

MANAGEMENT PLAN OF GHATAPRABHA **BIRD SANCTUARY**

ACKNOWLEDGMENT

This draft management plan for Ghataprabha bird sanctuary is prepared for the period 2009-10 to 2013-14. While preparing this plan details of various work proposals were discussed with the Range Forest Officer concerned, field staff and finalized as per guidance of Sri. I. B. Srivastav, IFS, Principal Chief Conservator of Forests (Wildlife), Bangalore and Sri. Vijayakumar Gogi, IFS, Conservator of Forests, Dharwad Circle, Dharwad.

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PART-I
Summary of facts
Chapter-I

Introduction to the area:

GHATAPRABHA BIRDS SANCTUARY is situated in Gokak and Hukkeri Taluks of Belgaum District. It is a small birds sanctuary comprising a section of Ghataprabha River and over 20 islands in it. A weir & dam constructed during 1883 near Dhupdal have created a reservoir upstream with a large island in it's midst. This is the only part of the Sanctuary. Which is actively managed. The Gokak waterfalls located in the eastern part of the Sanctuary is the major tourist attraction. Most of the islands that comprise the sanctuary are barren and dry and one of them at western side of Dhupadal lake is Swampy and another has a good growth of *Acacia arabica*, *Pithecollobium dulce* and *Bambusa arundianaeca*, both being introduced species. *Acacia arabica* and *Imperate cylindrica* are considered of special interest, as they are good for nesting. Apart from harboring endemic birds like little cormorant, Egret, Ibis, king fisher, Storks, Snake birds, Heron etc., the area is noted for having attracted migratory birds like Demoiselle cranes and European white storks which have been sighted normally from November to March.

1.1 Name, Location, Constitution and extent

The Government of Karnataka vides notification No. AFD 57/FWL/74 dated: 17-06-1974 notified the Ghataprabha Birds Sanctuary.

Ghataprabha Bird Sanctuary is situated in Gokak and Hukkeri Taluks of Belgaum District near Kolhapur-Nargund Road about 65 kms. from Belgaum. Nearest town is Gokak (10 km.) Nearest Railway Station is Ghataprabha (2 kms.) & the nearest Airport is Belgaum (65 kms.)

The Sanctuary area is situated between 16⁰ 10' 00" to 16⁰ 14' 46" North latitudes and between 70⁰ 40' 13" to 74⁰ 50' 00" East longitudes. The bird Sanctuary constitutes a beautiful area of 29.785 sq.kms. Comprising of 22 islands.

1.2 Approach & Access: The Sanctuary is situated in Gokak and Hukkeri Taluks of Belgaum District near Kolhapur-Nargund Road about 65 kms. from Belgaum. Nearest town is Gokak (13 km.) Nearest Railway Station is Ghataprabha (2 kms.) & the nearest Airport is Belgaum (65 kms.)

1.3 Statement of Significance: It is a small birds sanctuary comprising a section of Ghataprabha River and over 20 islands in it. A weir & dam constructed during 1883 near Dhupdal have created a reservoir upstream with a large island in it's midst. This is the only part of the Sanctuary, which is actively managed. The island surrounded by water throughout the year except few days in March, connected with good network of Rail and Road attracts many tourists, bird watchers, school children. It gives good opportunity to create awareness among public regarding wildlife to be specific in avifauna. It is a good example of riverian ecosystem.

Chapter II

Background information and attributes

2.1 Boundaries:

The Government of Karnataka vides notification No. AFD 57/FWL/74 dated: 17-6-1974 declared as Ghataprabha Birds Sanctuary with boundaries as follows.

Northeast:

Starting from Kolhapur – Nargund road near Gokak the boundary runs along the Ghataprabha river touches Gokak falls crossing Belgaum Railway line and road and touches Forest Nursery and Gudas and kotbag and Hiranyakeshi river.

Southwest:

Starting at a point where river Hiranyakeshi touches Ghataprabha river runs along Gudgeri, Saralgi, Nandagaon and Dhupadal weir and crosses the Belgaum railway line, Konnur and touches the Markhandeya river.

2.2 Geology, rock and soil:

The Northern and Western fringes of the Kalaghatadgi series are covered by Deccan trap. Within the zone of Kalaghatadgi series there are occasional gneissic layers and trap out-crops the chief type being basalt.

Soil is red sandy as well as black rich loam of secondary origin formed as a result of primary disintegration of both trap and genesis charged with organic matter.

2.3 Terrian- The terrain is almost flat. Because of the flood water of river Ghataprbha, the island bank is susceptible for erosion.

2.4 Climatic Factors:

2.4.1: Rainfall pattern and distribution.

Mean annual Rainfall is 784.7mm. The Sanctuary is exposed to torrential thundershowers starting from May – June and some during October with moderately heavy monsoon showers in June, July and August.

The climate is governed mainly by the Southwest monsoons and the year can be divided into three seasons, the rainy, winter and summer seasons. The limits of these do not vary greatly from year to year and may be taken as middle of June to middle of September, middle of September to middle of January and middle of January to middle of May respectively.

2.4.2 Temperature:

The climate in general is dry with minimum and maximum temperature varies from 20⁰ C to 40⁰ C respectively.

2.4.3 Winds: The two monsoon winds that blow over the sanctuary are:

- 1) The South westerly wind – between June to step
- 2) The North easterly wind – between September to December.

2.5 Water sources :

Ghataprabha River is the main source of water. Water stored at Hidakal dam releasing into Dhupdal weir for irrigation purposes down stream. So the water around the island do not go below minimum level expect in the month of March.

2.6 Range of Wildlife, Status Distribution and Habitate:

Ghataprabha bird sanctuary is a riverine island, has developed into a natural habitat offering good shelter for a vast assemblage of plants as well as to birds and other animals.

2.6.1 Vegetation:

The Biotic factors (edaphic variations) have played a dominant role in determining the nature of the forests growing in sanctuary area. Most of the islands that comprise the sanctuary are barren and dry. One of them at west of Dhupdal lake is swampy and another has a good growth of *Acacia arabica*, (karijali), *Pithecallobium dulce* (Sihunce) and *Bambusa arundianaeca* (Dowga) both are introduced species. *Acacia arabica* and *Imperata cylindrica* (Elephant grass) are considered of special interest, as they are good for nesting.

The common species found are.

<u>Sl. No.</u>	<u>Botanical Name</u>	<u>Local Name</u>
1	<i>Acacia arabica</i>	Karijali
2	<i>Albizzia amara</i>	Tugli
3	<i>Albizzia lebbek</i>	Bage
4	<i>Albizzia odartissima</i>	Godda hunsi
5	<i>Artocarpus integrifolia</i>	Halasu
6	<i>Azadirachtu indica</i>	Bevu
7	<i>Bambusa Arundianaeca</i>	Dowga
8	<i>Cassia fistula</i>	Kakke
9	<i>Carissa caranda</i>	Kawli
10	<i>Ficus species</i>	Atti, Ala, Arali.
11	<i>Hardiwickia binata</i>	Kamara
12	<i>Inga dulce</i>	Ilati Hunse
13	<i>Imperata cylindrica</i>	Elephant grass.
14	<i>Holoptelia integrifolia</i>	Tapsi
15	<i>Pongania pinnata</i>	Hulgal
16	<i>Prosopis juliflora</i>	Ballari jali
17	<i>Randia dometorum</i>	Kari
18	<i>Syzigium specieas</i>	Nerale
19	<i>Shorea talura</i>	Salari
20	<i>Streblus asper</i>	Mittal
21	<i>Terminalia arjuna</i>	Holematti
22	<i>Zizyphus species</i>	Bare, pargi etc.

2.6.2: Birds and animals

The sanctuary is noted for harbouring the migratory birds like Demoiselle cranes (*Anthropoides virgo*) and European white storks (*Ciconia ciconia*) which have been sighted normally from November to February, along with endemic birds like peacocks, Egrets (Cattle, large & Little), white ibis, Lesser pied, snakebird, storks (open billed), Little cormorants, spoon bill, king fisher, Red wattle lapwing etc.

Apart from avifauna the Sanctuary supports variety of snakes both of poisonous and non-poisonous nature. The commonly seen are green snakes, rat snakes, cobras, pythons etc.

Other animals commonly seen around the Sanctuary are Jackals, Mongoose, and wild boars, Hares etc.

Details of flora, fauna, including avifauna found in the sanctuary are at annexure I, II and III.

CHAPTER – III

History of Management and present practices

3.1 General: It is a small birds sanctuary comprising a section of Ghataprabha River and over 20 islands in it. A weir and dam constructed during 1883 near Dhupdal has created a reservoir upstream with a large island in its midst. The sanctuary area is very small and consists of 2978.50 hectare. Sanctuary was initially notified as per notification No. AFD/57/FWL/74 dated: 17-06-1974. Since there are over 20 islands and all are very small islands except one near Dhupadal weir which is actively managed since the notification.

The sanctuary is surrounded by agricultural fields irrigated from Hidakal dam. The safety of the island is given top priority because the trees these are the main perching and roosting area for majority of the migratory birds. Stabilization of the banks of island with periodic repairs are carried out. Many development works are carried out to promote tourism. Boat facilities to the public are provided to visit the sanctuary, watch towers are provided to view the Birds in the sanctuary. Embankment is provided to walk through the sanctuary for watching birds.

3.2 Forest Protection :

3.2.1 Legal Status:

An extent of 29.785 Sq.kms was declared as Ghataprabha Birds Sanctuary vide notification No. AFD 57 FWL 74 dated: 17-6-1974. The Dhupdal Island was afforested during 1974-76 out of CADA Funds.

3.2.2 Hunting: No hunting of birds is noticed in the sanctuary.

3.2.3 Illegal activities:

3.2.3.1 Poaching:

No poaching activities are noticed. But adequate caution has been taken to prevent illegal fishing.

3.2.3.2 Illegal cutting of trees :

Illegal cutting and smuggling of trees were noticed in previous years. Appropriate legal action has been taken to control such activities. Surrounding villagers rarely sneak into the island to collect fire wood.

3.2.4 Domestic livestock grazing: The Sanctuary is surrounded by river Ghataprbha. The sanctuary is also surrounded by 18 villages with a population of about 65000 and cattle, sheep and goat population of about 15000. The villages and agricultural lands are found scattered around the Sanctuary area. When the water is low, straying of cattle in to the island are not uncommon. There are no villages inside the sanctuary. Adequate measures are taken to regulate it. List of villages with population data is at annexure-IV.

3.2.5 Wild fires:

There are no fire incidents so far. But adequate precaution has been taken to prevent such fires during summer.

3.3 Tourism and Tourism Development:

The Sanctuary offers ample opportunity to tourists specially bird watchers, Nature lovers. Keeping this in view it is necessary to develop tourism activities within the Sanctuary on a limited basis. Basic infrastructures to be provided to the tourists. The approach should be environment friendly and all activities aimed at to develop the tourism will be implemented in consonance with the natural surroundings. Visits to the Sanctuary should be organized in such a way, so as to maximize people enjoyment and increase visitors concern for nature conservation. Since waterway is the only means to visit sanctuary, to provide tourism facilities for tourists an extent of 5 acres of land to be acquired on the other side of river bank above flood level nearer to the sanctuary entry. The present waterway is very long to reach the sanctuary.

3.4 Research, Monitoring & Training:

3.4.1 Research, Monitoring

No research work has been carried out in Ghataprbha Bird Sanctuary. A detailed research has to be carried out to explore the nativity and other behavioral changes of migratory birds without disturbing the habitation.

Ghataprbha Bird sanctuary is more *or* less surrounded by agricultural fields. The agricultural activities depend upon the release of water from Hidkal Dam. The effect of usage of chemical fertilizers and pesticides on avian fauna is not studied. Adequate knowledge may be imparted to farmers regarding use of bio-fertilizers like wormy compost etc.

3.4.2 Training:

The field staff are not well versed in identification of all resident and migratory birds their behavioral pattern, roosting and breeding details. No short term training course by Ornithologist has been conducted for the field staff including boatman accompanying tourists. It is required to update the field staff regarding details of resident and migratory birds.

3.4.3. Administrative set-up:

At present the Range Officer in charge of Ranebennur Black Buck Sanctuary looks after the activities of this Sanctuary too under the supervision and control of the Assistant Conservator of Forests, Wildlife Sub-Division, Ranebennur.

At present, there is one Forester to look after the activities of the Sanctuary with the assistance of a couple of watchers on Contract base wages and all the activities are supervised by the Range forest Officer.

3.4.4. Summary of threats to wildlife:

The major threat to wildlife in this sanctuary is summer season, non release of water into the weir, during Feb-March island will be devoid of water causing damage to the eggs animals and young once of roosting birds. Cattle grazing are a problem since area is surrounded by irrigated agricultural fields. During summer season, there will be no virtual isolation of island from adjacent due to very low level of water.

CHAPTER IV

The Protected area and the inter face land use situation

4.1 The existing situation in the zone of influence:

The people residing around the sanctuary are not using this area directly for any purpose. Since there is no dependency on the protected area, people around the protected area are much co-operative. Because of round the year irrigation facilities, farming is the major occupation.

Farmers are actually benefited by birds, because to certain extent they feed on the insects in these fields and control the pest population. But, usage of chemicals, fertilizers and pesticides by farmers to protect the agricultural crop may influence the population of insects and other amphibians and fishes, which are the feeding grounds of some migratory birds. The after effects are not yet studied. But these activities have no influence on the population of the migratory birds as per the census. Even then the farmers may be educated and encouraged in using bio-fertilizers. And other less harmful pesticides

PART – II

Chapter - V

Proposed Management

Objectives of the Management

Plan Objectives and problems: There is ample scope for developing the Ghataprabha Birds Sanctuary. It is already an important place of tourist attraction in the northern part of Karnataka. Ghataprabha Birds Sanctuary is the beautiful piece of nature harboring numerous endemic and migratory birds with distinct ecological features. Hence prime object is to protect this treasure to the fullest extent possible so that many endangered endemic and migratory birds inhabiting the area are adequately protected and propagated. Restore the degraded portions of the Sanctuary through habitat improvement. To create awareness among the people about the need to protect the nature in general and the Sanctuary in particular. Migratory birds like Demoiselle cranes etc., may regularly invade and destroy the agricultural crops in nearby fields. Very often the whole crop in the field was found to be divested by the birds, resulting in man-animal conflicts. So the more important object of management here is to prevent such conflicts in future by developing artificial feeding grounds in Government wastelands, forest areas *or* in rented farms in and around the Sanctuary. Agricultural crops like wheat, Jawar, Sunflower, Chick pea, Pigeon pea, Cucumber etc., can be grown in such artificial feeding grounds

5.1 Objectives:

1. To protect eco-system and conserve the Flora and faunal diversity.
2. To restore the degraded eco-system by adopting suitable soil and water conservation methods and to regenerate such areas with appropriate vegetation cover by developing technology for eco-system restoration and maintenance of biological diversity.
3. To develop eco-tourism for recreation, education and scientific exploration.
4. To involve the local people in the implementations of conservation and developmental programmes so that a balanced relationship is developed between man and nature.

To maintain and develop to the extent considered necessary, tourism for recreation, education and scientific exploration. For realising the full habitat potential, food cover and water must be distributed uniformly in the desired composition. This involves detailed survey of existing resources. All rare trees, herbs, shrubs etc., should be marked and mapped for preservation. A detailed

inventory of flora and fauna (preferably birds) has to be carried out and recorded on permanent file and Registers.

5.2 Problems in achieving objectives:

Flood is the major threat. During monsoon Hidkal dam constructed on upper side of the stream poses threat. To maintain the safety of the reservoir excess water will be released periodically in monsoon season. If release of water crosses one lakh cusecs, certainly it erodes the island bank and damages the nesting trees and nests by the water current.

As long as the release of excess water from the dam is not checked this problem cannot be abated. Natural island bank should be protected by providing revetment all-around.

Generally the birds which roost in this sanctuary, visit to nearby farmland, tanks and backwaters of Ghataprbha river, for feeding, where sporadic catching of birds is noticed. But this problem is now under control due to patrolling.

Since the inflow of water is very low during summer and virtually no barrier for the illegal entry of cattle, grazing cattle driven by adjacent farmers is posing a serious problems.

Chapter VI

The Strategies

6.1 Boundary Delineation & Demarcation:

Vide Notification No. AFD 57 FWL 74, dated: 17-6-1974. An area of 29.785 Sq.kms was declared, as Ghataprabha Birds Sanctuary. The entire area included in the sanctuary does not belong to the Forest Department. At present the area occupied by the river flow and the islands belong to the irrigation Department. Efforts are being made to get the islands in to the custody of the Forest Department. However the Dhupdal Island has been afforested during 1974-76 out of CADA Funds At present boundaries though defined are not demarcated completely. Action being taken to demarcate the area with the details of position of each island boundaries of the Sanctuary and the enclosures shall be marked using appropriate Stone Pillars and enamel plates.

The proposed Budget provision is as per Annexure-VIII.

6.2 Zonation:

Since all other islands are tiny and devoid of vegetation, the only big island is this and entire area can be treated as core area which is having zero disturbance. Hence, the area is absolutely free from threat of illegal cutting. Since the area is provided round the clock protection, the increase in fish population provides food for some birds.

There are number of villages surrounding the sanctuary where most of the fields are irrigated by Hidkal dam. The crop pattern is very much favourable for bird forage grounds. This area can be treated as buffer area. Paddy and sugarcane fields are suitable for birds to prey on insects, frogs etc for themselves and to feed their chicks.

Tourism Zone: A small portion of island about 2 acres at the entrance is set apart to be called tourism zone.

Restoration Zone: Birds in this sanctuary have selected marshy patches which are totally isolated and covered by deep water for nesting activities. Hence small islets have to be created and consolidated mechanically and planted with suitable vegetation which will improve the habitat for nesting and breeding of birds.

6.3 Theme Plans:

The following strategies are proposed for meeting the objectives of management.

6.3.1 Habitate improvement:

Habitat improvement will be based on the following considerations.

- 1) Protecting area against biotic degradation.
- 2) Improving the habitat for birds and other fauna.
- 3) Conserving, protecting and increasing the bio diversity.

Habitat development works:

The following works are proposed with regard to habitat improvement.

- a) The trees presently being used by birds for nesting should be protected from flood waters, duly strengthening the banks of island by constructing rubble stone revetment and maintenance of water levels inside the island by regulating water flow into the island by construction of wall to stop receding water.
- b) Tree planting with suitable species should be taken up to ensure the future availability of good nesting sites. The gaps in the island because of alkaline soil need be planted with trees after suitably treating the soil. Exotic weeds found in the island need to be replaced with fruit species suitable for roosting.
- c) New islets are to be created artificially and planted with suitable tree species for providing roosting sites for birds.
- d) Measures for controlling un-natural predators like stray dogs to be taken up by catching and translocating them to elsewhere.

The proposed Budget provision is as per Annexure-IX

6.3.2.Strategies to overcome protection problems:

6.3.2.1 Control of illegal fishing:

Fishing is totally banned surrounding the sanctuary area. Day and night

patrolling is done to book cases of illegal fishing. Boats used for tourism are being used for night patrolling.

6.3.2.2 Control of illegal grazing:

Since the sanctuary is surrounded by villages and irrigated fields, in summer when there is very low inflow of water, cattle are driven inside the sanctuary for illegal grazing. To control this, fencing of outer boundary of the sanctuary with chain link is proposed.

6.3.2.3 Fire Protection: Since the island is marshy throughout the year, there are no incidents of fire in the sanctuary.

6.3.2.4 Publicity create awareness:

To spread the message of conservation of wildlife, publicity material like brochures, hand bills should be prepared and distributed freely among the tourists, general public, school children and the people surrounding villages to create awareness regarding the importance of conserving wildlife. The proposed budget provision is as per Annexure-XII.

CHAPTER -7

TOURISM, INTERPRETATION AND CONSERVATION EDUCATION

General:

Ghataprabha Bird Sanctuary happens to be an important tourism spot for watching birds. Perhaps the other tourism spots like Soundatti, Gokak falls, Khanapur etc., are other linked places of attraction. Boating all along the side of the island closely watching various resident and migratory, birds is a wonderful experience to the tourists. The Rowing boats which are not at all disturbing the peaceful existence of birds is a unique feature. In future, rowing boats should be used for this purpose. This is a good example for riverine eco system. From the point of conservation education Ghataprabha Bird sanctuary is adjudged a best spot.

7.1 Objectives:

- (a) To develop eco-tourism for recreation, education and scientific exploration.
- (b) To provide wilderness experience to genuine enthusiasts in particular and to the public in general.
- (c) To educate the people especially living nearby the sanctuary areas regarding the need to maintain such sanctuary and there by enlisting their co-operation.
- (d) To love for all types of life forms like birds and plants, to create awareness about interlinkages in food chain and foodweb and to inculcate the idea of conservation of bio diversity in the minds of the public in general and children in particular.

7.2 The Stratagies:

The sanctuary has got good approach from Belgaum, Gokak and Dharwad.

Many islands situated in this sanctuary, which were once almost barren are now covered with tree growth. A weir constructed across river Ghataprabha by irrigation department, has created these islands. These islands attract variety of aquatic birds. This area, if developed, has got tremendous potential as tourist

centre. It is planned to develop eco-tourism in this area. Hanging bridge connecting the island, Drinking Water facility, Toiletry, Resting places, Parking area, Staff Quarters, Boating, Library, Watch towers, Nature Camp with audio-video facility etc., can be developed in this area. The budget provisions is as per Annexure.

Ghataprabha Bird Sanctuary is open to tourist throughout the year Tourists are allowed inside the sanctuary between 6.00 A.M. and 5.00 P.M. Thus the regulation of visitors is planned to minimize the disturbance during sensitive periods. Boat rides are restricted for 10-15 minutes per ride strictly. Boat men are trained to keep visitors silent during the rides so that least disturb is caused to roosting birds. Instructions have been given to boatmen to maintain the routine restricted movements.

The sanctuary is declared as no plastic zone. Adequate number of caution boards area displayed to avoid use plastics.

To create awareness and educate the visitors, laminated boards are to be displayed regarding migratory birds. This has to be updated by constructing a interpretation centre with audio visual equipments. To generate resource for management of park there should be a periodical change in fees. At present following is the pattern of fees charged.

Entrance Fees:

Indian: Rs. 25/-

Foreigner: Rs. 70/-

Conducted boat ride

Indian Rs. 25/person

Foreigner Rs. 100/person

Camara charges:

Handycam:Rs.100/day

Larger video camera Rs.200/day

It is also proposed to make wide publicity by displaying informations about the sanctuary at suitable places. It is also planned to bring brochures with valid information regarding the values of the sanctuary. Repairs to ponds, paragolas and sitting benches have to be done periodically. Since there is no Forest land *or* revenue land on the other bank of the river to promote tourism an extent of 5 acres land to be acquired and tourism facilities are to be provided to tourists such as parking place, rest place, toiletry, drinking water, information center and paragolas etc., and approach road is to be formed to reach the sanctuary.

The proposed Budget provision is as per Annexure-X

CHAPTER-8

ECO-DEVELOPMENT

8.1 Objectives:

- i) To involve the fringe villagers, in and around the sanctuary in planning, protection and conservation, by educating them on the values of the protected area.
- ii) Developing, site specific eco-development micro-plans, with the participation of the villagers.
- iii) Develop alternate sources of bio-mass and income to divert pressure on the protected area, while strengthening the economic condition of the villagers.
- iv) When villagers away from the traditional dependence of protected area by providing alternate sources of livelihood and training.
- v) To build up awareness among the villagers towards conservation, by appropriate education programmes.

8.2 Specific Issues:

- i) Traditionally the villagers surrounding the sanctuary have been dependant on the protected area for fuel-wood, bamboo and small timber.
- ii) With no grazing grounds in the villages, they are dependent on the Park to graze their animals as well as to collect fodder.
- iii) Relationship between Park staff and villagers are not very cordial because of restrictions imposed. Hence it is required to ensure cordial relationship.

8.3 Broad Strategies:

Dependence of villagers for small timber, fuel wood, grazing grounds on protected area has to be addressed properly. Ghataprabha Bird Sanctuary surrounded by about 18 villages with nearly 65000 population (Annexure-III) Following activities may be taken up as a strategy for lessening the dependency of neighbouring village community on park area and ensure cordial relationship with them.

- 1) To reduce the dependency on firewood, fuel efficient smokeless chulas, biogas, LPG have to be provided.

- 2) To discourage the farmers the traditional use of chemical fertilizers and pesticides which inturn kill the insects, frog etc., being the feed for birds, wormy compost pits and technique of organic farming and usage of bio pesticides may be provided.
- 3) Providing safe drinking water by digging borewells to improve hygiene and health of the villagers and also to avoid the women from walking long distance in search of water.
- 4) To supply fruit yielding, medicinal and agro forestry species of plants to attain self sustainability and generate income in course of time.
- 5) Cattle improvement through artificial insemination and also by replacing existing milch cattle with high yielding improved breeds. This will ensure reduction in cattle number.
- 6) Encouraging stall feeding of cattle through introduction of improved fodder varieties for milch cattle so as to reduce the grazing incidence.

8.4 Monitoring and evaluation:

The monitoring of eco-development activities are important to achieve the annual physical and financial targets, the output and effects until the beneficiaries reach a position of maintaining and continuing the programmed activities.

The evaluation of the impact of eco-development on the sanctuary area and on surrounding area held in further planning.

The proposed Budget provision is as per Annexure-XI

CHAPTER-9

RESEARCH, MONITORING AND TRAINING

9.1 Research and Monitoring:

As mentioned earlier, research has had a very low priority in the PAs of the State. Higher order investigations can be developed through consultancy programmes with Universities, specialist Institutions and through contractual arrangements. A portion of the land may be utilized to study population dynamics, seasonal migration and also bio-diversity etc., The documentation of all their process is a must.

9.1.2 Objectives:

- i) To reduce progressively, the extent and degree of uncertainty on which management decisions and strategies are based.
- ii) To develop the consultative process and mechanism to ensure that research, addresses information needs that are critical to this project and to the long term management of the sanctuary.
- iii) To develop interest in research and expertise in local institutions around the sanctuary.
- iv) To ensure that sanctuary supports and attracts sustained research that would meet the information needs from time to time.

9.1.3 Research Facilities:

The sanctuary has no basic facilities for research. To start with, a field laboratory or research station with Researcher is very essential. The laboratory should be equipped with basic equipments like computers, refrigerator, microscopes, oven, weighing machine, veterinary instruments etc. A vehicle has to be kept at the researchers control, enabling him to coordinate all the research works and their findings. Additional field stations should also be set up based on the requirements of research.

9.1.4 Topics for Research:

The following topics can be considered for research in the sanctuary, priority wise:

- i) Assessment of bio-diversity of lesser known and functionally important groups.
- ii) Microbial ecology of lentic/lotic aquatic bodies.
- iii) Survey of ticks and mosquitoes.
- iv) Floristic diversity and regenerations studies.
- v) Communicable disease and health monitoring in both migratory birds and surrounding village and commercial poultry birds.
- vi) Monitoring the impact of fire occurrence and fire prevention activities on habitat and species distribution.
- vii) Eco-tourism strategy, visitor management interpretation centre, publicity and propaganda.
- viii) Assessment of bird diversity in the sanctuary.
- ix) Human impact due to grazing, collection of fuel wood, bamboo and small timber.
- x) Habitat degradation and infestation of exotic weeds.
- xi) Migration and seasonal movement patterns of birds.
- xii) Carrying capacity of the sanctuary for migratory birds.
- xiii) Impact of seasonal flood on bio- diversity.
- xiv) Monitoring prey population in the forage grounds.

9.1.5 Monitoring:

Monitoring through a consistent set of measures would periodically do the following:

- i) Provide an integrated view of the present status of bio-diversity in the sanctuary.
- ii) Provide a view of socio-economic conditions and interactions between PA and people around the PA that are relevant to the project.
- iii) Evaluate whether the project activities have had the desired effect.
- iv) Identify inadequacy, ineffectiveness which cause non-compliance with expected values.

It is not necessary that all monitoring and research is to be carried out by the researchers. Monitoring can also be done by the field staff on a day to day basis of :

- i) Birds health and diseases by the departmental veterinarian.
- ii) Impact of tourism.
- iii) Feeding behavior of avian fauna.
- iv) Migration pattern of birds.
- v) Changes in vegetation to be monitored as per ecologists advice.
- vi) Removing of exotic weeds.
- vii) Interaction between people inside & outside the PA.
- viii) Whether project activities have had the desired effect.

9.2 .1 Training:

Generally , all the staff posted in the sanctuary, that is watcher upwards would have undergone professional training in forestry before jointing the department. But as Wildlife management has, over the years encompassed many disciplines like ecology, tourism, public relations, Wildlife management, land use planning etc, it is very necessary to carry out refresher courses for all the staff at various level and bring them abreast of the day to day requirements.

9.2.1 Study tours:

It is worth while if study tours are conducted for the staff of PA to visit other Pas within and outside the State to learn how other PAs are managed.

9.2.2 Training programmes of Wildlife Institute-Dehradun :

Wildlife Institute of India runs many refresher courses and workshops in different PAs all over the Country. This should be taken advantage of and officers from the PAs sent regularly to attend these courses. Following are some of the courses conducted by the Wildlife Institute of India.

Table: Some courses conducted by the Wildlife Institute of India.

Dehradun

Sl.No	Name of Course	Duration	Eligibility
1.	Post graduate diploma course in wildlife management	9 months	DCF & ACF
2.	Certificate course in wildlife management	3 months	RFO
3.	Wildlife management training	3 months	FR & FG
4.	Wireless operation and weapon training at police academy.	-	FR & FG
5.	Tourism management ,receptionist, interpretation.	-	ACF & RFO
6.	Wildlife health, chemical immobilization, power fencing	-	RFO & FR
7.	Capsule course in wildlife	7-15 days	CCF & CF
8.	Remote sensing at IIRS-Dehradun	10 months	DCF & ACF

9.2.3.Strengthening Prosecution capabilities of the staff:

Several of our offence cases, fail in courts of law due to improper recording, inadequate processing and wrong interpretation of legal provisions. Prosecution capabilities of the staff are required to be strengthened. A few sample cases of both success and failure can be selected by the officers of the Forest Department and with the assistance of a Legal Advisor, discussed with other lower staff periodically, so that a set of guidelines are prepared as to how a case is to be dealt with. A week training at Gungargatti by legal experts will be an advantage.

The proposed Budget provision is as per Annexure-XIII

CHAPTER -10

ORGANISATION AND ADMINISTRATION

10.1 Structure and Responsibilities: This sanctuary is under the administrative control of Principal Chief Conservator of Forests, Wildlife, Bangalore and Conservator of Forests, Dharwad Circle, Dharwad. At present the Range Forest Officer in charge of Ranebennur Black Buck Sanctuary looks after the activities of this Sanctuary too, under the supervision and control of Assistant Conservator of Forests, Wildlife Preservation Sub-Division, Ranebennur.

For proper Management of the Sanctuary provision of one Forester and two Forest Guards along with their residential accommodation near the Sanctuary is a must. The proposed organization pattern will be as follows:

Section Forester's establishment

Sl No.	Particulars	Proposed	Existing	Required	Remark
1	Forester	1	1	-	
2	Forest Guards	1	-	1	
3	Forest Watchers	5	3	2	Contract Base Employees
4	a) Boat Driver	2	1	1	Contract Base Employees
	b) Helper	2	1	1	Contract Base Employees
5	Sweeper/attender	1	-	1	Contract Base Employees
6	House keeper	1	-	1	Contract Base Employees

Attempt is being made to get the area required for residential accommodation of the proposed staff, from Irrigation Department.

The proposed Budget provision is as per Annexure-VII

10.2 Staff amenities Even though the sanctuary is small, construction of residential quarters and cottages can be considered by acquiring sufficient land away from sanctuary area. Protection of the sanctuary from illegal fishing and grazing etc., has to be taken on priority. The staff may be provided with walkie-talkies and other instruments like binoculars, weapons for effective patrolling.

CHAPTER-11

THE BUDGET

11.1 The Plan Budget

Proposed budgetary provisions for operations of management plan strategies are appended separately.

Chapter -VII

TOURISM MANAGEMENT

Objectives:

- (a) To spread the message regarding the need to preserve all forms of fauna and flora and the rich heritage of our country.
- (b) To educate the people especially those living nearby the Sanctuary areas regarding the need to maintain such Sanctuary and thereby enlisting their co-operation.
- (c) To provide wilderness experience to genuine enthusiasts in particular and to the public in general.
- (d) To provide recreation, tourist visits should maximise people's enjoyment and increase visitors' concern for nature conservation.
- (e) To achieve the above objectives of tourism management the following are proposed to be developed.

6.1 Nature Education Camp and Picnics:

Nature camps are mainly meant for young groups, School children etc. Functional facilities like makeshift accommodation, Cooking, drinking water, toilet, auditorium, large open space, a small library, audiovisuals, hanging bridge and boating etc., are necessary to entertain the groups. A stall for low cost books, stickers, photos etc., on environment, wildlife and forests and some eatables will be welcome. A detailed permanent map of the sanctuary, people for regular talks and local guides are necessary for each camp. The activities for visitors may include bird watching, collection of feathers, identification of plants, painting on birds etc. Benches, Paragolas, Litterbins, Sign and Caution boards and short tricks also fit in to the scheme of things.

Bird Watching:

Visitors should be briefed about do's and don'ts in the Sanctuary areas well in advance. Watch towers, view line clearance, Binoculars etc., should be provided to facilitate better sighting, motor boats are also necessary to make the watching more colorful.

Publicity:

To popularise tourism development publicity and propaganda has to be carried out in a systematic and well-planned manner. Video film showing the Sanctuary with its habitat, flora, birds etc., in various seasons highlighting some of the threatened species of flora and fauna may be made available to educational institutes, Tourism Departments, Doordarshan etc. Publicity material like brochures, posters etc., may be brought out.

Chapter VIII

Eco-Development

Awareness Programme:

To achieve the objective of wildlife management it is necessary to involve the peoples in management to register their co-operation and active support. For this purpose following programs are suggested.

Awareness campaign:

Workshop should be conducted for rural youths, the members of the village committees, elected representatives of local Panchayats etc. After training, these persons shall act as coordinators between authorities & rural public in planning, protection work against fire, grazing, poaching, smuggling activities etc., and Eco-development activities.

Nature education and workshop to Rural Teachers:

Nature education of 3 – 4 days for school teachers shall be organised and the school teachers of surrounding villages shall be invited so that after training they will be able to convey the information to a number of children. The phasing of various activities and financial implications are shown in the Annexure – VIII.

SOCIO ECONOMIC DEVELOPMENT PROGRAMMES

In order to reduce the pressure on the forests by the people residing around the Sanctuary it is necessary to educate them. Besides, some programmers aiming towards improvement of their economic conditions are necessary to gain their confidence and to secure their active involvement in management activities.

The following measures are suggested.

- a) Providing Astra valas to each family at the cost of the Government.
- b) Encouraging Gobar Gas plant in each hamlets by giving 50 % subsidies.
- c) Providing and encouraging planting of grafted fruit yielding trees around cultivated land and near hamlets.
- d) Encouraging stall-feeding.
- e) Encouraging pisciculture, poultry activities, apiculture.
- f) Conducting health camps and immunisation (Veterinary camps) camps in the surrounding villages.

The financial details are at Annexure – X.

Chapter IX

Research Monitoring and training

Various aspects of Sanctuary should be studied and monitored continuously. It is desirable to have census of birds once in three years.

Research should cover :

- Baseline data on bio-diversity and evolutionary trends.
- Spatial distribution of birds, population dynamics, seasonal migration of birds.
- Habitat monitoring, checklist of food plants, physical and phonological changes in vegetation.

Sociological research on the local people and the interference between the vegetation birds and people.

Researches may also take up programmes for breeding and rearing endangered birds and plants.

XI. The financial outlay and proposed activities are shown in appendix–

Chapter X

Organization and Administration

At present the Range Forest Officer in charge of Ranebennur Black Buck Sanctuary looks after the activities of this Sanctuary too, under the supervision and control of Assistant Conservator of Forests, Wildlife Preservation Sub-Division, Ranebennur.

For proper Management of the Sanctuary provision of one Forester and two Forest Guards along with their residential accommodation near the Sanctuary is a must. The proposed organization pattern will be as follows:

Section Forester's establishment

	<u>Proposed</u>	<u>Existing</u>	<u>Required</u>
1) Forester.	1	-	1
2) Forest Guards	2	-	2
3) a) Boat Driver	2	1	1 Contract Base Employees
b) Helper	1	1	- Contract Base Employees
4) Forest Watchers	10	-	10 Contract Base Employees

The jurisdiction of Section and Beats proposed are at Annexure – VI.

Attempt is being made to get the area required for residential accommodation of the proposed staff, from Irrigation Department.

Financial implications of the proposed staff, construction of buildings, maintenance of buildings and boats are at Annexure – VI a, b, c and d.

Extra

Since considerable soil is being eroded along the periphery of the islands it is a must to check this by constructing revetments to islands along the periphery.

ANNEXURE – I

Sl. NO	Botanical Name	Local name
1	<i>Acacia arabica</i>	Karijali
2	<i>Albizzia amara</i>	Tugli
3	<i>Albizzia lebbek</i>	Bage
4	<i>Albizzia odartissima</i>	Godda hunsi
5	<i>Artocarpus integrifolia</i>	Halasu
6	<i>Azadirachtu indica</i>	Bevu
7	<i>Bambusa Arundianaeca</i>	Dowga
8	<i>Cassia fistula</i>	Kakke
9	<i>Carissa caranda</i>	Kawli
10	<i>Ficus species</i>	Atti, Ala, Arali.
11	<i>Hardiwickia binata</i>	Kamara
12	<i>Inga dulce</i>	Ilati Hunse
13	<i>Imperata cylindrica</i>	Elephant grass.
14	<i>Holoptelia integrifolia</i>	Tapsi
15	<i>Pongania pinnata</i>	Hulgal
16	<i>Prosopis juliflora</i>	Ballari jali
17	<i>Randia dometorum</i>	Kari
18	<i>Syzigium specieas</i>	Nerale
19	<i>Shorea talura</i>	Salari
20	<i>Streblus asper</i>	Mittal
21	<i>Terminalia arjuna</i>	Holematti
22	<i>Zizyphus species</i>	Bare, pargi etc.

ANNEXURE – II.
CHECK LIST OF ANIMALS

Sl.No.	English Name	Scientific Name
1	Common mangoose	<i>Herpestes edwardsi</i>
2	Cobra	<i>Nazanaza</i>
3	Indian Fox	<i>Vulpes bengalensis</i>
4	Indian Porcupine	<i>Hystrix indica</i>
5	Indian Hare	<i>Lepus rigricoltis</i>
6	Jackal	<i>Caris aureus</i>
7	Python	<i>Python molarus</i>
8	Rat Snake	<i>Ptyas mucosus</i>
9	Viper	<i>Vipera russellii.</i>

ANNEXURE – III
CHECK LIST OF BIRDS

Sl no	English Name	Scientific Name
1	Baya weaver bird	<i>Ploceus philippinus</i>
2	Black capped king fisher	<i>Halcyon pileata</i>
3	Blue Rock Pigeon	<i>Columba livia</i>
4	Black cdrongu	<i>Dicrurus ad similis</i>
5	Cagttle Egretx	<i>Cagttle Egret</i>
6	Common Myna	<i>Acridotheres tristis</i>
7	Darter or Snake bird	<i>Anhinga rufa</i>
8	Demoiselle crane	<i>Anthropvides virgo</i>
9	Europian white storks	<i>Ciconia ciconia</i>
10	Fish owls	<i>Bubo Zeylonensis</i>
11	Grey partridge	<i>Francolinus Pondicerianus</i>
12	House crow	<i>Corvus splendens</i>
13	House Sparrow	<i>Passez domesticus</i>
14	Jerdon's Double banded Courser	<i>Cursorious bitorquatus</i>
15	Jungle Crow	<i>Corvus macrorhynchos</i>
16	Koel	<i>Eudynamys Scolopocea</i>
17	Little Egret	<i>Egretta garzetta</i>
18	Large Egret	<i>Ardeola alba</i>
19	Large Indian Parakeet	<i>Psittaculo eupatria</i>
20	Little Cormorant	<i>Phylacrocorox niger</i>
21	Lesser pied	
22	Large pied wagtail	<i>Motacilla mader aspatensis</i>
23	Open billed Stork	<i>Anastomus oscitans</i>
24	Pond Heron	<i>Ardeola grayii</i>
25	Peacock	<i>Pavo cristatus</i>
26	Red wattled lapwing.	<i>Vanellus indicus</i>
27	Stork billed king fisher	<i>Pelargopsis capansis</i>
28	Spoon bill	<i>Platalea leucorodia</i>
29	White ibis	<i>Threskiornis melonacephala</i>
30	White wrock	<i>Ciconia ciconia</i>

ANNEXURE – IV.

SI No	Name of the village	Human (population)	Cattle (population)	Sheep & Goate
1	Gokak(R)	1213	-	-
2	Gokak Fills	12121	1771	663
3	Singalpur	2416	404	2780
4	Mallapur	9793	1823	1238
5	Sindikurubetta	7478	-	-
6	Lolsur	2104	-	-
7	Nandaon	2195	709	240
8	Matanal	1986	668	1604
9	Dhoopdal	7473	-	-
10	Amargol	2544	-	-
11	Gudgeri	4114	-	-
12	Ingali	2189	-	-
13	Gudas	3056	-	-
14	Kotbagi	2969	-	-
15	Zangtihal	1203	-	-
16	Shirdan	1588	467	207
17	Neginhal	574	91	-
18	Sultanpur	2742	-	-

Annexure - V

Statement showing the works proposed boundary delineation and demarcation and their financial implications.

Sl No	Particulars	Quantity	I Year (Rs, In Lakhs)	I Year (Rs, In Lakhs)	I Year (Rs, In Lakhs)	I Year (Rs, In Lakhs)	I Year (Rs, In Lakhs)
1	2	3	4	5	6	7	8
1	Survey & Demarcation.						
a)	Sanctuary	60 km	-	0.30	-	-	-
b)	Encloures	LS	-	0.30	-	-	-
2	Maintenance of boundary stones and sign boards	500 no	-	1.510	-	-	-
a	Supply & fixing of boundary						
	Stones (1.45 cm x 20m x 15 cm) 275.00 per stone	-	-	-	0.30	0.30	0.30
b	Maintenance of boundary stones and sign boards						
	Total			2.110	0.30	0.30	0.30

Annexure - VII

Proposed budgetary provision for establishment for the period from 2009-10 to 2013-14

(Amount in Lakhs)

SI No	Particulars	No. of Post	Budget (Rs. in lakh)					Total
			2009-10	2010-11	2011-12	2012-13	2013-14	
1	Forester	1	1.10	1.21	1.33	1.46	1.60	6.70
2	Boat Driver	2	0.74	0.81	0.89	0.98	1.08	4.50
3	Helper	2	0.74	0.81	0.89	0.98	1.08	4.50
4	Watchers	4	1.49	1.63	1.79	1.97	2.13	9.01

Annexure-VIII

Proposed budgetary Provisions for boundary demarcation and Protection for the period from 2009-10 to 2013-14

Sl No.	Particulars of works	2009-10		2010-11		2011-12		2012-13		2013-14		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
I	Boudary Democration												
1	Chainlink mesh fencing / around the island	500 rmt	7.00	500 rmt	7.70	500 rmt	8.47	500 rmt	9.31	500 rmt	10.24	2500 rmt	42.72
2	Survey and boundary democration												
Total			7.00		7.70		8.47		9.31		10.24		42.72

Annexure-IX

Proposed budgetary Provisions for Habitate Development Units for the period from 2009-10 to 2013-14

Sl No.	Particulars of works	2009-10		2010-11		2011-12		2012-13		2013-14		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
I	Enrichment of planting												
1	Planting of ficus cherry etc.,	10 Ha	1.70	10 Ha	1.87	10 Ha	2.01	10 Ha	2.26	10 Ha	2.48	50 Ha	10.32
2	Removal of unwanted weeds like hypomeia in marshy area	25 Ha	0.36	25 Ha	0.39	25 Ha	0.43	25 Ha	0.48	25 Ha	0.52	125 Ha	2.18
3	Construction of water inlets to regulate water level in the sanctuary	2 No.'s	3.00	2 No.'s	3.30	2 No.'s	3.63	-	-	-	-	6 No.'s	9.93
4	Formation of snaky water ways to maintain water level during lean period	1000 mtrs	5.00	1000 mtrs	5.50	1000 mtrs	6.05	1000 mtrs	6.65	1000 mtrs	7.32	5000 mtrs	30.52
5	Construction of reventment along the periphery of island for flood protection	500 cum	10.00	500 cum	11.00	500 cum	12.1	500 cum	13.1	500 cum	14.4	2500 cum	60.63
6	Creation of earthen bund	500 cum	10.00	500 cum	11.00	500 cum	12.1	500 cum	13.1	500 cum	14.4	2500 cum	60.63
7	Creation of view lines	1 km	0.03	1 km	0.03	1 km	0.04	1 km	0.04	1 km	0.04	5 km	0.181
Total			30.09		33.09		36.36		35.65		39.20		174.39

Annexure-X

Proposed budgetary Provisions for Eco Tourism Works and Providing facilities to the tourists period from 2009-10 to 2013-14

Sl No.	Particulars of works	2009-10		2010-11		2011-12		2012-13		2013-14		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Acquiring adjacent land for providing tourist facilities	2 HA	50.00	-	-	-	-	-	-	-	-	2 HA	50.00
2	Construction of information center	-	-	1 No.	10.00	-	-	-	-	-	-	1 No.	10.00
3	Construction of parking stand	-	-	1 No.	1.00	-	-	-	-	-	-	1 No.	1.00
4	Construction of toilet blocks and maintenance	-	-	LS	2.00	LS	0.50	LS	0.50	LS	0.50	LS	4.00
5	Providing drinking water facilities and maintenance	-	-	LS	3.00	LS	0.25	LS	0.25	LS	0.25	LS	3.75
6	Providing benches to site and rest for the tourist	-	-	LS	1.00	LS	0.50	LS	0.50	LS	0.50	LS	2.50
7	Engaging boat driver cum guide	2 No.	0.75	2 No.	0.82	2 No.	0.90	2 No.	0.99	2 No.	1.09	2 No.'s	4.55
8	Construction of watch towers	1 No.	3.00	1 No.	3.30	1 No.	3.63	-	-	-	-	3 No.'s	9.93
9	Development of children park	-	-	LS	10.00	LS	2.00	LS	2.00	LS	2.00	LS	16.00
10	Formation of garden and maintenance	-	-	LS	5.00	LS	0.50	LS	0.50	LS	0.50	LS	6.50
11	Repairs and maintenance of boats	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	1.00	LS	3.00
12	Formation of approach road	1 km	5.00	1 km	5.00	1 km	5.00	-	-	-	-	1 km	15.00
13	Creation of trailing path along peripheri of the island	1 km	1.00	1 km	1.00	1 km	1.00	1 km	1.00	1 km	1.00	5 km	5.00
14	Construction of hanging bridge and maintenance	LS	20.00	-	-	-	-	LS	1.00	LS	1.00	LS	22.00
Total			80.25		42.62		14.78		7.24		7.84		152.73

Annexure-XI

Proposed budgetary Provisions for Eco Development Works for the period from 2009-10 to 2013-14

Sl No.	Particulars of works	2009-10		2010-11		2011-12		2012-13		2013-14		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Construction of wormy compose pits	100 pits	5.00	100 pits	5.50	100 pits	6.05	100 pits	6.65	100 pits	7.32	500 pits	30.5
2	Destribution of grafted seedlings	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	5.00
3	Providing safe drinking water by digging borewells	5 No.'s	4.00	5 No.'s	4.40	5 No.'s	4.84	5 No.'s	5.32	5 No.'s	5.85	25 No.'s	24.81
4	Providing solar street light	5 No.'s	1.50	5 No.'s	1.65	5 No.'s	1.81	5 No.'s	1.99	5 No.'s	2.18	25 No.'s	9.13
5	Providing LPG stoves	100 No.'s	1.70	100 No.'s	1.87	100 No.'s	2.05	100 No.'s	2.26	100 No.'s	2.49	500 No.'s	10.37
6	Awareness creation programmes	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	2.50
Total			13.70		14.92		16.25		17.72		19.34		81.93

Annexure-XII

Proposed budgetary Provisions for Publicity and Awareness for the period from 2009-10 to 2013-14

SI No.	Particulars of works	2009-10		2010-11		2011-12		2012-13		2013-14		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Providing signages and maintenance	10 No.'s	0.50	15 No.'s	0.75	-	-	LS	0.50	LS	0.50	LS	2.25
2	Providing hoardings at important places	2 No.'s	2.00	1 No.	1.00	1 No.	1.00	1 No.	1.00	1 No.	1.00	6 No.	6.00
3	Printing of bouchers and hand bill etc	LS	1.00	-	-	LS	1.00	-	-	LS	1.00	LS	3.00
4	Conducting awareness program for scholl children and general public	LS	0.50	LS	0.50	LS	1.00	LS	1.00	LS	1.00	LS	4.00
Total			4.00		2.25		3.00		2.50		3.50		15.25

Annexure-XIII

Proposed budgetary Provisions for Research, Monitoring and Training for the period from 2009-10 to 2013-14

SI No.	Particulars of works	2009-10		2010-11		2011-12		2012-13		2013-14		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Conducting census of wildlife	LS	0.25	-	-	-	-	-	-	LS	0.25	LS	0.50
2	Conducting study tours for staff	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	2.50
3	Conducting of seminars, workshops	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	1.25
4	Conducting awareness program for scholl children and general public	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	2.50
5	Payment to the consultancy experts for specific study assignments	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	2.50
Total			2.00		1.75		1.75		1.75		2.00		9.25

Annexure-XIV

Abstract of budget requirement of Ghataprabha bird sanctuary for the period 2009-10 to 2013-14

Sl No.	Particulars of works	2009-10		2010-11		2011-12		2012-13		2013-14		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Establishment (Annexure-VII)	9 No.'s	3.86	9 No.'s	4.46	9 No.'s	4.90	9 No.'s	5.39	9 No.'s	5.89	9 No.'s	24.50
2	Boundary demarcation and protection (Annexure-VIII)	LS	7.00	LS	7.70	LS	8.47	LS	9.31	LS	10.24	LS	42.72
3	Habitat development works (Annexure-IX)	LS	30.09	LS	33.09	LS	36.36	LS	35.65	LS	39.20	LS	174.39
4	Development of eco-tourism and providing facilities to the tourists (Annexure-X)	LS	80.25	LS	42.62	LS	14.78	LS	7.24	LS	7.84	LS	152.73
5	Eco-development (Annexure-XI)	LS	13.70	LS	14.92	LS	16.25	LS	17.72	LS	19.34	LS	81.93
6	Publicity and awareness (Annexure-XII)	LS	4.00	LS	2.25	LS	3.00	LS	2.50	LS	3.50	LS	15.25
7	Research, Monitoring and Training (Annexure-XIII)	LS	2.00	LS	1.75	LS	1.75	LS	1.75	LS	2.00	LS	9.25
Total			140.90		106.79		85.51		79.56		88.01		500.77