

**BEFORE THE NATIONAL GREEN TRIBUNAL  
EASTERN ZONE BENCH AT KOLKATA  
ORIGINAL APPLICATION NO. 88 OF 2023**

**IN THE MATTER OF:**

**Wildlife Society of  
Odisha**

**...Applicant(s)**

**Versus**

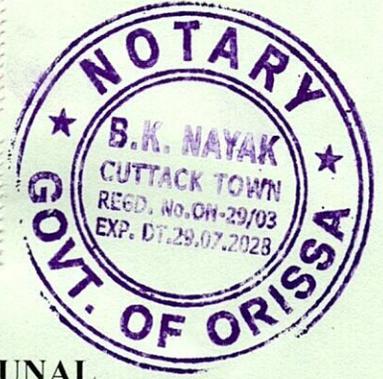
**State of Odisha &  
Ors**

**...Respondent(s)**

**COUNTER AFFIDAVIT ON BEHALF OF RESPONDENT NO. 9  
(MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE).**

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**COUNTER AFFIDAVIT ON BEHALF OF RESPONDENT NO. 9  
(MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE).**

I, Smt Padma Mahanti, d/o Shri Ambika Prasad Mahanti, aged about 46 years, working as Dy. Inspector General of Forests(Central), at Regional Office, Bhubaneswar of the Ministry of Environment, Forest and Climate Change ('MoEFCC', for short), do hereby solemnly affirm and state as follows:

1. That I am holding the post of Dy. Inspector General of Forests(Central) in the Ministry of Environment, Forest & Climate Change, Regional Office, Bhubaneswar, the above named Deponent, authorized and well conversant with the facts and circumstances of the present case and thus competent to swear the present Affidavit.
2. That Deponent is filing the instant affidavit in compliance of this Hon'ble Court order dated 11.08.2023. This Hon'ble Court vide the said order has *inter alia*, directed as follows-

*06/11/2023*

**B.K. NAYAK**  
NOTARY  
CUTTACK TOWN  
Regd. No. ON-29/03

*Padma Mahanti*

*"All the Respondents shall file their counter-affidavits within four weeks."*

3. It is humbly submitted that, Wetlands are vital parts of the hydrological cycle and are highly productive ecosystems which support rich biodiversity and they provide a wide range of ecosystem services such as water storage, water purification, flood mitigation, erosion control, aquifer recharge, microclimate regulation, aesthetic enhancement of landscapes while simultaneously supporting many significant recreational, social and cultural activities, being part of our rich cultural heritage.

4. That, depletion and destruction of wetlands is a serious concern for the answering respondent. Many wetlands are threatened by reclamation and degradation through drainage and landfill, pollution (discharge of domestic and industrial effluents, disposal of solid wastes), hydrological alteration (water withdrawal and changes in inflow and outflow), over-exploitation of their natural resources resulting in loss of biodiversity and disruption in ecosystem services provided by wetlands.

5. That, the Environment (Protection) Act, 1986 is a comprehensive legislation to provide protection and improvement of the environment, including inter-alia, wetlands, and for matters connected therewith. The Central Government had made the Wetlands (Conservation and Management) Rules, 2017 for conservation and management of wetland in exercise of powers conferred section 25, read with sub-section (1) and clause(v) of sub-section (2) and sub-section (3) and section 23 of the Environment (Protection) Act, 1986.

6. That, MoEF&CC notified the Wetlands (Conservation & Management) Rules, 2017 on 26<sup>th</sup> September, 2017, superseding the Wetlands

*Mauan-06/12/2026*

**B.K. NAYAK**  
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Regd. No.ON-29/03

*Padma Mahanti*

(Conservation and Management) Rules, 2010, for more effective conservation and management of wetlands in the country and thereby delegating powers for inventorisation and notification of wetlands to the State Governments and UT Administrations.

7. That, India is a signatory to the Ramsar Convention on Wetlands and is committed to conservation and wise use of all wetlands within its territory. That, Rule 3 of the Wetlands (Conservation and Management) Rules, 2017, provides that these rules shall apply to the following wetlands or wetlands complexes, namely:-

*a. Wetlands categorized as 'wetlands of international importance' under Ramsar Convention;*

*b. Wetlands as notified by the Central Government, State Government and Union Territory Administration;*

8. That Rule 4(1) of the Wetlands (Conservation and Management) Rules, 2017, provides that the wetlands shall be conserved and managed in accordance with the principle of 'wise use' as determined by the Wetlands Authority and Rule 4(2) enumerates that the following activities shall be prohibited within the wetlands, namely -

- (i) conversion for non-wetland uses including encroachment of any kind;*
- (ii) setting up of any industry and expansion of existing industries;*
- (iii) manufacture or handling or storage or disposal of construction and demolition waste covered under the Construction and Demolition Waste Management Rules, 2016; hazardous substances covered under the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 or the Rules for Manufacture, Use, Import, Export and Storage of Hazardous Micro-organisms Genetically engineered organisms or cells, 1989 or the Hazardous Wastes (Management, Handling and*

*M. Anand - 06/12/2019*

**B.K. NAYAK**  
NOTARY  
CUTTACK TOWN  
Regd. No. ON-29/02

*Padma Mahanti*

*Transboundary Movement) Rules, 2008; electronic waste covered under the E-Waste (Management) Rules, 2016;*

*(iv) solid waste dumping;*

*(v) discharge of untreated wastes and effluents from industries, cities, towns, villages and other human settlements;*

*(vi) any construction of a permanent nature except for boat jetties within fifty meters from the mean high flood level observed in the past ten years calculated from the date of commencement of these rules; and,*

*(vii) poaching.*

9. That, Rule 5(1) & 5(2) of the Wetlands (Conservation and Management) Rules, 2017 stipulates constitution of Wetlands Authorities in each State and Union Territory and Rule 5(4) describes the powers and functions to be exercised and performed by the State Wetlands Authority or Union Territory Wetlands Authority.

10. That, Tampara lake is a Ramsar site. Tampara Lake was designated as a Ramsar site on 12.10.2021. The wetland supports at least 60 species of birds, 46 species of fishes, at least 48 species of phytoplanktons, and more than seven species of terrestrial plants and macrophytes. The wetland is an important habitat for vulnerable species such as *Cyprinus carpio*, common pochard (*Aythya ferina*), and river tern (*Sterna aurantia*). With an estimated average fish yield of 12 tonnes per year, the wetland is an important source of livelihood for the local communities. Along with fishes the wetland also provides provisioning services like water for agriculture, and domestic use and is a well-known tourism and recreation site.

11. It is pertinent to submit that the Environment (Protection) Act, 1986 is a comprehensive legislation to provide protection and improvement of the environment, including inter-alia, wetlands, and for matters connected

*B.K. Nayak - 06/12/2023*  
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 NOTARY  
 CUTTACK TOWN  
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*Padma Mahanti*

therewith. The answering Respondent has recognized wetlands conservation as a high priority area since its inception and a central government scheme, the National Plan for Conservation of Aquatic Ecosystems (NPCA), to support State Governments in formulating and implementing management plans for priority wetlands, is being implemented since 1986.

12. Following the budget announcement of 01.02.2023, the “**Amrit Dharohar Implementation Strategy**” was launched on the occasion of World Environment Day on 05.06.2023. Amrit Dharohar is an initiative that aims to promote conservation values of Ramsar Sites to create demonstration, replication, and upscaling effect on other wetlands of national and international importance, nationally and globally. The scheme is to be implemented over the next three years with a goal of conservation and wise use of Ramsar Sites for safeguarding and enhancing biological diversity, cultural heritage, food, water and climate security, sustainable livelihood opportunities and societal well-being. Amrit Dharohar implementation strategy is given at **Annexure - R1**.

13. It is submitted that the Guidelines for implementing the Wetlands (Conservation and Management) Rules, 2017, issued by the MoEF&CC to support the State Governments/ UT Administrations in the implementation of the Rules, recommends that management of each notified wetland is guided by an “**Integrated Management Plan**”. The management plans should be presented to the Wetlands Authority. The implementation shall begin only after receiving **endorsement of MoEF&CC. Management plans for Ramsar Sites and transboundary wetlands shall also be reviewed and endorsed by the MoEF&CC. The Integrated Management Plan (IMP) for Tampara Lake has not been received by MoEF&CC which shall include conservation, management, wise use of wetlands including sustainable livelihoods and ecotourism activities.** A copy of guidelines for implementation of Wetlands (Conservation and Management) Rules 2017 is given at **Annexure-R2**.

*Maceon-06/12/2023*

**B.K. NAYAK**  
NOTARY  
CUTTACK TOWN  
Read. No.ON-29/03

*Padma Mahanti*

14. That, it is most respectfully prayed that this Hon'ble Tribunal may graciously be pleased to pass such other order and further order(s) as this Hon'ble Tribunal may deem fit and necessary in the interest of justice.

Padma Mahanti

**DEPONENT**

उप वन महानिरीक्षक (के) / Dy. Inspector General of Forest (Central)  
भारत सरकार / Govt. of India  
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय / Min. of Env. Forest & CC  
एकीकृत क्षेत्रीय कार्यालय / Integrated Regional Office  
भुवनेश्वर / Bhubaneswar

**VERIFICATION**

Verified at Bhubaneswar on this 06<sup>th</sup> day of December, 2023 that the contents of the above affidavit are true and correct to my knowledge and as per official records maintained in the routine course of business. No part of the above affidavit is false and nothing material has been concealed there from.

Padma Mahanti

**DEPONENT**

उप वन महानिरीक्षक (के) / Dy. Inspector General of Forest (Central)  
भारत सरकार / Govt. of India  
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय / Min. of Env. Forest & CC  
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भुवनेश्वर / Bhubaneswar

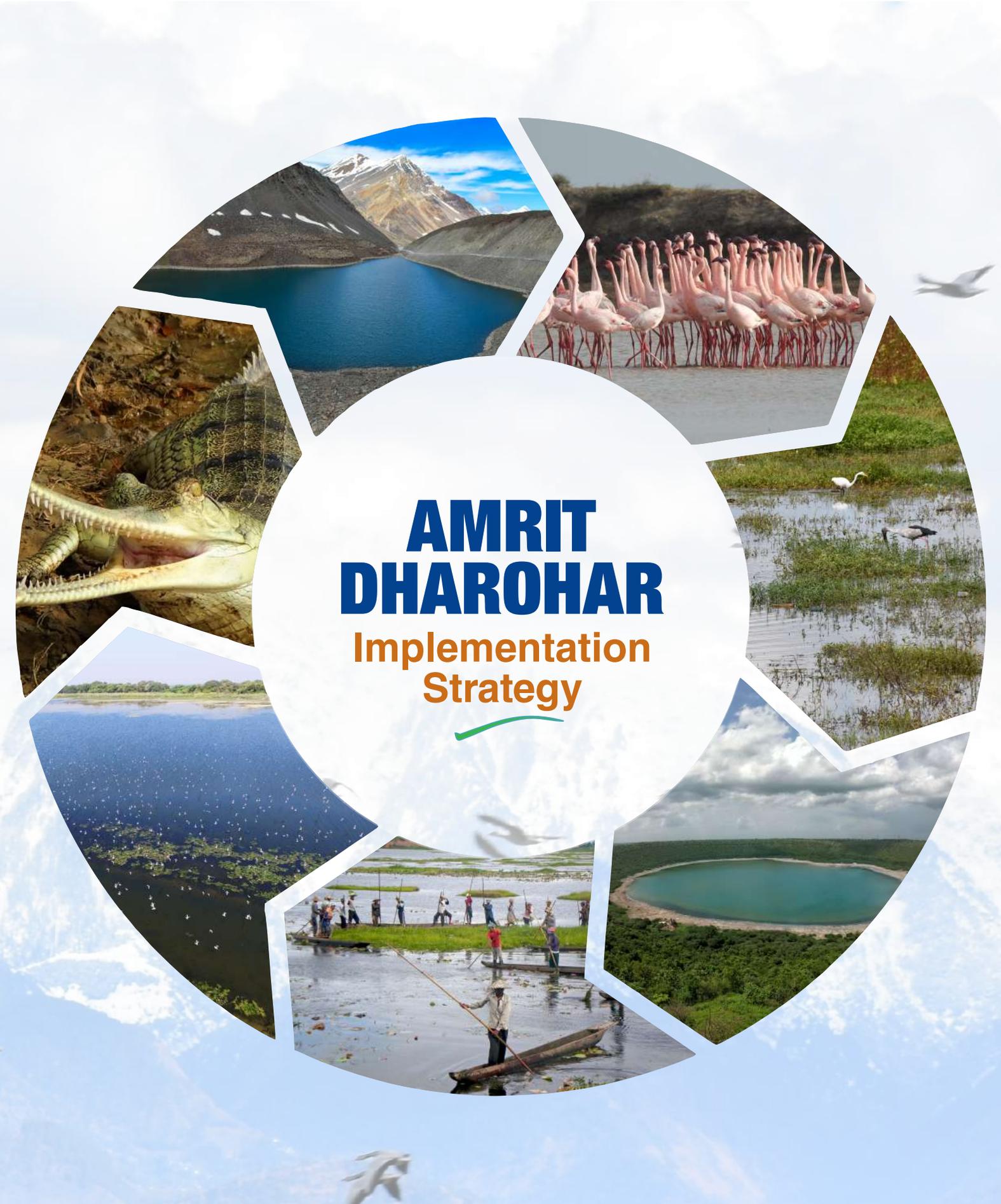
The deponent being identified by Self Adv./Clerk  
swears on oath and solemnly affirms  
before me on dt: 06/12/2023  
that the facts stated above are true  
to his/her knowledge

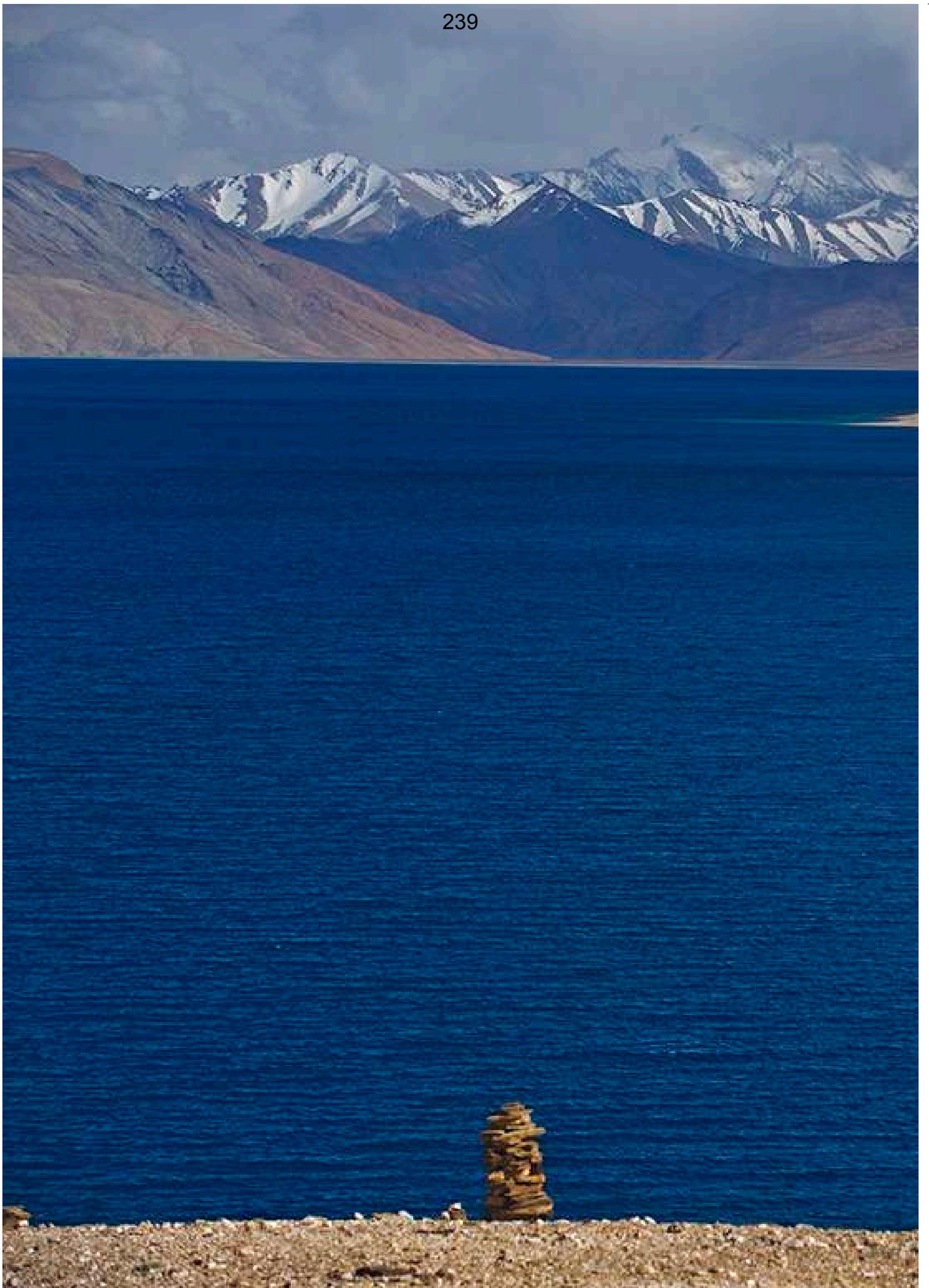
J. Manuam 06/12/2023  
Notary for Cuttack Town  
Govt. of Odisha



# AMRIT DHAROHAR

Implementation  
Strategy





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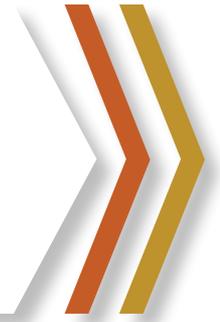


# List of Abbreviations

BSI	Botanical Survey of India
CEPA	Communication, Education, Participation and Public Awareness
CO <sub>2</sub>	Carbon Dioxide
CPCB	Central Pollution Control Board
CWC	Central Water Commission
EIA	Environmental Impact Assessment
EIACP	Environmental Information, Awareness, Capacity Building and Livelihood Programme
GHG	Greenhouse Gas
LiFE	Lifestyle for Environment
MEE	Management Effectiveness Evaluation
METT	Management Effectiveness Tracking Tool
MoEFCC	Ministry of Environment, Forest and Climate Change
MoRD	Ministry of Rural Development
MSDE	Ministry of Skill Development and Entrepreneurship
NGO	Non-Governmental Organisation
NITI	National Institution for Transforming India
NPCA	National Plan for Conservation of Aquatic Ecosystems
UT	Union Territory
ZSI	Zoological Survey of India

# Amrit Dharohar

## *Implementation Strategy*



### Background

1. Wetlands, ecosystems located at the interface of land and water, play a crucial role in securing human well-being and sustaining biological diversity. As 'kidneys of landscape', wetlands receive flows of water and waste from upstream sources. They help stabilise water supplies, cleanse polluted waters, protect shorelines, and recharge groundwater aquifers. The extensive food chain and biological diversity in wetlands make them 'biological supermarkets'. Wetlands are valuable as sources, sink and transformers of a multitude of biological, chemical and genetic material. In addition, wetlands have special attributes as cultural heritage of humanity, and have deep connections with our beliefs and practices.
2. India is bestowed with a wide-ranging diversity of wetlands in her landscape, ranging from high altitude lakes of the Himalayas, floodplains and marshes of the Gangetic-Brahmaputra alluvial plains, saline flats of Great Indian Desert to extensive mangroves and coral reefs areas bordering the country's eastern and the western coastline. As per National Wetland Atlas, India has 15.28 million ha area under wetlands, accounting for roughly 4.7% of its land area. The Ministry of Environment, Forest and Climate Change (MoEFCC), as the nodal ministry for matters related to wetlands, places high emphasis on wetlands conservation, and has been supporting state governments since 1986, in integrated management of these ecosystems. The Ministry's flagship scheme, National Plan for Conservation of Aquatic Ecosystems (NPCA) aims at 'mainstreaming the full range of wetlands ecosystem services and biodiversity values in development plans and programmes at all levels'.
3. The Ramsar Convention is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. India ratified the Convention in 1982. As a fulfillment of its commitments to the Convention and as a significant milestone on its 75th year of independence, India designated 75 wetlands to the List of Wetlands of International Importance of the Ramsar Convention, also known as the Ramsar List. The network of Indian Ramsar Sites covering approx. 1.33 million ha, over 8% of the known wetland extent of the country is now the second largest in Asia.
4. The Ramsar Sites form an international network of wetlands which are important for conservation of global biological diversity and for sustaining human life through the maintenance of their ecosystem components, processes and services. The national network of Ramsar Sites represents the diversity of wetlands and their key ecological and hydrological functions. By designating wetlands to the international List, India is making its valuable contribution, as a megadiverse country, to the global goal of conservation and wise use of wetlands. The designation of a wetland as internationally important under

the Convention is the first step along the conservation and sustainable use pathway, the endpoint of which is achieving the long-term wise use of the wetland. Wise use of the wetlands is defined in the text of the Ramsar Convention as ‘maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development’.

5. Wetland conservation is deeply ingrained in Indian conservation ethos as part of its culture and heritage. Hon’ble Prime Minister Shri Narendra Modi in the 97th edition of the Mann ki Baat Programme on January 29, 2023, highlighted the invaluable role played by local

communities in the conservation of Ramsar Sites.

6. Acknowledging the importance of conservation of Ramsar Sites, the Hon’ble Finance Minister Mrs Nirmala Sitharaman in her budget speech of February 01, 2023 introduced ‘Amrit Dharohar’ to promote conservation values of Ramsar Sites. Amrit Dharohar is to be “implemented over the next three years to encourage optimal use of wetlands, and enhance bio-diversity, carbon stock, eco-tourism opportunities and income generation for local communities.” This note articulates Amrit Dharohar’s goal and purpose, and implementation arrangements.



## Goal and Purpose

7. The goal of Amrit Dharohar is **‘to promote unique conservation values of Ramsar Sites’. The purpose is to ‘maintain a healthy and effectively managed network of Ramsar Sites which provide water and food security; buffer the landscape from floods, droughts, cyclones and other extreme events; generate local employment and support livelihoods; provide habitats for species of local, national and international conservation significance; maintain and enhance carbon sinks; and conserve and celebrate rich cultural heritage’.**

## Approach

8. Amrit Dharohar will operate within the broader framework of India’s efforts for wetlands conservation which are encapsulated in the various elements of the MoEFCC’s flagship scheme- National Plan for Conservation of Aquatic Ecosystems (NPCA). The core elements of this approach are as follows:

- a. **Inventory:** Creating a comprehensive atlas of wetlands in the country along with decadal trends using satellite data.
- b. **Integrated Management:** Providing support to state/UT governments in formulation and implementation of Integrated Management Plans and their implementation.
- c. **Regulation:** The Wetlands (Conservation and Management) Rules, 2017 notified under the Environment Protection Act 1986 provide the regulatory architecture for wetlands in India. State/UT wetland authorities have been constituted as nodal policy making and regulatory bodies within states/UTs for matters related to wetlands. A National Wetlands Committee has been constituted at central level for advising the Central Government on appropriate policies and national programmes

for conservation and wise use of wetlands.

- d. **Communication, Education, Participation and Public Awareness (CEPA):** Stake holders and societies at large is made aware of values and benefits of wetlands through national events such as World Wetlands Day, websites and other outreach events. States are encouraged to constitute wetland mitra network to foster local community participation in wetland management.
  - e. **Capacity Development:** The Ministry along with its network of knowledge partners routinely conducts capacity development workshops to provide handholding support to wetland managers and stakeholders for effective management of wetlands.
  - f. **Research:** Research on wetlands is supported through various schemes of the Ministry.
  - g. **International Cooperation:** India has ratified the Ramsar Convention, the Convention of Biological Diversity, Convention on Migratory Species and other multilateral environmental agreements. Wetland related commitments are fulfilled through the NPCA and other Centrally Sponsored Schemes of the Ministry.
9. Amrit Dharohar will exclusively focus on the Ramsar Sites so as to create demonstration, replication and upscaling effect on other wetlands of national and international importance. The activities will emphasise on:
- protecting and promoting unique conservation and cultural heritage values
  - creating nature tourism opportunities and income generation for local communities
  - encouraging optimal use while ensuring maintenance of wetland ecological character
  - safeguarding and enhancing biological diversity and carbon stock
  - enabling integrated management to

ensure sustained provision of full range of ecosystem services

10. The implementation approach (figure 1) for Amrit Dharohar is guided by the following:

- a. Lifestyle for Environment: The Mission LiFE (Lifestyle for Environment) that provides a framework for individual and community action to protect and preserve the environment, including wetlands and their catchments will be converged with management of Ramsar Sites.
- b. Sector Mainstreaming: The implementation of Amrit Dharohar aims to shift the Ramsar Sites conservation from majorly biodiversity conservation driven agendas to mainstreaming in sectoral development agendas. This requires integration of conservation and wise use of Ramsar Sites within the development plans, programmes and investments for sectors such as tourism, disaster management, environment, water resources, fisheries, agriculture, and others.
- c. Ecosystem Health Monitoring: Amrit Dharohar implementation will also incorporate a systematic assessment of impact of management interventions on the health of the Ramsar Sites. This includes Management Effectiveness Evaluation (MEE) for adapting and revising management through the identification of specific management aspects which need attention.
- d. Knowledge Development and Exchange: Amrit Dharohar aims at creating demonstration, replication and upscaling effects on other wetlands of national and international importance. Amrit Dharohar will promote harvesting and disseminating experiences, learning and challenges related with management of Ramsar Sites conservation amongst the stakeholders engaged in wetlands conservation and wise use. The emphasis will be laid upon bringing in one place the available knowledge on Ramsar Sites and best practices so as to enable contextualised replication in other wetlands.

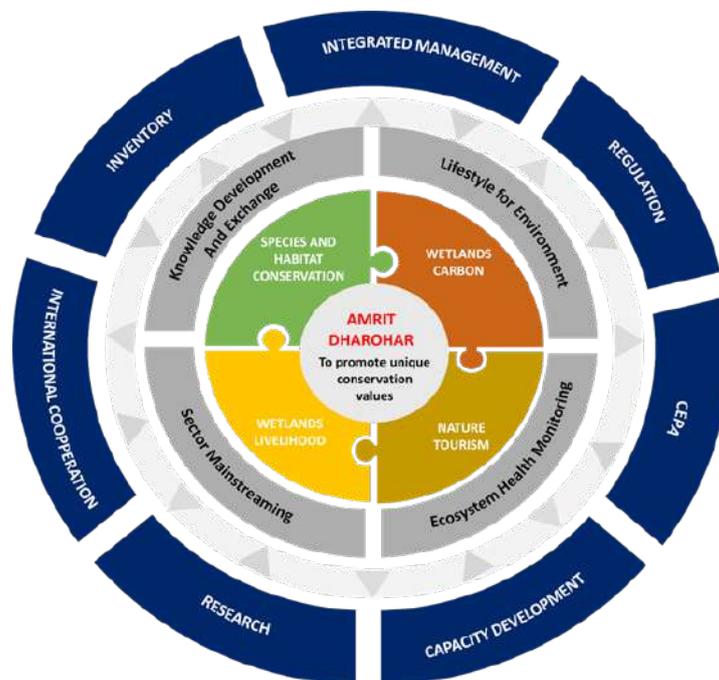


Figure 1: The implementation approach of Amrit Dharohar (The outer circle in blue colour represents the core elements of the National Wetlands Programme. The four components of Amrit Dharohar are at the centre with the enabling elements encompassing the core in grey colour.)

## Components and Key Activities

### Component 1: Species and Habitat Conservation

11. Wetlands are areas of high biological diversity combining attributes of terrestrial as well as aquatic systems. Wetlands serve as vital ecological networks and corridors, allowing species to complete their life cycles and contribute to diversity and richness at various levels within populations, among populations within a community, and among communities within a region. For preserving biodiversity, fostering ecological equilibrium, and ensuring the sustainability of ecosystems, it is crucial to conserve both species and habitat. The species conservation component includes measures to protect and conserve endangered or threatened wetland animal and plant species and the management and preservation of natural environments to maintain the ecological balance and biodiversity of a particular region.
12. Amrit Dharohar aims at safeguarding and enhancing biological diversity and effectively managing the Ramsar Sites to provide habitats for species of local, national and international conservation significance. The activities include:

- a) Ensuring that all Ramsar Sites have Integrated Management Plans which ensures maintenance of ecosystem services and biodiversity values and effectively addresses the drivers of adverse change.
- b) Commissioning biodiversity inventories with ZSI, BSI and knowledge partners.
- c) Including the ecological profile in the local Peoples' Biodiversity Registers (PBR) and engaging with local Biodiversity Management Committees for conservation of rare and endangered species.
- d) Enhancing hydrological monitoring by incorporating wetlands in the National Water Quality Assessment network (of CPCB) and National Grid of Hydrological Stations (of CWC).
- e) Initiating management-oriented research to address knowledge gaps, as well as enhance application of best practices in management of Ramsar Sites.
- f) Publishing a package of best practices for wetlands management.
- g) Bringing Ramsar Sites within the framework of Management Effectiveness Evaluation and publishing the first cycle of assessment within 2024.



## Component 2: Nature Tourism

13. Nature Tourism is responsible travel to the natural areas that conserves the environment and improves the well-being of local people. This form of tourism is globally recognized as a powerful conservation tool. It does so by creating awareness among the stakeholders and decision-makers as well as creating livelihood opportunities for local communities in an ecologically, economically, and culturally sustainable manner.
14. Amrit Dharohar intends to support the development of Nature Tourism at the Ramsar Sites to achieve wise use commitments. The focus would be to shift high-volume tourism at these fragile wetlands to high-value Nature Tourism, directly supporting conservation action, local communities and economies. Any development of tourism infrastructure would be in strict conformity with extant regulations (particularly Wetlands (Conservation and Management) Rules, 2017 ) and aligned with wetland wise use so as to ensure that ecological character of the Ramsar Sites is not adversely impacted. Key elements of Nature Tourism in ecologically fragile areas are articulated in the 'Guidelines for Sustainable Ecotourism in Forest and Wildlife Areas' (issued by MoEFCC in 2021) and 'National Strategy of Ecotourism' (developed by Ministry of Tourism in 2022). Nature Tourism would not just focus on biodiversity (such as the sighting of migratory birds) or amenity aspects of the wetland but shall be designed to showcase the full range of biodiversity, socio-cultural, heritage and recreational dimensions of Ramsar Sites. It is envisaged that Nature Tourism is not centred on a single Ramsar Site but is connected to a wider wetland tourism circuit. Working in collaboration with the Ministry of Tourism, State Tourism Department etc., the following activities are envisaged
  - a) A blueprint for Nature Tourism would form an integral part of the overall Integrated Management Plans for the Ramsar Sites. These plans shall be developed based on the carrying-capacity analysis including the identification of the Nature Tourism zones, potential partners, categorisation of infrastructural support that may be needed, funding sources, training and capacity needs through multi-stakeholder dialogue process. The plan shall also include recommendations for connectivity, and hard and soft interventions for site development. These plans shall be reviewed and updated periodically.
  - b) A dedicated promotional campaign would be planned in partnership with relevant stakeholders. The state and destination specific campaigns shall be developed based on the unique Nature Tourism offering of the Ramsar Site.
  - c) At each Ramsar Site, wetland interpretation centers would be established (or refurbished where already existing) as hubs for coordinating Nature Tourism activities. These centres would be equipped with ecosystem models, thematic displays on wetland features, audio-visual aids, auditoriums and other facilities to enable self-learning by visitors.
  - d) Signages for generating awareness among visitors shall be posted at the sites regarding safety and risk factors in Nature Tourism zones, safety protocols and information media.
  - e) Creating site-profiling videos which capture the biodiversity, socio-cultural, and heritage values.
  - f) Heritage villages would be developed around each Ramsar Site to showcase socio-cultural and heritage dimensions of wetlands conservation.
  - g) For each Ramsar site, at least one product



would be developed as a souvenir or even for commercial purposes.

- h) Initiating a Training of Trainers programme for wetlands communities to act as nature and culture guides.
- i) Developing access infrastructure to the Ramsar Sites and tourist amenities such as bio-toilets, restrooms, changing rooms, approach roads, watch towers and viewing galleries.

### Component 3: Wetlands Livelihoods

15. Wetland ecosystem services (the benefits people derive from wetlands) form an integral part of the livelihood strategy of wetland-dependent communities. Their livelihood systems often involve adapting to the overall ecological character of the wetland so as to optimise livelihood outcomes. The ways in which ecosystem services integrate with other

livelihood capitals, particularly the social, economic and political context under which ecosystem services accrue to the livelihoods of dependent communities become important variables in influencing the sustainability of livelihood strategies as well as well-being of wetland communities. Encouraging and supporting local communities to diversify their livelihood options can reduce their dependence on wetland resources and increase their resilience to environmental changes.

16. Amrit Dharohar aims at enhancing livelihood opportunities linked with conservation and wise use of Ramsar Sites. Towards this end, the MoEFCC shall work in collaboration with the Ministry of Skill Development and Entrepreneurship (MSDE), Ministry of Micro, Small and Medium Enterprises (MSME), Ministry of Rural Development (MoRD), and other relevant ministries and line agencies to support:

- a. Creating job opportunities, linked with wetlands conservation, for youth through targeted skill development programmes (such as nature guides, operating homestays, bird and biodiversity census, wetland hydrological and ecological assessments, small wetland restoration, EIAs among others).
- b. Supporting microenterprise development linked with sustainable and innovative use of wetland products (such as handicrafts based on water hyacinth) including developing market linkages and promoting local cuisine.
- c. Comprehensive coverage of drinking water and sanitation facilities around wetlands.
- d. Improving technology interface in wetland linked production technologies to improve sustainability and reduce environmental footprints.
- e. Integrating wetland conservation actions

within the relevant village development plans and other urban development plans to build convergence with sector development plans, programmes and investments.

#### Component 4: Wetlands Carbon

17. Wetlands are essential components of global carbon and nitrogen cycles. Several wetlands can act as long-term carbon sinks, preserving atmospheric CO<sub>2</sub> in their sediments for centuries. Protecting and restoring wetlands can contribute to climate change mitigation while also supporting other Sustainable Development Goals such as the provision of clean water, protecting shorelines, sustaining livelihoods and supporting biodiversity. To mitigate climate change forever, wetlands need to be net carbon sinks at the whole ecosystem scale. Natural wetlands are best left undisturbed to conserve long-term carbon storage. Disturbed wetlands such as those impacted by pollution or adverse land



use change require active management for controlling GHG emissions such as restoring natural hydrology, reducing eutrophication and promoting native vegetation.

18. Amrit Dharohar aims to build on the role that a healthy network of Ramsar Sites play in climate change mitigation by supporting the following activities:
  - a. Preparing a standard protocol for GHG inventory of wetlands.
  - b. Establishing a baseline GHG account of Ramsar Sites with specific focus on carbon stock and sequestration rates.
  - c. Taking interventions to conserve wetland carbon by restoring degraded wetlands, restoring natural hydrology, rewetting, reducing eutrophication and enhancing natural vegetation.
  - d. Linking conservation of select Ramsar Sites with Green Credit Programme to incentivise environmentally sustainable and responsive actions by companies, individuals, local bodies and other relevant stakeholders and help mobilise additional resources for wetland conservation.

## Implementation Arrangements

19. Amrit Dharohar will be implemented through a network of formal and informal institutions and individuals, working together for a common cause:

At Ramsar Site level: Amrit Dharohar Prabhari will be designated by the concerned State/UT Wetland Authority, who will be entrusted with coordinating site management and monitoring with Wetland Mitra Network, line government departments and agencies, knowledge partners, civil society organisations and corporate sectors

Wetland Mitra Network is an informal, voluntary and non-statutory network of concerned citizens to foster and promote community engagement in wetlands conservation and management efforts.

At District level: District Wetland Committees (under the District Collector) will be entrusted with the responsibility of ensuring that convergence is built with district-level conservation and development plans and programmes.

At State/UT level: Wetland Authorities will review and approve site management plans and provide access to funds for implementation from other central and state-level public sector schemes, as well as corporate sector partnerships.

At National Level: Wetlands Division of Ministry of Environment, Forest and Climate Change will maintain oversight and provide requisite convergence platforms, capacity development and monitoring support - collaboratively with other schemes of MoEFCC such as Environmental Information, Awareness, Capacity Building and Livelihood Programme (EIACP), National Coastal Mission (NCM), Integrated Development of Wildlife Habitats (IDWH), Ministry of Jal Shakti, Ministry of Housing and Urban Affairs, Ministry of Rural Development, NITI Aayog, National Wetlands Committee, knowledge partners and corporate sector platforms.

20. The technical backstopping for the implementation of Amrit Dharohar will be provided by the Knowledge Partners of the Wetlands Division of MoEFCC. The Ministry will also liaise with various research institutes to support Amrit Dharohar.

## Summary of Implementation arrangements

S.No	Amrit Dharohar Activities	Convergence
<b>Component 1: Species and Habitat Conservation</b>		
1.	Integrated Management Plan	MoEFCC through Knowledge Partners
2.	Biodiversity inventories	Zoological Survey of India Botanical Survey of India National Biodiversity Authority
3.	Hydrological monitoring	Central Water Commission
4.	Water Quality Assessment	Central Pollution Control Board/State Pollution control Board
5.	Management-oriented research	MoEFCC through Research Institutes
6.	Best practices for wetlands conservation	MoEFCC through Knowledge Partners
7.	Management Effectiveness Tracking Tool assessment	Knowledge Partners Research Institutes
<b>Component 2: Nature Tourism</b>		
8.	Carrying capacity analysis	MoEFCC through Research Institutes
9.	Promotional campaign	MoEFCC through Knowledge Partners SWAs/UTWAs, Regional NGOs
10.	Wetland interpretation centres	MoEFCC SWAs/ UTWAs State Tourism Department, Ministry of Tourism
11.	Signages for awareness generation	MoEFCC through Knowledge Partners and SWAs/UTWAs State Tourism Department, Ministry of Tourism
12.	Site-profiling videos	MoEFCC through Knowledge Partners and SWAs/UTWAs
13.	Heritage villages	SWAs/UTWAs State Tourism Department, Ministry of Rural Development
14.	Souvenir products	SWAs/UTWAs Local Self Government, Ministry of Rural Development, State Tourism Department, Ministry of Tourism

S.No	Amrit Dharohar Activities	Convergence
15.	Training for nature tourist and culture guides	EIACP, MoEFCC
16.	Access infrastructure and tourist amenities	Ministry of Rural Development, State Tourism Department, Ministry of Tourism
<b>Component 3: Wetlands Livelihoods</b>		
17.	Skill development programmes	EIACP, MoEFCC
18.	Microenterprise development	Ministry of Micro, Small and Medium Enterprises Ministry of Skill Development and Entrepreneurship
19.	Drinking water and sanitation facilities around wetlands	MoEFCC (Swachh Bharat Abhiyan)
20.	Wetland linked production technologies	MoEFCC through Knowledge Partners Research Institutes Ministry of Micro, Small and Medium Enterprises
21.	Wetland conservation actions within village development and other urban development plans	SWAs/UTWAs Local Self Government Ministry of Rural Development Ministry of Housing and Urban Affairs
<b>Component 4: Wetlands Carbon</b>		
22.	Standard protocol for GHG inventory of wetlands	MoEFCC through Knowledge Partners Research Institutes
23.	Baseline GHG account of Ramsar Sites (carbon stock, sequestration rates)	MoEFCC through Knowledge Partners Research Institutes
24.	Restoration interventions	MoEFCC through Knowledge Partners Research Institutes
25.	Green Credit Programme	MoEFCC



## Timeline

21. The implementation of Amrit Dharohar will commence on June 5, 2023 on the occasion of World Environment Day and will be continued till June 5, 2026.

## Monitoring Mechanism

22. Progress of Amrit Dharohar will be monitored through a specific dashboard on the India Wetlands Portal of the MoEFCC. Following data will be captured on a real time basis:

- a) Number of Ramsar Sites with approved management plans
- b) Number of Ramsar Sites with functional wetland interpretation centres
- c) Number of tourists
- d) Nature tourism infrastructure facilities created
- e) Number of alternate livelihoods generated

- f) Baseline METT scores
- g) Number of Ramsar Sites with updated biodiversity inventories
- h) Number of Ramsar Sites with carbon inventories
- i) Number of wetland mitras linked with Ramsar Sites

## Dissemination and Outreach

23. State Wetland Authorities shall document the implementation of Amrit Dharohar at their respective Ramsar Sites. This will also include
- Creating site profile videos and uploading the same on the national portal for dissemination.
  - Detailed process documentation that can serve as one-stop document for conservation of wetlands for wise use.
  - Organising an international conference on conservation and management of Ramsar Sites.

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<sup>4</sup>The Rules prohibit inter alia conversion to non-wetland usages; discharge of untreated wastes and effluents from industries, cities, towns, villages and other human settlements; any construction of a permanent nature except for boat jetties within fifty metres from the mean high flood level observed in the past ten years calculated from the date of commencement of these rules.



# Guidelines for implementing Wetlands (Conservation and Management) Rules, 2017

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE  
GOVERNMENT OF INDIA

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## I. Guidelines Purpose and Scope

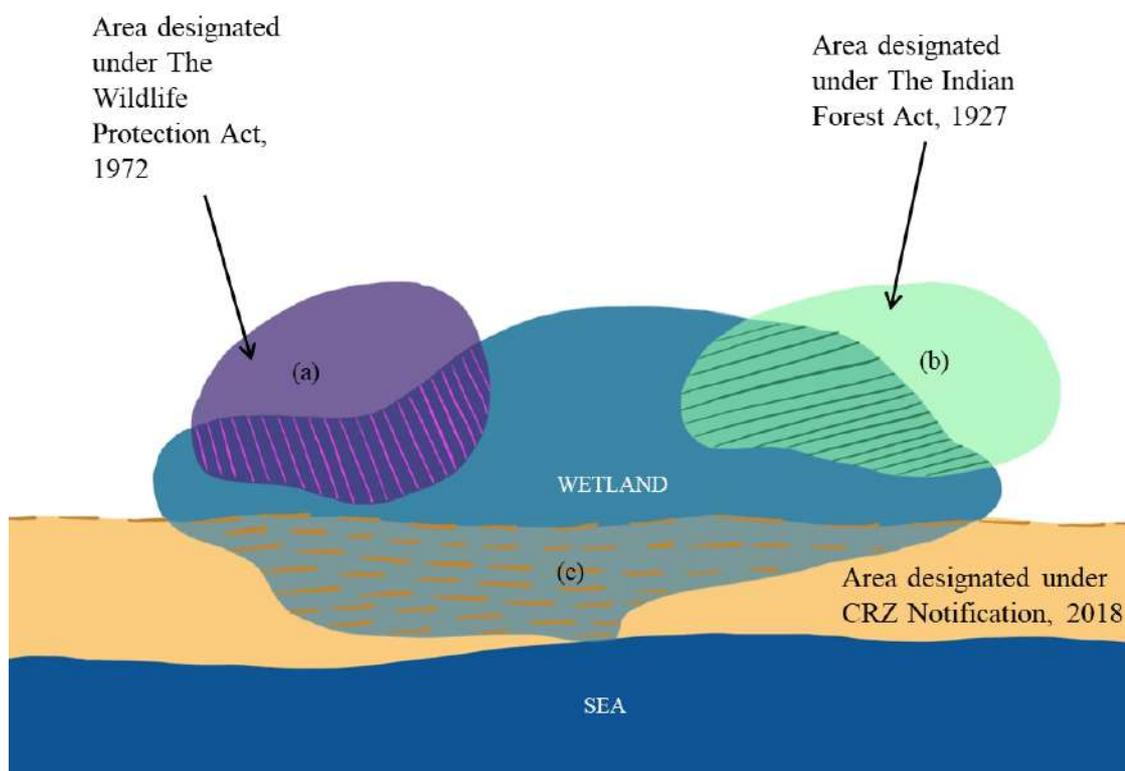
1. The Ministry of Environment, Forest and Climate Change (MoEF&CC) has notified **Wetlands (Conservation and Management) Rules, 2017** (hereinafter **Wetlands Rules**) under the provisions of the Environment (Protection) Act, 1986 as regulatory framework for conservation and management of wetlands in India. These guidelines have been drafted to support the State Governments / Union Territory (UT) Administrations in the implementation of the Rules by providing guidance on:
  - a) Preparing a list of wetlands in the State / UT
  - b) Identifying wetlands for notification under Wetlands (Conservation and Management) Rules, 2017
  - c) Delineating wetlands, wetlands complexes and zone of influence
  - d) Preparation of Brief Document
  - e) Determining 'wise use' and ecological character
  - f) Developing a list of activities to be regulated and permitted
  - g) Developing an Integrated Management Plan
  - h) Constitution and operational matters of the Wetlands Authorities
  - i) Overlapping provisions.
  
2. These guidelines were drafted by a committee constituted by the MoEF&CC vide OM dated August 10, 2018. The committee comprised Mr U.A.Vora (former CCF Wildlife, Government of Gujarat), Dr Arvind Kumar (President, India Water Foundation), Dr B.C. Jha (Former Director (Wetlands), Central Inland Fisheries Research Institute), Dr P. S. N. Rao (Director, School of Planning and Architecture), Dr Afroz Ahmad (Member, Environment and Rehabilitation, Narmada Control Authority) and Dr Ritesh Kumar (Director, Wetlands International South Asia). The committee met on five occasions at MoEF&CC, New Delhi for the said purpose, and submitted final version of the guidelines to the Ministry on December 5, 2018. The draft guidelines were subsequently sent for comments to all State Governments / UT Administrations, and have been finalized after due consideration of the comments received. The Committee immensely benefitted from the discussions held with Ms Manju Pandey (Joint Secretary). The Committee also acknowledges the support received from Ms Rita Khanna (Scientist 'F'), Dr M. Ramesh (Scientist 'E'), Mr Chandan Singh (Scientist 'D'), Dr Anu Chetal (Research Assistant) and Ms Pallavi Mukherjee (Research Assistant) during the guidelines preparation process.

## II. Wetlands to be regulated

3. The provisions of Wetlands Rules apply to:
  - a) Wetlands designated by the Government of India to the List of Wetlands of International Importance under the provisions of the Convention on Wetlands (Ramsar Convention). [Ref. Rule 3 (a) of Wetlands Rule]
  - b) Wetlands notified under the rules by the Central Government, State Government and UT Administration. [Ref. Rule 3 (b) of Wetlands Rule]

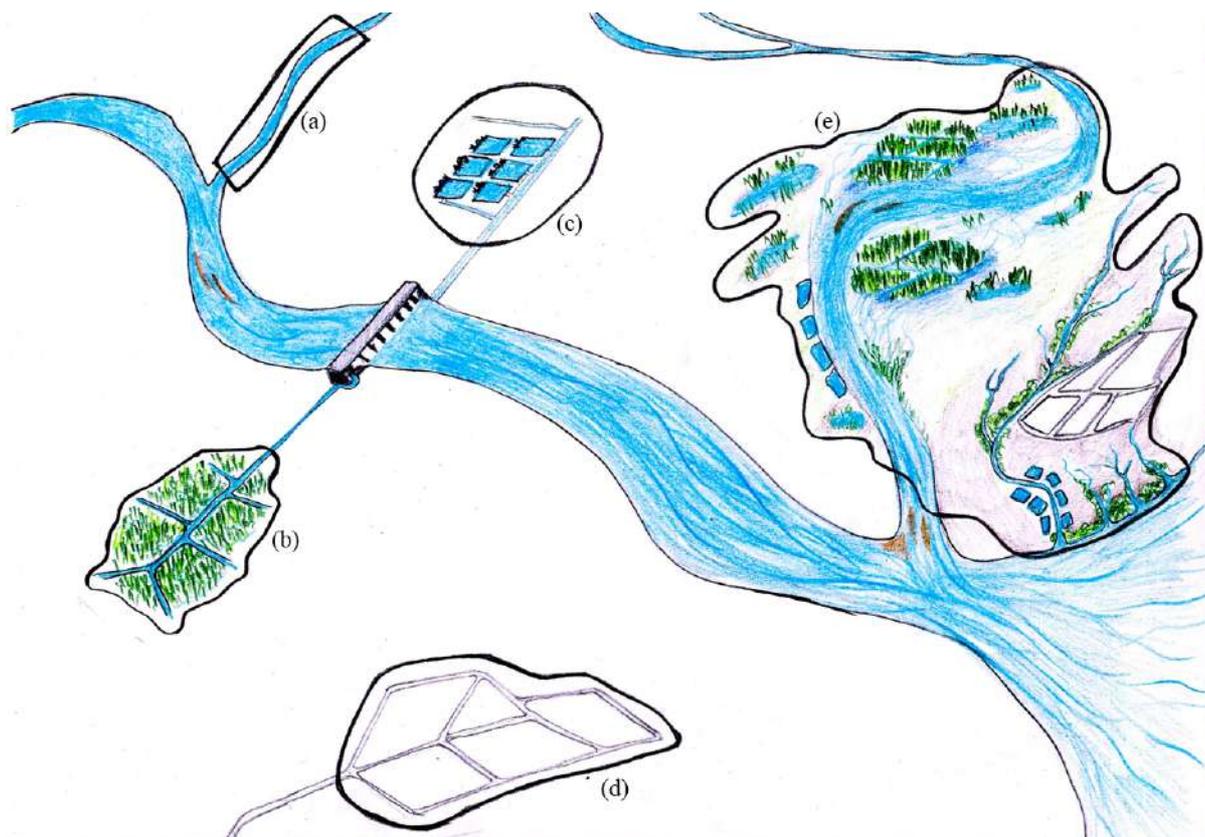
4. All wetlands, irrespective of their location, size, ownership, biodiversity, or ecosystem services values, can be notified under the Wetlands Rules, except:
  - a) River channels;
  - b) Paddy fields;
  - c) Human-made waterbodies specifically constructed for drinking water purposes;
  - d) Human-made waterbodies specifically constructed for aquaculture purposes;
  - e) Human-made waterbodies specifically constructed for salt production purposes;
  - f) Human-made waterbodies specifically constructed for recreation purposes;
  - g) Human-made waterbodies specifically constructed for irrigation purposes;
  - h) Wetlands falling within areas covered under the Indian Forest Act, 1927; Forest (Conservation) Act, 1980; State Forest Acts and amendments thereof;
  - i) Wetlands falling within areas covered under the Wildlife (Protection) Act, 1972 and amendments thereof;
  - j) Wetlands falling within areas covered under the Coastal Regulation Zone Notification, 2011 and amendments thereof.

[Ref. Rule 2 (g) and Rule 3 of Wetlands Rules]
5. Human-made wetlands are defined as wetlands that are planned, designed and operated to meet a specific purpose (such as providing water for irrigation, producing fish through culture operations, producing salt, recreation, preventing salinity intrusion, flood control etc.). Only those human-made wetlands that have been built for purposes, mentioned at paras 4c) - 4g) above, are excluded from notification under these Rules.
6. Natural wetlands, partly or wholly used for purposes as mentioned at 4c) - 4g), attract the provisions of the Wetlands Rules.
7. Wetlands designated as Ramsar Sites may be notified under the Rules as per the process mentioned in paragraphs 57-65, even when partly or wholly overlapping with areas covered under the Indian Forest Act, 1927; Forest (Conservation) Act, 1980; State Forest Acts and amendments thereof; Wildlife (Protection) Act, 1972 and amendments thereof; Coastal Regulation Zone Notification, 2011 and amendments thereof. Regulations for parts of wetlands overlapping with 4h-4j (supra) will, however, be as per the corresponding regulatory framework. Ramsar site areas, not covered under any of the overlapping laws and rules, will attract the provisions of the Wetlands Rules (Refer illustration 1 below).



*Illustration 1: Using the Wetlands Rules to fill in the gaps in situations of multiple regulations in a Ramsar Site. In the situation above, wildlife sanctuary (indicated as a) and a reserved forest (indicated as b) partly overlap with the Ramsar Site boundary. Being a coastal wetland, a part (indicated as c) also falls under Coastal Regulation Zone. In such cases, it is recommended that the entire Ramsar Site, inclusive of overlapping areas, is delineated and notified under the Wetlands Rules. The overlapping areas shall continue to be regulated as per respective Acts and Rules, and the remaining area may be regulated as per the provisions contained in Wetlands Rules. Similar approach can be taken even for wetlands that have not been designated as Ramsar Site.*

8. For wetlands falling within the criteria 3 (b) (supra), the exclusions mentioned at para 4 a) - 4j) shall apply only in cases wherein the entire wetland falls under the said category. In cases wherein areas falling within para 4 a) - 4 j) form a part of larger wetland or wetlands complex, and exclusion may result in impeded ecological contiguity and connectivity, such areas may be included within the boundary of wetland being notified. Regulations within the boundaries of areas mentioned at para 4 h) - 4 j) will, however, be as per the corresponding regulatory frameworks (Refer Illustration 1 and 2).
9. Though Protected Areas and areas falling within the purview of Coastal Zone Regulation have been excluded from notification under the Wetlands Rules, management of such wetlands may benefit through the application of 'wise use' approach (within the framework of existing laws and rules) as outlined in Section VII of these guidelines.



*Illustration 2: Considering river stretch and human-made wetlands for notification. In situations when the entire wetland, to be notified, is a river stretch [indicated as (a)], paddy fields [indicated as (b)], human-made wetland waterbodies for irrigation [indicated as (c)], and human-made waterbodies created for aquaculture purposes [indicated as (d)], these may not be notified under the Wetlands Rules. However, in cases as in (e), wherein river channels, paddy fields, and human-made wetlands such as aquaculture areas form a part of a larger wetland or wetland complex, and excluding such area may fragment the wetland regime, the area to be notified may include river channels, paddy fields or any other human-made wetland.*

10. Should the State Governments/UT Administrations be desirous, any wetland, even if included within the list of wetlands excluded from notification under Wetlands Rules, may be notified under the relevant state laws. In this regard, the approach/mechanism outlined in Wetlands Rules and these guidelines may be suitably adopted.

### III. Wetlands Authorities

11. As per Rule 5 of Wetlands Rules, 2017 the Wetlands Authorities within States and UTs are deemed as constituted with the following members:
- Minister In-charge of the Department of Environment/Forests of the State Government or Minister In charge of the Department handling wetlands - Chairperson;(Administrator or Chief Secretary of the UT - Chairperson in the case of UT);
  - Chief Secretary of the State or Additional Chief Secretary equivalent - Vice Chairperson;
  - Secretary in-charge of the Department of Environment - Member ex-officio; (Vice-Chairperson in the case of UT)
  - Secretary in-charge of the Department of Forests - Member ex-officio;
  - Secretary in-charge of the Department of Urban Development - Member ex-officio;

- f) Secretary in-charge of the Department of Rural Development - Member ex-officio;
  - g) Secretary in-charge of the Department of Water Resources - Member ex-officio;
  - h) Secretary in-charge of the Department of Fisheries - Member ex-officio;
  - i) Secretary in-charge of the Department of Irrigation and Flood Control - Member ex-officio;
  - j) Secretary in-charge of the Department of Tourism - Member ex-officio;
  - k) Secretary in-charge of the Department of Revenue - Member ex-officio;
  - l) Director, State Remote Sensing Centre - Member ex-officio;
  - m) Chief Wildlife Warden - Member ex-officio;
  - n) Member Secretary, State/UT Biodiversity Board - Member ex-officio;
  - o) Member Secretary, State Pollution Control Board/UT Pollution Control Committee - Member ex-officio;
  - p) Additional Principal Chief Conservator of Forests of the Regional Office of Ministry of Environment, Forest and Climate Change - Member ex-officio;
  - q) One expert each in the fields of wetland ecology, hydrology, fisheries, landscape planning and socioeconomics to be nominated by the State Government / UT Administration
  - r) Additional Secretary/Joint Secretary/Director in the Department of Environment/Forests or Department handling wetlands - Member Secretary
12. The Department of Environment / Forests or Department handling wetlands shall designate one expert each in the following fields for a period not exceeding three years: [Ref. Rule 5 (2) (xvi) of Wetlands Rules]
- a) Wetlands ecology
  - b) Hydrology
  - c) Fisheries
  - d) Landscape planning
  - e) Socioeconomics
13. The Wetlands Authority may co-opt other members, not exceeding three in number. It is recommended that at least one member may be drawn from civil society to enable stakeholder representation.
14. The Authority shall exercise following powers and perform the following functions:
- a) Prepare a list of all wetlands of the State or UT within three months from the date of publication of these rules;
  - b) Prepare a list of wetlands to be notified, within six months from the date of publication of these Rules, taking into cognizance any existing list of wetlands prepared/notified under other relevant State Acts;
  - c) Recommend identified wetlands, based on their Brief Documents, for regulation under these rules;
  - d) Prepare a comprehensive digital inventory of all wetlands within one year from the date of publication of these rules and upload the same on a dedicated web portal, to be developed by the Central Government for the said purpose; the inventory ought to be updated every ten years;
  - e) Develop a comprehensive list of activities, to be regulated and permitted within the notified wetlands and their zone of influence;
  - f) Recommend additions, if any, to the list of prohibited activities for specific wetlands;
  - g) Define strategies for conservation and wise use of wetlands within their jurisdiction;
  - h) Review Integrated Management Plan for each of the notified wetlands (including trans-boundary wetlands in coordination with Central Government), and within these plans to

consider continuation and support to traditional uses of wetlands that are harmonized with ecological character;

- i) Recommend mechanisms for maintenance of ecological character through promotional activities for land within the boundary of notified wetlands or wetlands complex have private tenancy rights,;
- j) Identify mechanisms for convergence of implementation of the management plan with the existing State/UT level development plans and programmes;
- k) Ensure enforcement of these rules and other relevant Acts, rules and regulations and on a half-yearly basis (June and December of each calendar year) inform the concerned State Government or UT Administration or Central Government on the status of such notified wetlands through a reporting mechanism;
- l) Coordinate implementation of Integrated Management Plans based on wise use principle through various line departments and other concerned agencies;
- m) Function as a nodal authority for all wetland-specific authorities within the State or UT Administration;
- n) Issue necessary directions for the conservation and sustainable management of wetlands to the respective implementing agencies.
- o) Undertake measures for enhancing awareness within stakeholders and local communities on values and functions of wetlands; and
- p) Advise on any other matter suo-motu, or as referred by the State Government/UT Administration.

[Ref. Rule 5 (4) of Wetlands Rules]

15. The State Government or UT Administration shall designate a department as nodal department for wetlands. Such department shall provide all necessary support and act as Secretariat to the Authority. The State Governments / UT Administrations may allocate sufficient budget and human resources to ensure smooth functioning of the Authority and conduct of its various activities. The Authority and the nodal department may identify a professional institute(s)/organization(s) that would assist them in their various functions such as preparing a list of wetlands, Brief Documents for notification etc.
16. The Authority shall meet at least thrice in a year. State Government / UT Administration may decide an appropriate quorum, not less than half of the members. Minutes of meetings of the Authority may be placed in the public domain within a period not exceeding two weeks from the day on which meeting has been convened. [Ref. Rule 5 (2) (8) of Wetlands Rules]
17. Each Wetlands Authority shall constitute:
  - a) Technical Committee to review Brief Documents, Management Plans and advise on any technical matter referred by the Wetlands Authority; and,
  - b) Grievance Committee, consisting of four members, to provide a mechanism for hearing and forwarding the grievances raised by the public to the Authority.

[Ref. Rule 5 (6)(b) of Wetlands Rules]
18. The composition of these committees may be decided by the concerned State / UT Wetlands Authority. Meetings of these committees shall be held **at least once every quarter**, and proceedings presented in the next meeting of the Authority.
19. The Wetlands Authority may empower the Grievance Committee to redress grievances at the local level and to recommend to the Authority for the finality of decisions. The State Government

/ UT Administration may consider appointing at least one member with a legal background in the Grievance Committee. [Ref. Rule 5(6)(b) of Wetlands Rules]

20. State or UT level Wetlands Authorities constituted before notification of Wetlands Rules, shall be deemed dissolved for the purpose of these Rules.
21. State / UT Wetlands Authorities shall serve as nodal authority for authorities / agencies created for specific wetlands. Management plans and notifications pertaining to the specific wetland shall be subject to approval and endorsement of the State / UT Wetlands Authority. Administrative matters, however, may continue to be dealt by the nodal department specified within the constitution of the wetlands specific authority.

#### IV. Preparing a list of wetlands

22. The State / UT Wetlands Authorities are expected to prepare a list of wetlands within the boundaries of their respective States / UTs. This list should be comprehensive, and not just focus on wetlands that qualify for notification under these Rules. Therefore, it is recommended that the list is developed based on wetlands definition of the Ramsar Convention (to which India is a Contracting Party).

22.1 The Convention, ratified by Government of India, defines wetlands as ‘areas 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 tides, does not exceed six meters’. In addition, to protect coherent sites, Article 2.1 of the Convention provides that ‘wetlands may include riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six meters at low tide lying within the wetlands.’

23. The National Wetlands Atlas prepared by Space Application Center under the National Wetlands Inventory and Assessment project, and available at [https://vedas.sac.gov.in/vedas/downloads/atlas/Wetlands/NWIA\\_National\\_atlas.pdf](https://vedas.sac.gov.in/vedas/downloads/atlas/Wetlands/NWIA_National_atlas.pdf) has spatial data on wetlands for each State and UT.

23.1 The GIS data has already been made available by the Wetlands Division of the MoEF&CC to the representatives of the State Governments / UT Administrations during the regional consultation workshops held during 2016-18.

23.2 Wetlands Authority may seek the assistance of District Administration to validate the information provided in the Atlas. Existing land records may also be considered while developing the list of wetlands.

23.3 The final list of wetlands/wetland complexes may be prepared under the following heading:

- a) Wetland Name
- b) Geographical coordinates (latitude and longitude of the centre of the wetland)
- c) Wetland type (inland and coastal) and sub-type (natural or human-made)
- d) District(s) within which the wetland is located
- e) Approximate area of the wetland
- f) Whether the wetland falls within the category of regulated wetlands as per Wetlands Rules.

A format for compiling the list of wetlands is at **Annex 1**. This list may also contain trans-boundary wetlands (at the end) with additional details such as the bordering State/UT under which wetland is falling along with corresponding area.

24. In addition to the National Wetlands Atlas, it may also be helpful to consider the list of wetlands studied and described by various agencies, including revenue records (particularly areas recorded as any of the wetlands types such as ponds, lake, *talab*, *sarovar* etc.). The States/UTs may seek the assistance of State Remote Sensing Agencies and local experts for preparing such wetland inventory expeditiously. State Governments/ UT Administrations are also encouraged to make use of satellite images available at National Remote Sensing Center's Geo-platform Bhuvan, accessible at <http://bhuvan.nrsc.gov.in/data/download/index.php>.

## V. Delineating wetlands

25. After the wetlands have been identified for notifications under the Wetlands Rules, the next step involves delineation of each of these wetlands (or wetlands complexes) and their zone of influence.
26. For delineating wetlands, it is essential to be aware of the distinguishing characteristics of these ecosystems. Wetlands arise when inundation by water produces soil dominated by anaerobic processes, which in turn forces the biota, particularly rooted plants to adapt to flooding. Wetlands, thus, have the following general distinguishing characteristics:
- a) Permanent or periodic inundation or saturated soils throughout the year or during parts of the year
  - b) Presence of macrophytes adapted to wet conditions (also known as hydrophytes)
  - c) Soil that are saturated or flooded long enough favouring development of anaerobic conditions
27. Water creates wetlands. The biological composition of wetlands, from fish to migrating waterbirds, depends on the ways water moves within a wetland. The amplitude and frequency of water level fluctuations are probably the most critical factors affecting the composition and functioning of wetlands. Hydrological regimes may, therefore, be used as the primary delineation characteristics for defining wetland boundary.
28. Wetlands boundary can be derived as the outer envelope of the maximum area under inundation, the area covered by hydrophytes, or saturation of soil near the surface during a normal monsoon year. The boundary should be such that during a normal monsoon year, the entire area is inundated for at least 15 days, or the soil is saturated roughly within one foot from the surface. It may be pertinent to exclude areas that are only intermittently inundated in the case of high floods (such as one in 100-year floods) or extreme events (such as storm surges of extreme intensity).
29. Where two or more wetlands exist with a high degree on hydrological connectivity (for example, wetlands connected during monsoon), or ecological connectivity (sharing waterbird habitats or located on migratory fish pathways), these can be delineated as a single complex. In such cases, non-wetland areas may be included within the boundary of the complex to ensure connectivity and continuity. The connotation of wetland throughout this document includes wetlands complex, as may be the case.

30. For each wetland and wetlands complex, a map should be prepared using a Geographical Information System (WGS84 datum and UTM (Universal Transverse Mercator) projection) and adopting professional cartographic standards. Essential features to be included in the map are as follows:
- Wetland boundary
  - The boundary of settlements located within and around the wetland
  - Connecting drainages, inflows and outflows
  - Main roads and railway (if any)
  - Major landmarks
31. Recommended scale for producing the wetlands maps is as follows:

Wetland / Wetlands complex area	Recommended scale
Below 100 ha	1: 4000
Between 100 - 500 ha	1: 10,000
Between 500- 4000 ha	1: 25,000
4000 ha and above	1: 50,000

*These scales have been recommended on the basis of spatial data available for preparing wetlands maps and details that may be extracted for management planning and monitoring decisions. Resources at 2 LISS IV data that may be used for preparing map of wetlands below 100 ha renders an approximate scale of 1:4000. Even larger wetlands can be mapped using finer resolution data. However, for expedience and cost effectiveness, a lower scale may be sufficient for meeting management needs.*

## VI. Delineating zone of influence

32. For each wetland to be notified, a zone of influence is to be defined. The zone of influence of a wetland is an area, developmental activities wherein are likely to induce adverse changes in wetland ecosystem structure and (ecological) functioning.
33. The boundary of the zone of influence may be defined with due consideration to local hydrology and nature of land use. For wetlands with a well-defined surface drainage system, its directly and freely draining basin should be delineated as the zone of influence. This can be done using a suitable digital elevation model data and validated using toposheets. The basin should encompass all direct inflow as well as outflow areas. The river basin atlas of India (available at [http://www.india-wris.nrsc.gov.in/wrpinfo/index.php?title=WRIS\\_Publications](http://www.india-wris.nrsc.gov.in/wrpinfo/index.php?title=WRIS_Publications)) may be used to support the delineation.
34. For wetlands with diffused drainage and where the slope is too gentle leading to large basin area, the zone of influence can be delineated on the basis of features that are likely to influence wetland functioning adversely. These could be based on the outer periphery of adjoining settlements, or peripheral agricultural fields that drain directly into the wetland.
35. A map should be prepared to indicate the following elements in a Geographical Information System (WGS84 datum and UTM projection) and adopting professional cartographic standards:
- Zone of influence
  - Wetland boundary

- c) Connecting drainages, inflows and outflows
- d) Main roads and railway (if any)
- e) Major landmarks

36. The recommended scale at which the map of the zone of influence is to be produced is as follows:

Area of zone of influence	Recommended mapping scale
Below 100 ha	1: 4000
Between 100 and 500 ha	1: 10,000
More than 500 ha	1: 50,000

## VII. Wetlands wise use and ecological character

37. Management of notified wetlands is recommended to be based on ‘wise use’ approach. Human beings and their use of resources form an essential component of wetland ecosystem dynamics. The ‘wise use’ approach recognises that restricting wetland loss and degradation requires incorporation of linkages between people and wetlands. The wise use principle emphasises that human use of these ecosystems on a sustainable basis is compatible with conservation.
38. Ramsar Convention defines the ‘wise use’ of wetlands as “the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development”. Ecosystem approach requires consideration of the complex relationship between various ecosystem elements and promotion of integrated management of land, water and living resources. Wise use, through an emphasis on sustainable development, calls for resource use patterns which can ensure that human dependence on wetlands can be maintained not only in the present but also in the future. Seen in totality, wise use is about maintaining and enhancing wetland values and functions to ensure the maintenance of the flow of benefits from wetlands (their ecosystem services) from an inter-generational equity point of view.
39. Ecological character is “the combination of ecosystem components, processes and services that typify the wetland at a given point in time”. Ecosystem components are living (biotic) and non-living (abiotic) constituents of the wetland ecosystem. These include:
- a. Geomorphic setting (landscape, catchment, river basin);
  - b. Climate (precipitation, wind, temperature, evaporation, humidity);
  - c. Physical setting (area, boundaries, topography, shape, bathymetry, habitat type and connectivity);
  - d. Water regime (inflow, outflow, balance, surface-groundwater interactions, inundation regime, tidal regime, quality);
  - e. Wetland Soil (texture, chemical and biological properties);
  - f. Biota (Plant and animal communities)
40. Ecosystem processes occur between organisms and within and between populations and communities, including interactions with the non-living environment that result in an existing ecosystem state and bring about changes in ecosystems over time. These include: Physical processes (water stratification, mixing, sedimentation, erosion); Energy - nutrient dynamics (primary production, nutrient cycling, carbon cycling, decomposition, oxidation-reduction);

Processes that maintain animal and plant population (recruitment, migration); and Species interaction (Competition, predation, succession, herbivory).

41. Ecosystem services are benefits obtained by humans from ecosystems, categorized as: Provisioning (fisheries, use of aquatic vegetation for economic propose, wetland agriculture, biochemical products); Regulating (maintenance of hydrological regimes) and Cultural (recreation and tourism, spiritual, scientific and educational value). Supporting services are included within ecosystem processes.

42. A wetland use is not 'wise-use' if:

- a. The intervention leads to adverse changes in ecosystem components and processes, such as:
  - i. Reduction in water flowing into the wetlands
  - ii. Reduction in the area under inundation, or changes in inundation regime
  - iii. Reduction and alteration of natural shoreline
  - iv. Fragmentation of wetlands into small patches of water
  - v. Reduction in water holding capacity
  - vi. Degradation of water quality
  - vii. Reduction in diversity of native species
  - viii. Introduction or emergence of invasive species
  - ix. Decline in wetlands resources, such as fish, aquatic plants, and water
- b. The intervention enhances some ecosystem services (such as food production values) while diminishing other ecosystem services (such as the ability of wetlands to moderate wetlands regime).

43. Some examples of wetlands uses that may not be 'wise-use' are as follows:

Type of wetland	Intervention	Ecosystem services likely to be enhanced	Ecosystem services likely to be diminished
Lagoon	Prawn aquaculture by creating enclosures within the lagoon area	<ul style="list-style-type: none"> <li>• Food provision</li> <li>• Livelihoods for wetlands dependent communities</li> </ul>	<ul style="list-style-type: none"> <li>• Water regime moderation</li> <li>• Flood buffering</li> </ul>
Lake	Impounding water by regulating outflows	Increased water availability for human use	<ul style="list-style-type: none"> <li>• Ability to moderate floods</li> </ul>
Marsh	Construction of road connecting settlements located on the periphery	Transport	<ul style="list-style-type: none"> <li>• Hydrological regime moderation</li> <li>• Flood buffering</li> <li>• Aesthetics</li> </ul>
Urban lake	Concretization of shoreline for beatification	<ul style="list-style-type: none"> <li>• Aesthetic value</li> <li>• Tourism and recreational benefits</li> </ul>	<ul style="list-style-type: none"> <li>• Ability to accommodate monsoon flows</li> <li>• Habitat values</li> </ul>

44. In several cases, the impact on ecosystem structure and functions, or tradeoffs in ecosystem services may not be immediately apparent. It is, therefore, recommended that the 'precautionary

approach' is adopted to ensure that wetlands conservation is prioritized in the case of information uncertainty.

### VIII. Prohibited activities in a notified wetland

45. The following activities are prohibited within notified wetlands:
  - a. Conversion for non-wetland uses including encroachment of any kind;
  - b. Setting up of any industry and expansion of existing industries;
  - c. Manufacture or handling or storage or disposal of construction and demolition waste covered under the Construction and Demolition Waste Management Rules, 2016; hazardous substances covered under the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 or the Rules for the Manufacture, Use, Import, Export and Storage of Hazardous Microorganisms/Genetically Engineered Organisms or cells, 1989 or the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008; electronic waste covered under the E-Waste (Management) Rules, 2016;
  - d. Solid waste dumping;
  - e. Discharge of untreated wastes and effluents from industries, cities, towns, villages and other human settlements;
  - f. Any construction of a permanent nature except for boat jetties within fifty metres from the mean high flood level observed in the past ten years calculated from the date of commencement of these rules; and,
  - g. Poaching.  
[Ref. Rule 4 (2) of Wetlands Rules]
46. State/UT Wetlands Authority, based on consideration of site-specific conditions, may consider expanding the list of prohibited activities for a notified wetland (or wetlands complex). This should be specified as such within the notification for specific wetland (or wetlands complex).
47. Permission for carrying out any activity included within the list of prohibited activities [as per Rule 4(2) of Wetlands Rules], within a notified wetland can only be given by the MoEF&CC. A specific request needs to be made by the State Government based on the recommendation of Wetlands Authority specifying:
  - a) Activity for which permission is sought;
  - b) Justification thereof;
  - c) The premise on which the activity is not considered detrimental to the wetland's ecological character; &
  - d) Supporting evidence-base (such as an expert report, EIA, mitigating measures proposed to be undertaken etc.)

### IX. Developing a list of activities, to be regulated in a notified wetland:

48. Activities within a notified wetland and its zone of influence, which when contained within a specific threshold or area, are not likely to induce an adverse change in wetlands ecological character may be placed under the 'regulated' category. Such activities should be notified within the notification for a specific wetland (wetlands complex).
49. Following activities, when regulated, are not likely to induce an adverse change in wetlands:
  - a) Subsistence level biomass harvesting (including traditional practices);

- b) Sustainable culture fisheries practices (in private lands);
- c) Plying of non-motorized boats;
- d) Desilting, in case where wetlands inflow regimes and water-holding capacity are impacted by siltation (note that ‘deepening’ activities are not the same as ‘desilting’); &
- e) Construction of temporary nature
50. Each activity, however, would need to be considered on a case to case basis keeping in mind the ecological character of wetland or wetlands complex. A generic listing of a set of activities for all wetlands of the State / UT may not be feasible or desirable. For example, releasing treated sewage may not be advisable for high altitude wetlands that have slow decomposition rates.
51. For each regulated activity, it may be desirable to set a threshold limit beyond which the activity may be prohibited. The thresholds can be in the form of a spatial limit (such as areas wherein capture fishing may be carried), temporal limits (such as observing closed season), ecological condition (such as maintenance of a water quality parameter within a prescribed range), number of people (such as number of tourists permitted to visit the wetland on a given day), land use (such as prohibiting use of intermittently inundated area for permanent agriculture, or construction of enclosure), or any relevant dimension. Some examples of thresholds are:

Activity (Indicative List)	Aspect on which threshold can be specified
a) Subsistence level biomass harvesting (including traditional practices)	<ul style="list-style-type: none"> <li>• Number of people that can be permitted to harvest biomass within the wetlands</li> <li>• Type of harvesting gears (mesh size) and crafts</li> <li>• Area wherein harvesting is permitted</li> </ul>
b) Releasing of treated sewage	Water quality parameters (such as): <ul style="list-style-type: none"> <li>• Dissolved Oxygen,</li> <li>• Biological Oxygen Demand</li> <li>• Chemical Oxygen Demand</li> <li>• Concentration of heavy metals</li> <li>• Coliforms</li> </ul>
c) Sustainable culture-based fisheries practices	<ul style="list-style-type: none"> <li>• Area wherein culture-based fisheries is permitted</li> <li>• Stocking density</li> <li>• Water quality</li> </ul>
d) Plying of non-motorized boats	<ul style="list-style-type: none"> <li>• Area wherein plying is permitted</li> <li>• Number of boats</li> </ul>
e) Desilting, in cases where wetlands inflow regimes and water holding capacity are impacted by siltation	<ul style="list-style-type: none"> <li>• Area wherein desilting can be carried out</li> </ul>
f) Noise Pollution	<ul style="list-style-type: none"> <li>• Limiting below level suited for waterbird habitat</li> </ul>
g) Washing and bathing activities	<ul style="list-style-type: none"> <li>• Use of detergent</li> </ul>
h) Construction of temporary nature	<ul style="list-style-type: none"> <li>• Area wherein temporary constructions can be carried out</li> </ul>

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	<ul style="list-style-type: none"> <li>• The period for which such structure can be maintained inside the notified wetlands</li> </ul>
i) Change in landuse pattern within the zone of influence	<ul style="list-style-type: none"> <li>• Land use does not alter the hydrological regime or interrupt species interactions (such as bird migration pathways)</li> </ul>

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52. The Wetlands Authority shall be responsible for enforcing the regulations, through enforcement machinery of the concerned State Government / UT Administration.

#### X. Developing a list of activities permitted in a notified wetland

53. Activities aligned with the 'wise use' of wetland may be permitted within the wetland (wetlands complex) or its zone of influence. The following activities are likely to be aligned with the 'wise use' approach:

- a) Ecological rehabilitation and rewilding of nature ;
- b) Wetlands inventory, assessment and monitoring;
- c) Research;
- d) Communication, environmental education and participation activities;
- e) Management planning;
- f) Habitat management and conservation of wetland-dependent species;
- g) Community-based ecotourism (with minimum construction activities);
- h) Harvesting of wetlands products within regenerative capacity; and,
- i) Integrating wetlands as nature-based solutions for climate change mitigation and adaptation.

54. Permitted activities may need to be identified considering the ecological character of each wetland to be notified. It is likely that an activity may be benign for one wetland, yet would need regulation for others. For example, ecotourism may not be desirable for all wetlands.

#### XI. Registration of wetlands

55. It is advised that the State/UT governments may ascertain whether the respective wetland has been registered appropriately in the land revenue records. If the wetland has not been registered as yet, necessary steps may be taken early. This would help in ensuring that the usage of wetland is not altered in future through encroachment, illegal claim of ownership etc.

#### XII. Account of pre-existing rights and privileges in a notified wetland

56. Each wetland is likely to be associated with a range of pre-existing rights and privileges, and it must be ensured that such rights and privileges are aligned with the 'wise use' approach. 'Privilege' is defined here as a special entitlement granted to restricted group or persons, on a conditional basis and can be revoked. 'Rights', on the other hand, may be irrevocable and inherently held by a human being. Thus, a fish lease granted in certain wetlands by the Department of Fisheries can be considered as a privilege. Privilege can also be customary and traditional (for example, the use of traditional fishing techniques, buffalo wallowing, elephant bathing, the source of drinking water for bovines, etc.). Parking a houseboat against a lease right to clean environment are examples of rights.

57. For assessing the consequence of a pre-existing right or privilege on a wetland, it may be important to consider their implication on wetland ecological character. The privilege of fishing granted along a migratory route can lead to an adverse change in fish stocks. Similarly, the disposal of untreated sewage by houseboat in a wetland can lead to pollution. Thus, such privileges are not aligned with 'wise use'. On the other hand, in many cases, the subsistence level harvest of macrophytes may help in keeping species invasion in check and therefore aligned with ecosystem health. Such considerations may need to be made while deciding whether a wetland use is to be regulated or permitted.

### XIII. Notifying wetlands

58. For each wetland proposed to be notified, a 'Brief Document' containing the following information needs to be prepared:

- a) Demarcation of wetland boundary, supported by accurate digital maps with coordinates and validated by ground truthing;
- b) Demarcation of its zone of influence alongwith land use and land cover thereof indicated in a digital map;
- c) Ecological character description;
- d) Account of pre-existing rights and privileges;
- e) List of site-specific activities, to be permitted within the wetland and its zone of influence;
- f) List of site-specific activities, to be regulated within the wetland and its zone of influence; and,
- g) Modalities for enforcement of regulation.

A format for preparing the Brief Document is at **Annex 2**.

59. The nodal department, designated by the State Government/UT Administration for wetlands, shall be responsible for preparing the Brief Documents.

60. In the case of transboundary wetlands, the respective State Governments/UT Administration may initiate the process of preparation of a common Brief Document and submit the same to MoEF&CC. If required, MoEF&CC shall coordinate with the concerned State Governments/UT Administrations for preparation of the Brief Document and addressing relevant issues. The Ministry will further process Brief Document as per process laid under Rule 7(4) of Wetlands Rules, 2017.

61. All Brief Documents shall be placed for approval of the Wetlands Authority. The Authority may endorse the Brief Document for notification to the concerned State Government / UT Administration.

62. The State Government / UT Administration shall issue a draft notification indicating the wetland (wetlands complex) to be covered under the Wetlands Rules. The notification should contain:

- a) Description of the wetland (wetlands complex) boundary along with its map
- b) Description of the zone of influence along with a map
- c) List of activities prohibited within the wetland (wetlands complex) and its zone of influence
- d) List of activities regulated within the wetland (wetlands complex) and its zone of influence
- e) List of activities permitted within the wetland (wetlands complex) and its zone of influence
- f) Name and contact details of the nodal person, who is to be contacted for seeking permission to undertake regulated activities.

A format for notification is at **Annex 3**.

63. Each draft notification shall be placed for public consultation for sixty days.
64. The State Government after considering objections from the concerned and affected persons shall publish the final notification within a period not exceeding 240 days from the date of **draft notification**.
65. MoEF&CC shall issue the draft and final notification for transboundary wetlands.
66. All Ramsar Sites, deemed covered under these Rules, shall also be notified as per the process laid out in paragraphs 57-64. This is proposed to ensure that the site boundaries are properly delineated and the knowledge about the same is available in public domain. It is advised that the information in the 'Brief Document' may be consistent with Ramsar Site Information Sheet (RSIS), submitted to the Ramsar Convention during site designation or RSIS updated thereafter.

#### **XIV. Integrated Management Plan**

67. Wetlands are one of the most embedded and interlinked ecosystems with human livelihoods and well-being. A balanced management approach, addressing biodiversity conservation values while providing for sustainable utilisation in a way compatible with the maintenance of natural properties of the ecosystem, needs to be adopted for these ecosystems. It is, therefore, recommended that management of each notified wetland (is guided by an "Integrated Management Plan". The plan refers to a document which describes strategies and actions for achieving 'wise use' of the wetland and includes objectives of site management; management actions required to achieve the objectives; factors that affect, or may affect, various site features; monitoring requirements for detecting changes in ecological character and for measuring the effectiveness of management; and resources for management implementation. Besides identifying resources, a management plan serves several important functions including generating baseline information, communication with stakeholders and ensuring compliance with regulatory frameworks and policy commitments.
68. While it is recognized that each wetland has its own distinctive ecological and hydrological features and thereby distinctive management needs, the following broad planning principles need to be kept in mind while formulating integrated management plans:
  - **Integrated planning:** Aquatic and terrestrial ecosystems are intimately linked by the process of the water flowing through them. Every land use decision has a consequence on water availability. Delineating a basin or a coastal zone enables demarcation of a distinct hydrological unit which is the natural integration of all hydrological processes within its boundary and therefore an ideal and rational unit for soil, water and bio-resources conservation and management. Thus, management planning for wetlands should not be restricted to a defined administrative boundary, but rather take into account wider planning and management context of the basin or coastal zone within which the site is located.

The process of development and implementation of management plans for wetlands often needs to be accompanied by governance improvements at basin and coastal zone level. Such an approach underpins Integrated Lake Basin Management framework that calls for

achieving ‘sustainable management of wetlands through gradual, continuous and holistic improvement of basin governance, including sustained efforts for integration of institutional responsibilities, policy directions, stakeholder participation, scientific and traditional knowledge, technological possibilities, and funding prospects and constraints.

Achieving close relationship between planning and governance is critical, considering multiple stakeholder and sectoral interests which underlie and, to a large extent, structure wetland biodiversity and ecosystem service values, and the need to secure people’s involvement and participation in basin-scale management for considerably long periods of time.

Reflection upon the following six pillars of basin-scale governance may thus be useful:

- **Institutions:** Development of effective organisations and governance frameworks
  - **Policies:** Setting broad directions and specific rules
  - **Participation:** Expanding the circle of involvement
  - **Technology:** Possibilities and limitations
  - **Information:** Pursuing sources of knowledge and wisdom, and
  - **Finance:** Seeking sustainable sources at the appropriate level
- **Use of diagnostic approaches for defining management approach and actions:** Given the uniqueness associated with each wetland, it is important that ‘one size fit all’ approach is replaced with a diagnostic approach, wherein the ecological, hydrological, socioeconomic and institutional features are comprehensively assessed and trends therein determined to be able to spell out management objectives and actions clearly.
  - **Adaptable management:** Wetlands are influenced by a range of drivers and pressures that act at multiple spatial, temporal and political scales. Their management plan, therefore, needs to be accommodative of uncertainties and challenges. This can be achieved by using an adaptable management approach that allows for suitable modification of management based on continuous site monitoring and assessment of new information.
  - **Stakeholder participation:** The condition of any wetland is an outcome of actions by a range of stakeholders, which are linked to the ecosystem in a number of ways. Management planning, therefore, needs to recognise these linkages, and build a mechanism for participation of stakeholders in design, review and implementation processes.
  - **Governance:** Being located at the interface of land and water, wetlands are influenced by a range of developmental activities that take place within their direct and indirect basins and coastal zones. Institutional arrangements for managing wetlands need to be such that they are capable of integrating activities across multiple sectors (such as agriculture, water resources, forests, rural development, urban development, forests and wildlife and others), and balancing the needs of a group of diverse stakeholders while ensuring that ecological integrity of these fragile ecosystems is not adversely affected.
- In the above context, association of entities or individuals as ‘Wetland Mitras’ can encourage stakeholder participation and overall governance.

69. An integrated wetlands management plan can be developed in the following steps, thus enabling a systematic diagnosis of wetlands features and their governing factors to arrive at management objectives and activities.

Step 1	Preamble	Concise policy statement describing the rationale for the application of human, technical and financial resources for the wetland management
Step 2	Description of wetland features	Collation and synthesis of data to describe: wetland location and extent, catchment, hydrological regimes, biodiversity, ecosystem services, socioeconomic and livelihoods
Step 3	Evaluation of wetland features	Based on the description of features, identification of priority wetland features that need to be maintained, and key threats that adversely affect these features
Step 4	Institutional arrangements	<ul style="list-style-type: none"> <li>• Provide an overview of the current institutional arrangements in the context of wetlands management;</li> <li>• Discuss why the current institutional arrangements are insufficient in ensuring wetlands conservation and wise use;</li> <li>• Propose institutional arrangement for wetland management, with specific focus on: <ul style="list-style-type: none"> <li>a) Nodal Agency</li> <li>b) Role of various departments and agencies and coordination mechanism, and</li> <li>c) Role of civil society and communities.</li> </ul> </li> <li>• Develop an organogram for management plan implementation.</li> <li>• Regulatory regime specifying activities prohibited within wetlands, activities to be regulated within wetlands and zone of influence and regulation thresholds and activities permitted</li> </ul>
Step 5	Setting Management Objectives	<ul style="list-style-type: none"> <li>• Provide a statement of the overall goal that the management plan seeks to achieve;</li> <li>• Summarize the ecological and economic benefits that are expected from management plan implementation;</li> <li>• Enlist specific objectives;</li> <li>• Describe strategy(ies) for achieving each of the management objectives;</li> <li>• Provide a strategy for implementing regulatory regime - including list of activities liable to be prohibited, regulated and permitted within the wetland (wetlands complex)</li> </ul>
Step 6	Monitoring and Evaluation Plan	<ul style="list-style-type: none"> <li>• Present an overview of monitoring the wetland, and management plan implementation;</li> <li>• Describe monitoring parameters, the frequency of monitoring and the agency that will be responsible for monitoring;</li> <li>• Describe how coordination between different monitoring agencies will be achieved;</li> <li>• Discuss the infrastructure and human resource requirement for implementing the management plan. (As far as possible, include local universities, research organizations and NGOs in wetlands monitoring);</li> <li>• Discuss the frequency in which reporting shall be done and the responsible agency; Discuss how the monitoring outcomes will be used to adapt management</li> </ul>
Step 7	Action Plan	Listing of management components and specific activities to achieve management objectives. For each activity,

		implementation location, prioritisation, implementing agency and timeline should be specified.
Step 8	Budget	Assessment of financial resources required for implementing the management plan and sources of funds.

A description of each step and format for the compilation of integrated management plan is at **Annex 4**.

70. **The management plans should be presented to the Wetlands Authority. The implementation shall begin only after receiving their endorsement. Management plans for Ramsar Sites and transboundary wetlands shall also be reviewed and endorsed by the MoEF&CC.**
71. The diagnostic management planning process, as described above, may also be used to guide management of wetlands excluded from notification under Wetlands Rules.

#### **XV. Violations and penal provisions**

72. The Wetlands Authorities are entrusted with the responsibility of ensuring enforcement of Wetlands Rules and other relevant Acts, Rules and Regulations. Provisions of the relevant Central and State Government Acts are applicable.
73. All prohibited and regulated activities beyond their thresholds, if taken up within the wetlands and its zone of influence, shall be deemed violations under the Wetlands Rules.
74. The violations of the Wetlands Rules shall attract the penal provisions as per the Environment (Protection) Act, 1986.
75. Complaints may need to be filed in the case of violations. In exercise of powers conferred under clause (a) of section 19, the Central-Government has authorised the officers and authorities listed, in the Table (p. 238) vide S.O. 394 (E) published in the Gazette No. 185 dated 16-4-87, S.O. 237(E) published in Gazette No. 171 dated 29-3-89 and S.O. 656(E) published in the Gazette No. 519 dated 21-8-89, and amendments thereafter, if any.
76. The Authority should evolve a mechanism for continuous watch and ward of wetlands within their jurisdiction. At the local level, the concerned Gram Panchayat and Urban Local Body may be entrusted with watch and ward in association with any body constituted by the State Wetlands Authority, such as a Wetlands Management Unit for a specific Wetland. At District levels, the responsibility may be entrusted to the DDO/CDO (District/Chief Development Officer)/CEO (Chief Executive Officer)/ Chief Programme Officer of the Wetland level body, such as a Wetlands Management Unit.
77. The State Governments should proactively ensure incorporation of wetlands within land records.
78. The Wetlands Authority shall report the status of notified wetlands on half yearly basis to the State Government/UT Administration and Central Government (recommended proforma at Annex 5).

## XVI. Portal for information sharing

79. The MoEF&CC has created a web-portal for sharing information regarding implementation of Wetlands Rules. The portal may be accessed at MoEFCC website. The Central Government, State Government and UT Administration are required to upload all relevant information and documents pertaining to wetlands in their jurisdiction. State Governments / UT Administrations are encouraged to develop their own portals and hyperlink the same to the national portal. The State Governments and UT Administrations are also encouraged to upload other project documents and publications to enable sharing and exchanging good practices related to wetlands management in general, and implementation of regulatory framework in particular.



## Annex 2: Format for preparing Brief Document

State / Union Territory: \_\_\_\_\_

Name and address of person(s) compiling this information \_\_\_\_\_

### Section 1: Identification, Location and Jurisdiction

1.1 Name of the Wetland (Alternative names, including in local language should be given in parenthesis after official name)

\_\_\_\_\_

1.2 Name of the Village(s) , Tehsil(s), Municipal area (s)

\_\_\_\_\_

1.3 Name of the District(s) in which wetland complex is located

\_\_\_\_\_

1.4 Geographical coordinates (Latitude and Longitude, to degree, minutes and second)

Latitude: From \_\_\_\_\_ to \_\_\_\_\_

Longitude: From \_\_\_\_\_ to \_\_\_\_\_

1.5 Name of the Department / Agency which has jurisdiction over the wetland / wetlands complex

\_\_\_\_\_

### Section 2: Site Characteristics

2.1 Area of wetland / wetlands category (ha) \_\_\_\_\_

2.2 Wetland type (Please tick appropriate categories and sub-categories)

Category	Subcategory
<input type="checkbox"/> Natural (Inland)	<input type="checkbox"/> Permanent lakes <input type="checkbox"/> Seasonal/ intermittent lakes <input type="checkbox"/> Permanent streams/ creeks <input type="checkbox"/> Seasonal/ intermittent streams/ creeks <input type="checkbox"/> Oxbow <input type="checkbox"/> River floodplain <input type="checkbox"/> Permanent freshwater marshes <input type="checkbox"/> Seasonal/ intermittent freshwater marshes <input type="checkbox"/> Shrub-dominated wetlands <input type="checkbox"/> Tree-dominated wetlands <input type="checkbox"/> Geothermal wetlands <input type="checkbox"/> Karst and other subterranean hydrological systems

<input type="checkbox"/> Natural (Coastal)	<input type="checkbox"/> Coastal lagoon <input type="checkbox"/> Estuary <input type="checkbox"/> Intertidal mud, sand or salt flats <input type="checkbox"/> Mangroves <input type="checkbox"/> Coral reefs
<input type="checkbox"/> Human-made	<input type="checkbox"/> Aquaculture pond <input type="checkbox"/> Tank <input type="checkbox"/> Saltpan <input type="checkbox"/> Dam / Reservoir

2.3 Depth (m)      Average \_\_\_\_\_ Maximum \_\_\_\_\_

2.4 Elevation (m above mean sea level) \_\_\_\_\_ m

2.5 Water regimes

a) Main source of water (tick all applicable)

Rainfall     Groundwater     Catchment runoff     Direct / indirect inflow from river

Others, please specify \_\_\_\_\_

b) Water permanence

Mostly permanent     Mostly intermittent

c) Destination of water from wetland

Feeds groundwater     To downstream catchment     To river     To sea

d) Water pH

Acid (< 5.5)     Circumneutral (5.5 - 7.4)     Alkaline (> 7.4)

Not known

e) Water salinity

Fresh (< 0.5 g/l)     Brackish (0.5 - 30 g/l)     Euhaline (30- 40 g/l)

Hypersaline (>40g/l)     Not known

f) Nutrient in water

Eutrophic     Mesotrophic     Oligotrophic

Not known

2.6 Climatic setting

- a) Annual Rainfall /Snowfall(mm) \_\_\_\_\_
- b) Temperature (°C) Minimum \_\_\_\_\_ Maximum \_\_\_\_\_
- c) Humidity (%) Minimum \_\_\_\_\_ Maximum \_\_\_\_\_
- 2.7 Area of zone of influence (in ha) \_\_\_\_\_ [Ref. paras 32-34 of the guidelines on wetlands]
- 2.8 Major land use within zone of influence (provide as approximate % of catchment area)
- Forests \_\_\_\_\_%
- Plantation \_\_\_\_\_%
- Agriculture \_\_\_\_\_%
- Settlements (Rural) \_\_\_\_\_%
- Settlements (Urban) \_\_\_\_\_%
- Industrial \_\_\_\_\_%
- 2.9 Map of wetland complex and zone of influence  
(To be enclosed as Annex I and II to this proposal)

### Section 3: Biodiversity

- 3.1 Notable plant species present in wetland  
\_\_\_\_\_
- 3.2 Notable animal species present in wetland  
\_\_\_\_\_
- 3.3 Species of conservation significance (rare, endangered, threatened, endemic species)  
\_\_\_\_\_
- 3.4 Major plant invasive alien species  
\_\_\_\_\_
- 3.5 Major animal invasive alien species  
\_\_\_\_\_

## Section 4: Ecosystem services

Importance	Relevant for the site (please tick yes or no)	If Yes, Details (upto 50 words for each category)
Source of drinking water for people living and around	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Source of water for agriculture	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Fisheries	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Cultivation of aquatic food plants	<input type="checkbox"/> Yes <input type="checkbox"/> No	
For buffalo wallowing and use of domesticated animals	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Medicinal plants	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is a recreational site	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Buffering communities from extreme events as floods and storms	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Groundwater recharge	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Water purification	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Acts as a sink for sediments	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Has significant cultural and religious values	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is a site for recreation and tourism	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Supports noteworthy plants species	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Supports noteworthy animal species	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Site of high congregation of migratory water birds	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Supports life cycle of fish or amphibians	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Mining	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Any other, please list		

## Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for the site (please tick yes or no)	Does this negatively impact the wetland's ecological health?	Brief description (upto 50 words for each category)
Community Fishing (without any lease or permission from government department)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	
Fishing under lease from government department	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	
Harvest of plants (without any lease or permission from government department)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	
Harvest of plants under lease from government department	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	
Agriculture or horticulture within wetland	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	
Grazing	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	
Religious practices	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	
Withdrawal of water for domestic use	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	
Withdrawal of water for agriculture or fisheries	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	
Bathing or wallowing of domestic animals	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	
Plying of boats	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	
Any other, please list here	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	

**Section 6: Present and Potential Threats**

Threat	Degree	Present or Potential	Additional information, if any
Changes in water inflow and outflow	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low	<input type="checkbox"/> Present <input type="checkbox"/> Potential	
Pollution	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low	<input type="checkbox"/> Present <input type="checkbox"/> Potential	
Unsustainable harvest of biological resources	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low	<input type="checkbox"/> Present <input type="checkbox"/> Potential	
Mining	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low	<input type="checkbox"/> Present <input type="checkbox"/> Potential	
Siltation	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low	<input type="checkbox"/> Present <input type="checkbox"/> Potential	
Encroachment	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low	<input type="checkbox"/> Present <input type="checkbox"/> Potential	
Spread of invasive species	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low	<input type="checkbox"/> Present <input type="checkbox"/> Potential	
Any other, please list	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low	<input type="checkbox"/> Present <input type="checkbox"/> Potential	

**Section 7: Activities Proposed to be Prohibited (other than those listed in Rule 4(2) of Wetland Rules and Regulated**

Activity	Whether prohibited or regulated	Regulation within wetlands or zone of influence	If regulated, indicate the level of regulation (in terms of people, restricted area or any other)	Name of department / agency responsible for regulation / prohibition	Additional information, if any
Withdrawal of water / impoundment/diversion or any other hydrological intervention		<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence			
Harvesting of resources (living / non-living)		<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence			
Grazing		<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence			
Discharge of treated sewage/ effluent / wastewater		<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence			

Construction of boat jetties, and facilities for temporary use , as pontoon bridges		<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence			
Aquaculture, agriculture and horticulture activities within the wetland boundaries.		<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence			
Any other, please list		<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence			

**Section 8: Activities Proposed to be permitted**

Activity	Place a tick mark if relevant	Within wetlands or zone of influence	Additional information, if any
	<input type="checkbox"/>	<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence	
	<input type="checkbox"/>	<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence	
	<input type="checkbox"/>	<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence	
	<input type="checkbox"/>	<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence	
	<input type="checkbox"/>	<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence	
	<input type="checkbox"/>	<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence	
		<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence	

**Section 9: Listing of Available Scientific Resources Used**

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**CHECKLIST**

- Responsible agency has been clearly identified and details of contact person included
- Wetland/ wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- Wetland/ wetlands complex map has been provided at required scale
- Zone of influence has been delineated and included in wetland map or a separate map
- Wetland zone of influence is sufficient to manage all activities
- Site's importance have been listed, and for major categories, justification is provided
- Site's biodiversity values are listed, and for major categories, justification is provided
- List of pre-existing rights and privileges is provided
- Consistency or inconsistency of pre-existing rights and privileges is indicated to be best of available knowledge
- Threats to site are listed, and for major categories details are provided
- Activities prohibited, other than those listed in Rule 4(2) have been mentioned
- List of activities to be regulated within wetlands and zone of influence is provided
- List of activities to be permitted is provided

**Annex 3: Format for draft notification of wetlands under Wetlands (Conservation and Management) Rules, 2017**

**Government of [State / Union Territory / India]**

**[Date]**

S.O. \_\_\_\_\_ The draft of the notification, which the [name of the issuing entity] proposes to issue in exercise of the powers conferred under rule 7 of the Wetlands (Conservation and Management) Rules 2017 read with Environment (Protection) Act, 1986 (29 of 1986), is hereby published for the information of the persons likely to be concerned or affected thereby; and notice is hereby given that the said draft notification shall be taken into consideration on or after the expiry of a period of sixty days from the date on which copies of the Gazette of ..... containing this notification are made available to the public;

Any person interested in making any objection or suggestion on the proposals contained in the draft notification may forward the same in writing, for consideration of the [State Government / UT Administration / MoEFCC, GoI], within the period so specified to the [insert designation and address], or at email address,.....

**Draft Notification**

1. WHEREAS, the ..... wetland / wetland complex, situated in ..... village(s), tehsil(s), district(s) of state of ..... , is considered to be critically significant for its ecosystem services and biodiversity values for the local communities and society at large;
2. AND WHEREAS, it is considered that for sustaining these values, the ecological character of wetland ecosystem needs to be maintained by regulating developmental activities within the wetland as well as within its zone of influence;
3. NOW THEREFORE, the [State Government, UT Administration / Government of India] declares that the said wetlands shall be covered under the provisions of Wetlands (Conservation and Management) Rules, 2017.

4. The extent of the wetland /wetland complex and its zone of influence is described in **Schedule I** of this notification;
5. Activities prohibited within the wetland and its zone of influence are listed in **Schedule II** of this notification. Such prohibitions shall not apply for areas designated under other Acts and Rules, and listed at para 1.2 (a), (b) and (c) of Schedule I. Relevant provisions of respective Acts and Rules shall apply in such areas.
6. Activities regulated within the wetland and its zone of influence, i.e. permitted only with permission of [State Government, UT Administration / Government of India] are listed in **Schedule III** of this notification. Request for permissions can be made to the [Designation, contact address and email]. Such regulations shall not apply for areas designated under other Acts and Rules, and listed at para 1.2 a), b) and c) of Schedule I. Relevant provisions of respective Acts and Rules shall apply in such areas.
7. Activities permitted within the wetland and its zone of influence are listed in **Schedule IV** of this notification. Such permissions however shall not apply for areas designated under other Acts and Rules, and listed at para 1.2 (a), (b) and (c) of Schedule I. Relevant provisions of respective Acts and Rules shall apply in such areas.
8. The [State / UT Wetlands Authority] and the Ministry of Environment, Forest and Climate Change shall monitor the enforcement of the provisions of this notification.

By order

.....

## Schedule 1: Location and Extent of Wetland / Wetlands Complex and its Zone of Influence

### 1.1 Wetland / wetlands complex

The wetland / wetlands complex, as delineated, extends within an area of .....ha within the geographical coordinates as under:

Extremity	North	South	West	East
Latitude				
Longitude				

The map of wetland / wetlands complex boundary is at **Map 1(a)**.

### 1.2 Boundary of area already designated under provisions of other Acts and Rules

The wetland / wetland complex boundary includes an area of ..... ha designated under other Acts and Rules, with the geographical coordinates as under:

#### 1.2 (a) Area designated under Indian Forest Act, 1927; Forest (Conservation) Act, 1980; State Forest Acts and amendments thereof

Extremity	North	South	West	East
Latitude				
Longitude				

#### 1.2 (b) Area designated under Wildlife (Protection) Act, 1972 and amendments thereof

Extremity	North	South	West	East
Latitude				
Longitude				

#### 1.2 (c) Area designated under the Coastal Regulation Zone Notification, 2011 and amendments thereof.

Extremity	North	South	West	East
Latitude				
Longitude				

The above areas should be clearly demarcated on the map of wetland / wetlands complex boundary i.e. **Map 1(a)**.

### 1.3 Zone of influence

The geographical coordinates of the zone of influence span an area of ..... ha within the geographical coordinates as under:

Extremity	North	South	West	East
Latitude				
Longitude				

The map of zone of influence of the wetland is at **Map 1(b)**.

### 1.4 List of revenue villages / municipal areas falling fully or partly within the wetland is as under:

[Insert list]

1.5 List of revenue villages / municipal areas falling fully or partly within the zone of influence is as under:

[Insert list]

**Schedule II: List of activities prohibited within wetland/ wetlands complex boundary**

- a) Conversion for non-wetland uses including encroachment of any kind;
- b) Setting up of any industry and expansion of existing industries;
- c) Manufacture or/and handling or/and storage or/and disposal of construction and demolition waste covered under the Construction and Demolition Waste Management Rules, 2016; hazardous substances covered under the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 or the Rules for Manufacture, Use, Import, Export and Storage of Hazardous Micro-organisms Genetically engineered organisms or cells, 1989 or the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008; electronic waste covered under the E-Waste (Management) Rules, 2016;
- d) Solid waste dumping;
- e) Discharge of untreated wastes and effluents from industries, cities, towns, villages and other human settlements;
- f) Any construction of a permanent nature except for boat jetties within fifty metres from the mean high flood level observed in the past ten years calculated from the date of commencement of these rules; and,
- g) Poaching.

[Other activities, likely to have an adverse impact on the ecosystem to be inserted from the Brief Document]

**Schedule III: List of activities regulated within the boundary of wetlands / wetlands complex and its zone of influence and for which prior approval of [State Government/ UT Administration/MoEF&CC] is required to be obtained**

Activity	Restrictions	
	Within the boundary of wetland / wetlands complex	Within the zone of influence
[Insert from brief document]	[Insert from Brief Document]	[Insert from Brief Document]

**Schedule IV: List of activities permitted within the boundary of wetlands / wetlands complex and its zone of influence**

Activity	Levels and types not requiring permission	
	Within the boundary of wetland / wetlands complex	Within the zone of influence
[Insert from brief document]	[Insert from Brief Document]	[Insert from Brief Document]

#### Annex 4: Steps and format for developing Integrated Management Plan

1. Wetlands provide wide-ranging ecosystem services that support human well-being in a number of ways. Numerous plant and animal species depend on wetlands during different parts of their life-cycle. In order to ensure that wetlands continue to provide their ecosystem services and support biodiversity, it is essential that a well-defined strategy and actions are identified for their conservation and wise use. An Integrated Management Plan reflects a common understanding between various stakeholders on the management purpose, significant threats and constraints limiting conservation and wise use, opportunities and specific actions for addressing these threats, and mainstreaming wetlands within the wider developmental planning.
2. The Integrated Management Plan is formulated to serve the following purposes:
  - Identify the objectives of wetland management;
  - Identify the factors that affect or may affect the wetland;
  - Resolve conflicts between various stakeholders having an interest in the wetland;
  - Define monitoring requirements and research needs;
  - Help obtain financial resources for managing the wetland;
  - Enable communication between different wetland managers, organizations and stakeholders;
  - Ensure compliance with extant laws and regulation; and,
  - Demonstrate that management is effective and efficient
3. Systematic diagnosis of various wetlands features and factors influencing these features is essential to arrive at management objectives and actions. The following eight steps are recommended for developing an Integrated Management Plan:

##### Step 1: Preamble

4. The process for management planning must begin with an exercise of setting up an overarching preamble describing the rationale for application of human, technical and financial resources for the wetland. This is a concise policy statement that expresses the commitment of the State Government/ UT Administration for integrated management. The preamble can be developed on the basis of:
  - Importance of the wetland for the state / UT
  - Ways in which the wetlands conservation and wise use will contribute to conservation and developmental goals
  - Alignment with sectoral policies, directives and planning frameworks

## Step 2: Description of wetland features

5. This step entails collation and synthesis of existing information on various site features so as to provide a basis for the identification of management objectives. A generic listing of management information needs and data requirements are presented in Table 1.

*Table 1: Information Required for Description of Wetlands Features*

Wetland feature	Management information needs	Data requirement
Wetland type and extent	<ul style="list-style-type: none"> <li>▪ Location</li> <li>▪ Wetland type</li> <li>▪ Wetland area</li> <li>▪ Significant inter-annual changes in the wetland</li> <li>▪ Major changes in the wetland extent in the last 20 – 30 years (if available)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Geographical coordinates</li> <li>▪ Land use and land cover data for the wetland (at least for two seasons, pre and post-monsoon)</li> <li>▪ Historical map of the wetland ( can be developed from the Survey of India toposheets) (if available)</li> </ul>
Catchment/ Drainage Basin	<ul style="list-style-type: none"> <li>▪ Direct and indirect catchment of the wetland</li> <li>▪ Geological and geomorphological characteristics that have led to the formation of the wetland</li> <li>▪ Present land use and land cover of the catchment and their implication for wetland</li> <li>▪ Major developmental activities in the catchment and their impacts on the wetland</li> </ul>	<ul style="list-style-type: none"> <li>▪ Geology and geomorphology</li> <li>▪ Topography</li> <li>▪ Drainage pattern</li> <li>▪ Soil types</li> <li>▪ Climate setting</li> <li>▪ Land use and land cover change</li> </ul>
Hydrological regimes	<ul style="list-style-type: none"> <li>▪ Major sources of water inflow and outflow from the wetland</li> <li>▪ Major sources of sediments into the wetland</li> <li>▪ Inundation regime</li> <li>▪ Trends in water holding capacity and factors for the decline</li> <li>▪ Water quality and pollution status</li> <li>▪ Water use pattern within the wetland catchment and implication for wetland</li> </ul>	<ul style="list-style-type: none"> <li>▪ Water inflow, outflow and balance</li> <li>▪ Inundation pattern</li> <li>▪ Sedimentation</li> <li>▪ Groundwater</li> <li>▪ Water quality</li> <li>▪ Water use within the basin</li> </ul>
Biodiversity	<ul style="list-style-type: none"> <li>▪ Species richness</li> <li>▪ Role of the wetland in the life-cycle of migratory species</li> <li>▪ Invasive species and major contributing factors</li> <li>▪ Major changes in species richness and habitat and factors thereof</li> </ul>	<ul style="list-style-type: none"> <li>▪ Species richness and diversity</li> <li>▪ Biological significance of habitats</li> <li>▪ Risk of species invasion</li> </ul>

Ecosystem Services	<ul style="list-style-type: none"> <li>▪ Key ecological and hydrological characteristics required for the sustained provision of ecosystem services</li> <li>▪ Ecosystem services trade-offs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provisioning services (direct wetland products, eg: food, fibre, water)</li> <li>▪ Regulating services (the ability of an ecosystem to regulate hydrological regimes, influence micro-climate, reduce disaster risk, groundwater recharge)</li> <li>▪ Cultural services (recreational values, cultural and religious norms and beliefs related to wetlands)</li> <li>▪ Supporting services (Primary production and other ecosystem functions which enable wetlands to deliver all above ecosystem services)</li> </ul>
Socioeconomics and livelihoods	<ul style="list-style-type: none"> <li>▪ Extent of dependence on wetlands for livelihoods</li> <li>▪ Status of community infrastructure (such as water and sanitation) and implication for wetlands</li> <li>▪ Livelihood vulnerability and relationship with changes in wetland resources</li> <li>▪ Resource use conflicts</li> <li>▪ Major shifts in livelihoods and implications for wetlands</li> </ul>	<ul style="list-style-type: none"> <li>▪ Demographic features of communities living in and around</li> <li>▪ The contribution of wetland to income and employment</li> <li>▪ Community resource use and management practices</li> </ul>

6. Attention should be paid to the robustness of data and associated uncertainties thereof. It is recommended that the data on-site features and linked metadata are, to the extent possible, maintained in a spatial format to enable updation at a later stage as more information becomes available through monitoring programmes. The step should also include identification of data gaps.

### Step 3: Evaluation of wetland features

7. This step entails an evaluation of information on status and trends on wetlands features (conducted in the previous step) to identify:
- a) Key wetland features that should be a priority for management planning
  - b) Natural variability within these features, including describing thresholds, if any
  - c) Threats that limit (or potentially limit) maintenance of wetlands features in the desirable state
8. Evaluation of wetland features can be done on the basis of criteria such as:
- Naturalness
  - Rarity
  - Criticality for ecosystem functioning
  - Socioeconomic importance
  - Requirement under the extant regulatory regime
9. The evaluation process will lead to narrowing down of the list of wetland features, for which threats may be identified. The management plan is a response to these threats. Through this process, it is

ensured that the plan does not merely focus on symptoms (for example, poor water quality) but on the root causes (in this case, ineffective sewage management in wetland catchments).

#### **Step 4: Defining an institutional arrangement for wetland management**

10. The purpose of this step is to evaluate whether existing institutional arrangements are sufficient and effective in addressing the threats to wetlands. Based on the gaps identified, an institutional arrangement for implementation of the management plan is developed.
11. This step includes:
  - a) Enlisting of government departments having programmes which impact (or have the potential to impact) wetlands features or threats on these features;
  - b) An analysis of laws and regulation related to wetland, access and use of wetland resources, biodiversity or any dimension;
  - c) Ownership, rights and privileges pertaining to wetlands;
  - d) Analysis of the role of CSOs and communities in wetlands management, with particular reference to their views, rights and capacities; and,
  - e) Gaps and challenges.
12. Based on the analysis, an institutional arrangement for wetlands management should be developed, clearly stating:
  - a) The nodal agency responsible for managing wetlands
  - b) Role of different government departments and mechanisms for inter-departmental coordination
  - c) Role of CSOs and communities
13. In line with the requirements of Wetlands (Conservation and Management) Rules, 2017, the following should be specified:
  - a) Activities prohibited within the boundary of wetlands;
  - b) Activities to be regulated within wetlands and zone of influence and regulation thresholds; and,
  - c) Activities permitted.

#### **Step 5: Setting management objectives**

14. This step involves the identification of site management objectives that need to be met so as to ensure that site features are maintained or improved. The management objectives may address the threats identified in the previous step, and issues relating to maintenance of wetland in a desired healthy state.
15. While defining objectives, the following may be considered:
  - a) **Measurability** – The objectives must be measurable so as to enable reporting on progress towards meeting them (for example, reducing silt load from the wetland catchment by xx %)
  - b) **Achievability** – The objectives must be achievable at least in the medium or long term. An objective that cannot be achieved can lead to an overall loss of sense of direction and misallocation of resources (for example, completely preventing nutrient enrichment in a wetland located in the intensive agricultural landscape is an unachievable objective, a much better proposition would be to reduce the current rate by xx%).

- c) **Indicative of purpose and not the process** – The objectives should not be prescriptively stating the way the objective should be achieved. It should ideally reflect the purpose of management (for example – afforestation in xxx ha is not an objective but a way to reduce siltation. Focusing just on afforestation then limits the use of other options for reducing siltation in a wetland).

#### Step 6: Developing a monitoring and evaluation plan

16. This section aims at outlining a monitoring and evaluation plan to enable assessment of overall management effectiveness and identify needs for mid-term correction.

#### Performance indicators

17. For each of management objectives, a set of performance indicators should be identified.

*Table 2: Performance Indicators*

Wetland feature	Management objective	Performance Indicator	Means of measurement
Area	Maintain wetland area	Wetland area which has not been altered for non-wetland usages	Area estimated from analysis of remote sensing images and ground truthing
Catchments	Reduction in silt load from catchment	Silt load	Monitoring pilot watersheds
Hydrological regimes	Reduce pollution	Biological Oxygen Demand, Chemical Oxygen Demand or any other water quality parameter assessed against a threshold	Water quality monitoring
	Enhance hydrological connectivity within wetlands complex	Area of wetland complex inundated during high floods period	Analysis of remote sensing data, and hydrological surveys
Biodiversity	Maintain and enhance habitat of waterbirds	Area of wetland used by waterbirds	Physical survey
	Reduce area under invasive macrophyte	Area under invasive macrophyte	Analysis of remote sensing images and ground truthing
	Maintain fish species richness	Fish species richness	Sampling

Socioeconomics	Reduce use of harmful fishing practices	Number of destructive fishing gear used in the wetland	Survey
	Reduce direct dependence of communities on capture fisheries	Reduction in % of income derived from wetland	Socioeconomic surveys

18. For each performance indicator, a baseline value at the beginning of management plan implementation may be specified. These values should be tracked over the course of management plan implementation to assess whether management objectives are being met.

### Monitoring mechanism

19. Besides setting up performance indicators for the management plan, it is also essential to set up a monitoring system for the wetland to be able to assess changes in ecosystem condition over a period of time.

20. A generic listing of monitoring parameter, method and frequency is presented in the Table 3 below. Parameters marked with a single asterisk (\*) sign are relevant for all wetlands and must form a part of the monitoring system. In addition to these, parameters marked with a double asterisk (\*\*) are relevant for wetlands located in urban and peri-urban areas. Other parameters may be included based on the assessment of relevance and wetland contexts.

21. Photographic documentation (before, during and after management intervention) may also be maintained as part of monitoring process. Aquatic drones/ buoy-based sensor induced transmission for online data updating may be used for large wetlands, which will further help in enriching the management practices.

*Table 3: Parameters for wetlands monitoring*

Wetland feature	Monitoring parameter	Monitoring method	Recommended Frequency
Wetland extent	• Wetland area*	Remote sensing and ground truthing	Once in a year
	• Land use and land cover within the wetland area	Remote sensing and ground truthing	Once in a year
	• Connectivity with other adjoining wetlands, river / streams, coastal zone	Remote sensing and ground truthing	Once in a year

Wetland Catchment	• Climate	Data from the nearest weather station	Monthly
	• Land use and Land Cover*	Remote sensing and ground truthing	Once in 3 years
	• Total sediment yield	Stream gauging station	Monthly
	• Total nutrient yield	Stream gauging station	Monthly
Hydrological regimes	• Water inflow and outflow*	Stream gauging station	Monthly
	• Waterholding capacity	Bathymetric survey	Once in 5 years
	• Peak inundation	Remote sensing and ground truthing	Once in 2 years
	• Dissolved Oxygen, Biological Oxygen Demand *	Data from water quality sampling stations	Atleast monthly
	• Chemical Oxygen Demand **	Data from water quality sampling stations	Atleast monthly
	• Number of point sources discharging untreated sewage into the wetland **	Surveys	Once a year
Biodiversity and Habitat	• Population of major wetland dependent species groups (such as waterbirds, mammals etc.)*	Mid-winter counts	Once a year
	• Habitat use by key species	Physical surveys	Once a year
	• Number of migratory species using the wetland as a habitat	Physical surveys	Once a year
	• Area under invasive macrophyte **	Physical surveys	Once a year
Ecosystem Services	• Annual Fish yield	Sampling	Monthly samples collated into an annual estimate

	<ul style="list-style-type: none"> <li>• Number of tourists</li> </ul>	Surveys	Monthly samples collated into an annual estimate
	<ul style="list-style-type: none"> <li>• Volume of surface water abstracted from wetland</li> </ul>	Hydrographic surveys	Monthly samples collated into an annual estimate
	<ul style="list-style-type: none"> <li>• Volume of groundwater recharged</li> </ul>	Hydrographic surveys	Once a year
	<ul style="list-style-type: none"> <li>• Proportion of floodwaters stored in the wetland</li> </ul>	Hydrographic surveys	Once a year
	<ul style="list-style-type: none"> <li>• Use of wetland for research and education</li> </ul>	Surveys	Annual estimate
Livelihoods	<ul style="list-style-type: none"> <li>• Population living around the wetland*</li> </ul>	Surveys	Once every three years
	<ul style="list-style-type: none"> <li>• Population depending on wetlands for livelihoods</li> </ul>	Surveys	Once every three years
	<ul style="list-style-type: none"> <li>• Number of households around the wetland using safe sanitation practices</li> </ul>	Surveys	Once every three years
	<ul style="list-style-type: none"> <li>• Participation of communities in wetlands management</li> </ul>	Surveys	Once every three years

Note: (i) The frequency, as above, is advisable for wetlands above 100 ha and is indicative in nature. The Wetland Authority may suitably modify based on logistics involved.

(ii) For wetlands less than say 100 ha, the frequency may be appropriately **divided**.

### Step 7 - Developing an action plan

22. The last stage of the management planning process includes defining the action plan, or specific interventions that address the identified management objectives. A generic listing of activities is presented in Table 4. The projects need to be defined very clearly to ensure good implementation. While identifying activities for management of wetlands, the following must be kept in mind:

- a) Ecosystem-based interventions should be promoted as far as possible
- b) Engineering interventions in wetlands should be taken up in a limited manner, with impact assessments conducted for all major works
- c) Operations and maintenance of all structural works should be included in project design

d) Participation of local communities should be included to the extent possible

*Table 4: Generic listing of activities for management of wetlands*

Management Plan component	Activities	Key considerations
Boundary delineation and demarcation	Boundary mapping and delineation	Site boundaries should be established with reference to inundation regimes, soil conditions and vegetation types. Landscape connectivity should also be taken into account when wetlands exist in patches. All activities should be completed within the first year.
	Removal of encroachments	Boundaries should be notified and legally protected wherever possible. All activities should be completed within the first year.
	Shoreline management	Mostly required for wetlands in urban and peri-urban setting. For stabilizing bunds of wetlands, naturalization of slopes using vegetative measures should be preferred. Development of promenade for urban lakes can be included based on an evaluation of natural drainage and shoreline ecosystem niches.
Catchment conservation	Afforestation and aided regeneration	Catchment conservation plans should be developed at watershed scales and based on Joint Forest Management approaches.  Native species should be used for forestry operations.  Pilot watershed should be periodically monitored to assess changes in soil moisture regimes.  Livelihood interventions for catchment communities aimed at reducing dependence on wood as an energy source should be included as appropriate.
	Small scale engineering measures (gully plugging, check dams, gabion structures etc.)	Community participation in design, implementation and post-project maintenance of structures should be ensured.
Water management	Selective dredging and desilting to improve hydrological connectivity	Dredging to be used only selectively, and be based on assessments of bathymetric profile and species interactions. For inflowing channels, dredging can be used to improve water inflow.
	Interception, diversion and	Mostly recommended for wetlands in the urban and peri-urban setting.

Management Plan component	Activities	Key considerations
	treatment of point sources of pollution	<p>Provision of comprehensive sanitation and safe drinking water coverage to communities living around the wetlands may be ensured.</p> <p>Engineering (STPs) as well as biological options (constructed wetlands) should be evaluated for application. Planning for Operation and Maintenance expenses should be included for all engineering structures.</p>
	Construction and operation of hydraulic structures for maintenance of water regimes and flood control	For each significant structure, environmental impact assessments should be carried out prior to construction.
	Balancing water allocation for human and ecological purposes	Environmental flows for wetlands, hydrological regimes of which are affected by hydraulic structures, should be assessed and implemented in consultation in water managers
Biodiversity conservation	Habitat evaluation and improvement	Until specifically desired, plantation of terrestrial plant species in wetlands should be avoided.
	Improvement and maintenance of migratory routes	Community groups should be involved in habitat monitoring and maintenance of migratory routes
	Maintenance of breeding and spawning grounds for key species	Community groups should be involved in the maintenance of breeding and spawning grounds
	Management of invasive species	<p>A mix of mechanical and biological methods for controlling species invasion should be used.</p> <p>For plant invasives, economic utilization along with physical removal should be included.</p>
Sustainable resource development and livelihood improvement	Microenterprise development for reducing dependence on wetland resources for livelihoods	Identification of micro-enterprise development options should be based on an assessment of community livelihoods, capacities, resources and market linkages.
	Sustainable fisheries development	Only capture based fisheries techniques should be promoted in natural wetlands

Management Plan component	Activities	Key considerations
		Options for improving culture fisheries in areas around wetlands may be included to reduce dependence on capture fisheries
	Sustainable agriculture development	Organic farming practices in immediate catchments should be included to minimize nutrient enrichment in wetland.
Institutional development	Setting regulatory regimes	Site regulation should be harmonized with national and State level regulations.  Local customary self-regulation which supports maintenance of conservation values should be promoted
	Development of monitoring and evaluation system	Comprehensive monitoring and evaluation mechanism for hydrological, ecological, socio-economic and institutional features should be made a part of the management system  Involvement of stakeholders in monitoring should be encouraged.
	Communication and Outreach	Increasing awareness on values and functions of wetland should be made an integral part of the management plan.  The use of television, print, electronic and social media for awareness generation and outreach may be included as appropriate. Developing and disseminating dos and donts in wetlands for general public may also be considered.
	Research	For each site, key research areas to support management needs should be identified and included in the management plan

### Step 8: Developing budget and financing plan

23. A complete costing of the Integrated Management Plan item wise may be done for the entire tenure of the plan using the existing norms of the State and central government, as may be the case. Year wise requirement of funds for various items of work/ activities, band PERT charts for the works/activities should be prepared. Summary of Cost Estimates and year-wise breakup of the requirement of funds may be presented in the formats given below:

*Table 5: Summary of budget*

S. No.	Management Plan component	Budget

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**Table 6: Year wise breakup of requirement of funds**

S. No.	Activity	Funds Required in Yr I	Funds Required in Yr II	Funds Required in Yr III	Funds Required in Yr IV	Funds Required in Yr V	Total

**Table 7: year wise breakup of requirement of funds**

S. No.	Total Budget	Funds from Central Government Scheme (Scheme Name)	Funds from State Government (Scheme Name)	Funds from other donors (Project and donor name)	Funds from private sector (Name of the agency)	Funds available from convergence sources	Funds required to be raised
	(a)	(b)	©	(d)	(e)	(f) = (b) + (c) + (d) + (e)	(g) = (a) - (f)

**Format for compiling Integrated Management Plan**

24. The management plan should have a cover sheet with the following information:

- Wetland Name
- Wetland Area (in ha)
- Location: (District(s), State / UT)
- Area of the direct catchment (in ha)
- Name of the nodal agency for management plan implementation
- Management plan period
- Date on which approval of State / UT Wetland Authority was obtained
- Total budget
- Total funds available from convergence sources

25. The management plan may be compiled in the following eight chapters:

Chapter heading	Sub-headings	Explanation	Reference to Management Planning Steps
1. Introduction	1.1 Rationale for management planning	Describe the importance of wetland, ways in which wetlands conservation and wise use will contribute to state conservation and development goals and alignment with state and central government policies, directives and planning frameworks	Step 1
	1.2 Terms of reference	Enlist the overall terms of reference for the management plan	Step 1
	1.3 Approach and Method	Provide an overview of approach (ways in which the recommended steps have been used) Describe the data sources and research carried out for management planning if any	Step 1
2. Description of wetlands features	Description of wetland features <ul style="list-style-type: none"> <li>• Location and extent</li> <li>• Wetland catchments</li> <li>• Hydrological regimes</li> <li>• Biodiversity</li> <li>• Ecosystem Services</li> <li>• Socioeconomics and livelihoods</li> </ul>	Describe wetland features. As far as possible, present the data in maps.	Step 2
3. Evaluation of wetlands features	Evaluation <ul style="list-style-type: none"> <li>• Priority wetland features that need to be maintained and thresholds thereof</li> <li>• Threats</li> </ul>	From the wetlands features described in the previous section, enlist the priority wetlands features.  Describe the threats that adversely affect the priority wetland features.	Step 3

Chapter heading	Sub-headings	Explanation	Reference to Management Planning Steps
4. Institutional arrangements	4.1 Review of existing arrangements <ul style="list-style-type: none"> <li>• Key organizations and programmes</li> <li>• Rules and regulations</li> <li>• Role of civil society and community based organizations</li> </ul>	Provide an overview of the current institutional arrangements in the context of wetlands management	Step 4
	4.2 Gaps	Discuss why the current institutional arrangements are insufficient in ensuring wetlands conservation and wise use.	Step 4
	4.3 Proposed arrangements for wetland management	Propose institutional arrangement for wetland management, which specific focus on a) nodal agency, b) role of various departments and agencies and coordination mechanism, and c) the role of civil society and communities. Develop an organogram for management plan implementation.	Step 4
5. Setting Management Objectives	5.1 Goal and purpose	Provide a statement of the overall goal that the management plan seeks to achieve	Step 5
	5.2 Benefits (ecological as well as societal)	Summarize the ecological and economic benefits that are expected from management plan implementation	
	5.3 Management objectives	Enlist the specific objectives	Step 5
	5.4 Strategies	Describe strategy(ies) for achieving each of the management objectives	Step 5
6. Monitoring and evaluation plan	6.1 Monitoring strategy	Present an overview of monitoring the wetland, and management plan implementation	Step 6
	6.2 Monitoring parameters, frequency and responsibility	Describe the monitoring parameters, the frequency of monitoring and the agency that will be responsible for monitoring	Step 6

Chapter heading	Sub-headings	Explanation	Reference to Management Planning Steps
	6.3 Institutional design	Describe how coordination between different monitoring agencies will be achieved.	Step 6
	6.4 Infrastructure and human resources design	Discuss the infrastructure and human resource requirement for implementing the management plan as far as possible, including local universities, research organizations and NGOs in wetlands monitoring	Step 6
	6.5 Reporting	Discuss the frequency in which reporting shall be done and the responsible agency.	Step 6
	6.6 Review and adaptation	Discuss how the monitoring outcomes will be used to adapt management	Step 6
7. Developing an Action Plan	7.1 Component wise activities linked with management objectives	<p>Generic listing of activities indicating:</p> <ul style="list-style-type: none"> <li>• What will be done?</li> <li>• Where will the activity be done?</li> <li>• What is the priority for the activity?</li> </ul>	Step 7.1
	7.2 Components for consideration for support under National Plan for Conservation of Aquatic Ecosystems (NPCA)	<p>For all activities eligible for support under NPCA indicate:</p> <ul style="list-style-type: none"> <li>• Why is the activity important?</li> <li>• How will the activity be implemented? (include intermediate steps, technical specifications and relevant drawings, as may be the case)</li> <li>• Where will the activity be implemented?</li> <li>• Who will implement the activity?</li> <li>• What are the quantitative targets to be met?</li> </ul>	Step 7.2

Chapter heading	Sub-headings	Explanation	Reference to Management Planning Steps
8. Budget and activity phasing	8.1 Activity linked budget	<p>Present a summary budget in line with Table 5</p> <p>Provide details of funding available from convergence sources in line with Table 6</p> <p>Provide detailed budget for NPCA in line with Table 7</p>	Step 8
	8.2 Time planning	Present a monthly Gantt Chart for management plan implementation	Step 8

### Checklist for submission of Integrated Management Plan

- Approved by the State Govt./ UT Administration/ State Wetlands Authority/ UT Wetlands Authority (minutes of meeting to be enclosed)
- Forwarding letter states -commitment of the State Government/ UT for providing their share of budget (supporting document indicating concurrence to be enclosed)
- Integrated Management Plan has a cover sheet providing details on Wetland, catchment area, implementing agency, total budget and fund requested from NPCA
- Brief Document is enclosed with the management plan (as per Annex V)
- Wetlands map is provided in a standard GIS format
- Map of zone of influence is provided in a standard GIS format.
- Management plan is aligned with recommended format of eight chapters
- All activities proposed to be funded by the NPCA fall within the list of core and non-core activities
- Necessary drawings and technical specification for major activities is provided.
- Core activities have been allocated not less than 75% of the budget
- Non- core activities have been allocated not more than 25% of the budget
- Budget has been prepared with reference to an approved Schedule of Rates

## Annex 5: Format for reporting status of notified wetlands

1. Wetlands / Wetlands Complex Name:		Report Date:		
		Reporting Officer:		
2. Wetlands status				
2.1 Area: current- ; in notification -				
2.2 Water inflow and outflow (attach data in an <b>annex</b> )				
2.3 Water quality (attach data in an <b>annex</b> )				
2.4 Status of major threats				
(such as encroachment, linear infrastructure development, destructive fishing practices, untreated sewage discharge, solid and liquid waste dumping, dumping of hazardous waste, invasive species, habitat modification / destruction/alteration or any other that has or may induce an adverse change in wetland ecological character)				
3. Status of enforcement of the regulatory regime				
Activity regulated	Whether regulation complied with?	Violation if any?	Where has the violation been reported?	Action taken
4. Implementation of the management plan				
Management Plan Component and Activity Planned for the period	Progress of implementation during the period	Nodal agency	Remarks (successes and challenges)	