation at the confluence of Mapusa river and Mandovi river;

AND WHEREAS, the sanctuary exclusively shelters varieties of amphibians, otters, crocodiles and varieties of fish, aquatic birds, shore birds and arboreal birds and reptiles, fruit bat (*Pteropus* spp.), migratory birds, adjutant storks and raptorial birds like osprey visit the protected area annually;

AND WHEREAS, the mangrove forest of this sanctuary holds and protects the rich soil underneath from washing away and provides exclusively excellent place for the said varieties of wildlife to breed and shelter;

AND WHEREAS, it is necessary to conserve and protect the area the extent and boundary of which is specified in paragraph 1 of this notification around the Dr. Salim Ali Bird Sanctuary as Eco-sensitive Zone from ecological and environmental point of view and to prohibit industries or class of industries and their operations and processes in the said Eco- sensitive zone;

NOW, THEREFORE, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of Section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area up to the river bank abutting the Dr. Salim Ali Bird Sanctuary on the three sides of the said Sanctuary and to the extent of 100 meters on the eastern side towards Chorao village from the Sanctuary in the State of Goa as the Eco-sensitive Zone, details of which are as under, namely:—

1. Extent and Boundaries of Eco-sensitive Zone.— (1) The extent of Eco-sensitive Zone shall be upto the river bank abutting the sanctuary on the three sides of the Wildlife Sanctuary and to the extent of 100 meters on the eastern side towards Chorao village from the Dr. Salim Ali Bird Sanctuary within the State of Goa.

- (2) The Eco-sensitive Zone is bounded on the three sides i.e, North, West and South by the Mapusa river and the Mandovi river and the village Chorao of Tiswadi Taluka is located towards the Eastern side.
- (3) The map of Eco-sensitive Zone boundary is appended to this notification as **Annexure I** and the list of latitudes and longitudes of prominent points on the boundary of the Eco-sensitive Zone is appended to this notification as **Annexure II**.
- (4) The list of villages falling within Eco-sensitive Zone boundary is given at **Annexure III**.
- (5) The list of villages given in Annexure III shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

2. Zonal Master Plan for the Eco-sensitive Zone.- (1) The State Government shall for the purpose of effective management of the Eco-sensitive Zone, prepare a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for the consideration and approval of the Ministry of Environment, Forest and Climate Change, Government of India in consultation with local people and all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development, Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

- (2) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.
- (3) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, man-made heritage sites, natural heritage sites, mining leases in operation, lakes and other water bodies.
- (4) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.
- (5) The Zonal Master Plan shall contain the measures as may be specified by the Central Government or the State Government, for regulation of activities specified under column (2) of the table specified in paragraph 4.
- (6) The Zonal Master Plan so prepared shall be co-terminus with the regional development plan.
- (7) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), referred to in paragraph 5, for carrying out its functions of monitoring under the provisions of this notification.

3. Measures to be taken by State Government.- The State Government shall take the following measures for giving effect to the provisions of this notification, namely:-

(1) Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or industrial related development activities:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, to meet the residential needs of local residents, and for the activities listed at item numbers 24, 26, 28 and 31 in column (2) of the Table in paragraph 4, namely:-

- (i) Small scale industries not causing pollution,
- (ii) Rainwater harvesting,
- (iii) Cottage industries including village industries, and
- (iv) Ecofriendly cottages for temporary occupation of tourists such as tents, wooden houses, etc. for Eco-friendly tourism activities:

Provided further that no use of tribal land shall be permitted for commercial and industrial development activities without the prior approval of the State Government and without compliance to the provisions of Article of 244 of the Constitution of India or the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007) as amended from time to time:

Provided also that any error appearing in the land records within the Eco-sensitive Zone shall be corrected by the State Government, after obtaining the views of SESZMC, once in each case and the correction of said error shall be intimated to the Central Government in the Ministry of Environment, Forest and Climate Change:

Provided also that the above correction of error shall not include change of land use in any case except as provided under this sub-paragraph.

- (2) The catchment areas of all natural springs shall be identified and plans for their conservation and rejuvenation shall be incorporated in the Zonal Master Plan and the guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.
- (3) The activity relating to tourism within the Eco-sensitive Zone which shall form part of the Zonal Master Plan shall be as under, namely:-
 - (a) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in accordance with the guidelines issued by the Central Government in the Ministry of Environment, Forest and Climate Change and by the National Tiger Conservation Authority, with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;
 - (b) new construction of any kind shall not be permitted within the Eco-sensitive Zone except for eco-friendly accommodation like tents, wooden houses or thatched roofs for temporary occupation of tourists and for eco-friendly tourism activities;
 - (c) till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC.
- (4) All sites of valuable natural heritage in the Eco-sensitive Zone such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. shall be identified and preserved and proper plan shall be drawn up for their protection and conservation, within six months from the date of publication of this notification and such plan shall form part of the Zonal Master Plan.
- (5) Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be indentified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.
- (6) The Environment Department of the State Government shall draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.
- (7) The Environment Department of the State Government shall draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.
- (8) The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974(6 of 1974) and the rules made thereunder.
- (9) Disposal of solid wastes shall be as under:-
 - (i) the solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* notification number S.O. 908 (E), dated the 25th September 2000 as amended from time to time;
 - (ii) the local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components;
 - (iii) the biodegradable material shall be recycled preferably through composting or vermiculture;
 - (iv) the inorganic material shall be disposed of in an environmentally acceptable manner.
- (10) The bio-medical waste disposal in the Eco-sensitive Zone shall be carried out as per the provisions of the Bio-Medical Waste (Management and Handling) Rules, 1998 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* Notification number S.O. 630(E), dated the 20th July, 1998 as amended from time to time.

- (11) The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment, Forests and Climate Change, SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

4. **List of activities prohibited or to be regulated within the Eco-sensitive Zone.**-All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 (29 of 1986) and the rules made thereunder and be regulated in the manner specified in the Table below, namely:-

TABLE

S. No.	Activity	Remarks
(1)	(2)	(3)
Prohibited Activities		
1.	Commercial Mining, stone quarrying and crushing units.	All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect.
2.	Setting up of saw mills.	Prohibited (except as otherwise provided) as per applicable laws.
3.	Setting up of industries causing water or air or soil or noise pollution.	Prohibited (except as otherwise provided) as per applicable laws.
4.	Commercial establishment of hotels and resorts.	New commercial establishment such as hotels and resorts shall be prohibited within the Eco-sensitive Zone with immediate effect.
5.	Commercial use of firewood.	Prohibited (except as otherwise provided) as per applicable laws.
6.	Establishment of new major hydroelectric projects.	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the Eco-sensitive Zone is prohibited with immediate effect, except the micro hydel power projects (Up to 100KW) or the mini hydel power projects (from 101 to 2000KW), which would serve the energy needs of the local communities, subject to the consent of the concerned Gram Sabha and all other requisite clearances.
7.	Use or production of any hazardous substances.	Prohibited (except as otherwise provided) as per applicable laws.
8.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Prohibited (except as otherwise provided) as per applicable laws.
9.	New wood based industry.	No establishment of new wood based industry shall be permitted within the limits of Eco-sensitive Zone with immediate effect.
10.	Construction activities	New construction of any kind shall be prohibited within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 26,28 and 31 and in the case of activities listed at item number 24, the construction activity shall be regulated and kept at the minimum.
11.	Use of plastic carry bags	Prohibited (except as otherwise provided) as per applicable laws.
12.	Brick kilns	Prohibited (except as otherwise provided) as per applicable laws.
Regulated Activities		
13.	Felling of trees.	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
14.	Commercial water resources including ground water harvesting.	(a) The extraction of surface water and ground water shall be permitted only for <i>bona fide</i> agricultural use and domestic consumption of the occupier of the land.

		(b) Extraction of surface water and ground water for industrial or commercial use including the amount that can be extracted shall require prior written permission from the concerned Regulatory Authority. (c) No sale of surface water or ground water shall be permitted. (d) Steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
15.	Erection of electrical cables and telecommunication towers.	Promote underground cabling.
16.	Fencing of existing premises of hotels and lodges.	Regulated under applicable laws.
17.	Widening and strengthening of existing roads and construction of new roads.	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
18.	Movement of vehicular traffic at night.	Regulated for commercial purpose as per applicable laws.
19.	Introduction of exotic species.	Regulated under applicable laws
20.	Undertaking activities related to tourism like over-flying the National Park area by hot-air balloons, etc.	Regulated under applicable laws
21.	Protection of hill slopes and river banks.	Regulated under applicable laws
22.	Discharge of treated effluents in natural water bodies or land area.	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
23.	Commercial Sign boards and hoardings.	Regulated under applicable laws
24.	Small scale industries not causing pollution.	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment.
25.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	Regulated under applicable laws
26.	Eco-tourism activities including eco tourist lodges, restaurant and recreational facilities including spa, swimming pool, gymnasium in temporary structures made of cloth or wood or particle board such as tents etc.	As per Zonal Master Plan.
Promoted Activities		
27.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted under applicable laws.
28.	Rain water harvesting.	Shall be actively promoted.
29.	Organic farming.	Shall be actively promoted.
30.	Adoption of green technology for all activities.	Shall be actively promoted.
31.	Cottage industries including village artisans, etc.	Shall be actively promoted.

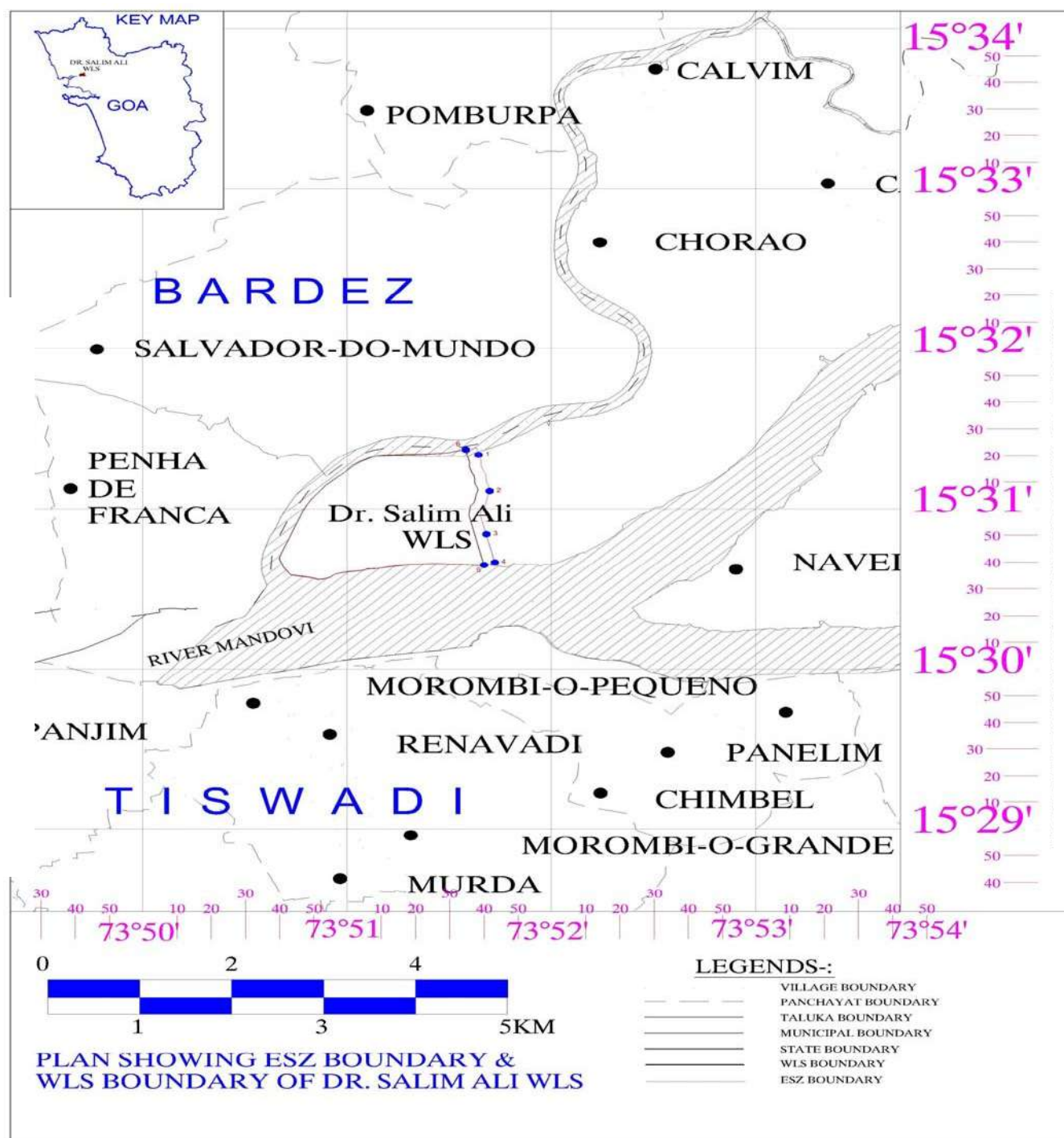
5. State Level Eco-sensitive Zone Monitoring Committee:- (1)

The Central Government in the Ministry of Environment, Forest and Climate Change, for effective monitoring of the Eco-sensitive Zones around National Parks and Wildlife Sanctuaries, has constituted a Committee called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa vide notification number S.O. 221 (E), dated the 23rd January 2015, published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii) comprising of the following members, and to perform the following functions, namely:-

- (i) Chief Secretary, Government of Goa- Chairman;
 - (ii) representative of the Ministry of Environment, Forest and Climate Change- Member;
 - (iii) Member Secretary, State Pollution Control Board-Member;
 - (iv) one representative of Non-governmental Organisations working in the field of environment to be nominated by the Government of Goa (for a term of one year)– Member;
 - (v) one representative of community based organisation nominated by the State Government (for a term of one year)– Member;
 - (vi-xiv) Principal Secretaries of the Government of Goa from Departments of Forest and Environment, Rural Development, Agriculture, Urban Development, Housing, Mining, Ports, Transport and Revenue– Members;
 - (xv) one expert in Ecology from reputed Institution or University of the State of Goa to be nominated by Government of Goa (for a term of one year) - Member;
 - (xvi) Chief Conservator of Forests (WL) and Chief Wildlife Warden, Government of Goa– Member Secretary.
- (2) The SESZMC shall monitor the compliance of the provisions of this notification.
 - (3) The activities that are covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment, Forest and Climate Change for prior environmental clearance under the provisions of the said notification.
 - (4) The activities that are not covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and referred to the concerned regulatory authorities.
 - (5) The Member Secretary of the SESZMC or the concerned Collector or the concerned park in-charge shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.
 - (6) The SESZMC may invite representatives or experts from concerned Departments, representatives from Industry Associations or concerned stakeholders to assist in its deliberations depending on the requirements on issue to issue basis.
 - (7) The SESZMC shall submit the annual action taken report of its activities as on 31st March of every year by 30th June of that year to the Central Government in the Ministry of Environment, Forest and Climate Change as per pro forma given in **Annexure IV**.
 - (8) The Central Government in the Ministry of Environment, Forests and Climate Change may give such directions, as it deems fit, to the SESZMC for effective discharge of its functions.
6. The provisions of this notification shall be subject to the orders passed by the Hon'ble Supreme Court of India or the High Court or National Green Tribunal as the case may be, in respect of matters covered under this notification.

[F. No. 25/37/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

Annexure I**Map of Dr. Salim Ali Bird Sanctuary Eco-sensitive Zone showing Latitudes-Longitudes**

Annexure II**Coordinates of prominent points on the boundary of Eco-sensitive Zone around Dr. Salim Ali Bird Sanctuary**

S.NO.	Latitude	Longitude
1	15°31'24.88"N	73°51'43.03"E
2	15°31'10.11"N	73°51'46.43"E
3	15°30'53.76"N	73°51'45.58"E
4	15°30'42.97"N	73°51'48.48"E
5	15°31'23.59"N	73°51'38.88"E
6	15°30'41.08"N	73°51'43.23"E

Annexure III**List of villages falling within the Dr. Salim Ali Bird Sanctuary Eco-sensitive Zone**

List of Villages partially within the ESZ Boundary

S. No.	Village Name
1	Chorao

Annexure IV**Proforma of Action Taken Report: - State Level Eco-sensitive Zone Monitoring Committee.-**

1. Number and date of Meetings
2. Minutes of the meetings: Mention main noteworthy points. Attached Minutes of the meeting on separate Annexure.
3. Status of preparation of Zonal master Plan including Tourism master Plan (Eco-sensitive Zone wise)
4. Summary of cases dealt for rectification of error apparent on face of land record. (Eco-sensitive Zone wise).
Details may be attached as Annexure
5. Summary of cases scrutinized for activities covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise).
Details may be attached as separate Annexure.
6. Summary of case scrutinized for activities not covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise).
Details may be attached as separate Annexure.
7. Summary of complaints lodged under Section 19 of Environment (Protection) Act, 1986. (Eco-sensitive Zone wise).
8. Any other matter of importance.

Department of Personnel

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Notification

1/14/2014-PER (Part)

In exercise of the powers conferred by the proviso to Article 309 of the Constitution of India and in supersession of the existing Recruitment Rules for the post of Lower Division Clerk/Recovery Clerk, notified vide Government Notification No. 1/4/2014-PER (Part) dated 20-05-2020, published in the Official Gazette, Series I No. 11 dated 11-06-2020, the Governor of Goa hereby makes the following rules to regulate the recruitment to the Group 'C', Non-Gazetted, Ministerial, Common posts (outside Secretariat) under the Government of Goa, namely:—

1. *Short title, application and commencement.*— (1) These rules may be called the Government of Goa, Group 'C', Non-Gazetted, Ministerial, Common posts (outside Secretariat), Recruitment Rules, 2020.

(2) They shall apply to the post specified in column (1) of the Schedule to these rules (hereinafter called as the "said Schedule").

(3) They shall come into force from the date of their publication in the Official Gazette.

2. *Number, classification and level in the pay matrix.*— The number of posts, classification of the said post and the level in the pay matrix attached thereto shall be as specified in columns (2) to (4) of the said Schedule:

Provided that the Government may vary the number of posts as specified in column (2) of the said Schedule from time to time subject to exigencies of work.

3. *Method of recruitment, age limit and other qualifications.*— The method of recruitment to the said post, age limit, qualifications and other matters connected therewith shall be as specified in columns (5) to (13) of the said schedule.

4. *Disqualification.*— No person who has entered into or contracted a marriage with a person having a spouse living or who, having a spouse living, has entered into or contracted a marriage with any person, shall be eligible for appointment to the service:

Provided that the Government may, if satisfied that such marriage is permissible under the personal law applicable to such person and the other party to the marriage and that there are other grounds for so doing, exempt any person from the operation of this rule.

5. *Power to relax.*— Where, the Government is of the opinion that it is necessary or expedient so to do, it may, by order, for reasons to be recorded in writing, relax any of the provisions of these rules with respect to any class or category of persons.

6. *Saving.*— Nothing in these rules shall affect reservation, relaxation of age limit and other concessions required to be provided for Scheduled Castes, Scheduled Tribes, Other Backward Classes, Ex-servicemen and other special categories of persons in accordance with the orders issued by the Government from time to time in that regard.

By order and in the name of the
Governor of Goa.

Tariq Thomas, IAS, Special Secretary
(Personnel).

Porvorim, 17th June, 2020.

SCHEDULE

1	2	3	4	5	6	7	8	9	10	11	12	13
Name/ designa- tion of the post	Number of posts	Classifi- cation	Level in the Pay Matrix	Whether selection post or non- selection post	Age limit for direct recruits	Educational and other qualifications required for direct recruits	Whether age & educational qualifications prescribed for the direct recruits will apply in the case of promotees	Period of proba- tion, if any	Method of recruit- ment, whether by direct recruitment or by deputation/ transfer/ contract and percentage of the vacancies to be filled by various methods	In case of recruit- ment by promotion/ deputation/ transfer, grades from which promotion/ deputation/ transfer is to be made	If a D.P.C./ D.S.C. exists, what is its compo- sition	Circum- stances in which the Goa Public Service Commission is to be consulted in making recruitment
Lower Division Clerk/ Recovery Clerk.	As sanc- tioned in each Depart- ment from time to time (2020).	Group 'C', Non- Gazet- ted, -Ministe- rial.	L-2.	Selec- tion.	Not exceeding 45 years (Relaxable for Government servants upto five years in accordance with the instructions or orders issued by the Govern- ment from time to time).	Essential: (i) Possessing Higher Secondary School Certificate or All India Council for Technical Education approved Diploma awarded by a recognized State Board of Technical Education or equiva- lent qualification from a recognized Institution. (ii) Knowledge of Computer applica- tions/operations with typing speed of 30 words per minute in English. (iii) Knowledge of Konkani. Desirable: Knowledge of Mara- thi.	Age: No. Educa- tional Qualifi- cations: To the extent as specified in column No. 11.	Two years.	(A) In the Public Works Department and Water Resources Department:— (i) 13% by promotion from Group 'C' employees, failing which, by direct recruitment. (ii) 50% by promotion from employees of work charged establishment, failing which, by direct recruitment. (iii) 37% by direct recruitment.	Promotion: (1) Group 'C' employees of the Department excluding,— (i) Superior Field Worker, Surveillance Worker, Assistant Cook and Assistant Mechanic in the Directorate of Health Services. (ii) Grading Attendant and Laboratory Atten- dant in the Office of the Registrar of Co- operative Societies. (iii) Laker, Tractor Assistant, Bull Dozer Assistant and Mobile Crane Assistant in the Directorate of Agricul- ture. (iv) Forest Guard and Mess Servant in the Forest Department.	Group 'C', D.S.C./ D.P.C.	N.A.

1	2	3	4	5	6	7	8	9	10	11	12	13
									(B) In the Electricity Department:— (i) 13% by promotion from Group 'C' employees (excluding Assistant Data Entry Operators), failing which, by direct recruitment. (ii) 37% by promotion from Assistant Data Entry Operators, failing which, by direct recruitment. (iii) 50% by direct recruitment. (C) In Departments other than the Public Works Department, Water Resources Department and Electricity Department:— (i) 13% by promotion from Group 'C' employees, failing which, by direct recruitment. (ii) 87% by direct recruitment.	(v) Police Constable in the Office of the Director General of Police. (vi) Line Helper and Assistant Lineman/Wireman in the Electricity Department. (2) Work-charged Establishment. Note 1: All feeder category employees specified for promotion must fulfill following conditions to become eligible for promotion: (i) Passed Secondary School Certificate Examination or equivalent from a recognized Board/Institution. (ii) Typing speed of 30 words per minute in English. (iii) Three years regular/continuous service, as the case may be, in the grade. Note 2: The entry level pay scale of all the feeder category employees for promotion (except employees from the work charged establishment) must be lower than the entry level pay scale of Lower Division Clerk/Recovery Clerk.		

Department of Public Health

Order

42/3/2020-I/PHD/Vol.I/2024

Read: Government Order No. 42/3/2020-I/PHD/Vol.I/1993 dated 12-06-2020.

The Government Order read at preamble regarding increase in the registration fees in the Government Hospitals/Health Centres is hereby kept in abeyance with immediate effect, until further orders.

By order and in the name of the Governor of Goa.

Trupti B. Manerkar, Under Secretary (Health)/link.

Porvorim, 18th June, 2020.

Department of Public Works

Office of the Principal Chief Engineer

Corrigendum

8-4/PCE-PWD-Accts/2020-21/454

Read Notification No. 8-4/PCE-PWD-Accts/2020-21/128 dated 12-05-2020.

The first para, Sr. No. 3 of the above Notification may be read as "This shall come into force with effect from 01-10-2020" INSTEAD of "This shall come into force with effect from 1-04-2020".

All other contents of the notification shall remain the same.

This is issued with the approval of Government vide U.O. No. 332 dated 29-5-2020.

By order and in the name of the Governor of Goa.

U. P. Parsekar, Principal Chief Engineer & ex officio Additional Secretary (PWD).

Panaji, 17th June, 2020.

Department of Sports & Youth Affairs

Directorate of Sports & Youth Affairs

Order

GFDC/04/02/2017(Part-I)/442

Sanction of the Government is hereby accorded for creation of the following posts as per the details shown below:

Sr. No.	Designation of the post	Pay scale	No. of posts created
1	2	3	4
Non-Ministerial (Non-Lapsable) Posts			
1.	Technical In-charge	Rs. 15600-39100 + 6600(GP)	01
2.	Football Development Officer (Coaching)	Rs. 15600-39100 + 5400(GP)	02
3.	Technical Assistant	Rs. 9300-34800 + 4200(GP)	02

Ministerial (Lapsable) Posts			
4.	Storekeeper	Rs. 5200-20200 + 2400(GP)	01
5.	Office Assistant	Rs. 5200-20200 + 1900(GP)	02
6.	Front Office Assistant	Rs. 5200-20200 + 1900(GP)	01
7.	Data Entry Operator	Rs. 5200-20200 + 1900(GP)	01
Total			10

2. The expenditure on the creation of above posts would be met from the Budget Head mentioned against the posts:-

Demand No. 42

1. Technical In-charge	}	2204—Sports & Youth Services;
2. Football Development Officer (Coaching)		00—;
3. Technical Assistant		101—Physical Education;
4. Storekeeper		20—Development of State Sports
5. Office Assistant		“Football”;
6. Front Office Assistant		50—Other Charges.
7. Data Entry Operator		

3. As per the recommendation and approval of the High Level Empowered Committee (H.L.E.C.), the following posts shall stand abolished, upon superannuation/retirement of the incumbent or upon the post falling vacant (for whatever reasons),

Sr. No.	Designation of the post [Ministerial (Lapsable) posts]	Name of the Official holding the post	Remark
1.			
2.		-----Nil-----	
3.			

Note: The existing strength of drivers shall be continued, until further assessment of the vehicle fleet and requirement of the department, and any vacancies arising during the interim period shall not be filled up on regular basis.

4. This issues with the approval of the High Level Empowered Committee (H.L.E.C.) constituted with the approval of the Council of Ministers in the XXth meeting held on 8-11-2017 vide order No. 1/1/2017-Addl. Secy(PER) dated 22-11-2017 issued by Department of Personnel.

5. Approval of the High Level Empowered Committee (H.L.E.C.) is conveyed vide letter No. 9/24/IDCO/2018-ARD/243 dated 17-07-2019 issued by the Department of Administrative Reforms Secretariat.

By order and in the name of the Governor of Goa.

Shashank Mani Tripathi, IAS, Director (Sports & Youth Affairs).

Panaji, 19th June, 2020.

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Department of Tourism

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Order

1/1(43)/2020/DT-541

Sanction of the Government is hereby accorded for creation of the following posts as per the details shown below:

Sr. No.	Designation of post	Pay scale	No. of posts created
1	2	3	4
Non-Ministerial (Non-Lapsable)			
1.	Statistical Officer	44900-142400 Level 7	01
2.	Research Assistant	35400-112400 Level 6	01
3.	Investigator	25500-81100 Level 4	02
Total			04

2. The expenditure on the creation of above posts would be met from the Budget Head mentioned against the posts:-

1. Statistical Officer	3452—Tourism;
2. Research Assistant	01—Tourist Infrastructure;
3. Investigator	001—Direction & Administration;
	01—Directorate of Tourism (N.P.);
	01—Salaries.

This issues with the approval of the High Level Empowered Committee (H.L.E.C.), constituted with the approval of the Council of Ministers in the XXth Meeting held on 8-11-2017 vide Order No. 1/1/2017-Addl. Secy (PER) dated 22-11-2017 issued by Department of Personnel.

Approval of the High Level Empowered Committee (H.L.E.C.) is conveyed vide their letter No. 9/57/IDCO/2019-ard/244 dated 17-07-2019.

The Directorate of Planning, Statistics & Evaluation vide their letter No. DPSC/I/ADMN/ /CREATION/2019/2109 dated 31-12-2019 has conveyed creation of new Statistical Post of Goa Common Statistical Cadre of Directorate of Planning, Statistics & Evaluation in the Department of Tourism, Panaji-Goa.

By order and in the name of the Governor of Goa.

Menino D'Souza, Director & Additional Secretary (Tourism).

Panaji, 22nd June, 2020.



Government Printing Press

NOTE

In Official Gazette, Series I No. 11 (Extraordinary No. 3) dated 16-6-2020, Department of Law & Judiciary (Legal Affairs Division), Notification No. 8/8/2020-LA-104 regarding the Goa Goods and Services Tax (Amendment) Ordinance, 2020, at page No. 325 on last line, the date may be read as "9-6-2020" instead of 29-6-2020.

All other matter remains unchanged.

Since its printing error, Government Printing Press apologize for the same.

Publication Division.

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Panaji, 7th April, 2011 (Chaitra 17, 1933)

SERIES I No. 1

OFFICIAL GAZETTE

GOVERNMENT OF GOA



PUBLISHED BY AUTHORITY

NOTE

There is one Extraordinary issue to the Official Gazette, Series I No. 53 dated 31-3-2011 namely, Extraordinary dated 1-4-2011 from pages 2129 to 2304 specifying the names of recognised National and State Parties – Not. No. 5-32-2002/ELEC/Part file/6482 from Department of Elections (Office of the Chief Electoral Officer).

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GOVERNMENT OF GOA

Department of Forest

Notification

2-1-2009/FOR

Whereas the Ministry of Environment & Forests, Government of India, has decided that a State Forest Policy be formulated to highlight pertinent issues in forestry vis-à-vis ecological, climatic, socio-cultural and socio-economic conditions in the respective States, in line with the broad principles laid down in the National Forest Policy, 1988; and

Whereas the Government of Goa formulated and approved the Goa State Forest Policy-2009; and

Whereas the Goa State Forest Policy-2009 has been placed on the Table of the House of the State Assembly during the monsoon session, 2010;

Now, therefore the Government of Goa hereby declares the 'Goa State Forest Policy-2009' as under:—

“GOA STATE FOREST POLICY-2009

1. Background

1.1 Forestry is included in the concurrent list of the Constitution of India. This implies

that while the ownership and direct management responsibility over the forest lands vests with the State Government, the Central Government will have overriding jurisdiction in matters of legislation and policy on the subject matter. This has been done with a view to bring about uniformity in forest policy and management to a great extent throughout the country because of the critical importance of the forestry sector in national development.

1.2 The first National Forest Policy pronounced in 1894 was promulgated with the objective of managing the forests to promote general well being of the country. The National Forest Policy (NFP) has undergone a sea change since then due to changes in priorities of the country. The first NFP was revised in 1952, which aimed at bringing balance between conservation and production. The 1952 policy also laid stress on revenue generation and meeting the industrial requirements of timber and other raw material.

1.3 The 1952 policy was revised by the Government of India vide resolution No. 3-1/1986-FP dated 7-12-1988. The new NFP of 1988 marks a major shift from 1952 forest policy and focuses more on the ecological functions of forests and meeting the domestic needs of the rural and tribal population for fuel wood, fodder, Non-Timber Forest Produce (NTFP) and small timber. Thus the principal aim is to ensure environmental stability and maintenance of ecological balance. The most noteworthy feature of NFP 1988 is that it acknowledges that derivation of direct economic benefits from forests is subordinate to ensuring environmental stability and maintaining ecological balance.

1.4 However, considering the fact that the national canvas is too large to address the location specific scenario and that Goa is a small State comprising of ecologically sensitive Western Ghats and its natural forests, it is necessary to have a State specific forest policy within the broad framework of the NFP 1988.

2. *Brief History of Forest Department and its functions*

2.1 The Forest Department was started on scientific lines way back in 1860's by the British India Government to usher in industrial revolution, strengthening of war machinery, laying of railway lines, ship building etc. During the British Rule, the scientific management of forests was given high priority and the forest areas were given legal sanctity by notifying them as Reserved Forests and Protected Forests under the Provisions of Indian Forest Act, 1927.

2.2 There was no separate Forest Department under the Portuguese regime. However, the subject was a part of the Agriculture Department at that time. The forest area in Goa was constituted as "Mata Nacional" (meaning National Forests) during the Portuguese time based on topography, vegetation status and utilization. The Mata Nacionais were notified in the Official Gazette vide notification dated 11-01-1951. The forests were classified as Class A, B and C forests depending on their use to mankind.

2.3 Major functions of the Forest Department in the management of vast natural resources are briefly given below:—

- * Protection, Conservation and Development of the forests.
- * Raising of nurseries and forest plantations and their maintenance.
- * Undertaking soil conservation and water harvesting measures to ensure sustained supply of natural resources.
- * Scientific harvesting of timber and non-timber forest produce.
- * Meeting the needs of local people by involving them in Joint Forest Management.
- * Conservation of wildlife and management of protected areas.

- * Rescue and rehabilitation of wild animals in distress.
- * Development and management of eco-tourism in forest and protected areas.
- * Enforcement of various laws like Indian Forest Act, 1927, Wildlife (Protection) Act, 1972, Forest (Conservation) Act, 1980 and Preservation of Trees Act, 1984 etc.
- * Creation and maintenance of infrastructure.

3. *The State of Goa*

3.1 Goa is the smallest State of the country having a total geographic area of 3702 sq. km. The State lies between latitude 14°53' to 15°40' N and between longitude 73°40' to 74°21'E. The total geographical area is divided into two administrative districts and eleven talukas. The total population of the State is 1.35 million (census 2001) with a population density of 363 persons per sq. km. The livestock population is 212000 (livestock census 2003). The mean temperature in the State ranges from 16.2°C to 36.7°C. The average annual rainfall is 3000 mm. The State of Goa encompasses the rich biological diversity of Western Ghats on the eastern part and coastal eco-system all along the western side with humid and per humid climate.

3.2 The State's total Government forest area is spread over 1224 sq. km. which constitutes 33.06% of the total geographical area. There are forest areas and also other tree vegetation including horticulture crops/plantations on private land holdings in the State. Thus the total tree cover based on the satellite data of December-2004 is 2432 sq. km., which is 65.69% of the geographical area of the State (SFR-2005).

3.3 Two territorial and one wildlife divisions administer the forest area and all cashew and rubber plantations raised by department are being managed by the Goa Forest Development Corporation Ltd. Out of the total Government forest area (1224 sq. km.) about 755 sq. km. area constitutes protected area

network covering about 62% of the total forest area.

3.4 The vegetation of Goa is characteristic of the Western Ghats and coastal plains. The narrow coastal plains lead eastwards to hills ascending about 1200m altitude. Predominant forest types found in the State include Evergreen forests, Semi-evergreen forests, Moist deciduous forests, and Mangrove forests. The terrain and topography is hilly/undulating and receives high intensity rainfall. These hills are the catchments of all the major streams and rivers of Goa and have exceptional biodiversity.

3.5 The State of Goa has not formulated a specific Forest Policy for implementation in the State. However, it had been following the principles of NFP 1988 and the basic objectives enunciated in the 1988 policy have been met with to a great extent by orienting the activities of the Department in that direction.

4. *Objectives*

Keeping in view the basic perspective of the NFP, 1988 in the frontline, coupled with State-specific understanding, the following objectives are listed to form the core of Goa's Forest Policy:

- * Maintenance of environmental stability through preservation and restoration of the ecological balance.
- * Conserving the natural heritage of the State by preserving the natural forests of Western Ghats, which has been identified as one of the biodiversity hot-spot areas in the world.
- * Controlling soil erosion and denudation in the catchment areas of rivers, lakes, reservoirs as an initiative towards mitigation of floods and droughts.
- * To conserve and expand mangroves and coastal belt plantation to minimize beach erosion and to mitigate the severity of natural calamities.

- * Increasing the tree cover and improving the canopy density of forest through massive afforestation and social forestry programmes, especially on all denuded, degraded and unproductive lands.
- * Meeting the requirements of fuel wood, fodder, NTFP and small timber of the rural and tribal population.
- * Development and protection of wildlife and their habitat.
- * Development and promotion of Eco-tourism and creation of awareness among the general public regarding the importance of flora and fauna.
- * Protection of Government forest areas, conservation and management of forests on sustainable forest management principles.
- * In-situ and ex-situ conservation and propagation of endemic, rare, endangered species and medicinal plants.
- * Production of industrial wood from non-forest lands by promoting tree and bamboo plantations on private lands and simplifying the regulations of tree felling and its transportation.
- * Institution building at village level for Joint Forest Management, people's participation in forestry activities to ensure employment generation to the rural and tribal people in remote areas.
- * Encouraging efficient utilization of forest produce and also promoting wood substitutes.
- * Protection, preservation and propagation of local varieties of mangroves species on suitable sites for maintaining the ecological balance of the eco-system.
- * Consolidation of forest boundaries and their regular maintenance for better management and protection of forest areas.

- * Undertaking Forestry Research, Environmental Education, Training and Extension.
- * Reclamation of abandoned mining areas and afforestation of mine dumps/rejects.
- * Creation of need-specific and maintenance of existing infrastructure in the Forest Department.
- * Capacity building, skill upgradation by imparting induction and in service training to Forest personnel.
- * Creating an awareness to enable massive public participation with the involvement of Women and Children to understand the importance of forestry and wildlife.

5. *Essentials of Forest Management*

The following essentials of forest management need to be adopted to achieve the aforementioned objectives of State forest policy:

- * Conservation, protection and management of bio-diversity of the State with specific reference to the Western Ghats.
- * Protection of forests and woodlands. Forest and tree cover shall be improved on qualitative basis like species diversity, canopy density etc.
- * Conservation of soil and water in the catchments of rivers, streams, lakes and reservoirs.
- * Conservation of mangroves and expansion of coastal belt plantation to mitigate the severity of natural calamities.
- * Forest protection shall be given importance and the infrastructural facilities for the frontline staff needs to be improved.
- * Protected Areas need to be managed on the basis of principles of sustainability.

- * Rare, endangered, endemic and threatened species of flora and fauna need to be documented, protected and conserved.
- * Eco-tourism shall be promoted through people's participation without damaging the ecological status of forest areas for the benefit of the local communities.
- * Inter-State linkages need to be strengthened to give an impetus to the management/protection issues that transcend borders.
- * Medicinal plants, bio-fuel plants and other NTFP need to be protected and improved.
- * People's participation in forest management practices needs to be strengthened.

6. Strategy

The State of Goa has a total geographical area of 3702 sq. km. out of which 1224 sq. km. is the Government forest area constituting about 33% of total geographical area. The total forest and tree cover in the State is about 2434 sq. km., which is 65.69% of the geographical area of the State. National Forest Policy 1988 has set a goal to bring one third of the country's area under forest or tree cover, which is already achieved by the State. However, the department strives hard to maintain the prescribed standards and also to bring more areas under tree cover.

6.1 Consolidation of Forest Boundaries

6.1.1 Consolidation and demarcation of Government forest areas is a priority concern of the Forest Department in the State. This is particularly concerned in Goa because the Land Index Forms (Form I & XIV) under the Land Revenue Code, 1968 do not provide for description of land as "forest". All the forest areas should be reflected in the Land Index Form I & XIV by way of mutation in the land records. Priority should be given to

permanently and correctly demarcating the forest boundaries and for maintenance to prevent ambiguity and encroachments.

6.1.2 Entire forest area in the State should be brought under the legal framework as Reserved/Protected Forest or Protected Area Network.

6.1.3 The legal classification of forest area of the State as on date is as follows:

- * Wildlife sanctuary/National Park: 754.95 sq. km.
- * Reserved Forests (Notified u/s 20 of IFA): 103.71 sq. km.
- * Proposed Reserved Forests (Notified u/s 4 of IFA): 252.25 sq. km.
- * Forest areas for which the notification is under process: 113.55 sq. km.

6.2 Afforestation, Social Forestry and Soil and Water Conservation

6.2.1 In Goa, forests occur mainly in the three Western Ghats Talukas of Satari, Sanguem and Canacona. The topography of this region is hilly and predominantly undulating. Goa receives high intensity rains during SW monsoon period (June-September) and streams and rivers of Goa flow from Western Ghats in the east to the Arabian Sea in the west.

6.2.2 In order to facilitate the Western Ghats to fulfill their ecological functions and to preserve/conservate the biological diversity, the soil and moisture, it is essential to maintain a protective clothing of tree cover in this region. Soil fertility and high water regime are the foremost of the intangible benefits to result from such a measure and this in turn, helps sustain economic growth and development especially in an ecologically sensitive State such as Goa.

6.2.3 The green cover of the State is considerably on a higher side compared to

the targets set in the NFP-1988. However, there is a need to improve the stocking of degraded and open forest patches in the State and the private/institutional lands. To increase/maintain green cover in the State, it is necessary to encourage the planting of trees on the available private lands as well as to create awareness among the local people in general and children & women in particular.

6.2.4 Government departments, educational institutions, Village Panchayats and the NGOs should be involved in the plantation activities. The department shall provide technical assistance, basic inputs required for plantation, saplings etc., to all those involved in plantation.

6.2.5 Lot of fallow lands are available in Goa which can be brought under tree vegetation. Local farmers should be encouraged to go for agro-forestry and farm forestry by raising plants of commercial value like Shisham, Teak, Kadamb, Bamboo, etc., on their farm lands. They should be provided with technical assistance and good quality planting stock of local suitable species. The Government also should ensure marketing avenues for the tree produce from farm lands.

6.2.6 Species selection for plantation in the natural forest areas should be strictly of the native species available in the State and more so in case of Western Ghats forests to maintain the ecological balance.

Efforts shall be made to afforest degraded forest land including rocky patches/terrain with the use of improved technology.

6.2.7 Soil and water conservation measures are very essential as the control of soil erosion will help to prevent floods. These measures also help to recharge aquifers by increasing percolation and reducing surface run-off. This in turn, increases availability of water during summer months and also prevents the ingress of tidal waters which would otherwise destroy inland fisheries and Khazan land agriculture.

6.2.8 To encourage tree planting on private lands, felling and transport regulations shall be suitably amended, taking sufficient precautions to prevent indiscriminate felling of trees.

6.2.9 Appropriate urban forestry models shall be designed and function as an effective interface with the public by organizing outreach programmes and publicity activities.

6.2.10 Having regard to the symbiotic relationship between the Scheduled Tribe & Other Traditional Forest Dwellers and forests, a primary task of all agencies responsible for forest management, including the Forest Development Corporation should be to associate the tribal people closely in the protection, regeneration and development of forests as well as to provide gainful employment to people living in and around the forest.

The rights of Scheduled Tribe & Other Traditional Forest Dwellers shall be taken care of as per legal provision.

6.3 *Conservation of Wildlife & Bio-Diversity*

- * The Protected Area Network of the State needs to be managed on scientific basis sustainably.
- * Due importance shall be given for conservation of biological diversity on a holistic basis for which the habitat improvement is the prerequisite, plantation of suitable fruit and fodder species, eradication of obnoxious and invasive weeds and provision of water especially during (non-monsoon periods) need to be undertaken as a measure of habitat improvement.
- * Illegal trade in wildlife and wildlife products shall be prevented. Antipoaching mechanism, intelligence gathering, mobility of staff and communication network need to be strengthened. The uniformed forest personnel should be permanently posted at Airports, Har-

- bours alongwith Customs personnel to check illegal export of wildlife or wildlife products to other places and countries. A control room functioning round the clock shall be opened and managed at the Headquarters.
- * Creating awareness among the general public about the importance of Wildlife and forests and its conservation should be given priority. To create awareness, nature education programmes/nature camps, development of interpretation centers and bio-diversity conservation centers/Arboretum/Botanical Gardens be established in the State.
 - * To enhance the capability of Wildlife wing of the Department, the associated staff should be imparted special training in use of various arms and sensitized for various skills in the wildlife management like rescuing of wild animals straying into the villages/human habitations, techniques of Wildlife Census, identification skills of various birds and other lesser known flora & fauna. In order to supplement the conservation efforts outside protected areas, suitable area shall be identified for declaring 'Conservation Reserve' or "Community Reserve", wherever feasible.
 - * The veterinary services in the department shall be strengthened for better management of zoo animals, rescued wild animals and also to tackle contagious diseases and to attend other immediate help/needs of wildlife.
 - * To mitigate the man-animal conflict, long-term and short-term measures with peoples' participation need to be adopted well in advance and sufficient awareness campaign be undertaken. Eco-development committees need to be created and strengthened for helping the Forest Department to achieve the task of wildlife conservation.
 - * A baseline survey of wild animals and other organisms should be undertaken and the status of these species should be monitored periodically.
 - * The existing wild animal rescue squads need to be strengthened by developing protocols for the rescue and rehabilitation of wild animals straying outside forest areas.
 - * Captive elephant management shall be streamlined and strengthened by adopting more scientific method.
 - * Conservation breeding of endemic and endangered species of birds and animals should be undertaken in the existing zoo.
 - * All efforts to be made to protect marine life eco-system. Forest staff should be trained for rescue and rehabilitation of marine lives like shark etc.
 - * Special efforts will be made to manage Lakes and Wetlands on sustainable basis to enable them to play their ecological role and support birds, amphibians, reptiles and other water dwelling creatures.
 - * Turtle nesting sites such as at Morjim, Agonda, Galgibag etc. should be protected and interference from mankind should be minimized.
- #### 6.4 Development of Eco-tourism in Goa
- ##### 6.4.1 Goa being a global tourist destination, has greater potential to improve the eco-tourism in the State. Eco-tourism has tremendous opportunities of meeting the market requirements within the framework of sound eco-system management on one hand and offering good employment and livelihood opportunities for the poor communities on the other.
- ##### 6.4.2 Eco-tourism initiatives taken up at Bondla (in Ponda taluka), Collem (in Sanguem

taluka) and Hathipal (in Canacona taluka) may be further strengthened to meet the requirement of tourists and also efforts may be initiated to identify more sites suitable for promoting eco-tourism and other related activities.

6.4.3 Eco-tourism efforts of the department should be aimed at creation of livelihood avenues for the local poor people. Community based eco-tourism involving the local people by imparting suitable training in hospitality, bird watching, botanization and nature guides, etc., should be promoted with an aim to develop confidence and skills among the rural people to take up such initiatives in their own land holdings.

6.4.4 Linkages shall be developed with the State Tourism Department so that the tourists visiting the State can be attracted towards eco-tourism and thus, the department's programmes, policies and messages shall reach a wider audience.

6.4.5 The eco-tourism activities should be regulated in such a way that they should be in harmony with the natural conditions of the forest area. To achieve this, all precautions that are necessary should be taken while implementing the schemes.

6.4.6 The type and scale of eco-tourism development should be compatible with the environment and socio-cultural characteristics of the local community.

6.4.7 Eco-tourism to be developed as a part of overall area development strategy, guided by an integrated land use plan while avoiding inter-sectoral conflicts and ensuring sectoral integration, associated with proportionate expansion of public services.

6.5. *Management of Natural Forests*

6.5.1 Keeping in view the objectives recognized for managing Goa's forests, which in turn have been derived from the National Forest Policy 1988, the State Government has banned tree felling in Government forests

since 1980-81. Prior to this, forests were clear felled on an annual coup basis and the cleared areas alongwith other degraded areas were rehabilitated by afforestation and soil conservation measures.

6.5.2 The natural forests that were not worked earlier should be managed primarily for sustaining the life support systems and biodiversity conservation.

6.5.3 The ban on tree felling in the natural forest areas may continue whereas, all forest areas need to be managed as per provisions of the approved working plans.

6.5.4 Degraded forest areas need to be rehabilitated through appropriate management interventions.

6.5.5 Degraded forest areas near habitations need to be regenerated with the involvement of local communities through the Joint Forest Management principles.

6.5.6 Though the State is small, it encompasses unique eco-systems like marshy lands and mudflats, small patches of grasslands, plateau lands, etc., apart from the normal woody and riverine eco-systems. These specific eco-systems need to be preserved keeping in view the eco-logical importance of these places.

6.5.7 Goa has a rich tradition of maintaining the "Sacred Groves" mainly because of beliefs and traditions attached with these places. These need to be documented and protected.

6.5.8 Forests of Goa are rich sources of medicinal plants and various non-timber forest produce and associated traditional knowledge. An effort in this regard is very much essential for proper documentation to achieve its sustainable management.

6.5.9 Any management intervention in the natural forest areas should keep the principle of Sustainable Forest Management in view.

6.5.10 Mineral prospecting/exploration or mining (fresh or existing leases and/or their renewal) including extraction of minor minerals shall be regulated as per the existing legal provisions.

6.6. *Mangroves*

6.6.1 Mangroves that occupy about 2000 ha. of area along the lower reaches (i.e. downstream) estuaries namely, Zuari, Mandovi, Terekol, Chapora, Sal, Talpona, Galgibag as well as Cumbarjua canal. As a measure to protect these mangroves, the State Government has notified 14 mangroves species as protected species and their cutting/felling is banned, which may continue.

6.6.2 The existing mangrove areas need to be preserved and attempts shall be made to acquire mangrove areas under private ownership.

6.6.3 Necessary steps may be initiated for non-consumptive use of mangrove resources by promoting eco-tourism or fisheries/oyster breeding etc.

6.6.4 Degraded mangrove areas need to be rehabilitated with suitable species of mangroves. However, care should be taken not to plant mangroves on mudflats frequented by migratory/resident birds in sanctuary and other areas.

6.7. *Conservation and Propagation of Medicinal Plants*

6.7.1 Medicinal plants need to receive adequate attention in the State. Steps need to be taken for in-situ and ex-situ conservation of medicinal plants in the Western Ghats and other parts of the State.

6.7.2 Systematic approach is needed to conserve these natural resources. Therefore, the following activities needs to be taken up:

(1) Survey, assessment and documentation of medicinal plant resources and their natural habitats in the State.

(2) In-situ conservation of available medicinal plant resources in their natural habitat.

(3) Standardization of techniques for propagation (nursery techniques) and its commercial cultivation.

(4) Demonstration plots and herbal parks to be set up to educate people about the use of medicinal plants in the traditional Indian systems of medicine.

(5) Production of quality seeds and seedlings for distribution to interested farmers so as to encourage them to cultivate the medicinal plants on their land holdings.

(6) Enabling environment needs to be created to facilitate marketing of medicinal plants for income generation to the farmers.

6.8 *Forest Protection, Forest Fires and Encroachments etc.*

Forests are an open access resource and are vulnerable to various kinds of pressures like theft, fires, grazing, encroachment, poaching etc., among which the forest fires and encroachments destroy bio-diversity, regenerating micro flora/fauna necessary for ecological process in forests. Incidences of large scale forest fires are not very common in the State, yet there have been instances of sporadic forest fires during summer months.

6.8.1 Special precautions such as maintenance of fire lines/round the clock monitoring of forest fires, use of firefighting equipment, improved communication and transportation networking, involvement of local people in forest fire monitoring and control need to be ensured for effective management of forest fires. In the incidences of forest fires, proper assessment of damage caused to the forest and measures to be taken for rehabilitation needs to be ascertained immediately.

The forest fire protection/management needs to be dovetailed with the District

Disaster Management Plan. There should be constant exchange of information on existing resources for Disaster Management with relevant Stakeholders.

6.8.2 Encroachment on forest lands should be monitored on periodic basis and effective punitive action against the encroachers should be taken in accordance with the Act/Rule.

6.8.3 Grazing on forest lands should be regulated and should not be encouraged.

6.8.4 Forest protection measures like regular patrolling, raids, search and seizures need to be increased with better infrastructure and supporting resources.

6.8.5 Forest department implements various legislations like Indian Forest Act, Wildlife Protection Act, Forest Conservation Act, Preservation of Trees Act, etc., in the State. Therefore, there is a need to establish a legal cell involving professional legal experts on permanent basis to assist forest officers in dealing with court cases/legal matters.

6.9 *Forestry Education, Training and Extension*

6.9.1 Frontline forest staff like Forest Guard, Round Forester and Range Forest Officers need to be imparted regular training to update them with the recent developments in the forestry and wildlife sector and related fields.

6.9.2 The training institution needs to be strengthened by equipping with trained personnel and good quality training material. Village Forest Committee members and Non Governmental Organizations (NGO) should also be involved in the training and extension activities.

6.9.3 For educating local villagers, farmers and other stakeholders about the forestry and related activities, Van Vigyan Kendra needs to be established.

6.9.4 Creating awareness regarding forest protection, sustainable use of non-timber forest produce and conservation of wildlife/ biodiversity among women and children by involving Anganwadis, Panchayats, Child Development Programme Officer and other village level institutions by the Forest Department.

6.9.5 The Forestry & Environment subject shall form part of curriculum at primary and secondary school level.

6.10 *Forestry Research*

6.10.1 Applied research on conservation of rare, endangered and endemic species needs to be undertaken or supported.

6.10.2 Linkages need to be established with other research institutions in the State as well as outside the State.

6.10.3 Some of the broad priority areas of research in the State are mentioned below which need to be reviewed periodically:

(a) Technical know-how for the reclamation of mining areas and mine dumps/rejects with locally available natural forestry species.

(b) Standardization of nursery techniques and cultivation aspects of medicinal plant species and other NTFPs.

(c) Standardization of plantation techniques for mangroves.

(d) Successful afforestation of barren/rocky/ marshy/mined-out lands.

(e) Research in tissue culture technology for mass multiplication of specific tree species and bamboos.

(f) Research related to plant breeding of rare endemic and endangered species of the Western Ghats.

(g) Perfecting the technology of composting and manuring with the available waste

to enhance the organic cultivation and employment/income generation to rural people.

(h) Research for development, sustainable use and value addition for medicinal plants, bamboos, canes and other NTFPs.

6.11 Personnel Management

6.11.1 Personnel management for professional foresters needs to aim at enhancing their professional competence and status for attracting and retaining qualified and motivated personnel, keeping in view particularly the arduous nature of duties they have to perform.

6.11.2 Cadre strength of Indian Forest Service (IFS) and State Forest Service (SFS) shall be maintained at optimum level as per the human resource requirements in the State. There should be a provision of lateral opportunities for the officers (IFS/SFS) as per rules in force and to utilize their services in other line departments in the State as well.

6.11.3 The frontline field staff needs to be constantly motivated by improving the avenues for promotion/Assured Career Progression schemes and their postings to some extent should be made based on proven skills/interest in specific works of forestry.

6.11.4 Strength of field and ministerial staff needs to be assessed from time to time with the changing role of Forest Department and additional work load."

Suggestions if any, in this regard are invited within the period of sixty days from the date of publication of this Notification.

By order and in the name of the Governor of Goa.

Maria J. R. e Pires, Under Secretary (Forests).

Porvorim, 24th March, 2011.

Department of Industries

Corrigendum

3-80-2010-IND

Read: Order No. 3/80/2010-IND dated 13-1-2011.

The post indicated at Sr. No. 1 in the above cited order is redesignated as "Chief Security Officer, Goa Industrial Security Force".

Accordingly, the said order stands modified to this effect.

This has the approval of the ARD vide their U. O. No. 401/F dated 25-2-2011 and Finance (R&C) Department vide their U. O. No. 1429527-F dated 21-3-2011.

By order and in the name of the Governor of Goa.

Vasanti H. Parvatkar, Under Secretary (Industries).

Porvorim, 22nd March, 2011.



Department of Law & Judiciary

Legal Affairs Division

Notification

10/1/2009-LA/40

The Jharkhand Appropriation (No. 3) Act, 2009 (Central Act No. 43 of 2009), which has been passed by Parliament and assented to by the President of India on 22-12-2009 and published in the Gazette of India, Extraordinary, Part II, Section I dated 23-12-2009, is hereby published for general information of public.

Julio Barbosa Noronha, Under Secretary (Law).

Porvorim, 11th March, 2011.

THE JHARKHAND APPROPRIATION (No. 3) ACT, 2009

AN

ACT

to authorise payment and appropriation of certain further sums from and out of the Consolidated Fund of the State of Jharkhand for the services of the financial year 2009-10.

Be it enacted by Parliament in the Sixtieth Year of the Republic of India as follows:—

1. *Short title.*— This Act may be called the Jharkhand Appropriation (No. 3) Act, 2009.

2. *Issue of Rs. 1074,03,88,017 out of the Consolidated Fund of the State of Jharkhand for the financial year 2009-10.*—From and out of the Consolidated Fund of the State of Jharkhand there may be paid and applied sums not exceeding those specified in column 3 of the Schedule amounting in the aggregate to the sum of one thousand seventy-four crores, three lakhs, eighty eight thousand and seventeen rupees towards defraying the several charges which will come in course of payment during the financial year 2009-10, in respect of the services specified in column 2 of the Schedule.

3. *Appropriation.*— The sums authorised to be paid and applied from and out of the Consolidated Fund of the State of Jharkhand by this Act shall be appropriated for the services and purposes expressed in the Schedule in relation to the said year.

THE SCHEDULE

(See sections 2 and 3)

No. of vote/ /appropriation	Services and purposes	Sums not exceeding		
		Voted by Parliament	Charged on the Consolidated Fund	Total
1	2	Rs.	Rs.	Rs.
1. Agriculture Department	Revenue	18,08,25,000	...	18,08,25,000
2. Animal Husbandry and Fisheries Department	Revenue	1,54,77,000	...	1,54,77,000
	Capital	1,23,60,000	...	1,23,60,000
3. Building Construction Department	Capital	6,22,00,000	...	6,22,00,000
6. Election	Revenue	12,38,68,000	...	12,38,68,000
9. Co-operative Department	Revenue	5,96,00,000	...	5,96,00,000
10. Energy Department	Capital	193,50,00,000	...	193,50,00,000
18. Food, Supply and Consumer Forum Department	Revenue	22,73,00,000	...	22,73,00,000
21. Higher Education Department	Revenue	40,61,00,000	...	40,61,00,000
22. Home Department	Revenue	17,00,01,000	...	17,00,01,000
23. Industries Department	Revenue	77,53,75,000	...	77,53,75,000
26. Labour, Employment and Training Department	Revenue	19,73,00,000	...	19,73,00,000
27. Law Department	Revenue	8,00,000	...	8,00,000
28. High Court of Jharkhand	Revenue	...	48,00,000	48,00,000
30. Minorities Welfare Department	Capital	3,84,00,000	...	3,84,00,000
33. Personnel and Administrative Reforms Department	Revenue	50,00,000	...	50,00,000

1	2	3		
39. Disaster Management Department	Revenue	300,00,00,000	...	300,00,00,000
40. Revenue and Land Reforms Department	Revenue	5,41,00,000	...	5,41,00,000
41. Road Construction Department	Revenue	21,36,00,000	...	21,36,00,000
42. Rural Development Department	Revenue	55,98,85,000	...	55,98,85,000
	Capital	115,45,15,000	...	115,45,15,000
44. Secondary, Primary and Public Education Department	Revenue	13,53,39,017	...	13,53,39,017
47. Transport Department	Revenue	68,70,00,000	...	68,70,00,000
48. Urban Development and Housing Department	Revenue	1,00,00,000	...	1,00,00,000
51. Welfare Department	Revenue	51,60,50,000	...	51,60,50,000
	Capital	19,54,93,000	...	19,54,93,000
TOTAL		1073,55,88,017	48,00,000	1074,03,88,017

Notification

10/1/2009-LA/39

The Appropriation (No. 4) Act, 2009 (Central Act No. 42 of 2009), which has been passed by Parliament and assented to by the President of India on 22-12-2009 and published in the Gazette of India, Extraordinary, Part II, Section I dated 23-12-2009, is hereby published for general information of public.

Julio Barbosa Noronha, Under Secretary (Law).

Porvorim, 11th March, 2011.

The Appropriation (No. 4) Act, 2009

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ACT

to authorise payment and appropriation of certain further sums from and out of the Consolidated Fund of India for the services of the financial year 2009-10.

Be it enacted by Parliament in the Sixtieth Year of the Republic of India as follows:—

1. *Short title.*— This Act may be called the Appropriation (No. 4) Act, 2009.

2. *Issue of Rs. 30942,62,00,000 out of the Consolidated Fund of India for the financial year 2009-10.*— From and out of the Consolidated Fund of India there may be paid and applied sums not exceeding those specified in column 3 of the Schedule amounting in the aggregate to the sum of thirty thousand nine hundred forty-two crores and sixty-two lakh rupees towards defraying the several charges which will come in course of payment during the financial year 2009-10, in respect of the services specified in column 2 of the Schedule.

3. *Appropriation.*— The sums authorised to be paid and applied from and out of the Consolidated Fund of India by this Act shall be appropriated for the services and purposes expressed in the Schedule in relation to the said year.

THE SCHEDULE
(See sections 2 and 3)

No. of vote	Services and purposes	Sums not exceeding		
		Voted by Parliament	Charged on the Consolidated Fund	Total
1	2	3		
		Rs.	Rs.	Rs.
1.	Department of Agriculture and Co-operation Revenue	14,23,00,000	...	14,23,00,000
2.	Department of Agricultural Research and Education Revenue	19,96,00,000	...	19,96,00,000
4.	Atomic Energy Revenue	422,48,00,000	...	422,48,00,000
	Capital	199,83,00,000	...	199,83,00,000
5.	Nuclear Power Schemes Revenue	55,67,00,00	...	55,67,00,00
	Capital	302,28,00,000	...	302,28,00,000
6.	Department of Chemicals and Petrochemicals .. Revenue	166,07,00,000	...	166,07,00,000
7.	Department of Fertilisers Revenue	3000,00,00,000	...	3000,00,00,000
9.	Ministry of Civil Aviation Revenue	281,00,00,000	...	281,00,00,000
	Capital	800,00,00,000	...	800,00,00,000
11.	Department of Commerce Revenue	160,58,00,000	2,05,00,000	162,63,00,000
12.	Department of Industrial Policy and Promotion Revenue	1,00,000	...	1,00,000
13.	Department of Posts Revenue	...	4,03,00,000	4,03,00,000
	Capital	...	10,00,000	10,00,000
14.	Department of Telecommunications Revenue	249,24,00,000	...	249,24,00,000
	Capital	171,75,00,000	...	171,75,00,000
17.	Department of Food and Public Distribution Revenue	3660,82,00,000	...	3660,82,00,000
	Capital	150,00,00,000	...	150,00,00,000
18.	Ministry of Corporate Affairs Revenue	9,43,00,000	...	9,43,00,000
	Capital	1,00,00,000	...	1,00,00,000
19.	Ministry of Culture Revenue	2,00,000	...	2,00,000
	Capital	9,00,00,000	...	9,00,00,000
20.	Ministry of Defence Revenue	29,81,00,000	...	29,81,00,000
	Capital	1,00,000	40,00,000	41,00,000
21.	Defence Pensions Revenue	2210,00,00,000	...	2210,00,00,000
23.	Defence Services—Navy Revenue	...	2,50,00,000	2,50,00,000
24.	Defence Services—Air Force Revenue	...	1,45,00,000	1,45,00,000
28.	Ministry of Development of North Eastern Region Revenue	1,00,000	...	1,00,000
29.	Ministry of Earth Sciences Revenue	4,00,000	...	4,00,000
	Capital	1,00,000	...	1,00,000
30.	Ministry of Environment and Forests Revenue	5,00,000	...	5,00,000
	Capital	1,00,000	...	1,00,000
31.	Ministry of External Affairs Capital	297,50,00,000	...	297,50,00,000
32.	Department of Economic Affairs Revenue	1,00,000	...	1,00,000

1	2		3	
		Rs.	Rs.	Rs.
33.	Department of Financial Services	Revenue	400,02,00,000	... 400,02,00,000
		Capital	1266,00,00,000	... 1266,00,00,000
35.	Transfers to State and Union territory Governments	Revenue	1200,02,00,000	... 1200,02,00,000
		Capital	... 1400,00,00,000	1400,00,00,000
38.	Department of Expenditure	Revenue	3,94,00,000	... 3,94,00,000
39.	Pensions	Revenue	4533,33,00,000	... 4533,33,00,000
41.	Department of Revenue	Revenue	1,00,000	... 1,00,000
44.	Department of Disinvestment	Capital	3139,90,00,000	... 3139,90,00,000
46.	Department of Health and Family Welfare	Revenue	3,00,000	... 3,00,000
49.	Department of Heavy Industry	Revenue	1,00,000	... 1,00,000
		Capital	1,00,000	... 1,00,000
51.	Ministry of Home Affairs	Revenue	195,83,00,000	39,00,000 196,22,00,000
53.	Police	Revenue	2,00,000	... 2,00,000
		Capital	2,00,000	70,00,000 72,00,000
54.	Other Expenditure of the Ministry of Home Affairs	Revenue	7,92,00,000	... 7,92,00,000
		Capital	48,00,00,000	... 48,00,00,000
55.	Transfers to Union territory Governments	Revenue	105,68,00,000	... 105,68,00,000
57.	Department of School Education and Literacy ..	Revenue	1,00,000	... 1,00,000
58.	Department of Higher Education	Revenue	87,12,00,000	... 87,12,00,000
		Capital	100,00,00,000	... 100,00,00,000
59.	Ministry of Information and Broadcasting	Revenue	1,00,000	... 1,00,000
60.	Ministry of Labour and Employment	Revenue	1,00,000	... 1,00,000
61.	Election Commission	Revenue	5,59,00,000	... 5,59,00,000
62.	Law and Justice	Revenue	1,00,000	... 1,00,000
	CHARGED —Supreme Court of India	Revenue	... 10,81,00,000	10,81,00,000
64.	Ministry of Micro, Small and Medium Enterprises	Revenue	2,00,000	... 2,00,000
65.	Ministry of Mines	Revenue	21,13,00,000	... 21,13,00,000
67.	Ministry of New and Renewable Energy	Revenue	1,00,000	... 1,00,000
71.	Ministry of Personnel, Public Grievances and Pensions	Revenue	39,13,00,000	3,05,00,000 42,18,00,000
		Capital	15,21,00,000	... 15,21,00,000
74.	Ministry of Power	Revenue	75,93,00,000	... 75,93,00,000
	CHARGED.— Union Public Service Commission	Revenue	... 17,10,00,000	17,10,00,000
79.	Secretariat of the Vice-President	Revenue	41,00,000	... 41,00,000
80.	Department of Rural Development	Revenue	154,45,00,000	... 154,45,00,000
84.	Department of Scientific and Industrial Research	Revenue	6,77,00,000	... 6,77,00,000
86.	Ministry of Shipping	Revenue	2,00,000	... 2,00,000
		Capital	3,00,000	... 3,00,000
87.	Ministry of Road Transport and Highways	Revenue	1,00,000	... 1,00,000
		Capital	311,00,00,000	... 311,00,00,000
88.	Ministry of Social Justice and Empowerment	Revenue	2,00,000	... 2,00,000
90.	Ministry of Statistics and Programme Implementation	Revenue	3,00,000	... 3,00,000

1	2	3	4	5
		Rs.	Rs.	Rs.
91. Ministry of Steel	Revenue	728,69,00,000	...	728,69,00,000
	Capital	1,00,000	...	1,00,000
92. Ministry of Textiles	Revenue	514,45,00,000	...	514,45,00,000
93. Ministry of Tourism	Revenue	2,00,000	...	2,00,000
100. Department of Urban Development	Revenue	414,76,00,000	...	414,76,00,000
	Capital	2025,10,00,000	...	2025,10,00,000
101. Public Works	Revenue	25,52,00,000	...	25,52,00,000
103. Ministry of Water Resources	Revenue	1,00,000	...	1,00,000
104. Ministry of Women and Child Development	Revenue	1200,00,00,000	...	1200,00,00,000
105. Ministry of Youth Affairs and Sports	Revenue	312,42,00,000	...	312,42,00,000
	Capital	350,58,00,000	...	350,58,00,000
TOTAL		29500,04,00,000	1442,58,00,000	30942,62,00,000

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Department of Public Health

Order

13/94/92-I/PHD (Part)

In pursuance of Government Notification No. 13/94/92-I/PHD dated 18-01-2000 and subsequent Notifications/Orders/Corrigendum/Addendum issued in this regard, sanction of the Government is hereby conveyed to Director of Health Services, Panaji that only those cases in which treatment is taken in recognized hospitals outside and within the State of Goa will be considered under Mediclaim Scheme and Medical Reimbursement for financial relief.

The above instruction will come into force with effect from 1st April, 2011.

By order and in the name of the Governor of Goa.

D. G. Sardessai, Joint Secretary (Health).

Porvorim, 31st March, 2011.

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Department of Public Works

Notification

1-5-PCE-PWD-EO/2010-11/216

Read: Notification No. 10(33)/2010/DoIT/e-services/7311 dated 26-11-2010.

In pursuance of para 5, of the above Notification issued by Department of Information Technology, Government of Goa, it is hereby informed that the public services which are mentioned below would be delivered to the citizens through Lok Seva Kendras (LSKs) and State Portal (SP) with immediate effect.

It is therefore approved to levy the following service charges for the services to be availed through "e-Services/State Portal, SSDG and e-forms" project.

Services	Proposed transaction fees in (Rs.)
Payment of water bills	5

By order and in the name of the Governor of Goa.

J. J. S. Rego, Principal Chief Engineer & ex officio Addl. Secretary (PWD).

Panaji, 30th March, 2011.

Office of the Principal Chief Engineer

Notification

8-4/PCE-PWD-Accts/2010-11/250

In exercise of the powers conferred by Article 60 of Portaria No. 6802 dated 10-12-1956 (Water Supply Bye-Laws) read with Clause 2 of the Goa, Daman and Diu (Administration) Removal of Difficulties Order, 1962 and all other powers enabling it in that behalf, and in supersession of the Government Order No. 8-4/CE-PWD-Accts/2009-10/140 dated 30-10-2009, the Government of Goa hereby orders to bill the consumers of all the categories at the revised tariff as mentioned below in supersession to all previous orders.

1. *Short title, extent and commencement.*— (1) This Order may be called the Goa Revision of Tariff for Water Supply and Sewerage Order, 2011.

(2) Fixation of Water Tariff for all categories.

(3) This shall come into force with effect from 1st April, 2011.

A (1) *Domestic Consumers*

(i) Rs. 2.50 per m³ upto 25 m³.

(ii) Rs. 7.00 per m³ above 25 m³ upto 35 m³.

(iii) Rs. 10.00 per m³ above 35 m³ upto 50 m³.

(iv) Rs. 15.00 per m³ above 50 m³. Minimum Charges shall be Rs. 40/- per month.

In respect of registered Co-operative Housing Societies and as well as non-register Co-operative Housing Societies/Colonies which have been given single Water Supply connection covering more than one number of residential flats, the basis for the tariff shall be number of flats in the Housing Society depending on the single house service connection. For example, in case one house service connection feeds say 50 Nos. residential flats in the Co-operative Housing Society shall be charged at the rate of Rs. 2.50 per m³ and above (50x25=1250m³) shall be at the rate of Rs. 7.00 and so on as indicated above for the Domestic Consumers Category at Sl. No. A(1).

(2) Students, Hostels, Hospitals/Dispensaries and Educational Institutions and recognized Charitable Trust Institutions	Rs. 7.00 per m ³ (flat rate) Minimum charges Rs. 70/- per month.
(3) Students, Hostels/Hospitals/Dispensaries Business Profession which are not falling within the purview of Goa, Daman & Diu, Shops and Establishment Acts, Educational Institution	(i) Rs. 15.00 per m ³ for first 250 m ³ . (ii) Rs. 18.00 per m ³ above 250 m ³ . Minimum charges Rs. 140/- per month.

B (I) Small Hotels having—

No. of restaurants attached to hotel, and number of rooms less than 15 with A/c rooms numbering three or less/Government Tourist Hostels	(i) Rs. 15.00 per m ³ for first 80 m ³ . (ii) Rs. 20.00 per m ³ above 80 m ³ . Minimum charges Rs. 150/- per month.

(II) Small Restaurant

(i) Non-Air Conditioned	(i) Rs. 15.00 per m3 for first 80 m3.
(ii) Area upto 150 sq.mts.	(ii) Rs. 20.00 per m3 above 80 m3. Minimum charges Rs. 150/- per month.

(C) Defence	Rs. 15.00 per m3 (flat rate). Minimum charges Rs. 150/- per month.

(D) (I) Fishing Boat Owners/Operators Association at various Jetties in Goa	Rs. 15.00 per m3 (flat rate). Minimum charges Rs. 180/- per month.

(II) S.G.P.D.A. Market complex at Margao	Rs. 15.00 per m3 (flat rate). Minimum charges Rs. 180/- per month.

(III) Akhil Gomantak Nabhik Samaj Goa	Rs. 15.00 per m3 (flat rate). Minimum Rs. 150/- per month.

(E) (I) Small scale/medium/large and all types of Industries/Hotels (Registered) (other than small hotels/small Restaurant Tourist Hostels)	Rs. 25.00 per m3 (flat rate). Minimum Rs. 250.00 per month.

(II) Commercial/including MPT/Bar/Cinema Theatres/Constructions/Establishments registered under the Goa, Daman & Diu Shops and Establishment Act, 1974 including building construction.	Rs. 35.00 per m3 (flat rate). Minimum Rs. 300.00 per month.

(III) Public Water taps installed into the Municipality/Panchayat Areas.	Rs. 200/- per tap be charged to the concerned Municipality/Gram Panchayat (per month).

(IV) Supply of Water by Tanker:

(i) Small Tanker upto 6 m3	Rs. 600.00 per trip.
(ii) Big Tankers between 6 m3 to 10 m3	Rs. 800.00 per trip.

(F) Sewerage Charges	(i) 25% of the water consumption charges. (ii) In case of consumers who consume water other than the Government water supply supplied by the Government, the billing will be done on the actual quantity consumed from all the sources as assessed by the Department.

(G) Connection Charges

(I) Water Supply Sector:

- | |
|---|
| (i) Domestic/Small Hotels and small
restaurants/Akhil Gomantak Nabhik
Samaj |
|---|

(II) <i>Size of connection</i>		<i>Amount per connection</i>
(a) 15 mm./20 mm.		Rs. 600.00
(b) Above 20 mm. upto 25 mm.		Rs. 1500.00
(ii) Other than domestic/small hostels/small restaurants/Akhil Gomantak Nabhik Samaj.		
<i>Size of connection</i>		<i>Amount per connection</i>
(a) 15 mm/20 mm.		Rs. 2000.00
(b) Above 20 mm. upto 25 mm.		Rs. 5000.00
(c) Above 25 mm. upto 150 mm.		Rs. 10000.00
(II) Sewerage Sector connection to Sewerage System		
(I) Domestic		
<i>Size of connection</i>		<i>Amount per connection</i>
(i) Upto 150 mm. dia.		Rs. 200.00
(ii) Above 150 mm. dia.		Rs. 350.00
(II) Non-Domestic		
<i>Size of connection</i>		<i>Amount per connection</i>
(i) Upto 150 mm. dia.		Rs. 500.00
(ii) Above 150 mm.		Rs. 700.00
(I) Delayed payment charges and reconnection charges		
		(i) The delayed payment charges at the rate of 2% per month shall become due and payable, if bill is not paid on or before due date of payment specified in the water bill. The delayed payment charges will be rounded off to nearest rupee.
		(ii) The water supply/sewerage connection is liable for disconnection in case payment of any of the water/sewage bills remains overdue for more than two (2) months.
		(iii) The reconnection charges shall be Rs. 200/-.
(H) Meter Rent		
<i>Size of Meter</i>		<i>Rates per month proposed</i>
1. 15 mm.		Rs. 20.00
2. 20 mm.		Rs. 50.00
3. 25 mm.		Rs. 60.00
4. 40 mm.		Rs. 150.00
5. 50 mm.		Rs. 200.00

6. 80 mm.	Rs. 250.00
7. 100 mm.	Rs. 300.00
8. 150 mm.	Rs. 500.00

(I) Inspection Charges once in a year

(1) *Water Connection*

(i) Domestic connection	Rs. 50/- per connection.
(ii) Non-Domestic connection	Rs. 200/- per connection.

(2) *On-site sanitation Septic Tank*

(i) Domestic connection	Rs. 100/- per connection.
(ii) Non-Domestic connection	Rs. 200/- per connection.

(J) Testing of water meters Rs. 100/- per meter per test.

Note: In case of special connections the tariff and the connection charges of diameters shall be decided by the Department on case to case basis.

By order and in the name of the Governor of Goa.

J. J. S. Rego, Principal Chief Engineer & ex officio Addl. Secretary (PWD).

Panaji, 31st March, 2011.

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