BEFORE THE NATIONAL GREEN TRIBUNAL EASTERN ZONE BENCH, KOLKATA

Original Application No. 109 OF 2024/EZ

IN THE MATTER OF:

HARIPRIYA PATEL …APPLICANT

VERSUS

STATE OF ODISHA AND ORS. …RESPONDENTS

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Date: 03.01.2024
Place: New Delhi

BEFORE THE NATIONAL GREEN TRIBUNAL

EASTERN ZONE BENCH, KOLKATA

ORIGINAL APPLICATION NO. 109 OF 2024/EZ

IN THE MATTER OF:

HARIPRIYA PATEL ...APPLICANT

VERSUS

STATE OF ODISHA AND ORS. ...RESPONDENTS

COUNTER AFFIDAVIT ON BEHALF OF THE RESPONDENT NO. 4

I, Dr. Sudipta Kumar Panda aged about 35 years, working as the Assistant Conservator of Forests, Nandankanan Wildlife Sanctuary, do hereby solemnly affirm and state as under:

1. That I am authorised to file this counter affidavit on behalf of Respondent No. 4 and as such I am fully acquainted with the facts and circumstances of the case, hence competent to swear this affidavit. I have reviewed the contents of the present original application and fully understood them.

2. That I have read the contents of the present letter petition, and I say that the contents therein to the extent that they are inconsistent with the submissions made hereinafter in this counter affidavit, are incorrect and are denied, unless any averment or contention is specifically admitted or traversed, the same maybe treated as denied.

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3. The present Original Application has been registered in view of a letter dated 01.04.2024 submitted by the Applicant, Smt. Haripriya Patel, to the Hon'ble National Green Tribunal, Eastern Zone Bench, Kolkata, on 25.03.2024 on the basis of one article titled "*Lake Becoming Polluted, Depletion of Groundwater Level*," published in the newspaper "*The Samaj*".

4. Based on the contents of the said article, it is alleged that the Kanjia and Kiakani Lakes, situated within the Nandankanan Wildlife Sanctuary, are polluted, and the groundwater table in the area is depleting. It is also alleged that urbanization, construction of buildings, and the sale and purchase of land around the periphery of the Nandankanan Wildlife Sanctuary have resulted in the gradual shrinkage and degradation of forest land. Additionally, untreated polluted effluents from these buildings are reportedly being discharged into the lakes through nallas, thereby contaminating the lake waters. Accordingly, the Applicant has requested this Hon'ble Tribunal to issue necessary directions to restrict activities contributing to the pollution of the lakes and to direct the authorities to take appropriate steps to rejuvenate and restore the lakes to their original condition.

5. It is submitted that Kanjia Lake is a significant wetland located within the boundaries of the Nandankanan Wildlife Sanctuary, spanning an area of 66 hectares. The lake was recognized as a wetland under the National Wetland Conservation and Management Programme ("NWCMP") by the Ministry of Forests, Environment & Climate Change, Government of India, in 2006.

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A true copy of the publication dated 02.02.2007 issued by the MoE&F is annexed herewith and marked as **ANNEXURE R – 1**.

6. The lake is situated within the Nandankanan Wildlife Sanctuary, which was constituted through Notification No. 20682-BF(WL)-160/78, dated 03.08.1979, issued by the erstwhile Forest, Fisheries, and Animal Husbandry Department and published in the official Gazette of Odisha under SRO No. 935/79, dated 3 August 1979.
   A true of the notification dated 03.08.1979 published in the official Gazette of Odisha vide SRO No. 935/79 is annexed herewith and marked as **ANNEXURE R – 2**.

7. Furthermore, Para 2.6.5.7 of the Management Plan of Nandankanan Wildlife Sanctuary, for the period 2016-17 to 2025-25, provides detailed information regarding the flora and fauna of Kanjia Lake.
   A true copy of relevant pages - Page No. 31 to 41 of the Management Plan of Nandankanan Wildlife Sanctuary for the period 2016-17 to 2025-26 is annexed herewith and marked as **ANNEXURE R – 3.**
   A true copy of map showing the boundary of Kanjia and Kiakani lakes as extracted from the above said Management Plan is annexed herewith and marked as **ANNEXURE R - 4.**

8. This Hon'ble Tribunal, vide order dated 04.07.2024 took cognizance of the matter and constituted a committee to inspect the site in question and submit a report regarding the allegations. Para 14 of the said order is extracted hereinbelow:

   "14. Considering the allegations made, we also deem it appropriate to constitute a Committee comprising of the following Members:-

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(i) Senior Scientist, Odisha State Pollution Control Board, and
(ii) Divisional Forest Officer, Khordha,
15. The Committee shall visit the site in question and submit its Inspection Report with regard to the allegations made.
16. The Divisional Forest Officer, Khordha, shall be the Nodal Office for all logistic purposes and for filing the Report of the Committee on affidavit."

9. Pursuant to the order dated 04.07.2024, the committee inspected the Kanjia and Kiakani Lakes on 02.08.2024 and 11.09.2024. The committee collected samples from the lakes to assess the water quality and pollutant levels. Furthermore, the Odisha Space Applications Centre ("ORSAC") was consulted to assess alterations in the lake area and the forest cover.

10. It is submitted that the allegations made in the letter petition are incorrect, baseless, and therefore denied. It is pertinent to bring on record that the concerned authority has taken several proactive and comprehensive measures to ensure the protection and preservation of the Nandankanan Wildlife Sanctuary.

    a. The total extent of the sanctuary, as per the notification, is 437 hectares, and the boundaries of the sanctuary have been detailed in the aforesaid notification dated 03.08.1979. The boundaries of the wildlife sanctuary are being protected through planned protection activities in accordance with the approved Management Plan of the sanctuary.
    b. The area of the sanctuary falling under the Nandankanan Zoological Park is protected by the Security & Maintenance Range headed by the Range Officer, Security & Maintenance,

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of Nandankanan Zoological Park. Similarly, the sanctuary area under the State Botanical Garden is protected by the State Botanical Garden-II Range, headed by the Range Officer, State Botanical Garden-II. Boundary pillars have been installed around the sanctuary area as per the notification.

c. However, ownership of approximately 2.5 acres of land on the northern side, near Bangali Sahi Village, is disputed. This issue is currently being addressed through a joint verification process with the Revenue Department. No other encroachments into the sanctuary area have been reported thus far. Additionally, it is pertinent to mention that no encroachments have been reported around Kanjia Lake.

d. The Eco-Sensitive Zone (ESZ) of the Nandankanan Wildlife Sanctuary was notified vide S.O. 4444(E), dated 10.12.2019, by the Ministry of Forests, Environment & Climate Change. The notification specifies the boundaries of the ESZ surrounding the sanctuary, along with a map depicting the boundaries of both the Nandankanan Wildlife Sanctuary and its ESZ, as per the said notification dated 10.12.2019.

A true copy of the notification bearing no. S.O. 4444(E) dated 10.12.2019 issued by the Ministry of Forests, Environment & Climate Change is annexed herewith and marked as **ANNEXURE R – 5.**

e. As per Para 5 of the said notification, a monitoring committee has been constituted under the chairmanship of the Collector, Khordha. This committee is responsible for ensuring effective monitoring of the provisions of the notification.

f. The Kanjia Lake serves as the principal water source for the functioning of the Nandankanan Zoological Park. The water

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pumped from the lake undergoes proper treatment, including filtration and chlorination, before being used in the zoo. Furthermore, regular quality checks are conducted to ensure the safety of the water provided to the animals. These quality checks are consistently maintained to safeguard the health of the animals.

A true copy of the Test report regarding the quality of the water being given to the animals issued on 17.09.2024 is annexed herewith and marked as **ANNEXURE R – 6.**

g. It is submitted that since Kanjia and Kiakani Lakes are located within the boundaries of the Nandankanan Wildlife Sanctuary, management interventions for their improvement are being implemented in accordance with the prescriptions outlined in the Management Plan. The importance of Kanjia Lake and the need for the development of its ecosystem are detailed in Paragraph 2.6.5 of the Management Plan of Nandankanan Wildlife Sanctuary for the period 2016-17 to 2025-26.

A true copy of the relevant pages, i.e., Page No. 25 to 31, of the said Management plan are annexed herewith and marked as **ANNEXURE R – 7.**

h. Additionally, a thematic plan has been provided under Paragraph 6.3.13 of the Management Plan for the development of wetlands within the sanctuary. This includes specific prescriptions for management interventions to be undertaken in Kanjia and Kiakani Lakes.

A true copy of the relevant pages, i.e., Page No. 96 to 97, of the said Management plan are annexed herewith and marked as **ANNEXURE R – 8.**

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i. Furthermore, Paragraph 2.6.5.9 of the Management Plan details suggested activities for the improvement of the lakes. A true copy of the relevant pages, i.e., Page No. 42 to 44, of the said Management plan are annexed herewith and marked as **ANNEXURE R – 9.**

j. The activities undertaken over the past 10 years, as per the prescriptions of the Management Plan, are detailed below:

(i) **De-weeding:** De-weeding activities are undertaken annually to keep the lake free from weeds. In 2017, de-weeding of the lake was carried out using a weed harvester with technical support from the Chilika Wetland Authority.

A true copy of the report regarding area of de-wedding of Kanjia and Kiakani Lake in last 10 years is annexed herewith and marked as **ANNEXURE R – 10.**

A true copy of the report dated 16.11.2017 regarding de-wedding work at Kanjia Lake, Nandankanan is annexed herewith and marked as **ANEXURE R – 11.**

(ii) **Ban on the Use of Diesel-Operated Boats:** Although boating is offered as a visitor amenity, the use of mechanized boats is strictly prohibited. Diesel-operated boats are completely banned. Only paddle boats and manually operated boats are permitted for providing boating facilities to visitors.

(iii) **Improvement of Kiakani Lake in 2023-24:** The of Kiakani Lake was undertaken during the financial year 2023-24 with the assistance of the Drainage Department, Bhubaneswar. The key components of this project included complete dredging and de-weeding. The lake had been filled with runoff silts from the surrounding area, leading to primary

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succession of vegetation. The entire lake was dredged, significantly increasing its capacity to accommodate a larger volume of water.

A true copy of the letter dated 07.09.2022 issued by the Office of the Executive Engineer Drainage Division, Khordha regarding the Formal work to go ahead with the execution of the work "Improvement to Kiakani Lake inside Nandankanan Zoological Park at Bhubaneshwar is annexed herewith and marked as **ANNEXURE R – 12**.

(iv) **Plantations in the Catchment Area of Lakes within Nandankanan Zoological Park:** Plantation activities have been carried out along the periphery of the lakes through multiple plantation drives as part of the management plan implementation. Additionally, stone patching has been done along the banks of Kiakani Lake to stabilize its shoreline.

(v) **Improvement of the Drainage System of Kanjia and Kiakani Lakes:** To ensure the health of the lake ecosystem and prevent flooding in surrounding areas during heavy rainfall, the Special Relief Commissioner of Odisha has approved a detailed project for the "Improvement of the Drainage System of Kanjia and Kiakani Lakes to Prevent Flooding in Nandankanan and Adjoining Areas in Khurdha District." The work is being executed through the Executive Engineer, Drainage Division, Khordha. The estimated cost of the project is Rs. 1573.43 lakhs.

A true copy of the letter dated 13.03.2024 issued by the Office of Executive engineer Drainage Division, Khordha for work order for the work - Improvement of the Drainage System of Kanjia and Kiakani Lakes to Prevent Flooding in

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Nandankanan and Adjoining Areas in Khurdha District is annexed herewith and marked as **ANNEXURE R – 13**.

The primary objective of the project is to eliminate the drainage congestion in Kanjia and Kiakani Lakes within the Nandankanan Zoological Park. Reducing this congestion will help maintain the lake ecosystem. Currently, excess rainwater from the lakes cannot be drained out, leading to inundation of the park area during the rainy season. The project aims to connect Kanjia and Kiakani Lakes to Buddhanalas through an integrated drainage channel, which will address the drainage issues and prevent flooding.

(vi) **Water Quality Testing:** Water quality testing is conducted regularly. Necessary assistance from the Chilika Development Authority is being ensured in this regard.

(vii) **Water Fountains to Improve Aeration:** As the lake lacks proper outlets and the existing outlets have been choked, the Nandankanan Zoological Park authority has installed three water fountains to provide aeration to the water bodies.

(viii) **Notification of the Eco-Sensitive Zone of Nandankanan Wildlife Sanctuary:** The Eco-Sensitive Zone of the Nandankanan Wildlife Sanctuary was notified vide S.O. 4444(E) dated 10th December 2019 by the Ministry of Environment, Forest, and Climate Change. This notification outlines the activities that are to be prohibited, regulated, or permitted within the Eco-Sensitive Zone. The committee, constituted as per Paragraph 5 of the notification, is responsible for monitoring the provisions outlined in the notification.

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11. It is submitted that the entire Kanjia Lake is surrounded by areas within the Nandankanan Wildlife Sanctuary. The Nandankanan Zoological Park lies along the eastern, northern, and western boundaries of the lake, while the State Botanical Garden is located to the south. There are no human habitations immediately surrounding the shorelines of Kanjia Lake. Therefore, the claim that untreated polluted effluents from buildings are being discharged into the lake through nallas, thereby polluting its water, is incorrect.

12. The two-member inspection committee approached the Odisha Space Applications Centre to assess changes in the lake area and forest cover. Data regarding changes in the lake area over the past 10 years, changes in the forest cover within the Nandankanan Wildlife Sanctuary over the last 10 years, and changes in the forest cover within a 4 km radius from the boundary of the Nandankanan Sanctuary have been obtained from the Odisha Space Applications Centre. In fact, the lake cover in Kanjia Lake has increased. There has been an increase of 15.58 hectares of forest cover inside the Nandankanan Sanctuary. Regarding the change in the forest cover within a 4 km radius from the boundary of the Nandankanan Sanctuary, there has not been a drastic change in the forest cover, with only a 5 percent reduction. Additionally, the area under plantations and forest cover has increased by 79 percent.

13. It is submitted that the two-member joint inspection committee reported that the Biological Oxygen Demand (BOD) in the lakes is within prescribed limits, indicating no significant pollution. Biological Oxygen Demand (BOD) measures the oxygen consumed by bacteria as they decompose organic matter, indicating the

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pollution level in an ecosystem. Higher organic pollutants require more oxygen, which affects biodiversity. According to the report, BOD is within prescribed limits at all 8 locations, with occasional high faecal coliform bacteria due to surface runoff. Therefore, the report confirms that the BOD levels are within acceptable limits, refuting allegations of pollution in the Kanjia and Kiakani Lakes.

14. Data from the Odisha Space Applications Centre shows no drastic changes in the lake area over the past 10 years, and there has been an increase of 15.58 hectares of forest cover within the Nandankanan Wildlife Sanctuary. Forest cover within a 4 km radius from the sanctuary has only seen a 5 percent reduction, with a 79 percent increase in plantations. The committee observed no encroachments around the lakes and noted that various improvement measures, such as de-weeding, a ban on diesel boats, bank stabilization, and improved drainage, have been implemented. Thus, sufficient steps are already in place to protect the lakes from pollution.

15. Based on the aforementioned facts, it is clear that, as a wetland situated within the boundaries of the Nandankanan Wildlife Sanctuary, comprehensive and well-coordinated efforts are being made to protect and manage the ecosystem of the Kanjia and Kiakani Lakes. These efforts are in line with scientifically designed management plans that aim to ensure the preservation of the lakes and their surrounding environment. The management interventions and actions taken are strategically planned and implemented to maintain the ecological balance, safeguard the biodiversity, and prevent pollution. This approach reflects a commitment to the

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sustainable management of the wetland areas, following best practices in environmental conservation.

Sudipta Kr Panda 3/01/2025

DEPONENT

VERIFICATION

Verified at Cuttack on this the 3rd day of January 2025, that the contents of the aforesaid counter affidavit and annexures are true and correct to my personal knowledge and have been derived from the official records maintained by the Respondent No. 04. No part of it is false nor has anything material been concealed therefrom.

Identified by
S. Pattnaik
Adv 3/1/25

Sudipta Kr Panda 3/01/2025

DEPONENT

The deponent being identified by Sri S. Pattnaik Adv Solemnly affirms before me this day of 3.1.25 at P.M. Headover and explained to the depontent. We Understood the Contents of this affidavit and admitted to be correct.

NOTARY

ANNEXURE R-1

Conservation of Wetlands in India: A Profile

(Approach and Guidelines)

Publication released on
World Wetlands Day
2 February 2007

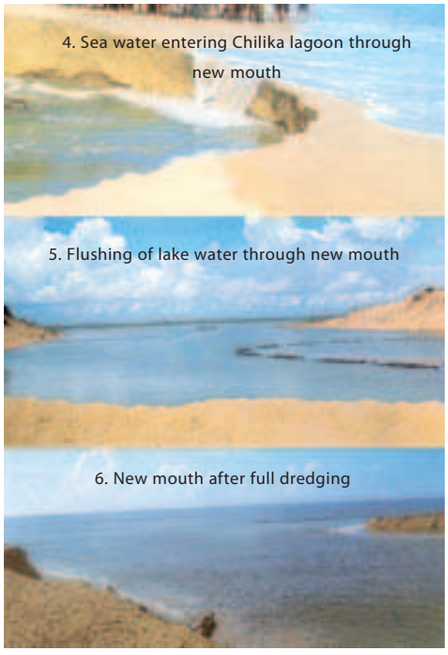
Conservation Division-I
Ministry of Environment & Forests
Government of India
New Delhi

True copy

Cover pictures

Back cover

Front cover



True copy

Nalsarovar Wetland – one of the identified wetlands under
National Wetland Conservation & Management Programme

True copy

'India's freshwater resources comprise the single most important class of natural endowments enabling its economy and its human settlement patterns. The fresh water resources comprise the river systems, groundwater and wetlands. Each of these has a unique role, and characteristic linkages to other environmental entities----- Wetlands, natural and manmade, freshwater or brackish, provide numerous ecological services. They provide habitat to aquatic flora and fauna, as well as numerous species of birds, including migratory species'----- A holistic view of Wetlands is necessary which looks at each identified Wetlands in terms of its causal linkages with other natural entities, human needs, and its own attributes.

National Environment Policy, 2006

A. Raja
Minister
Environment & Forests
Government of India

MESSAGE

Water and Wetlands play a critical role for the rural poor as they impinge on their health, livelihood and economic prospects. It is the rural poor who are directly dependent upon natural eco-systems such as Wetlands for their survival, and thus are the most vulnerable when eco-systems undergo degradation. Environmental degradation is a primary cause of poverty and not a consequence of poverty. Rural poverty is often rooted in lack of access to, and control of natural resources. It is, therefore, the duty of the local communities, district level administrations, State Governments, and Central Government to alleviate the suffering of the poor on this account.

2. While globally there may not be dearth of water in the aggregate, it is clear that there is not enough water in the right places. As per the information made available by Ramsar Convention 1.1 billion people in the world do not have access to safe drinking water and 3 million die each year, many of them children, from ailments caused by polluted water. Thus, we are confronted with the challenges of ensuring adequate quantity of fresh water, as also of the quality of water.

3. The Wetlands, a term which includes water bodies of different types ranging from lakes, estuarine area, and riparian flood plains to tidal mud-flats, play a vital role in ensuring both the quantity and quality of water for human beings and the entire range of flora and fauna. Wetlands provide fresh water for agriculture, livestock and domestic consumption, and recharge the groundwater levels which are under immense strain of over-exploitation.

4. This publication being brought on the occasion of the World Wetlands Day, brings out the paramount role played by Wetlands in sustaining all life-support systems. The theme of World Wetlands Day for the current year is 'Fish for Tomorrow?' It underlines the food and livelihood needs met by the Wetlands. Fish is the major source of animal protein in the Asian Region. While it is true that over 90% of marine fish catch is dependent on coastal waters for spawning and rearing, the health of marine fish is dependent upon the health of inland Wetlands. It is, therefore, imperative to effect improvements in current practices for management of inland Wetlands to minimize their degradation.

5. I note with appreciation the scale-up in the National Programme on Conservation and Management of Wetlands by my Ministry and am confident that State Governments and Union Territory Administrations will commit themselves to the safeguarding of wetlands for the welfare of people at large.

25 January 2007

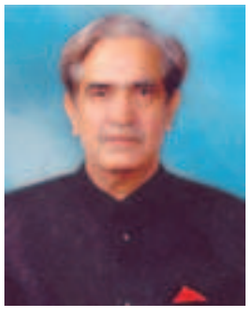
(A. Raja)

True copy

- A National Wetland Conservation Act should be framed.
- Inclusion of all types of wetlands (freshwater, coastal, marshes, swamps, mangroves, waterlogged areas) in the landuse classification in the country should be done.
- A National Wetland Biodiversity Register should be started.
- An inventory of 'user groups' also should be prepared while collecting information for the biodiversity register. It should also list out the priorities of the communities on particular wetland resources.
- To establish a National Wetland Inventory and Monitoring Programme and a National Wetland Information System and therefore, to develop a sustained and serious programme for monitoring wetlands.
- The economic evaluation of wetlands must be computed and it must be integrated with National Resource Accounting.
- Wetland productivity studies on a long-term basis by identified organizations from different parts of the country need to be undertaken. This would bring out indisputable data on wetland productivity, which is many times more than that of other ecosystems. Moreover, it would be an excellent tool to check the wetland ecosystem health.

Report of the National Forest Commission, 2006

True copy



Namo Narain Meena
Minister of State for
Environment & Forests
Government of India

MESSAGE

Wetlands have great significance for more than one reason, most notably because they charge aquifers, conserve moisture, act as pollution filters, and are habitat for biodiversity. In the 20th century while the world's population has trebled, freshwater withdrawal has increased six times, due to massive urbanization, growing dependence on irrigated agriculture, and higher standards of living. In this context, availability of water for meeting multiple requirements of ecosystems as a whole is a major challenge confronting us in the 21st Century. The role of Wetlands, which encompass in their range lakes, estuaries, river flood plains, mangroves, & coral reefs for human well-being can hardly be overemphasized.

2. Wetlands perform numerous vital functions and, thus, need to be looked after and used wisely. They help in water storage and purification, flood control, ground water replenishment, are nurseries for freshwater and marine fish, provide shoreline stabilization and protection against nutrient and sediment retention, harbour and support biological diversity, mitigate effects of climate change and pollution and are resources for recreation and tourism, transport and other services. Wetlands Conservation has to be taken up as a crusade at district, State, national, regional, and global levels for the welfare of present and future generations.

3. I appreciate the good work done by my Ministry for the cause of Wetlands.

4. Let us on this important day resolve that we will do nothing, individually or collectively, that diminishes the value and extent of wetlands, and that we shall proactively nurture, and enrich these precious aquatic resources.

27 January 2007

(Namo Narain Meena)

True copy

Wetlands should be conserved by ensuring their **wise use**. Wise use is defined as '*sustainable utilization for the benefit of mankind in a way compatible with the maintenance of the natural properties of the ecosystem'* – sustainable utilization is understood as '*human use of a wetland so that it may yield the greatest continuous benefit to present generations while maintaining its potential to meet the needs and aspirations of the future generations'.* 'Wise use' may also require strict protection.

Ramsar Convention

Peter Bridgewater
Secretary-General
Ramsar Secretariat
Gland, Switzerland

MESSAGE

Today is that special day in the Ramsar Convention calendar, when we celebrate wetlands worldwide! And, by the way, today we are 36 years old – quite young for some of us, but in the world of environmental conventions, we are very old indeed. And perhaps we are wise, too, because one of the three key principles of the Convention deals with wise use of wetlands. This is perhaps the key focus of our Convention for the future, because while Wetlands of International Importance (Ramsar sites) are emblems for each party, without wise use of wetlands everywhere we cannot keeps these emblems intact and functioning well.

The theme of this year's day - *Fish for Tomorrow?* - is an important one. Many people would not associate wetlands with fish, believing this food source comes only from the sea… Yet all around the world, whether for food for daily life, food for luxury, or for recreation and food, people are fishing, and their place of fishing is often a wetland, or their fish started life in a wetland.

Our Convention is directly concerned with inland waters and the near-shore coastal areas, but not deeper marine areas. Near-shore coastal areas, however, are the nursery grounds of deeper ocean fish species – as well as most of the coastal species that make up fish catches. So we rightly emphasize that safeguarding the health of coastal ecosystems – such as estuaries, mangroves, sea-grass beds and coral reefs – is critical for the maintenance of both coastal and offshore fishing stocks as well as the many other ecosystem services these wetlands provide.

The near coast zone and freshwater lakes, swamps and rivers are major sources of fish protein for the developing world, and fish also keep ecosystems functioning, as its not just people who like them as food!! Many of the migratory birds which Ramsar sites seek to protect avidly eat the fish which feed and breed in wetlands. So let's try to celebrate WWD 2007 for the role of wetlands in feeding the birds and us fish, as well as remembering that healthy wetlands overall means healthy people!

Peter Bridgewater

True copy

'The dominant theme of this policy is that while conservation of environmental resources is necessary to secure livelihoods and well-being of all, the most secure basis for conservation is to ensure that people dependent on particular resources obtain better livelihoods from the fact of conservation, than from degradation of the resource.'

National Environment Policy, 2006

Preface

'Wetland' is a generic term for water bodies of various types, and includes diverse hydrological entities, namely, lakes, marshes, swamps, estuaries, tidal flats, river flood plains, and mangroves. The finite natural resources of our planet are under tremendous stress due to demographic pressures and economic growth. Fresh water – which holds the lifeline for human beings, and for that matter for all living organisms – is a rapidly shrinking resource, and is likely to be the cause of competing claims and resultant conflicts.

2. Recognizing the importance of wetland ecosystems, the National Environment Policy (NEP), 2006, contains an unambiguous assertion of the need for a holistic view of wetlands, which looks at each identified wetland in terms of its causal linkages with other natural entities, human needs, and its own attributes. The NEP's six-fold 'Action Plan' in this direction comprises, among others, formulation of a regulatory framework, linkage with poverty alleviation, and programmes for employment generation.

3. Wetlands are neither ecosystem specific nor confined to particular biodiversity hot-spots. They are ubiquitous and call for concerted action by all States and Union Territories. The Central Government can at best play a catalytic role. The National Programme for Conservation and Management of Wetlands has emerged as a flagship scheme of the conservation sector under which Central assistance is provided as 100% grant. We look upon State Governments to commit budgetary and non-budgetary support, establish multi-disciplinary entities like the Wetland Development Authorities as done in the States of Andhra Pradesh, Karnataka, Orissa and West Bengal for formulation of scientific and comprehensive Management Action Plans (MAPs), and to have an effective interface with researchers.

4. Let us dedicate ourselves to the cause of healthy and dynamic aquatic ecosystems, and sensitize other members of society to the need for their effective conservation and scientific management.

24 January 2007

Prodipto Ghosh
Secretary
Ministry of Environment & Forests

True copy

Contents


Today


Tomorrow?


And after tomorrow?


Wetlands support fisheries
keep them healthy
estuaries, swamps, lakes, coral reefs, tidal flats, rivers, mangroves, ponds... etc.
2 February
World Wetlands Day

True copy

World Wetlands Day, 2007

February 2 of every year is observed as World Wetlands Day. It marks the date of the signing of the Convention on Wetlands on 2 February 1971, in the Iranian city of Ramsar on the shores of the Caspian Sea. Therefore, this Convention came to be known as the Ramsar Convention (1971). Making an encouraging beginning in the year 1997, each year on 2 February, government agencies, non-governmental organizations, groups of citizens at all levels of the community commemorate this day by *undertaking actions aimed at raising public awareness of wetland values and benefits.*

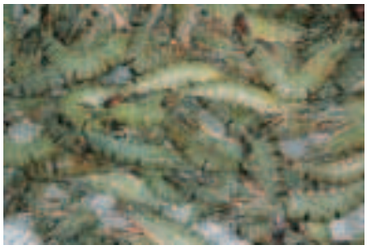
Ramsar Convention on Wetlands, an intergovernmental treaty with more than 150 member-countries, deals with conservation aspects of inland waters and the near-shore coastal areas.

This year, the theme of World Wetlands Day is 'Fish for Tomorrow?'. In this context, it is notable that among the nine criteria for designation of a wetland as a Ramsar Site, one relates to the category of wetlands supporting a significant proportion of indigenous fish subspecies, species or families that are representative of wetland benefits and contribute to global biological diversity. The other fish-centric criterion relates to a wetland being an important source of food for fishes, spawning ground, nursery and/or migration path on which the fish stocks depend.

The following statistics amply brings out the relevance of the current year's theme for the World Wetlands Day, namely 'Fish for Tomorrow?'.

- One billion people rely on fish of various types as they are the source of protein.
- 35 million people are directly engaged in fishing and aquaculture, out of which 95% belongs to developing countries.

As the demand for sea food is increasing, wetlands are being over-fished beyond their sustainable capacity. Therefore, it becomes necessary to enforce effective fisheries management plans that promote sustainable use of this important resource.



Shrimp from Chilika Lagoon, Orissa

Fish yield from Chilika Lagoon, Orissa

Irrawaddy Dolphins – endangered flagship species of Dolphins from Chilika Lagoon, Orissa

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Pangong Tso – a transboundary wetland between China and India,
district Leh, Jammu and Kashmir

National Wetland Conservation & Management Programme (NWCMP)

Introduction

Freshwater bodies perform many vital functions including the ones listed below.

- Provide food, fodder, fuel and water for domestic, irrigation, and industrial purposes
- Support fisheries and a number of rare and endangered species of flora and fauna
- Maintain natural biodiversity
- Help in regulating hydrological regimes, flood control, and recharging of aquifers.

Recognizing the importance of protecting such water bodies, the Government of India operationalized a wetland conservation programme in 1985/86 in close collaboration with concerned State Governments. Several steps were taken to arrest further degradation and shrinkage of water bodies due to encroachment, siltation, weed infestation, catchment erosion, surface run-off carrying pesticides and fertilizers from agricultural fields, and discharge of domestic sewage and effluents, which resulted in deterioration of water quality, prolific weed growth, decline in biodiversity and other associated problems. *Figure 1* shows the 94 identified wetlands under National Wetland Conservation & Management Programme.

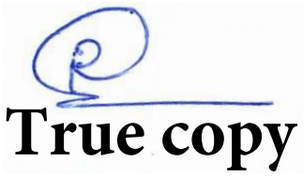
Wetlands

The wetlands encompass diverse and heterogeneous assemblage of habitats ranging from lakes, estuaries, river flood plains, mangroves, coral reef and other related ecosystems. Abundance of water at least for a part of the year is the single dominant factor.

Ramsar definition

Ramsar is a city in Iran where the first World Convention on Wetlands was held on 2 February 1971. The Ramsar Convention defines wetlands as given below:

> 'Wetlands are area of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six metres.'



Disclaimer: Map is not to scale and does not represent political boundaries

Figure 1
Ninety-four identified wetlands under National Wetland Conservation and Management Programme

Phumdis in Loktak Lake – the largest freshwater lake in northeast region, district Bishanpur, Manipur

This definition talks about the maximum water depth in case of marine areas, for these to qualify as wetlands. However, it does not indicate the same for other aquatic bodies. Therefore, it becomes difficult to classify other aquatic bodies into wetland group.

In order to prepare a status of wetlands in USA, the US Department of Interior Fish and Wildlife Service Authority adopted the following definition of Cowrdin in 1979:

> 'Wetlands are lands, transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by the shallow water.'

For the purpose of this classification, wetlands must have one or more of the following attributes.

- At least periodically the land supports predominantly hydrophytes.
- The substrate is predominantly undrained hydric soil.
- The substrate is non-soil and is saturated with water or covered by shallow water sometime during the growing season of each year.

Ashtamudi – an estuarine wetland, district Quillon, Kerala

Nainital Lake – an urban lake subjected to anthropogenic pressures, Uttaranchal

This definition emphasizes three key attributes of wetlands: (1) hydrology which is a degree of flooding of soil saturation, (2) wetland vegetation (hydrophytes), and (3) hydric soils. This definition has been broadly followed as it specifies various attributes of wetlands. This definition does not contradict Ramsar's definition but only specifies the parameters to be used for identification.

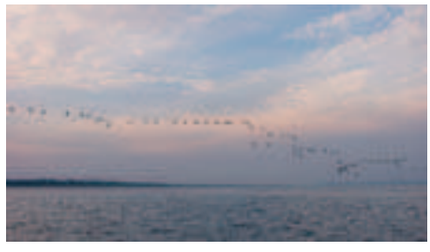
Broadly speaking, wetlands are shallow water bodies in which water keeps up for most part of the year and recedes below the surface level during the dry season. The biotic community undergoes time changes from aquatic/marshy to mesophytic types. These are complex hydrological and biogeochemical systems and have been recognized as distinctly separate ecosystems between the terrestrial and aquatic ones.

Distribution

Wetlands in India are distributed in different geographical regions ranging from Himalayas to Deccan plateau. The variability in climatic conditions and changing topography is responsible for significant diversity. They are classified into different types based on their origin, vegetation, nutrient status, thermal characteristics, like

- *Glaciatic Wetlands* (e.g., Tsomoriri in Jammu and Kashmir, Chandertal in Himachal Pradesh),
- *Tectonic Wetlands* (e.g., Nilnag in Jammu and Kashmir, Khajjiar in Himachal Pradesh, and Nainital and Bhimtal in Uttaranchal),
- *Oxbow Wetlands* (e.g., Dal Lake, Wular Lake in Jammu and Kashmir and Loktak Lake in Manipur and some of the wetlands in the river plains of Brahmaputra and Indo-Gangetic region. Deepor Beel in Assam, Kabar in Bihar, Surahtal in Uttar Pradesh)
- *Lagoons* (e.g., Chilika in Orissa)
- *Crater Wetlands* (Lonar lake in Maharashtra)
- *Salt water Wetlands* (e.g., Pangong Tso in Jammu and Kashmir and Sambhar in Rajasthan)
- *Urban Wetlands* (e.g., Dal Lake in Jammu and Kashmir, Nainital in Uttaranchal and Bhoj in Madhya Pradesh)
- *Ponds/Tanks, man-made Wetlands* (e.g., Harike in Punjab and Pong Dam in Himachal Pradesh)

Wular Lake – an oxbow lake, district Baramulla, Jammu and Kashmir



Pong Lake – haven for resident and migratory birds, district Nurpur, Himachal Pradesh

Keoladeo National Park – an important waterfowl refuge, district Bharatpur, Rajasthan

Lonar Lake – the only crater lake in India formed by meteoritic impact, district Buldhana, Maharashtra

- *Reservoirs* (e.g., Idukki, Hirakud dam, Bhakra-Nangal dam)
- *Mangroves* (e.g., Bhitarkanika in Orissa)
- *Coral reefs* (e.g., Lakshadweep)
- *Creeks* (Thane Creek in Maharashtra), seagrasses, estuaries, thermal springs are some kinds of wetlands in the country.

Ninety-four wetlands have been identified for conservation and management under the National Programme for Conservation and Management of Wetlands (refer *Annexure I*). These wetlands are eligible for financial assistance on 100% grant basis to the concerned State Governments for undertaking activities like survey and demarcation, weed control, catchment area treatment, desiltation, conservation of biodiversity, pollution abatement, livelihood support, creation of minor infrastructure, educational awareness, capacity building of various stakeholders, and community development. So far 24 States have been covered; the remaining States are expected to the covered in the Eleventh Five-Year Plan. Table 1 shows state-wise distribution of wetlands under National Wetland Conservation Programme.

Table 1

Statewise distribution of wetlands under National Wetland Conservation & Management Programme

State	*Number of wetlands*	*Area* (ha)
Andhra Pradesh	1	90100
Assam	2	4504
Bihar	3	11490
Chandigarh	1	148
Gujarat	8	1270875
Himachal Pradesh	5	15736
Haryana	2	288
Jammu and Kashmir	7	117325
Jharkhand	2	98965
Karnataka	7	4250
Kerala	5	213229
Madhya Pradesh	12	359814
Maharashtra	3	40298
Manipur	1	26600
Mizoram	2	285
Orissa	4	122580
Punjab	3	5648
Rajasthan	1	24000
Sikkim	6	164
Tamil Nadu	3	46283
Tripura	1	240
Uttar Pradesh	9	12083
Uttaranchal	1	800
West Bengal	5	553090

Benefits of Wetlands

Wetlands offer several substantive benefits. Unfortunately, they are often not fully understood. Some of the most obvious advantages are listed below.

- Life support systems.
- Winter resorts for a variety of birds for shelter and feeding.
- Suitable habitats for fish and other flora and fauna.
- Effective in flood control, waste water treatment, reducing sediment loads and recharging of aquifers.
- Valuable for their educational and scientific interest (especially their high diversity or species richness).
- Recreational benefits (swimming, diving, tourism).

Threats

Threats to wetland ecosystems comprise the increasing biotic and abiotic pressures and perils.

Biotic

- Uncontrolled siltation and weed infestation
- Uncontrolled discharge of waste water, industrial effluents, surface run-off, etc. resulting in proliferation of aquatic weeds, which adversely affect the flora and fauna
- Tree felling for fuel wood and wood products causes soil loss affecting rainfall pattern, loss of various aquatic species due to water-level fluctuation
- Habitat destruction leading to loss of fish and decrease in number of migratory birds.

Abiotic

- Encroachment resulting in shrinkage of area.
- Anthropogenic pressures resulting in habitat destruction and loss of biodiversity.
- Uncontrolled dredging resulting in successional changes.
- Hydrological intervention resulting in loss of aquifers.

Weed infestation in Harike Lake, district Ferozepur, Punjab

- Pollution from point and non-point sources resulting in deterioration of water quality.
- Ill-effects of fertilizers and insecticides used in adjoining agricultural fields.

Cardinal Constituents of Comprehensive Strategy for Wetland Conservation

The conservation and management of wetlands calls for a comprehensive strategy, ranging from legal framework and policy support to inventorization, institutional mechanism, capacity building, and community participation. The position with regard to these aspects is as follows:

Legal framework

Though there is no separate provision for specific legal instrument for wetland conservation, the legal framework for conservation and management is provided by the following legal instruments:

- Several legislations have been enacted which have relevance to wetland conservation. These include Forest Act, 1927, Forest (Conservation) Act, 1980, the Wildlife (Protection) Act, 1972, the Air (Prevention and Control of Pollution) Act, 1974, the Water Cess Act, 1977 and the umbrella provision of Environment (Protection) Act, 1986.
- India has set up 505 Wildlife Sanctuaries and 100 National Parks, 14 Biosphere Reserves, 6 Heritage Sites, Projects on Tiger conservation and Elephant conservation and Marine Turtles conservation with the objective of effective conservation of wetlands, and floral and faunal wealth in forest areas.
- Notification declaring the coastal stretches of seas, bays, estuaries, creeks, rivers and backwaters, which are influenced by tidal action (in the landward side) up to 500 metres from the high tide line, and the land between the low tide line and the high tide line as the Coastal Regulation Zone Notification, 1991 under the provision of Environment (Protection) Act, 1986. This proposes graded restriction on setting up and expansion of industries, including pressures from human activities.
- Portions of the listed sites have been declared as Wildlife Sanctuaries and National Parks.
- Guidelines for sustainable development and management of brackish water aquaculture have been drawn up. State Governments like Andhra Pradesh and Tamil Nadu have aquaculture guidelines also at the local level.
- The Biodiversity Act, 2002, and the Biodiversity Rules, 2004, are aimed at safeguarding the floral and faunal biodiversity, and regulating their flow from the country to other countries for research and commercial use. Thus, their provisions also contribute towards conserving, maintaining, and augmenting the floral, faunal and avifaunal biodiversity of the country's aquatic bodies.

True copy

Policy Support: National Environment Policy (NEP), 2006

Our National Environment Policy (NEP), approved by the Cabinet on 19 May 2006, recognizes the numerous ecological services rendered by wetlands. The NEP states:

> 'Wetlands are under threat from drainage and conversion for agriculture and human settlements, besides pollution. This happens because public authorities or individuals having jurisdiction over wetlands derive little revenues from them, while the alternative use may result in windfall financial gains to them. However, in many cases, the economic values of wetlands' environmental services may significantly exceed the value from alternative use. On the other hand, the reduction in economic value of their environmental services due to pollution, as well as the health costs of the pollution itself, are not taken into account while using them as a waste dump. There also does not yet exist a formal system of wetland regulation outside the international commitments made in respect of Ramsar sites. A holistic view of wetlands is necessary, which looks at each identified wetland in terms of its causal linkages with other natural entities, human needs, and its own attributes.'

The Environmental Policy identifies the following six-fold Action Plan:

1 Set up a legally enforceable regulatory mechanism for identified valuable wetlands to prevent their degradation and enhance their conservation. Develop a national inventory of such wetlands.

2 Formulate conservation and prudent use strategies for each significant catalogued wetland, with participation of local communities, and other relevant stakeholders.

3 Formulate and implement eco-tourism strategies for identified wetlands through multi-stakeholder partnerships involving public agencies, local communities and investors.

4 Take explicit amount of impacts on wetlands of significant development projects during the environmental appraisal of such projects; in particular, the reduction in economic value of wetland environmental services should be explicitly factored into cost-benefit analysis.

5 Consider particular unique wetlands as entities with 'Incomparable Values', in developing strategies for their protection.

6 Integrate wetland conservation, including conservation of village ponds and tanks, into sectoral development plans for poverty alleviation and livelihood improvement, and the link efforts for conservation and sustainable use of wetlands with the ongoing rural infrastructure development and employment generation programmes. Promote traditional techniques and practices for conserving village ponds.

Inventorization

Survey and inventorization should take into consideration identification of different human activities, effect of both industrial and domestic effluents, and information obtained through remote sensing to be verified with the ground truth data for getting proper results. This component includes mapping of catchment areas through revenue records, survey and assessment, and land-use pattern using GIS techniques, with emphasis on drainage pattern, vegetation cover, siltation cover, encroachment, conversion of wetlands, human settlements, total area encroached, human activities at the primary, secondary, and tertiary levels, and their impact on catchment and water body.

The following surveys of wetlands have been undertaken so far:

- Asian Wetland Directory, 1989 – identified 93 Wetlands of International Importance
- Wetland Directory published in 1990 by the Ministry of Environment and Forests using questionnaire survey
- Identification of 2167 natural freshwater wetlands covering 1.5 million ha area
- Identification of 65,253 man-made freshwater wetlands covering 2.6 million ha area
- WWF-India and the Ministry of Environment and Forests in 1993 identified 54 additional wetlands of international importance with more details.
- Space Application Centre using remote sensing techniques identified 27,403 inland and coastal wetlands covering 7.6 million ha
- Salim Ali Centre for Ornithology under UNDP project has undertaken survey of 72 districts.
- A project on 'National Wetland Information System and Updation of Wetland Inventory' has been sanctioned by the Ministry of Environment and Forests. The objectives of this project are (1) to map and inventorize wetlands on 1:50,000 scale by on-screen interpretation of digital IRS LISS III data of post and pre-monsoon seasons, (2) to prepare State-wise wetland Atlases, and (3) to create a digital database in GIS environment in respect of all wetlands in the country.
- The Centre for Advanced Studies in Marine Biology at Annamalai University, Parangipettai, has been assisted in project mode for updating all wetlands in the country.

Bhrigu – a sacred high altitude lake at Rohtang, Himachal Pradesh

Mansar Lake from Jammu – an example of ecotourism and recreation

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Institutional mechanism

(a) It is imperative to have multi-disciplinary, holistic and integrated approach for achieving long-term sustainable wetland conservation and management measures. At present, various models exist in States and different nodal agencies are responsible for implementing the Wetland Conservation Programme. In some States, the programme is executed by the Department of Forests and/or Environment or Urban Development; in some others, it is the Department of Irrigation or Science and Technology or Fisheries.

However, the Wetland Conservation and Management is a specialized technical and scientific field where multi-disciplinary approach is needed, involving a number of components like water management, sustainable fisheries development, hydrological aspects, socio-economic issues, community participation, weed control, biodiversity conservation and use of aquatic macrophytes for nutrient recycling process, hydrological aspects providing information about inflow/outflow pattern in the system, nutrient fluxes and nutritional dynamics.

These aspects need to be dealt with in a coordinated manner by managers having expertise in the relevant fields.

(b) Taking into consideration the complexity of the issue, the State Steering Committees have been constituted under the chairmanship of Chief Secretaries of the States having members from all Departments concerned. The Committee is also expected to have representatives from communities, NGOs and academicians. The officer from the nodal department acts as a member-secretary of the Committee.

The success of the programme depends upon its strong institutional mechanism where conservation efforts are undertaken through integrated and multi-disciplinary approach. However, due to inadequacy of infrastructure and staff, conservation activities are yet to acquire comprehensiveness and sustainability in some States.

State Governments have been advised to consider constitution of Wetland Conservation Authorities so that experts from various Departments undertake conservation activities in a more scientific, cohesive and sustainable manner.

(c) Some States have already constituted Authorities for execution of wetland conservation programmes in their respective States. Notable among them are Chilika Development Authority in Orissa (mandated to manage all identified lakes in the State); Loktak Development Authority in Manipur; Shore Area Development Authority in Andhra Pradesh; Lakes and Waterways Development Authority in Jammu and Kashmir; Lake Development Authority in Karnataka and Lake Conservation Authority in Madhya Pradesh.

Capacity building

Capacity building is a major tool without which no conservation activity is possible. We need to have good infrastructure, trained people, and case studies to teach values and functions of wetlands in an integrated and multi-disciplinary manner. The Ministry has taken several initiatives in this regard as per details given below.

(a) It has published several reports/documents on conservation and wise use of wetlands which include six monographs on Ramsar sites in collaboration with WWF-India and eco-tourism guidelines for Chilika lake.

(b) During the Tenth Five Year Plan, several training programmes have been conducted in collaboration with different academic organizations/research institutes/State Governments/international NGOs to impart training on various components of wetland conservation which include wise use, catchment area treatment, weed control, hydrological aspects, research methodology, preparation of management action plans and community participation. Training is imparted to policy makers, senior/middle level managers, organizations, stakeholders and others.

A National Training Programme for Integrated Water Resource Management and Wetland Conservation was organized during 7-11 August 2006 by Chilika Development Authority with the financial support from Ministry of Environment and Forests. More training programmes are proposed to be organized at different regions of the country for which following institutions have been identified:

S. No.	Organization	Regions covered
1	Gujarat Ecological Education and Research (GEER) Foundation, Gandhinagar	Western region
2	Environmental Planning and Coordination Organization (EPCO) , Bhopal	Central region
3	Wildlife Institute of India, Dehra Dun	Northern region
4	Centre for Water Resources Development and Management (CWRDM), Kozhikode	Southern region
5	Institute of Management and Ecological Designs (IMED), Kolkata	Eastern region

East Kolkata Wetland – a Ramsar site, district 24 Parganas, West Bengal. An example of use of wetlands where usage of city sewage for traditional practices of fisheries and agriculture is practiced

A series of regional workshops were organized in various parts of the country to make people aware of the importance of wetlands and integrate their traditional knowledge in the planning process. The following regional and international workshops were organized during the Tenth Plan:

1 Western Region, Gujarat
2 Southern Region, Kerala
3 Eastern Region, Orissa
4 North-Eastern Region, Manipur
5 Central Region, Madhya Pradesh
6 Northern region, Uttar Pradesh
7 Northern region, Jammu and Kashmir
8 Southern region, Lakshadweep
9 International Workshop on High Altitude Wetlands, Sikkim
10 Meeting of Board of Directors of Wetland International, Rajasthan

Holding regional workshops along with research organizations and wetland managers is an ongoing feature.

Community Participation

(a) No decision-making is complete without participation of local people whose livelihoods depend on wetland resources. People have been using wetlands since time immemorial. We have to blend both traditional and latest scientific technologies to achieve long-term conservation goals. Participatory Rural Appraisal exercise involving local communities should be the main ingredient of community participation. It should also take into consideration issues of women and gender sensitization and involve women in the management process.

(b) The component of community participation comprises the following constituents.

- Assessment of resource availability by surveys and participatory rural appraisal of the site.
- Stakeholder analysis
- Contact with external institutions for resource and technical advice
- Utilization of wastes and aquatic weeds for energy regeneration, for example through installation of community-based biogas plants.

Participation of women in wetland management at Chilika Lagoon, Orissa

- Additional alternate income generation programmes like handloom, handicrafts, integrated farm management techniques and other measures to reduce pressure on wetlands.
- Highlighting of gender-related cross-cultural, governance-related practices and other special concerns for assessment by community.

(c) The Joint Forest Management Committees (JFMCs), also referred to as Village Protection Committees (VPCs) or Eco-Development Committees (EDCs), are expected to play an active role in conservation and management of wetlands located in forest fringe areas, i.e. normally within a radius of 5 km of forest boundary. The JFMC/VPC/EDC shall be instrumental in mobilization of communities and for implementing equitable access to information rights.

Admissible Components for Assistance

The Ministry provides assistance on 100% grant basis for the following components:

(a) *Survey and Assessment*

- Survey and mapping through revenue records and ground truthing
- Changes in land use pattern through GIS
- Survey of human settlements and other human activities in the catchment, including encroachments

(b) *Catchment Area Treatment*

- Status of conservation activities in erosion-prone areas
- Activities in terms of vegetative control, gully plugging, stream bank erosion, water harvesting structures, raising of nurseries, propagation of plant material, and tree planting

(c) *Protection and Monitoring*

- Patrolling and surveillance
- Setting up of watch-towers and patrolling
- Socio-economic development through community participation
- Formation of advisory committees for mid-term reviews

(d) *Restoration Measures*

- Rehabilitation of Rare, Endangered and Threatened (RET) species
- Methods employed to maintain biological diversity, both floral and faunal.

Conservation activities with people's participation in catchment area of Loktak Lake, distict Bishanpur, Manipur

(e) *Desilting and Dredging*

- Manual and mechanical desilting and dredging
- Compartmentalization of watersheds in the catchment to check desiltation.

(f) *Water Management*

- Inflow-outflow patterns and hydrographic survey
- Studies on infiltration, interception and soil moisture.
- Inflow-outflow assessment of major and minor streams including water balance and flushing rates
- Quantification of siltation rates in the wetlands
- Identification of point and non-point sources of pollution
- Flood mitigation through hydraulic structures
- Developing water quality models
- Treatment of effluents and sewage before their entering the wetland
- Changes due to inter-mixing of water, particularly in areas which remain dry for most part of the year
- Recharging practices
- Water harvesting structures and their use

(g) *Biodiversity Conservation*

- Conservation of sensitive species through in-situ and ex-situ methods
- Identification of RET species, and Endemic and Vulnerable (E and V) species

Acropora – a fragile coral species from Andaman Islands

Olive Ridley Turtles at Gahirmatha beach, Orissa – a spot for mass nesting and breeding

(h) *Sustainable Resource Development*

- Economic valuation of wetlands to determine and allocate resources on equitable basis.
- Assessment of current resource utilization and its impacts
- Enhancement of sustainable wetland resources for communities
- Studies on carrying capacity of wetlands

(i) *Weed Infestation and its Control*

- Use of weeds as mineral recycling agents
- Use of traditional knowledge for better use of weeds to generate revenue, e.g., conversion of weeds into compost

(j) *Pollution Control*

- Identification of point and non-point sources of pollution
- Solid waste management
- Minimization of the impact of agricultural run-off/insecticides/fungicides in the wetland areas

(k) *Supplementary/Alternate Livelihoods*

- Involvement of local people in decision-making on alternate/supplementary livelihoods
- Amalgamation of traditional wisdom with latest conservation techniques.
- Encouraging various activities like piggery, animal husbandry, duckery, small cottage industry, mushroom cultivation, tailoring, and carpet weaving to reduce pressure on wetlands for livelihood options

(l) *Environmental Education and Awareness*

- Launching various environmental awareness campaigns
- Organizing various programmes, workshops, folk dances, street theatre for creating environmental awareness
- Using both formal and non-formal education tools for awareness generation.
- Creation of environmental awareness through brochures, training programmes, padayatras, and hoardings
- Developing various publicity materials on wetlands
- Use of media

Sarus Cranes – an endangered species, Keoladeo National Park, district Bharatpur, Rajasthan

Wetland Research Centre, Chilika – the venue of training for wetland managers in 2006

Interpretation Centre, Chilika, Orissa

True copy

(m) *Impact Assessment through Concurrent and Terminal Evaluation*

- Preparation of baseline data for parameters like extent of silt, quantum of biomass, quality of water, groundwater level, change in biodiversity.
- Assessment of quantitative and qualitative changes in wetlands through various conservation activities.
- Evaluation of programmes through independent agencies/consortia of agencies.

Formulation of Management Action Plans

Check List of Formulation of Management Action Plans

The State Governments are encouraged to formulate long-term comprehensive Management Action Plans (MAPs) for a period of 3-5 years, preferably 5 years, coinciding with the Plan period. The State Governments are expected to define objectives taking into consideration factors responsible for degradation of the wetland. The Action Plan should also have short-term objectives to cater to immediate problems confronting wetlands and to go in for immediate rectification measures. The comprehensive MAP should be based on integrated and multi-disciplinary approach. The MAP should cover the following aspects:

- Location, area and altitude, latitude, longitude, depth, ecological features, inflow-outflow pattern, zonation, if any, geological and climatic features
- Baseline data, i.e. pre-project status in terms of various relevant parameters, particularly, soil texture, extent of silt, quantum of biomass, soil moisture content, quality of water, extent of obnoxious weeds, groundwater level and variety and range of biodiversity in terms of flora, fauna including birds and fish
- Land use pattern in the catchment including vegetation, human settlements, agriculture, and major and minor industries
- Sources of qualitative and quantitative inflow of effluents, sewage, pesticides, and other chemicals entering into wetlands
- Flora including distribution of macrophytes, plankton, and benthos
- Fauna including details of major animal groups like birds, fishes, reptiles, mammals. Details regarding invertebrate fauna should also be included
- Population/families directly dependent on wetland resources
- Socio-economic survey of wetlands through questionnaires
- Cultural and indigenous practices of wetland resource utilization
- Jurisdiction of various concerned Departments dealing with wetland conservation
- Existing conservation measures taken
- Interface with Researchers to incorporate relevant Research findings in MAPs
- Involvement of people up to Panchayat level in decision-making
- Wise-use practices of wetland research, if any in existence
- Monitoring mechanism at local and State levels

Monitoring

A three-tier system at National, State, and District levels is in operation for effective co-ordination to implement the programme:

National level

- The National Wetland Committee renders advice on appropriate policies, research and training, identification of wetlands, and review of progress of MAPs.

  It has recently been broad-based to include representatives of State Governments and Union Territories Administrations to make it more participatory and to bridge the gap between policy-making and the field-experiences
- Thematic Research Committee has been recently reconstituted on a more rational and scientific basis to approve appropriate user-driven research projects with applied research approach.
- The Expert Group on Wetlands (EGoW) appraises MAPs of identified wetlands received from various State Governments for financial assistance.

State level

- The State Steering Committees have been constituted under the chairmanship of Chief Secretaries/Additional Chief Secretaries /Principal Secretaries of concerned departments. The committees will have members from subject matter Departments/academicians/stakeholders/representative from Central Government to discuss Management Action Plans and review conservation activities undertaken from time to time. The Secretary of the nodal implementing Department is the Member-Secretary of this Committee.

  The representatives of other relevant State Departments like Industry, Urban Development, Municipal Administration, Mining, and Agriculture, and State Pollution Control Board are members of State level Committee. The activities of these sectors like obnoxious chemical, industrial effluents, toxic run-off due to chemical inorganic fertilizers, pesticides and weedicides, sewage discharge, solid waste and soil erosion cause pollution to wetlands and as such, sensitization of these stakeholders is essential to secure their support and cooperation.

District level

District level committees have been constituted in some states for involving stakeholders in the decision-making process. However, much more work needs to be done in this regard.

The MAPs are discussed in the State-level Committee, inputs from various members obtained and the Plans approved by the State-level Committee are sent to the Ministry for examination.

Research Component under National Wetland Conservation & Management Programme

Without effective research inputs, no MAP can be successful. The research should supplement MAP for implementation. These research inputs should help in formulation of MAPs and should be application-oriented.

Research priority areas have been finalized in such a manner so that they help in execution of Management Action Plans and consolidate data thus generated on various parameters for acting as models.

Programme in Successive Years

The National Wetland Conservation & Management Programme has grown from strength to strength. *Figure 2* gives plan-wise expenditure over plan periods. *Figure 3* indicates the trend of year-wise scale up in the Programme. *Figure 4* contains state-wise releases in the last two decades on a cumulative basis.

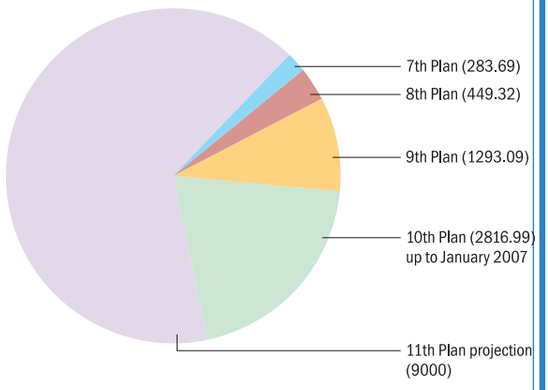

Figure 2
Financial assistance released (Plan-wise) for conservation of wetlands in India

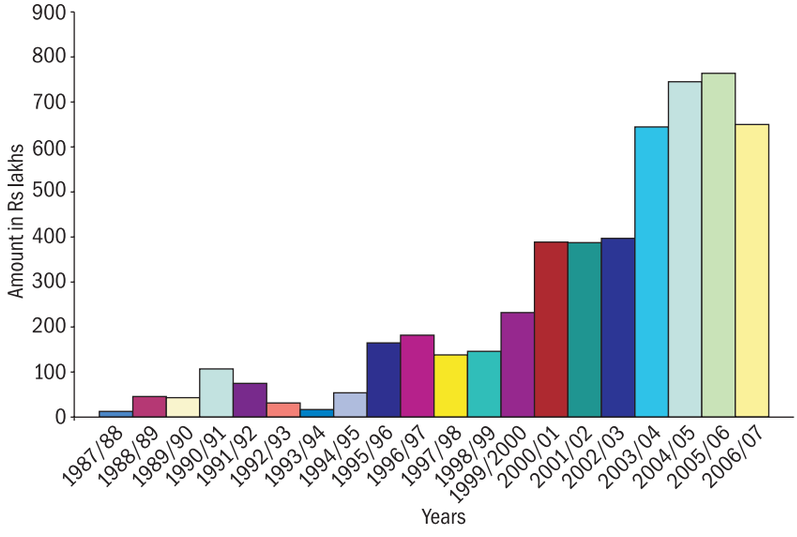

Figure 3
Financial assistance released (Year-wise) for conservation of wetlands from 1987 to January 2007

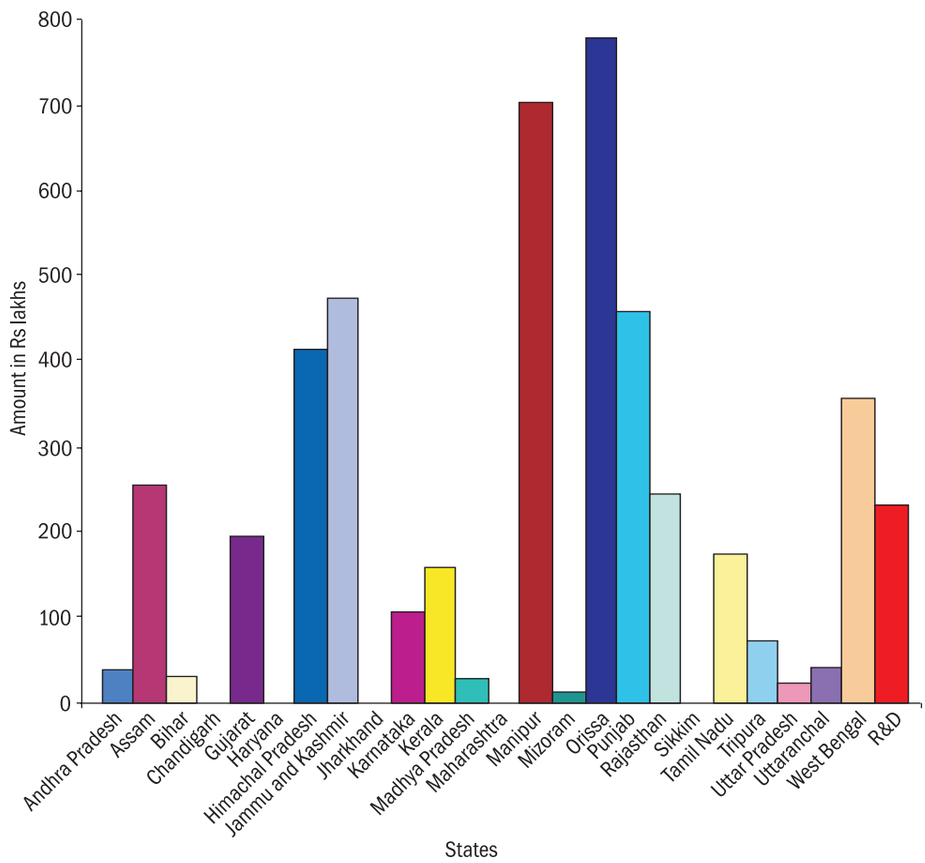

Figure 4
Financial assistance released (State-wise) for conservation of wetlands from 1987 to January 2007

Recommendations of Working Group on Strategies for Biodiversity Conservation during XI Plan

The Working Group on Biodiversity Conservation, Wildlife and Animal Welfare, constituted by the Planning Commission, formed a Sub-Group on Biodiversity Conservation for recommending Strategy for the Eleventh Plan period for effective conservation of natural terrestrial, aquatic, and marine resources. The Sub-Group comprising eminent experts in the field has made the following observations and recommendations:

'Inland aquatic biodiversity of rivers, lakes, reservoirs and wetlands is very rich in India. Inland aquatic systems (excluding paddy fields) cover 5.3% of the country's land area but harbour 15% and 20% of India's floral and faunal diversities, respectively. Many

aquatic plant and animal species are used as protein-rich foods and the aquatic biodiversity also provides ecological services essential for human welfare. Many wetlands are threatened. Although initiatives such as National River Conservation Plan (NRCP), National Lake Conservation Plan (NLCP) and Wetland Conservation have been taken up by the Ministry for the Conservation of rivers, lakes and wetlands, there are gaps in the knowledge relating to hydrological parameters and ecosystem processes and taxonomy of aquatic biodiversity. To fill this gap, the *existing institutions carrying out work on fisheries, aquaculture and aquatic biology need to be strengthened as well as a new Centre/Institute be created for carrying out inland aquatic ecosystem studies*. The implementation of various programmes of the Ministry of Environment and Forests (MoEF) such as NRCP, NLCP and wetland conservation have been constrained by the paucity of funds as well as studies on the aquatic ecosystems….

The Central Inland Fisheries Research Institute of the ICAR had in its early years contributed substantially to these studies but now their programmes are concentrated on fisheries alone. The National Research Center for Coldwater Fisheries focuses primarily on the fisheries of Himalayan water bodies. Various University Departments are engaged in testing water quality studies or examine a few organisms over a very short period. Several developed countries have one or more institutes devoted exclusively to the study of inland water bodies. Often there are specialized Institutes or Divisions, and many field stations, for the study of rivers, lakes and wetlands. These Institutes generally cover all aspects: systematics and biodiversity, water quality, ecology, management, and information systems. In order to support the MoEF's programmes related to rivers, lakes and wetlands, and to meet its obligations under the CBD and Ramsar Conventions in particular, it is highly desirable that the MoEF sets up an *INSTITUTE OF INLAND AQUATIC ECOSYSTEM STUDIES*.'

Tsomoriri – a Ramsar site, district Leh, Jammu and Kashmir

Regulatory Framework for Wetlands

Recognizing the value of Wetlands and taking cognizance of the fact that there does not yet exist a formal system of Wetland Regulation, the National Environment Policy (NEP), 2006 as approved by the Cabinet in May 2006 seeks to set up a legally enforceable regulatory mechanism for identified valuable Wetlands to prevent their degradation and enhance their conservation. It also undertakes to develop an inventory of such Wetlands. In pursuance of the policy resolution a Multi Disciplinary Expert Group has held a series of meetings to formulate a regulatory framework for the Wetlands. The Expert Group has prepared its recommendations on the Categories of Wetlands for Regulation, Process and Procedure for Identification, Composition of Regulatory Authority, Functions of the Authority, and Activities to be Regulated. A draft notification is proposed to be brought out under the provisions of the Environment Protection Act, 1986.

Dal Lake – pride of Kashmir, assisted under NLCP

True copy

National Lake Conservation Plan (NLCP)

In 1993, National Lake Conservation Plan (NLCP) was carved out of Wetland Conservation Programme to focus on lakes particularly those located in urban areas which are subjected to anthropogenic pressures. Initially, 10 lakes were identified for conservation and management.

Broad objectives

The objective of the National Lake Conservation Plan (NLCP) scheme is to restore and conserve the polluted and degraded lakes of the country. To begin with, NLCP proposed to cover urban lakes of tourist importance especially those not covered under the wetland program of the Ministry. The scope of work under NLCP has, however, been expanded during the Tenth Plan to include rural water bodies also.

Activities covered under NLCP

The activities covered under NLCP include the following:

i) Prevention of pollution from point sources by intercepting, diverting and treating the pollution loads entering the lake.

ii) In situ measures of lake cleaning such as desilting, deweeding, and bioremediation depending on the site conditions.

Hussain Sagar: A man-made lake in Hyderabad, Andhra Pradesh assisted under NLCP

iii) Catchment area treatment and lake front eco-development which may include bunding, fencing, shoreline development, creation of facilities for public recreation and entertainment.

iv) Public awareness and public participation.

v) Other activities depending on location-specific conditions including the interface with human population.

Dal Lake, Srinagar, Jammu and Kashmir

Growth of NLCP

The NLCP has expanded in scale since its genesis in 1999–2000. *Figure 5* illustrates the year-wise scale-up of the plan.

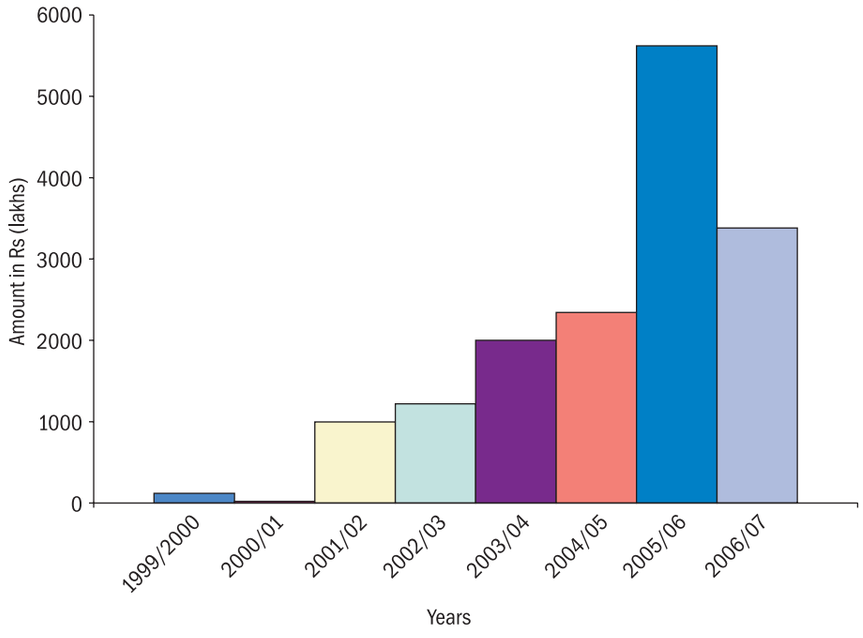

Figure 5
Financial assistance released (Year-wise) for conservation of Lakes under National Lake Conservation Plan

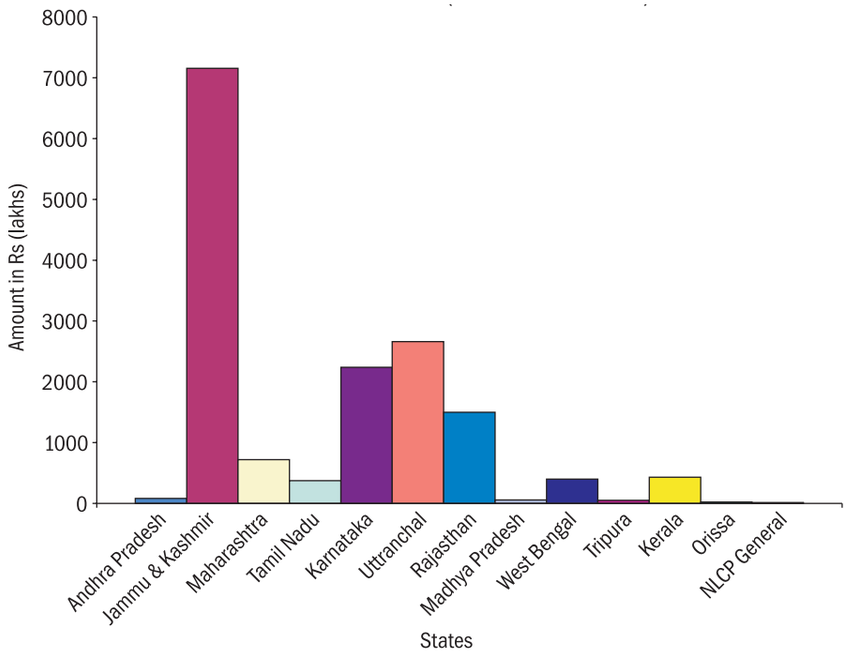

Figure 6
Financial assistance released (State-wise) for conservation of Lakes Under National Lake Conservation Plan

Proposals sanctioned under NLCP

The Ministry has till date approved 27 projects for conservation of 42 lakes in 12 States (refer *Annexure III*). *Figure 6* shows the state-wise financial assistance as approved.

The Ministry, at the instance of the Planning Commission, carried out a study for identification of priority lakes for conservation. This study report prioritized a list of 62 lakes. This list of 62 lakes was sent to all State Governments for their consideration and response. About 15 States have already responded. A substantial number of proposals are being received from the State Governments for restoration of some of their very polluted lakes. A number of such proposals have been examined and are under consideration. At present, the Ministry is taking up new proposals depending upon their pollution status, prioritization and availability of funds under the Plan.

The Ministry has also agreed to hosting the 12th World Lakes Conference at Jaipur (Rajasthan) in October-November, 2007.

Ramsar

CONVENTION ON WETLANDS

(Ramsar, Iran, 1971)

True copy

Ramsar Convention

The Convention on Wetlands, signed in Ramsar, Iran, in 1971, is an intergovernmental treaty which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. There are at present 154 Contracting Parties to the Convention, with 1634 wetland sites, totalling 145.73 million hectares, designated for inclusion in the Ramsar List of Wetlands of International Importance. *Figure 7* shows identified Ramsar sites in India.

Figure 8 provides regional distribution of Ramsar sites at global level. *Figure 9* represents state-wise area of Ramsar sites in India.

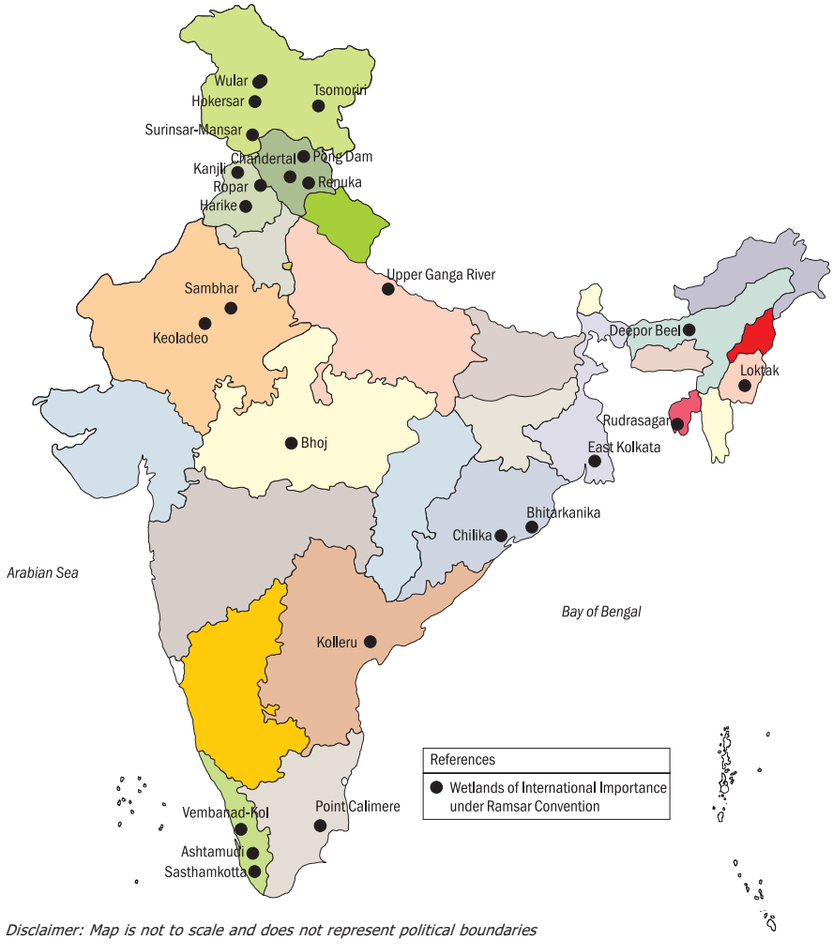

Figure 7
Identified Ramsar sites in India

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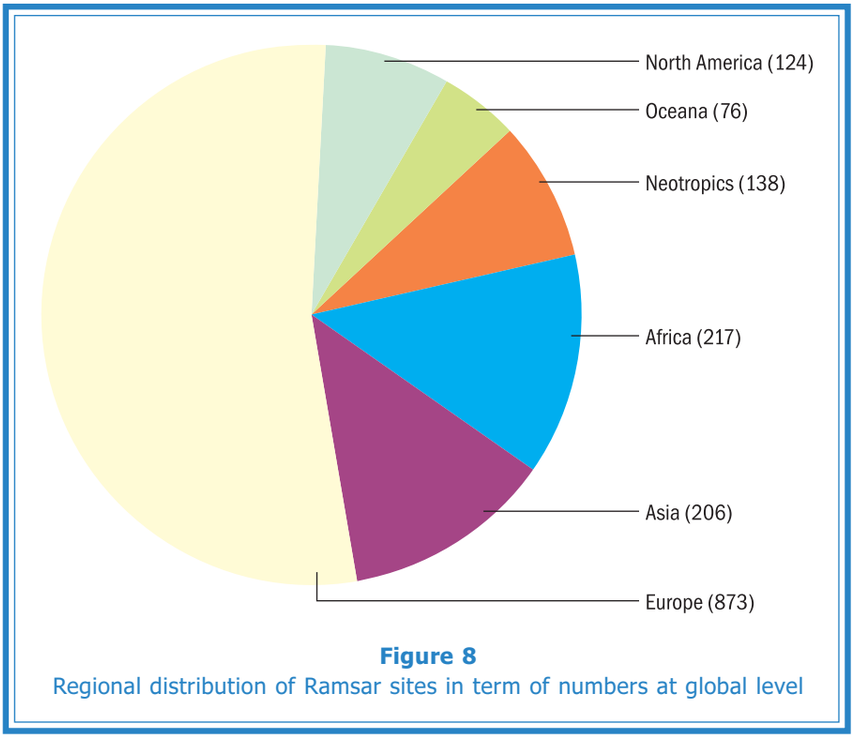


Figure 8
Regional distribution of Ramsar sites in term of numbers at global level

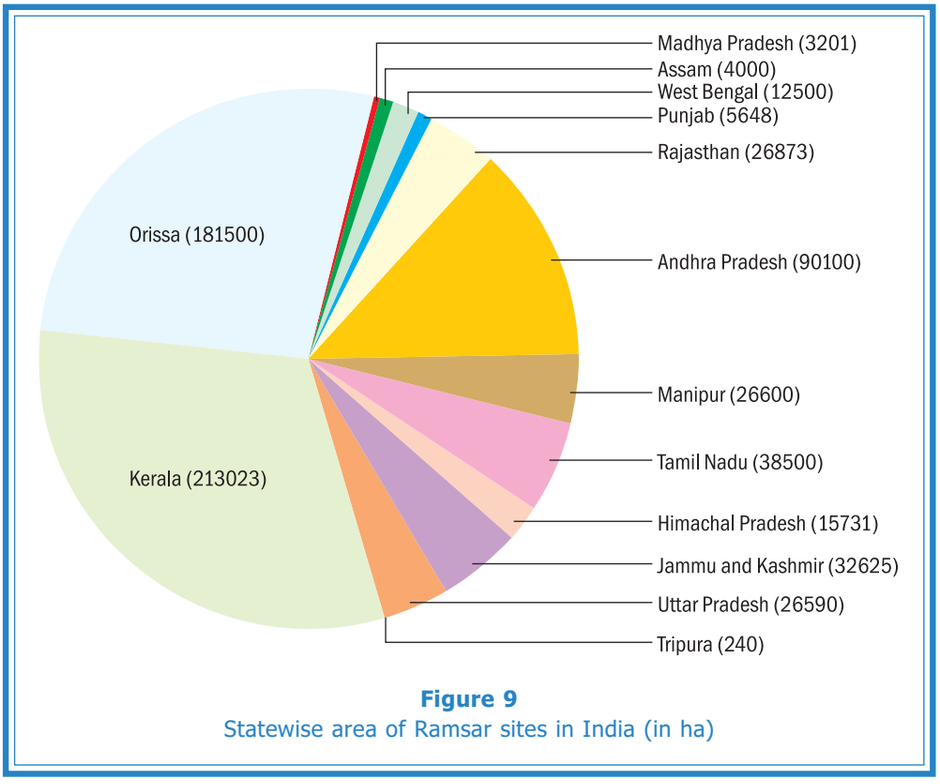


Figure 9
Statewise area of Ramsar sites in India (in ha)

True copy

The Convention has 12 Articles which deal with the various aspects of wetlands, including their definition, criteria for designation of wetlands, wise use of wetlands, establishing nature reserves, research, monitoring, management of wetland species, international cooperation and transboundary wetland issues.

India is a signatory to Ramsar Convention and plays an important role in conservation and wise use of wetlands. On the basis of our country's work in the field of wetland conservation, India had been nominated as a member of standing committee from 1993-1996 and from 1999-2002.

Twenty-five sites from India have been designated as Ramsar sites of International Importance (refer *Annexure II*) and 6 are under process of designation. During the next triennium, it is proposed to include at least ten sites under the list which will include mosaic of habitats such as high altitude wetlands, corals, mangroves, creeks, alpine wetlands in the list from India.

The Mission of the Ramsar Convention

The Convention's mission is 'the conservation and wise use of wetlands by national action and international cooperation as a means to achieving sustainable development throughout the world.'

The Criteria for Identifying Wetlands of International Importance/National Importance

Group A of the Criteria

Sites containing representative, rare or unique wetland types

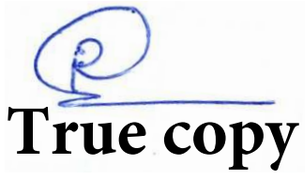
Criterion 1 A wetland should be considered internationally/nationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.

Group B of the Criteria

Sites of international importance for conserving biological diversity

Criteria based on species and ecological communities

Criterion 2 A wetland should be considered internationally/nationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.



Pong Dam Lake – declared Ramsar site in 2002, district Nurpur, Himachal Pradesh

Chilika Lagoon – conferred Ramsar award in 2002, district Ganjam, Orissa

Criterion 3 A wetland should be considered internationally/nationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.

Criterion 4 A wetland should be considered internationally/nationally important if it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.

Specific criteria based on water birds

Criterion 5 A wetland should be considered internationally/nationally important if it regularly supports 20,000 or more waterbirds.

Criterion 6 A wetland should be considered internationally/nationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

Specific criteria based on fish

Criterion 7 A wetland should be considered internationally/nationally important if it supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity.

Criterion 8 A wetland should be considered internationally/ nationally important if it is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.

Specific criteria based on water/life and culture

Criterion 9 A wetland should be considered internationally/nationally important if it is an important source of food and water resource, increased possibilities for recreation and eco-tourism, improved scenic values, educational opportunities, conservation of cultural heritage (historic or religious sites)

Advantages of joining Ramsar Convention

- Elevates the importance of the site at the international level.
- Encourages international cooperation
- Brings access to expert advice and latest information
- Provides an opportunity for learning the best global practices for wise use of wetlands
- Opportunity for getting international guidelines on various wetland conservation themes
- Represents a contribution to global environment protection and maintenance of global biodiversity

India's Response to Ramsar Convention: Some Initiatives

- Twenty-five sites have already been designated as Ramsar sites in India till date.
- Ramsar Conservation Award has been given to Chilika Development Authority in 2002 for ecological intervention of Chilika Lake. This is for the first time that any Asian country has been given such an award.
- India got special recognition at World Park Congress held at Durban during 2003 for maximum number of sites being designated as Ramsar sites in a given year.
- Ministry has published 6 monographs on Ramsar Sites in collaboration with WWF India. Facts Sheets on 19 designated Ramsar sites have also been published.
- Eight regional workshops on Wetlands have been organized in different regions of the country on various aspects related to wetland conservation and management under capacity building exercise.
- India organized Asian Wetland Symposium in February 2005 at Bhubaneshwar, attended by 34 countries from Asian region.
- India organized a capacity building workshop on High altitude wetlands in Himalayas at New Delhi during June, 2006.
- India participated in the meeting of Boards of Directors of Wetland International during November, 2006.

Chandertal – a glacial lake, a Ramsar site assisted under NWCMP, Kunjum, Himachal Pradesh

- India has been nominated on the Board of Directors of Wetland International and on request from India, a meeting of the Board of Directors was held at Manesar, Rajasthan during 19–20 October 2005 in which 23 countries participated.

Role of India at Ramsar Convention

- India was member of:
  - Standing Committee of Ramsar Convention
    - 1993–1996
    - 1999–2002
  - Committee on Communication, Education and Public Awareness (CEPA)
    - 1999–2002

- India chaired a session at CoP 9 (held in Uganda in November 2005) on Himalayan Initiative jointly organized by the Ramsar Secretariat and other countries having high altitude wetlands.
- India co-chaired a session on agriculture and wetlands at CoP 8 held at Valencia, Spain in November 2002.

International Cooperation

Among other instances of International Cooperation in the field of Wetlands are:

- India is party to the United Nations Framework Convention on Climate Change, the Convention on Biological Diversity, the Convention on Migratory Species, the World Heritage Convention and inter-linkages among these Conventions are frequently discussed in the inter-Ministerial and intra-Ministerial meetings to develop comprehensive Action Plans for their implementation.
- Apart from Ramsar Convention, the Memorandum of Understanding has been signed by our country with Iran, Kazakhistan, Pakistan and Russian Federation for conservation of Siberian cranes.
- Project on Conservation of Upper and Lower lake, Bhopal has been supported by OECF, Japan
- Recently Small Grant Fund from Ramsar Convention has approved the proposal entitled 'Integrated Management Planning for Conservation and Wise use of Chilika Lake' submitted by Chilika Development Authority, Bhubaneshwar.
- A project on water management involving community participation has been completed for Loktak Lake, Manipur with assistance from the Indo-Canadian Environment Facility (ICEF).
- A UNDP Project on 'Threatened Wetlands of India' involving survey and study of 700 wetlands (of less than 56 hectare size) in 72 districts has been completed.
- Three projects have been posed for assistance from JBIC, Japan viz., Chilika in Orissa, Loktak in Manipur and Vembanad in Kerala.

Montreux Record

Montreux Record is a list of such wetland sites maintained by Ramsar Convention Secretariat where changes in ecological character have occurred or are likely to occur as a result of pollution and other anthropogenic activities. It is maintained as a part of Ramsar database. Inclusion of a wetland within Montreux record does not mean red listing or black listing a wetland site. It highlights the action to be taken for management of these wetlands on priority basis.

True copy

12TH WORLD LAKES CONFERENCE

Taal 2007

Theme: 'Conserving Lakes & Wetlands for Future'

'We will be very pleased to host the ILEC's 12th World Lakes Conference in India during 2007. We have chosen the theme, 'Conserving Lakes & Wetlands for Future' for the Conference. It reflects our concerns for lakes & wetlands and our recognition of their value for sustainable development for future generations. It has been named "Taal 2007" as taal is a common Indian word for lakes. We invite scientists,managers, technologists, educators and all those interested in the conservation and management of lakes & wetlands, from all countries to participates in the 12th World Lakes Conference where we can learn from their experiences and share ours with them. Come and enjoy our lakes and an incredible India'

I look forward to welcoming you in India in November 2007.

(A.Raja)
Hon'ble Minister of Environment & Forests

True copy

Vision for the Future

The Programme on Conservation of Wetlands is poised for a big leap as the flagship scheme of the Conservation Sector. The ramp-up from 27 Wetlands till December, 2003 to 94 Wetlands till date in the latter half of the Tenth Five-Year Plan has set the tone. The programme will witness further escalation in the five years of the Eleventh Plan and in the years to come. The tremendous potential for securing freshwater and marine aquatic biodiversity, improving moisture regimes, replenishing aquifers and developing eco-tourism sites has remained grossly under-tapped, and demands immediate attention. It is expected that adequate number of significant wetlands will be identified in each of the States and Union Territories and will act as catalytic factors in eliciting the required budgetary and non-budgetary support from State Governments and other stakeholders.

The envisaged expansion of the programme imposes a definite set of obligations on both the Central and State Governments in terms of allocation of financial resources, trained and well-equipped manpower, robust interface between researchers and managers, sound and systematic database, methodical monitoring, conduct of insightful economic valuation studies, and independent and impartial evaluation processes. Confronted with this complex and multi-dimensional task, it is proposed to establish an Institute for Inland Aquatic Ecosystem Studies in the Eleventh Five-Year Plan. It is expected that an increasing number of State Governments will set up the multi-disciplinary Wetlands Conservation and Development Authorities as has been already done by some of the States and has yielded significantly positive results.

The coming years will also see the Central Government discharge the responsibilities cast upon it by the National Environment Policy, 2006 which makes an emphatic assertion about the need to set-up a legally enforceable regulatory mechanism for identified valuable wetlands. Putting in place a well-considered regulatory framework based on consultative process will receive high priority. It is hoped that the combination of promotional and regulatory measures backed by financial and administrative commitment will result in generation of optimal efforts in the direction of conservation of the freshwater and marine aquatic entities of various types which are collectively known as Wetlands.

Inter-school Poster Competition
organized on 1 February 2007 on the occasion of World Wetlands Day

1st Prize
Arun Nanda, Class IX
Universal Public School

2nd Prize
Ananyaa Mital, Class IX
The Shri Ram School, Gurgaon

3rd Prize
Aditi Singh, Class IX
Springdales School, Pusa Road

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Annexure I

State-wise area of identified Wetlands under National Wetland Conservation & Management Programme (NWCMP)

S. No.	State/UT	Name of Wetland	Area (ha)
1.	Andhra Pradesh	Kolleru	90100
2.	Assam	Deepar Beel	
		Urpad Beel	4504
3.	Bihar	Kabar	11490
		Barilla	
		Kusheshwar Asthan	
4.	Gujarat	Nalsarovar	1270875
		Great Rann of Kachh	
		Thol Bird Sanctuary	
		Khijadiya Bird Sanctuary	
		Little Rann of Kachh	
		Pariej	
		Wadhwana	
		Nanikakrad	
5.	Haryana	Sultanpur	288
		Bhindawas	
6.	Himachal Pradesh	Renuka	15736
		Pong Dam	
		Chandratal	
		Rewalsar	
		Khajjiar	
7.	Jammu and Kashmir	Wular	117325
		Tsomoriri	
		Tisgul Tso & Chisul Marshes	
		Hokersar	
		Mansar-Surinsar	
		Ranjitsagar	
		Pangong Tso	
8.	Jharkhand	Udhwa	98965
		Tilaiya Dam	
9.	Karnataka	Magadhi	4250
		Gudavi Bird Sanctuary	
		Bonal	
		Hidkal & Ghataprabha	
		Heggeri	
		Ranganthittu	
		K.G. Koppa	
10.	Kerala	Ashtamudi	213229
		Sasthamkotta	
		Kottuli	
		Kadulandi	
		Vembnad Kol	

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S. No.	State/UT	Name of Wetland	Area (ha)
11.	Madhya Pradesh	Barna Yashwant Sagar Wetland of Ken River National Chambal Sanctuary Ghatigaon Ratapani Denwa Tawa Kanha Tiger Reserve Pench Tiger Reserve Sakhyasagar Dihaila Govindsagar	359814
12.	Maharashtra	Ujni Jayakawadi Nalganga	40298
13.	Manipur	Loktak	26600
14.	Mizoram	Tamdil Palak	285
15.	Orissa	Chilika Kuanria Kanjia Daha	122580
16.	Punjab	Harike Ropar Kanjli	5648
17.	Rajasthan	Sambhar	24000
18.	Sikkim	Khechuperi Holy Lake Tamze Tembao Wetland Complex Phendang Wetland Complex Gurudokmar Tsomgo	164
19.	Tamil Nadu	Point Calimere Kaliveli Pallaikarni	46283
20.	Tripura	Rudrasagar	240
21.	Uttar Prdaesh	Nawabganj Sandi Lakh Bahoshi Samaspur Alwara Semarai Lake-Nagaria lake Complex Keetham Lake Shekha Saman Bird Sanctuary & Sasai Nawar Complex	12083
22.	Uttaranchal	Ban Ganga Jhlmil Tal	800
23.	West Bengal	East Kolkata Wetlands Sunderbans Ahiron Beel Rasik Beel Santragahi	553090
24.	UT (Chandigarh)	Sukhna	148
		Total Wetlands (94)	**3018795**

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Annexure II

State-wise list of Wetlands of International Importance in India under Ramsar Convention

S. No.	State/UT	Name of Ramsar Site	Area (ha)	Date of Declaration
1.	Andhra Pradesh	Kolleru Lake	90100	19/08/02
2.	Assam	Deepor Beel	4000	19/08/02
3.	Himachal Pradesh	Pong Dam Lake	15662	19/08/02
		Renuka Wetland	20	8/11/05
		Chandertal Wetland	49	8/11/05
4.	Jammu and Kashmir	Wular Lake	18900	23/3/90
		Tsomoriri	12000	19/8/02
		Hokera Wetland	1375	8/11/05
		Surinsar-Mansar Lakes	350	8/11/05
5.	Kerala	Ashtamudi Wetland	61400	19/08/02
		Sasthamkotta Lake	373	19/8/02
		Vembanad-Kol Wetland	151250	19/8/02
6.	Madhya Pradesh	Bhoj Wetland	3201	19/8/02
7.	Manipur	Loktak Lake	26600	23/3/90
8.	Orissa	Chilika Lake	116500	1/10/81
		Bhitarkanika Mangroves	65000	19/8/02
9.	Punjab	Harike Lake	4100	23/3/90
		Kanjli	183	22/1/02
		Ropar	1365	22/1/02
10.	Rajasthan	Sambhar Lake	24000	23/3/90
		Keoladeo National Park	2873	1/10/83
11.	Tamil Nadu	Point Calimere Wildlife and Bird Sanctuary	38500	19/8/02
12.	Tripura	Rudrasagar Lake	240	8/11/05
13.	Uttar Prdaesh	Uppar Ganga River (Brijghat to Narora Stretch)	26590	8/11/05
14.	West Bengal	East Kolkata Wetlands	12500	19/8/02
		Total sites (25)	**677131**	

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Annexure III

State-wise list of Lakes approved under National Lake Conservation Programme (NLCP)

S.No.	State	Lake	Amount (Rs lakhs)
1.	Andhra Pradesh	Banjara	82.10
2.	Jammu and Kashmir	Dal Lake, Srinagar	7154.15
3.	Karnataka	3 lakes of Bangalore namely, Vengaiahnkere, Nagavara and Jarganahalli	2240.14
		Bellandur lake, Bangalore	
		Kotekere, Belgaum	
		Bhishma, Gadag	
		Lal Bagh, Bangalore	
		Sharanabhasveshwara	
		Akkamahadevi, Haveri	
		Chanapatna, Hasan	
		Kundwad lake, Davengere, Karnataka	
		Kote Tavarekere lake, Chikmagalur	
4.	Kerala	Veli Akkulum, Thiruvanathapuram	429.80
5.	Madhya Pradesh	Rani Talab, Rewa	58.00
6.	Maharashtra	Powai	719.82
		9 lakes in Thane	
		Mahalaxmi Lake, Vadagaon	
		Rankala, Kolhapur	
7.	Orissa	Bindusagar, Bhubneshwar	21.31
8.	Rajasthan	Mansagar, Jaipur	1500.00
9.	Tamil Nadu	Ooty	373.23
		Kodaikanal	
10.	Tripura	3 Lakes of Agartala	50.00
11.	Uttaranchal	4 lakes of Nainital District	2661.17
		Nainital Lake	
12.	West Bengal	Rabindra Sarovar, Kolkata	400.00
		Mirik	
		Subtotal Lakes (42)	**15689.72**
13.	NLCP General		13.66
		Total	**15703.38**

True copy

LABOUR, EMPLOYMENT AND HOUSING DEPARTMENT

NOTIFICATION

The 28th July 1979

No. S.R.O. No. 868/79.—In exercise of the powers conferred by clause (b) of sub-section (1) of section 17 of the Employees' Provident Funds and Miscellaneous Provisions Act, 1952 (19 of 1952), the Sate Government do hereby exempt the State Guest House, Orissa, Bhubaneswar from the operation of all the provisions ,of the Employees' Provident Fund Scheme, 1952 subject to the conditions specified below from the date of publication of this notification.

SCHEDULE

(1) The employer shall maintain accounts of the Fund in such manner, furnish such returns to the Regional Provident Fund Commissioner, Orissa as the Central Government may from time to time prescribe.

(2) All expenses involved in the administration of the fund including the maintenance of accounts submission of returns transfer of accumulations. payment of inspection charges, etc. shall be borne by the employer.

(3) The employer shall enhance the rate of provident fund contribution appropriately if the rate of provident fund contribution for the class of establishment in which his establishment fall is enhanced under the E. P. F. and Miscellaneous Provisions Act, 1952.

(4) The employer shall pay the Regional Provident Fund Commissioner, Orissa inspection charges payable to him failing which damages shall be paid at such rates up to 100 per cent of the amount due as may be fixed by the Regional Provident Fund Commissioner,

(5) No amendment of the rules of the fund shall be made without the previous approval of the Government of Orissa.

(6) The employer shall comply with the provisions of Employees' Deposit Linked Insurance Scheme, 1976 to the Regional Provident Fund Commissioner, Orissa.

(7) The employer shall furnish to each employee an annual statement of accounts in each year.

(8) The employer shall provide facilities of inspection of Accounts by the Employees' Provident Fund Authorities.

(9) The employer shall pay Administrative charges till the date of grant of exemption.

(10) Exemption can be withdrawn at any time for breach of any of the aforesaid conditions or for any other sufficient cause which may be considered appropriate.

[No. 10770—III S/5-7/78-L.E.H.]

By order of the Governer

J. N. PANDA

Deputy Secretary to Government

FOREST, FISHERIES & A. H. DEPARTMENT

NOTIFICATION

The 3rd August 1979

S. R. O. No. 935/79—In exercise of the powers conferred by section 18 of the Wild Life (Protection) Act, 1972 (53 of 1972), the State Government do hereby declared that the area, limits of which are specified in details in the schedule below including the entire bed of the Kanjia Lake and the swamps, private land and Government land contained between the boundary described below situated in Chandaka P.-S. and New Capital P.-S. of Bhubaneswar Subdivision of Puri district to be a sanctuary to be known as Nandankanan Sanctuary for the purpose of protection, propagation, development and research on Wild Life with effect from the date of issue of this notification.

SCHEDULE

Puri Forest Division

Puri District

The north eastern boundary of the Sanctuary starts from the Forest check-gate near Barang on the old Ganjam road and follows the boundary of Krishnagarh P. F. from Pillar No. 1 to 18. Then eastern boundary follows a straight line at a bearing of 1070 from Pillar No. 18 and meets the forest road leading to Baranga Railway Station at Pillar No. 19. Then it follows the forest road on the outer fringe and meets Nandankanan-Bhubaneswar P.W.D. Road at Pillar No. 20. Then the boundary line follows Nandankanan-Bhubaneswar P.W.D. Road up to Pillar No. 21. From this point the South-Eastern boundary of the Sanctuary goes in a straight line at a bearing of 2440·30" and meets the boundary of Jujhagarh P. F. at Pillar No. 22. Then it again follows a straight line at a bearing of 2120·30" and again meets the boundary of Jujhagarh P. F. at Pillar No. 23. The the Southern boundary of the Sanctuary follows the boundary of Jujhagarh P. F. and till it meets the old Ganjam road at Pillar No. 57. The north west boundary of the Sanctuary follows the old Ganjam road in the outer fringe till it meets Pillar No. 1 at the forest check-gate on old Ganjam road near Barang.

[No. 20682—8F (W) 160/78]

By order of the Governor

N. C. BEHURIA

Secretary to Government

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m²/hr and Net Primary Production was 8.59 mgc/m²/hr during the survey. The lower value of NPP was due to presence of consumers like more zooplankton and invertebrates. The lower GPP is also attributed to the presence of abundant floating macrophytes which do not allow the sunlight to penetrate creating a blanket effect.

2.6.5.7. Flora and Fauna of Kanjia lake

An extensive study was done on the flora of Kanjia lake and its surroundings. There are two types of vegetation are seen in the area. One is the terrestrial type, which is remaining in the peripheral area of the lake and Nandankanan sanctuary. The second one is aquatic type, which is seen in the expanses of the wetland.

(a) The terrestrial vegetation

The terrestrial vegetation spreads over three fourth of the sanctuary area i.e. 321 ha. The original forest was dry deciduous type. Tree species like *Bridelia sp. Pterospermum xylocarpum. Grewia rhamnifolia, G. tiliafolia, Albiza lebbeck* existed in the past. The areas suffered a biotic interference in the form of felling, grazing and fire. The development of new capital at Bhubaneswar had its repercussions on these forests due to the demand for firewood and timber that ultimately resulted in degradation of the vegetation. During the survey 30 species of terrestrial plants were recorded in Nandankanan and Kanjia lake area (**Table 2**). The dominant tree species, which are presently met with, are *Pterospermum xylocarpum, Vitex pinnata, Aegle marmelos, Barringtonia acutangula. Atalantia monophylla* etc. The dominant shrub species are *Chromolaena odorata, Allophyllus serratus, Cipadessa baccifera, Dalbergia rubiginosa, Lantana camara* etc.

These species provide congenial habitat for the wild animals of the zoo. A number of climbers and twiners are seen associated with the scrubs and trees being represented by *Combretum ruxburghil, Calycopteris floribunda, Ichnocarpus frutescens, Vigna adenantha, Dioscorea belophylla, Tinospora cordifolia, Hemidesmus Indicus* etc. The ground flora constitute a major part in the floristic of the sanctuary. A number of these species make their appearance during the onset of monsoon and live up to winter while some xeric elements survive further. These forms are represented by *Crotalaria prostrate, Ageratum conyzoides, Blepharis maderaspatensis, Cleome viscose, Sida acuta, Anderographis paniculata, Hedyotis corymbosa etc.*

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Table 2. List of Terrestrial plants

1. *Aegle marmelos* (Linn.) corr.
2. *Ageratum conyzoldes* Linn.
3. *Albizia lebbeck* (Linn.) Benth.
4. *Alophyllus serratis* (Roxb.) Redlk.
5. *Andrographis paniculata* (Burm.f.) wall. ex Ness
6. *Atlantia monophylla* (Linn.) Corr.
7. *Barringtonia acutangula* (Linn.) Gaertn.
8. *Blepharis maderaspatensis* (Linn.) Heyne ex Roth
9. *Bridelia airy* Shawll P T LI
10. *Calycp[teris floribunda* (Roxb.) Poir.
11. *Cappaaris brevispina* DC.
12. *Catunaregam spinosa* (Thunb.) Trivendagum
13. *Cipadessa baccifera* (Roth) Miq.
14. *Chrpmolaena odorata* (Linn.) king and Robinson
15. *Cleoma viscose* Linn.
16. *Combretum ruxburghil* Spreng.
17. *Crotalaria prostrate* Rott. ex Willd.
18. *Dalbergia rubiginosa* Roxb.
19. *Dioscorea belophylla* Volgt.
20. *Grewia rhamnifolia* Heyne
21. *G.tiliaefolla* Vahl
22. *Hemidesmus indicus* (Linn.) Schult.
23. *Ichnocarpus frutescens* (Linn.) R. Br.
24. *Lantana camara* Linn.
25. *Hedyotis corymbosa* (Linn.) Lamk.
26. *Pterospermum xylocarpum* (Gaertn.)

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27. *Sida acuta* Burm.f.
28. *Tinospora cordifolia* (Wild.) Hook. F. & Thomson
29. *Vigna adenatha* (G.F.W. Meyer) Marechal et al.
30. *Vitex pinnata* Linn.

(b) Aquatic vegetation

Kanjia Lake can be divided in to four broad groups, i.e. submerged, free floating, emergent and rooted floating-leaved.

These macrophytes are observed in different habitats like deep water, shallow water and marshland as well along the shoreline. During the survey, 10 species of submerged macrophytes were recorded in the Kanjia Lake (Table 3). These submerged macrophytes were found in the deeper as well as shallow zone of the lake. The most dominant submerged species were *Ceratophyllum demersum* and *Hydrilla verticilata*. The other dominant species were *Najas foveolata*, and *Potamogeton pectinatus*. The shallower region represented by *Mariophyllum terandrum*, *Limnophila indica*, *Ottella alismoides*, *Vallisneria natans* and *Aponogeton natans*.

Table 3. List of submerged macrophytes

1. *Ceratophyllum demersum* Linn.
2. *Hydrilla verticillata* (Linn. F.) Royle
3. *Najas foveolata* A. Br. Ex Magam.
4. *Potamogeton pectinatus* Linn.
5. *Aponogeton natans* (Linn.) Engl. And Krause
6. *Ottella allsmoides* (Linn.) Pers.
7. *Vallisneria natans* (Lour.) Hara
8. *Myrlophyllum tetrandrum* Roxb.
9. *Limnophila heterophyssa* (Roxb.) Benth.
10. *Limnophila Indica* (Linn.) Druce

It was observed that the area covered by the free floating species is free from submerged macrophytes. Fourteen species of free floating and rooted free floating macrophytes were recorded from the lake during the survey (**Table 4**). The free-floating species were *Pistia stratiotes*, Salvinia cucullate, *Eichhornia crassipes* and *Azolla pinnata*. The most dominant free-floating species was *Salvinia cucullate* which occupied most of the deeper zone of the lake. The free-floating species are observed to colonize different parts of the lake and keep on moving as per the direction of the wind. The rooted floating species were represented by *Nelumbo sp., Euryale sp., Nymphae sp., Nymphodes sp., Trapa sp., Ipomea sp., Ipomea sp.*, and *Commelina sp.* The dominant deep water rooted floating species were *Nelumbo* sp. and *Nymphoids* sp. The shallow water and marginal rooted floating plants like *Ipomea sp.* and *Commelina* sp. were recorded from the western part of the lake. *Eichhornia sp.* colonized in the northern part of the lake , *Euryale ferox* is most dominant species in the western part of the lake. 24 species of emergent species of macrophytes were recorded during the survey from the lake (**Table 5**). Mostly recorded from the shallower zones, shorelines and marshy area of the lake. The emergent macrophytes provide excellent habitat for the water birds like Rails and Coots. The tall species encountered are *Typha angustata. Ludwigia sp.. Adenostemma sp. and Aeschynomene sp.* The other dominant emergent species were *Scirpus sp., Cyperus sp. and Polygonum sp.* Free-floating mass of grass dominated by *Hygroryza* sp. was recorded during survey. The roots of this grass have long roots attached to the bottom of the lake. A number of sedges and grasses form a very rich shoreline community in association with *Commelina sp. Ipomea sp. and Panicum sp.* Rich growth of water ferns such as *Ampelopteris prolifera* and *Ceratopteris thalictroides* were recorded from the western periphery and along the shoreline of the lake.

Table 4. List of Emergent macrophytes

1. *Cyperus platystylls* R. Br
2. *Cyperus iria* Linn.
3. Echinochloa stagnina (Retz.) Beauv.
4. *Hygroryza aristata* (Retz.) Nees ex Wt. and Arn.
5. *Panicum repens* Linn.
6. *Pistia stratiotes* Linn.
7. *Scirpus articulatus* Linn.
8. *Scirpus grossus* Linn. f.
9. *Salvinia cucullata* Roxb.
10. *Typha angustata* Bory & Chaub.

11. *Adenostemma lavenia* (Linn.) kuntze
12. *Aeschynomene aspera* Linn.
13. *Aeschynomene indica* Linn.
14. *Ampelopteris prolifera* (Retz.) Copel.
15. *Amiscophacelus axillaris* (Linn.) R. Rao & Kammathy
16. *Brachiaria ramose* (Linn.) Stapf
17. *Ceratopteris thalictroides* Brong.
18. *Leersia hexandra* Sw.
19. *Ludwigia adscendens* (Linn.) Jara
20. *L. octovalvis* (Jacq.) Raven
21. *L. perennis* Linn.
22. *Oryza rufipogon* Griff.
23. *Panicum repens* Linn.
24. *Polygonum barbatum* Linn.

Table 5. List of floating macrophytes

1. *Azolla pinnata* R. Br.
2. *Elchhornia crassipes* (Mart.) Solms.
3. *Nelumbo nucifera* Gaertn.
4. *Nymphaea nouchali* Burm. f.
5. *Nymphaea pubescens* Wild.
6. *Nymphoides hydrophylla* (Lour.) kuntze.
7. *Nympholdes Indica* (Linn.) kuntze
8. *Pistia stratiotes* Linn.
9. *Trapa natana var. bispinosa* (Roxb.) Makino
10. *Salvinia cucullata* Roxb.)
11. *Ipomoea awuatica* Forsk.
12. *Utricularia inflexa* var. stellaris (Linn. F.) P. Taylor
13. *Commeling benghalensis* Linn.
14. *Euryale ferox* Sallsb

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Fig.13. Lesser whistling duck (*Dendrocygna javanica*) in Kanjia lake, Nandankanan

Fig. 14. Pied kingfisher (*Ceryle rudis*) in Kanjia lake, Nandankanan

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The algal species encountered during survey were *Spirogyra sp., Ulothrix sp., Pithophora sp., Chaetomorpha sp. and Chera sp.*. the algae are growing in the area that are free from macrophytes. The Kanjia Lake is represented by a rich diversified species of macrophytes. But the excessive growth of the marshy plants and floating species need to be managed scientifically.

(c) Avifauna

There were about 39 species of free-living birds found in Kanjia lake and in the nearby trees (**Table 6**). These birds were found in lake area and in the terrestrial plants of Nandankanan. During the winter very good number of water fowl visits the lake. The lake serves as an important wintering ground for the visiting birds. Some dominant residential birds like white breasted water hen, Grey duck, Night heron and little Cormorant were recorded during the survey.

Table 6. List of Avifauna

1. *Phalocrocorax niger* (Little Cormorant)
2. *Ardeola grajiri* (Pond heron)
3. *Nycticorax nyctrorax* (Night heron)
4. *Egretta intermedia* (Median egret)
5. *Egretta garzetta* (Little egret)
6. *Bubulcus ibis* (Cattle egret)
7. *Anastomus oscitans* (Open bill stork)
8. *Dendrocygna javanica* (Lesser whistling teal)
9. *Tadotna ferruginea* (Brahmini duck)
10. *Anas crecca* (Common teal)
11. *Anas acuta* (Pintail)
12. *Anas poecilorhyncha* (Spotbilled or Grey duck)
13. *Metropidius indicus* (Bronzewinged jacana)
14. *Hydrophasianus chirurgus* (Pheasent tailed jacana)
15. *Porphyr* (Indian purple moorhen)
16. *Amaurornis phoenicurus* (White breasted water hen)
17. *Milvus migrans* (Pariah kite)

18. *Upupa epops* (Hoopoe)
19. *Francolimus pondicerianus* (Grey patridge)
20. *Pavo cristatus* (Peafowl)
21. *Columba livia* (Blue rock pigeon)
22. *Streptopelia chinensis* (Spotted Dove)
23. *Centropus sinensis* (Crow pheasant)
24. *Turdoides striatus* (Jungle babler)
25. *Orthotomus sutorius* (Tailor bird)
26. *Acridothres tristis* (Common mynah)
27. *Coracias bengalensis* (Indian roller)
28. *Paddy bird-Ardeola grayii* (Pond heron)
29. *Nyctricorax nyctricorax* (Night Heron)
30. *Botaurus stellaris* (Bittern)
31. *Numenius arguata* (Curlew)
32. *Psittacula krameri* (Rose ringed parakeet)
33. *Cuculus sp.* (The Cuckoo)
34. *Tyto alba* (Barn owl)
35. *Caprimulgus sp.*(Nightjar)
36. *Oriolus xanthornus* (Black headed Oriole)
37. *Oriolus oriolus* (Golden Oriole)
38. *Alcedo atthis* (Common Kingfisher)
39. *Cerylerudis sp.* (Lesser pied Kingfisher)

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(d) Reptiles of Kanjia Lake

There are 14 species of reptiles recorded from the fringe areas of Nanadankanan are in Table 7.

Table 7. List of Reptiles

1. *Varanus bengalensis* (Land Monitor lizard)
2. *Python monurus* (Indian Phython)
3. *Varanus falvescens* (Yellow monitor lizard)
4. *Vipera russelli* (Russels Viper)
5. *Bungarus fasciatus* (Banded krait)
6. *Naja naja* (Indian Cobra (Binocellate))
7. *Naja kaouthia* (Monocellate)
8. *Ptyas mucosus* (Rat Snake)
9. *Dendrelaphis tristis* (Bronze backed or tree snake)
10. *Xenochrophis piscator* (Checked keel back)
11. *Bungarus caeruleus* (Common Indian Krait)
12. *Chameleon zeylanicus* (Chameleon)
13. *Ahaetulla nasutus* (Common Green Whop Snake)
14. *Eryx johni* (Earth Boa)

(e) Fish fauna

Fish fauna of Kanjia lake is very rich. There were 41 species of fishes and 3 species of prawns recorded from the lake during the survey (Table 8). Due to the riverine influence a number of riverine fishes were recorded from the lake. During monsoon, fishes from Kuakhai river migrate to Kanjia lake for breeding and feeding purpose. Besides, State Fisheries Department introduced Indian Major Carps (IMC) in the lake for pisciculture. Some rare and important species found in the lake are *Notopterus chitala*, *Puntius sarana* and *Ompak pabda* . The economic species of prawn like *Macrobrachium rosenbergii* is found in the lake. Some indigenous species like *Chela bacaila* and *Oxygaster bacaila* are found abundantly during rainy season in the lake with very good market demand. The major carps of the lake are represented by *Labeo rohita*, *L. calbasu*, *Catala catala*, *Cirrhinus mrigala and Labeo bata*. The other carps were *cyprinus carpio*, *Ctenophyaryngodon*

idella and Labeo gonius. The air breathing fishes are represented by *Mystus vittatus*, *Clarius batrachus and Anabas testudenius*.

Table 8. List of fishes and prawns

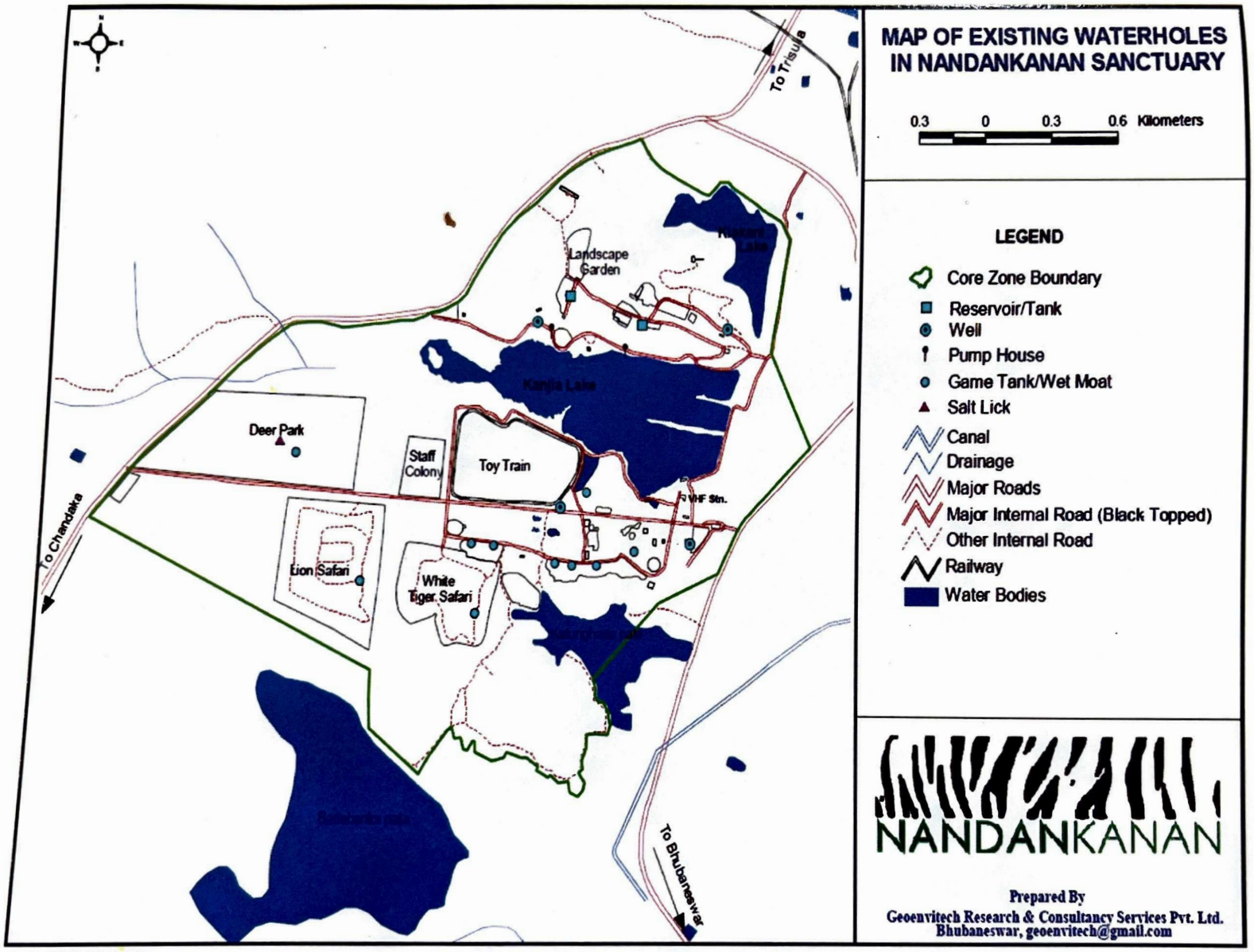
List of fishes

Sl. No.	Scientific name	Local name
1	*Labeo rohita*	Rohi
2	*Labeo calbasu*	Kalabainsi
3	*Catala catala*	Bhakura
4	*Cirrhinus mrigala*	Mirikali
5	*Labeo gonius*	Khursia
6	*Labeo bata*	Rajapohala
7	*Puntius sarana*	Serena
8	*Puntius ticto*	Kerandi
9	*Puntius sophore*	Chepta kerandi
10	*Puntius chola*	Pita kerandi
11	*Cirrhinus reba*	Chhunchia pohala
12	*Wallago attu*	Balia
13	*Channa striatus*	Seula
14	*Channa marulius*	Sala
15	*Channa punctata*	Gadisa
16	*Channa gachhua*	Chenga
17	*Notopterus chitala*	Chitala
18	*Notopterus notopterus*	Fali
19	*Clarius batrachus*	Magura
20	*Heteropneustis fossilis*	Singhi, Rata
21	*Anabas testudenius*	Kau
22	*Mystus vittatus*	Kantia
23	*Ompak pabda*	Pobata poba
24	*Glossogobius biocellatus*	Neuli
25	*Glossogobius giuris giuris*	Baligarada
26	*Mastacembalus armatus*	Bommy
27	*Mastacembalus pancalus*	Todi

28	*Cyprinus carpio*	Bilatirohi
29	*Ctenopharyngodon idella*	Grasscarp
30	*Anguilla bengalensis*	Lamba bommy
31	*Xenentodon cancella*	Duithantia gania
32	*Osteobrama coito*	Chandi
33	*Nandus nandus*	Vutasi/Olua
34	*Chela bacaila*	Khankarakhai
35	*Gadusia chapra*	Makandi
36	*Ailia coila*	Baunsa patri
37	*Amblypharyngodon mola*	Mahurali
38	*Oxygaster bacaila*	Jaradi
39	*Esomus danrica*	Dandikiri
40	*Chanda nama*	Guachippi
41	*Aplocheilus punchax*	Chariakhia
Prawns		
1	*Macrobrachium rosenbergii*	Golda
2	*Macrobrachium malcolmsonii*	Nai chingudi
3	*Macrobrachium rude*	Nai chingudi

(f) Fishing practices in Kanjia Lake

The management of Kanjia Lake was under State Fisheries Department for quite some time. The local fishermen of Raghunathpur till 1977 were carrying out the fishing operation in the lake. After that with the inclusion of the lake within the sanctuary the management of the lake is vested with the Park Authority. The local fishermen are from "Tiar" community. They have constituted Raghunath Primary Fishermen Cooperative Society (PFCS), with 82 active member including 15 women members. The population of the fishermen Raghunathpur village is 550 and there are 120 households. The PFCS get the lease for fishing in the lake at the rate of Rs.360/-per month for a period of 9 months barring the three months (November, December and January), when the wintering birds visit the lake, from Nandankanan Authority. The fishing is mainly capture fishing carried out by the local fishers by use of (a) Gill nets, (b) Dragnets and (c) Castnets. During summer season, when water level of the lake is minimum, "Kotha Bahani" a form of community fishing is practiced. The catch is equally shared amongst the members of the PFCS. The



Map 11. Map showing existing water holes of Nandankanan sanctuary

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ANNEXURE R-5

रजिस्ट्री सं० डी० एल०-33004/99 REGD. NO. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

असाधारण
EXTRAORDINARY

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

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अधिसूचना

नई दिल्ली, 10 दिसम्बर, 2019

का.आ. 4444(अ).— प्रारुप अधिसूचना भारत के राजपत्र, असाधारण, में भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन, मंत्रालय की अधिसूचना सं. का.आ. 3263(अ), तारीख 5 जुलाई, 2018, द्वारा प्रकाशित की गई थी जिसमें ऐसे सभी व्यक्तियों से, जिनकी उससे प्रभावित होने की संभावना थी, उस तारीख से, जिसको उक्त अधिसूचना को अन्तर्विष्ट करने वाले राजपत्र की प्रतियां जनता को उपलब्ध करा दी गई थीं, साठ दिन की अवधि के भीतर आक्षेप और सुझाव आमंत्रित किए गए थे;

और, उक्त प्रारूप अधिसूचना को अन्तर्विष्ट करने वाले राजपत्र की प्रतियां जनता को तारीख 5 जुलाई, 2018, को उपलब्ध करा दी गई थी;

और, उक्त प्रारुप अधिसूचना के उत्तर में व्यक्तियों और पणधारियों से प्राप्त आक्षेपों और सुझावों पर केन्द्रीय सरकार द्वारा विचार किया गया था;

और, नंदनकानन वन्यजीव अभयारण्य उड़ीसा के 19 वन्यजीवों अभयारण्यों में से एक है, नंदनकानन प्राणी उद्यान को कंजिया झील और राज्य वनस्पति उद्यान के साथ वन्यजीव (संरक्षण) अधिनियम, 1972 के अन्तर्गत उड़ीसा सरकार द्वारा **3** अगस्त, 1979 को नंदनकानन वन्यजीव अभयारण्य के रूप में अधिसूचित किया गया जिसका क्षेत्र**फल** 4.37 वर्ग किलोमीटर **और** इसमें झूझागढ़ और कृष्णानगर संरक्षित वन और प्राकृतिक ताजा जल झील कंजिया, राष्ट्रीय महत्त्वपूर्ण आर्द्रभूमि शामिल है, **और** नंदनकानन चंदाका-दम्पारा वन्यजीव अभयारण्य के निकट स्थित है;

और, नंदनकानन वन्यजीव अभयारण्य विभिन्न जंगली वनस्पतियों और जंगली पशुओं के लिए उत्कृष्ट वास प्रदान करता है। यह अभयारण्य का उड़ीसा राज्य की जंगली वनस्पतियों और जीवजंतुओं के वाह्य स्वस्थाने संरक्षण के एकीकरण के लिए विशेष स्थान है और समृद्ध वनस्पति विविधता भी है। यह नंदनकानन के संरक्षित क्षेत्र में लगभग 704 जंगली वनस्पतियों की प्रजातियों में से 142 परिवारों को

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प्रलेखित किया गया है और अभयारण्य से महत्त्वपूर्ण वनस्पति ओय (*दील्लेनिया रंम्दीका),* चाम्पका *(मिचेइलिया चाम्पका),* उहांटी (*अल्फोंसेअ मादरास्पेइनिया*), बरहिअल *(अन्नोना रेट्टेउइटा*), नेउआ (*अन्नुम: स्कूअरनोसा*), चिनि चम्पा *(अरटबोरटराय होकपेइलुस*), पोटमोस्सु चम्पटी (*पोल्यात्थिया केरासोइदेस*), देबदरू (*पोल्यालिहिया लोंगिफबल्लिया*), गुअकोलि (*पोइयाइथिया सुहेरोसा*), मुसाकानी, अकांबिंदी (*किस्साम्पेलोस पेरइरा),* दांदाहीया, दादाया (*कोक्कुलुस हीरसुलुस*), कालाजाटी नाइ (*टीलिइटकोरा अकुमिनाटा),* पदमा (*नेल्ल-महो नुकिफेरा),* अगरा (*अर्जेमोने मेक्सिकाना),* निफुरा (*कप्परिस ब्रेविसपीना),* असाधुआ (*कप्परिस जेलनिका*), बनासोरिसा (*मेंने क्विस्कोस*), बरुना (*क्रातिवा मगना*), मदन मस्तक (*ह्यूबंथुस एनेस्परमुस*), सुंदरी (*हिक्सा ओरेलना*), खाकाडा (*केसरिया ऐलीपलिका*), मिरागु (*फोलीगला आरवेंसिस*), सुरेटा (*पोलीकार्पोन प्रोस्ट्राटरन*), बाडबलबलुआ (*पोर्तुलाका ओलेराकिया*), बलबलुका (*पोर्तुलाका क्राडरिफिडा),* पौनान्ग (*कैलोफी थुन इनोफीडरहू*), चुरिआना (*मेम्मिया सुरीगा*), नगेसुर (*मेसुआ फ्रेआ*), बाना भेंडी (*अबेरनोस्कोस मनिहोत*), बानी, बनिया (*हिबिस्कुस तिलिएसुस*), बजरंतिलि (*सीड़ा अकुटा*) आदि अभिलिखित की गई है। यह वन्यजीव संरक्षण के लिए आगंतुकों के बीच जागरूकता उत्पन्न करने के लिए एक उत्कृष्ट स्थान रहा है और वन्यजीव अनुसंधान और प्रबंधन के लिए महत्त्वपूर्ण स्थल है;

और, नंदनकानन प्राणी उद्यान, में स्तनधारियों पक्षियों और सरीसृपों की 153 प्रजातियां, और मछलियों की 38 प्रजातियों का वास बढ़ रहा हैं। इसके अलावा, नंदनकानन वन्यजीव अभयारण्य मुक्त जंगली पशुओं, की कई प्रजातियों का वास स्थल है। अब तक, नंदनकानन वन्यजीव अभयारण्य के अंतर्गत स्तनधारियों की 13 प्रजातियां, पक्षियों की 71 प्रजातियां, सरीसृपों की **15** प्रजातियां, उभयचरों की 10 प्रजातियां, तितलियों की 85 प्रजातियां, ओडोनेटस की 54 प्रजातियां और मकड़ियों की 51 प्रजातियां प्रलेखित की गई है; अभयारण्य में मुख्य जीवजंतु सामान्य नेवला *(हेरपेस्टेस इडवारदसि),* सामान्य लंगूर (परेस्बयटीस *इन्टेल्लुस),* रीसस मैकाक्यू (*मैकाका मुलैटा),* तीन धारीदार पाम गिलहरी *(फुनाम्लुस पलरननारियम),* चूहा *(रैटस रैटस),* हार्स शूइ बैट *(रहिनोलोफोस लेपिडुस),* भारतीय लोमड़ी (*वुल्पेस बैंगालेंसिस),* साल (*मानिस क्रैसिकाउडाटा*), ग्रे तीतर (*फरांकोलिनुस पोंदीकेरीअनुस),* लार्जर गोल्डन बैकेद वुडपेकर(*क्रिसोकोलेप्ट्स लुसिडस),* भारतीय नीलकंठ पक्षी (*कोरासिस बेंघालेंसिस), रूस्सेल्स सांप (दबोइआ रुस्सेल्ली), कोबरा* मोनोसेल्लाटा *(नाजा नाजा कौउथिया),* सामान्य भारतीय ब्राज़ बैक और ट्री स्नेक (डेन्ड्रेलाफिस टरिस्टिस*),* गिरगिट(चमेलेओन ज़ेलानिक्स*)* आदि पाए जाते है; नंदनकानन वन्यजीव अभयारण्य से कुछ दुर्लभ जीवजंतु जंगली सूअर (सस स्कोरोटा*),* रेटल (*मेल्लीवोरा कपेंसिस),* भारतीय साही *(हिस्ट्रीक्स इंडिका),* माउस हिरण या भारतीय शेवरोटैन (*ट्रागुलुस मेमिन्ना),* सामान्य एशियन मुसंग (*पराडाक्उरूस हेरमाफरोदीटेस),* सियार (*कैनिस ऑरियस*), बनबिलार (*फेल्लस चाओस),* छोटा भारतीय गंध बिलाव (*विवेररिकुला इंडिका),* धारीदार लकड़बग्घा *(ह्योना ह्योना),* इंडियन फ्लयिग लोमड़ी (*पटेरोपुस गिगंटूस),* लाल जंगली मटरमुर्गा (*गल्लुस गल्लुस मुर्गी),* छोटी जंगली मुर्गी (*गलोपेरडिक्स स्पॉडिसा),* सामान्य टील (*अनास क्रेक्का),* गडवाल (*अनास स्ट्रेपेरा),* उत्तरी सीखपर (*अनास अकुटा),* बाररेड बुत्तेंक्येइल (*टुरनिक्स सुसकिटाटोर),* पीला मोर्चा चितकबरी और महरत्ता कठफोडवा (*डेंड्रोकोपोस महराट्टेंसिस),* स्माल ग्रीन बारबेट (*मेगलाइमा विरिदिस),* कॉपर-स्मिथ बारबेट (मेगाइमा हेमाकेफला*),* ब्राउन-हेडेड बारबेट (*मेगलैमा जेलनिका),* सामान्य हुदहुद (*उपउपा एपोप्स),* ब्लू पतेना *(मेरोप्स फिलिप्पिनुस),* येलो मॉनिटर लिज़ार्ड (*वारानुस फल्वेस्केंस),* बांडेड करैत (*बुंगेरुस फससटस),* चैकेरेड कील बैक (*क्सेनोक्रोफिस पीसकटोर),* सामान्य ग्रीन व्हिप स्नेक (*अहैतुल्ला नसुता)* आदि अभिलिखित किए गए है। यह भारतीय मूल के पक्षियों की संख्या साल भर यहां रहती है और संरक्षित क्षेत्र के अंतर्गत ओपन बिल्ल स्ट्रोक, पर्पल मौरहेन, जकना, रेड जंगली पक्षी, भारतीय मोर, कोइल, बगुला, इगरेटस आदि का प्रजनन अभिलिखित किया गया है;

और, नंदनकानन वन्यजीव अभयारण्य के चारों ओर के क्षेत्र को, जिसका विस्तार और सीमाएं पारिस्थितिकी पर्यावरणीय से पारिस्थितिकी संवेदी जोन के रूप में पैरा 1 में विनिर्दिष्ट हैं, जैव विविधिता की दृष्टि सुरक्षित और संरक्षित करना और उक्त पारिस्थितिकी संवेदी जोन में उद्योगों या उद्योगों के वर्गों के प्रचालन और प्रसंस्करण करने को प्रतिषिद्ध करना आवश्यक है;

अतः, अब, केन्द्रीय सरकार, पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (3) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उपधारा और (1) उपधारा (2) के खंड (v) और खंड (xiv) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, उड़ीसा राज्य के कट्टक और खोरधा जिला में नंदनकानन वन्यजीव अभयारण्य की सीमा के चारों ओर 0 (शून्य) से 340 मीटर तक विस्तारित क्षेत्र को नंदनकानन वन्यजीव अभयारण्य पारिस्थितिकी संवेदी जोन (जिसे इसके पश्चात् इस अधिसूचना में पारिस्थितिकी संवेदी जोन कहा गया है), के रूप में अधिसूचित करती है, जिसके विवरण निम्नानुसार है, अर्थात् :-

1. पारिस्थितिकी संवेदी जोन का विस्तार और उसकी सीमाएं.-(1) पारिस्थितिकी संवेदी जोन का विस्तार नंदनकानन वन्यजीव अभयारण्य की सीमा के चारों ओर 0 **(**शून्य**)** से 340 मीटर तक विस्तृत है और पारिस्थितिकी संवेदी जोन का क्षेत्रफल 1.31 वर्ग किलोमीटर है। जिसमें कट्टक जिला में 0.18 वर्ग किलोमीटर और खोरधा जिला में 1.13 वर्ग किलोमीटर क्षेत्र आता है**।** अभयारण्य की उत्तरी सीमा में पारिस्थितिकी संवेदी जोन का विस्तार शून्य मीटर **प्रस्तावित** है **(**अर्थात् सीमा स्तंभ सं**.**131 से 137 **)**के निकटवर्ती पी**.**डब्ल्यू**.** डी सड़क के साथ चंदाका**-**दम्पारा अभयारण्य के साथ सह**-विस्तारी** है।

(2) नंदनकानन वन्यजीव अभयारण्य और इसके पारिस्थितिकी संवेदी जोन की सीमा का विवरण **उपाबंध-I** के रूप में संलग्न है।

(3) सीमा विवरण और अक्षांश और देशांतर के साथ पारिस्थितिकी संवेदी जोन के सीमांकन नंदनकानन वन्यजीव अभयारण्य के मानचित्र **उपाबंध–IIक, उपाबंध–IIख** और **उपाबंध–IIग** के रूप में संलग्न है।

(4) पारिस्थितिकी संवेदी जोन और नंदनकानन वन्यजीव अभयारण्य की सीमा के भू निर्देशांकों की सूची **उपाबंध** III की सारणी **क** और सारणी **ख** में दी गई है।

(5) मुख्य बिंदुओं के भू-निर्देशांकों के साथ पारिस्थितिकी संवेदी जोन के अंतर्गत आने वाले ग्रामों की सूची **उपाबंध** I**V** के रूप में संलग्न है।

2. पारिस्थितिकी संवेदी जोन के लिए आंचलिक महायोजना– (1) राज्य सरकार, पारिस्थितिकी संवेदी जोन के प्रयोजनों के लिए राजपत्र में इस अधिसूचना के प्रकाशन की तारीख से दो वर्ष की अवधि के भीतर, स्थानीय व्यक्तियों के परामर्श से और राज्य के सक्षम प्राधिकारी के अनुमोदन के लिए इस अधिसूचना में दिए गए अनुबंधों का पालन करते हुए आंचलिक महायोजना तैयार करेगी।

(2) राज्य सरकार द्वारा पारिस्थितिकी संवेदी जोन के लिए आचंलिक महायोजना ऐसी रीति से जो इस अधिसूचना में विनिर्दिष्ट किए गए हैं के अनुसार तथा सुसंगत केंद्रीय और राज्य विधियों के अनुरुप और केंद्रीय सरकार द्वारा जारी मार्गनिर्देशों, यदि कोई हों, द्वारा तैयार होगी ।

(3) आंचलिक महायोजना, उक्त योजना में पारिस्थितिकी और पर्यावरणीय बातों को समाकलित करने के लिए राज्य सरकार के निम्नलिखित विभागों के परामर्श से तैयार होगी:-

(i) पर्यावरण;

(ii) वन और वन्यजीव;

(iii) कृषि;

(iv) राजस्व;

(v) हाउसिंग और शहरी विकास;

(vi) पर्यटन;

(vii) ग्रामीण विकास;

(viii) सिंचाई और बाढ़ नियंत्रण;

(ix) नगरपालिका;

(x) उड़ीसा राज्य प्रदूषण नियंत्रण बोर्ड;

(xi) पंचायती राज; और

(xii) लोक निर्माण विभाग (भवन और सड़के)।

(4) आंचलिक महायोजना अनुमोदित विद्यमान भू-उपयोग, अवसंरचना और क्रियाकलापों पर कोई निर्बंधन अधिरोपित नहीं करेगी जब तक कि इस अधिसूचना में इस प्रकार विनिर्दिष्ट न हो और आचंलिक महायोजना सभी अवसंरचना और क्रियाकलापों में जो अधिक दक्षता और पारिस्थितिकी अनुकूल हों का संवर्धन करेगी ।

(5) आंचलिक महायोजना में अनाच्छादित क्षेत्रों के जीर्णोद्धार, विद्यमान जल निकायों के संरक्षण, आवाह क्षेत्रों के प्रबंधन, जल-संभरों के प्रबंधन, जल संभर प्रबंधन, मृदा और नमी संरक्षण, स्थानीय समुदायों की आवश्यकताओं तथा पारिस्थितिकी और पर्यावरण से संबंधित ऐसे अन्य पहलुओं, जिन पर ध्यान देना आवश्यक है, के लिए उपबंध होंगे ।

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(6) आंचलिक महायोजना विद्यमान और प्रस्तावित भूमि उपयोग विशेषताओं के ब्यौरों से अनुसमर्थित मानचित्र के साथ सभी विद्यमान पूजा स्थलों, ग्रामों और नगरीय बस्तियों, वनों के प्रकार और किस्मों, कृषि क्षेत्रों, ऊपजाऊ भूमि, हरित क्षेत्र जैसे उद्यान और उसी प्रकार के स्थान, उद्यान कृषि क्षेत्र, फलोउद्यान, झीलों और अन्य जल निकायों का अभ्यकंन करेगी।

(7) आंचलिक महायोजना पारिस्थितिकी संवेदी जोन में विकास को विनियमित करेगी और सारणी में सूचीबद्ध पैरा-4 में प्रतिषिद्ध और विनियमित क्रियाकलापों का अनुपालन करेगी और स्थानीय समुदायों की जीविका को सुरक्षित करने के लिए पारिस्थितिकी अनुकूल विकास को सुनिश्चित और उसकी अभिवृद्धि भी करेगी।

(8) आंचलिक महायोजना प्रादेशिक विकास योजना की सह-विस्तारी होगी ।

(9) इस प्रकार अनुमोदित आंचलिक महायोजना इस अधिसूचना के उपबंधों के अनुसार मानीटरी के अपने कार्यों को करने के लिए मानीटरी समिति के लिए एक संदर्भ दस्तावेज तैयार करेगी ।

3. **राज्य सरकार द्वारा किए जाने वाले उपाय.-** राज्य सरकार इस अधिसूचना के उपबंधों को प्रभावी करने के लिए निम्नलिखित उपाय करेगी, अर्थात्:-

(1) **भू-उपयोग.–** (क) पारिस्थितिकी संवेदी जोन में वनों, उद्यान कृषि क्षेत्रों, कृषि क्षेत्रों, मनोरंजन के प्रयोजनों के लिए चिन्हित किए गए पार्कों और खुले स्थानों का वाणिज्यिक या आवासीय या औद्योगिक संबद्ध विकास क्रियाकलापों के लिए उपयोग या संपरिवर्तन नहीं होगा:-

परंतु पारिस्थितिकी संवेदी जोन के भीतर भाग (क) में विनिर्दिष्ट प्रयोजनों से भिन्न प्रयोजन के लिए कृषि और अन्य भूमि का संपरिवर्तन मानीटरी समिति की सिफारिश पर और यथा लागू और क्षेत्रीय नगर योजना अधिनियम और केन्द्रीय सरकार या राज्य सरकार के अन्य नियमों तथा विनियमों के अधीन सक्षम प्राधिकारी के पूर्व अनुमोदन से, और इस अधिसूचना के उपबंधों द्वारा स्थानीय निवासियों की निम्नलिखित आवासीय आवश्यकताओं को पूरा करने के लिए अनुज्ञात किया जाएगा, जैसे-

(i) विद्यमान सड़कों को चौड़ा करना और उन्हें सुदृढ़ करना तथा नई सड़कों का संनिर्माण;

(ii) बुनियादी ढांचों और नागरिक सुविधाओं का संनिर्माण और नवीकरण;

(iii) प्रदूषण उत्पन्न न करने वाले लघु उद्योग;

(iv) कुटीर उद्योगों जिनके अंतर्गत ग्रामीण उद्योग भी हैं; सुविधाजनक भण्डार और स्थानीय सुविधाएं सहायक पारिस्थितिकी पर्यटन जिसके अन्तर्गत ग्रह वास सम्मिलित है; और

(v) पैरा 4 के अधीन दिए गए संवर्धित क्रियाकलाप:

परंतु यह और कि प्रादेशिक नगर योजना अधिनियम और राज्य सरकार के अन्य नियमों और विनियमों के अधीन सक्षम प्राधिकारी के पूर्व अनुमोदन और संविधान के अनुच्छेद 244 के उपबंधों या तत्समय प्रवृत्त विधि के उपबंधों के अनुपालन के बिना, जिसके अन्तर्गत अनुसूचित जनजाति और अन्य परंपरागत वन निवासी (वन अधिकारों की मान्यता) अधिनियम, 2006 (2007 का 2) भी है, वाणिज्यिक या औद्योगिक विकास क्रियाकलापों के लिए जनजातीय भूमि का उपयोग अनुज्ञात नहीं होगा:

परंतु यह और भी कि पारिस्थितिकी संवेदी जोन के भीतर भू-अभिलेखों में उपसंजात कोई गलती, मानीटरी समिति के विचार प्राप्त करने के पश्चात् राज्य सरकार द्वारा प्रत्येक मामले में एक बार ठीक होगी और उक्त गलती के सुधार की सूचना केंद्रीय सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को दी जाएगी:

परंतु यह और भी कि गलती के संशोधन में इस उप पैरा के अधीन यथा उपबंधित के सिवाय किसी भी दशा में भू-उपयोग का परिवर्तन सम्मिलित नहीं होगा।

(ख) वनीकरण तथा वास जीर्णोद्धार क्रियाकलापों सहित अनप्रयुक्त या अनुत्पादक कृषि क्षेत्रों में पुन: वनीकरण करने के प्रयास किए जाएंगे।

(2) **प्राकृतिक जल स्रोतों.-** आचंलिक महायोजना में सभी प्राकृतिक जल स्रोतों नदियों और जलमार्गों के आवाह क्षेत्रों की पहचान की जाएगी और उनके संरक्षण और नवीकरण के लिए योजना सम्मिलित होगी और राज्य सरकार द्वारा ऐसे क्षेत्रों पर या उनके निकट विकास क्रियाकलाप प्रतिषिद्ध करने के बारे में जो ऐसे क्षेत्रों के लिए अहितकर हो ऐसी रीति से मार्गदर्शक सिद्धांत तैयार किए जाएंगे ।

(3) **पर्यटन या पारिस्थितिकी पर्यटन.-** (क) पारिस्थितिकी संवेदी जोन के भीतर सभी नए पारिस्थितिकी पर्यटन क्रियाकलाप या विद्यमान पर्यटन क्रियाकलापों का विस्तार पर्यटन महायोजना के अनुसार पारिस्थितिकी संवेदी जोन के लिए होगा।

(ख) पर्यटन महायोजना राज्य पर्यटन विभाग द्वारा राज्य पर्यावरण और वन विभाग के परामर्श से तैयार होगी।

(ग) पर्यटन महायोजना आंचलिक महायोजना के एक घटक के रूप में होगी।

(घ) पर्यटन महायोजना पारिस्थितिकी संवेदी जोन की वहन क्षमता के आधार पर तैयार की जाएगी।

(ङ) पारिस्थितिकी पर्यटन संबंधी क्रियाकलाप निम्नानुसार विनियमित होंगे:-

(i) संरक्षित क्षेत्र की सीमा से एक किलोमीटर के भीतर या पारिस्थितिकी संवेदी जोन के विस्तार तक, इनमें जो भी निकट है, नये वाणिज्यिक होटल और सैरगाह के सन्निर्माण अनुज्ञात नहीं होंगे:

परंतु, संरक्षित क्षेत्र की सीमा से एक किलोमीटर की दूरी से परे पारिस्थितिकी संवेदी जोन के विस्तार तक होटलों और रिजॉर्ट का स्थापन केवल पूर्व परिभाषित और नामनिर्दिष्ट क्षेत्रों में पर्यटन महायोजना के अनुसार पारिस्थितिकी पर्यटन सुविधाओं के लिए ही अनुज्ञात होगा;

(ii) पारिस्थितिकी संवेदी जोन के भीतर नए पर्यटन क्रियाकलापों या विद्यमान पर्यटन क्रियाकलापों का विस्तार केंद्रीय सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय के मार्गदर्शक सिद्धांतों के द्वारा तथा राष्ट्रीय व्याघ्र संरक्षण प्राधिकरण, द्वारा जारी पारिस्थितिकी–पर्यटन, पारिस्थितिकी-शिक्षा और पारिस्थितिकी-विकास पर बल देते हुए (समय-समय पर यथा संशोधित) जारी मार्गदर्शक सिद्धांतों के अनुसार होगा;

(iii) आंचलिक महायोजना का अनुमोदन किए जाने तक, पर्यटन के लिए विकास और विद्यमान पर्यटन क्रियाकलापों के विस्तार को वास्तविक स्थल विनिर्दिष्ट संवीक्षा और मानीटरी समिति की सिफारिश पर आधारित संबंधित विनियामक प्राधिकरणों द्वारा अनुज्ञात किया जाएगा और पारिस्थितिकी संवेदी जोन के भीतर किसी नये होटल या रिसोर्ट या वाणिज्यिक स्थापना का संनिर्माण अनुज्ञात नहीं किया जायेगा ।

(4) **नैसर्गिक विरासत.-** पारिस्थितिकी संवेदी जोन में महत्वपूर्ण नैसर्गिक विरासत के सभी स्थलों जैसे जीन कोश आरक्षित क्षेत्र, शैल विरचनाएं, जल प्रपातों, झरनों, घाटी मार्गों, उपवनों, गुफाएं, स्थलों, भ्रमण, अश्वरोहण, प्रपातों आदि की पहचान की जाएगी और विरासत संरक्षण योजना आंचलिक महायोजना के भाग के रुप में परिरक्षण और संरक्षण के लिए तैयार की जाएगी ।

(5) **मानव निर्मित विरासत स्थल.-** पारिस्थितिकी संवेदी जोन में भवनों, संरचनाओं, शिल्प-तथ्य, ऐतिहासिक, स्थापत्य, सौंदर्यपूरक और सांस्कृतिक महत्व के क्षेत्रों की और उपक्षेत्रों की पहचान और उनके संरक्षण के लिए विरासत योजना आंचलिक महायोजना के भाग के रुप में तैयार की जाएगी।

(6) **ध्वनि प्रदूषण.-** पर्यावरण अधिनियम के अधीन ध्वनि प्रदूषण (विनियमन और नियंत्रण) नियम, 2000 में नियत उपबंधों के अनुसार पारिस्थितिकी संवेदी जोन में ध्वनि प्रदूषण के नियंत्रण और निवारण का अनुपालन किया जाएगा।

(7) **वायु प्रदूषण.-** पारिस्थितिकी संवेदी जोन में, वायु प्रदूषण के निवारण और नियंत्रण का वायु (प्रदूषण निवारण और नियंत्रण) अधिनियम, 1981 (1981 का 14) और उसके अधीन बनाए गए नियमों के उपबंधों के अनुसार अनुपालन किया जाएगा।

(8) **बहिस्राव का निस्सारण.-** पारिस्थितिकी संवेदी जोन में उपचारित बहिस्राव का निस्सारण, साधारण मानकों के उपबंधों के अनुसार पर्यावरणीय अधिनियम और उसके अधीन बनाए गए नियमों के अधीन आने वाले पर्यावरणीय प्रदूषण के निस्सारण के लिए साधारण मानकों या राज्य सरकार द्वारा नियत मानकों, जो भी अधिक कठोर हो, के उपबंधों के अनुसार होगा।

(9) **ठोस अपशिष्ट.-** ठोस अपशिष्ट का निपटान और प्रबंधन निम्नानुसार किया जाएगा:-

(क) पारिस्थितिकी संवेदी जोन में ठोस अपशिष्ट का निपटान और प्रबंधन भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अधिसूचना सं. का.आ. 1357(अ), तारीख 8 अप्रैल, 2016 द्वारा प्रकाशित ठोस अपशिष्ट प्रबंधन नियम, 2016, के उपबंधों के अनुसार किया जाएगा। अकार्बनिक पदार्थो का निपटान पारिस्थितिकी संवेदी जोन से बाहर चिन्हित किए गए स्थानों पर पर्यावरण-अनुकूल रीति से किया जाएगा;

(ख) पारिस्थितिकी संवेदी जोन में मान्य प्रौद्योगिकियों (ईएसएम) का उपयोग करते हुए विद्यमान नियमों और विनियमों के अनुरूप ठोस अपशिष्ट का सुरक्षित और पर्यावरण-अनुकूल प्रबंधन अनुज्ञात किया जा सकेगा।

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(10) **जैव चिकित्सा अपशिष्ट.-** जैव चिकित्सा अपशिष्ट का प्रबंधन निम्नानुसार किया जाएगा:-

(क) पारिस्थितिकी संवेदी जोन में जैव चिकित्सा अपशिष्ट का निपटान भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अधिसूचना सं.सा.का.नि 343 (अ), तारीख 28 मार्च, 2016, द्वारा प्रकाशित जैव चिकित्सा अपशिष्ट प्रबंधन नियम, 2016 के उपबंधों के अनुसार किया जाएगा।

(ख) पारिस्थितिकी संवदी जोन में मान्य प्रौद्योगिकियों का उपयोग करते हुए विद्यमान नियमों और विनियमों के अनुरूप जैव-चिकित्सा अपशिष्ट का सुरक्षित और पर्यावरण-अनुकूल प्रबंधन अनुज्ञात किया जा सकेगा।

(11) **प्लास्टिक अपशिष्ट प्रबंधन.-** पारिस्थितिकी संवेदी जोन में प्लास्टिक अपशिष्ट प्रबंधन का निपटान भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की समय-समय पर यथासंशोधित अधिसूचना सं.सा.का.नि 340(अ), तारीख 18 मार्च, 2016, द्वारा प्रकाशित प्लास्टिक अपशिष्ट प्रबंधन नियम, 2016 के उपबंधों के अनुसार किया जाएगा।

(12) **निर्माण और विध्वंस अपशिष्ट प्रबंधन.-** पारिस्थितिकी संवेदी जोन में संनिर्माण और विध्वंस अपशिष्ट प्रबंधन का निपटान भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की समय-समय पर यथासंशोधित अधिसूचना सं.सां.का.नि 317(अ), तारीख 29 मार्च, 2016, द्वारा प्रकाशित संनिर्माण और विध्वंस प्रबंधन नियम, 2016, के उपबंधों के अनुसार किया जाएगा ।

(13) **ई–अपशिष्ट.-** पारिस्थितिकी संवेदी जोन में ई–अपशिष्ट प्रबंधन का निपटान भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय द्वारा, समय-समय पर यथासंशोधित, प्रकाशित ई–अपशिष्ट प्रबंधन नियम, 2016, के उपबंधों के अनुसार किया जाएगा।

(14) **यानीय यातायात.-** यातायात की यानीय गतिविधियां आवास के अनुकूल विनियमित होंगी और इस संबंध में आंचलिक महायोजना में विशेष उपबंध सम्मिलित किए जाएंगे और आंचलिक महायोजना के तैयार होने और राज्य सरकार के सक्षम प्राधिकारी द्वारा अनुमोदित होने तक, मानीटरी समिति सुसंगत अधिनियमों और उसके अधीन बनाए गए नियमों और विनियमों के अनुसार यानीय क्रियाकलापों के अनुपालन को मानीटर करेगी ।

(15) **यानीय प्रदूषण.-** लागू विधियों के अनुपालन में यानीय प्रदूषण का निवारण और नियंत्रण किया जाएगा और स्वच्छक ईंधन के उपयोग के लिए प्रयास किए जाएंगे।

(16) **औद्योगिक ईकाइयां.-** (i) राजपत्र में इस अधिसूचना के प्रकाशन पर या उसके पश्चात पारिस्थितिकी संवेदी जोन के भीतर किसी नए प्रदूषण करने वाले उद्योगों की स्थापना अनुज्ञात नहीं की जाएंगी;

(ii) केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा फरवरी, 2016 में जारी मार्गदर्शक सिद्धान्तों में उद्योगों के वर्गीकरण के अनुसार, जब तक कि अधिसूचना में इस प्रकार विनिर्दिष्ट न हो; पारिस्थितिकी संवेदी जोन के भीतर केवल गैर- प्रदूषणकारी उद्योगों को अनुज्ञात किया जाएगा और इसके अतिरिक्त, गैर प्रदूषणकारी उद्योगों को बढ़ावा दिया जाएगा।

(17) **पहाड़ी ढलानों को संरक्षण.-** पहाड़ी ढलानों का संरक्षण निम्नानुसार होगा:-

(क) आंचलिक महायोजना पहाड़ी ढलानों पर क्षेत्रों का संकेत होगा जहां किसी भी संनिर्माण की अनुमति नहीं दी जाएगी;

(ख) कटाव के एक उच्च डिग्री के साथ विद्यमान खड़ी पहाड़ी ढलानों या ढलानों पर किसी भी संनिर्माण की अनुमति नहीं दी जाएगी ।

4. पारिस्थितिकी संवेदी जोन में प्रतिषिद्ध और विनियमित किए जाने वाले क्रियाकलापों की सूची.- पारिस्थितिकी संवेदी जोन में सभी क्रियाकलाप पर्यावरण अधिनियम के उपबंधों और उसके अधीन बनाए गए नियमों जिसके अन्तर्गत तटीय विनियमन जोन अधिसूचना 2011 और पर्यावरणीय समाघात निर्धारण अधिसूचना, 2006 और अन्य लागू विधियों के जिसमें वन (संरक्षण) अधिनियम, 1980 (1980 का 69), भारतीय वन अधिनियम, 1927 (1927 का 16), वन्यजीव (संरक्षण) अधिनियम, 1972 (1972 का 53) सम्मिलित हैं और किये गये संशोधनों द्वारा शासित होंगे और नीचे दी गई सारणी में विनिर्दिष्ट रीति में विनियमित होंगे, अर्थात् :-

सारणी

क्रम सं. (1)	क्रियाकलाप (2)	वर्णन (3)
	क. प्रतिषिद्ध क्रियाकलाप	
1.	वाणिज्यिक खनन, पत्थर उत्खनन और अपघर्षण इकाईयां।	(क) सभी प्रकार के नए और विद्यमान खनन (लघु और वृहत खनिज), पत्थर की खानें और उनकों तोड़ने की इकाइयां वास्तविक स्थानीय निवासियों की घरेलू आवश्यकताओं जिसमें निजी उपयोग के लिए मकानों के संनिर्माण या मरम्मत के लिए धरती को खोदना और मकान बनाने के लिए देशी टाइल्स या ईंटों का निर्माण करना भी सम्मिलित है, के सिवाय तत्काल प्रभाव से प्रतिषिद्ध होगी; (ख) खनन प्रचालन, माननीय उच्चतम न्यायालय की रिट याचिका (सिविल) सं. 1995 का 202 टी.एन. गौडाबर्मन थिरुमूलपाद बनाम भारत संघ के मामले में आदेश तारीख 4 अगस्त, 2006 और रिट याचिका (सी) सं. 2012 का 435 गोवा फाउंडेशन बनाम भारत संघ के मामले में तारीख 21 अप्रैल, 2014 के आदेश के अनुसरण में प्रचालित होंगी।
2.	प्रदूषण (जल, वायु, मृदा, ध्वनि आदि) उत्पन करने वाले उद्योगों की स्थापना।	पारिस्थितिकी संवेदी जोन में कोई नया उद्योग लगाने और वर्तमान प्रदूषणकारी उद्योगों का विस्तार करने की अनुज्ञा नहीं होगी: परन्तु यह कि केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा फरवरी, 2016 में जारी मार्ग दर्शक सिद्धान्तों में उद्योगों के वर्गीकरण के अनुसार जब तक कि अधिसूचना में ऐसा विनिर्दिष्ट न हों, पारिस्थितिकी संवेदी जोन के भीतर गैर-प्रदूषणकारी उद्योगों को अनुज्ञात किया जाएगा और इसके अतिरिक्त गैर-प्रदूषणकारी कुटीर उद्यागों को बढ़ावा दिया जाएगा।
3.	बृहत जल विद्युत परियोजना की स्थापना।	लागू विधियों के अनुसार प्रतिषिद्ध (अन्यथा उपबंधित के सिवाय) होंगे।
4.	किसी परिसंकटमय पदार्थों का उपयोग या उत्पादन या प्रसंस्करण।	लागू विधियों के अनुसार प्रतिषिद्ध (अन्यथा उपबंधित के सिवाय) होंगे।
5.	प्राकृतिक जल निकायों या क्षेत्र भूमि में अनुपचारित बहिर्स्राव का निस्सारण।	लागू विधियों के अनुसार प्रतिषिद्ध (अन्यथा उपबंधित के सिवाय) होंगे।
6.	नई आरा मिलों की स्थापना।	पारिस्थितिकी संवेदी जोन के भीतर नई और विद्यमान आरा मिलों का विस्तार अनुज्ञात नहीं होगा।
7.	ईंट भट्ठों की स्थापना करना।	लागू विधियों के अनुसार प्रतिषिद्ध (अन्यथा उपबंधित के सिवाय) होंगे।
	ख. विनियमित क्रियाकलाप	
8.	वाणिज्यिक होटलों और रिसोर्टों की स्थापना।	पारिस्थितिकी पर्यटन क्रियाकलापों के लिए लघु अस्थायी संरचनाओं के सिवाय संरक्षित क्षेत्र की सीमा से एक किलोमीटर के भीतर या पारिस्थितिकी संवेदी जोन के विस्तार तक, इनमें जो भी निकट है, नए वाणिज्यिक होटल और रिसोर्टों को अनुज्ञात नहीं किया जाएगा: परंतु यह कि संरक्षित क्षेत्र की सीमा से एक किलोमीटर के परे या पारिस्थितिकी संवेदी जोन के विस्तार तक इनमें से जो भी निकट हो

		सभी नए पर्यटन क्रियाकलाप या विद्यमान क्रियाकलाप का विस्तार पर्यटन महायोजना और यथा लागू मार्गदर्शी सिद्धांतों के अनुरुप होगा।
9.	संनिर्माण क्रियाकलाप।	(क) संरक्षित क्षेत्र की सीमा से एक किलोमीटर के भीतर या पारिस्थितिकी संवेदी जोन के विस्तार तक, इनमें जो भी निकट हो, किसी भी प्रकार के नये वाणिज्यिक संनिर्माण की अनुज्ञा नहीं होगी: परंतु यह कि स्थानीय लोगों को अपनी आवास सम्बन्धी निम्नलिखित आवश्यकताओं को पूरा करने के लिए, पैरा 3 के उप पैरा (1) में सूचीबद्ध क्रियाकलापों सहित अपने उपयोग के लिए, अपनी भूमि में भवन उप-विधियों के अनुसार, संनिर्माण करने की अनुज्ञा होगी, जैसे:- परंतु यह और कि गैर–प्रदूषणकारी लघु उद्योगों से संबंधित संनिर्माण क्रियाकलाप लागू नियमों और विनियमों, यदि कोई हों, के अनुसार सक्षम प्राधिकारी की पूर्व अनुमति से विनियमित किए जाएंगे और वे न्यूनतम होंगे। (ख) एक किलोमीटर क्षेत्र से परे ये आंचलिक महायोजना के अनुसार विनियमित होंगे।
10.	प्रदूषण उत्पन्न न करने वाले लघु उद्योग।	फरवरी, 2016 में केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा जारी उद्योगों में वर्गीकरण के अनुसार गैर-प्रदूषणकारी उद्योग और अपरिसंकटमय में, लघु और सेवा उद्योग, कृषि, पुष्प कृषि, उद्यान कृषि या पारिस्थितिकी संवेदी जोन से देशी सामग्री से उत्पादों को उत्पन्न करने वाले कृषि आधारित उद्योग सक्षम प्राधिकारी द्वारा अनुज्ञात होंगे।
11.	वृक्षों की कटाई।	(क) राज्य सरकार में सक्षम प्राधिकारी की पूर्व अनुमति के बिना वन, सरकारी या राजस्व या निजी भूमि पर या वनों में वृक्षों की कटाई नहीं होगी। (ख) वृक्षों की कटाई संबंधित केंद्रीय या राज्य अधिनियम या उसके अधीन बनाए गए नियमों के उपबंध के अनुसार विनियमित होगे।
12.	वन उत्पादों या गैर काष्ठ वन उत्पादों का संग्रहण।	लागू विधियों के अनुसार विनियमित होंगे।
13.	विद्युत और संचार टावरों का परिनिर्माण और केबलों के बिछाए जाने और अन्य बुनियादी ढांचे।	लागू विधियों के अधीन विनियमित होंगे। (भूमिगत केबल के बिछाए जाने को बढ़ावा दिया जाएगा)।
14.	नागरिक सुख सुविधाओं सहित अवसंरचनाएं।	न्यूनीकरण उपायों को लागू विधियों, नियमों और विनियमनों और उपलब्ध मार्गदर्शक सिद्धांतों के अनुसार किया जाना।
15.	विद्यमान सड़कों को चौड़ा करना और उन्हें सुदृढ़ करना तथा नवीन सड़कों का संनिर्माण।	न्यूनीकरण उपायों को लागू विधियों, नियमों और विनियमनों तथा उपलब्ध मार्गदर्शक सिद्धांतों के अनुसार किया जाना।
16.	पर्यटन से संबंधित अन्य क्रियाकलाप जैसे गर्म वायु गुब्बारें, हेलीकाप्टर, ड्रोन, माइक्रोलाइटस आदि द्वारा	लागू विधियों के अनुसार विनियमित होंगे।

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	पारिस्थितिकी संवेदी जोन क्षेत्र के ऊपर से उड़ना जैसे क्रियाकलाप करना।	
17.	पहाड़ी ढालों और नदी तटों का संरक्षण।	लागू विधियों के अधीन विनियमित होंगे।
18.	रात्रि में यानिक यातायात का संचलन।	लागू विधियों के अधीन वाणिज्यिक प्रयोजन के लिए विनियमित होंगे।
19.	स्थानीय समुदायों द्वारा चल रही कृषि और बागवानी प्रथाओं के साथ दुगधशाला, दुग्ध उद्योग, कृषि और मछली पालन।	स्थानीय लोगों के उपयोग के लिए लागू विधियों के अधीन अनुज्ञात होंगे।
20.	फर्मों, कंपनियों द्वारा बड़े पैमाने पर वाणिज्यिक पशुओं और कुक्कुट पालन का स्थापन।	स्थानीय आवश्यकताओं को पूरा करने के लिए लागू विधियों के अधीन विनियमित (अन्यथा प्रदान किए गए) होंगे।
21.	प्राकृतिक जल निकायों या सतही क्षेत्र में उपचारित बहिर्स्राव का निस्तारण।	जल निकायों में उपचारित अपशिष्ट जल या बहिर्स्राव के निस्सारण से बचा जाएगा और उपचारित अपशिष्ट जल के पुन:चक्रण और पुन:उपयोग के लिए प्रयास किए जाएंगे। अन्यथा लागू विधियों के अनुसार उपचारित बहिर्स्राव के पुनर्चक्रण या प्रवाह के निर्वहन को विनियमित किया जाएगा।
22.	सतह और भूजल का वाणिज्यिक निष्कर्षण।	लागू विधियों के अधीन विनियमित होंगे।
23.	खुले कुंआ, बोर कुंआ, आदि कृषि और अन्य उपयोग के लिए।	लागू विधियों के अनुसार विनियमित होंगे और सम्बद्ध प्राधिकारी द्वारा क्रियाकलापों की सख्ती से मानीटरी की जाएगी।
24.	ठोस अपशिष्ट का प्रबन्धन।	लागू विधियों के अधीन विनियमित होंगे।
25.	विदेशी प्रजातियों को लाना।	लागू विधियों के अधीन विनियमित होंगे।
26.	पारिस्थितिकी-पर्यटन	लागू विधियों के अनुसार विनियमित होंगे।
27.	पोलिथीन थैलों का उपयोग।	लागू विधियों के अधीन विनियमित होंगे।
28.	वाणिज्यिक सूचना पट्ट और होर्डिंग।	लागू विधियों के अधीन विनियमित होंगे।
	ग. संवर्धित क्रियाकलाप	
29.	वर्षा जल संचयन।	सक्रिय रूप से बढ़ावा दिया जाएगा।
30.	जैविक खेती।	सक्रिय रूप से बढ़ावा दिया जाएगा।
31.	सभी गतिविधियों के लिए हरित प्रौद्योगिकी को ग्रहण करना।	सक्रिय रूप से बढ़ावा दिया जाएगा।
32.	कुटीर उद्योगों जिसके अंतर्गत ग्रामीण कारीगर भी हैं।	सक्रिय रूप से बढ़ावा दिया जाएगा।
33.	नवीकरणीय ऊर्जा और ईंधन का उपयोग।	बायोगैस, सौर प्रकाश, इत्यादि को बढ़ावा दिया जाएगा।
34.	कृषि वानिकी।	सक्रिय रूप से बढ़ावा दिया जाएगा।
35.	बागान लगाना और जड़ी बूटियों का रोपण।	सक्रिय रूप से बढ़ावा दिया जाएगा।

36.	पारिस्थितिकी अनुकूल परिवहन का उपयोग।	सक्रिय रूप से बढ़ावा दिया जाएगा।
37.	कौशल विकास।	सक्रिय रूप से बढ़ावा दिया जाएगा।
38.	निम्नीकृत भूमि/ वन / वास की बहाली।	सक्रिय रूप से बढ़ावा दिया जाएगा।
39.	पर्यावरणीय जागरुकता।	सक्रिय रूप से बढ़ावा दिया जाएगा।

5. मानीटरी समिति- केंद्रीय सरकार इस अधिसूचना के उपबंधों की प्रभावी मानीटरी के लिए मानीटरी समिति का गठन करती है, जो निम्नलिखित से मिलकर बनेगी अर्थात्:-

क्र.सं.	**मानीटरी समिति का संघटक**	**पदनाम**
(i)	कलेक्टर, खोरधा	अध्यक्ष,पदेन;
(ii)	कलेक्टर, कटक या कलेक्टर के प्रतिनिधि	सदस्य;
(iii)	पुलिस उपायुक्त या पुलिस उपायुक्त, भुवनेश्वर के प्रतिनिधि	सदस्य;
(iv)	केंद्र सरकार द्वारा पर्यावरण के क्षेत्र में काम करने वाले गैर-सरकारी संगठनों के एक प्रतिनिधि को नामित किया जाना है	सदस्य;
(v)	भुवनेश्वर विकास प्राधिकरण के सचिव	सदस्य;
(vi)	राज्य सरकार द्वारा नामित जैव विविधता में एक विशेषज्ञ	सदस्य;
(vii)	राज्य के प्रतिष्ठित संस्थान या विश्वविद्यालय से पारिस्थितिकी में एक विशेषज्ञ	सदस्य;
(viii)	आयुक्त, भुवनेश्वर नगर निगम के प्रतिनिधि	सदस्य;
(ix)	ओडिशा राज्य प्रदूषण नियंत्रण बोर्ड के सदस्य सचिव के प्रतिनिधि	सदस्य;
(x)	उप निदेशक, नंदनकानन जूलॉजिकल पार्क और वन्यजीव वार्डन, नंदनकानन अभयारण्य	सदस्य सचिव।

6. निर्देश–निबंधन:- (1) मानीटरी समिति इस अधिसूचना के उपबंधों के अनुपालन को मानीटरी करेगी।

(2) मानीटरी समिति का कार्यकाल तीन वर्ष तक या राज्य सरकार द्वारा नई समिति के पुन: गठन तक के लिए होगा और तत्पश्चात मानीटरी समिति राज्य सरकार द्वारा गठित की जाएगी।

(3) उन क्रियाकलापों की, जो भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय की अधिसूचना संख्यांक का.आ. 1533 (अ), तारीख 14 सितम्बर, 2006 की अनुसूची में सम्मिलित हैं, और जो पारिस्थितिकी संवेदी जोन में आते हैं, सिवाय इसके जो पैरा 4 के अधीन सारणी में यथा विनिर्दिष्ट प्रतिषिद्ध क्रियाकलापों के, मानीटरी समिति द्वारा वास्तविक विनिर्दिष्ट स्थलीय दशाओं के आधार पर संवीक्षा की जाएगी और उक्त अधिसूचना के उपबंधों के अधीन पूर्व पर्यावरण अनापत्ति के लिए केंद्रींय सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को निर्दिष्ट किया जाएगा।

(4) उन क्रियाकलापों की, जो भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय की अधिसूचना संख्यांक का. आ. 1533 (अ) तारीख 14 सितंबर, 2006 की अनुसूची में सम्मिलित नहीं है, और जो पारिस्थितिकी संवेदी जोन में आते है, सिवाय इसके पैरा 4 के अधीन सारणी में यथाविनिर्दिष्ट प्रतिषिद्ध क्रियाकलापों के, मानीटरी समिति द्वारा वास्तविक विनिर्दिष्ट स्थलीय दशाओं के आधार पर संवीक्षा की जाएगी और उसे संबद्ध विनियामक प्राधिकरणों को निर्दिष्ट किया जाएगा।

(5) मानीटरी समिति का सदस्य-सचिव या संबद्ध उपायुक्त ऐसे व्यक्ति के विरूद्ध, जो इस अधिसूचना के किसी उपबंध का उल्लंघन करता है, पर्यावरण अधिनियम, की धारा 19 के अधीन परिवाद फाइल करने के लिए सक्षम होगा।

(6) मानीटरी समिति मुद्दा दर मुद्दा के आधार पर अपेक्षाओं पर निर्भर रहते हुए संबद्ध विभागों के प्रतिनिधियों या विशेषज्ञों, औद्योगिक संगमों या संबद्ध पणधारियों के प्रतिनिधियों को अपने विचार-विमर्श में सहायता के लिए आमंत्रित कर सकेगी ।

(7) मानीटरी समिति प्रत्येक वर्ष की 31 मार्च तक के अपने क्रियाकलापों की वार्षिक कार्रवाई रिपोर्ट राज्य के मुख्य वन्यजीव वार्डन को **उपाबंध V** में संलग्न प्रोफार्मा के अनुसार उक्त वर्ष के 30 जून तक प्रस्तुत करेगी ।

(8) केन्द्रीय सरकार का पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय मानीटरी समिति को अपने कृत्यों के प्रभावी निर्वहन के लिए ऐसे निर्देश दे सकेगा, जो वह ठीक समझे ।

7. अतिरिक्त उपाय.- इस अधिसूचना के उपबंधों को प्रभाव देने के लिए केंद्रीय सरकार और राज्य सरकार अतिरिक्त उपाय, यदि कोई हों, विनिर्दिष्ट कर सकेंगी।

8. सुप्रीम कोर्ट, आदि के आदेश.- इस अधिसूचना के उपबंध, भारत के माननीय उच्चतम न्यायालय या उच्च न्यायालय या राष्ट्रीय हरित अधिकरण द्वारा पारित कोई आदेश या पारित होने वाले कोई आदेश, यदि कोई हों, के अध्यधीन होंगे ।

[फा. सं. 25/49/2017-ईएसजेड]

डॉ. सतीश चन्द्र गढ़कोटी, वैज्ञानिक 'जी'

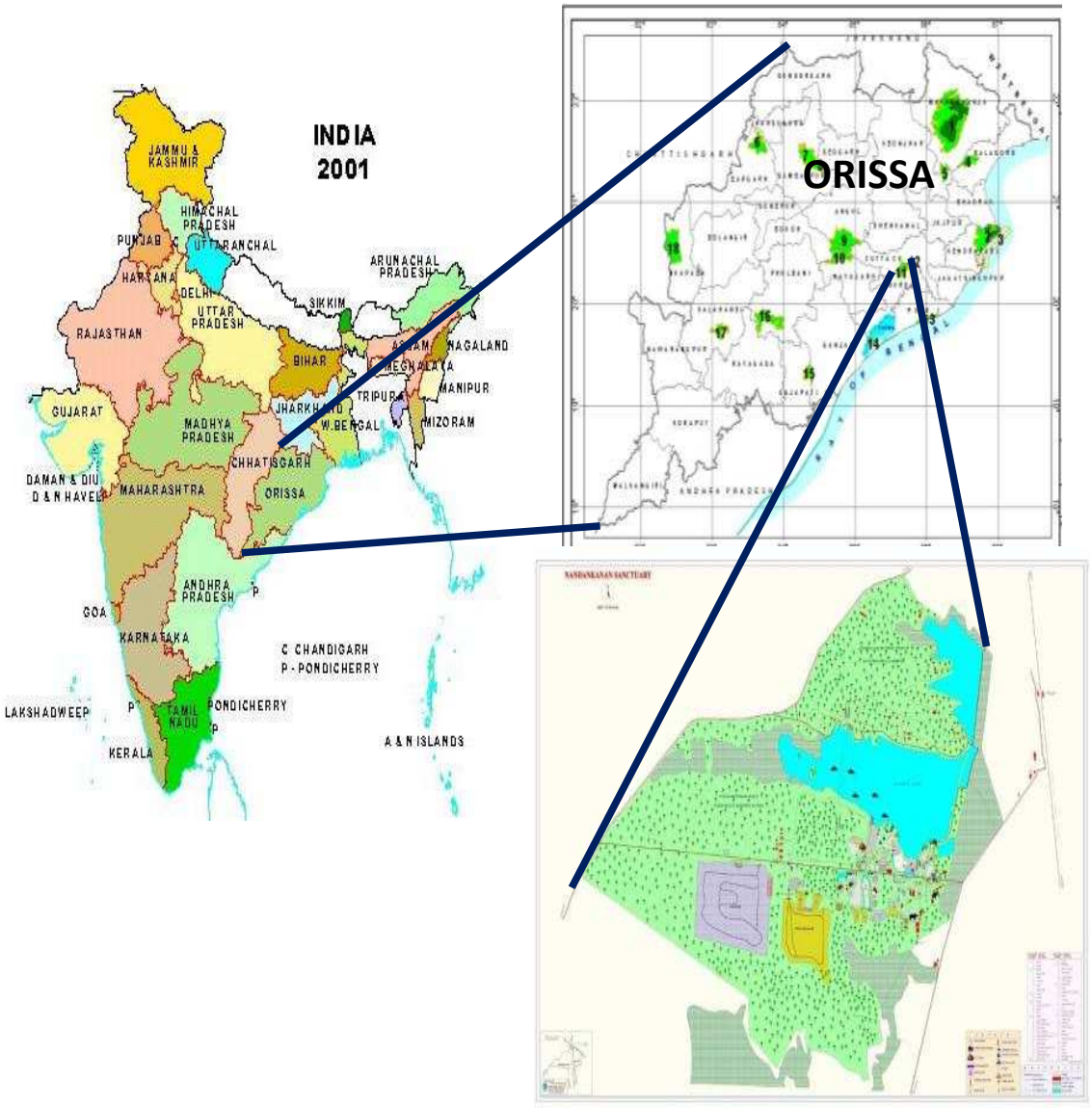
उपाबंध-I

उड़ीसा राज्य में नंदनकानन वन्यजीव अभयारण्य के चारों ओर पारिस्थितिकी संवेदी जोन सीमा का विवरण

नंदनकानन अभयारण्य के संबंध में पारिस्थितिकी संवेदी जोन संरक्षित क्षेत्र की सीमा से एक सौ मीटर तक का क्षेत्र है, सीमा स्तंभ 1 से 11 तक 150 मीटर की औसत दूरी के साथ, स्तंभ संख्या 11 से 25 तक स्तंभ संख्या 25 से 32 तक 125 मीटर की औसत दूरी के साथ यह अभयारण्य सीमा के साथ पी.डब्ल्यू.डी. सड़क के साथ मिलती है, स्तंभ संख्या 32 से 51 तक 270 मीटर औसत दूरी के साथ पूर्ण अन्य संक्रांत प्लॉट सं.5 (ग्राम जंगल) आच्छादित है, स्तंभ सं.87 से 112 तक 340 मीटर की औसत दूरी के साथ दलदल क्षेत्र को आच्छादित करता हैं। चंदाका-दम्पारा अभयारण्य (चुरंग आर. एफ) की सीमा अभयारण्य की उत्तरी सीमा में स्थित है जो कि स्तंभ सं. 131 से 137 के निकटवर्ती है, पारिस्थितिकी संवेदी जोन सीमांकित नहीं की गई है पी.डब्ल्यू.डी सड़क के साथ चंदाका-दम्पारा अभयारण्य के साथ अभयारण्य सीमा स्तंभ सं.131 से 137 के साथ-साथ जाती है।

उपाबंध-IIक

मुख्य अवस्थानों के अक्षांश और देशांतर के साथ पारिस्थितिकी संवेदी जोन और नंदनकानन वन्यजीव अभयारण्य का अवस्थान मानचित्र



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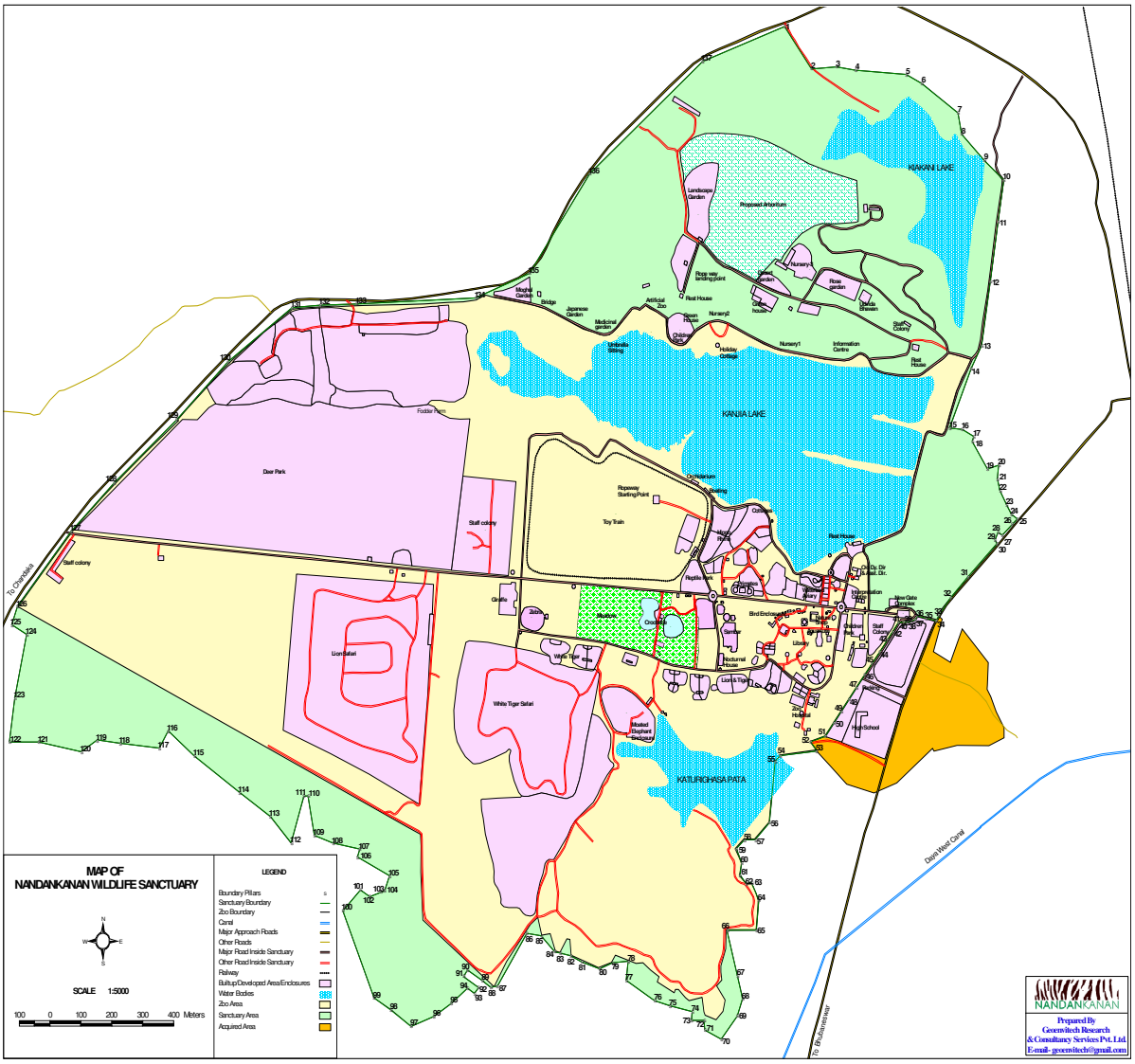
उपाबंध–II ख

मुख्य अवस्थानों के अक्षांश और देशांतर के साथ नंदनकानन वन्यजीव अभयारण्य के पारिस्थितिकी संवेदी जोन का मानचित्र



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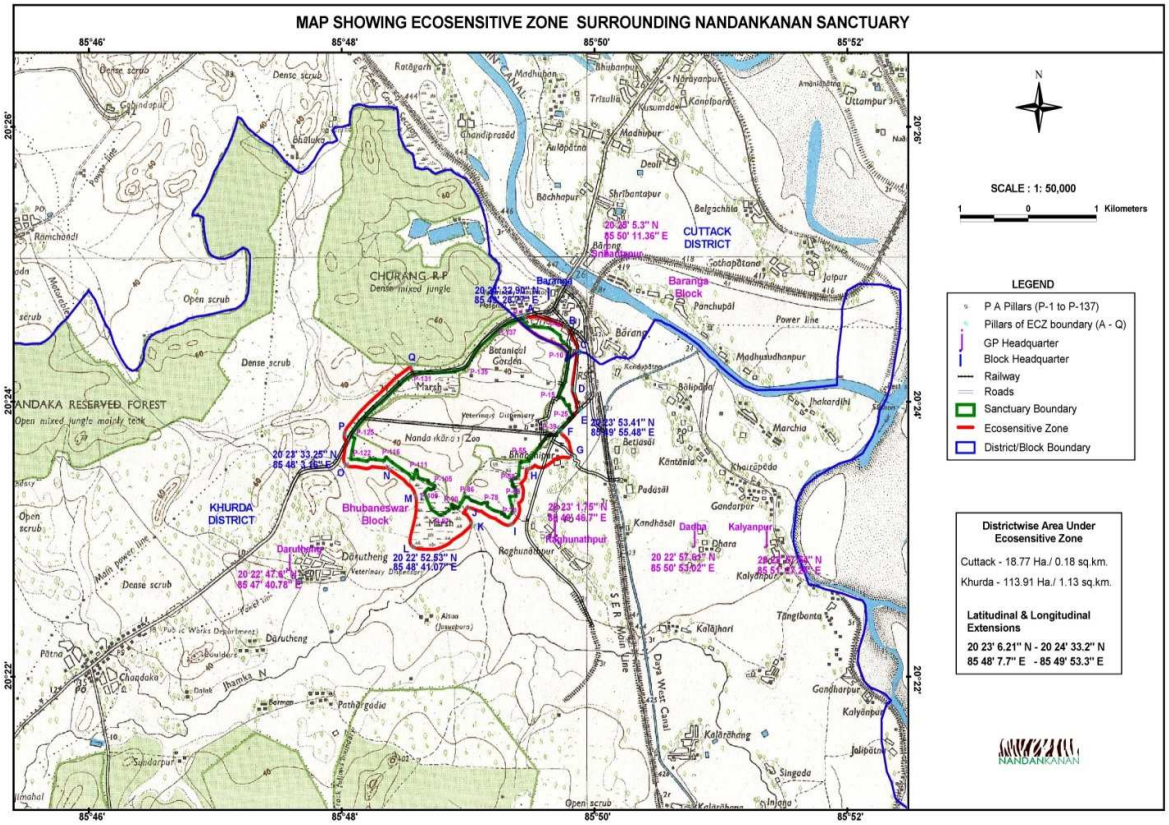
उपाबंध–II ग

भारतीय सर्वेक्षण (एस ओ आई) टोपोशीट पर मुख्य अवस्थानों के अक्षांश और देशांतर के साथ नंदकानन वन्यजीव अभयारण्य के पारिस्थितिकी संवेदी जोन के भूमि उपयोग पैटर्न को दर्शाने वाला मानचित्र



उपाबंध-III

सारणी क: नंदनकानन वन्यजीव अभयारण्य के प्रमुख अवस्थानों के भू-निर्देशांक

सीमा स्तंभ	भू-मंडलीय स्थित प्रणाली (जी.पी.एस) अवस्थान					
	उत्तर(अक्षांश)			पूर्व (देशांतर)		
	डिग्री	मिनट	सेकेंड	डिग्री	मिनट	सेकेंड
1	20	24	35.300	85	49	20.700
2	20	24	31.733	85	49	23.543
3	20	24	31.917	85	49	26.136
4	20	24	31.647	85	49	28.141
5	20	24	31.300	85	49	33.447

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6	20	24	30.568	85	49	35.092
7	20	24	28.075	85	49	38.895
8	20	24	26.251	85	49	39.281
9	20	24	24.002	85	49	41.697
10	20	24	22.318	85	49	43.674
11	20	24	18.635	85	49	43.107
12	20	24	13.463	85	49	42.218
13	20	24	07.874	85	49	41.286
14	20	24	05.904	85	49	40.183
15	20	24	00.700	85	49	37.935
16	20	24	00.582	85	49	39.166
17	20	23	59.950	85	49	40.387
18	20	23	59.533	85	49	40.269
19	20	23	57.091	85	49	41.854
20	20	23	57.445	85	49	43.06
21	20	23	56.267	85	49	42.892
22	20	23	55.207	85	49	43.139
23	20	23	54.050	85	49	43.835
24	20	23	53.269	85	49	44.284
25	20	23	52.830	85	49	44.927
26	20	23	52.369	85	49	44.34
27	20	23	51.395	85	49	43.374
28	20	23	51.684	85	49	42.957
29	20	23	50.977	85	49	42.582
30	20	23	50.699	85	49	42.818
31	20	23	47.936	85	49	39.755
32	20	23	46.041	85	49	37.967
33	2	23	44.671	85	49	36.650
34	20	23	44.221	85	49	36.404

True copy

35	20	23	44.414	85	49	35.386
36	20	23	44.606	85	49	34.476
37	20	23	44.317	85	49	34.241
38	20	23	44.189	85	49	33.877
39	20	23	44.082	85	49	33.438
40	20	23	44.060	85	49	33.031
41	20	23	44.059	85	49	32.510
42	20	23	43.228	85	49	31.979
43	20	23	42.539	85	49	31.375
44	20	23	41.528	85	49	30.565
45	20	23	40.522	85	49	29.730
46	20	23	39.596	85	49	28.955
47	20	23	38.554	85	49	28.048
48	20	23	37.552	85	49	27.251
49	20	23	36.524	85	49	26.468
50	20	23	35.509	85	49	25.658
51	20	23	34.416	85	49	24.751
52	20	23	34.004	85	49	23.236
53	20	23	33.134	85	49	23.860
54	20	23	32.807	85	49	20.109
55	20	23	32.383	85	49	19.633
56	20	23	27.058	85	49	19.059
57	20	23	25.606	85	49	17.581
58	20	23	25.580	85	49	16.476
59	20	23	24.861	85	49	15.603
60	20	23	23.602	85	49	16.142
61	20	23	22.574	85	49	16.039
62	20	23	21.803	85	49	16.669
63	20	23	21.867	85	49	17.273

True copy

64	20	23	20.402	85	49	17.992
65	20	23	17.832	85	49	17.800
66	20	23	17.807	85	49	14.754
67	20	23	13.939	85	49	15.885
68	20	23	11.896	85	49	16.412
69	20	23	10.431	85	49	15.885
70	20	23	08.388	85	49	14.266
71	20	23	09.224	85	49	12.532
72	20	23	10.046	85	49	12.429
73	20	23	10.046	85	49	11.118
74	20	23	10.778	85	49	11.195
75	20	23	11.292	85	49	08.89
76	20	23	11.781	85	49	07.302
77	20	23	13.502	85	49	04.282
78	20	23	15.134	85	49	04.475
79	20	23	14.993	85	49	02.856
80	20	23	14.517	85	49	01.533
81	20	23	15.070	85	48	59.657
82	20	23	15.622	85	48	58.513
83	20	23	15.867	85	48	57.395
84	20	23	16.008	85	48	56.856
85	20	23	17.306	85	48	55.417
86	20	23	17.537	85	48	53.926
87	20	23	12.988	85	48	50.919
88	20	23	12.911	85	48	50.238
89	20	23	13.489	85	48	49.365
90	20	23	14.415	85	48	47.771
91	20	23	13.862	85	48	47.424
92	20	23	12.886	85	48	48.954

True copy

93	20	23	12.333	85	48	48.555
94	20	23	12.847	85	48	47.810
95	20	23	11.511	85	48	46.140
96	20	23	10.393	85	48	44.328
97	20	23	09.545	85	48	42.002
98	20	23	10.920	85	48	39.831
99	20	23	11.986	85	48	38.083
100	20	23	19.567	85	48	34.832
101	20	23	21.340	85	48	36.618
102	20	23	20.749	85	48	37.544
103	20	23	21.160	85	48	38.738
104	20	23	21.225	85	48	39.098
105	20	23	22.497	85	48	39.625
106	20	23	24.128	85	48	36.297
107	20	23	24.822	85	48	36.516
108	20	23	25.375	85	48	33.766
109	20	23	26.056	85	48	31.826
110	20	23	29.409	85	48	31.145
111	20	23	29.422	85	48	30.669
112	20	23	25.401	85	48	29.449
113	20	23	27.713	85	48	27.174
114	20	23	29.744	85	48	24.013
115	20	23	32.866	85	48	19.285
116	20	23	34.986	85	48	16.561
117	20	23	33.560	85	48	15.623
118	20	23	33.881	85	48	11.537
119	20	23	34.125	85	48	09.160
120	20	23	33.200	85	48	07.554
121	20	23	33.958	85	48	03.108

True copy

122	20	23	33.984	85	48	00.050
123	20	23	37.761	85	48	00.538
124	20	23	43.132	85	48	01.746
125	20	23	43.980	85	48	00.140
126	20	23	45.574	85	48	00.708
127	20	23	52.053	85	48	06.365
128	20	23	56.191	85	48	10.944
129	20	24	01.566	85	48	17.521
130	20	24	06.530	85	48	23.000
131	20	24	11.190	85	48	29.763
132	20	24	11.426	85	48	32.771
133	20	24	11.533	85	48	36.605
134	20	24	12.117	85	48	49.063
135	20	24	14.247	85	48	54.346
136	20	24	22.761	85	49	00.468
137	20	24	32.623	85	49	12.132

सारणी ख: पारिस्थितिकी संवेदी जोन के प्रमुख अवस्थानों के भू-निर्देशांक

महत्त्वपूर्ण अवस्थानों के पारिस्थितिकी संवेदी जोन सीमा स्तंभ निर्देशांक		
स्तंभ	**देशांतर (पू)**	**अक्षांश (उ)**
ए	85.82496	20.40941
बी	85.83039	20.40817
सी	85.8321	20.40513
डी	85.83134	20.40065
ई	85.83229	20.39799
एफ	85.82972	20.39551
जी	85.83115	20.39256
एच	85.82544	20.39113
आई	85.82316	20.38428

जे	85.81754	20.38619
के	85.81811	20.38428
एल	85.81031	20.38152
एम	85.81078	20.38761
एन	85.80697	20.39113
ओ	85.80145	20.39152
पी	85.80126	20.39523
क्यू	85.81012	20.40341

उपाबंध -IV

भू-निर्देशांकों के साथ नंदनकानन वन्यजीव अभयारण्य के पारिस्थितिकी संवेदी जोन के अंतर्गत आने वाले ग्रामों की सूची

जिला	ग्राम	क्षेत्र (हेक्टेयर)	देशांतर	अक्षांश	स्तंभ आई.डी
कटक	दधापटना	18.77	85°49'20.700"	20°24'35.300"	1
			85°49'26.869"	20°24'36.529"	2
			85°49'37.628"	20°24'32.828"	3
			85°49'41.534"	20°24'30.910"	4
			85°49'46.469"	20°24'22.686"	5
			85°49'46.301"	20°24'20.840"	6
			85°49'44.508"	20°24'19.927"	7
			85°49'43.251"	20°24'18.950"	8
			85°49'43.841"	20°24'22.373"	9
			85°49'41.696"	20°24'24.002"	10
			85°49'39.281"	20°24'26.251"	11
			85°49'38.896"	20°24'28.075"	12
			85°49'35.092"	20°24'30.568"	13
			85°49'33.447"	20°24'31.301"	14
			85°49'28.141"	20°24'31.647"	15
			85°49'26.136"	20°24'31.917"	16
			85°49'23.700"	20°24'31.800"	17
खोरधा	दधा	7.678	85°49'46.301"	20°24'20.840"	6
			85°49'44.508"	20°24'19.927"	7
			85°49'43.251"	20°24'18.950"	8
			85°49'45.852"	20°24'15.902"	18

			85°49'44.139"	20°24'06.582"	19
			85°49'44.070"	20°24'02.744"	20
			85°49'45.852"	20°23'58.359"	21
			85°49'46.126"	20°23'55.686"	22
			85°49'46.743"	20°23'54.384"	23
			85°49'45.768"	20°23'53.754"	24
			85°49'44.535"	20°23'54.902"	25
			85°49'43.884"	20°23'56.067"	26
			85°49'43.558"	20°23'56.992"	27
			85°49'43.764"	20°23'58.208"	28
			85°49'42.428"	20°23'57.848"	29
			85°49'40.851"	20°24'00.178"	30
			85°49'40.868"	20°24'00.572"	31
			85°49'39.669"	20°24'01.155"	32
			85°49'38.444"	20°24'01.258"	33
			85°49'40.586"	20°24'06.397"	34
			85°49'41.656"	20°24'08.196"	35
			85°49'42.428"	20°24'13.636"	36
खोरधा	जुझागड़ा	60.828	85°48'53.575"	20°23'11.456"	65
			85°48'52.268"	20°23'13.302"	66
			85°48'52.241"	20°23'14.537"	67
			85°48'52.435"	20°23'15.544"	68
			85°48'54.409"	20°23'09.961"	129
			85°48'54.897"	20°23'09.549"	130
			85°48'56.542"	20°23'07.185"	131
			85°48'56.509"	20°23'06.153"	132
			85°48'56.490"	20°23'05.540"	133
			85°48'55.257"	20°23'03.587"	134
			85°48'51.556"	20°23'00.966"	135
			85°48'47.907"	20°22'58.910"	136
			85°48'45.440"	20°22'57.009"	137
			85°48'42.613"	20°22'55.723"	138
			85°48'40.146"	20°22'55.055"	139
			85°48'35.006"	20°22'55.107"	140
			85°48'30.432"	20°22'55.980"	141
			85°48'28.633"	20°22'56.854"	142
			85°48'27.811"	20°22'58.499"	143
			85°48'28.530"	20°23'02.714"	144
			85°48'30.638"	20°23'10.423"	145

True copy

			85°48'30.895"	20°23'13.918"	146
			85°48'30.792"	20°23'17.002"	147
			85°48'30.278"	20°23'20.034"	148
			85°48'28.685"	20°23'22.347"	149
			85°48'26.834"	20°23'23.837"	150
			85°48'24.110"	20°23'26.510"	151
			85°48'16.966"	20°23'31.290"	152
			85°48'10.233"	20°23'31.753"	153
			85°48'07.972"	20°23'30.981"	154
			85°47'58.875"	20°23'32.266"	155
			85°47'57.384"	20°23'33.603"	156
			85°47'56.973"	20°23'35.556"	157
			85°47'57.539"	20°23'40.387"	158
			85°47'58.207"	20°23'43.059"	159
			85°47'58.016"	20°23'43.351"	160
			85°48'28.464"	20°24'10.295"	171
			85°48'23.000"	20°24'06.530"	172
			85°48'17.521"	20°24'01.566"	173
			85°48'10.944"	20°23'56.190"	174
			85°48'06.365"	20°23'52.053"	175
			85°48'00.708"	20°23'45.574"	176
			85°48'00.140"	20°23'43.980"	177
			85°48'01.746"	20°23'43.132"	178
			85°48'00.538"	20°23'37.761"	179
			85°48'00.050"	20°23'33.984"	180
			85°48'03.108"	20°23'33.958"	181
			85°48'07.328"	20°23'33.229"	182
			85°48'09.179"	20°23'34.283"	183
			85°48'15.629"	20°23'33.615"	184
			85°48'16.400"	20°23'35.131"	185
			85°48'19.227"	20°23'32.972"	186
			85°48'23.904"	20°23'29.863"	187
			85°48'27.013"	20°23'27.833"	188
			85°48'29.274"	20°23'25.391"	189
			85°48'30.559"	20°23'29.477"	190
			85°48'31.022"	20°23'29.529"	191
			85°48'31.665"	20°23'26.137"	192
			85°48'33.695"	20°23'25.366"	193
			85°48'36.444"	20°23'24.980"	194

True copy

			85°48'36.264"	20°23'24.184"	195
			85°48'39.502"	20°23'22.693"	196
			85°48'38.988"	20°23'21.331"	197
			85°48'37.344"	20°23'20.843"	198
			85°48'36.444"	20°23'21.434"	199
			85°48'34.645"	20°23'19.584"	200
			85°48'37.781"	20°23'12.054"	201
			85°48'39.631"	20°23'10.949"	202
			85°48'41.687"	20°23'09.613"	203
			85°48'44.025"	20°23'10.384"	204
			85°48'45.927"	20°23'11.514"	205
			85°48'47.546"	20°23'12.928"	206
			85°48'48.265"	20°23'12.388"	207
			85°48'48.728"	20°23'12.928"	208
			85°48'47.186"	20°23'13.879"	209
			85°48'47.649"	20°23'14.521"	210
			85°48'49.113"	20°23'13.467"	211
			85°48'50.090"	20°23'12.902"	212
			85°48'50.809"	20°23'12.953"	213
			85°49'28.084"	20°23'38.549"	111
			85°49'29.374"	20°23'38.755"	112
			85°49'30.693"	20°23'39.380"	113
			85°49'32.011"	20°23'40.417"	114
			85°49'33.110"	20°23'41.653"	115
			85°49'33.082"	20°23'42.896"	116
			85°49'32.839"	20°23'44.355"	117
			85°49'32.127"	20°23'43.576"	124
			85°49'31.506"	20°23'42.848"	125
			85°49'30.702"	20°23'41.830"	126
			85°49'29.910"	20°23'40.771"	127
			85°49'29.075"	20°23'39.839"	128
खोरधा	रघुनाथपुर	35.470	85°49'38.252"	20°23'46.324"	37
			85°49'39.458"	20°23'43.368"	38
			85°49'42.670"	20°23'40.927"	39
			85°49'44.083"	20°23'34.887"	40
			85°49'42.284"	20°23'33.731"	41
			85°49'37.916"	20°23'34.117"	42
			85°49'34.960"	20°23'32.575"	43
			85°49'30.206"	20°23'29.620"	44

True copy

			85°49'27.893"	20°23'29.877"	45
			85°49'26.608"	20°23'30.776"	46
			85°49'24.552"	20°23'29.491"	47
			85°49'22.368"	20°23'29.363"	48
			85°49'21.854"	20°23'25.122"	49
			85°49'19.798"	20°23'22.938"	50
			85°49'21.212"	20°23'20.625"	51
			85°49'20.698"	20°23'16.770"	52
			85°49'20.235"	20°23'15.665"	53
			85°49'18.848"	20°23'14.226"	54
			85°49'19.516"	20°23'11.040"	55
			85°49'18.436"	20°23'08.264"	56
			85°49'16.380"	20°23'05.746"	57
			85°49'14.376"	20°23'04.718"	58
			85°49'13.245"	20°23'04.770"	59
			85°49'08.774"	20°23'07.288"	60
			85°49'04.332"	20°23'09.453"	61
			85°49'01.064"	20°23'11.400"	62
			85°48'58.598"	20°23'12.016"	63
			85°48'54.691"	20°23'13.250"	64
			85°48'53.575"	20°23'11.456"	65
			85°48'52.268"	20°23'13.302"	66
			85°48'52.241"	20°23'14.537"	67
			85°48'52.435"	20°23'15.544"	68
			85°48'53.842"	20°23'17.785"	69
			85°48'55.204"	20°23'17.425"	70
			85°48'56.720"	20°23'16.089"	71
			85°48'57.337"	20°23'16.063"	72
			85°48'57.979"	20°23'17.142"	73
			85°48'58.211"	20°23'17.117"	74
			85°48'58.391"	20°23'15.729"	75
			85°48'59.495"	20°23'15.138"	76
			85°49'01.397"	20°23'14.624"	77
			85°49'02.656"	20°23'15.138"	78
			85°49'04.327"	20°23'15.215"	79
			85°49'04.095"	20°23'13.570"	80
			85°49'07.102"	20°23'11.823"	81
			85°49'08.516"	20°23'11.360"	82
			85°49'11.060"	20°23'10.872"	83

True copy

			85°49'10.931"	20°23'10.101"	84
			85°49'12.242"	20°23'10.127"	85
			85°49'12.345"	20°23'09.227"	86
			85°49'14.066"	20°23'08.379"	87
			85°49'15.685"	20°23'10.487"	88
			85°49'16.217"	20°23'11.964"	89
			85°49'15.729"	20°23'14.007"	90
			85°49'15.125"	20°23'15.948"	91
			85°49'14.663"	20°23'17.939"	92
			85°49'17.721"	20°23'18.029"	93
			85°49'17.913"	20°23'20.586"	94
			85°49'17.220"	20°23'22.051"	95
			85°49'16.603"	20°23'21.935"	96
			85°49'15.973"	20°23'22.719"	97
			85°49'16.166"	20°23'23.747"	98
			85°49'15.678"	20°23'25.057"	99
			85°49'16.474"	20°23'25.751"	100
			85°49'17.656"	20°23'25.833"	101
			85°49'19.121"	20°23'27.272"	102
			85°49'19.558"	20°23'32.310"	103
			85°49'20.213"	20°23'33.042"	104
			85°49'24.068"	20°23'33.389"	105
			85°49'23.259"	20°23'34.198"	106
			85°49'24.878"	20°23'34.648"	107
			85°49'25.867"	20°23'35.817"	108
			85°49'26.651"	20°23'36.807"	109
			85°49'27.512"	20°23'37.860"	110
			85°49'28.084"	20°23'38.549"	111
			85°49'29.374"	20°23'38.755"	112
			85°49'30.693"	20°23'39.380"	113
			85°49'32.011"	20°23'40.417"	114
			85°49'33.110"	20°23'41.653"	115
			85°49'33.082"	20°23'42.896"	116
			85°49'32.839"	20°23'44.355"	117
			85°49'34.054"	20°23'44.443"	118
			85°49'34.322"	20°23'44.561"	119
			85°49'34.771"	20°23'44.904"	120
			85°49'35.617"	20°23'44.754"	121
			85°49'36.710"	20°23'44.491"	122

True copy

			85°49'36.967"	20°23'44.954"	123
			85°49'32.127"	20°23'43.576"	124
			85°48'54.409"	20°23'09.961"	129
			85°48'54.897"	20°23'09.549"	130
			85°48'56.542"	20°23'07.185"	131
			85°48'56.509"	20°23'06.153"	132
			85°48'56.490"	20°23'05.540"	133
खोरधा	कृष्णा नगर	9.934	85°47'58.207"	20°23'43.059"	159
			85°47'58.016"	20°23'43.351"	160
			85°47'59.644"	20°23'46.027"	161
			85°48'03.132"	20°23'50.785"	162
			85°48'08.158"	20°23'55.544"	163
			85°48'11.207"	20°23'58.647"	164
			85°48'16.892"	20°24'04.024"	165
			85°48'21.699"	20°24'07.745"	166
			85°48'25.846"	20°24'10.025"	167
			85°48'29.389"	20°24'11.241"	168
			85°48'29.741"	20°24'11.259"	169
			85°48'29.763"	20°24'11.190"	170
			85°47'57.333"	20°23'44.396"	214
			85°47'57.179"	20°23'45.989"	215
			85°47'57.744"	20°23'47.891"	216
			85°48'02.113"	20°23'53.442"	217
			85°48'05.556"	20°23'56.885"	218
			85°48'10.131"	20°24'01.100"	219
			85°48'16.041"	20°24'05.674"	220
			85°48'21.284"	20°24'10.608"	221
			85°48'27.091"	20°24'14.617"	222
			85°48'28.479"	20°24'15.234"	223

उपाबंध-V

की गई कार्रवाई की रिपोर्ट का प्रपत्र:

1. बैठकों की संख्या और तारीख।
2. बैठकों का कार्यवृत: (कृपया मुख्य उल्लेखनीय बिंदुओं का उल्लेख करें। बैठक के कार्यवृत्त को एक पृथक उपाबंध में उपाबद्ध करें)।
3. आंचलिक महायोजना की तैयारी की प्रास्थिति जिसके अंतर्गत पर्यटन महायोजना भी है।
4. भू-अभिलेख में सदृश्य त्रुटियों के सुधार के लिए ब्यौहार किए गए मामलों का सार (पारिस्थितिकी संवेदी जोन वार)। ब्यौरे उपाबंध के रूप में संलग्न किए जाएं।

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5. पर्यावरण समाघात निर्धारण अधिसूचना, 2006 के अधीन आने वाले क्रियाकलापों की संवीक्षा के मामलों का सार। (ब्यौरे एक पृथक् उपाबंध के रूप में संलग्न किए जाएं)।

6. पर्यावरण समाघात निर्धारण अधिसूचना, 2006 के अधीन न आने वाले क्रियाकलापों की संवीक्षा के मामलों का सार। (ब्यौरे एक पृथक् उपाबंध के रूप में संलग्न किए जाएं)।

7. पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 19 के अधीन दर्ज की गई शिकायतों का सार ।

8. कोई अन्य महत्वपूर्ण मामला ।

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 10th December, 2019

S.O. 4444(E).—WHEREAS, a draft notification was published in the Gazette of India, Extraordinary, *vide* notification of the Government of India in the Ministry of Environment, Forest and Climate Change number S.O. 3263 (E), dated the 5th July, 2018, inviting objections and suggestions from all persons likely to be affected thereby within the period of sixty days from the 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 draft notification were made available to the public on the 5th July, 2018;

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

AND WHEREAS, Nandankanan Wildlife Sanctuary is one of the 19 (nineteen) Wildlife Sanctuaries of Odisha, Nandankanan Zoological Park together with Kanjia Lake and State Botanical Garden has been notified as Nandankanan Wildlife Sanctuary on the 3rd August, 1979 by the Government of Odisha under Wildlife (Protection) Act, 1972 covering an area of 4.37 square kilometers and it includes Jujhagarh and Krishnanagar protected forest and a natural freshwater lake Kanjia, a wetland of national importance, and Nandankanan is situated adjoining to Chandaka-Dumpara Wildlife Sanctuary;

AND WHEREAS, Nandankanan Wildlife Sanctuary provides an excellent habitat for various wild plants and wild animals and the Sanctuary enjoys a special place in the State of Odisha for integration of *ex-situ* and *in-situ* conservation of wild flora and fauna. It has a rich floral diversity and about 704 species of wild plants belonging to 142 families have been documented in the protected area of Nandankanan and the important flora recorded from the sanctuary are oau (*Dillenia rnmdica),* champaka (*Micheilia champaca),* uhanti (*Alphonsea madraspaiana),* barhial (*Annona retteuiata),* neua (*Annum: squarnosa),* chini champa (*Artabortrys hocapeialus),* potamossu champati (*Polyalthia cerasoides),* debadaru (*Polyalihia longifblia),* guakoli (*Poiyaithia suherosa),* musakani, akanbindi (*Cissampelos pareira),* dandahiya, dadaya (*Cocculus hirsulus),* kalajati nai (*Tilietcora acuminate),* padma (*Nell-mho nucifera),* agara (*Argemone Mexicana),* niphura (*Capparis brevispina),* asadhua (*Cpparis zeylanica),* banasorisa (*Menne viscose),* baruna (*Crateva magna),* madan mastak (*Hybanthus enneaspermus),* sundri (*Hixa orellana),* khakada (*Casearia eiliplica),* miragu (*Folygala arvensis),* sureta (*Polycarpon prostraturn),* badabalbalua (*Portulaca oleracea),* balbaluka (*Portulaca quadrifida),* Poonang (*CalophyThun inophydrhun), Churiana (Mammea suriga),* nugesur (*Mesua ferrea),* bana Bhendi (*Abeirnoschus manihot),* bani, baniya (*Hibiscus tiliaceus),* bajarmtili (*Sida acuta),* etc, and it has been an outstanding place for creating awareness amongst visitors for wildlife conservation and is an important site for wildlife research and management;

AND WHEREAS, 153 species of mammals, birds and reptiles and 38 species of fishes are being housed in Nandankanan Zoological Park, apart from above, Nandankanan Wildlife Sanctuary is the habitat of many species of free living wild animals, so far, 13 species of mammals, 71 species of birds, 15 species of reptiles, 10 species of amphibians, 85 species of butterflies, 54 species of odonates and 51 species of spiders have been documented inside Nandankanan Wildlife Sanctuary; the major fauna found in the Sanctuary are common mongoose (*Herpestes edwardsi),* common langur (*Presbytis entellus),* Rhesus macaque (*Macaca mulatta),* three striped palm squirrel (*Funambulus palrnarium),* tat (*Rattus rattus),* horse shoe bat (*Rhinolophus lepidus),* Indian fox (*Vulpes bengalensis),* pangolin (*Mauls crassicaudata),* grey patridge (*Francolinus pondicerianus),* larger golden backed woodpecker (*Chrysocolaptes lucidus),* Indian roller or blue jay (*Coracias benghalensis),* Russels viper (*Daboia russelli),* cobra monocellate (*Naja naja kaouthia),* common Indian braze back or tree snake (*Dendrelaphis tristis),* chameleon (*Chameleon zeylanicus),* etc.; while some rare fauna recorded from the Nandankanan Wildlife Sanctuary are wild boar (*Sus scrota),* ratel (*Mellivora capensis),* Indian poprcupine

(*Hystrix indica),* mouse deer or Indian chevrotain (*Tragulus meminna),* common palm civet (*Paradoxurus hermaphrodites),* jackal (*Canis aureus),* jungle cat (*Fells chaos),* small Indian civet (*Viverricula indica),* striped hyena (*Hyaena hyaena),* Indian flying fox (*Pteropus giganteus),* red jungle fowl (*Gallus gallus murghi),* red spurfowl (*Galloperdix spadicea),* common teal (*Anas crecca),* cadwall (*Anas strepera),* northern pintail (*Anas acuta),* barred buttonquail (*Turnix suscitator),* yellow fronted pied or mahratta woodpecker (*Dendrocopos mahrattensis),* small green barbet (*Megalaima viridis),* copper-smith barbet (*Megalaima haemacephala),* brown-headed barbet (*Megalaima zeylanica),* common hoopoe (*Upupa epops),* blue bee-eater (*Merops philippinus),* yellow monitor lizard (*Varanus falvescens),* banded krait (*Bungarus fasciatus),* checkered keel back (*Xenochrophis piscator),* common green whip snake (*Ahaetulla nasuta),* etc,. and the number of birds of Indian origin stays here round the year and breeding of open bill stork, purple moorhen, jacana, red jungle fowl, Indian peafowl, koel, herons, egrets etc. have been recorded inside the protected area;

AND WHEREAS, it is necessary to conserve and protect the area, the extent and boundaries which are specified in paragraph 1 around the protected area of Nandankanan Wildlife Sanctuary as Eco-Sensitive Zone from ecological, environmental and biodiversity 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) and clauses (v) and (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act 1986 (29 of 1986) (hereafter in this notification referred to as the Environment Act) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area to an extent varying from 0 (zero) to 340 meters around the boundary of the Nandankanan Wildlife Sanctuary, in Cuttack and Khordha districts in the State of Odisha as Nandankanan Wildlife Sanctuary Eco-sensitive Zone (hereafter in this notification referred to as the Eco-sensitive Zone) details of which are as under, namely: -

1. **Extent and boundaries of Eco-sensitive Zone. –** (1) The Eco-sensitive Zone shall be to an extent of 0 (zero) to 340 meters around the boundary of the Nandankanan Wildlife Sanctuary and the area of the Eco-sensitive Zone is 1.31 square kilometres out of which 0.18 square kilometres comes under Cuttack district and 1.13 square kilometres areas in Khordha district and *zero extent of Eco-sensitive Zone at Northern boundary of the Sanctuary is proposed (i.e. adjacent to the pillar No.131 to 137) as boundary is co-terminus with Chandaka-Dampara Sanctuary along the PWD road.*

(2) The boundary description of Nandankanan Wildlife Sanctuary and its Eco-sensitive Zone is appended as **Annexure-I.**

(3) The maps of the Nandankanan Wildlife Sanctuary demarcating Eco-sensitive Zone along with boundary details and latitudes and longitudes are appended as **Annexure-IIA, Annexure-IIB** and **Annexure-IIC.**

(4) List of geo-coordinates of the boundary of Nandankanan Wildlife Sanctuary and Eco-sensitive Zone are given in Table **A** and Table **B** of **Annexure-III.**

(5) The list of villages falling in the Eco-sensitive Zone along with their geo co-ordinates at prominent points is appended as **Annexure-IV.**

2. Zonal Master Plan for Eco-sensitive Zone.- (1) The State Government shall, for the purposes 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, in consultation with local people and adhering to the stipulations given in this notification for approval of the competent authority in the State.

(2) The Zonal Master Plan for the Eco-sensitive Zone shall be prepared by the State Government in such manner as is specified in this notification and also in consonance with the relevant Central and State laws and the guidelines issued by the Central Government, if any.

(3) The Zonal Master Plan shall be prepared in consultation with the following Departments of the State Government, for integrating the ecological and environmental considerations into the said plan:-

(i) Environment;
(ii) Forest and Wildlife;
(iii) Agriculture;
(iv) Revenue;
(v) Housing and Urban Development;
(vi) Tourism;
(vii) Rural Development;

(viii) Irrigation and Flood Control;
(ix) Municipal;
(x) Odisha State Pollution Control Board;
(xi) Panchayati Raj; and
(xii) Public Works Department (Building and Roads).

(4) The Zonal Master Plan shall not impose any restriction on the approved existing land use, infrastructure and activities, unless so specified in this notification and the Zonal Master Plan shall factor in improvement of all infrastructure and activities to be more efficient and eco-friendly.

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

(6) The Zonal Master Plan shall demarcate all the existing worshipping places, villages and urban settlements, types and kinds of forests, agricultural areas, fertile lands, green area, such as, parks and like places, horticultural areas, orchards, lakes and other water bodies with supporting maps giving details of existing and proposed land use features.

(7) The Zonal Master Plan shall regulate development in Eco-sensitive Zone and adhere to prohibited and regulated activities listed in the Table in paragraph 4 and also ensure and promote eco-friendly development for security of local communities' livelihood.

(8) The Zonal Master Plan shall be co-terminus with the Regional Development Plan.

(9) The Zonal Master Plan so approved shall be the reference document for the Monitoring Committee for carrying out its functions of monitoring in accordance with 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) Land use.– (a) 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 residential or industrial activities:

Provided that the conversion of agricultural and other lands, for the purpose other than that specified in clause (a) above, within the Eco-sensitive Zone may be permitted on the recommendation of the Monitoring Committee, and with the prior approval of the competent authority under Regional Town Planning Act and other rules and regulations of the Central Government or State Government as applicable and *vide* provisions of this notification, to meet the residential needs of the local residents and for activities such as-

(i) widening and strengthening of existing roads and construction of new roads;

(ii) construction and renovation of infrastructure and civic amenities;

(iii) small scale industries not causing pollution;

(iv) cottage industries including village industries; convenience stores and local amenities supporting eco-tourism including home stay; and

(v) promoted activities given in paragraph 4:

Provided further that no use of tribal land shall be permitted for commercial and industrial development activities without the prior approval of the competent authority under Regional Town Planning Act and other rules and regulations of the State Government and without compliance of the provisions of article 244 of the Constitution 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):

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 Monitoring Committee, 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 correction of error shall not include change of land use in any case except as provided under this sub-paragraph.

(b) Efforts shall be made to reforest the unused or unproductive agricultural areas with afforestation and habitat restoration activities.

(2) Natural water bodies.-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 in such a manner as to prohibit development activities at or near these areas which are detrimental to such areas.

(3) Tourism or eco-tourism.- (a) All new eco-tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be as per the Tourism Master Plan for the Eco-sensitive Zone.

(b) The Tourism Master Plan shall be prepared by the State Department of Tourism in consultation with the State Departments of Environment and Forests.

(c) The Tourism Master Plan shall form a component of the Zonal Master Plan.

(d) The Tourism Master Plan shall be drawn based on the study of carrying capacity of the Eco-sensitive Zone.

(e) The activities of eco-tourism shall be regulated as under, namely:-

(i) new construction of hotels and resorts shall not be allowed within one kilometre from the boundary of the protected area or upto the extent of the Eco-sensitive Zone whichever is nearer:

Provided that beyond the distance of one kilometre from the boundary of the protected area till the extent of the Eco-sensitive Zone, the establishment of new hotels and resorts shall be allowed only in pre-defined and designated areas for eco-tourism facilities as per Tourism Master Plan;

(ii) 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 the eco-tourism guidelines issued by National Tiger Conservation Authority (as amended from time to time) with emphasis on eco-tourism, eco-education and eco-development;

(iii) until 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 Monitoring Committee and no new hotel, resort or commercial establishment construction shall be permitted within Eco-sensitive Zone area.

(4) Natural heritage.- 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 a heritage conservation plan shall be drawn up for their preservation and conservation as a part of the Zonal Master Plan.

(5) 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 heritage conservation plan for their conservation shall be prepared as part of the Zonal Master Plan.

(6) Noise pollution. - Prevention and control of noise pollution in the Eco-sensitive Zone shall be complied in accordance with the provisions of the Noise Pollution (Regulation and Control) Rules, 2000 under the Environment Act.

(7) Air pollution.- Prevention and control of air pollution in the Eco-sensitive Zone shall be compiled in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.

(8) Discharge of effluents.- Discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the General Standards for Discharge of Environmental Pollutants covered under the Environment Act and the rules made thereunder or standards stipulated by State Government whichever is more stringent.

(9) Solid wastes.- Disposal and management of solid wastes shall be as under:-

(a) the solid waste disposal and management in the Eco-sensitive Zone shall be carried out in accordance with the Solid Waste Management Rules, 2016, published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* notification number S.O. 1357 (E), dated the 8th April, 2016; the inorganic material may be disposed in an environmental acceptable manner at site identified outside the Eco-sensitive Zone;

(b) safe and Environmentally Sound Management (ESM) of solid wastes in conformity with the existing rules and regulations using identified technologies may be allowed within Eco-sensitive Zone.

(10) Bio-Medical Waste.– Bio- medical waste management shall be as under:-

(a) the Bio-medical waste disposal in the Eco-sensitive Zone shall be carried out in accordance with the Bio-Medical Waste Management, Rules, 2016, published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* notification number G.S.R 343 (E), dated the 28th March, 2016.

(b) safe and Environmentally Sound Management of bio-medical wastes in conformity with the existing rules and regulations using identified technologies may be allowed within the Eco-sensitive Zone.

(11) Plastic waste management.- The plastic waste management in the Eco-sensitive Zone shall be carried out as per the provisions of the Plastic Waste Management Rules, 2016, published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* notification number G.S.R. 340(E), dated the 18th March, 2016, as amended from time to time**.**

(12) Construction and demolition waste management.- The construction and demolition waste management in the Eco-sensitive Zone shall be carried out as per the provisions of the Construction and Demolition Waste Management Rules, 2016, published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* notification number G.S.R. 317(E), dated the 29th March, 2016, as amended from time to time.

(13) E-waste.- The e - waste management in the Eco-sensitive Zone shall be carried out as per the provisions of the E-Waste Management Rules, 2016, published by the Government of India in the Ministry of Environment, Forest and Climate Change, as amended from time to time.

(14) 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 Competent Authority in the State Government, the Monitoring Committee shall monitor compliance of vehicular movement under the relevant Acts and the rules and regulations made thereunder.

(15) Vehicular pollution.- Prevention and control of vehicular pollution shall be incompliance with applicable laws and efforts shall be made for use of cleaner fuels.

(16) Industrial units.– (i) On or after the publication of this notification in the Official Gazette, no new polluting industries shall be permitted to be set up within the Eco-sensitive Zone.

(ii) Only non-polluting industries shall be allowed within Eco-sensitive Zone as per the classification of Industries in the guidelines issued by the Central Pollution Control Board in February, 2016, unless so specified in this notification, and in addition, the non-polluting cottage industries shall be promoted.

(17) Protection of hill slopes.- The protection of hill slopes shall be as under:-

(a) the Zonal Master Plan shall indicate areas on hill slopes where no construction shall be permitted;

(b) construction on existing steep hill slopes or slopes with a high degree of erosion shall not be permitted.

4. List of activities prohibited or to be regulated within Eco-sensitive Zone.- All activities in the Eco sensitive Zone shall be governed by the provisions of the Environment Act and the rules made there under including the Coastal Regulation Zone, 2011 and the Environmental Impact Assessment Notification, 2006 and other applicable laws including the Forest (Conservation) Act, 1980 (69 of 1980), the Indian Forest Act, 1927 (16 of 1927), the Wildlife (Protection) Act 1972 (53 of 1972), and amendments made thereto and be regulated in the manner specified in the Table below, namely:-

TABLE

S. No. (1)	Activity (2)	Description (3)
	A. 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 shall be prohibited with immediate effect except for meeting the domestic needs of bona fide local residents including digging of earth for construction or repair of houses and for manufacture of country tiles or bricks for housing and for personal consumption; (b) The mining operations shall be carried out in accordance with the order of the Hon'ble Supreme Court dated the 4th August, 2006 in the matter of T.N. Godavarman Thirumulpad Vs. UOI in W.P.(C) No.202 of 1995 and dated the 21st April, 2014 in the matter of Goa Foundation Vs. UOI in W.P.(C) No.435 of 2012.
2.	Setting of industries causing pollution (Water, Air, Soil, Noise, etc.).	New industries and expansion of existing polluting industries in the Eco-sensitive Zone shall not be permitted: Provided that non-polluting industries shall be allowed within Eco-sensitive Zone as per classification of Industries in the guidelines issued by the Central Pollution Control Board in February, 2016, unless otherwise specified in this notification and in addition the non-polluting cottage industries shall be promoted.
3.	Establishment of major hydro-electric project.	Prohibited (except as otherwise provided) as per the applicable laws.
4.	Use or production or processing of any hazardous substances.	Prohibited (except as otherwise provided) as per the applicable laws.
5.	Discharge of untreated effluents in natural water bodies or land area.	Prohibited (except as otherwise provided) as per the applicable laws.
6.	Setting up of new saw mills.	New or expansion of existing saw mills shall not be permitted within the Eco-sensitive Zone.
7.	Setting up of brick kilns.	Prohibited (except as otherwise provided) as per the applicable laws.
	B. Regulated Activities	
8.	Commercial establishment of hotels and resorts.	No new commercial hotels and resorts shall be permitted within one kilometer of the boundary of the protected area or upto the extent of Eco-sensitive Zone, whichever is nearer, except for small temporary structures for eco-tourism activities: Provided that, beyond one kilometer from the boundary of the protected area or upto the extent of Eco-sensitive Zone whichever is nearer, all new tourist activities or expansion of existing activities shall be in conformity with the Tourism Master Plan and guidelines as applicable.

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S. No. (1)	Activity (2)	Description (3)
9.	Construction activities.	(a) New commercial construction of any kind shall not be permitted within one kilometer from the boundary of the protected area or upto extent of the Eco-sensitive Zone, whichever is nearer: Provided that, local people shall be permitted to undertake construction in their land for their use including the activities mentioned in sub-paragraph (1) of paragraph 3 as per building bye-laws to meet the residential needs of the local residents. Provided further that the construction activity related to small scale industries not causing pollution shall be regulated and kept at the minimum, with the prior permission from the competent authority as per applicable rules and regulations, if any. (b) Beyond one kilometer it shall be regulated as per the Zonal Master Plan.
10.	Small scale non polluting industries.	Non polluting industries as per classification of industries issued by the Central Pollution Control Board in February, 2016 and non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous materials from the Eco-sensitive Zone shall be permitted by the competent Authority.
11.	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.
12.	Collection of Forest Produce or Non-Timber Forest Produce.	Regulated as per the applicable laws.
13.	Erection of electrical and communication towers and laying of cables and other infrastructures.	Regulated under applicable laws (underground cabling may be promoted).
14.	Infrastructure including civic amenities.	Taking measures of mitigation as per the applicable laws, rules and regulations available guidelines.
15.	Widening and strengthening of existing roads and construction of new roads.	Taking measures of mitigation as per the applicable laws, rules and regulation and available guidelines.
16.	Undertaking other activities related to tourism like flying over the Eco-sensitive Zone area by hot air balloon, helicopter, drones, microlites, etc.	Regulated as per the applicable laws.
17.	Protection of hill slopes and river banks.	Regulated as per the applicable laws.
18.	Movement of vehicular traffic at night.	Regulated for commercial purpose under applicable laws.

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S. No. (1)	Activity (2)	Description (3)
19.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted as per the applicable laws for use of locals.
20.	Establishment of large-scale commercial livestock and poultry farms by firms, corporate and companies.	Regulated (except otherwise provided) as per the applicable laws except for meeting local needs.
21.	Discharge of treated waste water or effluents in natural water bodies or land area.	The discharge of treated waste water or effluents shall be avoided to enter into the water bodies and efforts shall be made for recycle and reuse of treated waste water. Otherwise the discharge of treated waste water or effluent shall be regulated as per the applicable laws.
22.	Commercial extraction of surface and ground water.	Regulated as per the applicable laws.
23.	Open well, bore well, etc. for agriculture or other usage	Regulated as per applicable laws and the activity shall be strictly monitored by the concerned authority.
24.	Solid waste management.	Regulated as per the applicable laws.
25.	Introduction of exotic species.	Regulated as per the applicable laws.
26.	Eco-tourism.	Regulated as per the applicable laws.
27.	Use of polythene bags.	Regulated as per the applicable laws.
28.	Commercial sign boards and hoardings.	Regulated as per the applicable laws.
C. Promoted Activities		
29.	Rain water harvesting.	Shall be actively promoted.
30.	Organic farming.	Shall be actively promoted.
31.	Adoption of green technology for all activities.	Shall be actively promoted.
32.	Cottage industries including village artisans, etc.	Shall be actively promoted.
33.	Use of renewable energy and fuels.	Bio-gas, solar light, etc. shall be actively promoted.
34.	Agro-forestry.	Shall be actively promoted.
35.	Plantation of horticulture and herbals.	Shall be actively promoted.
36.	Use of eco-friendly transport.	Shall be actively promoted.
37.	Skill development.	Shall be actively promoted.
38.	Restoration of degraded land/ forests/ habitat.	Shall be actively promoted.
39.	Environmental awareness.	Shall be actively promoted.

5. Monitoring Committee.- For effective monitoring of the provisions of this notification, the Central Government hereby constitutes a Monitoring Committee, comprising of the following, namely:-

S. No.	Constituent of Monitoring Committee	Designation
(i)	Collector, Khordha	Chairman, ex officio;

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(ii)	Collector, Cuttack or Representative of the Collector	Member;
(iii)	Deputy Commissioner of Police or Representative of Deputy Commissioner of Police, Bhubaneswar	Member;
(iv)	One representative of non-Governmental Organisations working in the field of environment to be nominated by the Central Government	Member;
(v)	Secretary, Bhubaneswar Development Authority	Member;
(vi)	An expert in biodiversity nominated by the State Government	Member;
(vii)	One expert in ecology from reputed institution or university of the State	Member;
(viii)	Representative of Commissioner, Bhubaneswar Municipal Corporation	Member;
(ix)	Representative of Member Secretary, Odisha State Pollution Control Board	Member;
(x)	Deputy Director, Nandankanan Zoological Park and Wildlife Warden, Nandankanan Sanctuary	Member-Secretary.

6. Terms of reference. – (1) The Monitoring Committee shall monitor the compliance of the provisions of this notification.

(2) The tenure of the Monitoring committee shall be for three years or till the re-constitution of the new Committee by the State Government and subsequently the Monitoring Committee shall be constituted by the State Government.

(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 Monitoring Committee 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 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 erstwhile Ministry of Environment and Forest 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 Monitoring Committee based on the actual site-specific conditions and referred to the concerned regulatory authorities.

(5) The Member-Secretary of the Monitoring Committee or the concerned Deputy Commissioner(s) shall be competent to file complaints under section 19 of the Environment Act, against any person who contravenes the provisions of this notification.

(6) The Monitoring Committee 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 Monitoring Committee shall submit the annual action taken report of its activities as on the 31st March of every year by the 30th June of that year to the Chief Wildlife Warden in the State as per proforma appended at **Annexure V**.

(8) The Central Government in the Ministry of Environment, Forest and Climate Change may give such directions, as it deems fit, to the Monitoring Committee for effective discharge of its functions.

7. Additional measures.- The Central Government and State Government may specify additional measures, if any, for giving effect to provisions of this notification.

8. Supreme Court, etc. order.-The provisions of this notification shall be subject to the orders, if any passed or to be passed by the Hon'ble Supreme Court of India or High Court or the National Green Tribunal.

[F. No. 25/49/2017-ESZ]

DR. SATISH C. GARKOTI, Scientist 'G'

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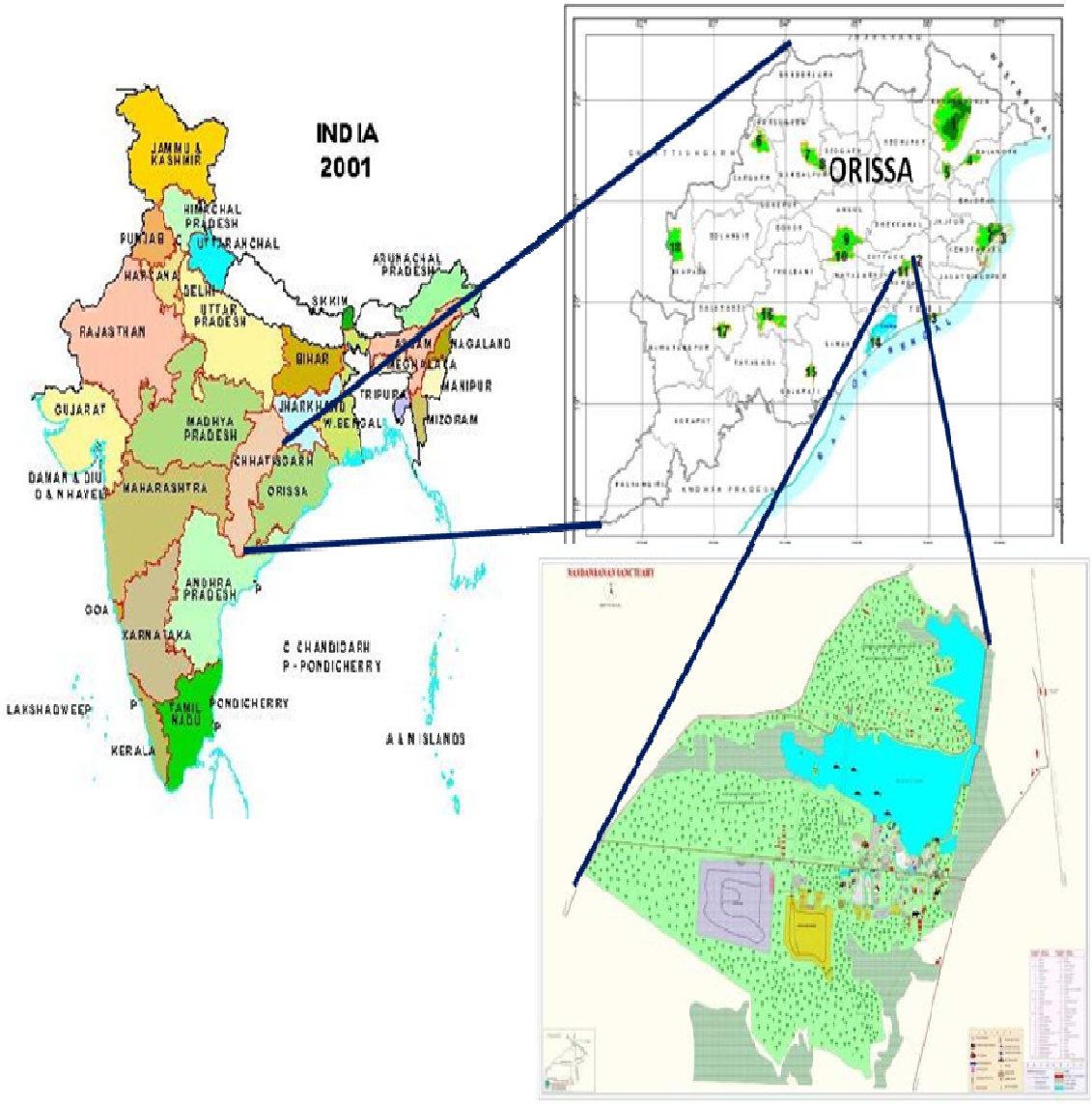
ANNEXURE- I

BOUNDARY DESCRIPTION OF ECO-SENSITIVE ZONE AROUND NANDANKANAN WILDLIFE SANCTUARY IN THE STATE OF ODISHA

The Eco-sensitive Zone in respect of Nandankanan Sanctuary is the area up to one hundred meters from the boundary of the protected area except from the boundary Pillar No. 1 to 11 with average distance of 150 meters, from pillar No. 11 to 25 with average distance of 125 meters, from pillar No. 25 to 32 it merges with PWD road along the Sanctuary boundary, from pillar No. 32 to 51 with average distance of 270 meters covering entire alienated plot No. 5 (Gramya Jungle), from pillar No. 87 to 112 with average distance of 340 meters covering the swampy area. The boundary of Chandaka-Dampara Sanctuary (Churang R.F.) being located in the Northern boundary of the Sanctuary i.e. adjacent to the pillar No.131 to 137, the ESZ has not been demarcated as the Sanctuary border pillar No. 131 to 137 goes co-terminus with Chandaka-Dampara Sanctuary along the PWD road.

ANNEXURE- IIA

LOCATION MAP OF NANDANKANAN WILDLIFE SANCTUARY AND ITS ECO-SENSITIVE ZONE ALONG WITH LATITUDE AND LONGITUDE OF PROMINENT LOCATIONS



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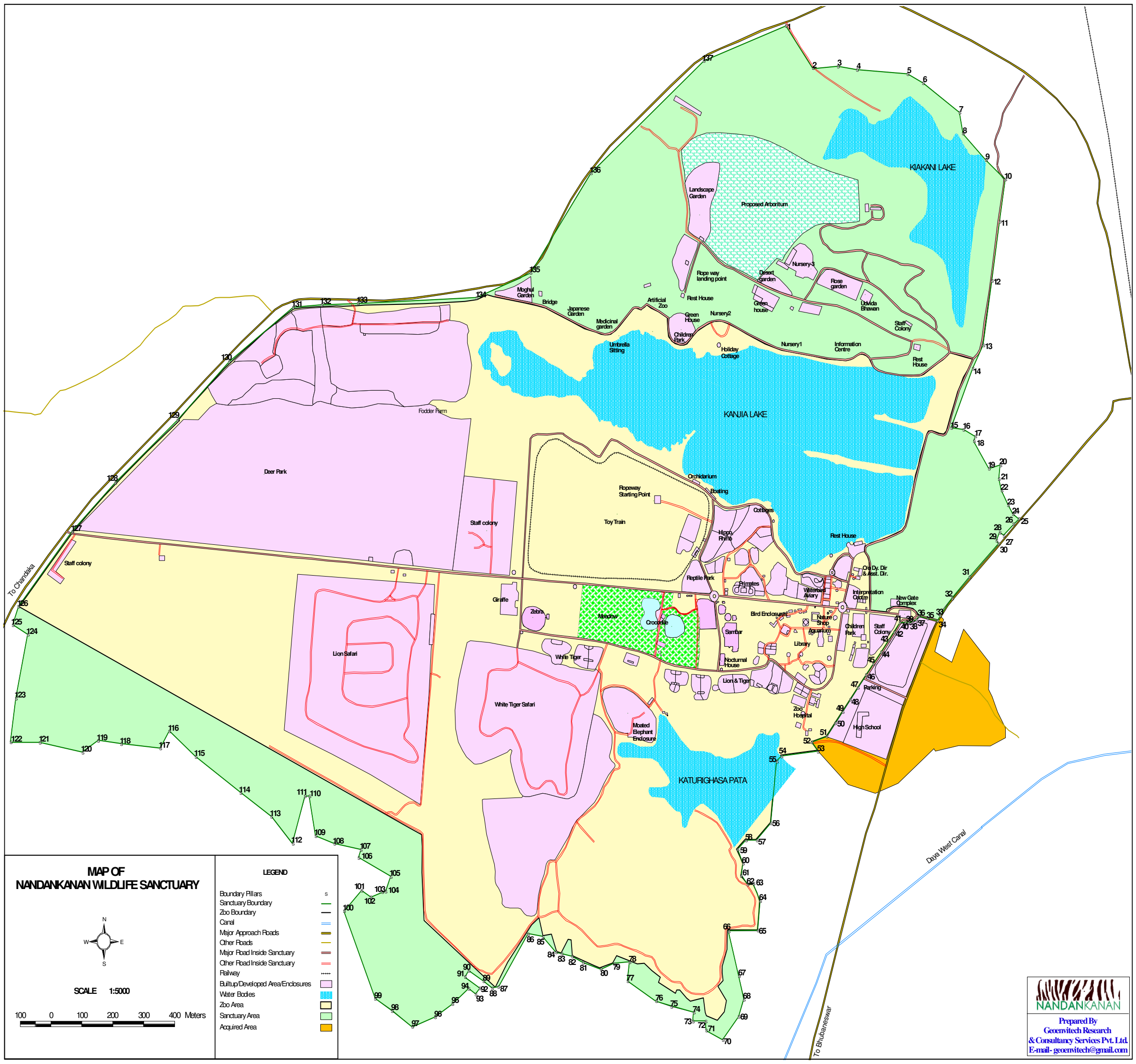
ANNEXURE- IIB

MAP OF ECO-SENSITIVE ZONE OF NANDANKANAN WILDLIFE SANCTUARY ALONG WITH LATITUDE AND LONGITUDE OF PROMINENT LOCATIONS



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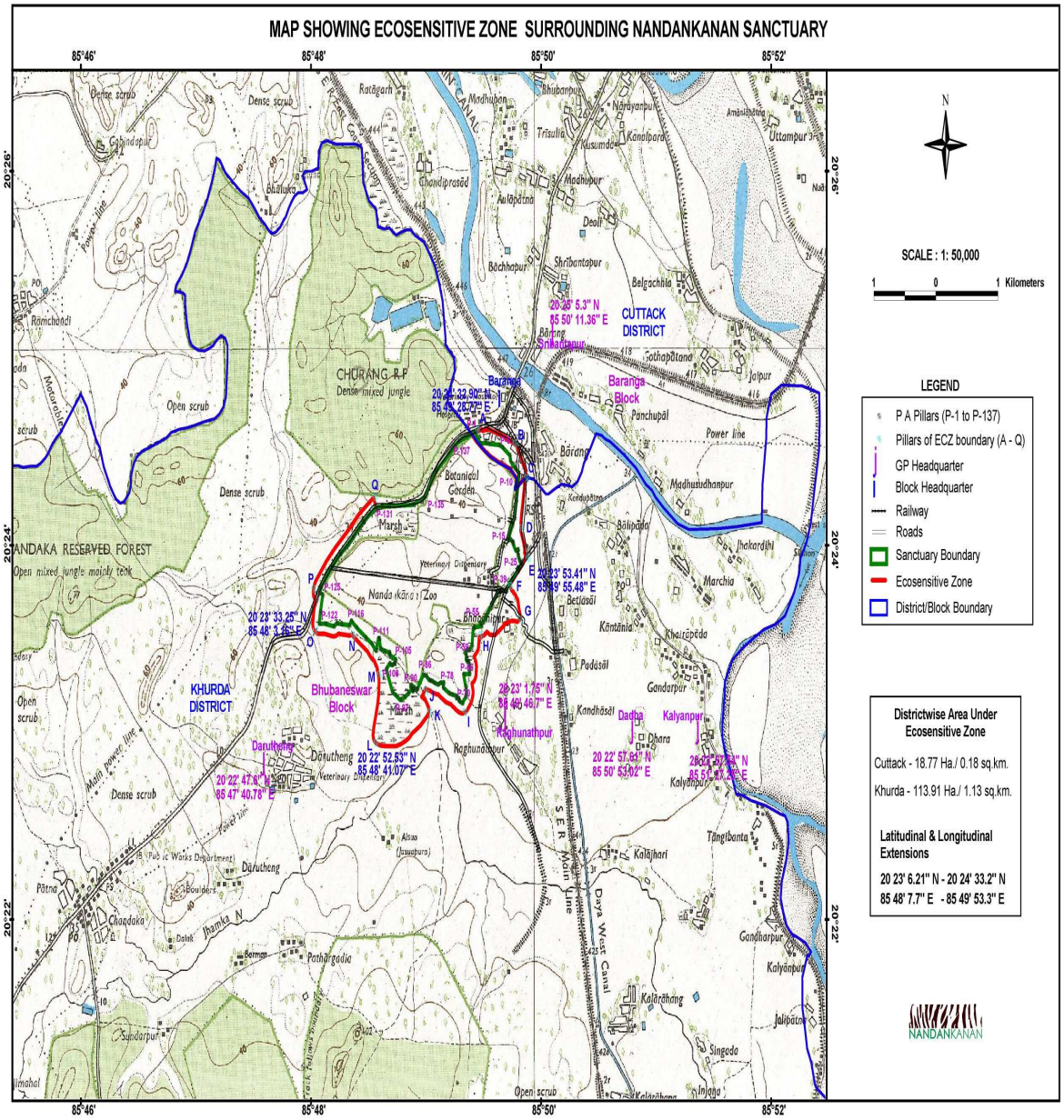
ANNEXURE- IIC

MAP SHOWING LANDUSE PATTERN OF ECO-SENSITIVE ZONE OF NANDANKANAN WILDLIFE SANCTUARY ALONG WITH LATITUDE AND LONGITUDE OF PROMINENT LOCATIONS ON SURVEY OF INDIA (SOI) TOPOSHEET



ANNEXURE-III

TABLE A: GEO- COORDINATES OF PROMINENT LOCATIONS OF NANDANKANAN WILDLIFE SANCTUARY

Boundary pillar	Global Positioning System (GPS) location					
	North (latitude)			East (longitude)		
	Degree	Minute	Second	Degree	Minute	Second
1	20	24	35.300	85	49	20.700
2	20	24	31.733	85	49	23.543
3	20	24	31.917	85	49	26.136

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4	20	24	31.647	85	49	28.141
5	20	24	31.300	85	49	33.447
6	20	24	30.568	85	49	35.092
7	20	24	28.075	85	49	38.895
8	20	24	26.251	85	49	39.281
9	20	24	24.002	85	49	41.697
10	20	24	22.318	85	49	43.674
11	20	24	18.635	85	49	43.107
12	20	24	13.463	85	49	42.218
13	20	24	07.874	85	49	41.286
14	20	24	05.904	85	49	40.183
15	20	24	00.700	85	49	37.935
16	20	24	00.582	85	49	39.166
17	20	23	59.950	85	49	40.387
18	20	23	59.533	85	49	40.269
19	20	23	57.091	85	49	41.854
20	20	23	57.445	85	49	43.06
21	20	23	56.267	85	49	42.892
22	20	23	55.207	85	49	43.139
23	20	23	54.050	85	49	43.835
24	20	23	53.269	85	49	44.284
25	20	23	52.830	85	49	44.927
26	20	23	52.369	85	49	44.34
27	20	23	51.395	85	49	43.374
28	20	23	51.684	85	49	42.957
29	20	23	50.977	85	49	42.582
30	20	23	50.699	85	49	42.818
31	20	23	47.936	85	49	39.755
32	20	23	46.041	85	49	37.967
33	2	23	44.671	85	49	36.650
34	20	23	44.221	85	49	36.404
35	20	23	44.414	85	49	35.386
36	20	23	44.606	85	49	34.476
37	20	23	44.317	85	49	34.241
38	20	23	44.189	85	49	33.877
39	20	23	44.082	85	49	33.438
40	20	23	44.060	85	49	33.031
41	20	23	44.059	85	49	32.510
42	20	23	43.228	85	49	31.979
43	20	23	42.539	85	49	31.375
44	20	23	41.528	85	49	30.565
45	20	23	40.522	85	49	29.730
46	20	23	39.596	85	49	28.955
47	20	23	38.554	85	49	28.048
48	20	23	37.552	85	49	27.251
49	20	23	36.524	85	49	26.468
50	20	23	35.509	85	49	25.658
51	20	23	34.416	85	49	24.751

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52	20	23	34.004	85	49	23.236
53	20	23	33.134	85	49	23.860
54	20	23	32.807	85	49	20.109
55	20	23	32.383	85	49	19.633
56	20	23	27.058	85	49	19.059
57	20	23	25.606	85	49	17.581
58	20	23	25.580	85	49	16.476
59	20	23	24.861	85	49	15.603
60	20	23	23.602	85	49	16.142
61	20	23	22.574	85	49	16.039
62	20	23	21.803	85	49	16.669
63	20	23	21.867	85	49	17.273
64	20	23	20.402	85	49	17.992
65	20	23	17.832	85	49	17.800
66	20	23	17.807	85	49	14.754
67	20	23	13.939	85	49	15.885
68	20	23	11.896	85	49	16.412
69	20	23	10.431	85	49	15.885
70	20	23	08.388	85	49	14.266
71	20	23	09.224	85	49	12.532
72	20	23	10.046	85	49	12.429
73	20	23	10.046	85	49	11.118
74	20	23	10.778	85	49	11.195
75	20	23	11.292	85	49	08.89
76	20	23	11.781	85	49	07.302
77	20	23	13.502	85	49	04.282
78	20	23	15.134	85	49	04.475
79	20	23	14.993	85	49	02.856
80	20	23	14.517	85	49	01.533
81	20	23	15.070	85	48	59.657
82	20	23	15.622	85	48	58.513
83	20	23	15.867	85	48	57.395
84	20	23	16.008	85	48	56.856
85	20	23	17.306	85	48	55.417
86	20	23	17.537	85	48	53.926
87	20	23	12.988	85	48	50.919
88	20	23	12.911	85	48	50.238
89	20	23	13.489	85	48	49.365
90	20	23	14.415	85	48	47.771
91	20	23	13.862	85	48	47.424
92	20	23	12.886	85	48	48.954
93	20	23	12.333	85	48	48.555
94	20	23	12.847	85	48	47.810
95	20	23	11.511	85	48	46.140
96	20	23	10.393	85	48	44.328
97	20	23	09.545	85	48	42.002
98	20	23	10.920	85	48	39.831
99	20	23	11.986	85	48	38.083

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100	20	23	19.567	85	48	34.832
101	20	23	21.340	85	48	36.618
102	20	23	20.749	85	48	37.544
103	20	23	21.160	85	48	38.738
104	20	23	21.225	85	48	39.098
105	20	23	22.497	85	48	39.625
106	20	23	24.128	85	48	36.297
107	20	23	24.822	85	48	36.516
108	20	23	25.375	85	48	33.766
109	20	23	26.056	85	48	31.826
110	20	23	29.409	85	48	31.145
111	20	23	29.422	85	48	30.669
112	20	23	25.401	85	48	29.449
113	20	23	27.713	85	48	27.174
114	20	23	29.744	85	48	24.013
115	20	23	32.866	85	48	19.285
116	20	23	34.986	85	48	16.561
117	20	23	33.560	85	48	15.623
118	20	23	33.881	85	48	11.537
119	20	23	34.125	85	48	09.160
120	20	23	33.200	85	48	07.554
121	20	23	33.958	85	48	03.108
122	20	23	33.984	85	48	00.050
123	20	23	37.761	85	48	00.538
124	20	23	43.132	85	48	01.746
125	20	23	43.980	85	48	00.140
126	20	23	45.574	85	48	00.708
127	20	23	52.053	85	48	06.365
128	20	23	56.191	85	48	10.944
129	20	24	01.566	85	48	17.521
130	20	24	06.530	85	48	23.000
131	20	24	11.190	85	48	29.763
132	20	24	11.426	85	48	32.771
133	20	24	11.533	85	48	36.605
134	20	24	12.117	85	48	49.063
135	20	24	14.247	85	48	54.346
136	20	24	22.761	85	49	00.468
137	20	24	32.623	85	49	12.132

TABLE B: GEO-COORDINATES OF PROMINENT LOCATIONS OF ECO-SENSITIVE ZONE

Eco-sensitive Zone boundary Pillar Coordinate of Important Locations		
Pillar	**Longitude (E)**	**Latitude (N)**
A	85.82496	20.40941
B	85.83039	20.40817
C	85.8321	20.40513
D	85.83134	20.40065
E	85.83229	20.39799

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F	85.82972	20.39551
G	85.83115	20.39256
H	85.82544	20.39113
I	85.82316	20.38428
J	85.81754	20.38619
K	85.81811	20.38428
L	85.81031	20.38152
M	85.81078	20.38761
N	85.80697	20.39113
O	85.80145	20.39152
P	85.80126	20.39523
Q	85.81012	20.40341

ANNEXURE-IV

LIST OF VILLAGES COMING UNDER ECO-SENSITIVE ZONE OF NANDANKANAN WILDLIFE SANCTUARY ALONG WITH GEO-COORDINATES

District	Village	Area (Ha)	Longitude	Latitude	Pillar ID
Cuttack	Dadhapatna	18.77	85°49'20.700"	20°24'35.300"	1
			85°49'26.869"	20°24'36.529"	2
			85°49'37.628"	20°24'32.828"	3
			85°49'41.534"	20°24'30.910"	4
			85°49'46.469"	20°24'22.686"	5
			85°49'46.301"	20°24'20.840"	6
			85°49'44.508"	20°24'19.927"	7
			85°49'43.251"	20°24'18.950"	8
			85°49'43.841"	20°24'22.373"	9
			85°49'41.696"	20°24'24.002"	10
			85°49'39.281"	20°24'26.251"	11
			85°49'38.896"	20°24'28.075"	12
			85°49'35.092"	20°24'30.568"	13
			85°49'33.447"	20°24'31.301"	14
			85°49'28.141"	20°24'31.647"	15
			85°49'26.136"	20°24'31.917"	16
			85°49'23.700"	20°24'31.800"	17
Khordha	Dadha	7.678	85°49'46.301"	20°24'20.840"	6
			85°49'44.508"	20°24'19.927"	7
			85°49'43.251"	20°24'18.950"	8
			85°49'45.852"	20°24'15.902"	18
			85°49'44.139"	20°24'06.582"	19
			85°49'44.070"	20°24'02.744"	20
			85°49'45.852"	20°23'58.359"	21
			85°49'46.126"	20°23'55.686"	22
			85°49'46.743"	20°23'54.384"	23
			85°49'45.768"	20°23'53.754"	24

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			85°49'44.535"	20°23'54.902"	25
			85°49'43.884"	20°23'56.067"	26
			85°49'43.558"	20°23'56.992"	27
			85°49'43.764"	20°23'58.208"	28
			85°49'42.428"	20°23'57.848"	29
			85°49'40.851"	20°24'00.178"	30
			85°49'40.868"	20°24'00.572"	31
			85°49'39.669"	20°24'01.155"	32
			85°49'38.444"	20°24'01.258"	33
			85°49'40.586"	20°24'06.397"	34
			85°49'41.656"	20°24'08.196"	35
			85°49'42.428"	20°24'13.636"	36
Khordha	Jujhagada	60.828	85°48'53.575"	20°23'11.456"	65
			85°48'52.268"	20°23'13.302"	66
			85°48'52.241"	20°23'14.537"	67
			85°48'52.435"	20°23'15.544"	68
			85°48'54.409"	20°23'09.961"	129
			85°48'54.897"	20°23'09.549"	130
			85°48'56.542"	20°23'07.185"	131
			85°48'56.509"	20°23'06.153"	132
			85°48'56.490"	20°23'05.540"	133
			85°48'55.257"	20°23'03.587"	134
			85°48'51.556"	20°23'00.966"	135
			85°48'47.907"	20°22'58.910"	136
			85°48'45.440"	20°22'57.009"	137
			85°48'42.613"	20°22'55.723"	138
			85°48'40.146"	20°22'55.055"	139
			85°48'35.006"	20°22'55.107"	140
			85°48'30.432"	20°22'55.980"	141
			85°48'28.633"	20°22'56.854"	142
			85°48'27.811"	20°22'58.499"	143
			85°48'28.530"	20°23'02.714"	144
			85°48'30.638"	20°23'10.423"	145
			85°48'30.895"	20°23'13.918"	146
			85°48'30.792"	20°23'17.002"	147
			85°48'30.278"	20°23'20.034"	148
			85°48'28.685"	20°23'22.347"	149
			85°48'26.834"	20°23'23.837"	150
			85°48'24.110"	20°23'26.510"	151
			85°48'16.966"	20°23'31.290"	152
			85°48'10.233"	20°23'31.753"	153
			85°48'07.972"	20°23'30.981"	154
			85°47'58.875"	20°23'32.266"	155
			85°47'57.384"	20°23'33.603"	156
			85°47'56.973"	20°23'35.556"	157
			85°47'57.539"	20°23'40.387"	158
			85°47'58.207"	20°23'43.059"	159
			85°47'58.016"	20°23'43.351"	160

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			85°48'28.464"	20°24'10.295"	171
			85°48'23.000"	20°24'06.530"	172
			85°48'17.521"	20°24'01.566"	173
			85°48'10.944"	20°23'56.190"	174
			85°48'06.365"	20°23'52.053"	175
			85°48'00.708"	20°23'45.574"	176
			85°48'00.140"	20°23'43.980"	177
			85°48'01.746"	20°23'43.132"	178
			85°48'00.538"	20°23'37.761"	179
			85°48'00.050"	20°23'33.984"	180
			85°48'03.108"	20°23'33.958"	181
			85°48'07.328"	20°23'33.229"	182
			85°48'09.179"	20°23'34.283"	183
			85°48'15.629"	20°23'33.615"	184
			85°48'16.400"	20°23'35.131"	185
			85°48'19.227"	20°23'32.972"	186
			85°48'23.904"	20°23'29.863"	187
			85°48'27.013"	20°23'27.833"	188
			85°48'29.274"	20°23'25.391"	189
			85°48'30.559"	20°23'29.477"	190
			85°48'31.022"	20°23'29.529"	191
			85°48'31.665"	20°23'26.137"	192
			85°48'33.695"	20°23'25.366"	193
			85°48'36.444"	20°23'24.980"	194
			85°48'36.264"	20°23'24.184"	195
			85°48'39.502"	20°23'22.693"	196
			85°48'38.988"	20°23'21.331"	197
			85°48'37.344"	20°23'20.843"	198
			85°48'36.444"	20°23'21.434"	199
			85°48'34.645"	20°23'19.584"	200
			85°48'37.781"	20°23'12.054"	201
			85°48'39.631"	20°23'10.949"	202
			85°48'41.687"	20°23'09.613"	203
			85°48'44.025"	20°23'10.384"	204
			85°48'45.927"	20°23'11.514"	205
			85°48'47.546"	20°23'12.928"	206
			85°48'48.265"	20°23'12.388"	207
			85°48'48.728"	20°23'12.928"	208
			85°48'47.186"	20°23'13.879"	209
			85°48'47.649"	20°23'14.521"	210
			85°48'49.113"	20°23'13.467"	211
			85°48'50.090"	20°23'12.902"	212
			85°48'50.809"	20°23'12.953"	213
			85°49'28.084"	20°23'38.549"	111
			85°49'29.374"	20°23'38.755"	112
			85°49'30.693"	20°23'39.380"	113
			85°49'32.011"	20°23'40.417"	114
			85°49'33.110"	20°23'41.653"	115

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			85°49'33.082"	20°23'42.896"	116
			85°49'32.839"	20°23'44.355"	117
			85°49'32.127"	20°23'43.576"	124
			85°49'31.506"	20°23'42.848"	125
			85°49'30.702"	20°23'41.830"	126
			85°49'29.910"	20°23'40.771"	127
			85°49'29.075"	20°23'39.839"	128
Khordha	Raghunathapur	35.470	85°49'38.252"	20°23'46.324"	37
			85°49'39.458"	20°23'43.368"	38
			85°49'42.670"	20°23'40.927"	39
			85°49'44.083"	20°23'34.887"	40
			85°49'42.284"	20°23'33.731"	41
			85°49'37.916"	20°23'34.117"	42
			85°49'34.960"	20°23'32.575"	43
			85°49'30.206"	20°23'29.620"	44
			85°49'27.893"	20°23'29.877"	45
			85°49'26.608"	20°23'30.776"	46
			85°49'24.552"	20°23'29.491"	47
			85°49'22.368"	20°23'29.363"	48
			85°49'21.854"	20°23'25.122"	49
			85°49'19.798"	20°23'22.938"	50
			85°49'21.212"	20°23'20.625"	51
			85°49'20.698"	20°23'16.770"	52
			85°49'20.235"	20°23'15.665"	53
			85°49'18.848"	20°23'14.226"	54
			85°49'19.516"	20°23'11.040"	55
			85°49'18.436"	20°23'08.264"	56
			85°49'16.380"	20°23'05.746"	57
			85°49'14.376"	20°23'04.718"	58
			85°49'13.245"	20°23'04.770"	59
			85°49'08.774"	20°23'07.288"	60
			85°49'04.332"	20°23'09.453"	61
			85°49'01.064"	20°23'11.400"	62
			85°48'58.598"	20°23'12.016"	63
			85°48'54.691"	20°23'13.250"	64
			85°48'53.575"	20°23'11.456"	65
			85°48'52.268"	20°23'13.302"	66
			85°48'52.241"	20°23'14.537"	67
			85°48'52.435"	20°23'15.544"	68
			85°48'53.842"	20°23'17.785"	69
			85°48'55.204"	20°23'17.425"	70
			85°48'56.720"	20°23'16.089"	71
			85°48'57.337"	20°23'16.063"	72
			85°48'57.979"	20°23'17.142"	73
			85°48'58.211"	20°23'17.117"	74
			85°48'58.391"	20°23'15.729"	75
			85°48'59.495"	20°23'15.138"	76
			85°49'01.397"	20°23'14.624"	77

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			85°49'02.656"	20°23'15.138"	78
			85°49'04.327"	20°23'15.215"	79
			85°49'04.095"	20°23'13.570"	80
			85°49'07.102"	20°23'11.823"	81
			85°49'08.516"	20°23'11.360"	82
			85°49'11.060"	20°23'10.872"	83
			85°49'10.931"	20°23'10.101"	84
			85°49'12.242"	20°23'10.127"	85
			85°49'12.345"	20°23'09.227"	86
			85°49'14.066"	20°23'08.379"	87
			85°49'15.685"	20°23'10.487"	88
			85°49'16.217"	20°23'11.964"	89
			85°49'15.729"	20°23'14.007"	90
			85°49'15.125"	20°23'15.948"	91
			85°49'14.663"	20°23'17.939"	92
			85°49'17.721"	20°23'18.029"	93
			85°49'17.913"	20°23'20.586"	94
			85°49'17.220"	20°23'22.051"	95
			85°49'16.603"	20°23'21.935"	96
			85°49'15.973"	20°23'22.719"	97
			85°49'16.166"	20°23'23.747"	98
			85°49'15.678"	20°23'25.057"	99
			85°49'16.474"	20°23'25.751"	100
			85°49'17.656"	20°23'25.833"	101
			85°49'19.121"	20°23'27.272"	102
			85°49'19.558"	20°23'32.310"	103
			85°49'20.213"	20°23'33.042"	104
			85°49'24.068"	20°23'33.389"	105
			85°49'23.259"	20°23'34.198"	106
			85°49'24.878"	20°23'34.648"	107
			85°49'25.867"	20°23'35.817"	108
			85°49'26.651"	20°23'36.807"	109
			85°49'27.512"	20°23'37.860"	110
			85°49'28.084"	20°23'38.549"	111
			85°49'29.374"	20°23'38.755"	112
			85°49'30.693"	20°23'39.380"	113
			85°49'32.011"	20°23'40.417"	114
			85°49'33.110"	20°23'41.653"	115
			85°49'33.082"	20°23'42.896"	116
			85°49'32.839"	20°23'44.355"	117
			85°49'34.054"	20°23'44.443"	118
			85°49'34.322"	20°23'44.561"	119
			85°49'34.771"	20°23'44.904"	120
			85°49'35.617"	20°23'44.754"	121
			85°49'36.710"	20°23'44.491"	122
			85°49'36.967"	20°23'44.954"	123
			85°49'32.127"	20°23'43.576"	124
			85°48'54.409"	20°23'09.961"	129

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			85°48'54.897"	20°23'09.549"	130
			85°48'56.542"	20°23'07.185"	131
			85°48'56.509"	20°23'06.153"	132
			85°48'56.490"	20°23'05.540"	133
Khordha	Krushna nagar	9.934	85°47'58.207"	20°23'43.059"	159
			85°47'58.016"	20°23'43.351"	160
			85°47'59.644"	20°23'46.027"	161
			85°48'03.132"	20°23'50.785"	162
			85°48'08.158"	20°23'55.544"	163
			85°48'11.207"	20°23'58.647"	164
			85°48'16.892"	20°24'04.024"	165
			85°48'21.699"	20°24'07.745"	166
			85°48'25.846"	20°24'10.025"	167
			85°48'29.389"	20°24'11.241"	168
			85°48'29.741"	20°24'11.259"	169
			85°48'29.763"	20°24'11.190"	170
			85°47'57.333"	20°23'44.396"	214
			85°47'57.179"	20°23'45.989"	215
			85°47'57.744"	20°23'47.891"	216
			85°48'02.113"	20°23'53.442"	217
			85°48'05.556"	20°23'56.885"	218
			85°48'10.131"	20°24'01.100"	219
			85°48'16.041"	20°24'05.674"	220
			85°48'21.284"	20°24'10.608"	221
			85°48'27.091"	20°24'14.617"	222
			85°48'28.479"	20°24'15.234"	223

ANNEXURE –V

Performa of Action Taken Report:

1. Number and date of meetings.
2. Minutes of the meetings: (Mention noteworthy points. Attach minutes of the meeting as separate Annexure).
3. Status of preparation of Zonal Master Plan including Tourism Master Plan.
4. Summary of cases dealt with rectification of error apparent on face of land record (Eco-sensitive Zone wise). Details may be attached as Annexure.
5. Summary of cases scrutinised for activities covered under the Environment Impact Assessment Notification, 2006 (Details may be attached as separate Annexure).
6. Summary of cases scrutinised for activities not covered under the Environment Impact Assessment Notification, 2006 (Details may be attached as separate Annexure).
7. Summary of complaints lodged under section 19 of the Environment (Protection) Act, 1986.
8. Any other matter of importance.

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ANNEXURE R-6 1103

TEST REPORT

NABL ULR NO	:	**TC1206324000007079**
Test Report No	:	**KLPL/9/24/WATER/01547**
Issue Date	:	17-Sep-2024
Amendment No	:	--
Amendment Date	:	--

TC-12063

Reference	:	-			
Customer Name	:	**OFFICE OF THE FOREST RANGE OFFICER ,SPECIAL PROJECT RANGE,**			
Address	:	**NANDANKANAN ZOOLOGICAL PARK**			
Date of receipt	:	06-Sep-2024	Commenced On : 06-Sep-2024	*Completion On:*	14-Sep-2024

Sample Description	:	**DRINKING WATER (IS 10500:2012)**			
Form|Shape|Appearance	:	SEALED IN GLASS BOTTLE			
Sample Identification	:	**GB-SP-09**			
Batch No , Lot No	:	NOT APPLICABLE	*MFG Date :* NOT APPLICABLE	*EXP Date:*	NOT APPLICABLE
Received Quantity	:	NOT APPLICABLE	*Sample Collection Location, & Date*	:	
Sample Collected By	:	SUBMITTED BY CUSTOMER	**NUCTURNAL HOUSE(TAP)**		
Sampling Procedure if Any	:	NOT APPLICABLE			

Sl	Parameters	Unit	Requirement	Result	Standard Specification	Test Method
BATERIOLOGICAL QUALITY						
i	Feacal Coilform	MPN/100ml	--	<2	--	IS 1622:1981 RA 2009
ii	E.coli	MPN/100ml	Shall not be detected in any 100ml sample	14	IS : 10500 : 2012	IS 1622:3981, RA 2009

Opinion & Interpretation: --

Any unusual feature observed during determination : NIL
Customer information if any : NIL
Confirmation statement as per decision rule , if applicable : --

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Analysed By

Smruti

Miss. Smruti Sephali Panda
For Kalyani Laboratories Pvt. Ltd.

Kalyani Laboratories Pvt. Ltd. BBSR

Authorised By

Rekha Nayak 17/09/2024

Dr. Rekha Nayak
For Kalyani Laboratories Pvt. Ltd.

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TEST REPORT

NABL ULR NO	:	**TC1206324000007078**
Test Report No	:	**KLPL/9/24/WATER/01546**
Issue Date	:	17-Sep-2024
Amendment No	:	--
Amendment Date	:	--

TC-12063

Reference	:	-
Customer Name	:	**OFFICE OF THE FOREST RANGE OFFICER ,SPECIAL PROJECT RANGE,**
Address	:	**NANDANKANAN ZOOLOGICAL PARK**
Date of receipt	:	06-Sep-2024 Commenced On : 06-Sep-2024 *Completion On:* 14-Sep-2024

Sample Description	:	**DRINKING WATER (IS 10500:2012)**
Form|Shape|Appearance	:	SEALED IN GLASS BOTTLE
Sample Identification	:	**GB-SP-08**
Batch No , Lot No'	:	NOT APPLICABLE *MFG Date :* NOT APPLICABLE *EXP Date:* NOT APPLICABLE
Received Quantity	:	300ML *Sample Collection Location, & Date* :
Sample Collected By	:	SUBMITTED BY CUSTOMER **HAND REARING CENTRE(AQUAGUARD)**
Sampling Procedure if Any	:	NOT APPLICABLE

Sl	*Parameters*	*Unit*	*Requirement*	*Result*	*Standard Specification*	*Test Method*
BATERIOLOGICAL QUALITY						
i	Feacal Coilform	MPN/100ml	--	<2	--	IS 1622:1981 RA 2009
ii	E.coli	MPN/100ml	Shall not be detected in any 100ml sample	<2	IS : 10500 : 2012	IS 1622 1981, RA 2009

Opinion & Interpretation: --

Any unusual feature observed during determination : NIL
Customer information if any : NIL
Confirmation statement as per decision rule , if applicable : --

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Analysed By
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Miss. Smruti Sephali Panda
For Kalyani Laboratories Pvt. Ltd.

Kalyani Laboratories Pvt. Ltd. BBSR

Authorised By
Rekha Nayak 17/09/2024
Dr. Rekha Nayak
For Kalyani Laboratories Pvt. Ltd.

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TEST REPORT

NABL ULR NO	:	**TC1206324000007077**
Test Report No	:	**KLPL/9/24/WATER/01545**
Issue Date	:	17-Sep-2024
Amendment No	:	--
Amendment Date	:	--

TC-12063

Reference	:	-			
Customer Name	:	**OFFICE OF THE FOREST RANGE OFFICER ,SPECIAL PROJECT RANGE,**			
Address	:	**NANDANKANAN ZOOLOGICAL PARK**			
Date of receipt	:	06-Sep-2024	Commenced On : 06-Sep-2024	Completion On:	14-Sep-2024

Sample Description	:	**DRINKING WATER (IS 10500:2012)**		
Form|Shape|Appearance	:	SEALED IN GLASS BOTTLE		
Sample Identification	:	**GB-SP-07**		
Batch No , Lot No	:	NOT APPLICABLE	MFG Date : NOT APPLICABLE	EXP Date: NOT APPLICABLE
Received Quantity	:	300ML	Sample Collection Location, & Date :	
Sample Collected By	:	SUBMITTED BY CUSTOMER	**MOUSE DEER ENCLOSURE(II)**	
Sampling Procedure if Any	:	NOT APPLICABLE		

Sl	Parameters	Unit	Requirement	Result	Standard Specification	Test Method
BATERIOLOGICAL QUALITY						
i	Feacal Coilform	MPN/100ml	--	<2	--	IS 1622:1981 RA 2009
ii	E.coli	MPN/100ml	Shall not be detected in any 100ml sample	<2	IS : 10500 : 2012	IS 1622:1981, RA 2009

Opinion & Interpretation: --

Any unusual feature observed during determination	:	NIL
Customer information if any	:	NIL
Confirmation statement as per decision rule , if applicable	:	--

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TEST REPORT

NABL ULR NO	:	**TC1206324000007076**
Test Report No	:	**KLPL/9/24/WATER/01544**
Issue Date	:	17-Sep-2024
Amendment No	:	--
Amendment Date	:	--

TC-12063

Reference	:	-			
Customer Name	:	**OFFICE OF THE FOREST RANGE OFFICER ,SPECIAL PROJECT RANGE,**			
Address	:	**NANDANKANAN ZOOLOGICAL PARK**			
Date of receipt	:	06-Sep-2024	Commenced On :	06-Sep-2024	Completion On: 14-Sep-2024

Sample Description	:	**DRINKING WATER (IS 10500:2012)**		
Form|Shape|Appearance	:	SEALED IN GLASS BOTTLE		
Sample Identification	:	**GB-SP-06**		
Batch No , Lot No	:	NOT APPLICABLE	MFG Date : NOT APPLICABLE	EXP Date: NOT APPLICABLE
Received Quantity	:	300ML	Sample Collection Location, & Date :	
Sample Collected By	:	SUBMITTED BY CUSTOMER	**MOUSE DEER ENCLOSURE(III)**	
Sampling Procedure if Any	:	NOT APPLICABLE		

Sl.	Parameters	Unit	Requirement	Result	Standard Specification	Test Method
BATERIOLOGICAL QUALITY						
i	Feacal Coilform	MPN/100ml	--	2	--	IS 1622:1981 RA 2009
ii	E.coli	MPN/100ml	Shall not be detected in any 100ml sample	2	IS : 10500 : 2012	IS 1622:1981, RA 2009

Opinion & Interpretation: --

Any unusual feature observed during determination : NIL
Customer information if any : NIL
Confirmation statement as per decision rule , if applicable : --

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Analysed By

Miss. Smruti Sephali Panda
For Kalyani Laboratories Pvt. Ltd.

Kalyani Laboratories Pvt. Ltd. BBSR

Authorised By

Dr. Rekha Nayak 17/09/2024
For Kalyani Laboratories Pvt. Ltd.

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TEST REPORT

NABL ULR NO	:	**TC1206324000007075**
Test Report No	:	**KLPL/9/24/WATER/01543**
Issue Date	:	17-Sep-2024
Amendment No	:	--
Amendment Date	:	--

TC-12063

Reference	:	-			
Customer Name	:	**OFFICE OF THE FOREST RANGE OFFICER ,SPECIAL PROJECT RANGE,**			
Address	:	**NANDANKANAN ZOOLOGICAL PARK**			
Date of receipt	:	06-Sep-2024	Commenced On : 06-Sep-2024	*Completion On:*	14-Sep-2024

Sample Description	:	**DRINKING WATER (IS 10500:2012)**			
Form|Shape|Appearance	:	SEALED IN GLASS BOTTLE			
Sample Identification	:	**GB-SP-05**			
Batch No , Lot No	:	NOT APPLICABLE	*MFG Date :* NOT APPLICABLE	*EXP Date:*	NOT APPLICABLE
Received Quantity	:	300ML	*Sample Collection Location, & Date*	:	
Sample Collected By	:	SUBMITTED BY CUSTOMER	**REPTILE(WELL)**		
Sampling Procedure if Any	:	NOT APPLICABLE			

Sl	Parameters	Unit	Requirement	Result	Standard Specification	Test Method
BATERIOLOGICAL QUALITY						
i	Feacal Coilform	MPN/100ml	--	13	--	IS 1622:1981 RA 2009
ii	E.coli	MPN/100ml	Shall not be detected in any 100ml sample	8	IS : 10500 : 2012	IS 1622:1981, RA 2009

Opinion & Interpretation: --

Any unusual feature observed during determination : NIL

Customer information if any : NIL

Confirmation statement as per decision rule , if applicable : --

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Analysed By

Smruti

Miss. Smruti Sephali Panda

For Kalyani Laboratories Pvt. Ltd.

Kalyani Laboratories Pvt Ltd BBSR

Authorised By

Rekha Nayak 17/09/2024

Dr. Rekha Nayak

For Kalyani Laboratories Pvt. Ltd.

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TEST REPORT

NABL ULR NO	:	**TC1206324000007074**
Test Report No	:	**KLPL/9/24/WATER/01542**
Issue Date	:	17-Sep-2024
Amendment No	:	--
Amendment Date	:	--

TC-12063

Reference	:	-			
Customer Name	:	**OFFICE OF THE FOREST RANGE OFFICER ,SPECIAL PROJECT RANGE,**			
Address	:	**NANDANKANAN ZOOLOGICAL PARK**			
Date of receipt	:	06-Sep-2024	Commenced On : 06-Sep-2024	Completion On:	14-Sep-2024

Sample Description	:	**DRINKING WATER (IS 10500:2012)**		
Form|Shape|Appearance	:	SEALED IN GLASS BOTTLE		
Sample Identification	:	**GB-SP-04**		
Batch No , Lot No	:	NOT APPLICABLE	MFG Date : NOT APPLICABLE	EXP Date: NOT APPLICABLE
Received Quantity	:	300ML	Sample Collection Location, & Date :	
Sample Collected By	:	SUBMITTED BY CUSTOMER	**JAVA SPARROW(AQUAGUARD)**	
Sampling Procedure if Any	:	NOT APPLICABLE		

Sl	Parameters	Unit	Requirement	Result	Standard Specification	Test Method
BATERIOLOGICAL QUALITY						
i	Feacal Coilform	MPN/100ml	--	<2	--	IS 1622:1981 RA 2009
ii	E.coli	MPN/100ml	Shall not be detected in any 100ml sample	<2	IS : 10500 : 2012	IS 1622:1981, RA 2009

Opinion & Interpretation: --

Any unusual feature observed during determination : NIL
Customer information if any : NIL
Confirmation statement as per decision rule , if applicable : --

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Analysed By

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Authorised By

Rekha Nayak 17/09/2024
Dr. Rekha Nayak
For Kalyani Laboratories Pvt. Ltd.

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TEST REPORT

NABL ULR NO	:	**TC1206324000007072**
Test Report No	:	**KLPL/9/24/WATER/01540**
Issue Date	:	17-Sep-2024
Amendment No	:	--
Amendment Date	:	--

TC-12063

Reference	:	-			
Customer Name	:	**OFFICE OF THE FOREST RANGE OFFICER ,SPECIAL PROJECT RANGE,**			
Address	:	**NANDANKANAN ZOOLOGICAL PARK**			
Date of receipt	:	06-Sep-2024	Commenced On : 06-Sep-2024	*Completion On:*	14-Sep-2024

Sample Description	:	**DRINKING WATER (IS 10500:2012)**			
Form|Shape|Appearance	:	SEALED IN GLASS BOTTLE			
Sample Identification	:	**GB-SP-02**			
Batch No , Lot No	:	NOT APPLICABLE	*MFG Date :* NOT APPLICABLE	*EXP Date:*	NOT APPLICABLE
Received Quantity	:	300ML	*Sample Collection Location, & Date*	:	
Sample Collected By	:	SUBMITTED BY CUSTOMER	MOUSE DEER ENCLOSURE(I)		
Sampling Procedure if Any	:	NOT APPLICABLE			

Sl	Parameters	Unit	Requirement	Result	Standard Specification	Test Method
BATERIOLOGICAL QUALITY						
i	Feacal Coilform	MPN/100ml	--	<2	--	IS 1622 1981 RA 2009
ii	E.coli	MPN/100ml	Shall not be detected in any 100ml sample	<2	IS : 10500 : 2012	IS 1622:1981, RA 2009

Opinion & Interpretation: --

Any unusual feature observed during determination : NIL
Customer information if any : NIL
Confirmation statement as per decision rule , if applicable : --

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Analysed By

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Miss. Smruti Sephali Panda
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Authorised By

Rekha Nayak 17/09/2024

Dr. Rekha Nayak
For Kalyani Laboratories Pvt. Ltd.

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TEST REPORT

NABL ULR NO	:	**TC1206324000007071**
Test Report No	:	**KLPL/9/24/WATER/01539**
Issue Date	:	17-Sep-2024
Amendment No	:	--
Amendment Date	:	--

TC-12063

Reference	:	-			
Customer Name	:	**OFFICE OF THE FOREST RANGE OFFICER ,SPECIAL PROJECT RANGE,**			
Address	:	**NANDANKANAN ZOOLOGICAL PARK**			
Date of receipt	:	06-Sep-2024	Commenced On : 06-Sep-2024	*Completion On:*	14-Sep-2024

Sample Description	:	**DRINKING WATER (IS 10500:2012)**			
Form|Shape|Appearance	:	SEALED IN GLASS BOTTLE			
Sample Identification	:	**GB-SP-01**			
Batch No , Lot No	:	NOT APPLICABLE	*MFG Date :* NOT APPLICABLE	*EXP Date:*	NOT APPLICABLE
Received Quantity	:	300ML	*Sample Collection Location, & Date*	:	
Sample Collected By	:	SUBMITTED BY CUSTOMER	**HAND REARING CENTRE(TAP)**		
Sampling Procedure if Any	:	NOT APPLICABLE			

Sl	Parameters	Unit	Requirement	Result	Standard Specification	Test Method
BATERIOLOGICAL QUALITY						
i	Feacal Coilform	MPN/100ml	--	<2	--	IS 1622:1981 RA 2009
ii	*E.coli*	MPN/100ml	Shall not be detected in any 100ml sample	<2	IS : 10500 : 2012	IS 1622:1981, RA 2009

Opinion & Interpretation: --

Any unusual feature observed during determination : NIL

Customer information if any : NIL

Confirmation statement as per decision rule , if applicable : --

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Analysed By

Smruti

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Kalyani Laboratories Pvt. Ltd. BBSR

Authorised By

Rekha Nayak 17/09/2024

Dr. Rekha Nayak

For Kalyani Laboratories Pvt. Ltd.

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TEST REPORT

NABL ULR NO	:	**TC1206324000007073**
Test Report No	:	**KLPL/9/24/WATER/01541**
Issue Date	:	17-Sep-2024
Amendment No	:	--
Amendment Date	:	--

TC-12063

Reference	:	-
Customer Name	:	**OFFICE OF THE FOREST RANGE OFFICER ,SPECIAL PROJECT RANGE,**
Address	:	**NANDANKANAN ZOOLOGICAL PARK**
Date of receipt	:	06-Sep-2024 Commenced On : 06-Sep-2024 Completion On: 14-Sep-2024

Sample Description	:	**DRINKING WATER (IS 10500:2012)**
Form|Shape|Appearance	:	SEALED IN GLASS BOTTLE
Sample Identification	:	**GB-SP-03**
Batch No , Lot No	:	NOT APPLICABLE MFG Date : NOT APPLICABLE EXP Date: NOT APPLICABLE
Received Quantity	:	300ML Sample Collection Location, & Date :
Sample Collected By	:	SUBMITTED BY CUSTOMER **NUCTURNAL HOUSE (AQUAGUARD)**
Sampling Procedure if Any	:	NOT APPLICABLE

Sl	Parameters	Unit	Requirement	Result	Standard Specification	Test Method
BATERIOLOGICAL QUALITY						
i	Feacal Coilform	MPN/100ml	--	<2	--	IS 1622:1981 RA 2009
ii	E.coli	MPN/100ml	Shall not be detected in any 100ml sample	<2	IS : 10500 : 2012	IS 1622:1981, RA 2009

Opinion & Interpretation: --

Any unusual feature observed during determination : NIL
Customer information if any : NIL
Confirmation statement as per decision rule , if applicable : --

To view "Terms & Conditions & NABL certificate of accreditation click **report.kalyanilaboratories.com/images/NACNTC.pdf**

Analysed By
Smruti
Miss. Smruti Sephali Panda
For Kalyani Laboratories Pvt. Ltd.

Kalyani Laboratories Pvt. Ltd. BBSR

Authorised By
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For Kalyani Laboratories Pvt. Ltd.

****************************** End of Test Report ******************************

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problem for wild animals as it reduces available palatable forage.That has been a threat for aquatic fauna of Kanjia Lake and the lake ecosystem as a whole. Large scale illicit felling for firewood, fencing material, poles etc. has reduced the quality of crop in terms of wildlife preference. It has resulted in elimination of certain micro habitats viz. old growth, mesic sites, key areas etc. by exposure to biotic agencies.

2.6.4.3. Important invertebrates, their status, distribution and habitat

There are 92 species of butterflies and 52 species of spiders have been documented in the sanctuary area (Figs. 16&17). Some terrestrial invertebrates gradually vanishing are earthworm, crickets, butterflies, termites and snails etc. They are adversely affected due to indiscriminate use of chemical fertilizers, insecticides and pesticides agriculture fields in the catchment of the wetlands. Moreover the micro habitats are being lost due to increased biotic interference. Unless organic farming is stressed upon in and around sanctuary area the Kanjia ecosystem would be adversely affected.

2.6.4.4. Damage caused to the forest by Wild animals

Damage to bamboo clumps and culms, debarking of ficus trees and damage to other fodder trees by migrating elephant herds is noticed, especially during winter. Browsing of young shoots and coppice shoots by Chittal, Sambar and other herbivores etc. are the type of damages caused to crop by wild animals. Damages by wild boar, rodents and porcupines are not uncommon but the extent is very limited. In the whole damage by wild animals, are not posing a threat to sanctuary forest management.

2.6.5. Development of Kanjia lake eco-system

2.6.5.1. Introduction

The wetlands are gaining importance day by day with the more and more understanding about their values and functions. The wise use of wetland resources and the community participation is another dimension of wetland management. Wetlands are highly productive ecosystem. Some of the detrimental factors responsible for the degradation of wetland ecosystem are deforestation, industrial growth, urbanization and over exploitation of wetland resources like alternation of land use practices etc. The fertilizers and pesticide runoff from agriculture field, domestic sewage, industrial waste and unsustainable use of the wetland resources adversely. Excessive nutrient loading is also detrimental to the wetland ecosystem resulting in eutrophication. This also led to proliferation of macrophytes including the invasive species pose a serious management problem. Much of our limnological understanding originates from natural lake ecosystems. However, human being has created a large numbers

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of reservoirs. These artificial water bodies have been created for specific purposes of water management. Examples include water storage, flood control, generation of electrical energy, recreation and for supply of drinking water.

Kanjia lake popularly known as Nandankanan lake is situated between 85 48' to 85 50' East longitudes and between 20 23' to 20 25' North latitudes. It is an important wetland laying to the south of Mahanadi delta head, within the boundary of Nandankanan sanctuary. Nandankanan is a famous zoological park of Odisha. The zoological park remains in the south side of the lake where as the Botanical garden remain in the north side of the lake. It serves multipurpose as it is used for the recreation of the visitors, supply of fresh water to the zoo, water supply to the botanical garden. At the same time, it has got immense socioeconomic value as the fishermen from the local village derive their livelihood. It is only 2.0 kms away from Barang railway station and 13.0 km from Bhubaneswar town. The wetland is facing management problems like siltation, eutrophication, and weed infestation, proliferation of invasive species and shoreline shrinkage.

Keeping in view the important role performed by the lake a systematic survey was carried out by a multidisciplinary team of Chilika Development Authority to generate base line information for formulating a management plan for its scientific management.

2.6.5.2. Physiography, Geology, Geomorphology and Lithology

Kanjia lake is surrounded by linear hill ranges to the north, west and south. The wetland opens up to a flat deltaic plain of Prachi river, which existed in the past. The major rock types are sandstones. The ridges are heavily weathered and lateritised. Surrounding the ridges, the uplands are present which are made up of thick laterites of reddish brown colour. The water body is present between two linear lateritised ridges. The soil type, which predominates in this area, is lateritic. A part of the Chandaka reserve forest form the drainage basin of Kanjia lake and the surrounding shallow depressions which ultimately drains into river Kuakhai, one of the branches of the Mahanadi system.

2.6.5.3. Classification of Wetland

The Kanjia lake is a delta head wetland. This type of wetlands is present at both sides of river Mahanadi. These wetlands are locally known as "Patas".

2.6.5.4. Justification for a wetland of National importance

This wetland is one of the most important wetland of the locality, with riverine caharcters. Its plays a vital role by way of meeting the fresh water demands of the Nanadankanan zoological park as well as the botanical garden. With its rich biodiversity and

strategic location it would serve as an excellent site for the wetland education. As more than 3.3 million visitors visit Nandankanan and the wetland is very strategically located, message on wetland conservation its values and functions with appropriate signage will serve a great purpose. Apart from this with its rich shoreline flora and fauna, it can serve as a living laboratory for the wetland education programme for the schoolchildren. The wetland has a rich diversity of terrestrial and aquatic fauna (Table 2-5). The lake has a good fishery resource and fish diversity (Table- 8), the wetland serves as the lifeline for more than 550 fishers and equal number of people who are involved in the marketing and other ancillary work. Fishing right for the local communities is admitted for nine months excepting the migratory period. This small wetland shelters amazing fresh water biodiversity. The wetland is also wintering ground for a large number of migratory birds. The list of the avifauna of the wetland is given in Table-6. It has an immense recreational value as during winter large numbers of visitors come to the wetland being attracted by its scenic beauty as well as the avifauna. The rich biodiversity of the wetland needs to be inventorised. Due to the above values and functions and its immense socio-economic importance it has been declared as **Wetland of National Importance**.

2.6.5.5 Human settlement and land use

The wetland falls within the Nanadankanan sanctuary which was constituted vide Govt. of Odisha notification No.8F (W) 160/78-20582 dt. 3.8.1979, as per the section 18 of the wildlife (Protection) Act, 1972. It covers the Jujhagarh D.P.F., a part of Krishnanagar D.P.F. and whole of Kanjia lake. The hills and pediplains are covered by laterite soil which supports natural vegetation. The deltaic alluvium to its east is used for cultivation. The drainage basin was a Demarcated Protected Forest (D.P.F) prior to 1960, and it used to cater to the need of fuel wood and small timber of the local people. The forest was mixed dry deciduous type. With the development of Bhubaneswar city and the increasing urbanization on the nearby areas, the pressure on the forest grew rapidly. As a result most of the trees growth has been removed and only degraded scrub vegetation exist today. The lake was under the management of state fishery department since long and fishing operation was being carried out with management of aquatic weeds till 1977. To facilitate pisciculture an eastern earthen embankment was created to prevent the escape of water to nearby swamps to increase the water level of the wetland. Subsequently after the constitution of the zoo, the zoo authority further raised the height of the embankment to increase the water holding capacity of the wetland. In the process the eastern and the southern swamps got separated from the main water body. The wetland is spread over 105Ha, out of which the water spread area of main lake is 75 ha, where as about 15 ha which was previously a part of the main wetland is now separated by a road, which gets connected during monsoon

through the vented causeway of the road. Similarly, a small satellite wetland of 15 ha. lies towards the north east of the Kanjia Lake. In addition to this a swamp on the southern side spread over 40ha with rich growth of emergent macrophytes is also habitat for water birds like rails and coots.

2.6.5.6. Physicochemical and Biological Parameter of the wetland

In an aquatic ecosystem, the biological phenomenon occurring is directly or indirectly related to the intrinsic properties of the water. The properties of water involve interactions between a complex of physical and chemical factors, which have profound effects upon the other biota of the Lake.

Temperature:

Among all the ecological factors, temperature is an important parameter, which influences the growth of the organism of a wetland. The growth and development of phytoplankton, algae and macrophytes are directly influenced by temperature or in association with illumination and inorganic nutrients. Temperature also acts as determining factor for migration of fishes and other zoo biota. The atmospheric temperature recorded to vary between 36.9 to 38.4 C during the survey. The average air temperature was recorded to be 37.3 C the period of observation was during the peak summer. The water temperature varied between 30.3 to 35.5 C at different stations. The average water temperature was 32.0 C. The water temperature was 5.0 C less then the air temperature.

Transparency:

Transparency plays a significant role in the growth and development of aquatic plants. Some zooplankton and fishes are also sensitive to light. Growth of the submerged macrophytes is significantly influenced by the light intensity that penetrates the water column to reach the bottom. The photic zone is affected by the growth of phytoplankton, macrophytes and suspended solid in the water column. The water transparency varied between 70.0 to 146.0cm with average transparency of 110.0cm at different stations during the survey. It was observed that at most of the sampling stations transparency was equal to water depth. This testifies that transparency of the wetland is very good during this part of the year.

Depth:

The depth of water influences the wetland eco-system significantly. The depth of the water affects the migration of fish and growth of different aquatic life forms. The depth of Kanjia lake varied between 70.0 to 168.0 cm at different stations during survey. The average

depth was recorded to be 118.0cms. The station no 3 & 4 are the shallower zones. The average depth more than 1.0 meter during peak summer is indicative of its suitability for piscine fauna.

Total suspended solids (TSS):

Total suspended solids (TSS) of Kanjia lake water ranged between 0.002 to 0.134 gm/l with an average of 0.032 gm/l. The highest value of TSS was found at station 5, where as lowest was recorded at station 1.

Turbidity:

Turbidity of Kanjia lake water varied between 0.5 to 9.0 NTU with an average value of 2.5 NTU during the survey. This indicates that the wetland is conducive for macrophytes and other aquatic life.

pH:

The hydrogenion concentration (pH) of a water body is considered a very important parameter from management point of view. The pH of Kanjia lake was recorded to vary between 7.35 to 8.52 with an average of 7.83 which is in alkaline range and good for the aquatic life.

Total alkalinity:

The total alkalinity of Kanjia lake ranged between 24.0 to 33.0 ppm in surface and 22.0 to 30.0 ppm in bottom water during survey. The average alkalinity was 28.0 ppm (surface) and 27.0 ppm (bottom). This indicates that the lake water is not favorable for phytoplankton growth. The low alkalinity encountered might be due to decay and decomposition of the aquatic macrophytes during the peak summer.

Conductivity:

Conductivity is the sum of concentration of soluble salts in the water. Some class of phytoplankton grow fast in water with richer electrolytes (conductivity).The conductivity of Kanjia lake varied between 0.05 to 0.15 milli mho/cm with an average of 0.1 milli mho/cm. This indicated the low concentration of salt in the water.

Dissolved oxygen (DO):

The dissolved oxygen is an indicator of the health of the aquatic eco-system. Dissolved oxygen in a water body is built up due to photosynthesis by the aquatic plants and churning

of water due to wave action. The dissolved oxygen of the surface water ranged between 2.64 to 7.01 ppm with an average of 5.72 ppm. The bottom DO varied between 2.64 to 7.45 ppm with an average of 5.33 ppm. At two stations bottom DO was less than surface DO. This stratification is due to decomposition of weed during the peak summer, which resulted in decreased DO of lake water.

Biochemical Oxygen Demand (BOD):

The BOD value varied between 1.22 to 3.86 ppm with an average of 2.35 ppm. This indicates that the wetland is free from organic pollution.

Nitrate and Nitrite:

The nitrate value recorded to vary between 0.032 to 0.078 ppm in surface and 0.049 to 0.073 ppm in bottom water at different stations during the survey. The average value in surface and bottom water was 0.056 and 0.06 ppm respectively. The bottom water had higher nitrate value than the surface water. This might be due to utilisation of surface nitrate by the floating weed.

Ammonia:

It varied between 0.071 to 0.123 ppm in surface water and 0.071 to 0.099 ppm in bottom water. The average surface and bottom ammonia were 0.091 & 0.09 ppm, respectively. The ammonia concentration was observed to be slightly higher in the lake water.

Ortho-phosphate:

It is an important nutrient for the growth of autotrophs. The phosphate content varied between 0.062 to 0.108 ppm in surface and 0.062 to 0.087 ppm in bottom water at different stations in Kanjia lake during the survey. The average phosphate level was recorded as 0.079 in both surface and bottom water.

Silicate:

The silicate varied between 4.69 to 8.071 ppm in surface water and 5.524 to 8.071 ppm in bottom water during the survey period.The average silicate was 7.156 ppm in surface and 6.976 ppm in bottom water. The high silica content in Kanjia lake water might be due to input in form of runoff from catchment area.

Primary production:

The Gross Primary Production (GPP) of Kanjia lake was recorded to be 32.03 mgc/

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m^3/hr and Net Primary Production was 8.59 mgc/m^3/hr during the survey. The lower value of NPP was due to presence of consumers like more zooplankton and invertebrates. The lower GPP is also attributed to the presence of abundant floating macrophytes which do not allow the sunlight to penetrate creating a blanket effect.

2.6.5.7. Flora and Fauna of Kanjia lake

An extensive study was done on the flora of Kanjia lake and its surroundings. There are two types of vegetation are seen in the area. One is the terrestrial type, which is remaining in the peripheral area of the lake and Nandankanan sanctuary. The second one is aquatic type, which is seen in the expanses of the wetland.

(a) The terrestrial vegetation

The terrestrial vegetation spreads over three fourth of the sanctuary area i.e. 321 ha. The original forest was dry deciduous type. Tree species like *Bridelia sp. Pterospermum xylocarpum, Grewia rhamnifolia, G. tiliafolia, Albiza lebbeck* existed in the past. The areas suffered a biotic interference in the form of felling, grazing and fire. The development of new capital at Bhubaneswar had its repercussions on these forests due to the demand for firewood and timber that ultimately resulted in degradation of the vegetation. During the survey 30 species of terrestrial plants were recorded in Nandankanan and Kanjia lake area (**Table 2**). The dominant tree species, which are presently met with, are *Pterospermum xylocarpum, Vitex pinnata, Aegle marmelos, Barringtonia acutangula, Atalantia monophylla* etc. The dominant shrub species are *Chromolaena odorata, Allophyllus serratus, Cipadessa baccifera, Dalbergia rubiginosa, Lantana camara* etc.

These species provide congenial habitat for the wild animals of the zoo. A number of climbers and twiners are seen associated with the scrubs and trees being represented by *Combretum ruxburghil, Calycopteris floribunda, Ichnocarpus frutescens, Vigna adenantha, Dioscorea belophylla, Tinospora cordifolia, Hemidesmus Indicus* etc. The ground flora constitute a major part in the floristic of the sanctuary. A number of these species make their appearance during the onset of monsoon and live up to winter while some xeric elements survive further. These forms are represented by *Crotalaria prostrate, Ageratum conyzoides, Blepharis maderaspatensis, Cleome viscose, Sida acuta, Anderographis paniculata, Hedyotis corymbosa etc.*

Phase 4: A proposal was submitted vide Memo No.6331 dt.30.12.96 of Director, Nandankanan Zoological Park to Revenue Authorities for acquisition of 25.867 acre of land of Jujhagarh Mauza for development of Nandankanan Zoological Park. In response to this the Revenue Authority gave physical possession of 21.814 acre of land which was taken possession by the ACF, Nandankanan Sri Manoj Mahapatra on 16.1.2004. It is also reported by the Revenue Authority that balance of 4.053 acres of land of Jujhagarh mauza has been already handed over to Nandankanan Zoological Park authority in 1966. the Land Acquisition cost of Rs.98,61,182.00 relating to the above acquired area was already paid to Revenue Authority vide Memo No.670 dt.27.2.2003. No demand has been made by the Revenue Department for payment of Decretal dues if any on the above acquired land till date.

Table 13. Information on Land Acquisition in Nandankanan Zoological Park

	Physical Possession			Land Acquisition Cost		Decretal dues		No. of applicants
	Area	Mauza	Date	Demand	Payment	Demand	Payment	
Phase I	20.23 ½ Ac.	Dadha	22.12.86	1,52,889 .50	1,52,889 .50	34,49, 110/-	34,49, 110/-	38 nos
Phase II	18.98 Ac.	Raghu-nathpur	22.12.86	2,38, 737/-	2,38,737/-	-	-	-
Phase III	50.683 Ac.	Jujha-garh	26.12.90	15,70, 052/-	15,70,052/-	-	-	41 nos.
Phase IV	21.814 Ac.	Jujha-garh	16.01.04	98,61, 182/-	98,61,182/-	-	-	-

6.3.13 Wetland Development

There are three important wetlands inside Nandankanan sanctuary viz. Kanjia lake, Kiakani lake and Katurighasa pata. Besides these wetlands, there are swamps both inside sanctuary area and outside sanctuary area. These wetlands are highly productive eco-systems which need long term protection and conservation inputs. The various growth forms of wetland vegetation integrate the totality of hydrological variables and therefore can be used as the indicators of different hydrological designs. Wetlands like Kanjia are threatened by exotic plant species viz. Water hyacinth (*Eichornia crassipes*) and Salvinia (*Salvinia molesta*). These free floating nuisance plants were introduced to India and they pose problems by clogging water ways and out competing native vegetation. Water hyacinth in heavily polluted area may have little benefits, as it is capable of taking up and sequestering unwanted nutrients and heavy metals in the water column. However there is urgent need

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for cleaning of free floating weeds and desilting of Kanjia lake and Kiakani lake situated inside Nandankanan sanctuary.

Recommended developmental measures in wetlands of Nandankanan sanctuary

1. Management of free floating weeds
   - (a) Manual removal
   - (b) Composting
2. Biological control of weeds
   - (a) Release of fingerlings of triploid grass carps
   - (b) Other such methods
3. Improvement of inlet and outlet
   - (a) Improvement of existing inlet (Desiltation of the channel and structural improfement).
   - (b) Improvement to the outlet, excavation of the channel upto 2 Kms. to connect the same to Kuakhai river through Bada nala and improvement of the concealed causeway.
4. Water quality monitoring
   - (a) Manpower
   - (b) Transportation
   - (c) Chemical consumables and contingency
5. Wetland education & Awareness
   - (a) Interpretive signages
   - (b) Wetland education kits
   - (c) Wetland education for school children

6.3.14. Management of saltlicks

Saltlicks are essential for the management of herbivore population. Since nature saltlicks are very limited it is proposed to provide artificial saltlicks especially in Deer Park, back side of Lion safari, near Hamiratangi, inside White Tiger safari, Botanical garden (north-west side) where spotted deer population is abundant. The artificial saltlicks are to be provided near game tanks and water areas. Proper protection need to be ensured as these are vulnerable areas for poaching. The list of salt licks inside Nandankanan sanctuary was given in Appendix 23.

Kotha Bahani is carried out thrice a week during daytime. Castes nets are usually operated during daytime and gillnet of different mesh size are operated during night time. During monsoon, when the water level of Kuakhai river increase auto recruitment takes place from the river to the lake.

2.6.5.8. Implementing Agency

At the moment, the wetland is managed by the Nandankanan zoological park Authority. The fishery activities are carried out by the Primary Fishermen Cooperative Society. The most important service rendered by the wetland is by way of meeting the fresh water demand of Nandankanan zoological park and the botanical garden. Thus the water quality of the wetland needs to be maintained. Apart from with its rich fishery resources and diversity it is also the life line for more than 550 fishers who depend on the lake for their livelihood. The lake is also a repository for the rich biodiversity. It has got a great potential for serving the purpose of wetland education. Considering the significant ecological and socio-economic values of the wetland, it is imperative to start a holistic management of this important man made wetland ecosystem.

2.6.5.9. Suggested Activities

Component – 1: Water quality monitoring

Monitoring of the water quality of the wetland is a priority as the water is being used for the drinking purposes. It is suggested to carry out monitoring thrice a year i.e. during (i) Monsoon, (ii)Winter, (iii) Summer. The water quality monitoring would be carried out from the 9 pre fixed stations. The following parameters would be monitored; air temperature, water temperature, pH, salinity, conductivity, turbidity, dissolved oxygen (DO), biochemical oxygen demand (BOD), total alkalinity, total hardness, total suspended solids (TSS), nitrite (NO_2), nitrate (NO_3) and phosphate (PO_4) would be analysed during the study period. The biological parameters like composition of algae, phytoplankton, other macrophytes, fish, prawn, avifauna and benthos would be carried out. The quantitative study like biomass of macrophyte, primary production and chlorophyll estimation would also be carried out.

Component – 2: Wetland education

With its rich biodiversity Kanjia lake can be an excellent site for the wetland education. More than 3.3 million visitors visit Nandankanan annually which includes more than 70,000 school children. The wetland is very strategically located and there are more than 100 schools in and around Nandankanan. Message on wetland values and functions in form of appropriate signage at strategic location serve a great purpose of wetland education. Apart

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from this with its rich shoreline flora and fauna, it can serve as a living laboratory for the education programme for the school children. It is suggested in this component to develop signage on various theme on wetland conservation its values and functions and wise use of its resources. A learning trail in form of a promenade along the shoreline of the lake would be developed with appropriate signage depicting the wetland values and function and the conservation need of the wetland. This path would be laid without any disturbance or alteration of the shoreline. Adequate care will be taken while designing this signage to see to it that it merges with the ambience. For the school children in addition to this learning trail, a wetland education kit would be developed. The school children would also be exposed to the various multimedia education materials on wetland education.

Component – 3: Biological control of the weed

One of the prime uses of the water from this wetland is for supply to the Naandankan zoo. So, the excessive growth of macrophytes inform of submerged weed in the reservoir is not desirable. There are a number of options available for de-weeding the wetland. They are i) physical, ii) mechanical removal, iii) chemical and iv) biological. Out of the four options, the biological control of the submerged macrophytes is most suitable for this wetland. It is suggested to release adequate number of triploid fingerlings of grass carp to tackle this problem. The grass carp, *Ctenopharyngodon idella*, is a large herbivorous fish which superficially resembles the common carp (*Cyprinus carpio*), but differs in several characteristics. Its body is more streamlined, its mouth is terminal, and it lacks a stiff dorsal spine and barbels. The grass carp has large, grooved pharyngeal (throat) teeth and a long intestine, which allow it to effectively shred and digest aquatic plants as its principal food. The grass carp, as a biological control of aquatic plants, is considered an attractive long-term method for control of submersed aquatic plants. Because using grass carp to control aquatic vegetation is inexpensive and longer term compared to other control techniques, there is widespread interest in expanding its use throughout the country. This has been successfully tried in Bhoj wetland of Madhyapradesh. The triploid grass carps are sterile so the potential of the diploid grass carp which multiply rapidly is contained.

Component – 4: Management of Free-floating weed

The excessive growth of free floating weed is creating ecological problem of the wetland. Due to overcastting, the bottom of the lake is tending towards anoxic condition. It is also interfering in the primary productivity. It is also affecting the aesthetic beauty of the lake. So control of the free floating species particularly the water fern is essential. It is proposed to remove the same physically and to compost them and use it for manure purpose.

Component – 5: Improvement of inlet and outlet and a remedial pond

The inlet and the outlet of this wetland play a vital role in its hydrology as well as significantly influence the lake ecosystem. All the three major inlets of Kanjia lake are encroached and converted into cultivated lands, obstructing the flow to the lake. The artificial channel made is also silted up and needs to be renovated. The main outlet channel needs to be desilted over a length about 2 kms. This will facilitate flushing out of sediment, auto recruitment of fish juveniles and flushing out of the free-floating weed during monsoon.

The major portion of the catchment of the wetland is paddy field so; excessive loading of nutrient and pesticide takes place in form of run off during monsoon. It is proposed to construct a remedial pond for nutrient sequestration through bioremediation. Suitable macrophytes would be introduced in the pond to reduce the nutrient load. The water would be released through the sluice gate during the post monsoon period. This would help to maintain the water depth in the main water body and would also help to control the growth of the macrophytes. The water quality of the remedial pond would also be monitored at a regular interval. This would help to reduce the load of sediment and nutrient and pollutant. This is low cost technique for mitigating the impact of nutrient and pollutants in to the system.

Integrated Gharial conservation programme in Nandankanan sanctuary:

A Gharial breeding complex in Nandankanan Zoological Park was established in 1976 with the recommendation of Dr. H.Robert. Bustard, the then Chief Technical Adviser (GOI/ UNDP/FAO Indian Crocodile Conservation Project). He designed this complex as a huge pool 9 mtr. deep (capacity- 180,000 Ltrs.) with flowing and recirculating water. The viewing point was only 9 mtr. wide on one side of the huge enclosure, the rest having a high wall to provide these shy animals with total protection. The Zoo at that time had three adult Crocodiles, the male suffered repeated penile prolapse, and it was decided to obtain a large male from Frank Furt Zoo, West Germany. This male reached in 1979 Nandankanan and despite never having seen another Gharial since a baby, mated with Nandankanan female Gharials and world first captive breeding of Gharials started at Nandankanan. In 1980, the first successful captive breeding of Gharial took place in Nandankanan. It is the most successful large-scale project of GAO/UNDP in India. The captive breeding program including artificial incubation and rearing was stopped for last few years as the gharial population was flourishing in Nandankanan by their natural breeding.

Recently in 2015, after repetitive deaths of male gharials, the artificial incubation of gharial eggs and rearing pragramme again restarted at Nandankanan in a newly constructed hatchery. Presently 87 numbers of gharial hatching hatched at the hatchery are being reared in the hatchling pools (Fig. 20).

ANNEXURE R-10

Area of De-Weeding of Kanjia & Kiakani Lake last 10 years

SL. No.	Year	Area in Sq.mtr
1	2014-15	
2	2015-16	
3	2016-17	71429 / Sqm
4	2017-18	49034 / Sqm
5	2018-19	
6	2019-20	
7	2020-21	22727 / Sqm
8	2021-22 (Desilting & Dredging)	119700 / Cum
	2021-22	12987 / Sqm
	2021-22	70552 / Sqm
9	2022-23	38961 / Sqm
		29497 / Sqm
10	2023-24	162338 / Sqm

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Chilika Development Authority
(A Government of Odisha Agency)

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Letter No 2712 / CDA,
Dated 16/11/17, Bhubaneswar

From

Sri Susanta Nanda, IFS
Chief Executive,
Chief Conservator of Forests,
Chilika Development Authority,
Bhubaneswar

To

The Dy. Director,
Nandankanan Zoological Park,
Nandankanan,
Bhubaneswar.

Sub: De-weeding work at Kanjia Lake, Nandankanan.

Ref: Your office letter no.3459/1F, dt.7.10.2017 of Dy. Director, Nandankanan Zoology Park.

Sir,

In inviting to the letters cited above this is to inform you that an amount of Rs. 40,79,200/- (Rupees Forty lakh seventy nine thousand two hundred) only has already been spent as on date against Rs. 36,88,450/- released by you for de-weeding work in Kanjia Lake.

One utilization certificate was submitted by this office memo no. 1790/CDA, Dt. 25.07.2017 for Rs. 22,00,000/-. The UC of balance amount of Rs. 14,88,450/- is submitted now.

You are requested to release the balance amount of Rs. 3,90,750/- (Rupees Three lakh ninety thousand seven hundred fifty) only to square up the account.

Yours Sincerely,

Chief Executive
Chilika Development Authority
Bhubaneswar

Memo No. _____/CDA, Dt. _____.

Copy forwarded to The Director, Nandankanan Zoological Park for favour of kind information and necessary action with reference to memo no. 3459 /1F, Dt. 07.10.17

Chief Executive
Chilika Development Authority
Bhubaneswar

True copy

Deweeding of Kanjia Reservoirs' Execution work

	Approved Estimate work	Esimated Amount (in Rs.)	Works Undertaken	Amount spent (in Rs.)	Remark
Estimate amount - Rs. 21.0 lakhs					
1	Excavtor operation - 2 nos, Barge - 1 no. and Generator - 1 no	575250.00	Same as approved	363170.00	
2	Maintenance & lubricant	128407.00	as per actual	77511.00	
3	Mannual deweeding	450000.00		451506.00	
4	Hiring of Tractor	600000.00		125000.00	
5	Labour cess	20345.00		8547.00	
6	Contigencies	45198.00		34449.00	
7	Unforseen expenses	280800.00		185000.00	
	S.total	**2100000.00**		**1245183.00**	
Estimate amount - Rs. 23.0 lakhs					
1	Deployment of one excavator mounted self propelled Barge for the deweeding in Kanjia reservoir and Kiakhani lake on hire basis including wages of operator and helpers etc. 8 hours per day @ Rs.2500/-/hr for 2 months(@25dasys/month).	1000000.00	8 hours per day @ Rs.2500/-/ hr for 3 months (25dasys/ month).	1500000.00	
2	Deployment of one excavator for the deweeding in Kanjia reservoir and Kiakhani Lake on hire basis 8 hours per day @ Rs. 270/-/hr for 2 months(@25 dasys/month)	108000.00	8 hours per day @ Rs. 270/-/hr for 3 months (25 dasys/ month)	162000.00	
3	(a) Transportation of one self propelled Barge from Satapda to Nandankana & back to Satapada by long low laying trailor.	300000.00	Same as approved	150000.00	
	(b)Transportation of one self propelled Barge from Nandankanan to Satapada		Same as approved	150000.00	
4	Marching of 2 nos of excavator from Satapada to Nandankanan & back to Satapada by road for 140kms 8 hours per day @ Rs.65/-/ltr.(9ltr./day)	4680.00	Same as approved	4680.00	
5	Marching of 1 departmental tractor from Satapada to Nandankanan & back to Satapada by road for 140kms 8 hours per day @ Rs.65/-/ltr.(3.5ltr./hour)	1820.00	Same as approved	1820.00	
6	Hiring charges of tractor @ 2000/-/day x 2 x 25 days/ month	100000.00	2000/-/day x 3 x 25 days/ month	150000.00	

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	(a) Docking & undocking of self propelled barge at Satapada to Nandankanan for 2 times and One tractor hire charges	500000.00	Same as approved	264750.00	
	(b) Docking & undocking of self propelled barge from Nandankan to Satapada for 2 times and One tractor hire charges		-do-	235250.00	
8	Dismentaling & refixing of wheel house of self propelled barge at Satapada(approx)	70000.00	-do-	150000.00	
9	Shifting of self propelled barge from Kanjia lake to Kiakhani lake	150000.00		0.00	
	Total	**2234500.00**		**2768500.00**	
10	Labour cess - 1%	22345.00		22345.00	
11	Contigency	43155.00		43172.00	
	S.total	**2300000.00**		**2834017.00**	
	Grand Total	**4400000.00**		**4079200.00**	

16/11/17

(M.C. Rout),
Asst. Engineer,
Chilika Development Authority

16/11/17

(S.D. Champatiray)
Asst. Conservator of Forests,
Chilika Development Authority

True copy

ANNEXURE R-12

OFFICE OF THE EXECUTIVE ENGINEER
DRAINAGE DIVISION, KHORDHA

Ltr no. 1344/(WE) Dated 31/9/2022

To

REACH DREDGING LIMITED
Super Class Contractor
Orbit House
1, Garstin Place, 3rd Floor
Kolkata, West Bengal
PIN:700001
Email: info@reachdredging.com

OFFICE OF THE DEPUTY DIRECTOR ★ NANDANKANAN ZOOLOGICAL PARK ★
Receipt No. 5136
14 OCT 2022

Sub: Formal Work Order to go ahead with the execution of the work **"Improvement to Kiakani Lake inside Nandankanan Zoological Park at Bhubaneswar"**

Ref. to Agreement: 10 P_1 of 2022- 23 of Drainage Division, Khordha

Dear Sir,

Pursuant to concluding the Agreement bearing No. 10 **P_1 of 2022- 23** for the captioned work amounting to **Rs.6,61,80,900.00 (Rupees six crore sixty one lakh eighty thousand nine hundred only (Plus applicable GST)** with the stipulated date of commencement and completion as **Dt.07.09.2022 and Dt.06.08.2023** respectively, you are hereby instructed to proceed with the execution of the aforementioned work immediately in accordance with the Agreement in consultation with the Sub-Divisional Officer.

As per Works Department Office Memorandum No.12366 Dt. 08.11.2013, You are requested to adhere to the Construction Programme with milestone basing on the financial achievement so as to complete the work within the time and in the event of failure to achieve the milestone, agreed compensation/ liquidated damages shall be imposed. The work should throughout the stipulated period of contract, be progressed with all due diligence so as to ensure completion by the stipulated date of completion confirming to the text of the Works Department Circular No.24716 Dt.24.12.2005.

IN THE EVENT OF NON-ACHIEVEMENT OF PROPORTIONATE PROGRESS, INSTANT / APPROPRIATE ACTION SHALL BE INITIATED AGAINST YOU FOR RECISSION OF THE CONTRACT UNDER CLAUSE 2 (b) READ WITH CLAUSE 2 (a) OF THE P_1 AGREEMENT ON PAYMENT LIABILITY OF THE ADMISSIBLE AMOUNT FROM YOU.

True copy

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This may be treated as formal work order to commence execution with immediate effect which is reckoned as on **Dt.07.09.2022** The period of completion of work **11 (Eleven) calendar** months as stipulated in the Agreement may please be adhered to scrupulously. No extra item/substituted item of work should be executed without drawl of Supplementary Agreement.

You are also requested to attend the work site along with your Engineer for taking over possession of the worksite and receiving technical instruction. Before commencement of execution, during execution and after completion of dredging, the area shall be surveyed jointly by Third Party, in presence of the Engineer-in-Charge, Officers from Nandankanan Zoological Park and your authorized Engineer. The level of the ground underwater shall be recorded by means of Echo-sounding equipment using dry proper method / hydrographic method. The Department shall avail the service of Department of Ocean Engineering, Indian Institute of Technology (Madras), Chennai or any other Third Party authorized Agency on hiring basis, for conducting such survey and evaluation of dredging quantity executed and also for certifying payment of Running Account Bill and also Final Bill. The cost involved in the entire process of recording initial levels, intermediate levels and final levels by the Third Party shall be borne by you.

Safe disposal of dredged materials at the designated site with all leads and lifts as per the instruction of Engineer-in-Charge, with mobilization, demobilization of men, machineries and equipment including all incidental charges shall be at your absolute cost and risk and no extra payment will be made by the Department. In the course of execution of the work the Department shall in no way be held liable for any damages caused to any individual/(s).

Site Order Book should be maintained and kept with the Assistant Engineer-in-Charge of the work for record of the instruction of the higher authority during inspection to the work site and copies of the instruction shall be forwarded to you for compliance.

The sample of materials used for the work should be got approved from the competent authority before execution of work. All reinforcement Steel and Structural Steel shall be procured from the primary producers of steel like SAIL/TATA/JINDAL STEEL/ VIZAG STEEL. The Cement of the Brands like ACC/OCL/ULTRATECH should be used in the work. The Contractor shall have to produce the purchase invoices of all prime materials like Cement, Steel etc. before the AEE/AE in charge of execution and copies of such invoices should be accompanied with the R/A/ Final bill for payment of the execution in conformity with Works Department Circular No.3606 Dt.25.03.2022. The materials should be tested in the Government Quality Control Laboratory at your cost and the test results should be accompanied with the RA/ Final bill. The Price Adjustment Bill should be enclosed with each R/A / Final bill. The R/A / Final Bill should be as per GST Invoice. Test Certificates of all the materials from the Government

True copy

Quality Control Laboratory are to be produced before the Assistant Engineer-in-Charge of execution prior to commencement of the work. Quality Control Registers are to be maintained by you at the worksite without which your claim for payment of any item executed by you will not be entertained.

The names and contact details of your authorised Representative at the worksite (if any) and the Site Engineers who will take instruction from the Engineers of this Department should be reported to this office within seven days.

A Bill shall be submitted by you in each month on or before **07th** of the succeeding month for all works executed in the previous month, and the Engineer-in-Charge or his subordinate shall take the requisite measurement for the purpose of having the same verified and the claim, as far as admissible, adjusted, if possible before the expiry of ten days from the presentation of the Bill subject to availability of fund. If you fail to submit the Bill within the time stipulation, the Engineer-in-Charge or his subordinate will measure up the execution and prepare a Bill arising out of such measurement which will be binding on you in all respect.

On no account, whole or any part of the contract work shall be sublet / off loaded to surrogated executants or transfer be made by execution of a deed of Power of Attorney without prior written approval of the Competent Authority of the Department. The rates/ prices incorporated in the Agreement is firm till completion of the work and shall not be subject to escalation under whatsoever ground unless otherwise explicitly mentioned in the captioned Agreement.

The receipt of the certified copy of the Agreement may please be acknowledged.

Encl: Certified copy of Agreement
- One Booklet

Yours faithfully,

7/9/2022
Executive Engineer
Drainage Division
Khordha

Memo No. 1375 **Dated** 7/9/2022

Copy along with Original Agreement forwarded to the Auditor, Drainage Division, Khordha for information and necessary action. Royalty be deducted confirming to the prevailing rates prescribed by Government in the event of failure to produce Government Money Receipt/(s) in token of payment of Royalty by the Agency.

Encl: As stated

7/9/2022
Executive Engineer
Drainage Division
Khordha

7/9

True copy

Memo No. 1376 Dated 7/9/2022

Copy along with the copy of enclosure forwarded to the Sub-Divisional Officer, Drainage Sub-Division-II, Bhubaneswar /Assistant Engineer concerned for information.

The exact date of commencement of work may please be communicated to this office by e mail. The possession of the work site be handed over to the Agency at once for speedy execution of the work. Weekly physical achievement of the work may please be intimated to this office for onward transmission to the higher authority. The work is to be executed confirming to the sanctioned estimate. The Agency should ensure Labour License before commencing execution. Royalty should be calculated confirming to the prevailing rates prescribed by Government in the event of failure on the part of the Agency to produce Government Money Receipt/(s) in token of payment of Royalty to Government.

Encl: As stated

7/9/2022
Executive Engineer
Drainage Division
Khordha

Memo No. 1377 Dated 7/9/2022

Copy submitted to the Chief Engineer, Drainage, Cuttack for favour of information and necessary action.

7/9/2022
Executive Engineer
Drainage Division
Khordha

Memo No. 1378 Dated 7/9/2022

Copy submitted to the Additional Chief Engineer, Drainage Circle, Bhubaneswar for favour of information and necessary action.

7/9/2022
Executive Engineer
Drainage Division
Khordha

Memo No. 1379 Dated 7/9/2022

Copy submitted to the Superintending Engineer, Quality Assurance Division, Bhubaneswar for favour of information and necessary action.

7/9/2022
Executive Engineer
Drainage Division
Khordha

Memo No. 1380 Dated 7/9/2022

Copy submitted to the Deputy Director, Nandankanan Zoological Park, Baranga, Bhubaneswar, PIN: 754005 for favour of information and necessary action.

7/9/2022
Executive Engineer
Drainage Division
Khordha

True copy

ANNEXURE R-13

ORIGINAL COPY 159

Executive Engineer
Drainage Division, Khordha

GOVERNMENT OF ODISHA
DEPARTMENT OF WATER RESOURCES

E - Procurement Notice No. CE-DR-CTC-02/2023-24

BID IDENTIFICATION NO. CE-DR-CTC-DD-KHURDA-02/2023-24

AGREEMENT

FOR THE WORK

IMPROVEMENT OF DRAINAGE SYSTEM OF KANJIA & KIAKANI LAKES TO PREVENT FLOODING IN NANDANKANAN AND ADJOINING AREAS IN KHURDA DISTRICT.

PAN Number	:	
Name of the Agency	:	SAMBIT KUMAR LENKA 'Special Class' Contractor
Agreement No.	:	39P1/2023-24
Agreement Amount	:	11,05,56,885.00
Date of commencement	:	13.03.2024
Date of Completion	:	12.09.2025

Sambit Kumar Lenka

EXECUTIVE ENGINEER
DRAINAGE DIVISION,
KHURDA

True copy

OFFICE OF THE EXECUTIVE ENGINEER
DRAINAGE DIVISION, KHORDHA

Email id: eeddkhordha@gmail.com

Letter no 494/WA Dated 13.03.2024

To

Sambit Kumar Lenka
Special class Contractor
At - Ward no - 44
GP - Ward no - 44
P.O- AD Market P.S- Badambadi
Block- Cuttack (MC) Dist- Cuttack Pin-753012

Sub - Work order for the Work: - " Improvement of Drainage system of Kanjia and Kiakani lakes to prevent flooding in Nandankanan and adjoining areas in Khurdha District ".

Ref - Divisional Agreement No. - 39P1 of 2023-24.

Sir,

Pursuant to execution of Agreement No. 39P1 of 2023-24 on dated 13.3.2024 for the above mentioned work at a contract value of Rs 11,05,56,885.00, you are here by instructed to proceed with execution of the work in accordance with the contract documents.

Please note that as per agreement executed with you, the date of commencement shall be reckoned as 13.03.2024 & stipulated date of completion shall be 12.09.2025. No extra time or excess quantities of work shall be executed without prior approval of competent authority.

You are hereby requested to abide by some additional clause as mentioned below:

- Assistant Executive Engineer, Drainage Sub-Division- ii and Assistant Engineer may be consulted for supply of layout and execution of the work as per agreement.
- A proper feasible work programme may be furnished to this office before execution of the work for reference in future.
- Certified copies of labour licence and EPF registration certificate of your establishment if any may be furnished to this office, in order to ensure compliance under Sec 8A of EPF and miscellaneous provisions Act,1952 & Compliance to Provisions as contained under Para 30,32, and 36 of the EPF scheme.
- A certified copy of Agreement No. 39 P-1 of 2023-24 is enclosed herewith for your reference.

True copy

This may please be treated as most urgent.

Encl: - Certified copy of agrt .

Yours faithfully,

13/3/24

Executive Engineer,

Drainage Division Khordha

Memo No :- 495(2) Dated : -13.03.2024

Copy submitted to the Engineer -in- Chief, Water Resource Department , Secha Sedan , Bhubaneswar/ Engineer -in- Chief, Procurement, Secha Sedan , Bhubaneswar for favour of kind information & necessary action.

13/3/24

Executive Engineer,

Drainage Division Khordha

Memo No :- 496(2)/WE Dated:- 13.03.2024

Copy submitted to the chief engineer Drainage cuttack/ Additional Chief Engineer, Bhubaneswar for favour of kind information & necessary action.

Encl - As above

13/3/24

Executive Engineer,

Drainage Division Khordha

Memo No:- 497/WE Dated :-13.03.2024

Copy submitted to the Superintending Engineer, Quality Control Assurance Division, Bhubaneswar for favour of kind information & necessary action.

Encl:- As above

13/3/24

Executive Engineer,

Drainage Division Khordha

memo No :- 498/WE Dated:-13.03.2024

Copy forwarded to the Assistant Executive Executive for information & necessary action. He is instructed to give necessary layout immediately to the agency and ensure that the work is executed & completed within stipulated time as per terms & conditions of agreement. No extra item or excess quantities of work should be executed without prior approval of competent authority. The site order Register, site activity register & Quality control register should be maintained properly and the extract of the register must be submitted with the bills.

Encl:- As above

13/3/24

Executive Engineer,

Drainage Division Khordha

Memo No.:- 499/WE Dated:- 13.03.2024

Copy along with original agreement No. 39 P-1 of 2023-24 forwarded to the Auditor, of this Division for information & necessary action.

13/3/24

Executive Engineer,

Drainage Division Khordha

True copy

Gmail Office of Raman Yadav <officeofframanyadav@gmail.com>

Service of Counter Affidavit filed by R4 in the OA No. 109/2024/EZ titled Haripriya Patel Vs State of Odisha & Ors.

1 message

Office of Raman Yadav <officeofframanyadav@gmail.com> Sat, Jan 11, 2025 at 3:14 PM
To: Haripriya Patel <haripriyapatel@gmail.com>, dfo.khordha@odisha.gov.in
Cc: ddnandankanan@gmail.com

Dear All,

This is to inform you that the Counter Affidavit on behalf of Respondent No. 4 in the captioned matter has been filed before the National Green Tribunal, Kolkata.

A copy of the same is being attached herewith for your reference.

This email serves as an advance service.

--
Office of Raman Yadav
Advocate, Supreme Court of India
C-167, LGF Defence Colony, New Delhi -110024
Mobile: +91 88004 57781

Counter Affidavit behalf of Respondent No.4.pdf