

Management Effectiveness Tracking Tool (METT) for Indian Wetlands

PRACTITIONER'S GUIDE



Ministry of Environment, Forest and Climate Change



On behalf of:



the Federal Republic of Germany



Management Effectiveness Tracking Tool (METT) for Indian Wetlands: Practitioner's Guide

As a federally owned enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development.

Published by

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Registered offices

Bonn and Eschborn

Address

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Indo-German Biodiversity Programme (IGBP),

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Project description

Wetlands Management for Biodiversity and Climate Protection

Indo-German Biodiversity Programme

This project is part of the International Climate Initiative (IKI). BMUV supports this initiative on the basis of a decision adopted by the German Bundestag.

The publication was developed in close cooperation with 'Integrated Management of Wetland Biodiversity and Ecosystem Services' (IMWBES) Project, a full-scale project funded under the Global Environment Facility (GEF) -Ministry of Environment, Forest and Climate Change - United Nations Environment Programme with Wetlands International South Asia as the Lead Technical Support Agency.

Implementing Partners

Ministry of Environment, Forest and Climate Change (MoEF&CC)

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Wetlands International South Asia (WISA)

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Cover photo: Bhitarkanika Mangroves (Yaiphaba Akoijam/GIZ), Executive summary (pg8): Bhitarkanika Mangroves (Kunal Bharat/GIZ) and as specified against images.

Page Layout

Aspire Design

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On behalf of

German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV)

New Delhi, 2024

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मंत्री
पर्यावरण, वन एवं जलवायु परिवर्तन
और
श्रम एवं रोजगार
भारत सरकार



MINISTER
ENVIRONMENT, FOREST AND CLIMATE CHANGE
AND
LABOUR & EMPLOYMENT
GOVERNMENT OF INDIA

भूपेन्द्र यादव
BHUPENDER YADAV



MESSAGE

Wetlands in India stand as crucial repositories of ecological, economic, and cultural value and their management and conservation are integral to the nation's commitment to sustain the myriad benefits they offer. Against the backdrop of the global climate crisis, recognising the importance of wetlands gains even greater significance given their vital role in enhancing climate resilience.

The Ramsar Convention emphasises the importance of effective wetland management and encourages the application of tools and frameworks for assessing and monitoring the efficacy of management measures. A comprehensive management effectiveness tracking tool can play a vital role in evidence-based decision-making. This practitioner's guide has been tailored to the unique challenges and opportunities that characterise wetland management in India and will support implementation of management effectiveness tracking at Indian wetlands of international and national significance.

In the spirit of global environmental stewardship and aligned with Hon'ble Prime Minister Shri Narendra Modi's Mission LiFE (Lifestyle for Environment), let us collectively embark on a proactive journey of effective wetland management, equipped with knowledge and a shared commitment to safeguarding India's diverse wetlands.

I congratulate the Wetlands Division, MoEF&CC on preparation of this contextualised guidance document, 'Management Effectiveness Tracking Tool for Indian Wetlands: A Practitioner's Guide'. I am hopeful that the use of this tool will empower wetland managers and policy makers in India for informed decision making and contribute to the broader global efforts on preserving our vital wetland ecosystems in the face of climate change.

Date: 26 .01.2024

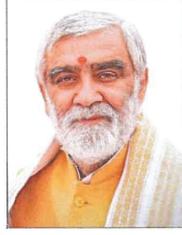

(Bhupender Yadav)



अश्विनी कुमार चौबे
Ashwini Kumar Choubey

आहारशुद्धी सत्त्वशुद्धिः
एक कदम स्वच्छता की ओर

राज्य मंत्री
पर्यावरण, वन एवं जलवायु परिवर्तन
उपभोक्ता मामले, खाद्य और सार्वजनिक वितरण
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संदेश

भारत के विविधतापूर्ण आर्द्रभूमि पारिस्थितिकी तंत्र जैव विविधता और अनुकूलन क्षमता के महत्वपूर्ण भंडार हैं। ये अनूठे पारिस्थितिकी तंत्र न केवल विभिन्न प्रकार की वनस्पतियों और जीवों के लिए एक सुरक्षित आश्रय प्रदान करते हैं, बल्कि स्थानीय समुदायों को जल शोधन से लेकर बाढ़ नियंत्रण तक अपरिहार्य सेवाएं भी उपलब्ध कराते हैं।

संधारणीय जीवन के लिए आर्द्रभूमियों की महत्वपूर्ण भूमिका को स्वीकार करते हुए, हमारे लिए इन पारिस्थितिक तंत्रों का प्रभावी ढंग से प्रबंधन और संरक्षण करना अनिवार्य हो जाता है। यदि हमें तेजी से बदलती दुनिया की जटिलताओं से निपटना है, तो आर्द्रभूमियों के प्रबंधन में भारत के सामाजिक-पर्यावरणीय परिदृश्य के भीतर पारिस्थितिक संरक्षण, सामुदायिक भागीदारी और विनियामक अनुपालनों के बीच संतुलन स्थापित करना होगा।

हमारे बहुमूल्य प्राकृतिक संसाधनों के संरक्षण और प्रकृति के साथ सद्भाव में रहने का महत्व भारतीय संस्कृति और इसके प्राचीन ग्रंथों में अंतर्निहित है। माननीय प्रधानमंत्री श्री नरेंद्र मोदी जी का मिशन LiFE (पर्यावरणीय अनुकूल जीवन शैली) इन भावनाओं को प्रतिबिंबित करता है और प्राकृतिक संसाधनों की संधारणीयता सुनिश्चित करने के लिए व्यक्तिगत और सामूहिक कार्रवाई का समर्थन करता है।

मिशन LiFE को आर्द्रभूमियों के संरक्षण के संबंध मंत्रालय की वर्तमान पहलों और 'संपूर्ण सरकार' तथा 'संपूर्ण समाज' दृष्टिकोण पर जोर देते हुए विवेकपूर्ण उपयोग द्वारा पूरा किया जाता है। इनमें मंत्रालय की प्रमुख स्कीम - राष्ट्रीय जलीय पारिस्थितिकी तंत्र संरक्षण योजना (एनपीसीए) के व्यापक ढांचे के भीतर संचालित अमृत धरोहर, मिशन सहभागिता और 'आर्द्रभूमि बचाओ अभियान' शामिल हैं।

मुझे विश्वास है कि यह 'भारतीय आर्द्रभूमियों के लिए प्रबंधन प्रभावशीलता ट्रेकिंग टूल: एक प्रैक्टिशनर्स गाइड' इन पहलों के हिस्से की गतिविधियों के कार्यान्वयन का समर्थन करेगा और भारत की प्रगति के संदर्भ में आर्द्रभूमि के संधारणीय प्रबंधन की दिशा में सकारात्मक व्यवस्था उपलब्ध कराते हुए प्रैक्टिशनरों के लिए एक मार्गदर्शक के रूप में कार्य करेगा।

मैं सभी हितधारकों को इस उत्कृष्ट एवं व्यावहारिक गाइडलाइन को बनाने में योगदान देने के लिए हार्दिक साधुवाद देता हूं।

(अश्विनी कुमार चौबे)



लीना नन्दन
LEENA NANDAN

सत्यमेव जयते

सचिव
भारत सरकार
पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय
SECRETARY
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST
& CLIMATE CHANGE



MESSAGE

The "Management Effectiveness Tracking Tool for Indian Wetlands: A Practitioner's Guide" is an initiative that would greatly support the MoEFCC's flagship scheme – National Plan for Conservation of Aquatic Ecosystems (NBPCA).

The importance of India's wetlands transcends geographical boundaries, and their effective management requires a nuanced understanding of ecological processes, socio-economic dynamics, and regulatory systems. This practitioner's guide offers a structured framework, to help wetland managers in navigating various complexities.

The Guide is a result of collaborative efforts between experts in wetland ecology and seasoned practitioners, and will undoubtedly be an invaluable resource for those at the frontline of wetland conservation in India. The overall approach is a harmonious blend of ecological sensitivity and community involvement, reflecting a commitment to sustainable development.

I congratulate the Wetlands Division for their dedication towards sustainable wetland management and their commitment to producing a Guide that is not only informative but also accessible, and can serve as a model for wetland management globally. I am certain it would serve as a catalyst for transformative action as we collectively embark on a journey where India's wetlands, providing as they do, a legacy of rich biodiversity and resilience, would continue to flourish and nurture the generations to come.

(Leena Nandan)

Place: New Delhi
Date : January 25, 2024



सत्यमेव जयते



डॉ. सुजीत कुमार बाजपेयी
संयुक्त सचिव
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पर्यावरण, वन और जलवायु परिवर्तन
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST
AND CLIMATE CHANGE

FOREWORD

With nearly 5% of India's total geographical area under wetlands and a rich diversity of 75 Ramsar Sites, the Government of India recognizes the significance of wetland ecosystems in maintaining biodiversity and providing essential services to local communities. Through proactive initiatives, India has implemented robust policies, engaged local communities, and employed scientific and participatory approaches to conserve and sustainably manage its wetlands.

Flagship schemes of the Ministry of Environment, Forest and Climate Change (MoEF&CC), such as the National Plan for Conservation of Aquatic Wetlands (NPCA), extend support to state governments to formulate and implement integrated management plans (IMPs) for the expanding network of Ramsar Site and other wetlands of national importance in India. The NPCA Guidelines emphasize a well-defined monitoring system as part of IMP implementation to assess the extent to which wetland condition improves as a result of management.

A structured framework for assessing and enhancing the effectiveness of wetland management practices provide practitioners insights needed for adaptive wetland management that resonate with the diverse needs of local communities. The Ramsar COP12 Resolution XII.15 "Evaluation of the management and conservation effectiveness of Ramsar Sites" endorsed a Ramsar Site Management Effectiveness Tracking Tool (R-METT), a modified version of METT, as a voluntary self-assessment tool for evaluating the management effectiveness of Ramsar Sites.

Implementation of the R-METT at Ramsar Sites and other wetlands in India requires contextualizing for India's unique socio-environmental landscape, taking into considerations Indian Acts, rules and regulations, schemes, various management authorities, sectoral departments and stakeholders. At the same time the implementation process must keep in mind, time and resource efficiency to make this a periodic evaluation. The 'Management Effectiveness Tracking Tool for Indian Wetlands', informed by field pilots and expert inputs, addresses this gap by adapting the R-METT framework and corresponding evaluation process for the Indian context.

This practitioner's guide developed under the 'Wetlands Management for Biodiversity and Climate Protection' project implemented by the MoEF&CC (Wetlands Division), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) with technical contributions from Wetlands International South Asia, and as part of the International Climate Initiative (IKI) supported by BMUV.

The METT for Indian Wetlands has been developed as a self-appraisal tool to support adaptive wetland management and assess progress over time. It is not meant for comparison or ranking across wetlands. I encourage all wetland managers and wetland authorities to embrace this tool as an integral part of their wetland management practices. By taking proactive steps in wetland management, India not only safeguards its natural heritage but also sets an inspiring example for global conservation efforts.


(Dr. Sujit Kumar Bajpayee)

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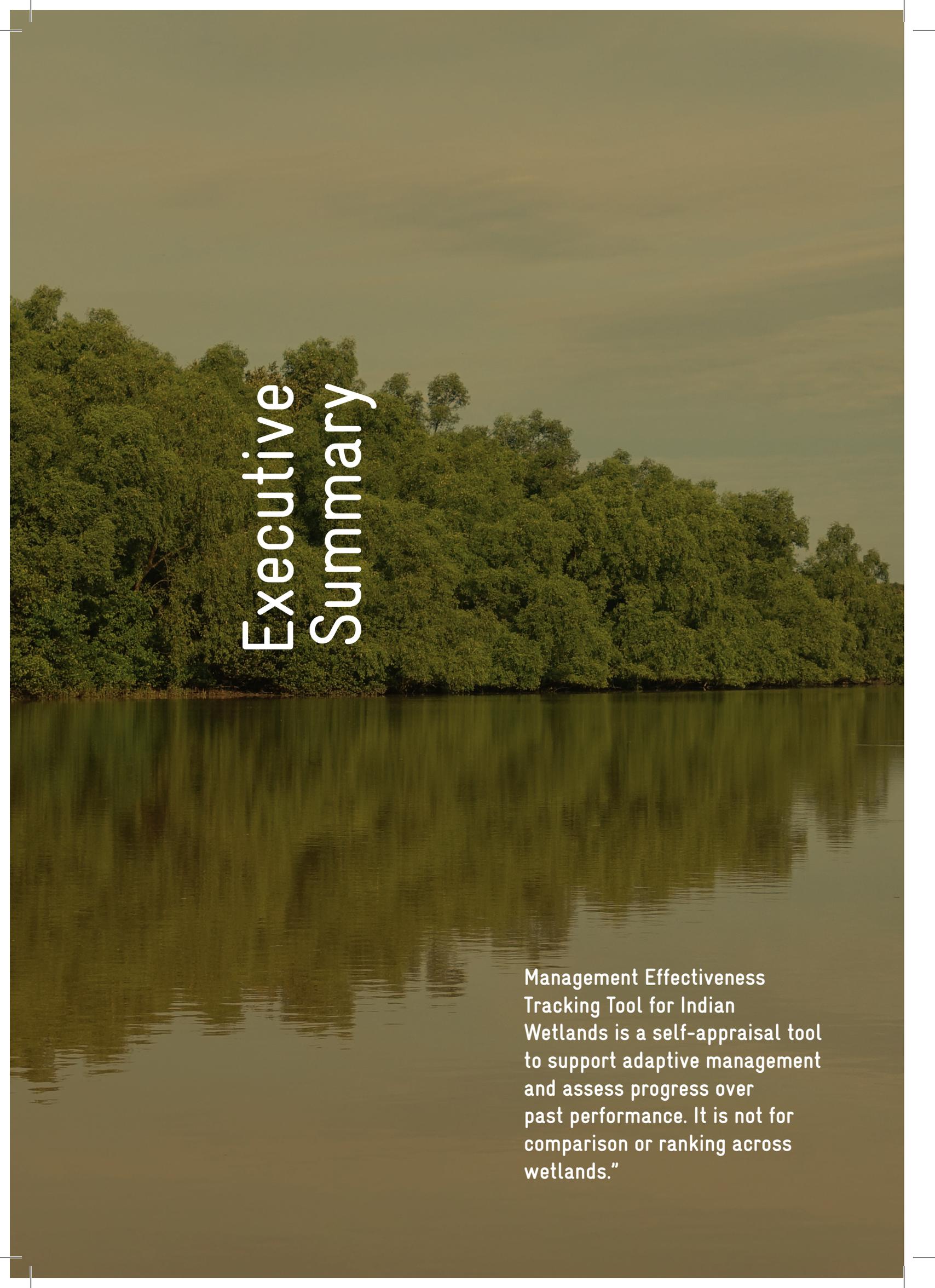
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Executive Summary

Management Effectiveness Tracking Tool for Indian Wetlands is a self-appraisal tool to support adaptive management and assess progress over past performance. It is not for comparison or ranking across wetlands.”

Wetlands cover 4.86 percent of India's total geographical area. As of 2023, India has a network of 75 wetlands designated as Ramsar Sites covering an area of 13,26,677 hectares. Like Protected Areas, India needs a system to monitor the impact of management interventions in wetlands, not just for detecting changes in wetland's ecological character but also to evaluate effectiveness of wetland management. Evaluating effectiveness of wetland management helps gauge the success of current efforts and reflect on whether the past and current interventions has led to improvement in wetlands ecological character.

Evaluation of Protected Area Management Effectiveness (PAME) started around the turn of the century with tools such as the Management Effectiveness Tracking Tool (METT) published by the World Bank/WWF Alliance for Forest Conservation and Sustainable Use in 2003. India is among the countries that have institutionalised management effectiveness evaluations for Protected Areas and conducts periodic assessments of its National Parks, Wildlife Sanctuaries and Tiger Reserves.

The 'Management Effectiveness Tracking Tool for Indian wetlands' evaluates how well wetland management is being carried out for achieving set goals and objectives for sustaining the values of a wetland. The METT framework has been adapted to suit the broader Indian wetlands context, taking into consideration Indian Acts, rules, national schemes, management authorities, sectoral departments and stakeholders.

This guide has been designed as an aid for practitioners to implement METT at Indian wetlands of international and national significance. Informed by METT pilot exercises in five Ramsar Sites in India, the guide provides guidance on interpretation of data sheets and helps in setting up the evaluation process.

METT for Indian wetlands comprises of five data sheets:

Data Sheet 1a:

Reporting progress at wetland

Records basic information about the wetland, such as its name, size and location, ownership, management authority, government departments running programs, budget and existing management plan.

Data Sheet 1b:

Identifying and describing wetland values and benefits

Provides a description of key wetland values and ecosystem services listed as recorded in Brief Document of the wetland (MoEF&CC format as on Wetlands of India Portal).

Data Sheet 2:

National and International Designations

Records information on national and international designations: i.e. Protected Areas, Ramsar Sites, wetlands notified under Wetlands Rules, Important Bird and Biodiversity Area (IBA), etc.

Data Sheet 3:

Wetland Threats

Provides a list of threats and the corresponding wetland features being impacted by the threats.

Data Sheet 4:

Assessment form

Main assessment form comprising 34 questions (26 questions with multiple criteria answers and a maximum score of 3 per question, 6 additional questions with 'yes' or 'no' answer that carry a score of +1 each and, 2 list questions for five priority constraints and strengths each) covering stages of a management cycle - planning, inputs, processes, output and outcomes. Presented in tabular format with space for an explanation of the selected criteria and proposed next steps. Supporting documents are to be provided for each answer.

Data Sheet 5:

Trends in wetland values and benefits

Summarizes trends over the past five years for the wetland values and benefits described in Data Sheet 1b.

The summary of METT results presents the way forward for management informed by the information captured in all data sheets. It lists short term actions which can be taken by manager such as those related to interventions, institutional arrangements, research, capacity development, monitoring and outreach. Additionally, critical long-term action and those beyond the site manager (policy changes) are highlighted where relevant.

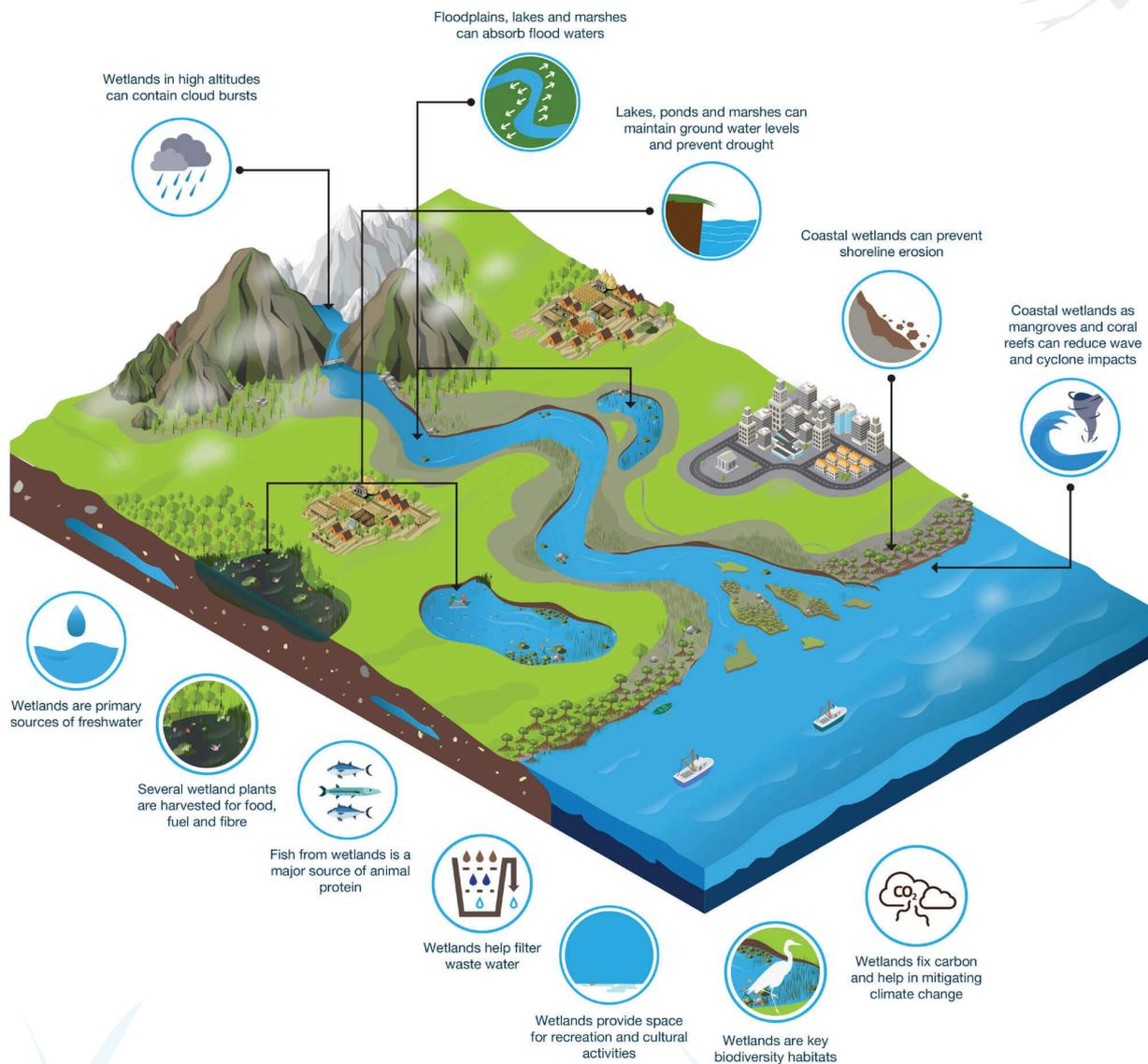


The Ramsar Convention, an intergovernmental environmental treaty on wetlands adopted in 1971 in the Iranian city of Ramsar, defines wetlands as **areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water, that is static or flowing, fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six meters.**

Introduction

→ CONTEXT OF THIS GUIDE

Wetlands are the ecosystems located at the interface of land and water. They are highly productive and unique ecosystems that ensure economic and ecological security. Figure 1 illustrates the various functions of wetlands.



Source: Wetlands International South Asia

Wetland conservation is one of the significant priorities of the Ministry of Environment, Forest and Climate Change (MoEF&CC). Since 1986, the Ministry has been providing support to state governments to formulate and implement integrated management plans. Regulatory framework in the form of Wetlands (Conservation and Management) Rules, 2017 has also been put in place. The National Plan for Conservation of Aquatic Ecosystems (NPCA) mandates a shift from sectoral approaches for management of wetlands and focuses on mainstreaming the full range of biodiversity and ecosystem services of wetlands into developmental programmes being pursued at the National and State/UT levels.

India being a signatory to Ramsar Convention since 1982 has 75 wetlands designated as Ramsar Sites covering an area of 13,26,677 hectares¹. And the total wetland area is estimated to be 15.98 million hectares, 4.86 percent of the total geographic area of the country².

The inclusion of a wetland to the Ramsar List embodies the government's commitment to take the steps necessary to ensure that its ecological character is maintained. Thus, having a system to monitor the impact of management interventions is key not just for detecting changes in wetland's ecological character but also to evaluate effectiveness of wetland management. To enable this:

- The Ministry recommends that integrated management plans include a well-defined monitoring system and a monitoring programme to enable assessment of the extent to which wetland condition improves as a result of management, and to take ameliorative steps. For instance, sites such as Chilika have developed internal capacities to monitor health of wetland ecosystem, and have long term datasets to enable assessment of impact of management interventions.
- In 2019, under the Prime Minister's 169 transformative ideas, a system of wetland health cards using certain basic parameters was introduced, and based on experiences of implementation in 130 wetlands, subsequently upscaled to over 500 wetlands. These cards enable rapid assessment of wetlands condition across four categories—area of the wetland, hydrological regime, biodiversity and governance.
- Water quality of select wetlands are covered under the Central Pollution Control Board's monitoring programme for lakes, tanks, and rivers.



total wetland area is estimated to be

15.98 million ha

4.86 percent of the total geographic area of the country

1 <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1851484>

2 P K Gupta, J G Patel, R P Singh, I M Bahuguna, Raj Kumar et al 2021 *Space based observation of Indian wetlands*, Space Applications Centre, ISRO Ahmedabad, India



Management effectiveness tracking is an evaluation of how well wetland management is being carried out for achieving set goals and objectives for sustaining the values of a wetland.

Despite the recommended measures, the monitoring of wetlands in general, including the Ramsar Sites has been ad hoc. For most of the sites, measured performance indicators reflecting the outcome of management are not in place. For the sites where NPCA provides funding assistance, the state governments reports progress in terms of physical and financial change, but systematic assessment of impact of management remains a gap.

In this context, the BMUV-IKI project 'Wetlands Management for Biodiversity and Climate Protection', implemented by MoEF&CC and GIZ in collaboration with State Wetland Authorities of Himachal Pradesh, Odisha and Tamil Nadu and Wetlands International South Asia (WISA), and Global Environment Facility – MoEFCC - United Nations Environment Programme funded Integrated Management of Wetland Biodiversity and Ecosystems Services Project (IMWBES) have developed a Management Effectiveness Tracking Tool (METT) for Indian Wetlands by adapting existing management effectiveness evaluation frameworks for the Indian context. Management effectiveness tracking is an evaluation of how well wetland management is being carried out for achieving set goals and objectives for sustaining the values of a wetland.

This guide has been designed as an aid for practitioners to implement METT at Indian Ramsar Sites and other wetlands, especially those with approved Integrated Management Plans (IMPs).

WHY EVALUATE MANAGEMENT EFFECTIVENESS?

Evaluating effectiveness of wetland management helps gauge the success of current efforts and reflect on whether the past and current interventions has led to improvement in wetlands ecological character. It is necessary to not only know the threats faced by a wetland but also equally important to assess the efficiency of management interventions in achieving the desired objectives.

Highlighting strengths and weaknesses of current management through regular evaluations, can guide future management actions and support adaptive management. As it includes aspects both within and beyond the control of a site manager, the responses could range from site-based actions to broader policy review.

The evaluations are important for a manager not only for supporting adaptive management but also to improve their performance and share achievements with stakeholders³.

Further, it can serve as an aid for local communities and other stakeholders to establish how far their suggestions and interests have been considered. This becomes very important, considering the unprecedented development and over exploitation of resources within a wetland and its adjoining areas. It is important to identify the specific issues threatening a particular wetland both inside and outside and address them through adaptive management with active participation of all the stakeholders including the local communities.

³ Hockings, M., Stolton, S., Leverington, F., Dudley, N. and Courrau, J. (2006). *Evaluating Effectiveness: A framework for assessing management effectiveness of protected areas. 2nd edition*. IUCN, Gland, Switzerland and Cambridge, UK. xiv + 105 pp.

To summarize, management effectiveness tracking can:

- Provide a tool to assess the extent to which management is resulting in improved wetland condition, and sustain or enhance biodiversity and ecosystem services outcomes.
- Assess efficiency of management interventions and practices, and revise management when the desired objectives are not achieved.
- Promote accountability and transparency.
- Help inform and involve the community and other stakeholders.
- Support resource allocation, especially priority attention to sites that repeatedly score low in terms of management effectiveness period

TARGET GROUP

The guide has been developed for wetland managers who are entrusted with the task of formulating and implementing the management interventions. The guide is of interest to the Wetland Authorities of the State and Union Territories and District Wetland Committees who are responsible for evaluating the management of wetlands and strategizing on priorities for resource allocations.

Wetland managers using this guide should to have an understanding of the management interventions planned and implemented at the wetland along with the key stakeholders to be consulted in the process. The METT implementation process and practices have elaborated further in the chapter 2 and includes a checklist for a organising a METT workshop.

➔ MANAGEMENT EFFECTIVENESS EVALUATION FRAMEWORKS

IUCN WORLD COMMISSION ON PROTECTED AREA (WCPA) FRAMEWORK

Interest in measuring Protected Area Management Effectiveness (PAME) started around the turn of the century in early 2000s. Since then, several management effectiveness evaluation tools have been developed and used for Protected Areas (PA). The Management Effectiveness Tracking Tool (METT) published by the World Bank/WWF Alliance for Forest Conservation and Sustainable Use in 2003 has been the most frequently used PAME tool, used in over 2,500 protected areas spread across at least 127 countries⁴.

METT has been designed as a common tool for global use which makes it unlikely to fit perfectly for all systems of an area, country or region. The developers of METT encourage adaptation, while ideally observing the basic format or framework.

⁴ Stolton, S. and N. Dudley. 2016. *METT Handbook: A guide to using the Management Effectiveness Tracking Tool (METT)*, WWF-UK, Woking.

The unifying theme to these tools is provided by the Framework for Assessing the Management of Protected Areas by IUCN World Commission on Protected Area (WCPA)⁵. This framework evaluates management effectiveness across six stages of a management cycle (Figure 2). It begins with establishing the context with existing values, threats and broad policy environment. Then progresses through planning, allocation of resources (inputs) as a result of management action (process) and eventually produces goods and services (outputs), that results in impacts or outcomes^{3,4}.

These can be clubbed into 3 main components:



1 Planning issues relating to both individual sites and to Protected Area systems – **Context and Planning**



2 Appropriateness of management systems and processes – **Inputs and Process**



3 Delivery of Protected Area objectives – **Outputs and Outcomes**

Figure 2 WCPA Framework for Assessing Management Effectiveness



Source: Hockings et al. 2006

⁵ Hocking, M., Stolton, S. and Dudley, N. (2000). *Evaluating Effectiveness: A Framework for Assessing the Management of Protected Areas*. IUCN, Gland, Switzerland and Cambridge, UK. x + 121pp.

MANAGEMENT EFFECTIVENESS EVALUATIONS (MEE) IN INDIA

India is among the countries that have institutionalised the management effectiveness evaluation process for Protected Areas. It started in 2003 and has since conducted assessments of its World Heritage Sites, National Parks, Wildlife Sanctuaries and Tiger Reserves⁶ (Table 1). These are aimed at evaluating how well these sites are being managed, primarily to know whether they are protecting their values and achieving the goals and objectives agreed upon.

Table 1 MEE exercises in India

| Type of MEE Approach | Scope | Evaluations |
|--|--|--|
| In-depth evidence based assessment | World Heritage Sites (WHS) | Keoladeo WHS, Rajasthan Kaziranga WHS, Assam Chitwan WHS (Nepal) |
| Rapid expert-based scorecard | National Parks and Wildlife Sanctuaries | 125 PAs (2006-14), PAs of Sikkim (2015), 80 PAs (2015-17), 119 PAs (2017-18), 146 PAs (2018-19) |
| Comprehensive system-wide, peer-based assessment | Tiger Reserves Network | 28 TRs in (2006) – 1 st cycle 39 TRs in (2010) – 2 nd cycle 43 TRs in (2014) – 3 rd cycle 50 TRs in (2018) – 4 th cycle |
| Management Effectiveness Evaluation of Coastal and Marine Protected Areas | Coastal and Marine Protected Areas (CMPAs) | NA |
| Rapid expert-based scorecard (WISA) | Ramsar Wetlands | Pilot test at 7 Ramsar sites (2018) |

R-METT

The Ramsar Convention has adapted such PAME tools to develop the **Ramsar Site Management Effectiveness Tracking Tool (R-METT)**, adopted at the 12th Meeting of the Conference of Parties to the Convention in 2015 (Ramsar COP 12 Resolution XII.15). It encourages Contracting Parties that do not already have an effective mechanism in place to consider using the R-METT.

R-METT is a modified version of the METT (World Bank/WWF, 2007 version). METT Handbook⁷ summarised these modification or adaptations:

- **Data Sheet 1b: Identifying and describing values from the Ecological Character Description and the Ramsar Information Sheet** – information on the ecological character of the site including the ecosystem services, and the criteria under which the site qualifies as a Wetland of International Importance.
- **Additional multiple choice questions** – Three additional questions added on ecological character description, development of a cross sector management committee and the effectiveness of communication mechanisms with the Ramsar administration.

⁶ https://wii.gov.in/mee_india_experience

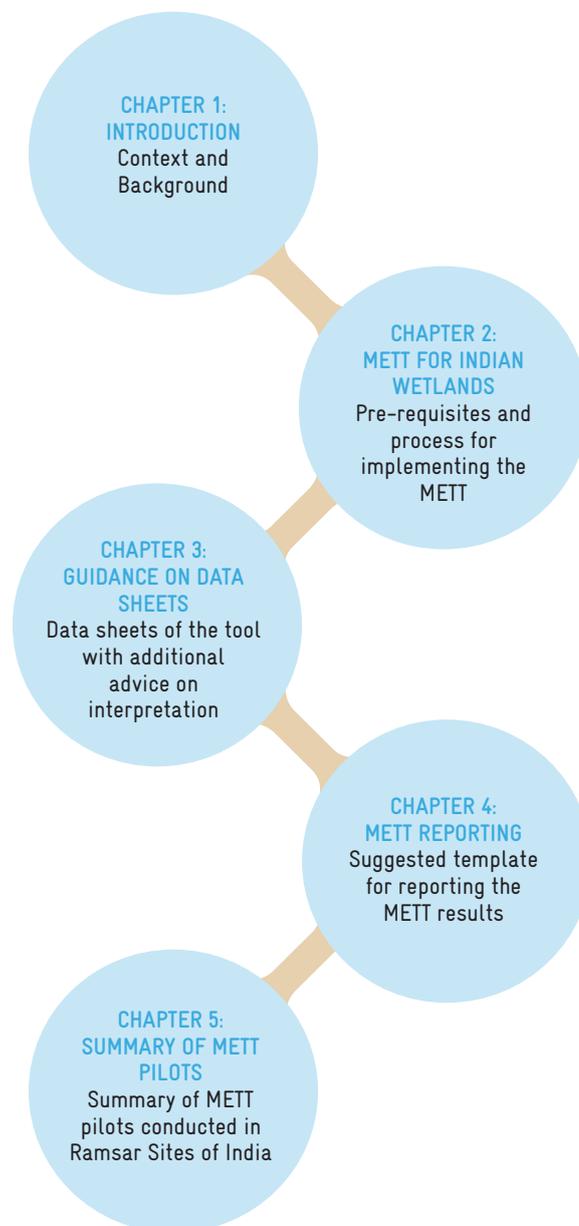
⁷ Stolton, S. and N. Dudley. 2016. *METT Handbook: A guide to using the Management Effectiveness Tracking Tool (METT)*, WWF-UK, Woking

- **Data Sheet 5: Trends in Ramsar Ecological Character (including ecosystem services and community benefits)** – information on trends over the past five years in the ecological character of the site including the ecosystem services, and the criteria under which the site qualifies as a Ramsar Site.

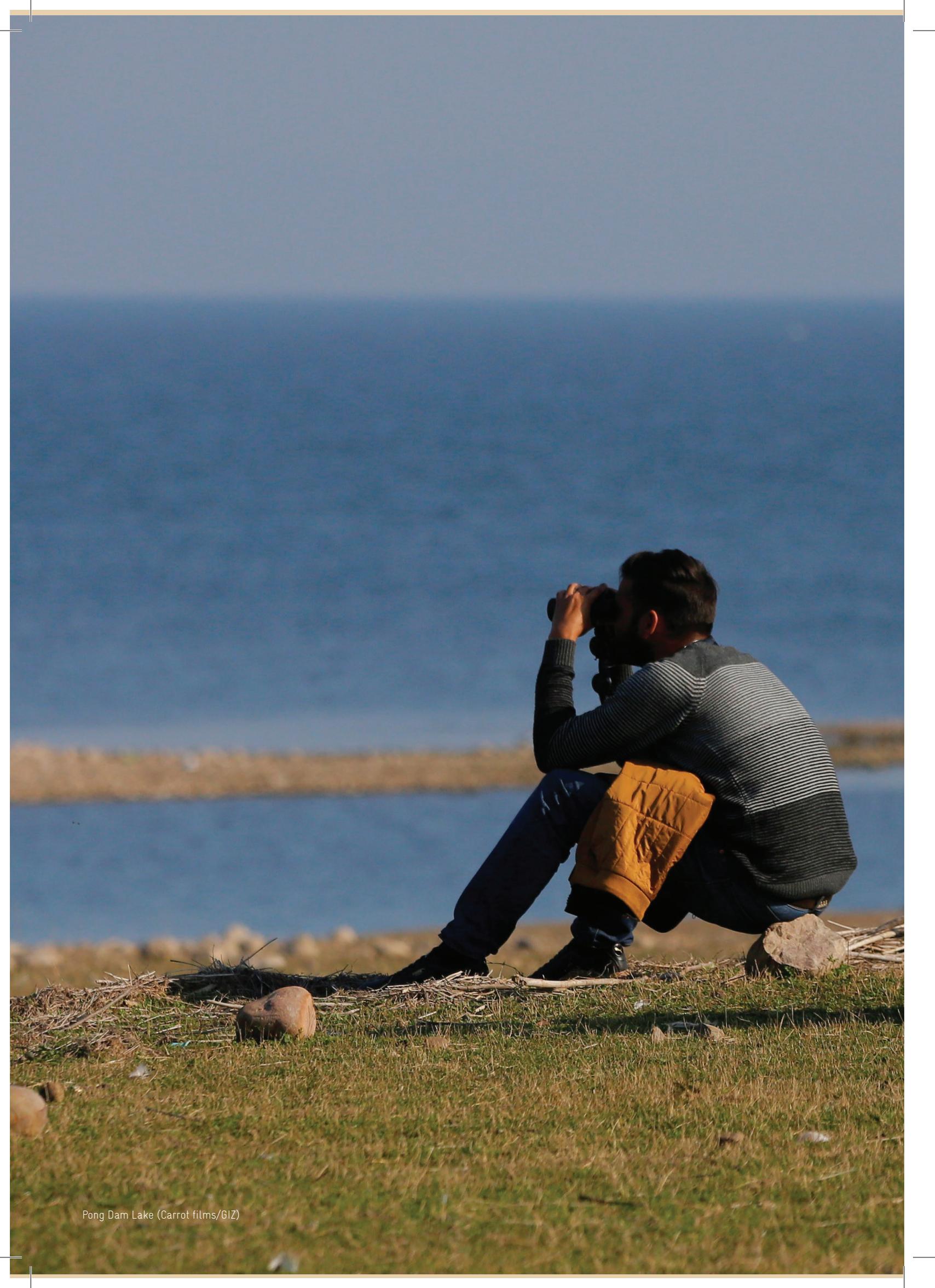
R-METT is a rapid assessment which uses a series of questions to understand the context of the site and the current state of planning, inputs, and processes. The tool assesses threats to the site such as overharvesting of resources, habitat degradation and impacts from other threats and climate change, and then evaluates key aspects of management such as regulation, protection systems, planning, education, stakeholders' involvement including community, governance, and monitoring⁸.

→ HOW TO USE THIS GUIDE?

The following chapters of this manual provide stepwise guidance on use of this tool.



⁸ IUCN Lao PDR, 2018. R-METT workshop.



METT for Indian Wetlands

IMPLEMENTATION PROCESS & PRACTICES



Implementation of the R-METT at Ramsar Sites and other wetlands in India requires contextualizing, taking into consideration Indian Acts, rules and regulations, national schemes, various management authorities, sectoral departments, and stakeholders. At the same time the implementation process must keep in mind, time and resource efficiency to make this a periodic evaluation.

The BMUV-IKI project 'Wetlands Management for Biodiversity and Climate Protection' has developed the 'METT for Indian Wetlands' by adapting the R-METT framework and corresponding evaluation process for the Indian context. This tool has been field tested at five wetlands in India, including the four pilot sites of the project, and appropriate adjustments have been made to the tool.

The R-METT framework includes five Data Sheets with Data Sheets 1 to 4 adapted from the METT⁹, and Data Sheet 5 adapted from the IUCN Conservation Assessment for Heritage Sites¹⁰. While Data Sheets 1 to 4 focus mainly on the context, planning, inputs, process and outputs sections of the management effectiveness cycle, Data Sheet 5 focuses on outcomes. Key adaptations to the R-METT framework for METT for Indian wetlands include:

Data Sheet 1a: Reporting progress at Wetland

- Apart from the main management authority, information regarding other government run programmes and listing of staff from each department is required.
- Budget from various central and state sources is to be specified.
- Status of inlets and outlets (as present in Wetland Health Cards under NPCA)

Data Sheet 1b: Identifying and describing Wetland Values and Benefits

- This data sheet has been aligned with Brief Document format under NPCA by listing wetland values and ecosystem services.

⁹ Hockings, M., Stolton, S., Leverington, F., Dudley, N. and Courrau, J. (2006). *Evaluating Effectiveness: A framework for assessing management effectiveness of protected areas. 2nd edition.* IUCN, Gland, Switzerland and Cambridge, UK. xiv + 105 pp.

¹⁰ IUCN, 2012, *IUCN Conservation Outlook Assessments - Guidelines for their application to natural World Heritage Sites. Version 1.3.* IUCN. Gland, Switzerland.

Data Sheet 2: National and International Designations

- Indian Acts and Rules have been specified.
- There is scope to highlight status in case there is a notification in process.

Data Sheet 3: Wetland Threats

- Further additions made within the R-METT checklist of 12 threat categories.

Data Sheet 4: Assessment form

- Assessment form has 34 questions (26 questions with multiple criteria answers and a maximum score of 3 per question, 6 additional questions with 'yes' or 'no' answer that carry a score of +1 each and, 2 list questions for five priority constraints and strengths each) while R-METT¹¹ comprises of 44 questions (33 questions, 9 additional questions, 2 list questions).
- Questions have been clubbed as per management cycle – 'Planning' (Context & Planning), 'Adequacy / Appropriateness' (Input & Process) and 'Output & Outcome'.
- Assessment questions have been modified to suit the broader Indian wetlands context and not just Ramsar Sites. A few questions have been introduced on aspects such as integrated management plans as per NPCA, convergence with sectoral schemes, stakeholder coordination mechanisms, gender and social equity. Similarly, questions such as those on commercial tour operator, visitor facilities and ones only relevant for Ramsar Sites have been omitted.
- All questions are accompanied with guidance on interpretation and an explanation has been provided on scoring the assessment form.

Data Sheet 5: Trends in wetland values and benefits

- Key values and benefits for the wetland are taken from Datasheet 1b which are aligned with Brief Document format under NPCA.
- An evaluation process for implementing METT for Indian wetlands has been recommended, informed by the pilots.

→ WHAT SHOULD BE THE EVALUATION PROCESS?

The quality of a METT evaluation relies on the knowledge and diligence of the assessors, and integration of information from a diverse range of stakeholders. Experiences from PAME and R-METT exercises have shown that **a participatory evaluation process can be just as, or even more, beneficial than the resultant report**^{12,13}. A review of past METT experiences by WWF-UK⁸ has also shown that many users do not apply the METT as effectively as possible, focusing on the METT score rather than listing necessary next steps for adaptive management.

11 Ramsar Regional Center - East Asia. (2021). Ramsar Site Management Effectiveness Tracking Tool (R-METT) – A Guide for Managers and Stakeholders. Suncheon City, Republic of Korea: Ramsar Regional Center-East Asia.

12 Hockings, M., Leverington, F. and C. Cook. 2015. Protected area management effectiveness, in G. L. Worboys, M. Lockwood, A. Kothari, S. Feary and I. Pulsford (eds) *Protected Area Governance and Management*, pp. 889–928, ANU Press, Canberra.

13 Ramsar Regional Center - East Asia. (2021). Ramsar Site Management Effectiveness Tracking Tool (R-METT) – A Guide for Managers and Stakeholders. Suncheon City, Republic of Korea: Ramsar Regional Center-East Asia.



METT scores are not meant to be compared across wetlands in India. METT for Indian wetlands is designed to evaluate the progress in management effectiveness of a particular wetland with its own past performance.

One way to ensure quality is by laying out a standard operating procedure accompanied with capacity development of the assessors. However, strictly adhering to an operating procedure might not always be feasible given the differences between wetlands in term of size, ownership, location, number of stakeholders, resources, data available, etc. With this in mind, three evaluation processes are described to be applied based on the individual context (Figure 3).

Figure 3 METT evaluation processes for Indian wetlands



MULTI-STAKEHOLDER WORKSHOP

The ideal process is to conduct the METT as a 1-2 days multi-stakeholder workshop. Apart from completing the METT, a workshop also provides an opportunity to enhance stakeholder participation in the management process, deliberating on the key challenges and suggested joint actions¹¹. This method is particularly effective and efficient for wetland complexes and those outside a Protected Area under multiple ownership or jurisdictions where consensus is required on several questions.

The site manager/s should lead the process, supported by external expert/s and/or a skilled moderator. Participation of relevant stakeholders is critical for constructive discussion and consensus building based on collective inputs. This includes representatives from various government departments, resource users, subject experts, community-based organisations (CBOs), locally active non-government organizations (NGOs), local communities and their elected representatives. **Wherever present, site level multi-stakeholder coordination platforms should be utilised for conducting a METT workshop.**

An 'R-METT assessment workshop checklist for organisers' by Ramsar Regional Center – East Asia¹¹ is listed in Box 1.

CONSULTATIONS WITH KEY STAKEHOLDERS

METT can be conducted by a site manager or appointed external experts in consultation with key stakeholders when a multi-stakeholder workshop is not feasible. The site manager and their team compile the METT results, consulting other key stakeholders for inputs on relevant sections. The final METT reflects the questionnaire responses from all key stakeholder along with supporting documents.

All information requests and responses should be routed through the respective higher authorities of different departments. **A district wetland committee, if present, should be the coordinating mechanism for such consultations.**

SELF-EVALUATION BY SITE MANAGER

The simplest METT exercise is a self-evaluation by the site manager. Such an evaluation should be driven by the need to find management insights and not simply compliance or reporting. It relies on complete honesty and objectivity on the part of the site manager. It must be supported by documented evidence, sound justification and quantitative data for the report to have buy-in from other stakeholders.

Once the METT self-evaluation is completed by the site manager, it needs to be sent to their higher authorities and an external expert team / evaluation committee. A verification exercise by external expert/s will add credibility to such self-evaluations. Depending on resources available, it could be a peer review of the results by experts familiar with the wetland or extensive field verification exercise to the wetland.

The METT results should be shared with relevant stakeholders during in-person meetings and other channels of communication. The management gaps, adaptive management actions needed, and responsibilities should be adequately detailed for joint implementation.

→ SETTING UP THE PROCESS

ORIENTATION AND BUILDING CAPACITIES

Prior to rolling out METT for Indian wetlands, orientation meetings are to be held with key decision makers and state officials on METT and its purpose. This includes orientation for State Wetland Authorities, heads of relevant government departments such as Chief Wildlife Warden (key authority for wetlands in PAs) and District Wetland Committees. Such an orientation at state level is important to ensure adequate participation, cooperation and sharing of required information at operational level (site) while conducting the METT.

Wetland site managers should have a more detailed introduction to METT to enable them to lead site level evaluations and have a common interpretation of METT questions.



A single wetland could very often have multiple site managers, e.g. a wetland complex like Point Calimere Wildlife and Bird Sanctuary has two PAs within the Ramsar Site that spreads across two districts, each with its own District Forest Officer (DFO). Similarly, site managers could also be from different government departments managing the wetland with respect to their specific sectors e.g. Assistant Director Fisheries (Pong reservoir) and DFO (Pong dam lake wildlife sanctuary).

METT for Indian wetlands - Workshop checklist for organisers:

Pre-workshop

- Form an organizing committee and assign roles and responsibilities. If present, utilise the site level multi-stakeholder coordination platform for conducting the METT workshop.
- Involve knowledge partner/s or expert committee to support with METT.
- Identify and appoint a suitable facilitator(s).
- Secure an appropriate date and venue.
- Develop workshop agenda.
- Identify key stakeholders to be invited.
- State Wetland Authority or District Wetland Committees sends out invitation letters to key stakeholders together with METT forms at least two (2) weeks before the workshop.
- Prepare the required equipment and material.

Materials

- Printed copies of this METT practitioner's guide and data sheets for participants.
- Brief Document of the wetland (required for Data Sheet 1b). Ramsar Information Sheet (RIS) in case of Ramsar Site (Printed and soft copies).
- Integrated management plan or other wetland management plan (Printed and soft copies).
- Relevant maps (Printed and soft copies).
- Results of monitoring, wetland Health Cards (NPCA format).
- Other appropriate data, supporting documents and references to support the discussion.

Equipment

- Computers and LCD
- Flipchart and/or whiteboard

Workshop agenda

- Registration and distribution of METT guide and data sheets.
- Welcome remarks by the host.
- Introduction to METT assessment (Objectives, instructions).
- Plenary/group discussions to fill in the five (5) data sheets in sequence.

(Adapted from: Ramsar Regional Center - East Asia. (2021). Ramsar Site Management Effectiveness Tracking Tool (R-METT) – A Guide for Managers and Stakeholders. Suncheon City, Republic of Korea: Ramsar Regional Center-East Asia.)



Clear and official communication prior to METT implementation is important to ensure required participation and information sharing. Such a letter should be issued by State Wetland Authorities or District Wetland Committees instructing the key stakeholders and government departments on the importance of METT exercise and their cooperation for the same.

PARTICIPATORY EXERCISE

Wetlands are dynamic systems and subject to the influences of a range institutions and stakeholders. Establishing cross-sectoral mechanism for participation of and coordination between all stakeholders is a key part of integrated planning for wetlands. METT implementation too needs to be a participatory and inclusive exercise.

BUDGET ALLOCATION FOR METT

Integrated management plans should include a start-, mid- and end-term METT implementation budget to assess the extent to which stipulated objectives have been achieved with a high degree of resource efficiency and in participation with stakeholders. Allocating specific budget for METT would provide resources for stakeholder workshop, external moderator and review by independent experts.

SUPPORTED BY EXPERT COMMITTEE OR KNOWLEDGE PARTNERS

The METT process can be supported by an expert committee or wetland knowledge partners. For instance, the MEEs for National Parks, Wildlife Sanctuaries and Tiger Reserves in India are supported by regional independent expert teams, each team comprising of a chairperson and two members, while Wildlife Institute of India (WII) provides technical backstopping.

A similar small committee of independent experts and/or knowledge partners can be appointed for supporting periodic METT evaluations at Indian wetlands. They can support site managers with coordination between key stakeholders, organising multi-stakeholder workshops and on ground assessment.

It is recommended that self-evaluated METT by site managers should be reviewed by an expert committee. The external review or verification processes can vary from simple review of completed METTs and supporting documents to more detailed field verification exercises.

PERIODIC EVALUATION

It is recommended that METT be carried out every two years as it is designed to track progress over time. For a five year management plan it should be conducted 3 times – start (during planning), mid and end of the management cycle. METT evaluations can also be aligned with management plan and its activities so as to provide timely inputs for adaptive management.

METT for Indian Wetlands

GUIDANCE ON DATA SHEETS

The METT framework presented in this section has been adapted for Indian wetlands of national and international significance. It comprises of five data sheets:

Data Sheet 1a:

Reporting progress at wetland.

Records basic information about the wetland, such as its name, size and location, ownership, management authority, government departments running programs, budget and existing management plan.

Data Sheet 1b:

Identifying and describing wetland values and benefits.

Provides a description of key wetland values and ecosystem services as recorded in Brief Document of the wetland (MoEF&CC format as on Wetlands of India Portal).

Data Sheet 2:

National and International Designations.

Records information on national and international designations: i.e. Protected Areas, Ramsar Sites, wetlands notified under Wetlands Rules, Important Bird and Biodiversity Area (IBA), etc.

Data Sheet 3:

Wetland Threats.

Provides a list of threats and the corresponding wetland features being impacted by the threats.

Data Sheet 4:

Assessment form.

Main assessment form comprising 34 questions (26 questions with multiple criteria answers and a maximum score of 3 per question, 6 additional questions with 'yes' or 'no' answer that carry a score of +1 each and, 2 list questions for five priority constraints and strengths each) covering stages of a management cycle – planning, inputs, processes, output and outcomes. Presented in tabular format with space for an explanation on the selected criteria and proposed next steps. Supporting documents are to be provided for each answer.

Data Sheet 5:

Trends in wetland values and benefits.

Summarizes trends over the past five years for the wetland values and benefits described in Data Sheet 1b.

DATA SHEET 1A: REPORTING PROGRESS AT WETLAND

| | | | |
|---|------|-------------|---|
| Name, affiliation and contact details of the for person responsible for completing the METT (email etc.) | Name | Affiliation | Contact details ----- ----- ----- ----- |
|---|------|-------------|---|

| | | | |
|--|--|--|--|
| Date of assessment | | Name of wetland | |
| Location of wetland (Latitude, Longitude) | | State | |
| District/s | | Country | |
| If Ramsar Site, date when listed If notified wetland, date when notified | | Total Area of wetland (ha) | |
| Ramsar Site number (see http://ramsar.wetlands.org/Database) | | WDPA code (see www.unep-wcmc.org/wdpa/) | |
| Number of natural inlets | | Number of inlets choked or diverted | |
| Number of natural outlets | | Number of outlets choked or diverted | |

| | | | | |
|---|---|-------------------------------------|---------------------------------------|-----------------------------------|
| Ownership details (tick all that apply) | State Govt. <input type="checkbox"/> | Private <input type="checkbox"/> | Community <input type="checkbox"/> | Other <input type="checkbox"/> |
| Management authority or government department responsible for conservation and wise use objectives of the wetland | | | | |

| | | | | |
|---|---|---|--|---|
| <p>Any other government departments running programs and have officer/s at the wetland</p> <p>(Mention all the department(s) involved & detail the program(s) each department is involved in/ implementing /managing)</p> | Department | | Nature of programs | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| <p>Number of staff at wetland</p> <p>(Give/mention number of staff from each department and different types of staff with each department, if any. Specify if not available for wetland but available at district or state level)</p> | Department | Permanent | Temporary | |
| | | | | |
| | | | | |
| | | | | |
| <p>Total annual budget (INR) for wetland– excluding staff salary costs:</p> <p>(Specify budget from various central and state sources such as IDWH, NPCA, ICZM, Finance Commission, etc.)</p> | Recurrent (operational) funds (CSS specify Central and State Govt share): | | Project/ other supplementary funds: | |
| | | | | |
| <p>What is the existing type of management plan?</p> <p>(Tick relevant boxes)</p> | <input type="checkbox"/> Integrated management plan for wetland | <input type="checkbox"/> Wildlife management plan | <input type="checkbox"/> Other, specify: | <input type="checkbox"/> No management plan |
| <p>Briefly list the key management objectives of the Ramsar Site / wetland</p> <p>(List all objectives given in the Integrated Management Plan)</p> | Management objective | | | |
| <p>People involved in completing assessment</p> <p>(Tick relevant boxes)</p> | <input type="checkbox"/> Wetland manager | <input type="checkbox"/> PA manager | <input type="checkbox"/> PA staff | |
| | <input type="checkbox"/> External experts | <input type="checkbox"/> Donors | <input type="checkbox"/> NGO | |
| | <input type="checkbox"/> Local community / CBOs | <input type="checkbox"/> Other government departments : | <input type="checkbox"/> Others | |
| | | Specify Dept: | Specify: | |
| <p>Note whether this assessment is conducted in association with a particular project, on behalf of an organization or donor.</p> | | | | |

DATA SHEET 1B:

IDENTIFYING AND DESCRIBING WETLAND VALUES AND BENEFITS

Wetland values and ecosystem services have been listed below as present in MoEF&CC Brief Document format under NPCA. Kindly add site-specific details under description. Additional rows may be added for more/other values or benefits not listed below.

Tick relevant wetland values or benefits and provide site-specific details under description (mandatory). Details on what is to be elaborated under description are given under each of the key values and benefits.

| No. | Key values or benefits | Description |
|-----|--|-------------|
| 1 | <input type="checkbox"/> Fisheries (Quantity captured, no. of fish species & species names of conservation importance/significance, natural/fishery) | |
| 2 | <input type="checkbox"/> Source of drinking water for people living around (Whether directly from the site/ rivers/streams/ springs in catchment, quantity extracted, frequency of extraction, beneficiary & population benefited) – Water Resource Department | |
| 3 | <input type="checkbox"/> Source of water for agriculture (How much area is irrigated/command area, quantity water released per day, seasonal/ all through year) – Irrigation Department (PWD) | |
| 4 | <input type="checkbox"/> Cultivation of aquatic food plants (No. of aquatic plant species, names of species, quantity grown, part/entire water body, private/ Govt) | |
| 5 | <input type="checkbox"/> For buffalo wallowing and use of domesticated animals (Feral/village livestock, regularly used for wallowing/ occasionally used, no. of livestock) | |
| 6 | <input type="checkbox"/> Medicinal plants and resources (Name of species, no. of plant species, natural/ cultivated, regularly & systematically collected/ collected rarely/only when needed collected/ used by local/ companies/Govt.) | |
| 7 | <input type="checkbox"/> Habitat for several migratory species (Total no. of species, total number of migratory species, names of important & notable/ conservation significant migratory species) | |
| 8 | <input type="checkbox"/> Buffering communities from extreme events as floods and storms (Instances of floods in the downstream) | |
| 9 | <input type="checkbox"/> Groundwater recharge (Records of level of water in wells around the wetland & away from the wetland) | |

| No. | Key values or benefits | Description |
|-----|--|-------------|
| 10 | <input type="checkbox"/> Water purification (Whether water flows into the wetland from conventional municipal wastewater treatment plants – serving in polishing stage for the effluents) | |
| 11 | <input type="checkbox"/> Erosion prevention or sediment retention (Presence of vegetation cover along embankment/catchment and inside the water -submerged/ floating /emergent /other vegetation) | |
| 12 | <input type="checkbox"/> Cultural and spiritual importance (Mention what is the cultural spiritual value/ importance, if festivals/fairs are held, which & when, no. of people visiting/using the site for this value) | |
| 13 | <input type="checkbox"/> Tourism and recreation (What are the tourist attractions, any facilities developed, tourism managed by whom local/ private/Govt.) | |
| 14 | <input type="checkbox"/> Supports noteworthy plants species (Mention the species & life form of plant & which part of wetland present – rare/ common/ abundant) | |
| 15 | <input type="checkbox"/> Supports noteworthy animal species (Mention the animal species & its population – specifically species of conservation significance, species-wise whether rare/ common/ abundant) | |
| 16 | <input type="checkbox"/> Supports life cycle of fish or amphibians (What fish/amphibian found in and around the wetland? Whether fish/amphibians breed, or the wetland serves as habitat for some stage in their lifecycle) | |
| 17 | <input type="checkbox"/> Mining, salt production (Whether mining is present, Govt./private? what and how mined? Whether salt production present, large/small scale, Govt./private, mines and salt pan present in part/most parts of the wetland) | |
| 18 | <input type="checkbox"/> Water for energy production (Whether hydel/other energy is produced, Govt./ private, quantity produced) | |
| 19 | <input type="checkbox"/> Any other, please list: | |
| 20 | <input type="checkbox"/> | |

DATA SHEET 2: NATIONAL AND INTERNATIONAL DESIGNATIONS

Nationally designated areas under protection which fall within the boundaries of the Ramsar Site / wetland

(Include any designation under Ramsar Convention, Indian Forest Act 1927, Forest (Conservation) Act 1980, State Acts, Wildlife (Protection) Act 1972, Coastal Regulation Zone Notification 2011, Wetland (Conservation and Management) Rules 2017, etc. Mention the designation also clearly – notified/in process):

| Name | Designation | Area (ha) | Date of Establishment | If notification in process, mention current status –what stage is it | WDPA code |
|------|-------------|-----------|-----------------------|--|-----------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

UNESCO World Heritage site (see: whc.unesco.org/en/list)

| Site name | Site area (ha) | Date Listed | Geographical co-ordinates | WDPA Code |
|---|----------------|-------------|---------------------------|-----------|
| | | | | |
| | | | | |
| | | | | |
| Criteria for designation (i.e. criteria i to x) Refer: https://whc.unesco.org/en/criteria/ | | | | |
| Statement of Outstanding Universal Value | | | | |

UNESCO Man and Biosphere Reserves (see: www.unesco.org/mab/wnbrs.shtml)

| Site name | Date listed | Site area (ha): | | | | Geographical co-ordinates |
|---|-------------|-----------------|-------|---------|------------|---------------------------|
| | | Total: | Core: | Buffer: | Transition | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Criteria for designation | | | | | | |
| Fulfillment of three functions of MAB (conservation, development, and logistic support) | | | | | | |

Please list other designations (i.e. Important Bird Area (IBA), Key Biodiversity Area (KBA)) and any supporting information below

| Name | Details |
|------|---------|
| | |
| | |
| | |

DATA SHEET 3: WETLAND THREATS

General Instructions: In the description for all threats if present, briefly mention where the threat prevails with respect to the specific wetland, whether all areas or specific location? Why is it a threat? What is the impact due to these threats? If not addressed what will be the future status of the particular threat with respect to conservation of the site.

1. Residential and commercial development

Threats from human settlements or other non-agricultural land uses with a substantial footprint.

Under description, mention type of housing, industry / commercial area; type of recreation and is it tourism by private players or by government or local communities; type of religious site/complex and any other infrastructure.

| Threat | High | Medium | Low | N/A | Description (mandatory) |
|---|------|--------|-----|-----|-------------------------|
| 1.1 Housing and settlement | | | | | |
| 1.2 Commercial and industrial areas | | | | | |
| 1.3 Tourism and recreation infrastructure | | | | | |
| 1.4. Religious site/Complex | | | | | |
| 1.5. Other Infrastructure | | | | | |

2. Agriculture, grazing and aquaculture

Threats from farming and grazing as a result of agricultural expansion and intensification, including silviculture and aquaculture

Under description, mention type of non- timber crop or medicinal plants cultivated; type of wood & pulp plantation; type of livestock farming & extent of grazing; type of marine, brackish & freshwater aquaculture

| Threat | High | Medium | Low | N/A | Description (mandatory) |
|--|------|--------|-----|-----|-------------------------|
| 2.1 Annual and perennial non-timber crop cultivation | | | | | |
| 2.1a Medicinal plant/ Drug cultivation | | | | | |
| 2.2 Wood and pulp plantations | | | | | |
| 2.3 Livestock farming and grazing | | | | | |
| 2.4 Marine, brackish and freshwater aquaculture | | | | | |

3. Energy production and mining

Threats from production of non-biological resources

Under description, mention whether drilling is done by Govt./private and type of mining/quarrying; what type of energy generation, quantity generated and whether Govt./private.

| Threat | High | Medium | Low | N/A | Description (mandatory) |
|--|------|--------|-----|-----|-------------------------|
| 3.1 Oil and gas drilling | | | | | |
| 3.2 Mining and quarrying | | | | | |
| 3.3 Energy generation, including from hydropower dams, wind farms and solar panels | | | | | |

4. Transportation and service corridors

Threats from long narrow transport corridors/linear development and the vehicles that use them including associated wildlife mortality

Under description, mention whether roads/railway line; information on road kills and species; death of birds due to collision with utility cables & what species; effects of dredging; whether major flightpath – international /minor flightpath.

| Threat | High | Medium | Low | N/A | Description (mandatory) |
|---|------|--------|-----|-----|-------------------------|
| 4.1 Roads and railroads (include road-killed animals) | | | | | |
| 4.2 Utility and service lines (e.g. electricity cables, telephone lines,) | | | | | |
| 4.3 Shipping lanes and canals | | | | | |
| 4.4 Flight paths | | | | | |

5. Biological resource use and harm

Threats from consumptive use of “wild” biological resources including both deliberate and unintentional harvesting effects; also, persecution or control of specific species (note this includes hunting and killing of animals)

Under description, mention hunting by whom – outsiders/locals: Which animal involved in conflict? Whether conflict takes place inside/outside the site? What plant species collected with status based on availability –low, moderate, abundant; what species harvested for wood/as part of logging with status of availability – low, moderate, abundant; Fish killing by whom? Species of fish and availability status and what aquatic resource are harvested?

| Threat | High | Medium | Low | N/A | Description (mandatory) |
|--|------|--------|-----|-----|-------------------------|
| 5.1 Hunting, killing and collecting terrestrial (native) animals (including killing of animals as a result of human/wildlife conflict) | | | | | |
| 5.2 Gathering terrestrial (native) plants or plant products (non-timber) | | | | | |
| 5.3 Logging and wood harvesting | | | | | |
| 5.4 Fishing, killing and harvesting (native) aquatic resources | | | | | |

6. Human intrusions and disturbance

Threats from human activities that alter, destroy or disturb habitats and species associated with non-consumptive uses of biological resources.

Under description, mention what type of activities and tourism, research & education & other work, destructive activities, type of pollutant, type of livestock & agriculture, type of catchment level threat:

| Threat | High | Medium | Low | N/A | Description (mandatory) |
|---|------|--------|-----|-----|-------------------------|
| 6.1 Recreational activities and tourism | | | | | |
| 6.2 War, civil unrest and military exercises | | | | | |
| 6.3 Research, education and other work-related activities in wetland | | | | | |
| 6.4 Activities of site managers (e.g. construction or vehicle use, artificial watering points and dams) | | | | | |
| 6.5 Deliberate vandalism, destructive activities or threats to protected area staff and visitors | | | | | |
| 6.6. Release of pollutant from religious site and issues of littering and waste | | | | | |
| 6.7. Grazing & agriculture inside the wetland | | | | | |
| 6.8. Other catchment level threats (add description) | | | | | |

7. Natural system modifications

Threats from other actions that convert or degrade habitat or change the way the ecosystem functions

Under description, mention reason(s) for fragmentation; reason(s) for edge effect and extent if possible; what key stone species are lost?

| Threat | High | Medium | Low | N/A | Description (mandatory) |
|---|------|--------|-----|-----|-------------------------|
| 7.1a Habitat clearing | | | | | |
| 7.1 Fire and fire suppression (Including arson) | | | | | |
| 7.2 Dams, hydrological modification and water management/use | | | | | |
| 7.3a Increased fragmentation within wetland | | | | | |
| 7.3b Isolation from other natural habitat (e.g. deforestation, dams without effective aquatic wildlife- passages) | | | | | |

| Threat | High | Medium | Low | N/A | Description (mandatory) |
|---|------|--------|-----|-----|-------------------------|
| 7.3c Other 'edge effects' on wetland values | | | | | |
| 7.3d Loss of keystone species (e.g. top predators, pollinators) | | | | | |

7a. Hydrological change

Under description, mention what type of dam in the upstream, size, whether it hinders water regime of the wetland? Extraction/diversion by whom, for what & quantity, extraction seasonal or all through the year? How frequent is the drought? What type of other threats in the catchment by whom?

| Threat | High | Medium | Low | N/A | Description (mandatory) |
|---|------|--------|-----|-----|-------------------------|
| 13.1 Dams within or upstream of site altering hydrological regime | | | | | |
| 13.2 Water extraction/diversion within site or catchment | | | | | |
| 13.3 Excess ponding of water in site (e.g. for flood storage) | | | | | |
| 13.4 Loss of hydrological connectivity (e.g. via stop banks) | | | | | |
| 13.5 Drought conditions | | | | | |
| 13.6 Other catchment level threats (describe in notes) | | | | | |

8. Invasive and other problematic species and genes

Threats from terrestrial and aquatic non-native and native plants, animals, pathogens/microbes or genetic materials that have or are predicted to have harmful effects on biodiversity following introduction, spread and/or increase

Under description, mention what invasive, non-native/alien plant and animal species; what pathogen and what new/increased problem caused? What genetical material introduced, by whom and what problem caused? Disease effecting birds – what disease and how spread/source of disease?

| Threat | High | Medium | Low | N/A | Description (mandatory) |
|---|------|--------|-----|-----|-------------------------|
| 8.1 Invasive non-native/alien plants (weeds) | | | | | |
| 8.1a Invasive non-native/alien Animals | | | | | |
| 8.1b Pathogens (non-native or native but creating new/increased problems) | | | | | |
| 8.2 Introduced genetic material (e.g. genetically modified organisms) | | | | | |
| 8.3. Diseases affecting the birds (e.g. Bird Flu & others) | | | | | |

9. Pollution entering or generated within wetland

Threats from introduction of exotic and/or excess materials or energy from point and non-point sources

Under description, mention what is the source of sewage from facilities (toilets from households, hotels or others); type of effluent; sources of garbage, solid waste, air-borne pollutants, excess energy.

| Threat | High | Medium | Low | N/A | Description (mandatory) |
|---|------|--------|-----|-----|-------------------------|
| 9.1 Household sewage and urban wastewater | | | | | |
| 9.1a Sewage and wastewater from facilities (e.g. toilets, hotels, etc.) | | | | | |
| 9.2 Industrial, mining and military effluents and discharges (e.g. unnatural temperatures, de-oxygenated, higher salinity, other pollution) | | | | | |
| 9.3 Agricultural and forestry effluents (e.g. excess fertilizers or pesticides) | | | | | |
| 9.4 Garbage and solid waste | | | | | |
| 9.5 Air-borne pollutants | | | | | |
| 9.6 Excess energy (e.g. heat pollution, lights etc.) | | | | | |
| 9.7. Pollutant and solid waste from villages and towns upstream | | | | | |

10. Geological events

Geological events may be part of natural disturbance regimes in many ecosystems but they can be a threat if a species or habitat is damaged and has lost its resilience and is vulnerable to disturbance. Management capacity to respond to some of these changes may be limited.

Under description, mention what effect all natural disturbances have on the wetland? Source (from where) and reason(s) for erosion and siltation.

| Threat | High | Medium | Low | N/A | Description (mandatory) |
|---|------|--------|-----|-----|-------------------------|
| 10.1 Volcanoes | | | | | |
| 10.2 Earthquakes/Tsunamis | | | | | |
| 10.3 Avalanches/ Landslides | | | | | |
| 10.4 Erosion and siltation/ deposition (e.g. shoreline or riverbed changes) | | | | | |

11. Climate change and severe weather

Threats from long-term climatic changes which may be linked to global warming and other severe climatic/weather events outside of the natural range of variation

Under description, mention what is the impact, how frequently these climatic/weather events occur and include projections on change in future climate/weather events (GLOF, sea level rise, etc.)

| Threat | High | Medium | Low | N/A | Description (mandatory) |
|--------------------------------------|------|--------|-----|-----|-------------------------|
| 11.1 Habitat shifting and alteration | | | | | |
| 11.2 Droughts | | | | | |
| 11.3 Temperature extremes | | | | | |
| 11.4 Storms, cyclones & flooding | | | | | |

12. Specific cultural and social threats

Under description, mention, if possible, the cultural link that existed, traditional knowledge and management systems practiced/were in place, what important cultural site values got naturally deteriorated? What cultural heritages were destroyed?

| Threat | High | Medium | Low | N/A | Description (mandatory) |
|--|------|--------|-----|-----|-------------------------|
| 12.1 Loss of cultural links, traditional knowledge and/or management practices | | | | | |
| 12.2 Natural deterioration of important cultural site values | | | | | |
| 12.3 Destruction of cultural heritage buildings, gardens, sites etc. | | | | | |

DATA SHEET 4: ASSESSMENT FORM

The assessment form comprises of 34 questions with scores covering the six stages of the management cycle - context, planning, inputs, processes, output and outcomes. The 34 questions include 26 questions with multiple criteria answers and 6 additional questions with 'yes' or 'no' answer. Additionally, there are 2 questions for listing five priority constraints and strengths each towards the end which are not scored.

It is mandatory to include an explanation for the criteria selected and propose next steps. Supporting documents are to be provided for each answer. In case a question is not relevant for a wetland, it can be skipped with adequate justification provided in the comments.

PLANNING (CONTEXT)

In addition to above sections (values, threats, policy environment, designations), the questions below provide additional context in terms of regulations, protection boundaries and existence of management plan.

1. Wetland regulations: Are regulations in place to protect the wetland?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|---|---|
| There are no regulations in place to protect the wetland | 0 | |
| Some regulations are in place but not applicable to the entire wetland | 1 | |
| Regulations are in place for the entire wetland but insufficient to protect the wetland | 2 | |
| Stringent regulations are in place to protect the entire wetland | 3 | |

Include any regulations provided under Indian Forest Act 1927, Forest (Conservation) Act 1980, State Acts, Wildlife (Protection) Act 1972, Coastal Regulation Zone Notification 2011, etc.

2. Wetland Boundary*: Does the delineated wetland boundary cover the entire wetland regime#?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|---|--|
| Wetland boundary* does not cover critical areas of the wetland regime or boundary is not delineated | 0 | |
| Wetland boundary* only partially covers the wetland regime | 1 | |
| Wetland boundary* covers the majority of wetland regime, but could be improved | 2 | |
| Wetland boundary* covers the entire wetland regime | 3 | |

* Boundary implies area delineated through wetland notification, Ramsar Site declaration, protected area boundary or any other legal or administrative boundary

What is wetland regime? 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. Water regime includes inflow, outflow, balance, surface-groundwater interactions, inundation regime, tidal regime, quality. Wetland's 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.

PLANNING

3. Management Plan: Is there a management plan for the wetland?

| Criteria | Score: Tick (✓) only one box per question | | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--------------------------|--|
| There is no management plan | 0 | <input type="checkbox"/> | |
| Management plan is outdated | 1 | <input type="checkbox"/> | |
| A management plan is being prepared or draft plan exists | 2 | <input type="checkbox"/> | |
| Wetland has an approved management plan | 3 | <input type="checkbox"/> | |

The evaluation needs to consider, whether there is any plan that guides wetland management. Specify any existing sector-specific plans for the wetland e.g. PA plan, Fisheries Plan, Tourism, etc.

3a. Integrated Management Plan: Is there an integrated management plan for the wetland as per NPCA guidelines

| Criteria | Score: Tick (✓) only one box per question | | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|--|--------------------------|--|
| There is an integrated management plan for the wetland as per NPCA guidelines | +1 | <input type="checkbox"/> | |

The evaluation needs to consider if there is an Integrated Management Plan (IMP) for the wetland. Specify if an IMP is being prepared or implemented and whether it is as per NPCA guidelines. Details on whether it is first IMP/ otherwise and period of IMP should be provided.

If existing management plan is adequate and there is no need for an IMP, then mark this question as NA with adequate justification.

3b. Work Plan: Is there an annual work plan (APO) and is it being implemented?

| Criteria | Score: Tick (✓) only one box per question | | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--------------------------|--|
| There is an annual work plan (APO) and is it being implemented | +1 | <input type="checkbox"/> | |

Assessment to consider whether there is a process of preparing annual work plans (APO) on which the implementation is carried out.

3c. Periodic review and updating of plan: Is the plan reviewed and updated periodically

| Criteria | Score: Tick (✓) only one box per question | | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--------------------------|--|
| Is there a schedule and process for periodic review and updating of the management plan? | +1 | <input type="checkbox"/> | |

Evaluation needs to consider, whether a schedule for updating the IMP is available and, if yes, specify details of the schedule and whether there is an established process for updating. Further, whether the management plan is updated periodically as per the planned schedule.

4. Wetland Management Objectives: Are there clear conservation and wise-use objectives identified and wetland managed accordingly?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--|
| No conservation and wise-use objectives have been identified for the wetland | 0 | |
| The wetland management plan has conservation and wise-use objectives identified, but is not managed according to these objectives | 1 | |
| The wetland management plan has conservation and wise-use objectives identified, but is only partially managed according to these objectives | 2 | |
| The wetland management plan has conservation and wise-use objectives identified, and is managed to meet these objectives | 3 | |

Evaluation needs to consider, whether the objectives of the IMP clearly address the conservation priorities and the wise use of all wetland resources. Wise use of wetlands is the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development.

5. Stakeholders' participation: Are the stakeholders identified and engaged in management planning?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|--|--|
| Stakeholders are not identified or involved in management planning | 0 | |
| Stakeholders identified but only a few stakeholders involved in management planning | 1 | |
| Stakeholders identified and key stakeholders involved in management planning | 2 | |
| All stakeholders identified and are fully involved in management planning | 3 | |

Evaluation needs to check, whether all the key stakeholders are identified and are actively involved in the planning and whether their suggestions are incorporated.

6. Sectoral Convergence: Does the planning process identify convergence opportunities with sectoral schemes?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|--|--|
| No sectoral convergence opportunities are identified in the management plan | 0 | |
| Sectoral convergence opportunities are identified but are not implemented | 1 | |
| Sectoral convergence opportunities are identified but are partially implemented | 2 | |
| Sectoral convergence opportunities are identified and are implemented | 3 | |

Evaluate whether the planning includes processes for assessing the components of different sectoral schemes and its potential for convergence with the IMP at different levels and whether this convergence is operationalised during implementation.

7. Wetland and sectoral planning: Does the wetland reflect in sectoral planning?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|--|--|
| Sectoral planning does not consider the needs of the wetland and activities are detrimental to the health of the wetland | 0 | |
| Sectoral planning does not consider the long-term needs of the wetland, but activities are not detrimental to the health of the wetland | 1 | |
| Sectoral planning partially considers the long-term needs of the wetland | 2 | |
| Sectoral planning fully considers the long-term needs of the wetland | 3 | |

Provide evidence to support the statement that needs of the wetland reflect in sectoral planning at district, state or basin level. E.g., water requirement of the wetland built into basin level planning or wetlands adequately considered in District Disaster Management Plans; future linear or any other development considers impact on wetland.

7a. Planning for ecological connectivity:

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|--|--|
| Are migration pathways and ecological corridors identified in the management plan and are there mechanisms for ensuring connectivity? | +1 | |

Evaluation needs to check whether all migratory pathways, if any, are identified and specific prescription/action are provided/included along with means for ensuring the connectivity. Further, need to consider the possibilities and opportunities for connectivity (forest, riverine forest, others) that exist on the landscape level. Details of the pathways and for what species, need to be explained under comments/explanation.

ADEQUACY / APPROPRIATENESS (INPUT)

Evaluation to focus on assessment of resources needed to carry out wetland management.

8. Information and data for management: How often management decisions are constrained due to data deficiency on ecological characters*?

| Criteria | Score: Tick (✓) only one box per question | | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|--|--------------------------|--|
| There is no information available on wetland ecological character to guide management decisions | 0 | <input type="checkbox"/> | |
| Information on key wetland ecological character is not sufficient to guide management decisions | 1 | <input type="checkbox"/> | |
| Information on key wetland ecological character is sufficient for most management decisions | 2 | <input type="checkbox"/> | |
| All management actions are defined on the basis of information on wetland ecological character | 3 | <input type="checkbox"/> | |

Evaluation needs to consider whether all key ecological features and processes of the wetland are listed and also check whether each of these key features have sufficient information or information is deficient, for taking proper specific management decisions. If deficient, list them.

* Ecological character of a wetland is the 'combination of the ecosystem components, processes, and benefits/ services that characterise the wetland at any given point in time'.

9. Staff numbers: Are there adequate human resources available to implement the management plan?

| Criteria | Score: Tick (✓) only one box per question | | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--------------------------|--|
| There are no human resources | 0 | <input type="checkbox"/> | |
| Human resources are inadequate for critical management activities | 1 | <input type="checkbox"/> | |
| Human resources are only adequate for critical management activities | 2 | <input type="checkbox"/> | |
| Human resources are adequate for the management needs of the Wetland | 3 | <input type="checkbox"/> | |

Assessment needs to consider the total staff needed, sanctioned, and on role, and evaluate whether adequate, inadequate, optimum. This needs to be considered in terms of the need to achieve the objectives of the management & protection of the wetland.

10. Capacity Development: Are staff adequately trained to effectively deliver the management plan?

| Criteria | Score: Tick (✓) only one box per question | | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|--|--|--|
| Staff lack the skills needed for wetland management | 0 | | |
| Staff training and skills are low relative to the needs of the wetland management | 1 | | |
| Staff training and skills are adequate, but could be further improved to fully achieve the objectives of wetland management | 2 | | |
| Staff training and skills are aligned to fully achieve the objectives of wetland management | 3 | | |

Assessment needs to consider the number of staff trained or with capacities to effectively be part of the implementation of the management plan and whether the number of staff with these specific capacities are adequate / inadequate.

11. Budgetary Provision: Is the allocated budget adequate to implement management plan completely?

| Criteria | Score: Tick (✓) only one box per question | | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--|--|
| There is no budget allocated for management of the wetland | 0 | | |
| The allocated budget is inadequate for critical management needs and presents a serious constraint to wetland management | 1 | | |
| The allocated budget is adequate for critical management needs but could be further improved to fully achieve effective management | 2 | | |
| The available budget is adequate and meets the full management needs of the wetland | 3 | | |

Evaluation needs to consider whether the budget available is adequate/inadequate/acceptable, sufficient/no budget to implement the management plan of the site completely/partially. Mention different funding, state/central/NGO/others. Obtain/give details of funds released by different sources and utilization of site in the last three years and also comment on the issues/problems associated with the funds and their implementation.

12. Financial sustainability: Are funds available on a regular basis?

| Criteria | Score: Tick (✓) only one box per question | | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--|--|
| There are no recurrent funds for the wetland and management is wholly reliant on supplementary or highly variable funding | 0 | | |
| There are very little recurrent funds, and the wetland management would be difficult without supplementary funding | 1 | | |
| There are reasonably secured recurrent funds for regular operation of the wetland, but many innovations and initiatives are reliant on supplementary funding | 2 | | |
| There is a long-term provision of recurrent funding for the wetland and its management needs | 3 | | |

Assessment needs to consider, whether there are regular specific budget/funds allotted for this site, fund availability is highly variable, dependent on outside fund partial/fully. Whether the budget received is enough and secured fully/partial/little for implementing most of the core activities of the management, and proper functioning of the wetland.

13. Equipment and infrastructure: Are equipment and infrastructure adequate for management needs?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--|
| There is no equipment and infrastructure for management needs | 0 | |
| There are some equipment and infrastructure, but these are inadequate for critical management needs | 1 | |
| There are equipment and infrastructure adequate for critical management needs, but could be further improved to fully achieve effective management | 2 | |
| There are adequate equipment and facilities to meet the full management needs of the wetland | 3 | |

Since this includes different resources, these can be divided into immovable infrastructure and movable. like - vehicles and other equipment, these can be further divided into essential and desirable. Consider whether whole list of infrastructures and equipment needed for fulfilling each objective and its means of deployment, is detailed in the management plan.

14. Collection of fees: If fees (i.e. entry fees, licenses or fines) are collected, are those funds used for wetland management?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--|
| No fees collected | 0 | |
| Fees are collected, but make no contribution to the wetland management | 1 | |
| Fees are collected, and make some contribution to the wetland management | 2 | |
| Fees are collected and make a substantial contribution to the wetland management | 3 | |

Evaluation needs to consider, what all activities fee is collected and the amount for respective activity along with if it contributes to the management of the wetland and its environs and for what actions? Further, also assess whether these fees contribute to management actions of the site fully/partially/do not contribute.

ADEQUACY / APPROPRIATENESS (PROCESS)

Evaluation focuses on assessment of the way in which management is conducted & criteria to be assessed are suitability of management processes and the extent to which established or accepted processes are being implemented

15. Wetland boundary demarcation: Is the boundary known and demarcated?

| Criteria | Score: Tick (✓) only one box per question | | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--------------------------|--|
| Wetland boundary is not demarcated | 0 | <input type="checkbox"/> | |
| Wetland boundary is partially demarcated but does not cover critical areas | 1 | <input type="checkbox"/> | |
| Wetland boundary is partially demarcated and covers critical areas | 2 | <input type="checkbox"/> | |
| The entire wetland has been well demarcated | 3 | <input type="checkbox"/> | |

Assessment needs to consider, whether the boundaries/boundary pillars are demarcated properly and whether it is known to the site managers & staff, local communities and resource users. Map with clear demarcation of boundaries to be attached.

16. Implementation of management plan: Are the activities being implemented as per the management Plan?

| Criteria | Score: Tick (✓) only one box per question | | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|--|--------------------------|--|
| None of the management plan activities are being implemented because of constraints (such as financial, human resources among others) | 0 | <input type="checkbox"/> | |
| Only few management plan activities being implemented because of constraints (such as financial, human resources among others) | 1 | <input type="checkbox"/> | |
| Most of the management plan activities being implemented with the exception of few because of constraints | 2 | <input type="checkbox"/> | |
| All of the management plan activities are being implemented | 3 | <input type="checkbox"/> | |

Evaluation needs to consider, whether all the plans/activities prescribed in the IMP are being implemented, if not, what are the constraints. Please list down the constraints under comments and explanation.

17. Protection and Vigilance: Are mechanisms in place to regulate access/resource use in the wetland?

| Criteria | Score: Tick (✓) only one box per question | | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|--|--------------------------|--|
| Protection and vigilance mechanisms (patrols, permits etc) do not exist | 0 | <input type="checkbox"/> | |
| Protection and vigilance mechanisms exist but are not effective in regulating access/resource use | 1 | <input type="checkbox"/> | |
| Protection and vigilance mechanisms exist but are partially effective in regulating access/resource use | 2 | <input type="checkbox"/> | |
| Protection and vigilance mechanisms are largely or wholly effective in regulating access/ resource use | 3 | <input type="checkbox"/> | |

Evaluation needs to consider permits given for resource use/collection and access, the number of leases given for different resource. Whether, schedule of patrols is in place, patrolling routes, petrol camps, number of case booked/ fine levied, etc.

18. Research: Is there management-oriented survey and research work carried out?

| Criteria | Score: Tick (✓) only one box per question | | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|--|--------------------------|--|
| There is no survey or research work taking place | 0 | <input type="checkbox"/> | |
| The survey and research work taking place are ad-hoc in nature and not directed towards the needs of wetland management | 1 | <input type="checkbox"/> | |
| There is considerable survey and research work taking place but partially relevant to the management needs | 2 | <input type="checkbox"/> | |
| There is a comprehensive, integrated programme of survey and research work, which is relevant to management needs | 3 | <input type="checkbox"/> | |

Under the comment/explanation give details on what research is done and by whom – individual/university/ government and mention the gaps related to survey and research work pertaining to management.

19. Monitoring system: Is there a monitoring system in place with provision for integrating feedback for adaptive management?

| Criteria | Score: Tick (✓) only one box per question | | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|--|--------------------------|--|
| There is no monitoring system in place | 0 | <input type="checkbox"/> | |
| There is monitoring system however it is ad-hoc | 1 | <input type="checkbox"/> | |
| There is monitoring system but partially contributes to management or long-term monitoring required | 2 | <input type="checkbox"/> | |
| There is comprehensive monitoring system which contributes to adaptive management | 3 | <input type="checkbox"/> | |

Evaluation should consider whether, there is any monitoring scheme detailed and in place related to specific objectives and key issues of the site, assess whether monitoring is done systematically and periodically. Also check whether there is provision to integrate the results/feedbacks of the monitoring into the management of the site. Give details on what indicators are being monitored and the trend whether increasing/stable/decreasing.

20. Disbursement of funds: Are funds available on time and for priority activities?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--|
| Funds are not available on time and significantly undermines effectiveness (e.g. late release of budget in financial year) | 0 | |
| Funds are not available on time and significantly affects priority activities | 1 | |
| Funds are partially available on time for some priority activities | 2 | |
| Funds are available on time for all priority activities | 3 | |

Assessment needs to consider whether funds are released on time giving adequate time to undertake and complete the necessary management action/priority activities of the site. Mention, the funding sources, funds allotted against each management action, and when was fund requested, released/received for the last three years.

21. Stakeholder coordination mechanism: Is there a stakeholder coordination mechanism in place for management of the wetland?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|--|--|
| There is no stakeholder coordination mechanism | 0 | |
| A stakeholder coordination mechanism exists but meetings are not regular | 1 | |
| A stakeholder coordination mechanism exists with regular meetings but does not have full participation | 2 | |
| There is a stakeholder coordination mechanism with regular meetings and active participation from most stakeholders in wetland management | 3 | |

Evaluation needs to check, whether there is a systematic and regular stakeholder coordination mechanism through meetings, whether all stakeholders are involved in the meeting and there is full/partial participation in the implementation of management of wetland.

22. Communication, Capacity building, Education, Participation and Awareness (CEPA) on wetland values: Are there regular CEPA programmes on wetland values?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|--|--|
| There is no CEPA programme | 0 | |
| There is a limited and ad-hoc CEPA programme | 1 | |
| There is a CEPA programme, but it only partly meets needs of wetland management and could be improved | 2 | |
| There is an appropriate and fully implemented CEPA programme | 3 | |

Evaluation needs to consider, whether there is systematic and well planned program for awareness and education of the local communities as part of community engagement and whether it is linked to the objectives of the management of the site and its needs. Mention how frequently this engagement is made and target groups.

22a. Community welfare programmes

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--|
| Are programmes implemented to enhance community welfare while ensuring conservation and wise use of wetland resources? | +1 | |

Assessment needs to consider, whether there are specific programmes/schemes targeted towards welfare or livelihood enhancement of the local wetland dependent communities. If in place and implemented what are these programmes/schemes and feedback regarding these need to be recorded from the local communities.

22b. Gender and social equity

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--|
| Does wetland management integrate aspects of gender and social equity? | +1 | |

Evaluation to consider whether there are specific programmes/schemes targeting women, marginalised communities and weaker sections of community

OUTPUT AND OUTCOMES

Evaluation focus on delivery of products and services (outputs) as a result of management actions and the extent to which the management objectives were achieved (outcomes).

23. Information available for adaptive management: Are inventory, assessment and monitoring information available for adaptive management?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--|
| There is no inventory, assessment and monitoring information available | 0 | |
| Ad-hoc inventory, assessment and monitoring information is available for adaptive management | 1 | |
| Regular inventory, assessment and monitoring information is available on critical aspects | 2 | |
| Regular inventory, assessment and monitoring information is available on most aspects | 3 | |

Need to assess, whether the information/data generated through inventory, monitoring and research carried out in the site are relevant/oriented toward management and whether it is fully/partially available for the adaptive management. List the studies topics and information available for adaptive management.

24. Ecosystem services to local communities: Is the wetland delivering economic benefits to local communities?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|---|--|--|
| The wetland does not deliver any economic benefits to local communities | 0 | |
| Potential economic benefits are recognised and plans to realise these are being developed | 1 | |
| There is some flow of economic benefits to local communities | 2 | |
| There is a major flow of economic benefits to local communities from activities associated with the wetland | 3 | |

Need to consider whether all ecosystem service provided by the specific site are identified and listed and whether these provide income to the local communities (including tribals and forest dwellers), and employment in the implementation of specific management activities that pertain to ecosystem services of the wetland. Provide list of the activities in which local communities are involved.

25. Change in wetland values: What is the condition of the important values of the wetland?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--|
| Many important wetland values are being severely degraded | 0 | |
| Some wetland values are being severely degraded | 1 | |
| Some wetland values are being partially degraded, but the most important values have not been significantly impacted | 2 | |
| Wetland values are predominantly intact | 3 | |

Assessment needs to consider, whether all the biodiversity, ecological and cultural values of the wetland are identified and listed, and its present status needs to be evaluated against the status of these values at the time of designation (for Ramsar Sites), notification or during previous management plan cycle (if not notified).

26. Change in prioritized threats: How many of the prioritized threats in and around the wetland are being reduced/minimized or is there an increase in threats?

| Criteria | Score: Tick (✓) only one box per question | Comment/Explanation for criteria selected, supporting document and proposed next steps |
|--|--|--|
| Threats to the wetland have increased. | 0 | |
| Some threats to the wetland have been reduced, but others continue having an impact on values | 1 | |
| Most threats to the wetland have been reduced; the few remaining threats are being addressed | 2 | |
| All threats to the wetland seem to have been effectively contained or reduced, and an effective system is in place to deal with any emerging threats | 3 | |

List down the prioritized threats & mention whether the respective threats have decreased/stable/increased after the mitigatory actions carried out as prescribed in the management plan of the wetland.

27. Out of the 26 questions above, please list in order of importance the five that reflect the major constraints to effective management of the wetland

| Question number | Why is this a major constraint to effective management |
|-----------------|--|
| | |
| | |
| | |
| | |
| | |

List out five priority constraints to management from the 26 questions answered above. E.g. Question 20. Disbursement of funds: Are funds available on time and for priority activities? – The budget from CSS is not available when required for plantations or implementation of soil moisture conservation measures in the catchment.

28. Out of the 26 questions above, please list in order of importance the five greatest strengths of the current management of the wetland

| Question number | Why do you think this has become a strength of current management? |
|-----------------|--|
| | |
| | |
| | |
| | |
| | |

List out five key strengths of current management from the 26 questions answered above. E.g. Question 9. Staff numbers: Are there adequate human resources available to implement the management plan? – Wetland is well staffed and adequately trained as per the management needs (70 permanent and 150 temporary).

SCORING THE ASSESSMENT FORM

The entire assessment form has a total of 32 questions with scores, however, the ones not relevant to the wetland may be skipped with adequate justification provided in the 'Comments' column of the question.

The 32 questions include 26 questions with multiple criteria answers and a maximum score of 3 per question, and 6 additional questions with 'yes' or 'no' answer that carry a score of +1 each.

- The maximum possible score is $(26 \times 3) + (6 \times 1) = 84$.
- Final score is calculated as a percentage of the maximum possible score:

(Total score / Maximum possible score) x 100

For example, if the total score is 60 and all questions have been answered, then the final score would be: $(60 / 84) \times 100 = 71.4\%$

- In case certain questions have been skipped as not relevant, then the final score is calculated as a percentage of the adjusted maximum score (removing the non relevant ones from the total):

(Total score / Adjusted maximum possible score) x 100

For example, if the total score is 58 and one question and one additional question(s) have been skipped while rest answered, then the final score would be: $(58 / 80) \times 100 = 72.5\%$

Calculation sheet template provided in annexures.



Important reminder: METT scores are not meant to be compared across wetlands in India. The METT exercise is designed to track the progress in management effectiveness of a particular wetland with its own past performance.



METT Reporting

A METT result summary report should present the way forward for management informed by the insight captured in all METT data sheets. The way ahead should list out short term actions which can be taken by a wetland manager such as those related to interventions, institutional arrangements, research, capacity development, monitoring and outreach. Additionally, critical long term action and those beyond the site manager (policy changes) should be highlighted where relevant.

These would include suggestion across the management cycle components (planning, inputs, processes, output and outcome) categorised into the following action areas:

1. Management Actions and Institutional Arrangements
2. Monitoring, Research and Capacity Development
3. Outreach and Communication

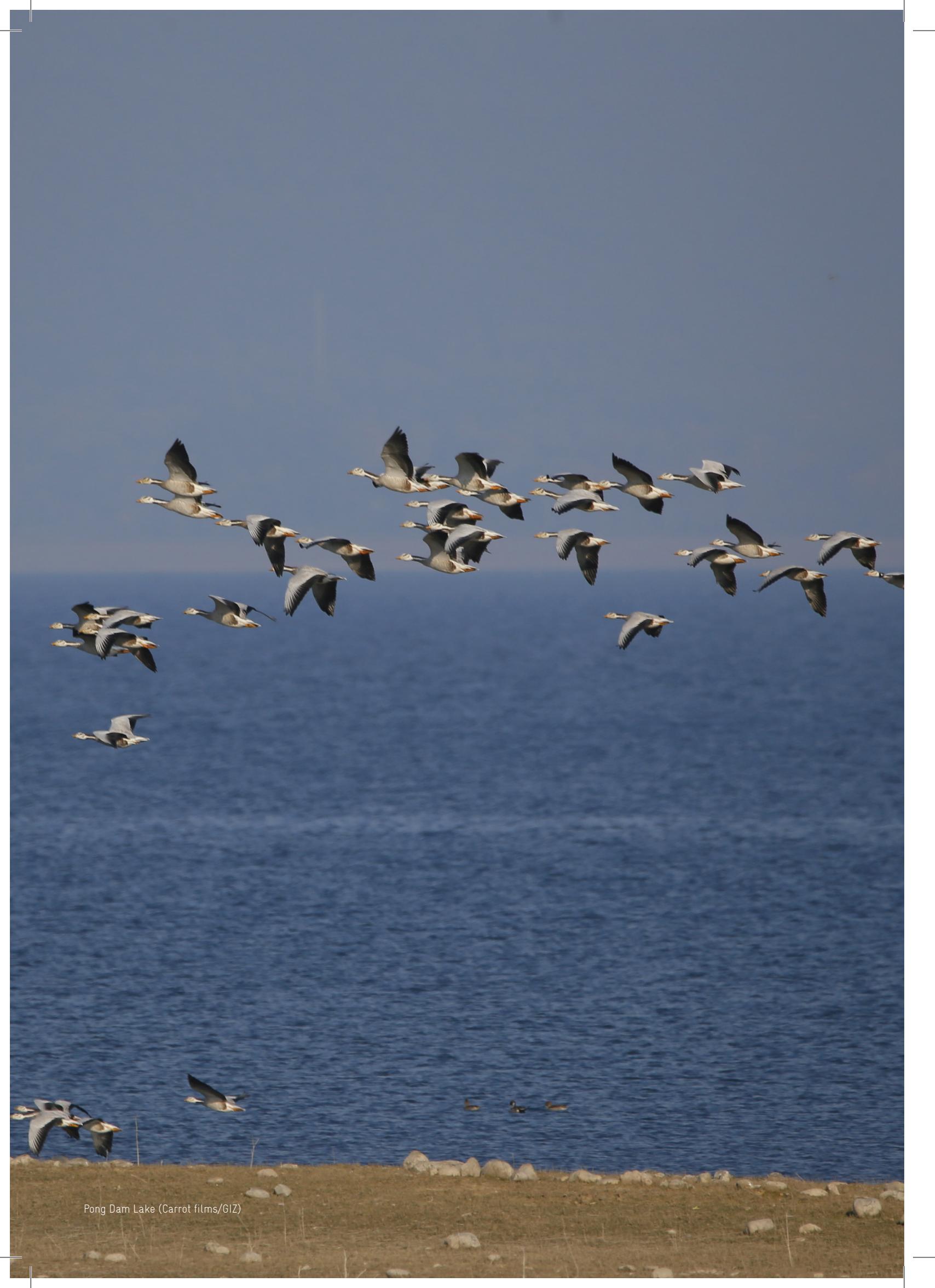
Box 2 lists the proposed structure for METT summary reports.

Box 2

METT Summary Report – Proposed structure

- Brief Description
- Primary management authority
- Current management plan(s)
- METT score
- Way ahead for management
- METT calculation sheet
- Annexures with all completed datasheets and supporting documents





Pong Dam Lake (Carrot films/GIZ)

Summary of METT Pilots

PONG DAM LAKE METT 2021-22

BRIEF DESCRIPTION:

Pong dam lake (156 sq km Ramsar Site area), built on the Beas River, is located in the Kangra district of Himachal Pradesh. A 207 sq. km area including the reservoir has been notified as Pong Dam Lake Wildlife Sanctuary. Principally built to provide water for irrigation, generate hydropower, and regulate floods, Pong dam lake provides livelihood to nearly 3000 fishermen, and supports immense diversity of waterfowl. It was designated a Ramsar Site in 2002 as it is an important wintering site for migratory birds on the Central Asian Flyway, having over 100,000 birds visiting each winter; also harbors one of the largest congregations of Bar-headed geese.

Major threats to Pong Dam Lake include illegal poaching of fish and birds, unsustainable fishing practices, decline in fish diversity, soil erosion and increased sedimentation, fluctuations in inundation regime, illegal grazing, avian disease outbreaks, gradual increase in pollution load due to fertilizers, insecticides and sewage from the catchment.

PRIMARY MANAGEMENT AUTHORITY:

The Wildlife Sanctuary is maintained by the Himachal Pradesh Forest Department (HPFD). The lake and the dam are under the control of Bhakra Beas Management Board (BBMB) which maintains ownership over the land.

CURRENT MANAGEMENT PLAN:

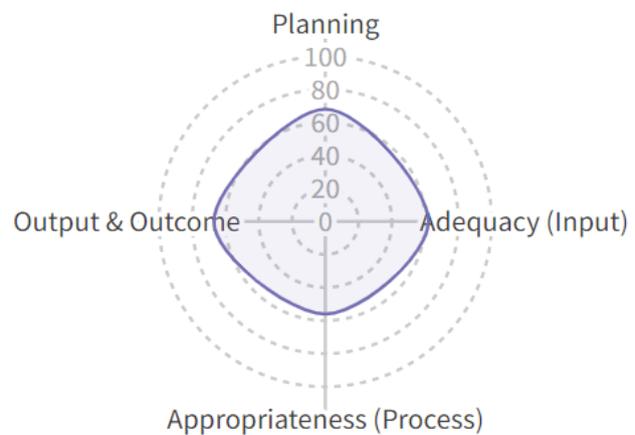
Protected Area (Sanctuary) management plan (2014-15 to 2023-24) by Hamirpur Wildlife Division, HPFD.



METT SCORE:

Overall, management effectiveness (2021-22) for Pong Dam Lake is moderate with an overall score of 63%. Planning, output & outcome are good at 68% and 67%, respectively. Adequacy of inputs and appropriateness of processes is moderate at 62% and 56%, respectively.

| | |
|---------------------------|-----|
| Planning | 68% |
| Adequacy (Input) | 62% |
| Appropriateness (Process) | 56% |
| Output & Outcome | 67% |
| Overall | 63% |



WAY AHEAD FOR MANAGEMENT:

Management Actions and Institutional Arrangements

1. Addressing the issue on shortage of staff in both Forest and Fisheries Departments.
2. Regular exchanges are required with BBMB on key matters such as early warning before water release and permissions for certain activities by Panchayats or other departments. Site-level issues need to be resolved during meetings of Pong Dam Lake Biodiversity Conservation Society and unresolved issues are to be taken up at a high-level via HPSWA.
3. Endorsement and implementation of the Integrated Management Plan for the wetland developed following NPCA guidelines must be of priority. This includes establishing convergence between government departments on joint implementation of the action and monitoring plan.
4. Development of ecotourism on the lines of the PDLBCS Ecotourism Business Plan.



Pong Dam Lake (Carrot films/GIZ)

5. Development of an SOP for the containment and control measures specific to wild bird species in case of outbreak of contagious diseases like Avian Influenza in Protected Areas like Pong Dam Lake WLS.
6. Demarcation of WLS boundary with geo-tagged pillars and increasing protection at vulnerable points.

Monitoring, Research and Capacity Development

1. Establish a comprehensive monitoring system as elaborated in IMP with clear identification of indicators for monitoring, departments responsible and data sharing arrangements.
2. Monitoring results should be consolidated into annual Wetland Health Cards (MoEFCC's NPCA format) and Wetland Health Report Cards (specific to Pong).
3. Conduct regular management effectiveness tracking (METT) via multi-stakeholder workshops or self-evaluations by site manager.
4. Training for site managers and staff on wetland ecology, participatory planning and monitoring, health card preparation, conflict resolution and other measures as listed in IMP.
5. Training local communities and local bodies (PRIs, CSOs, CBOs) for ecosystem-based sustainable livelihoods and wetland management.

Outreach and Communication

1. Develop a dedicated website for Pong Dam Lake with information on wetland, events, reports, ecotourism options and booking services.
2. The Health Cards and METT reports should be communicated to all the stakeholders. Health Cards should be uploaded on Wetlands of India Portal.
3. Public engagement during events such as Pong Bird Festival, installation of updated signages and information boards for tourist (clear signages are required on road leading up to WLS gate at Sukhnara), communication products (brochures, factsheets, map), etc.

Link to wetland profile on [Wetlands of India Portal \(indianwetlands.in\)](http://indianwetlands.in)



SASTHAMKOTTA WETLAND METT 2022

BRIEF DESCRIPTION:

Sasthamkotta is the largest natural freshwater wetland of Kerala State, located in Kunnathur Taluk of Kollam District spanning 373 ha. It is part of several freshwater bodies separated by natural ridge features that dot the landscape of the Kallada basin. With the main source of water being underground sprouts, the wetland is the principal source of water for nearly 0.5 million people living in Kollam City and its suburbs. Sastha temple, from which the wetland got its name, is an important religious and cultural centre for the region. Recorded biodiversity includes 37 species of phytoplankton, 18 species of macrophytes, 158 species of terrestrial vegetation, 26 species of fish, and 35 species of waterbirds.

PRIMARY MANAGEMENT AUTHORITY:

State Wetland Authority Kerala.

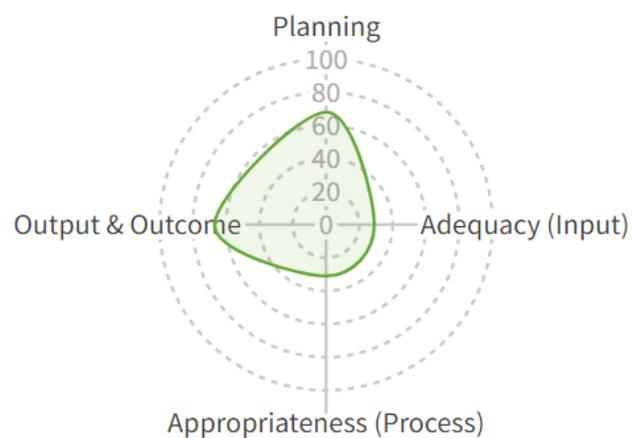
CURRENT MANAGEMENT PLAN:

Integrated Management Plan 2017-22.

METT SCORE:

Overall, management effectiveness for Sasthamkotta wetland is “low” with an overall score of 46%. Planning is “good” at 68%. The adequacy of inputs falls under “extremely low” at 29%. Appropriateness of processes is “low” at 31%, while outputs & outcome are “good” at 67%.

| | |
|---------------------------|------------|
| Planning | 68% |
| Adequacy (Input) | 29% |
| Appropriateness (Process) | 31% |
| Output & Outcome | 67% |
| Overall | 46% |



WAY AHEAD FOR MANAGEMENT:

Management Actions and Institutional Arrangements

1. Endorsement and implementation of the Integrated Management Plan for the wetland developed following NPCA guidelines are one of the priorities. This includes establishing convergence between government departments on joint implementation of the action and monitoring plan. (Planning)
2. Establishment and strengthening the role of a wetland authority as the platform for proactive engagement with stakeholders, especially other line departments. Meetings should be scheduled periodically with all the stakeholders with the agenda of wetland management. (Planning)
3. Demarcation of the boundary with geo-tagged pillars and increasing protection at vulnerable points. (Process)

Monitoring, Research and Capacity Development

1. Training for the site manager and staff on wetland ecology, wetland rules, participatory planning and monitoring, and other measures as listed in IMP. Improving the staff capacity at the wetland level. (Input)
2. A comprehensive study on floral and faunal biodiversity. (Process)
3. Studies and research on wetland features to aid with wetland management. (Process)
4. Establishment of proper feedback channels from the monitoring to enhance decision-making and management objectives. (Process)
5. Regular Ecosystem Health Report Card and Health Cards as per NPCA. (Process)
6. Regular management effectiveness tracking needs to be conducted in the context of the Ramsar site/wetland. (Process)

Outreach and Communication

1. The Health Cards and METT reports should be communicated to all the stakeholders. Health Cards should be uploaded on the Wetlands of India Portal. (Process)
2. Public engagement and installation of updated signages and information boards, communication products (brochures, factsheets, maps), etc. (Process)
3. Community engagement in the wetland management activities as listed in the IMP. (Process)

Link to wetland profile on [Wetlands of India Portal \(indianwetlands.in\)](http://indianwetlands.in)

BHITARKANIKA MANGROVES METT 2021-22

BRIEF DESCRIPTION:

Bhitarkanika was designated as a Ramsar site in year 2002 as 'Bhitarkanika Mangroves' (under Ramsar criteria 2,4,5 and 8) with an area of 650 sq. km. Located in the deltaic region of Brahmani and Baitarani rivers on the north-eastern coast of India in Kendrapara district, Odisha. Bhitarkanika is a wildlife sanctuary spreading over 673 sq. km, that includes a 145 sq. km Bhitarkanika National Park. Adjoining it, along the coast is the Gahirmatha Marine Sanctuary of 1435 sq. km.

Bhitarkanika Mangroves are a mosaic of tidal rivers, creeks, riverine islands, coastal wetlands and inter-tidal zones. It has 3 natural inlets (Brahmani, Baitarani and Dhamara rivers) and outflows into the sea (Dhamara, Maipura, and Hansua estuary). Unique biodiversity values of this wetland include the largest Olive Ridley turtle mass nesting beach in world; one of the largest heronries in Asia and the highest density of saltwater crocodiles in India. In terms of ecosystem services, the Ramsar site supports a population of around 2,50,000 people in 410 villages; provides livelihoods in the form of agriculture, fishing and brackish water aquaculture; and mangroves protect the area from devastating cyclones and tidal surges.

Gradual reduction in freshwater inflow in the feeding rivers has been identified as one of the major threats in addition to abstraction of water by agriculture, industries and other development activities taking place in the catchment of Bhitarkanika wetland.

PRIMARY MANAGEMENT AUTHORITY:

Mangrove Forest Division (WL), Rajnagar; Forest, Environment & Climate Change Department, Govt. of Odisha. Well-staffed with 70 permanent and 150 temporary personnel.

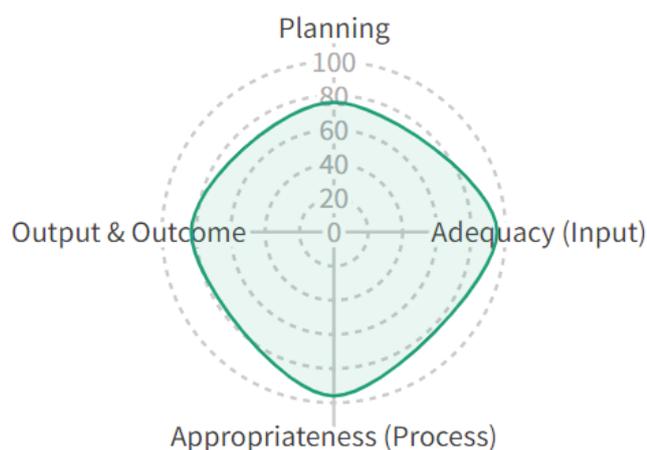
CURRENT MANAGEMENT PLAN:

Protected Area management plan.

METT SCORE:

Overall, management effectiveness (2021-22) for Bhitarkanika Mangroves is "excellent" with an overall score of 88%. The adequacy of inputs (95%) and appropriateness of processes (96%) drives the score high, while planning, outputs & outcome are "good" at 76% and 83%, respectively.

| | |
|---------------------------|-----|
| Planning | 76% |
| Adequacy (Input) | 95% |
| Appropriateness (Process) | 96% |
| Output & Outcome | 83% |
| Overall | 88% |



WAY AHEAD FOR MANAGEMENT:

Management Actions and Institutional Arrangements

1. Development of an Integrated Management Plan for the wetland following NPCA guidelines.
2. Active involvement and participation of EDCs and local NGOs in management of Bhitarkanika. Ensure Panchayats are a part of Bhitarkanika Management Committee. All 48 EDCs need to be made active and functional.
3. District and state level coordination for regulation of port expansion to reduce potential risk due to the same. Sectoral planning should take into account needs of wetland, particularly in terms of flow of water, silt, and pollutants.
4. Strong stakeholder coordination mechanism is present for conservation (HPC for Olive Ridley Turtles and Advisory Committee for Gahirmatha (Marine) WLS), similar measures are required for strengthening coordination with communities on sustainable livelihoods and wise use of wetlands resources.
5. Establish mechanism for interaction between Forest Dept. and Coastal Aquaculture Authority (CAA) which is responsible for regulating aquaculture activities within the wetland complex.
6. Prohibit shrimp farming in line with court orders with strict enforcement and regular monitoring.

Monitoring, Research and Capacity Development

1. Site managers and staff, who are presently well trained in wildlife management and conservation, need to undergo specific training on wetland ecology, participatory planning and monitoring, conflict resolution, community engagement.
2. Training local communities and local bodies (PRIs, BMCs, CBOs) on ecosystem-based sustainable livelihoods and wetland management through Sanctuary Management Committee as also given in the management plan.
3. Document and consolidate information from various research studies on to a single platform to support long-term monitoring and inform management.
4. Regular Ecosystem Health Report Card and Health Cards as per NPCA.
5. Regular management effectiveness tracking needs to be conducted in the context of Ramsar site/wetland.

Outreach and Communication

1. Sensitise and engage with Paradip and Dhamra Port Trusts.
2. The Health Cards and METT reports should be communicated to all the stakeholders including Panchayats, Agriculture Dept, CAA, PCB. Health Cards should be uploaded on Wetlands of India Portal.

Link to wetland profile on [Wetlands of India Portal \(indianwetlands.in\)](http://indianwetlands.in)



Bhitarkanika Mangroves (Yaiphaba Akoijam/GIZ)



RENUKA WETLAND METT 2021-22

BRIEF DESCRIPTION:

Renuka wetland is a natural lake located in the Western Himalayan foothills (or *Shivaliks*) in Sirmour district of Himachal Pradesh. Renuka lake is spread over 20 hectares, located within the Renuka Ji Wildlife Sanctuary (402.8 Ha), which forms majority of its forested catchment. The wetland is fed by catchment rainwater runoff as well as several active springs. Water from Renuka lake drains into a smaller Parshuram Tal (2.4 hectares) through a small channel.

Renuka wetland has been designated a Ramsar Site in 2005 under the Ramsar criteria 3 and 4. According to the Zoological Survey of India (ZSI 2000 and RSIS, 2004), Renuka has 443 species ranging from protozoa to mammals, 19 species of fish and over 103 species of birds, 19 of which are winter migrants.

Renuka lake carries tremendous cultural and religious value in Hindu mythology, with temples of Renuka ji and Lord Parshuram located along its banks, along with 3 ashrams. The lake is named after the mother of a Hindu sage Parshuram. While many legends surround this lake, the reunion of the mother Renuka and her son Parshuram is the most well-known. This event is celebrated annually as a major festival, Renuka Ji International Fair, which attracts lakhs of pilgrims to the lake.

Major threats to Renuka wetland include siltation, eutrophication due to excessive organic load, decline in the spring discharge and the spread of macrophytes. In addition, sanitation and waste management is a cause of concern, particularly with regard to the annual Renuka fair.

PRIMARY MANAGEMENT AUTHORITY:

The site is primarily managed by the Himachal Pradesh Forest Department, while the Renuka Vikas Board was established in 1984 under the Deputy Commissioner of Sirmour district to oversee the annual Renuka Fair and temple operations.

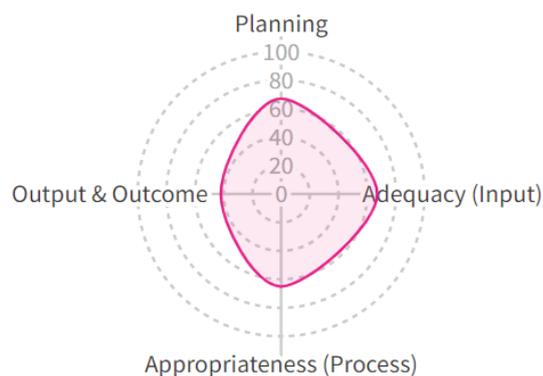
CURRENT MANAGEMENT PLAN:

Protected Area management plan (2013-2014 to 2022-23) by Shimla Wildlife Division.

METT SCORE:

Overall, management effectiveness (2021-22) for Renuka wetland is “moderate” with an overall score of 63%. Planning, adequacy of inputs and appropriateness of processes are “good” at 67%, 67% and 65%, respectively. Outputs & outcome are “low” at 42%.

| | |
|---------------------------|------------|
| Planning | 67% |
| Adequacy (Input) | 67% |
| Appropriateness (Process) | 65% |
| Output & Outcome | 42% |
| Overall | 63% |



WAY AHEAD FOR MANAGEMENT:

Management Actions and Institutional Arrangements

1. Endorsement and implementation of the Integrated Management Plan for the wetland developed following NPCA guidelines is one of the priorities. This includes establishing convergence between government departments on joint implementation of the action and monitoring plan.
2. Strengthen Renuka Vikas Board as the platform for proactive engagement with stakeholders, especially other line departments. Apart from the existing meeting on Renuka Fair, additional meetings should be scheduled periodically with broader wetland management agenda. (Planning)
3. Prioritise and implement measures to reduced climate risk and vulnerability based on Renuka climate risk assessment.
4. Environmentally sound and need-based sanitation amenities for pilgrims and waste management infrastructure should be developed along with the district administration in the area de-notified from WLS boundary.
5. Completion of eco-tourism master plan.

Monitoring, Research and Capacity Development

1. Training for site manager and staff on wetland ecology, wetland rules, participatory planning and monitoring and other measures as listed in IMP.
2. Comprehensive study on floral and faunal biodiversity.
3. Study on impact of Renuka Dam on Renuka wetland.
4. Establish monitoring system to support decision making and management objectives.
5. Regular Ecosystem Health Report Card and Health Cards as per NPCA.
6. Regular management effectiveness tracking needs to be conducted in the context of Ramsar site/wetland.

Outreach and Communication

1. The Health Cards and METT reports should be communicated to all the stakeholders. Health Cards should be uploaded on Wetlands of India Portal.
2. Public engagement during Renuka Fair, and installation of updated signages and information boards, communication products (brochures, factsheets, map), etc.

Link to wetland profile on [Wetlands of India Portal \(indianwetlands.in\)](http://indianwetlands.in)

POINT CALIMERE WILDLIFE & BIRD SANCTUARY METT 2021-22

BRIEF DESCRIPTION:

Point Calimere Ramsar site covering an area of 385 sq. km comprises of Point Calimere Wildlife Sanctuary (PCWS) (21.47 sq. km), Panchanadikulam Wetland (80.97 sq. km), Thalainayar Reserved Forest (TRF) (12.36 sq. km), Muthupet Mangroves (119sq. km) and un-surveyed salt swamp (151.20 sq. km).¹⁴ Except for the Thalainayar Reserved Forest, the remaining constituents are part of the Great Vedaranyam Swamp. The Ramsar Site is a mix of salt swamps, mangroves, backwaters, mudflats, grasslands and Tropical Dry Evergreen Forest. It supports over 250 species of birds, with 119 of them being waterbirds, including vulnerable species. The site serves as the breeding ground for many commercially important species of fish, as well as prawns and crabs. A large number of fishers, agriculturalists and salt manufacturers are dependent upon the wetland for their livelihood.

The site is drained by six distributaries of Cauvery and 3 channels, all the inlets are choked. It has two natural outlets – Muthupet and Seruthalaikadu lagoon. Nearly 50 percent of the Ramsar Site is under protection as Wildlife Sanctuary, while a large part of the area is unsurveyed, which is under Revenue Department. Salt pans have been leased by the Revenue Department to Chemplast and GHCL, while Government of India land has been leased to small-scale salt producers, small part of the site is under ownership of the Temple.

Wetland assessments and consultations have revealed reduced freshwater inflow and an increase in salinity and siltation have led to a decline in diversity and abundance of mangroves, as well as tropical dry evergreen forest and medicinal plants. Consequently, this has led to a decline in population and diversity of migratory bird species and benthic biodiversity, and an increase in the spread of halophytes like *Suaeda* in the grassland. These factors have also led to a decline in agriculture, an increase in aquaculture, and reduced fish catch as well as livestock. Further, these conditions have contributed to an increase in the invasion of *Prosopis* in the mangrove forest, grassland and dunes, resulting in habitat degradation and decline in biodiversity. Furthermore, the Ramsar site is highly vulnerable to extreme rainfall events and cyclones.

PRIMARY MANAGEMENT AUTHORITY:

Wildlife Warden, Nagapattinam, Tamil Nadu Forest Department; DFO, Thiruvarur, Tamil Nadu Forest Department and District level wetland management committee.

CURRENT MANAGEMENT PLAN:

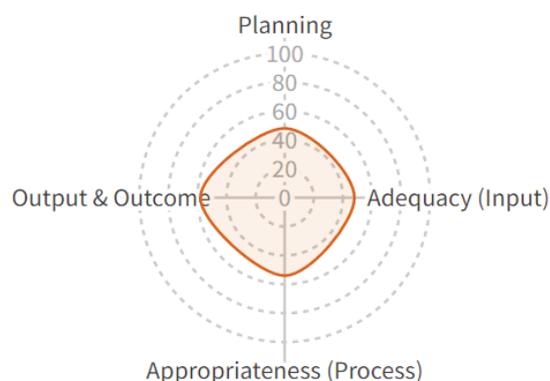
Protected Area management plan.

¹⁴ <https://www.forests.tn.gov.in/pages/view/Ramsar-Site-Of-TN>

METT SCORE:

Overall, management effectiveness (2021-22) for Point Calimere is “moderate” with an overall score of 51%. The planning and adequacy of inputs are “low” at 48%, while appropriateness of processes, outputs & outcome are “moderate” at 54% and 58%, respectively.

| | |
|---------------------------|-----|
| Planning | 48% |
| Adequacy (Input) | 48% |
| Appropriateness (Process) | 54% |
| Output & Outcome | 58% |
| Overall | 51% |



WAY AHEAD FOR MANAGEMENT:

Management Actions and Institutional Arrangements

1. Development of an Integrated Management Plan for the wetland following NPCA guidelines.
2. Intersectoral coordination to ensure implementation of extant regulations (for e.g., Forest Department, Fisheries, Police) and establishment of mechanism for discussion of wetland management issues during regular meetings of DWMC.
3. Under Provisions of Wetlands Rules, production system (such as salt production and aquaculture activities) within the wetland complex needs to be aligned with the wise use concept.
4. Delegation of responsibility and power to PRI in managing some of the aspects of conservation of PCWC.

Monitoring, Research and Capacity Development

1. Establish a network of site and state level knowledge partners.
2. Training for site manager and staff on wetland ecology, participatory planning and monitoring, conflict resolution, community engagement.
3. Training local communities and local bodies (Panchayati Raj Institutions, Biodiversity Management Committees) on ecosystem-based sustainable livelihoods and wetland management.
4. Regular Ecosystem Health Report Card and Health Cards as per NPCA.
5. Regular management effectiveness tracking needs to be conducted in the context of Ramsar site/wetland.

Outreach and Communication

1. The Integrated Management Plan, Health Cards and METT reports should be communicated to all the stakeholders including Panchayats, Agriculture Dept, Coastal Aquaculture Authority, Pollution Control Board.



Point Calimere Wildlife and Bird Sanctuary (Yaiphaba Akoijam/GIZ)



Annexures

METT CALCULATION SHEET TEMPLATE:

| Stages | Ques # | Name: | Criteria Score | | | Max score | Adjusted Max Score | Adjusted % | Comments | |
|----------|--|----------------------------|--|---|----|-----------|--------------------|------------|----------|---|
| | | | 0 | 1 | 2 | | | | | 3 |
| PLANNING | | Ques # | Data Sheet 4: Assessment Questions | | | | | | | |
| | Context | 1 | Are regulations in place to protect the wetland? | | | 3 | 3 | | | |
| | | 2 | Does the delineated wetland boundary cover the entire wetland regime? | | | 3 | 3 | | | |
| | | 3 | Is there a management plan for the wetland? | | | 3 | 3 | | | |
| | Planning | 3a | Is there an integrated management plan for the wetland as per NPCA guidelines? | | | 1 | 1 | | | |
| | | 3b | Is there an annual work plan (APO) and is it being implemented? | | | 1 | 1 | | | |
| | | 3c | Is the plan reviewed and updated periodically? | | | 1 | 1 | | | |
| | | 4 | Are there clear conservation and wise-use objectives identified and wetland managed accordingly? | | | 3 | 3 | | | |
| | | 5 | Are the stakeholders identified and engaged in management planning? | | | 3 | 3 | | | |
| | | 6 | Does the planning process identify convergence opportunities with sectoral schemes? | | | 3 | 3 | | | |
| | | 7 | Does the wetland reflect in sectoral planning? | | | 3 | 3 | | | |
| | | 7a | Planning for ecological connectivity | | | 1 | 1 | | | |
| | | | | Sub-total | 0 | 0 | 25 | 25 | 0% | |
| | | ADEQUACY / APPROPRIATENESS | 8 | How often are management decisions constrained due to data deficiency on ecological characters? | | | 3 | 3 | | |
| 9 | | | Are there adequate human resources available to implement the management plan? | | | 3 | 3 | | | |
| 10 | Are staff adequately trained to effectively deliver the management plan? | | | 3 | 3 | | | | | |
| 11 | Is the allocated budget adequate to implement management plan completely? | | | 3 | 3 | | | | | |
| 12 | Are funds available on a regular basis? | | | 3 | 3 | | | | | |
| 13 | Are equipment and infrastructure adequate for management needs? | | | 3 | 3 | | | | | |
| 14 | If fees (i.e. entry fees, licenses or fines) are collected, are those funds used for wetland management? | | | 3 | 3 | | | | | |
| | | Sub-total | 0 | 0 | 21 | 21 | 0% | | | |

