GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Naoko Ishii
CEO and Chairperson

February 25, 2016

Dear Council Member,

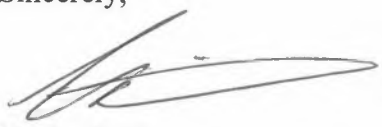
The UNEP as the Implementing Agency for the project entitled: ***India: Integrated Management of Wetland Biodiversity and Ecosystems Services (IMWBES)***, has submitted the attached proposed project document for CEO endorsement prior to final Agency approval of the project document in accordance with the UNEP procedures.

The Secretariat has reviewed the project document. It is consistent with the project concept approved by the Council in June 2013 and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by the UNEP satisfactorily details how Council's comments and those of the STAP have been addressed.

We have today posted the proposed project document on the GEF website at www.TheGEF.org for your information. We would welcome any comments you may wish to provide by March 24, 2016 before I endorse the project. You may send your comments to gcoordination@TheGEF.org .

If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,



Naoko Ishii

Attachment: GEFSEC Project Review Document
Copy to: Country Operational Focal Point, GEF Agencies, STAP, Trustee

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REQUEST FOR CEO ENDORSEMENT

PROJECT TYPE: Full-sized Project
TYPE OF TRUST FUND: GEF Trust Fund

For more information about GEF, visit TheGEF.org

PART I: PROJECT INFORMATION

Project Title: Integrated Management of Wetland Biodiversity and Ecosystems Services (IMWBES)			
Country(ies):	India	GEF Project ID[1]:	5132
GEF Agency(ies):	UNEP (select) (select)	GEF Agency Project ID:	00695
Other Executing Partners):	National Executing Agency: Ministry of Environment, Forests and Climate Change Lead Technical Support Agency (LTSA): Wetlands International South Asia With Agencies for Implementation of Demonstration Projects: Centre for Water Resources Development and Management (Kerala), Punjab State Council for Science and Technology (Punjab), and Department of Ecology and Environment (Bihar)	Resubmission Date:	11/01/2016
GEF Focal Area (s):	Biodiversity	Project Duration(Months)	60
Name of Parent Program (if applicable): > For SFM/REDD+ □ > For SGP □		Agency Fee ($):	398,675

A. FOCAL AREA STRATEGY FRAMEWORK[2]

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount ($)	Co-financing ($)
(select) BD-1	Outcome 1.1 Improved management effectiveness of existing protected areas	26 existing protected areas (total area 0.68 m ha) expanded with 12.50 million ha of previously unmanaged catchment (as measured by GEF METT).	GEFTF	1,635,537	8,242,000
(select) BD-2	Outcome 2. 1 Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation	Three sub-national wetland catchment plans applied to 9.7 million ha that incorporate biodiversity and ecosystem services values	GEFTF	2,561,038	11,975,000
		Total project costs		4,196,575	20,217,000

[1] Project ID number will be assigned by GEFSEC.
[2] Refer to the Focal Area/LDCF/SCCF Results Framework when completing Table A.

B. PROJECT FRAMEWORK

Project Objective: Enhanced management effectiveness of wetlands of national and international significance						
Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Grant Amount ($)	Confirmed Co-financing ($)
Component 1 : National wetland biodiversity and ecosystem services based knowledge systems	TA	Outcome 1.1: Increased national scale application of integrated wetland management planning tools and approaches Outcome 1.2: Wetland BES knowledge systems applied to improve management effectiveness of sites of national and international significance	1.1A Hierarchical wetland BES assessment tool developed, field tested at six sites and wetland managers trained in application 1.1B Climate vulnerability assessment tool developed, field tested in six sites and wetland managers trained in application 1.2 A Wetland management effectiveness tool developed and applied to Ramsar sites 1.2 B Small grant programme administered to support wetland managers in improving site management effectiveness 1.2C Improved wetland information synthesis and accessibility to support wetland policy and management implementation	GEF TF	703,333	1,700,000
Component 2: National scale capacity building for applying integrated management	TA	Outcome 2. 1 Enhanced institutional capacity and trained human resources for integrated management of wetlands	2.1A Modules for integrated management of wetlands developed and implemented for training wetland managers 2.1B Communities of Practice established for sharing best practices and lessons learnt on wetland management developed for wetland managers	GEFTF	578,843	3,497,000

			2.1C National Communication and Outreach Strategy developed and supported by the establishment of a web-portal, outreach material and events.			
Component 3 : Demonstration of integrated wetland management	TA	Outcome 3.1 Integrated wetland management applied in three protected wetlands	3.1A Baseline assessment and evaluation of ecosystem services values carried out for three pilot sites 3.1B Cross-sectoral institutional arrangements for integrated management enabled for three pilot sites. 3.1C Potential private sector partnerships identified at three pilot sites and actively engaged in integrated management. 3.1D Implementation of management plan reviewed and adapted periodically to address site and landscape scale drivers and pressures	GEF TF	2,563,661	11,975,000
Component 4: Project monitoring, evaluation and outcome dissemination	TA	Outcome 4. 1 Project impacts and performance are measured Outcome 4.2 Evidence base on benefits of BES based-wetland management established	4.1A Project monitoring and reporting systems established 4.1B Site and wetland catchment scale monitoring implemented assessing management effectiveness and outcomes for BES values 4.2A Project best practices guidelines on ES based wetland management disseminated for national scale replication 4.2B Increased use of BES based monitoring systems to assess maintenance and	GEF TF	140,910	1,995,860

			restoration of wetland ecological character, and enhanced livelihoods for wetland dependent communities			
Subtotal					3,986,747	19,167,860
Project management Cost (PMC)				GEF TF	209,828	1,049,140
Total project costs					4,196,575	20,217,000

C. SOURCES OF CONFIRMED COFINANCING FOR THE PROJECT BY SOURCE AND BY NAME ($)

Please include letters confirming cofinancing for the project with this form

Sources of Co-financing	Name of Co-financier (source)	Type of Cofinancing	Cofinancing Amount ($)
National Government	Ministry of Environment, Forests and Climate Change	In-kind	17,807,000
	Ministry of Environment, Forests and Climate Change	Cash	2,000,000
GEF Agency	United Nations Environment Programme	In-kind	260,000
Others	Wetlands International South Asia	Cash	150,000
Total Co-financing			20,217,000

D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY[1]

GEF Agency	Type of Trust Fund	Focal Area	Country Name/	(in $)		
				Grant Amount (a)	Agency Fee (b)[2]	Total c=a+b
UNEP	GEF TF	Biodiversity	India	4,196,575	398,675	4,595,250
Total Grant Resources				4,196,575	398,675	4,595,250

[1] In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this
table. PMC amount from Table B should be included proportionately to the focal area amount in this table.
[2] Indicate fees related to this project.

F. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENT:

Component	Grant Amount ($)	Co-financing ($)	Project Total ($)
International Consultants	90,000		90,000
National/Local Consultants	60,655		60,655

G. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? No

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/NPIF Trust Fund).

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF[3]

The IMWBES project is organized in the following four components aimed at addressing the knowledge, capacity and institutional barriers limiting effectiveness of wetland management, and ensuring application of project results in national policy contexts: Component 1: National wetland biodiversity and ecosystem services based knowledge systems; Component 2: National scale capacity building for applying integrated wetland management; Component 3: Demonstration of integrated wetland management; Component 4: Project monitoring, evaluation and outcome dissemination. The overall structure of project components has been retained as in PIF, and the outcomes and expected outputs realigned to ensure consistency. A mapping of changes in project design with respect to the PIF is presented in the Table below:

Summary of Changes in Components, Outcomes and Outputs

Comparison of Components as defined in PRODOC and PIF Project Component		Comparison of Expected Outcomes as defined in PRODOC and PIF		Comparison of Expected Outputs as defined in PRODOC and PIF	
Components (PIF)	Components (PRODOC)	Expected Outcomes (PIF)	Expected Outcomes (PRODOC)	Expected Outputs (PIF)	Expected Outputs (PRODOC)
Component 1: National NPCA Policy support through ES based knowledge systems *(Maintained)*	**Component 1:** National wetland biodiversity and ecosystem services based knowledge systems	1.National wetland PA network expanded through application of guidelines on inventorization and prioritization based wetland ecosystem services and biodiversity *(Refocused to stress on adoption of integrated wetland management)*	**Outcome 1.1:** Increased national scale application of integrated wetland management planning tools and approaches	1.1 Methodology and best practices for multiscalar and hierarchical wetland assessment developed and integrated in national (NPCA) programme based on pilot assessments at 3 sites (Output 1.1A) 1.2 Values of wetland ecosystem services assessed and used in management planning based on application of UNEPs IEA & TEEB, and Corporate Ecosystem Services Review (ESR) methodologies *(Included in Output 3.1A)* 1.3 Best practice guidelines and tools made available to national wetland managers through website(s), forums, audio-visuals, and publications on ES-based wetland assessment, prioritization and monitoring *(to be achieved through Output 1.1A and Output 2.1 C)* 1.4 Links and networks established with national and international wetland data and information systems *(to be achieved through Output 1.2 C)* 1.5 National guidelines on wetland ecosystem services and biodiversity developed and used by the states for prioritization of additional sites or expansion of existing sites under the NPCA and Wetlands of International Importance *(to be achieved through output 1.2 C)*	1.1A Hierarchical wetland BES assessment tool developed, field tested at six sites and wetland managers trained in application 1.1B Climate vulnerability assessment tool developed, field tested in six sites and wetland managers trained in application

[3] For questions A.1 - A.7 in Part II, if there are no changes since PIF and if not specifically requested in the review sheet at PIF stage, then no need to respond, please enter "NA" after the respective question

		2. Management effectiveness of national wetland PA system enhanced through adoption of best practices through the project *(Maintained)*	**Outcome 1.2:** Wetland BES knowledge systems applied to improve management effectiveness of sites of national and international significance	2.1 Management effectiveness tool developed and used by national site managers to assess degree of achievement of conservation outcomes *(Output 1.2 A with focus on Ramsar Sites)* 2.2 Implementation of Wetland (Conservation and Management) Rules, 2010 reviewed and strengthened through using ES based monitoring systems and reporting mechanisms *(to be achieved through Output 4.2 B)* 2.3 Adaptive risk management system and national response policy framework developed and piloted under Comp III in 3 wetland PA sites based on vulnerability assessments *(to be achieved through Output 1.1B)* 2.4 Managers able to apply best-management practices through a program of applied- research grants *(Output 1.2 B)*	1.2A Wetland management effectiveness tool developed and applied to Ramsar sites 1.2B Small grant programme administered to support wetland managers in improving site management effectiveness 1.2C Improved wetland information synthesis and accessibility to support wetland policy and management implementation.
Component 2: Building capacity on mainstreaming integrated wetland management at state level *(Maintained)*	**Component 2:** National scale capacity building for applying integrated wetland management	3. Enhanced institutional capacity and trained human resources for integrated management of wetland biodiversity and ecosystem services *(Maintained with focus on integrated management of wetlands)* 4. Strengthened stakeholder involvement on ES-based wetland management in 3 pilot sites within their lake basins *(Shifted to Component 3)*	**Outcome 2.1:** Enhanced institutional capacity and trained human resources for integrated management of wetlands	3.1 Skills of wetland managers and local stewards developed for formulation of integrated management plans based on assessment and monitoring of ecosystem services and biodiversity *(to be achieved through Output 2.1A and 2.1 B)* 3.2 Capacity of wetland managers developed on linking site management plans with lake basins *(to be achieved through Output 2.1 A and 2.1 B)* 3.3 Policy & decision makers, as well as key government and private sectors are able to use built capacity to integrate wetland ecosystem services and biodiversity into sectoral planning and decision making *(to be achieved through Output 4.2 A and 4.2 B)* 4.1 State and site level stakeholder communications, education and participation programs in ES-based wetland management developed and used for building partnership and synergy *(Output 2.1 C)* 4.2 Awareness raising on role of industries, infrastructure, agriculture and other key development sectors in maintaining wetland ecosystem health *(Output 2.1C)* 4.3 Established learning networks for capacity building and feedback into state government policy and wetland site management *(Output 2.1 B)*	2.1A Modules for integrated management of wetlands developed and implemented for training wetland managers 2.1B Communities of Practice established for sharing best practices and lessons learnt on wetland management developed for wetland managers 2.1C National Communication and Outreach Strategy developed and supported by the establishment of a web-portal, outreach material and events.

Component 3: Piloting integrated wetland management and restoration for national upscaling *(Maintained)*	**Component 3:** Demonstration of integrated wetland management	5. Enhanced management effectiveness in 3 protected wetlands applied and best practices integrated at national scale	**Outcome 3.1:** Integrated wetland management applied in three protected wetlands	5.1 Ecological and economic role of wetland biodiversity & ecosystem services in food and water security agreed with stakeholder for 3 sites within their lake basins, based on assessed scenarios for economic development trends, resource needs and landscape-wide wetland changes *(Included in Output 3.1 A)* 5.2 Integrated management plans with clearly defined implementation arrangements for cross sectoral coordination , agreed by multi-stakeholders designed and implemented for 3 wetland sites, including pilots on buffer zones, resource utilisation and wetland restoration *(Included in Output 3.1 B)* 5.3 Conservation of the 3 wetland sites and lake-basins sustained through formalised cross-sectoral & co-management agreements, including business plans for sustained financing at State level. *(Output 3.1 A and 3.1 B)* 5.4 Reduced impact to the wetland PAs and strengthened community stewardship in wetland management through small grant investments in Community Conservation Agreements and adaptive/alternative resources utilization *(Included in Output 3.1 D)* 5.5 Public- private partnership on wetland restoration, biodiversity conservation, water management, and pollution control programs scoped for implementation in 3 lake basins *(Output 3.1 C)* 5.6 Best practices for integrated wetland management developed and disseminated for use of wetland managers under the NPCA (Comp I) *(Included in Output 4.2 A)*	3.1A Baseline assessment and evaluation of biodiversity and ecosystem services values carried out for three pilot sites 3.1B Cross-sectoral institutional arrangements for integrated management enabled for three pilot sites. 3.1C Potential private sector partnerships identified at three pilot sites and actively engaged in integrated management. 3.1D Implementation of management plan reviewed and adapted periodically to address site and landscape scale drivers and pressures
Component 4: Project monitoring and evaluation and dissemination of best practices *(Maintained)*	**Component 4:** Project monitoring, evaluation and outcome dissemination *(Maintained)*	6. Project impact and performance measured	**Outcome 4.1:** Project impacts and performance are measured	6.1 Project monitoring and reporting systems established, including on capacity building through the GEF scorecard *(output 4.1 A)* 6.2 Site and lake basin monitoring implemented - assessing PA management effectiveness, maintenance and restoration of wetland ecosystem and biodiversity *(Output 4.1B)* 6.3 Project best practice guidelines on ES-based wetland management disseminated for national replication *(Output 4.2A)*	4.1A Project monitoring and reporting systems established 4.1B Site and wetland catchment scale monitoring implemented assessing management effectiveness and outcomes for BES values

			Outcome 4.2 Evidence base on benefits of BES based-wetland management established *(Added to address upscaling of best practices within national wetland network)*		4.2A Project best practices guidelines on ES based wetland management disseminated for national scale replication 4.2B Increased use of BES based monitoring systems to assess maintenance and restoration of wetland ecological character, and enhanced livelihoods for wetland dependent communities *(Added to improve effectiveness of monitoring systems within national network)*

A.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NBSAPs, national communications, TNAs, NCSA, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.

The FSP complements the MoEFCC, GoI's national flagship programme for wetland conservation and sustainable management, the National Plan for Conservation of Aquatic Ecosystems (NPCA). In addition to this, the project would support implementation of the following key national strategies and plans: National Environment Policy (2006), National Water Policy (2012), National Biodiversity Action Plan (2008), National Biodiversity Action Plan (2008) and Biodiversity Targets (2014) and National Climate Action Plan (2008).

Conservation of wetlands has been identified as a high priority area under the National Environment Policy by recognizing their biodiversity and ecosystem services as "entities of incomparable value" and recommending integration into river basin management and sectoral development plans for poverty alleviation and livelihood improvement. The MoEFCC has identified conservation and sustainable use of wetlands as one of the key areas under natural resources management, reflected in the investment put forth under the NPCA. The National Biodiversity Action Plan identifies wetlands as key components of biodiversity and thereby seeks their integrated management as one of the key pathways for achieving national biodiversity conservation objectives. In line with the CBD Strategic Plan 2011-2020, India has formulated 12 National Biodiversity Targets. IMWBES will directly contribute towards Target 3 (Strategies for reducing rate of degradation, fragmentation and loss of natural habitats are finalized and actions put in place by 2020), Target 6 (ecologically representative areas on land and in inland waters, as well as coastal and marine zones, especially those of particular importance for species, biodiversity and ecosystem services, are conserved effectively and equitably), and Target 8 (by 2020, ecosystem services, especially those related to water, human health and livelihoods and well-being are enumerated and measures to safeguard them are identified).

The National Climate Action Plan identifies Conservation of Wetlands as a component of the National Water Mission, which is one of the 8 missions identified by the government as a response strategy to climate change mitigation and adaptation.

The FSP project also complements the results framework of the 'United Nations Development Action Framework for India 2013-2017', which has the following relevant outcomes:

- Outcome 2: Food and Nutrition Security - the goal is to concentrate more on animal husbandry and fisheries. Since land and water are the critical constraints, technology would focus on land productivity and water use efficiency. The FSP does align with this through targeted support for wetland-based agriculture, improved water management and security for wetland dependent agriculture and communities, as well as incorporating resilience to CC in river basin management planning.
- Outcome 5: Governance Systems are more inclusive, accountable, decentralized and programme implementation more effective for the realization of rights of marginalized groups, especially women and children. The FSP does align with this through facilitating multi-disciplinary and multi-stakeholder processes on wetland management at state and district level.
- Outcome 6: Sustainable Development - government, industry and other relevant stakeholders actively promote more environmentally sustainable development, and resilience of communities is enhanced in the face of challenges of Climate Change, Disaster Risk and natural resource depletion. Specifically, Output 6.3 'community-based institutions are better able to value the ecosystem goods and services for sustainable ecosystem management'. The FSP does align with this by

adopting a ecosystem-services and economics approach to wetland management and decisions making – including through applied science as well as multi-stakeholder processes.

A.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities.

The project design is consistent with FA objectives 1 and 2 of the GEF-5 Biodiversity Results Framework. Strengthening integrated management of wetlands within the country would contribute to BD FA goal of conservation and sustainable use of their biodiversity and maintenance of ecosystem services. Ecosystem services based knowledgebase and decision support systems, formulation and implementation of management plans that enable cross-sectoral governance incorporating inter-linkages between local economic development and maintaining the health of wetland network, as well as building the capacity of wetland managers for upscaling at national level will improve management effectiveness of existing and new protected areas (Outcome 1.1). Supporting incorporation of the value and contribution of wetland ecosystem services to various sectoral programmes related to water management, agriculture, and rural development within the context of river basins and highlighting the upstream – downstream linkages would promote mainstreaming of wetland biodiversity and ecosystem services into landscapes and sectors thereby supporting BD Outcome 2.1 (increase in sustainably managed landscapes that integrate biodiversity conservation) of the FA strategy.

A.3. The GEF Agency's comparative advantage.

UNEP has extensive program and staff experience in wetland water resources management and biodiversity conservation, monitoring of wetland biodiversity and its connectivity along national and/or transboundary networks of wetland sites, participatory management approaches, and wetland restoration in recently concluded projects such as the Siberian Carne Wetland Project (China, Russian Federation, Iran and Kazakhstan), the Africa-Eurasian Wetlands Project (or Wings over Wetlands project), the Peatland, Biodiversity and Climate project (SE Asia), restoration and water resources management of Lake Faguibine in Mali, Kenya's Mau Forest complex, and many others. Recent work and publications as "Dead Planet, Living Planet: Biodiversity and Ecosystem Restoration for Sustainable Development (2010)' as well as 'Estimated Costs and Benefits of Restoration Projects in Different Biomes (2012) is further proof of UNEP comparative advantage to this field of work. UNEP has a large portfolio in India of GEF funded Agro-biodiversity projects, most of which have on the ground participatory management pilots, national monitoring components, as well as science-to-policy work to mainstream biodiversity conservation in state and national government policies – which is the core approach of the proposed project.

UNEP has a considerable portfolio in the field of ecosystem services, valuation, incorporation on policy and strategies, as well as capacity building in applicable tools such as Invest, TEEB Integrated Ecosystems Analysis, and related works. UNEPs work under the TEEB program, as well as its recent adoption of the global Green Economy Initiative gives it a definite advantage on making the case, building the capacity, as well as develop local sector specific policy and management models to enhance protection of wetland goods and services, strengthened local economies, as well as protected globally significant biodiversity.

UNEP has extensive experience, expertise and a track-record in planning for and setting up PA networks, supporting PA management effectiveness, and monitoring BD indicators and targets of PA networks. It has a portfolio of at least 34 ongoing and completed projects in these fields over the last 8 years, and its staff team available includes experienced resource economists, conservation specialists, field ecologists, social sciences and ABS staff, applied science & monitoring specialists, public communications staff, law enforcement and governance experts, and specialist on institutional development, many with over 20 years professional experience in these fields. UNEP/GEF projects, including on national and regional PA management programs benefit from its extensive partnership network through agencies such as WCMC, IUCN, WI, WWF, WCS, universities, ASEAN Center for Biodiversity, CIFOR, CABI, Interpol, TRAFFIC, UNODC, and many other CBD Partners delivering on the Programme of Work on Protected Areas, and the Lifeweb Initiative.

This proposed project is in line with UNEP's role in the GEF to catalyze the development of scientific and technical analysis and advancing environmental management in GEF-financed activities. In particular, the project further complements UNEP's aim to promote specific methodologies and tools that could be replicated on a larger scale by other partners (such e.g. the case in mainstreaming the TEEB and Green Economy approaches in natural resources management, PAS support, and poverty alleviation programs). The LTSA (Wetlands International South Asia) will bring on board in-country and global experience on integrated wetland management, climate vulnerability assessment and capacity building of wetland managers.

A.4. The baseline project and the problem that it seeks to address:

The IMWBES project complements the baseline project - NPCA (National Plan for Conservation of Aquatic Ecosystems). NPCA envisages stemming the continued loss and degradation of wetlands in the country by promoting a cross-sectoral policy, planning and decision making environment for wetland conservation and sustainable management. The PPG has strengthened the analysis of available information on status and trends on wetland biodiversity and ecosystem services, threats, barriers and root causes, and indicated the following gaps that limit the effectiveness of investment in wetland conservation in India:

Sectoral approaches. The full range of ecosystem services and biological diversity values of aquatic ecosystems are rarely integrated in sectoral developmental programming, impeding their ecological and hydrological functioning of aquatic ecosystems and increasing the potential for stakeholder conflicts. In several circumstances, interventions for increasing food production and water supply (eg through construction of hydraulic structures and expansion of irrigated area) have reduced the capacity of aquatic ecosystems to recharge groundwater and buffer floods. In most states, wetlands are not recognized as a land use category and often grouped into 'wastelands' meant to be used for alternate developmental purposes.

Adhoc approach to implementation of management plans. Where they exist, management plans for wetlands are mostly formulated, financed and implemented on annual cycles, and in several circumstances not based on comprehensive landscape scale management plans. Most of the plans are therefore prescriptive by nature, and do not address the root causes of degradation (for example fragmentation in hydrological regimes or pollution). Post-project sustainability strategies are also not worked out. Very few SGs have included budget allocations for wetlands, and where they have been included it is mostly for establishment expenses and not for supporting restoration activities. Similarly, though NLCP was implemented on a cost sharing basis, the allocation made by most states is marginal.

Ineffective governance mechanisms. Implementing restoration plans for aquatic ecosystems requires cross sectoral institutional arrangements. This was envisaged to be achieved through creation of dedicated authorities responsible for developing management plans, site monitoring and evaluation and implementation through line departments. However, only a few states have been able to designate distinct authorities. Further, in very few circumstances, the designated authorities have any form of regulatory backing.

Insufficient capacity for integrated management. Review of management plans submitted to the Ministry indicates lack of capacity in formulation of management plans addressing the full range drivers of ecosystem degradation. Equally significant is lack of training and capacity building opportunities for site managers.

Limited research management interface. Management of wetlands requires continuous research inputs to be able to address the diverse drivers of change. However, this has failed to happen for most sites. Much of the research is focused on structural elements of aquatic ecosystems (limnology, biodiversity) with very limited emphasis on functional aspects as ecosystem services and community livelihoods. Of specific concern is the limited availability of tools for wetland managers to assist in development of response strategies for changing climate.

An analysis of drivers and pressures on wetlands indicate the need to transform the national programmatic approach, and bring in specific focus on the role of wetlands in societal development, as against conservation triggered by biodiversity arguments alone. The NPCA design presents a fundamental shift in the programmatic approach for wetland conservation in the country. The programme mandates a shift from sectoral approaches adopted for management of wetlands towards mainstreaming of wetland ecosystem services and biodiversity values within state level developmental programming. The implementation strategy recommends dovetailing management plans with existing conservation and development sector investments, while ensuring that adequate regulatory regimes are put in place to ensure that wetlands are not converted for alternate uses and their ecological integrity maintained. The programme also promotes adoption of diagnostic and holistic approach for defining management and regulation needs in line with individual site biophysical and socio-political characteristics.

For NPCA investment to translate into better ecological state of wetlands underpinning maintenance of biodiversity and ecosystem services values, a range of knowledge, capacity and institutional barriers would need to be addressed, so as to develop an enabling environment for proactive and strategic participation of SGs. The IMWBES project, responds to these barriers in the following manner so as to improve management effectiveness of the network of wetlands of international and national significance, enabling delivery of global benefits from the network.

Barriers		**Project response (linked with results framework)**
Knowledge	Prioritization of sites for management not based on systematic evaluation of ecosystem services and biodiversity values.	Hierarchical assessment tool developed and piloted to enable consideration of wetland ecosystem services and biodiversity values in site prioritization and development of management plans. (Outcome 1.1)
	Integrated management planning approaches are not applied to address drivers and pressures emerging from developmental programming in the wider landscape.	Capacity building and outreach interventions targeted at national wetland managers to promote application of integrated wetland management approaches. (Outcome 2.1)
	Management planning approaches are insufficient to address vulnerabilities induced by climate change.	Climate vulnerability assessment tool developed and piloted to enable inclusion of response strategies in design and implementation of management plans (Outcome 1.1)
	Limited dissemination and use of available guidance and best practices for integrated	Access to international and national guidance, best practices and lessons on integrated management of wetlands to wetland managers (Outcome 1.1, 1.2,2.1 and 4.1)

	management of wetlands	
Capacity	Limited capacity within SGs for formulation and implementation of integrated management plans Absence of learning platform(s) and network(s) to foster sharing of best practices and lessons learnt Weak outreach on societal benefits linked with wetlands, resulting in limited stakeholder participation in management No national capacity building and outreach strategy in place to support integrated management of wetlands of national and international significance	Modules, exchange visits, demonstration and applied small grants facility support capacity building of wetland managers for integrated management. (Outcome 2.1 and 3.1) Learning networks for sharing best practices and lessons learnt on wetland management established. (Outcome 2.1) National communication and outreach strategy, bi-lingual website, multi-lingual outreach materials and events enable stakeholder outreach. (Outcome 2.1)
Institutional	Limited efforts in creating mechanisms for cross sectoral management of wetlands Adhoc site management plans which do not systematically address drivers of degradation Weak monitoring and evaluation mechanisms which limit the ability of MOEFCC and SGs to assess impact of management and communicating outcomes to stakeholders Limited private sector participation in wetland conservation and wise use	National guidance and outreach support on mainstreaming wetlands in developmental programming. (Outcome 1.2) Management effectiveness tool developed and applied in Ramsar Sites to guide integrated management. (Outcome 1.2) Cross sectoral governance mechanisms enabled in three pilot sites for integrated management, and results disseminated for national replication and upscaling. (Outcome 3.1) Financing arrangements for management plans for three pilot sites demonstrate funding convergence from public-private sources. (Outcome 3.1)

A. 5. Incremental / Additional cost reasoning: describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

The MoEFCC accords high priority to wetland conservation, and has instituted a dedicated scheme (NPCA) to support SGs in designing and implementing integrated management plans. A set of priority wetlands have been identified for the said purpose. A review of programme implementation during the last three and half decades, and regional and global experiences elsewhere highlight the need for mainstreaming wetland ecosystem services and biodiversity values within developmental programming. Programme guidelines have therefore been revised to that effect, with a greater emphasis placed on constitution of cross-sectoral governance arrangements (in the form of wetland management authorities with states) and application of diagnostic approaches for formulation of management plans.

Achieving the broader objective of mainstreaming wetlands in developmental programming requires complementary GEF and co-financing support to the state governments to be able to prioritize sites with due consideration of ecosystem services and biodiversity values in the context of wider developmental programing, build capacity for integrated management, and put in place procedures to assessment effectiveness of site management. Management of Ramsar Sites, for which a commitment exists for wise use, needs to be given urgent priority. There is also a need to develop enabling policy frameworks which will promote stewardship of wetlands within the concerned SGs, as key societal assets. The IMWBES project therefore enables a complementary investment to the existing NPCA to address specific knowledge, capacity and institutional barriers within states, which constrain management effectiveness. Improved management effectiveness will enable the national wetland network to deliver several global biodiversity and ecosystem services benefits, ultimately contributing to GEF Biodiversity Focal Area objectives of: a) improving sustainability of protected area systems; b) mainstreaming biodiversity conservation in production landscapes and sectors; and c) integrate CBD obligations into national planning processes through enabling activities. A summary of incremental global and national benefits is presented below (reproduced from section 3.7 of the ProDoc):

Benefits	Baseline	Alternative	Increment
Global benefits	Wetland loss and degradation is progressing at a rate that is greater than for any other ecosystem. Both direct and indirect impacts on	Conservation and effective management of wetlands of national and international importance supports delivery of international	Enhanced knowledge and institutional capacities for the effective management of wetlands of international importance.

	wetland ecosystems are not only degrading global biodiversity, and especially rare and threatened species that as residents or migrants depend on these habitats, but the long-term well-being of human society is also under threat.	biodiversity objectives, ensures the delivery of the wise use wetlands as required under the Ramsar Convention, improves the status of threatened migratory species along the Central Asia and East Asian-Australasian Flyways and secures the flow of transboundary ecosystem services benefits.	Delivery of global wetland nature conservation objectives and the wise use of wetlands, especially with regard to migratory species. Flows of transboundary ecosystem services are recognized within regional policy fora and secured for the benefit of future generations.
National, state and local benefits	Limited implementation of the NPCA and regulation of the Wetlands (Conservation and Management) Rules, 2010 are failing to stem conversion of wetlands for non-wetland uses and weakly regulate development pressures on notified wetlands. There is limited funding and capacity within state governments to develop integrated management plans and integrate wetland ecosystem services and biodiversity values in developmental programming. There are limited diagnostic assessments of the pressures on wetland biodiversity and ecosystem services. There is no system in place to track effectiveness of application of human and financial resources in site management and limited exchange and application of best practices and lessons learnt for integrated management of wetlands. Limited mechanisms exist to track progress on meeting India's international commitments related to wetlands	Improved conservation status of wetlands of national and international significance through enhanced management effectiveness, improvements in understanding of the landscape scale pressures on wetlands and strengthening of management partnerships. Strengthened implementation of Wetland Rules and clear enforcement and monitoring mechanisms Enhanced capacity within SGs to formulate and implement integrated wetland management and the establishment of functioning learning and experience sharing networks to promote application of evolving tools and best practices in wetland management. Improved inter-sectoral decision making for wetlands of national and international significance. Improved capability of tracking compliance to national commitments related to wetlands under MEAs.	The benefits which flow from wetland ecosystem services are better understood and integrated into effective management practices. Policies and regulations are clarified and enforced to ensure that effective wetland management delivers biodiversity and ecosystem service benefits. Increased cross-sectoral knowledge and capacity underpins successful integrated wetland management which will benefit human society and improve water and food security. National obligations under MEAs are more clearly and robustly fulfilled.

The IMWBES project will demonstrate application of integrated management approaches at three sites to enable replication and national upscaling. Each of these sites provide vital ecosystem services and biodiversity values underpinning local and regional food and water security. Lack of consideration of these values in regional developmental programming has been detrimental to wetland functioning, constraining delivery of ecosystem services on a long term basis. Through implementation of pilots, the project intends to showcase pathways for mainstreaming wetland ecosystem services in developmental programming.

In line with the objectives of baseline project and gap analysis conducted for the project design, the selected sites conform to the following criteria: a) Identified as priority by state governments through inclusion in the list of NWCP, b) Sites provide distinct developmental benefits, c) Commitment of SGs to support integrated management (as evidenced through a management planning process set in motion during or prior to IMWBES project formulation), and d) Global Environment Benefits.

A summary of key Global Environment Benefits to be achieved through management of the selected sites, baseline initiatives and proposed coordination mechanism for integrated management is presented in Table below (Detailed information is contained in Baseline analysis for the three sites at Appendix 16).

Baseline analysis for the three pilot sites

	Pilot Site 1. Sasthamcotta Lake, Kerala	Pilot Site 2. Kanwar Jheel, Bihar	Pilot Site 3. Harike Lake, Punjab

Global Environment Benefit expected from integrated management	Forms a part of the Global Network of Ramsar Sites Supports breeding ground of 3 fish species of high conservation significance	IBA Site (5 critically endangered, 3 endangered, 5 vulnerable, and 14 near threatened bird species and 2 near threatened fish species.	Forms a part of the Global Network of Ramsar Sites IBA Site and is a habitat for 2 critically endangered, 1 endangered, 7 vulnerable, and 8 near threatened bird species; 1 vulnerable otter species
Baseline	Designated as a Ramsar Site in 2002 Gradually evolving towards marshy conditions, impacting its ability to act as freshwater source and support biodiversity habitats High risks of adverse change in ecological character due to increasing urbanization within catchments, and increased water abstraction Kerala Conservation of Paddyland and Wetland Act, 2008 promulgated to provide the regulatory framework for wetlands, however, implementation has been limited. No integrated management plan in place	Designated as a Wildlife Sanctuary in 1987 in order to control illegal waterbird hunting. Inundation regime shrinking due to changes in land use and fragmentation of hydrological regimes Significant livelihood stress and resource use conflicts due to rapid decline in capture fisheries An integrated management planning framework for the site has been drafted in 2014 and under review by the state government State Wetland Authority constituted in January 2015 as nodal agency for management of wetland resources of the state.	Designated as a Ramsar Site in 1990 and a bird sanctuary in 1992 Siltation, infestation by invasive macrophytes and pollution impede wetland functioning. Limited conservation measures undertaken for improving vegetative cover in the catchments, promoting organic agriculture in peripheral areas and control of invasives Site management plan under development
Incremental change to be targeted through IMWBES project	Institutional mechanisms for integrated management established Minimum inundation maintained at 80% of wetland area Stakeholder led water management plan balancing human needs with wetland functioning requirements implemented Communities living in 4 Panchayats benefit from wetland resources and gain tangible incentives for adopting sustainable livelihood practices Integrated wetland inventory, assessment and monitoring system established Management plan adaptation is supported by periodic management effectiveness assessment	Institutional mechanisms for integrated management established Inundation regimes restored to cover entire wetland area Improvement in fisheries benefits livelihoods of 15000 fisher households Waterbird habitats enhanced and migratory pathways between river-floodplains established Integrated wetland inventory, assessment and monitoring system established Management plan adaptation is supported by periodic management effectiveness assessment	Institutional mechanisms for integrated management established Area under aquatic invasives restricted to 10% of open water surface 10,000 households living around wetland benefit from community managed ecotourism and livelihood diversification opportunities Integrated wetland inventory, assessment and monitoring system established Management plan adaptation is supported by periodic management effectiveness assessment
Coordination mechanism for implementation of pilot projects	Assessments and finalization of management plan by CWRDM which will support constitution of State Wetland Authority as overall responsible for management plan implementation	Finalization of management plan by Forest Department, implantation to be coordinated through Bihar Wetland Development Authority	Assessments and finalization of management plan by PSCST which will support constitution of State Wetland Authority as overall responsible for management plan implementation

A.6 Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:

The overall risk to achieve the project objective is likely to be moderate. The project and its design build on the experience of implementation of wetland management programmes for over three and half decades, and address some of the key constraints that limit integrated management of these ecosystems. Selection of pilots have been done with due consideration to the demonstrated efforts placed for conservation and integrated management, reorganization of institutional arrangements to enable cross-sectoral participation, and agreement to broad terms and conditions of the baseline project. A summary of the potential risks to project implementation and measures to address these are set out in the following table. Risks will be identified, categorised and tracked throughout the project. Potential impacts and necessary management strategies will be updated and modified if the status of any risks changes.

Risk Assessment and Management Measures

Project Stakeholder Risks	**Rating: Moderate**
Wetland management in India has been largely dealt with as a conservation issue. The focus on mainstreaming wetland ecosystem services and biodiversity values is a relatively recent emphasis, and can lead to delayed uptake of the project in the initial stages.	***Risk management measures:*** In the initial stages, the project would seek to work with select states having significant wetlands, demonstrated intent for according policy significance to wetland management through their engagement with erstwhile NWCP and NLCP, and policy interventions underway for creation of State Wetland Authorities for cross sectoral management. The project would focus on creating a demonstration effect by proactively targeting capacity building and knowledge interventions to network the remaining states into the national programme. Within the three demonstration sites, the project will seek participation of all sectors influencing wetland functioning and benefitting from wetland ecosystem services. The project would also focus on highlighting and bringing to fore the economic benefits of integrated approaches and ways of achieving a common institutional design in the context of wetland management. The project would also build capacity of wetland managers to engage across sectors, work at river- and landscape level, including equipping them with relevant assessment and communication tools.
Operating Environment Risks	**Rating: Low**
National government's priority for wetland conservation and integrated management reduces over a period of time.	***Risk management measures:*** The government, through its various policy documents and programmes, as well as being a signatory to the Ramsar Convention, has expressed the need to strengthen conservation and integrated management of wetlands. An important value add of the project would be enhanced communication and outreach on wetland ecosystem services, especially in the context of water, food and climate security, which will serve to embellish the existing policy support for wetlands.
Implementing Agency Risks	**Rating: Moderate**
Limited staff strength of the national implementing agency (MoEFCC) to provide technical assistance and hand holding support to the states on various aspects of project implementation. Limited capacity in the states to ensure integrated management plans for identified pilot sites.	***Risk management measures:*** Adequate provision for engagement of experts, communication and capacity building has been made under the project, which will enable hand-holding support to various partners. Wetland managers will stand to directly benefit from the capacity building and knowledge related interventions. In all the three sites, efforts are underway to create wetland authorities, with clear definition of roles and responsibilities, particularly inter-agency coordination and cooperation.
Project Risks	**Rating: Moderate**
Design: Commitment at state levels to maintain and enhance focus on wetland conservation is not sufficient	***Risk management measures:*** The national government has a very proactive approach to maintaining environmental sustainability within its policies and programmes with wetlands placed at high priority, however enactment at local government level remains to be improved. The project would seek to support this momentum and enable state level delivery by establishing multi-stakeholder consultation bodies and decision support mechanisms, strengthening stakeholder commitment by awareness and capacity building, supported by providing policy relevant knowledge on the economic role of wetlands in local developmental planning and other emerging issues, provide solutions to how best mitigate the impacts on wetlands due to development projects and ensure liaison with policy makers at national, state and district levels on issues related to wetlands.
Social and environmental: The stakes and related conflicts on	***Risk management measures:*** The project includes investment in science-based assessments, communication, education and awareness raising and consensus building, multi-stakeholder

wetland resources such as e.g. access to land and water resources are too high to be solved in the timeframe of the project.	approaches and conflict management, to showcase that investment in natural capital as water and wetlands is crucial to economic development. The project would specifically invest into opportunities wherein communities can have tangible livelihood benefits through sustained flow of ecosystem services and conservation of biodiversity values. Support of local political leadership will be sought to promote conservation and wise use of wetlands.
Climate related risks: Linkages of wetlands with climate change adaptation is yet to be accorded the required priority at national level, and may hamper interest and participation in climate assessment tool development and application.	IMWBES will highlight the role of wetlands in climate change adaptation specifically in the context of food and water security The project would serve to build baseline information and provide practical demonstration on the ways wetlands, biodiversity conservation and water management can contribute to climate change adaptation. The project would seek more emphasis on the role of wetlands in State Climate Action Plans and National Policy on Climate Change .
Program and Donor: The GEF-India Wetlands Project is a small project financed by GEF-TF and NPCA is the baseline project. Implementation of site management plans will require raising of resources from various national and state level development schemes as well as through private sources. Issues with engagement and coordination of the various national and state level, public and private sector actors, timely release of funds, terms and conditions associated with funds, and other factors may risk smooth implementation of the project.	***Risk management measures:*** Identification of funding sources will be one of the key outcomes of management planning process, and will be included in the Project Implementation Plan. Key readiness criteria that have been used to identify pilot sites include commitment of state governments to site management, ongoing processes to constitute state wetland authorities, and acceptability of the NPCA norms.
Delivery monitoring and sustainability: Uneven progress across various components and sites.	***Risk management measures*** Addressing this risk will be built explicitly into the monitoring and evaluation strategy, determining roles and responsibilities for all actors and identifying potential bottlenecks and solutions.

A.7. Coordination with other relevant GEF financed initiatives:

IMWBES will ensure effective linkages with the following ongoing GEF projects being implemented by the MoEFCC in order to benefit from concepts, approaches and lessons relevant to improving management effectiveness of wetlands.

- Biodiversity Conservation and Rural Livelihoods Improvement (GEF-IDA Blend project: GEF Agency: World Bank) aimed at conserving Biodiversity in selected landscapes, including wildlife protected areas/critical conservation areas while improving rural livelihoods through participatory approaches.
- Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the Godavari River Estuary in Andhra Pradesh State (GEF Agency: UNDP)
- Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the Malvan Coast, Maharashtra State (GEF Agency: UNDP)

Additional linkages and synergies with other non-GEF projects as well as the India UNDAF are described in 2.7 of the ProDoc.

B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:

B.1 Describe how the stakeholders will be engaged in project implementation.

Stakeholder participation – specifically within states and site levels, is one of the core elements of the IMWBES Project. The objective of mainstreaming wetlands within developmental programming is predicated on the extent to which wetland ecosystem services and biodiversity values are recognized by different actors and stakeholders, and integrated in sectoral action plans within states. A participatory approach to activities is built in all stages of the project cycle, including monitoring and evaluation, and will be refined during the inception phase. A variety of institutions, stakeholders and partners have been identified to facilitate the various activities during the GEF project's implementation phase. Table 1 (reproduced from the ProDoc) contains an overview of range of international, national, state and site level stakeholders, their likely benefit from IMWBES, and engagement strategy.

Successful participation requires transparency and full and fair access to information. The project, as part of component 2, will devise a communication strategy to ensure that the flow of information is continuous and targeted to the selected audiences. Several mechanisms will be put in place through the project to ensure that all stakeholders are informed about activities and overall advances and progress in implementation. These mechanisms will be targeted at different stakeholder groups taking into account their unique requirements.

The project will take complete advantage of the national, state and site level policy driven participatory structures constituted under the aegis of NWCP, NLCP and related programmes of the MoEFCC. The project will provide a platform to the MoEFCC to engage with and benefit from the knowledge and networks available with the MEAs related to wetlands and international networks. Conventions will also stand to benefit from an improved reporting on international commitments and application of guidance for improved management of wetlands of national and international significance. The project will also establish twinning arrangements with select institutions and networks (eg. Ramsar Center for East Asia, South Korea; Centre for Ecology and Hydrology, UK; Institute of Land, Water and Society, Charles Sturt University, Australia) to support exchange of knowledge and best practices for wetland management. At national scale, the project will work with state governments for constitution of state wetland authorities as nodal policy and inter-agency coordination agencies. Within NPCA, the MoEFCC has been advising the SGs regarding constitution of state wetland authorities as nodal state level policy making and cross sectoral institutional coordination arrangements. IMWBES will proactively engage with these institutions to promote recognition of wetland ecosystem services and biodiversity values. The project will also engage with NGOs and CSOs which support Ministry and state governments in integrated management of wetlands. The delivery mechanisms of the project will engage a range of stakeholders at the international, national and state levels to promote cross sectoral arrangements for wetland management.

Stakeholder engagment in project implementation

Project stakeholders	Benefit from IMWBES Project	Engagement and Coordination Mechanism
International		
International Conventions Secretariat of Convention on Biological Diversity Secretariat of Ramsar Convention Convention on Migratory Species	• Improved information base on status and management needs for Ramsar Sites • Improved reporting on international commitments related to wetlands • Enhanced application of wise use principles	• Communication through reports • Invitation to participate in best practices and lessons learnt seminars • Engagement with science panels of the MEAs (eg. Scientific and Technical Review Panel of the Ramsar Convention) on guidance and best practices for integrated management of national wetland network • Co-branding of outreach material • Possible co-financing for outreach and knowledge systems related activities
International wetland related networks Ramsar Regional Centers, Wetlands Link International, Wetlands International Specialist Groups, IUCN Commissions	• IMWBES will serve as a platform for exchange of tools, methodologies and best practices on integrated wetland management	• Invitation to workshops • Opportunities for contributing to the training modules and tools • Exchange and twinning programmes to facilitate sharing of knowledge and best practices (for example to Ramsar Regional Center for East Asia)
National		
Ministry of Environment and Forests (MoEFCC)	• Effective application of NPCA mandate of mainstreaming wetland biodiversity and ecosystem services in developmental planning. • Management effectiveness assessment mechanisms to guide allocation of resources to various sites • Expansion of ambit of NPCA through sites prioritized on biodiversity and ecosystem service values in relationship with developmental programming • Improved information system and management for Ramsar Sites	• National Executing Agency • IWMBES will provide the requisite knowledge and capacity tools to enable engagement with other central government ministries responsible for sectoral policies related to water and food security and climate change adaptation. • IWMBES project will provide a platform for Ministry to support capacity building of respective state governments on integrated wetland management • IWMBES project will provide a national platform for SGs to exchange priorty issues

Project stakeholders	Benefit from IMWBES Project	Engagement and Coordination Mechanism
	• Improved reporting mechanisms on international commitments related to wetlands within MEAs	and policy directions to be considered in shaping up and implementation of NPCA
Central Government Ministries having programmes related to wetlands (MoWRRD, MoA, MoUD)	• Information systems related to wetland biodiversity and ecosystem services • Availability of best practices and lessons related to integration of wetland biodiversity and ecosystem services in sectoral planning	• Engagement in policy dialogue (through policy briefs and thematic seminars) related to development of draft national wetland policy, and national wetland CEPA strategy • Proactive outreach of methods, best practices and lessons leant through project implementation • Develop and proactive dissemination of sectoral policy briefs for integrating wetland BES values in design and implementation of sectoral develop plans • Invitation to nominate participants to capacity building and outreach workshops • Representation in NPSC • Sharing of reports and findings through the NEA
Capacity building, research and training centers Wildlife Institute of India, Central Inland Fisheries Research Institute, Zoological Survey of India, Botanical Survey of India, Universities as IIT – Roorkee, Delhi University, JNU and others WRTC, Odisha; IWMED, West Bengal; SACON, Tamil Nadu; NIH, Roorkee; GEER Foundation, Gujarat	• Capacity building toolkit for integrated management of wetlands • Communication and outreach products on wetland biodiversity and ecosystem services • Strengthened capacity to train wetland managers and stakeholders in wetland management • Availability of datasets and knowledge products to support setting conservation and development priorities	• Involvement in development of integrated wetland management training modules • Involvement in development and delivery of various toolkits and assessment of best practices • Lead delivery of training courses • Function as outreach centers on wetlands • Sharing of reports, findings and project outcomes through PMU
International organizations, INGOs and NGOs with wetland related work programmes BoBP-IGO, Wetlands International South Asia, IUCN-India, BNHS, WWF-India, MSSRF	• Toolkit and best practices for inventory and assessment of wetland ecosystem services and biodiversity values	• Engagement in development of capacity building module • Engagement in development of toolkits on wetland biodiversity and ecosystem services inventory and assessment, climate vulnerability assessment • Participation in training programmes • Dissemination of toolkits, best practices and lesson learnt • Participation in learning networks • Support for organizing outreach events • Sharing of reports, findings and project outcomes through PMU
State level		
Nodal agencies responsible for conservation and management of Ramsar Sites and wetlands of national significance	• Guidance for establishment for State Wetland Authorities (in states where yet to be constituted) for cross sectoral coordination on wetland management • Toolkit and best practices for inventory and	• Regular exchange between state government agencies and ministry on wetland management, enabled through seminars and workshops • Engagement in development of capacity

Project stakeholders	Benefit from IMWBES Project	Engagement and Coordination Mechanism
	assessment of wetland ecosystem services and biodiversity values • Assessed management effectiveness to support improved management of national wetland network • Information on status and trends in wetland ecological character available for Ramsar Site • Technical and financial resources for updation of RIS and site management plans for Ramsar sites • Technical and financial resources (to select states) for systematic prioritization of wetlands considering full range of BES values • Built capacity for integrated management of wetlands in the state	building module • Engagement in development of toolkits on wetland biodiversity and ecosystem services inventory and assessment, climate vulnerability assessment • Participation in training programmes • Dissemination and support for application of toolkits, best practices and lesson learnt to improve wetland management • Participation in learning networks • Support for organizing outreach events • Support for applying inventory and assessment tools and integrated management planning through Small Grants Facility • Technical support and guidance to SGs for systematic prioritization of wetlands considering full range of BES values • Financial support to (select 6 states) for systematic prioritization of wetlands considering full range of BES values • Sharing of reports, findings and project outcomes through PMU
State Wetland Authorities	• Guidance on systematic prioritization of wetlands considering wetland biodiversity and ecosystem service values within developmental planning • Built capacity for integrated management of wetlands • Best practices and lessons learnt for integrated management of wetlands	• Engagement in development of capacity building module • Engagement in development of toolkits on wetland biodiversity and ecosystem services inventory and assessment, climate vulnerability assessment • Participation in training programmes • Dissemination of toolkits, best practices and lesson learnt • Participation in learning networks • Support for organizing outreach events • Support for applying inventory and assessment tools and integrated management planning through Small Grants Facility • Support to select states for systematic prioritization of wetlands considering full range of BES values • Sharing of reports, findings and project outcomes through PMU
State Biodiversity Boards	• Improved information base on wetland biodiversity and ecosystem service values • Built capacity for integrated management of wetlands • Best practices and lessons learnt for integrated management of wetlands	• Engagement in development of capacity building module • Engagement in development of toolkits on wetland biodiversity and ecosystem services inventory and assessment, climate vulnerability assessment • Participation in training programmes • Dissemination of toolkits, best practices and

Project stakeholders	Benefit from IMWBES Project	Engagement and Coordination Mechanism
		lesson learnt • Participation in learning networks • Support for organizing outreach events • Sharing of reports, findings and project outcomes through PMU
Site level		
Agencies leading implementation of pilot sites *CWRDM, PSCST and Forest Department, GoB*	• The overall project would be supervised and supported technically through the UNEP Regional Office and the South East Asia Regional Programme Coordinator.	• Technical and financial support for formulation of integrated management action plan • Technical support for setting up cross-sectoral governance mechanisms • Participation in national and state level capacity building programmes • Technical and financial support for implementation of management plans • Technical support for collating lessons and best practices for wetland management • Sharing of reports, findings and project outcomes through PMU
Wetland dependent communities at the pilot sites	• Enhanced livelihoods through sustainable resource use practices • Improved awareness of wetland values and functions • Enhanced participation in site management • Interventions for sustainable livelihoods linked to wetland restoration • Engagement in site management • Improved gender balance and social equity in community engagement with site management	• Specific consideration of community views, rights and capacities while formulating management action plan • Integration of site management plans in village level developmental plans to ensure convergence with local developmental programming • Targeting of improved livelihoods of wetland dependent communities through sustainable resource use practices • Integration of gender equity concerns in site management planning and implementation • Integration of indigenous and local knowledge, practices and values in site management • Specific targeting for communication and outreach programmes • Engagement in participatory monitoring and evaluation
Private sector	• Established mechanisms for participation in wetland management • Enhanced sustainability of core operations • Reduction in investment and reputational risks	• Proactive identification of corporate sector engagement in site management planning and implementation • Shared best practices and lessons learnt on engagement of private sector in wetland management • Opportunities to engage in development of training modules on private sector participation in wetland management • Opportunities of engagement in capacity

Project stakeholders	Benefit from IMWBES Project	Engagement and Coordination Mechanism
		building programmes • Specific targeting for communication and outreach programmes • Sharing of reports, findings and project outcomes through PMU

The project specifically intends to demonstrate stakeholder led management at three designated pilot sites. Integrated management, in line with wise use principles, will aim to outline pathways for sustainable livelihoods of wetland dependent communities, while maintaining ecological integrity of wetlands. A mapping and prioritization of stakeholders is presented below.

		Degree of influence on site management	
		High influence	Low influence
Degree of importance for site management	High importance	***User groups*** Sasthamcotta: KWA (Kollam City), Village Panchayats (Sasthamcotta, Mygnapalli, East Kallada) Harike: Agriculture farmers Kanwar: Fisher cooperatives, wetland agriculture farmers, capture fishers Indigenous fisher communities: Ezhwa (Sasthamcotta) and Sahni (Kanwar) ***Community institutions*** Village Panchayats ***Civil society*** Sasthamcotta: Sasthamcotta Action Council, KSSP Kanwar: KSS	***User groups*** Sasthamcotta: Fishers, Agriculture Farmers, Plantation Owners, Navigation boat operators, Local tourists Harike: Reed gathers, fishers, wetland communities living downstream, local tourists Kanwar: Reed gatherers, Downstream farmers, local tourists ***Community institutions*** Sasthamcotta: Fisher Cooperatives Kanwar: Village panchayats of downstream villages. Mandar Nature Club ***Civil society*** Harike: WWF local office ***Private Sector*** Harike: Industrial units of Ludhiana and other major upstream centers, ITC Kanwar: Private Sugar Mills
	Low importance	***Government departments / agencies*** Sasthamcotta: DoI, DoA, DoF, DoE, DoFr, PCCB, DoT, KSBB Harike: DoFr, DoA,DoF, DoWR, PSBB Kanwar: DoFARD, DoFr, DoA, DoWR, KVK, DoEE, BSBB ***Academic and Research agencies/ institutions*** Sasthamcotta: CWRDM, DB College Harike: PSCST, Kanwar: Magadh University, Bhagalpur University ***Private Sector*** Harike: Industrial units of Ludhiana and other major upstream centers	Sasthamcotta: Service sector communities living around wetland Kanwar: Barauni Refineries, Sudha Milk Cooperative

Baseline assessment showed that management of three sites has distinct gender and social equity dimensions. In Kanwar Jheel (Bihar), the gradual predominance of agriculture has led to marginalization of capture fishers, who have tended to migrate to wage labor or seek engagement in culture fisheries. While the male members are engaged in culture fisheries, women have a predominant role in capture fishing, reed gathering and collection of molluscs. The entire region has very weak access to basic health and education infrastructure, which affects the overall well-being of the communities living in and around the wetland. Communities in Sasthamcotta Lake (Kerala) have an overall higher and better gender inclusion as compared to rest of the country, managing wetland for meeting downstream water requirements has put the water availability for the neighboring Panchayats at stake. In the case of Harike Lake, the wetland farmers are the predominant groups socially and politically, and influence the state of wetland, whereas fishers and reed gathers occupy a lower social status and voice in site management.

Integrated management of the three sites will place specific focus on addressing the livelihood capital and BES linkages, and seek opportunities for addressing social (including gender) and economic equity through better state of wetlands. Management effectiveness indicators will include gender and social equity related indicators to assess overall performance. The capacity building modules will also include gender and social equity dimensions in the context of integrated management. Gender segregated data will be included in the reporting processes within the relevant sections.

B.2 Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCF/SCCF):

At local level, direct socioeconomic benefits emerging from project interventions will emerge through implementation of activities under Component 3 (Demonstration of integrated management), wherein approximately 35,000 wetland dependent communities in the three sites will benefit through sustainably managed resources (fisheries, wetland agriculture, aquatic plants) and alternate / additional livelihood options designed to reduce pressure on wetland resources as well as incentivize natural resource stewardship. Improved resource base will create benefits indirectly to communities living within wetland catchments , eg Kollam City (~ 82,000 households depending on sustained supply of water coming from Sasthamcotta), agriculture farmers in southern Punjab and Rajasthan (~0.2 million farmers benefitting from irrigation linked with wetlands) and fish farmers in and around Kanwar Jheel (~20,000 households) dependent on healthy wetland habitat and associated fish production. Site management will consciously address gender and social equity dimensions in interventions. Gender and social equality related monitoring targets are to be included within the BES linked targets for assessing management effectiveness. The project will also indirectly benefit wetland dependent communities linked with the wider network of wetlands of national and international significance.

Sustaining livelihoods of wetland dependent communities within ecological limits is engrained in application of wise use of wetlands approach, which is identified as one of the global benefits emerging from the project. Linkages with the other identified global benefits, i.e conservation of globally threatened species, improved conservation status of species using migratory flyways and improved transboundary flow of ecosystem services will emerge through effective management of the national wetland network, wherein wise use is the core guiding principle.

B.3. Explain how cost-effectiveness is reflected in the project design: The central focus of the project design is on wetlands as a means of food and water security considering their role in provision of water, food, fiber along with regulating services (as regulation of hydrological regimes, buffering of extreme events, groundwater recharge). Conventional solutions for achieving food and water security are mostly expensive physical infrastructure based with environmental costs and sustainability implications. Use of wetlands as 'natural infrastructure' provides a cost effective means of delivering a range of services as co-benefits while at the same time addressing food and water security objectives. While several estimates are available indicating cost effectiveness of these measures globally, the project would use valuation and ecosystem service assessment tools to enable site managers and policy makers use these arguments for cross sectoral communication with key local stakeholder such as state government, corporate sectors and communities (for example promoting synergies between water management, wetlands and agriculture sectors) and multi-scalar interventions.

The baseline project, NPCA, envisages stemming the continued loss and degradation of wetlands in the country by mainstreaming wetland BES values in developmental programming. A key outcome sought is that the SGs are able to fund wetland management not by seeking central government assistance (as has been the norm in the last decades), but by leveraging resources from ongoing developmental schemes of the public sector. The IWBES project will create the necessary tools, methods and evidence base which will assist SGs in implementing wetland management plans in convergence with ongoing developmental sector investment. It will also build capacity of SGs in accessing private sector funds for the said purpose. This will significantly improve the cost effectiveness of maintaining health of national wetland network.

Implementation of management plans at three sites, which accounts for nearly 59% of total project costs (63% of GEF TF funds allocation), will be largely through convergence funding sources, including a mix of public and private sources. Implementation

of management plans will use a balanced mix of nature based solutions and hard engineering measures, so as to prevent any adverse change in ecological character of the sites. The project funding will be applied for catalytic support to trigger integrated management, and mainstreaming with ongoing developmental programming pursued by SGs.

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Project delivery would involve established institutional arrangements, programs and organizations (state wetland authorities, national capacity building centers, science and knowledge centers) which will substantially reduce delivery costs. The focus on improving management effectiveness will also enhance efficiency of investments.

C. DESCRIBE THE BUDGETED M &E PLAN:

The project will follow UNEP standard monitoring, reporting and evaluation processes and procedures. Substantive and financial project reporting requirements are summarized in Appendix 8 of the ProDoc. Reporting requirements and templates are an integral part of the UNEP legal instrument to be signed by the executing agency and UNEP.

The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Appendix 4 of the ProDoc includes SMART indicators for each expected outcome as well as mid-term and end-of-project targets. These indicators along with the key deliverables and benchmarks included in Appendix 6 of the ProDoc will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification and the costs associated with obtaining the information to track the indicators are summarized in Appendix 7of the ProDoc. Other M&E related costs are also presented in the Costed M&E Plan and are fully integrated in the overall project budget.

The M&E plan will be reviewed and revised as necessary during the project inception workshop to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and evaluation. Indicators and their means of verification may also be fine-tuned at the inception workshop. Day-to-day project monitoring is the responsibility of the PMU but other project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the Project Director or LTSA to inform UNEP of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

The NPSC will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E plan if applicable. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility to the Task Manager in UNEP-GEF. The Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

Project supervision will take an adaptive management approach. The Task Manager will develop a project supervision plan at the inception of the project which will be communicated to the project partners during the inception workshop. The emphasis of the Task Manager supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring. Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the NPSC at agreed intervals. Project risks and assumptions will be regularly monitored both by project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.

The draft PIRs will be submitted to GEF-OFP for review and comments prior to submission to GEFSEC by UNEP.

UNEP will be responsible for managing the mid-term review/evaluation and the terminal evaluation. The NPD, NEA, LTSA and NPSC and partners will participate actively in the process.

The project will be reviewed or evaluated at mid-term (tentatively in Sept 2018 as indicated in the project milestones). The MTR will be carried out using a participatory approach whereby parties that may benefit or be affected by the project will be consulted. Such parties were identified during the stakeholder analysis (see section 2.5 of the project document). In addition, it will verify information gathered through the GEF tracking tools. However, if deemed required due to bad project performance or otherwise being ‘at risk’, a Mid-Term Evaluation (MTE) is to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way.

The project Steering Committee will participate in the MTR or MTE and develop a management response to the evaluation recommendations along with an implementation plan. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented. An MTR is managed by the UNEP Task Manager. An MTE is managed by the Evaluation Office (EO) of UNEP. The EO will determine whether an MTE is required or an MTR is sufficient.

An independent terminal evaluation (TE) will take place at the end of project implementation. The EO will be responsible for the TE and liaise with the UNEP Task Manager throughout the process. The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes:

- to provide evidence of results to meet accountability requirements, and
- to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP and executing partners.

While a TE should review use of project funds against budget, it would be the role of a financial audit to assess probity (i.e. correctness, integrity etc.) of expenditure and transactions. The TE report will be sent to project stakeholders for comments. Formal comments on the report will be shared by the EO in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six point rating scheme.

The final determination of project ratings will be made by the EO when the report is finalised. The MTR and TER will be submitted to GEF-OFD within MoEFCC, GoI for review and comments before finalization. The evaluation report will be publically disclosed and will be followed by a recommendation compliance process. The direct costs of reviews and evaluations will be charged against the project evaluation budget.

The GEF tracking tools are attached as Appendix 14 and Appendix 17 of the ProDoc. These will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above the mid-term and terminal evaluation will verify the information of the tracking tool.

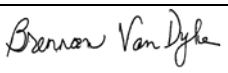
PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT(S) ON BEHALF OF THE GOVERNMENT(S):):
(Please attach the Operational Focal Point endorsement letter(s) with this form. For SGP, use this OFP endorsement letter).

NAME	POSITION	MINISTRY	DATE *(MM/dd/yyyy)*
Mr. Susheel Kumar	Operational Focal Point, Additional Secretary	**MoEFCC**	15 June 2015

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for CEO endorsement/approval of project.

Agency Coordinator, Agency Name	Signature	Date *(Month, day, year)*	Project Contact Person	Telephone	Email Address
Brennan VanDyke Director, GEF Coordination Office, UNEP		January 11, 2016	Max Zieren Task Manager	+66-2-228-2101	Max.zieren@unep.org

ANNEX **A: PROJECT RESULTS FRAMEWORK** (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Project objective	**Objective level indicators**	**Baseline**	**Target and milestones**		**Means of verification**	**Assumptions and risks**
			Mid Term	**End Term**		
Enhanced management effectiveness of wetlands of national and international significance	O1 - Increasing number and area of wetlands of national and international significance being managed effectively using integrated management plans which secure biodiversity and ecosystem service values	O1.1 20% of national site network (which include 7 Ramsar sites) are managed based on integrated management plans	Methodologies, tools and best practices for integrated wetland management area available for use by wetland managers System for assessing management effectiveness of national network in place	Integrated management plans result in improved management effectiveness in at least additional 25% of national network, of which atleast 10 are Ramsar sites Management effectiveness assessment and tracking systems incorporated within NPCA	Review of management plans and associated activities based on an evaluation of: a) adoption of diagnostic approaches for assessment of BES values; b) stakeholder participation in planning and implementation; c) institutional arrangements for cross sectoral coordination; d) monitoring and evaluation mechanisms linked with BES values; e) review and adaptation mechanisms Availability and quality of management action plans and updated Ramsar Information Sheets	Emphasis on integrated management of wetlands is maintained in the Ministry, and is further strengthened and enhanced during project time frame Significant resources are allocated to implement wetland related commitments under various MEAs Information from management effectiveness assessment is used to strengthen management of Ramsar sites, and entire NPCA network
		O1.2 Ad hoc approaches for prioritization of sites, mostly influenced by a limited range of wetland biodiversity values	Guidance for systematic prioritization of sites taking into account full range of biodiversity and ecosystem service values available for application by state governments	At least 2 states use the guidance document to systematically prioritize wetlands to enable their mainstreaming in developmental programming	Availability and use of guidance on systematic prioritization of wetlands; developmental programming taking an inclusive approach towards wetlands	States take the lead in wetland management, and are willing to link wetland conservation and sustainable management with the development agenda; Institutions involved in sustainable development agenda are convinced to integrate wetland biodiversity values

Project objective	Objective level indicators	Baseline	Target and milestones		Means of verification	Assumptions and risks
			Mid Term	End Term		
	O2 - Increasing number of states with cross sectoral institutional arrangements for wetland management	O2.1 8 states have constituted wetland authorities as nodal policy and planning institutions for wetlands	In at least 3 additional states, state governments constitute wetland authorities as nodal policy and planning institutions for wetlands	In at least 6 additional states, state wetland authorities are functional and able to lead integrated management of wetlands	Government notification of state wetland authorities and their functioning assessed through meeting minutes and follow up; Evaluation of proposals submitted by state wetland authorities to MoEFCC	States promote cross sectoral approaches for management of wetlands
	O3 - Increasing number of states with enhanced institutional capacity for integrated wetland management, as measured by GEF Capacity Building Score Card	O3.1 Only 7 states demonstrated institutional capacity for integrated management of wetlands (Baseline capacity scores for three sites: Sasthamcotta Lake: 11; Kanwar Jheel: 14 and Harike Lake: 13)		In at least 6 states wherein direct project interventions have been carried out, enhanced institutional capacity for integrated wetland management leads to at least 20% increase in capacity scores over baseline	Capacity scores as assessed through GEF Capacity Building Score Card	Adequate institutional and infrastructural support is provided to wetland managers in the intervening states; Structured training and peer group interactions will ensure diffusion of best practices while building capacities at various institutional levels
COMPONENT 1: National wetland biodiversity and ecosystem services based knowledge systems						
Outcome 1.1 Increased national scale application of integrated wetland management planning tools and approaches	1.1.1 Increase in number of sites in which management plans use BES inventory and assessment tools	In 15 sites of national and international significance, management is based on integrated management plans which take into account full range of wetland BES values		Atleast 10 additional sites of national and international significance are managed based on integrated management plans which secure full range of BES values	Site inclusion proposals submitted by SG	All relevant material has been reviewed
	1.1.2 Improved integration of climate change vulnerability and adaptation measures in wetland site management planning	Climate change vulnerability is not linked with management of any of the sites of national and international significance	In 6 sites, vulnerabilities induced due to climate change are assessed and response measures identified	In 6 sites, response measures for climate change are integrated in site management	Climate vulnerability assessment reports and site management plans	SG recognize wetland management as a means of climate change adaptation and create a conducive condition for integration of wetland management within climate change action plans

Project objective	Objective level indicators	Baseline	Target and milestones		Means of verification	Assumptions and risks
			Mid Term	End Term		
Outcome 1.2 Wetland BES knowledge systems applied to improve management effectiveness of sites of national and international significance	1.2.1 Increasing number of sites for which information on management effectiveness is used for revising management	Management plans for wetlands are designed and implemented on annual cycles, very limited integration of adaptive management approaches or on evaluation of effectiveness of interventions	National and international methodologies and tools on management effectiveness collated, assessed and subsequently reviewed by stakeholders Management effectiveness assessment and tracking of 50% of Ramsar Sites completed	Management effectiveness assessment and tracking system formally defined and applied for 6 states At least 10 Ramsar Sites have revised management plans in response to assessment and tracking of management effectiveness	Synthesis reports on the knowledge of management effectiveness tools Revised site management plans	SG proactively engage in design, application and dissemination of management effectiveness tool Appropriate stakeholders are engaged
COMPONENT 2: National scale capacity building for applying integrated wetland management						
Outcome 2.1 Enhanced institutional capacity and trained human resources for integrated management of wetlands	2.1.1 Measured increase in wetland managers' capacity to apply integrated management approaches	Institutionalized courses and training opportunities on integrated management available in less than 5 institutions Limited availability of training opportunities on integrated management approaches. Baseline capacity survey to be designed during first project year and conducted at onset of each course.	In at least 4 additional institutions, wetland managers' training courses are established Wetland managers of 10 states trained and showing enhanced capacity in integrated wetland management	In at least 4 additional institutions, wetland managers' training courses are established	Participation of national institutions in design and implementation of training programmes; Effectiveness of training programmes	Training is targeted at appropriate stakeholders
				Wetland managers of 20 states / UTs trained and demonstrate measurable enhancement in capacity for integrated wetland management	Participation and impact surveys of states in training programmes; Application of enhanced skills in systematic prioritization of wetlands and formulation of management plans.	Selection of trainees is strategic and relevant to site management
	2.1.2 Enhanced awareness of wetland ecosystem services values for integrated management	Project will design and conduct baseline awareness survey during YR 1 of project. National scale outreach on wetlands mainly through World Wetlands Day; Partial integration of stakeholder outreach in site management plans for < 25 sites of national and international significance.		Increase in awareness levels on set parameters against baseline with an average of 25%.	Statistically well designed awareness impact surveys. Effectiveness surveys and evaluation of outreach programmes; increased profile in news media	Outreach programmes are implemented in a collaborative framework and supported by civil society and private sector

Project objective	Objective level indicators	Baseline	Target and milestones		Means of verification	Assumptions and risks
			Mid Term	End Term		
		National Capacity Building, Education and Awareness Strategy not formulated as an overarching guidance for stakeholder engagement in wetland management	Draft National Capacity Building, Education and Awareness Strategy formulated	National Capacity Building, Education and Awareness Strategy endorsed by GoI and integrated in NPCA implementation	Availability of draft strategy	Participation of SG and stakeholders in formulation of national CEPA Strategy and commitment of the Ministry to implement the strategy
	2.1.3 Increasing private sector participation in wetland management	Private sector participation in wetland management limited to < 5 sites	Opportunities for private sector engagement are identified in 6 sites	In at least 6 additional sites , private sector participation in site management, and outreach is achieved	Co-finance report; private sector CSR reporting	Private and corporate sector partners open to engage with wetland managers
	2.1.4 Measured increase in wetland managers' capacity to address gender aspects in designing and implementing integrated wetland management	Gender dimensions are recognized and addressed in management plans at <5 sites.	Module on 'gender and integrated wetland management' is developed and available for all wetland managers	Wetland managers of 20 states / UTs trained and demonstrate measurable enhancement in capacity for addressing gender dimensions in integrated wetland management	Statistically well-designed participation and impact surveys of states in training programmes	Wetland managers are open to addressing gender dimensions in wetland management
	2.1.5 Growing community of practice and information base for sharing of knowledge, lessons and best practices	Lack of a platform for wetland managers to share lessons, methods and best practices for integrated management	(i) National portal is scoped, developed and made functional to support sharing of knowledge, best practices and lessons, and also as a medium of stakeholder awareness of wetland BES values; (ii) community of practice identified and recorded.	National portal on wetlands is widely used (atleast 0.5 million visitors as measured by web data counter; and atleast 1,000 registered members) as means for sharing and disseminating datasets, information, best practices and lessons related to wetland management	Availability, usage and functionality of national portal	Web architecture is user friendly and based on stakeholder needs assessment
Component 3: Demonstration of integrated wetland management						

Project objective	Objective level indicators	Baseline	Target and milestones		Means of verification	Assumptions and risks
			Mid Term	End Term		
Outcome 3.1 Integrated wetland management applied in three protected wetlands	3.1.1 Improved wetland BES values in three demonstration sites	Management of sites is not based on integrated approaches for conserving biodiversity habitats and sustaining provision of ecosystem services Baseline value of key indicators for three sites: Sasthamcotta Lake, Kerala: Minimum inundation is at 60% of wetland area; Kanwar Jheel, Bihar: Peak inundation is restricted to 65% of wetland area, waterbird habitats 12 km2 is significant waterbird habitat area; Harike Lake, Punjab: Area under invasive species is 25% of open water surface)	Integrated management plans for securing biodiversity and ecosystem service values endorsed by MoEFCC are available, including being specific on gender disaggregation, such as proportion of time spent by women on wetland management activities or women's involvement in decision-making	Implementation of management plans leads to improved biodiversity and ecosystem services values as assessed through indicators identified within site management ; End target of key indicators for three sites: Sasthamcotta Lake, Kerala: Minimum inundation is maintained at 80% of wetland area; Kanwar Jheel, Bihar: Peak inundation improves to 100% of wetland area, habitats used by waterbirds increase to atleast 30 km2; Harike Lake, Punjab: Area under invasive species is restricted to 10% of open water surface)	Review of management plans; improvement in indicators	Time period for pilot testing and demonstration is sufficient
	3.1.2 Cross-sectoral institutional arrangements and use of integrated management approaches increase site management effectiveness	Cross sectoral institutional arrangements have not been established for the demonstration sites: Baseline METT Scores: Sasthamcotta Lake, Kerala: 83; Harike Lake, Punjab: 48; Kanwar Jheel, Bihar: 25)	Wetland Authorities constituted as nodal policy and planning agencies for 3 demonstration sites METT Scores Site 1, 2 and 3 increased with 15%	Over 50% increase in GEF METT Scores at 3 demonstration sites including being specific on gender disaggregation, such as proportion of time spent by women on wetland management activities or women's involvement in decision-making,	GEF METT scores; Notification of state governments, meeting proceedings	SG further the process of constituting state wetland authorities, ensuring representation of key stakeholders and sectors
	3.1.3 Improved gender equity in community institutions engaged in managing wetlands	Overall women participation in key community institutions managing wetlands in the three sites is < 15%		Atleast 50% increase in participation of women members in key decision making within community institutions managing wetlands	Community institution's meeting records; personal interviews and gender surveys	Communities recognize the need and are willing to address gender equity within institutions designated to support wetland management
	3.1.4 Improved livelihoods of wetland dependent communities	Nearly 35,000 communities depend on wetland resources for sustenance. Atleast 50% of these have been impacted adversely due to decline in wetland BES values	Wetland management planning at the three sites identifies measures for livelihood improvement for all wetland dependent communities	Atleast 50% of communities have improved livelihoods as a result of integrated management	Benchmark surveys, pre and post management plan implementation	Management planning process is able to identify key livelihood capital deficit which can be addressed through integrated management of wetlands

Project objective	Objective level indicators	Baseline	Target and milestones		Means of verification	Assumptions and risks
			Mid Term	End Term		
	3.1.5 Increasing financial resources for integrated wetland management	***Available budget for three sites: ~ US$ 100,000;*** site management plans not fully funded; Site budgets not linked/integrated with development programmes of local and national governments.	10% increase in available management funding; At least 60% of management plan resources are generated through convergence with developmental programmes	A 25% increase in site management budgets (average 3 sites); Site Management plans are fully funded	Co-finance report for site management plans; diversity of financial sources and funding partners; project questionnaire or surveys	SG proactively dovetail implementation of management plans with developmental programming
Component 4: Project monitoring, evaluation and outcome dissemination						
Outcome 4.1 Project impacts and performance are measured	4.1.1 Use of project monitoring and reporting system to assess project performance and impacts	Project monitoring and reporting systems described within FSP	Mid term review of project performance and impact is used to adapt project implementation	End term review of project performance and impact is used to establish integrated management approaches in NPCA sites	Review report; project performance and impact assessment system	Project monitoring and review system is supported by all organizations involved with implementation
Outcome 4.2 Evidence base on benefits of BES based-wetland management established	4.2.1 Increased use of BES based monitoring systems to assess maintenance and restoration of wetland ecological character, and livelihoods for wetland dependent communities	In 5 sites , monitoring systems to assess changes in ecological character and livelihood outcomes are defined and applied	In additional 6 sites, monitoring systems to assess changes in ecological character and livelihood outcomes are defined and applied	In additional 15 sites (over baseline), monitoring systems to assess maintenance of wetland ecological character and livelihood outcomes are used to refine site management	Review of site management plans; monitoring infrastructure and reporting	SGs support strategic monitoring and evaluation of wetland BES values and are willing to invest resources for responding to the monitoring and evaluation outcomes
	4.2.2 Increasing number of practitioners with knowledge and application of the national Guidance document on integrating biodiversity and ecosystem service values and climate vulnerability in wetland management	To be determined during inception phase based on sampling of stakeholders	National Guidance document produced to enable up-scaling of improved management effectiveness of wetlands of national and international significance by integrating biodiversity and ecosystem services, including climate vulnerability assessment protocols, across India	25% increase in number of practitioners capable of applying integrated management approaches for conserving biodiversity and sustaining ecosystem services values	Monitoring outcomes based on agreed sampling methods and indicators	SGs enable diffusion of integrated management approaches across stakeholders

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

STAP Date of screening: April 26, 2013 ('minor revision required')

STAP Recommendations	Responses
Preparing the project in a multi-focal framework	While it is true that maintenance of wetland biodiversity and ecosystem service values contribute to several sectors, the core strategy of the baseline project 'National Plan for Conservation of Aquatic Ecosystems (NPCA)' is mainstreaming wetland biodiversity and ecosystem services in sectoral development programming. This has better fit with the objectives for Biodiversity Focal Strategy Area. Project design however follows a multi-focal framework including LD and CC adaptation.
Clarity on criteria used to select the sites, and strengthening the biophysical baseline data for the three selected sites	In line with the objectives of baseline project and gap analysis conducted for the project design, the selected sites conform with the following criteria: a) Identified as priority by state governments: All the three sites have been identified as priority wetlands for conservation by concerned state governments. Two of the three sites (Sasthamcotta and Harike) are designated Ramsar Sites. b) Sites provide distinct developmental benefits (Sasthamcotta Lake is the largest freshwater lake of Kerala and a water source for Kollam City; Harike Lake is one of the large riverine wetlands of semiarid zone and critical source of water for the desert regions of Rajasthan; and Kanwar Jheel, the largest floodplain wetland of State of Bihar within Gangetic floodplains is a water recharge source and significant livelihood base for communities located in one of the most economically disadvantaged parts of the country). c) Commitment of SGs to support integrated management: All three state governments have indicated commitment to integrated management through support to comprehensive management planning. d) Global Environment Benefits: Sasthamcotta Lake (Kerala) and Harike Lake (Punjab) have been designated as Wetlands of International Importance under Ramsar Convention, and form an integral part of the global network of over 2000 Ramsar Sites. Kanwar Jheel supports one of the largest congregations of migrating waterbirds (within Central Asian Flyway) in the Indo-Gangetic floodplains. Kanwar and Harike are also identified as IBAs. A separate appendix to the ProDoc (Appendix 16) has been included summarizing the existing information on biophysical, socioeconomic and institutional features of the site, drivers and pressures and management needs.
Concern regarding the selection and BD values of the 3 sites selected in PIF	See above. The project has selected new sites with high biodiversity as well as economic linkages through their ecosystem services in a landscape context.
Clarity on how MoEFCC will translate the envisaged project outputs to increase inter-sectoral coordination	The IMWBES project has a major emphasis on promoting inter-sectoral coordination within respective state governments who have the lead responsibility for conservation and wise use of wetland ecosystems. Component 1 (BES based knowledge system for national policy support) will equip wetland managers and state governments with knowledge systems to prioritize wetland sites considering BES values in the context of wider developmental programming. It will also assist managers and policy planners in tracking management effectiveness. A significant focus of Component 2 is on building capacity of wetland managers' to place site management in broader developmental programming contexts and implement management plans in tandem. National scale outreach will also improve awareness on wetland BES values amongst a range of stakeholders. Implementation of management plans for the three demonstration sites (Component 3) will be through wetland authorities which would serve as nodal cross sectoral policy, planning and regulatory bodies for wetland management at state level. The authorities will have representation from all government departments influencing wetland features and factors governing the features, subject matter experts, representation from civil society and wetland resource users' group. Based on the experiences of functioning of wetland authorities in Odisha, Manipur, Madhya Pradesh and elsewhere, a three tier institutional design is envisaged, with the Governing Body under the Chairmanship of Chief Secretary for inter-sectoral coordination and broader strategic guidance, an Executive Committee to review and approve management plans, and an office of Chief

	Executive to coordinate implementation of management plans engaging various line departments, experts, communities and private sector. The IMWBES project will also support the state governments related to the wider network of wetlands of national and international significance in creation of wetland authorities for intersectoral coordination.
More directly address the drivers of degradation and barriers to be removed, as well as verifying that wetland management outcomes & GEB can be realistically measured in terms of water and food security (through specific logframe indicators).	As described in Section 3.1 of the ProDoc, the IMWBES Project responds to the knowledge, capacity and institutional barriers that limit wetland management effectiveness. Under Component 3, the project intends to demonstrate application of integrated management approaches to address direct drivers of wetland degradation at the three sites (summarized in paras 130-140 of the ProDoc) and measure the impact of management through tangible changes in BES values (logframe indicator for Outcome 3.1)
Component 1: Explanation of proposed development of adaptive risk management system, and example of such systems and effectiveness	During the PPG phase, the adaptive risk management systems has been refocused to address 'climate induced vulnerabilities' on wetland management. Under Outcome 1.1, the project will provide a national context specific assessment tool which will enable managers to assess the degree and nature of vulnerability induced in wetland features in relation with climate change, and development of suitable response mechanisms thereof. The vulnerability assessment tool will also enable factoring in developmental programming induced vulnerabilities, including those related to population growth and economic development. Examples of experience of such systems in India have been detailed under Section 3.3, Output 1.1 B.
Component 1: What is the relationship between the management effectiveness tool proposed to be developed by the project and the existing GEF METT? What is the added value?	The GEF METT, though useful for assessing overall management effectiveness for protected areas, operates at a much coarser level, and most importantly, does not enable comprehensive tracking of ecological character which underpins wise use of wetlands, and is also the central tenet of the national baseline project. The wetland management effectiveness tracking tool envisaged to be developed under the IMWBES project will address this gap, allowing tracking of wetland ecosystem components, processes and services, along with external factors that limit maintenance of ecological character. It will also enable combining scientific knowledge with local and indigenous knowledge as a means of assessing progress towards wetland wise use.
Component 2: Relationship with science centers in dealing with broader sectoral interests	Design and implementation of tools as envisaged under Component 1, and delivery of integrated management modules are designed to connect with science centers representing sectoral interests (notable being CIFRI, NWA, and CSIR). Component 3 on demonstration of integrated management at three sites provides significant opportunities for linking science centers dealing with broader sectoral interests (eg. Punjab Agriculture University in the case of Harike Lake; Krishi Vikas Kendra and Bihar State Disaster Management Authority in the case of Kanwar Jheel; and Center for Water Resources Development and Management for Sasthamcotta Lake, Kerala).
Risks: Inclusion of risks of climate change upon wetlands	Explicitly included in Section 3.5 of ProDoc and A.6 of CEO ER.
Inclusion of national level when discussing cross-sectoral communication	The evidence base emerging from implementation of BES inventory assessment tools, convergence financing of site management plans and private sector participation are aimed to promote mainstreaming of wetlands within wider sectoral planning. National scale outreach programmes and evidence base emerging from Component 1 and 3 are designed to support cross sectoral communication, at this level, as well as facilitating replication at national scale to other wetland sites..
GEF Secretariat Comments	
Item 12: Include further information on cost effectiveness of project approach and methods	Section 7.3 in the ProDoc and B3 in the CEO ER have been revised to the effect.
Item 14 -1: advise to further prioritize (sites) in line with the earlier comment, in a limited geographical area	The number of targeted sites has been reduced from 4 to 3 sites
Item 14 – 2: Consider efficiency and effectiveness	The themes of assessments are aimed at enhancing capability of wetland managers to manage the wider wetland network, effectively building on the lessons and best practices.

perceptiveness to achieving larger impacts from studies and assessments and avoid duplication of similar initiatives in the country	The tools are specifically aimed at enhancing the baseline condition, for example through enabling state governments in systematic site prioritization by considering BES values; developing response strategies to link wetland management with climate change related response strategies; and refining management based on systematic and comprehensive tracking of management effectiveness. These will ultimately benefit the entire network of sites, and improve delivery of the national NPCA programme. Analysis of existing tools, methods, best practices and lessons will preclude all assessment, tool development and field testing activities.
Item 14 – 3: Develop multi-sector institutional framework to enable mainstreaming of wetland conservation with sectoral policies and programming	The MoEFCC envisages to achieve multi-sectoral institutional framework for wetland management in the form of wetland authorities, which have cross sectoral representation and are to be mandated to serve as the nodal policy, planning and regulatory body for wetlands at the state level. IMWBES project reinforces such a policy direction through addressing knowledge and capacity barriers and creating replicable demonstrations. In the case of Kanwar Jheel, such an institutional arrangement is already in place, wherein for the other two sites, policy decisions were underway at the time of drafting the ProDoc.
Item 15: Elaborate on incremental/ additional benefits	Incremental global and national benefits envisaged through IMWBES project are outlined in Section 3.7 of the ProDoc.
Item 16: Elaborate socio-economic benefits and indicators	Socio-economic benefits are outlined under section B2 of CEO ER and description of outcome 3.1 contained in Section 3.3 of the ProDoc . Within the logframe, changes will be captured in indicators pertaining to outputs 3.1.1 and 3.1.3
Item 17: Clarify in the text that appropriate consent will be received on project approach and interventions by the time of CEO endorsement.	Included under Section 3.11 and Appendix 15 on Environmental and Social Safeguards of the ProDoc.

GEF COUNCIL COMMENTS

COMMENTS	RESPONSES
(Canada) Given that the wetlands have continued to degrade over the years in India, despite substantial investments in conservation, please elaborate on what are the drivers of this degradation and how will this project be different from the other investments in this area.	The direct and indirect drivers of wetland degradation in India are detailed in Section 2.3 on root causes of wetland degradation. A range of knowledge, capacity and institutional barriers limit effectiveness of efforts placed for conservation and management of national wetland network (also discussed in Section 2.2). The project is different from the existing efforts mainly in terms of its approach of mainstreaming wetland BES values in developmental programming, in contrast with the standalone conservation programming as was practiced till date. The project's novelty also lies in its focus on addressing capacity gaps within states, and promoting management effectiveness based tracking systems.
(Canada) We agree with STAP that prior to CEO endorsement, the project should establish more of a link between wetland managers and influencing broader economic development actors and forces. For example, component 2 focuses on training wetlands managers, but does not attempt to link this training to broader influence over local and state planning processes.	The link between wetland managers and broader economic development actors is envisaged through cross-sectoral management arrangements, systematic prioritization of wetlands within states with due consideration to developmental goals, and augmented capacity to communicate across sectors. Built capacity under Component 2 is linked with enabling systematic prioritization of wetlands considering wider societal development goals (Output 1.2C) and enabling cross sectoral institutional arrangement (Output 3.1B).
(Canada) We also agree with the STAP that the project proposal should: (i) provide clear rationale for selecting the three pilot watersheds for the project; and, (ii) clearly outline results indicators and targets, so that the achievement of global environmental benefits can be properly measured.	Selection of sites under Component 3 of the proposal has been done based on the following criteria: a) Identified as priority by state governments (SG); b) Sites provide distinct developmental benefits, specifically those based on ecosystem services provided; c) SGs are committed to support integrated management; and d) Global Environment Benefits.

	Results of the sites' baseline analysis is found in the ProDoc at paragraph 129 and 141 (for more details see Appendix 16); as well as in the CEO ER in Section A5 'Incremental reasoning' at p.13 Result indicators and targets pertaining to five component objectives, namely, a) improved biodiversity and ecosystem service values, b) increased site management effectiveness resulting from cross sectoral institutional arrangements and use of integrated management approaches; c) improved gender equity in community institutions engaged in site management; d) improved livelihoods of wetland dependent communities; and e) increased financial resources for integrated wetland management , have been identified.
(USA) We would like to see (a) the proposal address how the project will build a solid platform for continued, longer term engagement on water and wetland resources after the project is over. For example, (b) will the project partners also try to address land and resource tenure issues, so as to begin resolving these types of conflicts and impediments? (c) Will there be efforts to secure additional funding or resources to capitalize on the GEF project to keep stakeholder groups active and to support changing institutional attitudes about the economic value of wetlands?	(a) The proposal envisages to strengthen institutional architecture for wetland management at national scale, which will enable the nodal agency, Ministry of Environment, Forests and Climate Agency as well as the state governments to engage and deliver wetland conservation and wise use adopting integrated approaches. Knowledge interventions will provide the foundation for systematic planning for wetland conservation and wise use, as well as track and improve management effectiveness. Capacity development interventions will enable wetland managers gain skills in application of integrated management techniques, as well as enable development of networks for sharing lessons and best practices, and maintain built capacity. Opportunities for cross sectoral collaborations, at national as well as state scales, have also been included. Overall, through an improved policy, planning and investment environment for wetlands in India, a longer term engagement n wetlands, water management and sustainable development will be ensured under the leadership of the MoEFCC, and with proactive support of state governments. (b) In the three demonstration sites, project partners will address land and resource tenure issues within the ambit of landscape scale integrated management, to secure wise use Experiences and lessons from the three demonstration sites will also be proactively disseminated to other site managers, facing similar land and resource tenureal challenges. This is different to the 'routine' project mode financing that is in place at present. Thus the project will enable generation of additional resources for implementation of management actions for priority sites. Additionally, investments in communication and outreach, and creating partnerships with development sector actors and private sector are intended to change institutional attitudes towards wetland conservation in general, bringing to fore their role in water and food security and wider societal well-being, as well as enabling effective conflict resolution with regards e.g. the shared interests and use of water resources..
(d) Given the focus on achieving gender equity within the written description of the proposed project, we suggest that it might be preferable to more prominently list that as a goal in the Project Framework table under "II. Building capacity on mainstreaming integrated wetland management at state-level". We understand that the management planning processes would serve to empower	Gender equity is being targeted in the following ways: a) Component 1: Gender equity as one of the important elements of wetland management effectiveness tool; gender specific elements related to BES assessment and climate vulnerability assessment incorporated in tool development, implementation and capacity building processes b) Component 2: Specific outcome related to measurable

the role of women within wetlands or river basin/landscapes through information sharing, education and training, technology transfers, organizational development, financial assistance and policy development. However, we would appreciate more detail on how the project intends to create gender specific programming for all these activities. For example, will there be separate consultation processes for women, led by women? Will communication strategies be different? How will financial assistance be tailored to women?	enhancement of capacity of wetland managers to assess and respond to gender dimensions in wetland management has been included. c) Component 3: Specific outcome on improved gender equity in community institutions managing wetlands has been included. Elements of gender specific programming for these components are outlined in Section 3.3 of the ProDoc. Gender specific programming to enhance gender equity in management planning will include: a) separate consultation process for men and women on views, rights and capacities for integrated management; b) gender balanced participation in management plan design, implementation and monitoring programmes; c) gender sensitive communication on role of communities in wetlands conservation and wise use; d) identification of gender segregated alternate livelihood interventions, implemented through women self-help groups; e) seeking gender balance in capacity development programmes.

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS*

A. DESCRIBE FINDINGS THAT MIGHT AFFECT THE PROJECT DESIGN OR ANY CONCERNS ON PROJECT IMPLEMENTATION, IF ANY:

All PPG stage findings have been included in project design. There are no findings that are likely to affect project implementation.

B. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES FINANCING STATUS IN THE TABLE BELOW:

PPG Grant Approved at PIF: US$50,000			
Project Preparation Activities Implemented	*GEF/LDCF/SCCF/NPIF Amount ($)*		
	Budgeted Amount	*Amount Spent To date*	*Amount Committed*
Project design launch	10,000	10,000	
Baseline assessment, stakeholder analysis and implementation strategy development	30,000	29,600	
Consolidating full proposal	10,000	5,400	
Total	50,000	45,000	5,000

If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities.

ANNEX **D: CALENDAR OF EXPECTED REFLOWS** (if non-grant instrument is used)

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/NPIF Trust Fund or to your Agency (and/or revolving fund that will be set up)

Not Applicable

UNITED NATIONS ENVIRONMENT PROGRAMME
Programme des Nations Unies pour l'environnement Programa de las Naciones Unidas para el Medio Ambiente
Программа Организации Объединенных Наций по окружающей среде برنامج الأمم المتحدة للبيئة
联合国环境规划署
UNEP

Integrated Management of Wetland Biodiversity and Ecosystem Services (IMWBES) Project

Appendix 1: Budget by project components and UNEP budget lines

Appendix 2: Co-financing by sources and UNEP budget lines

Appendix 3: Incremental cost analysis

Appendix 4: Results Framework

Appendix 5: Workplan and timetable

Appendix 6: Key deliverables and benchmarks

Appendix 7: Costed M&E plan

Appendix 8: Summary of reporting requirements and responsibilities

Appendix 9: Decision making flowchart and organogram

Appendix 10: Terms of Reference

Appendix 11: Co-financing commitment letters from project partners

Appendix 12: Endorsement letter of GEF National Focal Point

Appendix 13: Draft Procurement Plan

Appendix 14: Tracking Tools

Appendix 15: Environmental and Social Safeguards

Appendix 16: Baseline analysis for demonstration sites

Appendix 17: Capacity Assessment Scorecard

Section 1: Project Identification

1.1	**Project title:**	Integrated Management of Wetland Biodiversity and Ecosystems Services (IMWBES)	
1.2	**Project number:**	GFL/ GEF ID 00695	
1.3	**Project type:**	FSP	
1.4	**Trust Fund:**	GEF	
1.5	**Strategic objectives:**		
	GEF strategic long-term objective:	BD1 BD2	
	Strategic programme for GEF V:	Outcome 1.1: Improved management effectivenss of existing protected areas & Outcome 2.1: Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation	
1.6	**UNEP priority:**	EMSP - Output EA.a.1: Methodologies, partnerships and tools to maintain or restore ecosystem services and integrate the ecosystem management approach with the conservation and management of critical ecosystems.	
1.7	**Geographical scope:**	National India	
1.8	**Mode of execution:**	External	
1.9	**Project executing organization:**	Ministry of Environment, Forests and Climate Change, Government of India	
1.10	**Duration of project:**	60 months Commencing: July 2015 Completion: June 2020	
1.11	**Cost of project**	**US$**	**%**
	Cost to the GEF Trust Fund	$4,196,575	17.19%
	Co-financing	$20,217,000	82.81%
	Cash		
	Ministry of Environment, Forests and Climate Change	$2,000,000	
	Wetlands International South Asia	$ 150,000	
	Sub-total cash	*$2,150,000*	*9.87%*
	In-kind		
	Ministry of Environment, Forests and Climate Change	$17,807,000	
	UNEP	$260,000	
	Sub-total in-kinds	*$ 18,067,000*	*72.94%*
	Total	$24,413,575	**100.00%**

1.12 Project summary

Across India wetland loss and degradation continues to compromise human well-being and undermine food and water security. A range of direct and indirect threats including alteration to hydrological regimes, degradation of catchment land uses, point and diffuse pollution, invasive species, over-exploitation of resources, reclamation and infilling and unregulated tourism contribute to the erosion of natural capital and reduction in the benefits that flow from wetland ecosystems. Climate change further exacerbates the situation accelerating many of the negative consequences of human activities. The root causes underpinning these threats result from an increasing population and economic development that increases pressure on the demand for water and land resources without due consideration and awareness of the benefits that wetlands provide and the ineffective integration of wetlands into development planning and management. Situation analysis has identified the barriers which impede the delivery of wetland wise use. Knowledge, capacity and institutional barriers all need to be addressed in order to resolve the situation and to stem the loss and degradation of wetlands in India.

The National Plan for Conservation of Aquatic Ecosystems (NPCA) represents a flagship programme of the Ministry of Environment, Forests and Climate Change (MoEFCC), Government of India (GoI). The NPCA seeks to deliver the conservation and sustainable management of wetlands across the country and aims to stem the continued loss and degradation of wetlands by promoting a cross-sectoral policy, planning and decision making environment. The **Integrated Management of Wetland Biodiversity and Ecosystem Services** (IMWBES) project will complement and build on the existing policy and practice frameworks in order **to improve the management effectiveness of nationally and internationally important wetlands in India and to secure the socio-economic and environmental benefits through wetland wise use**.

The IMWBES project is structured around four principle components which aim to address the knowledge, capacity and institutional barriers which limit the current effectiveness of wetland management and the implementation of the NPCA. Component 1 will address the limitations in existing knowledge systems required for integrating ecosystem services, biodiversity assessments and management effectiveness into planning and management decision-making. Component 2 will enhance the capacity and trained human resources for integrated wetland management and increase the levels of awareness of the importance of wetland biodiversity and ecosystem services across a range of sectors and stakeholders. Through the use of demonstration sites, Component 3 will apply integrated and multi-sectoral wetland management approaches in three protected wetlands to facilitate learning and the development of best practices for up-scaling and wider implementation within State Governments. Component 4 will secure project monitoring and evaluation and wider dissemination of project outcomes for uptake in policy and decision making processes at various levels.

ABBREVIATIONS AND ACRONYMS

AD	Anno Domini
ADAPT	Assessment and Design for Adaptation to climate change
AWC	Asian Waterbird Census
AWP	Annual Work Plan
BD	Bio-Diversity
BES	Biodiversity and Ecosystem Services
BNHS	Bombay Natural History Society
BoBP-IGO	Bay of Bengal Programme – Inter Governmental Organization
BSI	Botanical Survey of India
BSSB	Bihar State Biodiversity Board
CABI	Capacity Building Institutions
CAF	Central Asian Flyway
CBD	Convention on Biological Diversity
CEPA	Communication, Education, Participation and Awareness
CIFRI	Central Inland Fisheries Research Institute
CMPA	Coastal and Marine Protected Areas
CMS	Convention on Migratory Species
CoP	Conference of the Parties
CRiSTAL	Community based Risk Screening Tool – Adaptation and Livelihoods
CSOs	Civil Society Organisations
CSR	Corporate Social Responsibility
CWRA	Central Wetlands Regulatory Authority
CWRDM	Center for Water Resources Development and Management
DEA	Department of External Affairs
DEE	Department of Ecology and Environment
DRR	Disaster Risk Reduction
EO	Evaluation Office
ES	Ecosystem Services
FA	Focal Area
FFSG	Freshwater Fish Specialist Group
FSP	Full-Sized Project
GDP	Gross Domestic Product
GEER Foundation	Gujarat Ecological Education and Research Foundation
GEF	Global Environment Facility
GEF-OFP	Global Environment Facility – Operational Focal Point
GEFTF	Global Environment Facility Trust Fund
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoB	Government of Bihar
GoI	Government of India
IBAs	Important Bird Areas
IDA	International Development Assistance
IIT	Indian Institute of Technology
IMWBES Project	Integrated Management of Wetland Biodiversity and Ecosystem Services Project
INGOs	International Non-Governmental Organizations
IPRI	Irrigation and Power Research Institute
IRS LISS III	Indian Remote Sensing Linear Imaging Self Scanning Sensor 3
ISRO	Indian Space Research Organisation
ITC	Indian Tobacco Company
IUCN	International Union for Conservation of Nature
IWC	International Waterbird Census
IWMED	Institute of Wetland Management and Ecological Design
India - WRIS	India – Water Resources and Information System
JnNURM	Jawaharlal Nehru National Urban Renewal Mission
JNU	Jawaharlal Nehru University
KSSP	Kerala Sasthra Sahithya Parishad
KSS	Kanwar Sangharsh Samiti
KSSB	Kerala State Biodiversity Board
KVK	Krishi Vigyan Kendra
KWA	Kerala Water Authority
LDA	Loktak Development Authority
LTSA	Lead Technical Support Agency
M & E	Monitoring and Evaluation
MEAs	Multi-lateral Environmental Agreements
MSSRF	Mankombu Sambasivan Swaminathan Research Foundation

MTE	Mid-Term Evaluation
MTR	Mid-Term Review
MoEFCC	Ministry of Environment, Forests and Climate Change
MoUD	Ministry of Urban Development
MoWRRD	Ministry of Water Resources, River Development and Ganga Rejuvenation
NEA	National Executing Agency
NGOs	Non-Governmental Organizations
NIH	National Institute of Hydrology
NLCP	National Lake Conservation Plan
NPCA	National Plan for Conservation of Aquatic Ecosystems
NPD	National Project Director
NPSC	National Project Steering Committee
NRCD	National River Conservation Directorate
NWCP	National Wetland Conservation Programme
NWIA	National Wetland Inventory and Assessment Project
PIP	Project Implementation Plan
PIR	Project Implementation Review
PMU	Project Management Unit
PPG	Project Preparation Grant
PSBB	Punjab State Biodiversity Board
PSC	Project Steering Committee
PSCST	Punjab State Council for Science and Technology
RAPPM	Rapid Assessment and Prioritization of Protected Area Management
RIS	Ramsar Information Sheets
RRR	Repair, Renovation & Restoration
SAC	Space Application Center
SACON	Salim Ali Center for Ornithology
SAP	State Agencies for Pilots
SGF	Small Grants Facility
SGs	State Governments
SMART	Specific Measurable Achievable and Attributable Relevant and Realistic Time-bound, Timely, Trackable and Targeted.
STA	Senior Technical Advisor
TAG	Technical Advisory Group
TE	Terminal Evaluation
TEEB	The Economics of Ecosystems and Biodiversity
TESSA	Toolkit for Ecosystem Services Site Based Assessment
UN	United Nations
UNDP	United Nations Development Programme
UNEP/DEPI	United Nations Environment Programme/Division of Environmental Policy Implementation
UNEP/ROAP	United Nations Environment Programme/Regional Office for Asia and the Pacific
US$	United States Dollar
WASH	Water, Sanitation and Hygiene
WAVES	Wealth Accounting and Valuation of Ecosystem Services
WB	World Bank
WI	Wetlands International
WII	Wildlife Institute of India
WISA	Wetlands International South Asia
WLI	Wetland Link International
WRTC	Wetland Research and Training Centre
WWD	World Wetlands Day
WWF	World Wide Fund for Nature
ZSI	Zoological Survey of India

Section 2: Background and Situation Analysis (Baseline course of action)

2.1 Background and context

1. The Integrated Management of Wetland Biodiversity and Ecosystem Services **(**IMWBES) project aims at improving management effectiveness of the nationally and internationally significant wetlands of India. This GEF Full-Size Project (FSP) complements the National Plan for Conservation of Aquatic Ecosystems (NPCA), flagship programme of the Ministry of Environment, Forests and Climate Change (MoEFCC), Government of India (GoI), for conservation and sustainable management of wetlands in the country.

2. Wetlands, ecosystems located at the interface of land and water, form an important component of India's natural resource endowment. As conspicuous parts of the hydrological cycle, wetlands play an important role in providing freshwater, purifying wastewater, buffering floods and storms, regulating water regimes, trapping sediments and nutrients and ultimately providing water and food security for all. A number of plant and animal species depend on wetlands and for several rare and endangered ones, these ecosystems are indeed their last refuge. As per the 2011 National Wetland Atlas, India has 15.26 million ha area under wetlands, roughly equal to 4.6% of her land area[1].

3. Despite their wide ranging ecosystem services[2] and biodiversity values, wetlands continue to be degraded and under threat from a range of developmental pressures emanating from *inter alia* urbanization, agriculture intensification, and industrialization. As per various estimates, nearly 30% of natural wetlands in the country have been lost in the last three decades alone. At the core of wetland degradation is weak recognition of their ecosystem services and biodiversity values within broader developmental programing. Degradation of wetlands, and the concomitant decline in ecosystem services, increases water and food insecurity, as well as constrains climate change adaptation in a number of ways.

4. The MoEFCC, as the nodal agency for the conservation and sustainable management of wetlands in the country, has been providing financial and technical support to the State Governments (SG) and Union Territory Administrations[3] for implementing management plans for identified wetlands since 1986 under its two schemes: the National Wetland Conservation Programme (NWCP) and the National Lake Conservation Plan (NLCP)[4]. Conservation planning is organized on the basis of a site network approach, wherein SGs identify sites based on specified criteria[5]. As on December 2013, over 170 sites have been identified as being of national priority. The Ministry has also designated 26 wetlands as being of international significance under The Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar Convention)[6].

5. In February 2013, the Union Cabinet approved the merger of NWCP and NLCP into a unified scheme entitled 'National Plan for Conservation of Aquatic Ecosystems' (NPCA) so as to enable application of integrated and multi-disciplinary approaches for wetland conservation under a common regulatory framework.

6. NPCA envisages stemming the continued loss and degradation of wetlands in the country by promoting a cross-sectoral policy, planning and decision making environment for wetland conservation and sustainable management. An allocation of US$ 85 million (over five year plan period) has been made to provide funding support to the SGs for integrated wetland management and mainstreaming wetland ecosystem services and biodiversity values in state level developmental programming. This is to be achieved through a range of strategies, including funds convergence, cross sectoral governance, and

[1] National Wetland Atlas, SAC/EPSA/ABHG/NWIA/ATLAS/34/2011, Space Application Center (ISRO), Ahmedabad, India, 310 pp

[2] As defined by Millennium Assessment, 'Ecosystem services' are the benefits people obtain from ecosystems. These include provisioning services (food and water), regulating services (regulation of floods, droughts, land degradation and disease), and cultural services (recreational, spiritual and other non-material benefits). The term ecosystem services corresponds with the usage of terms "products, functions and attributes".

[3] Hereinafter, the use of term 'state' will mean to include states and Union Territories, and 'State Governments' to include State Governments and Union Territory Administrations

[4] MoEFCC introduced NWCP in 1986. NLCP was introduced in 2001 to address pollution issues in urban lakes. Scheme details are discussed in Section 2.4.

[5] Identification of sites under NWCP is based on a set of 9 criteria based on wetland types, species and ecological communities, waterbirds, fish, water/livelihoods and culture and an area of more than 100 ha. NLCP uses a criterion related to hydrology (size>10ha, depth >3m), pollution status, use as drinking water, and uniqueness.

[6] Of the 26 sites, 12 sites are included within the list of wetlands prioritized under NWCP.

mission mode implementation. Complementing NPCA, the IMWBES Project envisages addressing knowledge, capacity and institutional barriers that limit application of integrated management principles and mainstreaming approaches for the nationally and internationally significant wetlands of the country.

7. The project design is consistent with FA objectives 1 and 2 of the GEF-5 Biodiversity Results Framework. Strengthening integrated management of wetlands within the country would contribute to BD FA goal of conservation and sustainable use of their biodiversity and maintenance of ecosystem services. Ecosystem services based knowledgebase and decision support systems, formulation and implementation of management plans that enable cross-sectoral governance incorporating inter-linkages between local economic development and maintaining the health of wetland network, as well as building the capacity of wetland managers for upscaling at national level will improve management effectiveness of existing and new protected areas (Outcome 1.1). Supporting incorporation of the value and contribution of wetland ecosystem services to various sectoral programmes related to water management, agriculture, and rural development within the context of river basins and highlighting the upstream – downstream linkages would promote mainstreaming of wetland biodiversity and ecosystem services into landscapes and sectors thereby supporting BD Outcome 2.1 (increase in sustainably managed landscapes that integrate biodiversity conservation) of the FA strategy.

2.2 Global significance

8. Owing to wide variations in rainfall, hydrology, physiography, geomorphology and climate, India is endowed with a rich diversity of wetlands, ranging from high altitude lakes of the Himalayas, floodplains and marshes of the Gangetic – Brahmaputra alluvial plains, saline flats of the Great Indian Desert and extensive mangroves and coral reef areas straddling the country's east and west coastline.

9. Wetlands contribute to societal well-being in a number of ways. Cities, such as Bhopal (Madhya Pradesh)[7], New Delhi[8], and Kollam (Kerala)[9] depend on wetlands for their water supplies. The recharge of groundwater from the floodplain wetlands associated with the major river systems in India has been assessed to exceed 430km^3 per annum[10], forming an important component of national water and food security. East Kolkata Wetlands (West Bengal) form an important component of the waste water treatment infrastructure of the city; treating nearly 600 million litres of sewage daily through an ingenious practice of waste based pisciculture, agriculture and horticulture[11]. In the Kashmir Valley, Wular Lake (Kashmir) accommodates a significant proportion of the summer flows of Jhelum River, protecting the picturesque City of Srinagar from floods[12]. Similarly, floods of the River Brahmaputra in Guwahati (Assam) would be several times more devastating if Deepor Beel and associated wetlands did not accommodate monsoon flows[13]. Nearly 1.2 million tanks within the southern states of Andhra Pradesh, Karnataka, and Tamil Nadu form nearly 60% of India's tank irrigated area[14]. Dal Lake (Kashmir), Khajjiar Lake (Himachal Pradesh), Nainital Lake (Uttarakhand) and Kodaikanal (Tamil Nadu) are important tourism and recreation destinations. Fisheries and tourism in Lake Chilika (Odisha) support livelihoods of over 0.3 million people living around the lagoon[15]. The festival of Chhath celebrated in North India is one of the most unique expressions of the association of people, culture, water and wetlands[16]. Ability of coastal wetlands such as mangrove marshes to sequester carbon and guard against the impacts of tropical storms and cyclones is well-documented[17].

10. Wetlands are also reservoirs of biodiversity. Existing records indicate presence of nearly 1200[18]floral and 18,000 faunal species in these ecosystems[19]. ZSI has also recorded presence of 3,022 fish species

[7] Verma et al (2001)
[8] Trisal et al (2008)
[9] Kollam City receives water from Sashtamcotta Lake, a Ramsar Site of Kerala.
[10] Kumar, R., Singh, R. D., & Sharma, K. D. (2005). Water resources of India. *Current science*, *89*(5), 794-811.
[11] Kundu et al (2008)
[12] Wetlands International South Asia (2007). Destruction of wetlands, particularly the extensive marshes between Srinagar and Baramulla, and reduction in areas of Dal Lake and Wular Lake, have been identified as one of the key underlying factors for the devastating floods that rabaged Kashmir Valley during September 2014. The flash floods resulted in over 300 deaths, damages to 0.12 million houses and evacuation for 0.18 persons.
[13] Gogoi (2007)
[14] Palanisami et al (2010)
[15] Kumar and Pattnaik (2011)
[16] Wetlands International South Asia (2013)
[17] Kathiresan and Thakur (2008)
[18] Prasad et al (2002)
[19] Alfred et al (1998), Alfred and Nandi (2000)

in the nation's aquatic environment[20], which are important parts of food chain as well as components of food and nutritional security of a large human population. For 276 recorded waterbird species[21], wetlands provide critical resting, roosting, feeding and foraging habitats.

11. Conservation and sustainable management of Indian wetland network contributes globally to maintenance of biological diversity, particularly for a number of globally threatened species requiring urgent conservation action. The 646 threatened faunal species in India include 213 fish and 74 amphibians. Twenty one of the 28 species of freshwater turtles found in country's wetlands are classified as being globally threatened. Similarly, of the waterbird species recorded in Indian wetlands, 44 species are classed as threatened of which four are critically endangered, five endangered, 15 vulnerable and 20 near threatened[22] (Table 1).

12. The network of nationally and globally significant wetlands supports several charismatic species. Chilika maintains a healthy population of, and, is one of the only two lagoons in the world inhabited by Irrawaddy Dolphin (*Orcaella brevirostris*).Keibul Lamjao, a floating national park on the south of Loktak Lake is the only known natural habitat of globally endangered swamp deer *Rucervus eldii*.The largest remaining populations of Critically Endangered Gharial (*Gavialis gangeticus*) are concentrated around riverine wetlands of River Son, Girwa and Chambal of Central India. The spectacular wetlands of Ladakh are the only known breeding ground of globally vulnerable Black-necked Crane, *Grus nigricollis* in India[23]. The freshwater wetlands alone are inhabited by over 180 species classified as critically endangered or endangered under the IUCN Red List of Threatened Species.

13. The species diversity of mangroves in India represent nearly 60% of the known global diversity[24], supporting over 920 plant and over 3,100 animal species[25]. Existing records indicate the presence of atleast five critically endangered or endangered mangrove animal species. The 39 true mangrove species recorded from Indian mangrove marshes includes the world's largest block of halophytic mangroves (Sunderbans which straddles India and Bangladesh), also including two globally threatened species *Sonneratia griffithii* and *Heritiera fomes.* Similarly, the coralline diversity in the country, constituted by 478 species of 89 genera, forms 60% of the global hermatypic genera.

14. Placed geographically in the core region of the Central Asian Flyway (CAF), Indian wetlands are of high significance for migrating waterbird species within a large intra-continental territory between the Arctic and the Indian Ocean. Indian wetlands are host to 81 extra-limital seasonal immigrants from Palaearctic Region beyond the Himalayas – in central and northern Asia, and eastern and northern Europe. Of these, Baer's Pochard *Aythya baeri* and Sociable plover *Vanellus gregarious*, are classified as being critically endangered. Maintenance of wetland habitats in a healthy state is absolutely crucial for these species.

Table 1: Wetland dependent globally threatened bird species found in India[26]

Biomes	Near Threatened	Vulnerable	Endangered	Critically Endangered
Trans Himalayas and Himalayas		Black-necked Crane Wood Snipe Lesser Adjutant Greater Spotted Eagle	White-winged Duck	White-bellied Heron

[20] Information presented in this paragraph has been summarized from India's Fifth National Report to the Convention on Biological Diversity (2014): Government of India (2014)

[21] Gopi, G.V et al (2014)

[22] Published by Gopi, G.V. et al (2014) based on information from Grimmett et al (2011), Ali (2002), Rahmani and Islam (2008) and Praveen et al (2014).

[23] WWF-Department of Wildlife Protection, Government of Jammu and Kashmir report (2004) available from http://awsassets.wwfindia.org/downloads/black_necked_crane_final_print_version.pdf

[24] Bhatt et al (2013)

[25] Bhatt et al (2011)

[26] Compiled from species distribution presented in Islam and Rahmani (2008), conservation status derived from IUCN Red List database 2014.2

Gangetic Plains	Spot-billed Pelican	Lesser Adjutant Lesser White-fronted Goose Marbled Teal Pallas's Fish-Eagle Greater Spotted Eagle Swamp Francolin Sarus Crane Indian Skimmer Hodgson's Bushchat Marsh Babbler Jerdon's Babbler Slender-billed Babbler Bristled Grass-Warbler Finn's Weaver	Greater Adjutant White-headed Duck	Pink-headed Duck Baer's Pochard Siberian Crane Bengal Florican
Brahmaputra floodplains and north east	Spot-billed Pelican	Marsh Babbler Black-breasted Parrotbill Lesser Adjutant Marbled Teal Pallas's Fish-Eagle Greater Spotted Eagle Swamp Francolin Sarus Crane Wood Snipe Hodgson's Bushchat Marsh Babbler Jerdon's Babbler Slender-billed Babbler Bristled Grass-Warbler Finn's Weaver	Manipur Bush Quail Greater Adjutant White-winged Duck Masked Finfoot Spotted Greenshank	White-bellied Heron Pink-headed Duck Baer's Pochard Bengal Florican
Arid and semi-arid region	Lesser Flamingo	Greater Spotted Eagle		Sociable Lapwing
Deccan Peninsula	Spot-billed Pelican	Lesser Adjutant Greater Spotted Eagle		
Western Ghats	NA	NA	NA	NA
Coasts and Islands		Wood Snipe Lesser Adjutant	Spotted Greenshank	

15. The 26 designated Indian Ramsar Sites form an integral component of the global network of over 2,000 Ramsar Sites, enabling application of wise use principle for maintenance of ecosystem components and processes which underpin delivery of ecosystem services. Fifteen of the 26 designated sites regularly support 1% of the individuals of one species or subspecies of waterbirds. Maintenance of the Ramsar site network is also critical owing to the fact that globally, the status of wetland dependant species has rapidly deteriorated in the recent times[27]. The GoI would like to further expand the List of Ramsar Sites, and support wider application of wise use principle across the national wetland network.

16. The Indian wetland network also makes significant contribution to global and regional water and food security. The High Altitude Himalayan wetlands exemplify this contribution. The Himalayas, with the largest bodies of ice outside polar caps, are termed as the 'water towers' of the world. The high altitude wetlands of the Himalayan region, by capturing the glacial melt, form the source of the eight largest rivers of Asia, basins of which support nearly one-fifth of global population[28]. India has 4699 such wetlands covering 0.12 million ha[29]. The floodplains of Ganga and Brahmaputra are central to food security accounting for over 40% of the total cultivated area in the country, and a major source of rice and fish production.

17. Finally, the global significance of the Indian wetland network also stems from their role in moderating and adapting to impacts of a changing climate. Coastal wetlands, such as mangroves can store upto 50

[27] As per WWF's 2014 Living Planet Report, freshwater species have suffered 76% decline since 1970, an average loss being double that of terrestrial and marine species. Report accessible from: http://wwf.panda.org/about_our_earth/all_publications/living_planet_report/

[28] Trisal and Kumar (2008)

[29] Space Application Center (2012)

times more carbon than the tropical forests[30]. The role of coastal wetlands in buffering the impacts of tropical cyclones and storm surges[31] has also been well documented. The ability of inland wetlands such as river floodplains to store water and regulate hydrological regimes also makes their integration into climate change adaptation policies and programmes important.

2.3 Threats, root causes and barrier analysis

18. Wetlands are globally one of the most rapidly degrading ecosystems in the world[32]. The trends in wetland loss and degradation in India reflects the global status of wetlands. As per conservative estimates, nearly 30% of the natural wetlands have been lost in the last three decades alone on account of a range of pressures including *inter alia* urbanization, agriculture intensification, industrialization, and aquaculture[33]. Such degradation, and resulting impairment of ecosystem services, affects biodiversity and human well-being in a number of ways. The major **direct and indirect threats** impacting wetland biodiversity and ecosystem services are as follows:

19. *Fragmentation of hydrological regimes:* Wetlands are adapted to their hydrological regimes. Water regimes set the template which structures their biodiversity and ecosystem services. Fragmentation of hydrological regimes often leads to reduced water availability, altered hydroperiod, loss of connectivity with biodiversity habitats, impeded nutrient exchange and other processes which significantly enhance their degradation. Until 2007, about 276 major and 1000 medium scale irrigation projects with a total water storage capacity of 222 billion cubic meters were constructed in India[34]. These projects have played a critical role in providing water for economic usages, but in several circumstances, lack of consideration of the functioning of wetland ecosystem services have created adverse impacts on the integrity of aquatic habitats. Construction of Ithai Barrage downstream of Loktak Lake to divert water for hydropower generation has converted a natural floodplain lake with fluctuating water levels into a reservoir, critically affecting the habitat of the Manipur brow antlered deer and near complete obstruction of migratory pathways of fishes from Chindwin – Irrawaddy system[35].Conversion of marshes associated with Wular Lake for agriculture has reduced the capacity of the wetland complex to regulate flow regimes leading to increased floods and droughts[36]. Despite reclamation of over 60% of the floodplains of the Vembanad-Kol backwaters (Kerala), agriculture could not be sustained, creating distress for farmers as well as causing irreversible changes in wetland habitat[37].

20. *Catchment degradation*: The water holding capacity of wetlands play a crucial role in determining its ability to regulate flow regimes, cycle nutrients and support biodiversity. Degradation of catchments, including *inter alia* land-use change and soil erosion, has a direct impact on water holding capacity and overall water regimes accentuating wetland degradation. Bathymetric surveys for Harike Lake (Punjab) carried out in 2010 have indicated a loss of 86% of water holding capacity since 1954 due to catchment degradation. The resulting decline in inundation has reduced hydrological regime moderation capability of Harike, and coupled with high levels of nutrient enrichment, promoted infestation with invasive species Eicchornia. Surajkund and Badhkal Lakes, tourist hotspots in the vicinity of Delhi have frequently run dry on account of excessive mining in the catchments, which prevents inflow of rainwater and recharge of groundwater critical to the maintenance of the hydrological regimes of these wetlands.

21. *Pollution*: Increasing urbanization without development of adequate waste management infrastructure has led to increased pollution within wetlands located within urban areas and the peri-urban interface. Agricultural intensification and the increased use of chemical fertilisers has resulted in negative impacts on the water quality within rural wetlands. For instance, most of the Gangetic floodplain wetlands are in advanced state of eutrophication due to discharge of untreated sewage and sewerage as well as runoff from nutrient rich agricultural fields. Over the last four decades, fertilizer consumption has increased from 2.8 million tonnes in 1973-74 to 28.3 million tonne in 2010-11, of which nearly

[30] See Hutchinson et al (2013). Donato et al (2011) conclude that mangrove deforestation generates as much as 10% of emissions from deforestation globally despite accounting for just 0.7% of tropical forest area.
[31] Badola and Husssain (2005), Das and Vincent (2009), Danielsen et al (2005)
[32] A recently collated assessment (Davidson, 2014) concludes that the reported long term loss of natural wetlands averages between 54-57%. The loss of wetlands in 20th and 21st century are over 3.7 times faster than those reported since 1900 AD.
[33] A conservative estimate based on analysis of existing wetland inventory data reported in Parekh et al (2012) and MoEFCC and GIZ (2014)
[34] Central Water Commission (2010)
[35] Wetlands International South Asia (2005)
[36] Wetlands International South Asia (2007)
[37] Wetlands International South Asia (2014)

15% eventually end up within the surface water system[38]. Alongwith the runoff from agricultural fields, untreated wastewater is also a major pollutant for waterbodies[39]. A Pollution Audit of Indian waterbodies carried by Comptroller and Auditor General of India in 2010 (covering 140 projects across 24 river stretches and 22 lakes in 116 blocks across 25 states of India) indicated high levels of organic pollution, low oxygen levels for aquatic organisms, and high contamination with protozoa and viruses of faecal origin. With less than one third of waste water generated in the country's urban centres treated, aquatic ecosystems are under tremendous pressure from pollution loading.

22. *Invasive Alien Species (IAS)* : Most of the inland wetlands of India have been invaded by exotic species which have acquired nuisance proportions considerably influencing the native biota and habitat conditions. The list is topped by the water hyacinth, which was introduced into India about a century ago and occurs now throughout India except in the cold regions of high altitudes. The other major IAS that have gradually spread over large parts of the country are *Salvinia molesta*, *Ipomoea carnea spp* and *Alternanthera philoxeroides*. Devastating impacts on local biodiversity have been observed mostly in case of Tilapia, *Oreochromis mossambicus*, which has invaded the fresh and brackish water bodies. Similarly, invasive floral species can choke watercourses exacerbating local flooding and compromising livelihoods.

23. *Over-harvesting of resources*: Owing to high livelihood dependence, wetlands are often subject to over-harvesting of resources, and modification for enhancing provisioning services such as wood, fish, water etc. at the cost of regulating and cultural services. Use of detrimental fishing practices, as small mesh size nets, is prevalent in a majority of inland wetlands. Often the limit of sustainable yield for a particular wetland is not known and at times ignored by the stakeholders. Wetland biodiversity and wider food webs are also put under stress by loss of by-catch. Varying inundation regimes are often modified to suit agricultural and aquaculture uses. For example, livelihoods of over 15,000 fishers living around Kanwar Jheel in North Bihar have been completely disrupted owing to increased predominance of permanent agriculture within the wetland. Agriculture in turn has been impacted by lowering of ground water levels and flooding attributed to shrinkages in wetland regimes[40].

24. *Unregulated tourism*: Tourism is an important driver of growth, contributing nearly 6% to the national Gross Domestic Product (GDP) and 9% of the total employment. Wetlands constitute an important part of the tourism experience, and the touristic pressure is only likely to increase in the times to come. Every year, on an average, the backwaters of Kerala are visited by nearly 7 million tourists. In Chilika, visitation by 0.45 million tourists creates an economy worth Rs. 2300 million (approx. USD 37 million)[41]. However, in several circumstances, the habitat characteristics or limits of functioning of wetlands are not taken into account while developing tourism infrastructure and recreation facilities. For instance, increase in houseboats in Dal Lake (Kashmir) and Vembanad backwaters (Kerala) have converted tourism from a livelihood opportunity to threat to these fragile ecosystems.

25. *Climate Change*: Global climate change is fast emerging as an important driver of loss and change in wetlands. High Altitude Wetlands and coastal wetlands in particular face high risks of adverse changes in ecological character. For example, climate change induced melting of glaciers has led to increased water levels of Tsomoriri (Ladakh) submerging habitats utilised by endangered migratory birds such as the Black-necked crane and Bar-headed geese[42]. Modelling simulations indicate that about 84% of coastal wetlands and 13% of saline wetlands are at risk due to a one meter sea level rise[43]. Inland wetlands are at risk from alteration in hydrological regimes, and eutrophication and algal blooms likely to result from increasing temperatures[44].

26. The following are the **root causes** underlying the threats described above:

27. *Increasing pressure on water and land resources:* Between 1951 and 2011, total human population in India grew from 0.4 billion to 1.2 billion, clocking an average decadal growth rate of around 22%. In the 90 year period between 1901 and1991, the number of urban centres in the country doubled while the urban population has increased over eightfold. Rapid population growth, unsustainable urbanization and changes in underlying patterns of consumption have put excessive pressure on natural resources in

[38] Indian Institute of Technology (2011)
[39] Less than 30% of domestic wastewater is treated. Conditions in smaller urban centers is even worse.
[40] Wetlands International South Asia (2014)
[41] Kumar and Pattnaik (2012)
[42] Chandan et al (2008)
[43] Blankespoor et al (2012)
[44] Gopal et al (2010)

general and on wetlands in particular[45]. In several river basins of India, the increase in area under agriculture required to feed a burgeoning population has been through the conversion of river floodplains and the subsequent degradation of seasonal wetlands. The large scale development of water infrastructure in the country has also led to significant alteration of natural hydrological regimes. Though reservoir projects have played a critical role in water supply, flood control, irrigation and energy production, the rapid expansion of such projects without consideration of wetland values has caused widespread fragmentation of freshwater habitats[46].

28. *Limited consideration of wetland ecosystem services and biodiversity values in sectoral development programming:* Despite substantive evidence on the contribution of wetland ecosystem services and biodiversity to societal well-being, seldom are these values fully recognized and appropriately addressed in sectoral development programming. Whilst located within national protected area network (reserved forests, national parks and wildlife sanctuaries), wetland conservation is driven largely based on protected area based approaches, which do not adequately address basin scale drivers of degradation. Often certain wetland ecosystem services are maximised at the expense of optimising the benefits across different sectors of society. For instance, interventions for augmenting water and food security often tend to increase provisioning services of wetlands, such as food production, at the cost of their capacity to deliver regulating and cultural services. In most states, wetlands are not recognized as a land use category. The ecological and economic consequences of not factoring in wetland functioning in sectoral developmental programming are increasingly coming to fore. For instance, reclamation of lakes in Bangalore and Chennai is considered as one of the major factors for increased urban flooding[47].

29. *Limited awareness and stakeholder participation*: In several instances, wetland degradation is rooted in limited awareness of their biodiversity and ecosystem service values. Management approaches applied to date are predominantly based on protected area based approaches and seldom engage stakeholders, particularly wetland dependent communities in management. Management approaches also fail to internalize informal and traditional community led resource management practices, often leading to conflicts. As a result, there are limited incentives for local resource stewardship.

30. An analysis of threats and root causes indicates that while wetlands contribute significantly to societal well-being, their integration in developmental programming has been limited. The following knowledge, capacity and institutional barriers limit effectiveness of efforts placed for conservation and sustainable management of nationally and internationally significant wetlands' network**:**

31. *Knowledge Barriers:* The research and knowledgebase that informs wetland management in most sites is skewed towards structural aspects (species inventory, biophysical and limnological characteristics). There is limited research focus on wetland functioning and relationship with human well-being (eg., ability to regulate hydrological regimes, extent of influence of nutrient and sediment pathways, degree of impacts of land use change on wetlands, stakeholder values for wetland ecosystem services). This also creates communication barriers for different sectors and stakeholders, who need to understand the ways and extent to which wetlands can contribute to sectoral development objectives. National wetland inventory data, in its current form, provides information limited to wetland extent, and is not amenable for supporting strategic selection of sites with due consideration of land use changes and development pressures. Knowledge barriers also extend across different sectors of society and different institutional structures. Academic studies are usually site specific and short-term resulting in difficulties in scaling up and knowledge transfer. Indigenous knowledge is poorly considered and integrated across many sectors, often resulting in negative trade-offs caused by ignorance rather than a lack of understanding. There is lack of platforms wherein credible information on wetlands can be accessed and used by various stakeholders.

32. *Capacity Barriers:* Site management plans prepared by SGs are the most important instruments for leveraging funds for conservation and sustainable management. A review of the management plans submitted to the MoEFCC indicates a distinct lack in capacity for developing integrated management plans that consider the full range of ecosystem services and biodiversity, and can generate management prescriptions to address related drivers and pressures. Avenues for training wetland managers in

[45] For example, during 1973-2007, Greater Bengaluru lost 66 wetlands with a waterspread of 1100 ha (Ramachandra and Kumar, 2008). Khandekar (2011) concluded that of the 629 waterbodies in National Capital Region of Delhi, as many as 232 could not be revived on account of encroachment.

[46] Kumar et al (2008); Zhao et al (2006); Smakthin et al (2004)

[47] Gupta and Nair (2011) present a temporal mapping of loss of wetlands in Bangalore and Chennai and increasing flood risk

integrated wetland management are limited. Existing international and national guidance[48] and best practices are rarely accessed and applied. Therefore, while funding is a primary barrier to capacity building, the existing lack of technical capacity further exacerbates the situation by limiting application of existing guidance and best practices.

33. *Institutional Barriers:* State level developmental programming has a major influence on status of wetlands as the Indian constitution places management of water and land resources, the two ecological constituents of wetlands, under their jurisdiction. Very few states (Odisha being an exception) have created a dedicated budget for wetland management. Wetlands are rarely considered as a part of state level developmental programming, rather their conservation is looked upon as one of the several funding commitments of the union government. A significant proportion of sites for which national funding has been accessed is for wetlands within the boundaries of national parks and sanctuaries which already have a relatively higher degree of protection within the existing legal framework for management of protected areas. Cross-sectoral governance arrangements have failed to emerge for most of the sites and states, and regulatory frameworks very weakly implemented. Much of the funding for wetland conservation is sourced from government, with very limited role of private sector.

2.4 Institutional, sectoral and policy context

34. *National context:* The Indian Constitution, in its Article 51-A(g) stipulates that "it shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures. The MoEFCC, at its inception in 1985, identified wetland conservation and sustainable management as one of its important programming themes. India's assent to the Ramsar Convention in September 1982 provided an important backdrop to this decision. The Ministry established the NWCP in 1986[49] to provide the overarching policy framework and financial assistance to the SGs for implementation of site management plans. In 2001, the NLCP was introduced to address pollution issues in urban and semi-urban environments through interception, diversion and treatment of pollution load entering lakes. As of December, 2013, the network of sites of national and international significance included 170 wetlands.

35. The policy architecture for wetlands is defined within the broader national environment policy. The National Conservation Strategy and Policy Statement on Environment and Development[50] issued in 1992 identified pollution and over-exploitation of wetlands as an area of concern. Conservation of wetlands was highlighted as a strategy for sustainable use of land and water resources as well as biodiversity conservation. Subsequently, the revised National Environment Policy of 2006[51] laid down specific policy elements for wetlands. Wetlands have been identified as components of 'freshwater resources'. Recommended policy actions include integration in developmental planning, management based on prudent use strategies, promotion of ecotourism, and implementation of a regulatory framework. Integration of wetlands in river basin management has been identified as a strategy for management of river systems.

36. In line with recommended policy actions, a regulatory framework for wetlands was introduced by the Ministry in the form of Wetland (Conservation and Management) Rules, 2010 under the provisions of the Environment (Protection) Act, 1986[52]. The Rules stipulate prohibition and regulation of a range of developmental activities within a wetland notified under its provision by the SGs. A Central Wetlands Regulatory Authority (CWRA) has been constituted for the purpose of enforcing the rules, to evaluate proposals for wetland notification sent by the SGs and set thresholds for activities to be regulated.

37. Provisions of the Indian Forest Act (1927) and The Indian Wildlife (Protection) Act, 1972 define the regulatory framework for wetlands located within forests and designated protected areas. Similarly, the

[48] For example, the Handbooks on Wetland Management available through Ramsar Convention provide guidance on almost all aspects of wetland management.

[49] The ambit of the scheme initially included all inland and coastal wetlands. However, a separate scheme for conservation and management of mangroves and coral reefs was initiated considering their specific needs within the overarching coastal zone management framework.

[50] The first major national policy statement on environment, accessible from MoEFCC's website at: http://envfor.nic.in/sites/default/files/introduction-csps.pdf

[51] Approved by Union Cabinet on 18 May , 2006 and accessible from MoEFCC's website at: http://envfor.nic.in/sites/default/files/introduction-nep2006e.pdf

[52] An umbrella legislation enacted with the objective of protecting and improving the environment and for matters connected therewith. The provisions of the Act empower Central Government to take all measures that it 'deems necessary or expedient' for protecting and improving the quality of environment and for preventing, controlling and abating environmental pollution. In order to ensure environmental protection, the Central Government has been empowered to constitute authorities and officers, frame rules and issue notifications and directions.

Coastal Regulation Zone (Notification) amended in 2011 provides the regulatory framework for coastal wetlands. Coral reefs, mangroves, mud flats, and salt marshes are included within ecologically sensitive areas and accorded highest conservation significance. The Biological Diversity Act , 2002 covers conservation, use of biological resources and associated knowledge occurring in India, including those pertaining to wetlands, for commercial or research purposes or for the purposes of bio-survey and bio-utilisation. It provides a framework for access to biological resources and sharing the benefits arising out of such access and use.

38. Information requirements for guiding the national programme are met largely through research budgets of the MoEFCC. National agencies such as BSI, ZSI and the Central Inland Fisheries Research Institute (CIFRI) maintain databases on various elements of aquatic biodiversity.

39. Asian Waterbird Census (AWC) is an important source of information on the status of waterbirds. Initiated in 1987, AWC runs in parallel with other waterbird censuses carried out in Africa, Europe, Central and West Asia and Latin America under the overarching umbrella of the International Waterbird Census (IWC), organized by Wetlands International. AWC covers over 6,000 wetlands (including nearly 1,000 in India alone) in 22 countries in Southeast Asia, East Asia (including eastern Russia) and Australasia and another five in South Asia, and is an important input in determining population estimates and 1% thresholds for designating Ramsar sites under Criterion 6 and providing input into the Ramsar Indicators of effectiveness. During 1987-2014, over 3500 sites were counted as part of the census[53]. The 465 Important Bird Areas (IBAs) identified in India by the Bombay Natural History Society (BNHS) and Birdlife International include a majority of wetland sites with high biodiversity values[54].

40. Information on extent of wetlands is a critical tool for targeting conservation efforts. Attempts to assess the overall extent of wetlands in the country have been made since the 1960s. The Asian Wetland Inventory reported the total wetland area in India to be 58.3 million ha, which included 40.9 m ha under paddy cultivation. The Space Application Center (SAC) mapped the wetlands using a mix of 1: 250,000 and 1:50,000 resolution data from 1992-93. The overall wetland extent was assessed to be 8.26 million ha of which 3.55 million were classified as inland[55]. The UNDP sponsored project on 'Inland Wetlands of India – Conservation Priorities' generated the second major remote sensing based inventory of wetlands in India. The project mapped wetlands for 72 districts of 10 states using 23.5 m resolution data of IRS LISS III mostly from2001 and prioritized the 655 wetlands for conservation using criteria related to biodiversity and socio-economics[56].

41. Concerned with gaps in information and lack of consistent methodology, the MoEFCC initiated a nation-wide wetland mapping project entitled 'National Wetland Inventory and Assessment' with the Space Application Centre (SAC) during 2007-2011. Overall 19 wetland type classifications were used. Small wetlands of below 2.25 ha were mapped as point features. RESOURCESAT I LISS III data of 2006 – 07 at 1: 50,000 scale (with 23.5 m resolution) were used for defining extent of wetlands. The study estimated the extent of wetlands in the country to be 15.26 million ha of which inland wetlands accounted for 69.22% (10.56 million ha). The MoEFCC has advised the SGs to identify priority wetlands using the state-wise atlases developed by SAC under the national wetland mapping project.

42. Several SGs (notably West Bengal, Odisha, Kerala, Manipur, Assam) have also enacted their own legislations pertaining to wetlands. The Government of Manipur notified the Manipur Loktak Lake (Protection) Act, 2006 and Manipur Loktak Lake (Protection) Rules, 2008 which define a core zone and buffer zone, and stipulate specific activities that can be permitted within these designated areas. Similarly, the East Kolkata Wetlands (Conservation and Management) Act, 2006 recognizes use of sewage as one of the core ecological characteristics of the East Kolkata Wetlands. The government of Odisha is in advanced stages of introducing a bill in its legislative assembly which would empower the authority to regulate detrimental fishing, amongst various other stipulations. In Kerala, the Conservation of Paddy Land and Wetland Act, 2008, bans conversion of wetlands. In 2015, the SGs of Karnataka and Rajasthan have enacted legislations for conservation of wetlands.

43. *Wetlands in national sectoral policies*: The National Water Policy (2012)[57]provides an important policy framework for linking wetlands to water resources management. The policy recommends

[53] Li et al (2009).
[54] Islam and Rahmani (2004)
[55] Garg et al (1998)
[56] Vijayan (2004)
[57] Accessible from Ministry of Water Resources, River Development and Ganga Rejuvenation, Government of India website: http://wrmin.nic.in/writereaddata/NationalWaterPolicy/NWP2012Eng6495132651.pdf

adoption of a basin approach for water resources management, and identified conservation of river corridors, water bodies and associated ecosystems as an important action area. Ministry of Water Resources, River Development and Ganga Rejuvenation (MoWRRD) has several programmes that contribute to wetland conservation. The National Mission for Clean Ganga includes an allocation for restoration of wetlands within River Ganga Basin, however, a comprehensive strategy is yet to be defined. The MoWRRD also coordinates implementation of pilot scheme for "National Project for Repair, Renovation & Restoration (RRR) of Water Bodies directly linked to Agriculture" since January, 2005. The scheme supports restoration and augmentation of storage capacities of water bodies, including recovery and extension of their lost irrigation potential. In 2013, the Ministry of Urban Development (MoUD) has issued an advisory[58] on conservation and restoration of waterbodies in urban areas, identifying funding streams of the MoUD and MoWRRD for urban wetlands.

44. The National Action Plan for Climate Change has identified eight missions, implementation of which forms the core intervention strategy for climate change mitigation and adaptation. Wetland conservation and sustainable management is included as a subcomponent of National Water Mission.

45. *Wetlands in International Commitments*: The analysis of institutional, sectoral and policy context underlines the high policy significance accorded to wetlands, and the role of wetland conservation and sustainable management in meeting India's various national and international commitments.

46. Wetlands figure as a key thematic area within India's Commitments to Convention on Biological Diversity (CBD). In line with the CBD Strategic Plan 2011-2020, India has formulated 12 National Targets. Wetlands have direct reference in Target 3 (Strategies for reducing rate of degradation, fragmentation and loss of natural habitats are finalized and actions put in place by 2020), Target 6 (ecologically representative areas on land and in inland waters, as well as coastal and marine zones, especially those of particular importance for species, biodiversity and ecosystem services, are conserved effectively and equitably), and Target 8 (by 2020, ecosystem services, especially those related to water, human health and livelihoods and well-being are enumerated and measures to safeguard them are identified). These targets will guide investment and resource allocation for biodiversity conservation at the national level, and therefore bear high significance for wetlands.

47. As a signatory to Ramsar Convention of Wetlands, India is committed to the Convention's principles of ensuring maintenance of ecological character of Wetlands of International Importance (Ramsar Sites) and to plan for "wise use" of all wetlands in her territory. As of January 2015, India has designated 26 Ramsar Sites[59]. Interventions to address drivers of degradation have been made in all the three sites placed under Montreaux Record of the Convention[60], namely Loktak Lake (Manipur), Chilika Lake (Odisha) and Keoladeo National Park (Bharatpur). Chilika was removed from the Record in 2002 as an outcome of a successful ecological restoration which led to biodiversity and productivity enhancement resulting in significant benefits to community livelihoods. The restoration has been internationally acclaimed as a successful community-led ecological restoration initiative, and conferred with the Ramsar Wetland Conservation Award and Evian Special Prize conferred to the Chilika Development Authority in 2002.

48. India is also a signatory to the Convention on Migratory Species (CMS). Notably, India supported formulation of the Central Flyway Action Plan, which covers a large part of the sub-continent and identifies a range of actions for conservation of migratory species. India is also a signatory to CMS Agreement on conservation and management of Siberian Crane between the range countries. Conservation and sustainable management of wetlands is therefore an important response strategy for the commitments outlined above.

2.5 Stakeholder mapping and analysis

49. The stakeholders related to the baseline project operate at multiple scales operating across several sectors. These have been identified based on national and local consultations, review of policy documents and management action plans, and discussions with MoEFCC, SGs, experts and key NGOs. The stakeholder workshop held during PPG phase was a major input into analysis. A mapping of the stakeholders is presented in the Table 2.

50. The IMWBES project also intends to demonstrate practical application of integrated management approaches in three sites, namely Sasthamcotta Lake (Kerala), Harike Lake (Punjab) and Kanwar Jheel

[58] Accessible from Ministry of Urban Development website: http://moud.gov.in/sites/upload_files/moud/files/Advisory%20on%20Urban%20Water%20Bodies.pdf
[59] An inventory of 166 possible Ramsar Sites has been prepared by BNHS (Rahmani and Islam, 2008)
[60] http://archive.ramsar.org/cda/en/ramsar-documents-montreux/main/ramsar/1-31-118_4000_0__

(Bihar) (For intervention rationale: refer to discussion under Section 3) . Within the three demonstration sites, meetings were held with stakeholder groups to assess key site features, stakeholder linkages, gender and power relationships, likely restoration actions and modes of stakeholder engagement in various stages of integrated site management. Baseline assessments of sites included a review of status and trends in various wetland features, stakeholders and existing institutional arrangements (see also Section 3.3. par. 141 for more details). A mapping of stakeholders pertaining to the three demonstration sites, and a discussion on gender and social equity aspects is included under Outcome 3.1.

Table 2: Stakeholder mapping.

Scale	Stakeholder	Functions
International	**International Conventions** Secretariat of Convention on Biological Diversity Secretariat of Ramsar Convention Convention on Migratory Species	CBD Strategic Plan 2011-2020 and Aichi Targets guide India's action for biodiversity conservation and sustainable use, including those related to wetlands. India has set its national targets to achieve biodiversity commitments. Ramsar Convention encourages national governments to promote wise use of wetlands. Implementation of Central Asian Flyways Programme is one of the important instruments for the Convention for fulfilling its objectives.
	International wetland related networks Ramsar Regional Centers, Wetlands Link International, Wetlands International Specialist Groups, IUCN Commissions	Networks support identification and propagation of guidance and best practices related to wetland management. Networks are also key learning and experience sharing platforms.
National	MoEFCC	Responsible for providing the overall programmatic approach to wetland conservation and management in the country, including the policy and regulatory architecture. The Ministry is also the nodal agency for India's international commitments related to wetlands. The National Biodiversity Authority was established in 2003 as an autonomous and statutory body of the MoEFCC to implement India's Biological Diversity Act (2002). The NBA performs facilitative, regulatory and advisory function for GoI on issues of conservation, sustainable use of biological resource and fair equitable sharing of benefits of use.
	MoWRRD	Influences the degree of integration of wetlands in water resources management. The Ministry also operates a national programme on restoration of waterbodies as irrigation infrastructure
	MoA	The Ministry has important stakes in development of fisheries resources, and includes natural as well as artificial wetlands as fish producing areas.
	National non-government organizations – Wetlands International South Asia, SACON, BNHS, WWF-India, IUCN-India	Support wetland conservation through formulation of management plans, communication and outreach programmes on wetlands, capacity building, and conducting research to inform wetland management.
	Academic and Research Institutions – Wildlife Institute of India, Central Inland Fisheries Research Institute, Zoological Survey of India, Botanical Survey of India, Universities as IIT – Roorkee, Delhi University, JNU and others	Provide the scientific and management support to wetland conservation through databases and research. Conduct academic (graduate, post graduate and doctoral) courses related to wetlands (largely biophysical sciences orientation). IIT-Roorkee has a masters' level course on integrated lake basin management.
State level	Nodal departments assigned the responsibility of wetland conservation	In most cases, wetlands conservation is administered through the Department of Forests / Environment. The nodal agency is responsible for formulating and implementing management action plans.
	Wetland Authorities	Several state governments have designated wetland authorities as nodal agencies for management of sites. These authorities have been entrusted the responsibility of coordinating implementation of site management plans, monitoring and evaluation, and in select cases, enforcing regulation. The Ministry has recently issued an advisory to all state governments to constitute State Wetland Authorities as nodal agencies for policy, planning and regulation of wetlands at the state level.

	State Biodiversity Boards	Under the provisions of the Biological Diversity Act, 2002, State Biodiversity Boards have been constituted for the purpose of promoting conservation and preservation of habitats. Within the aegis of State Biodiversity Boards, Biodiversity Management Committees have been constituted and entrusted with promoting conservation, sustainable use and documentation of biological diversity including preservation of habitats, conservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals and microorganisms and chronicling of knowledge relating to biological diversity.
	Capacity building and research and training centres	Agencies as Wetland Research and Training Center (Odisha), Institute of Wetland Management and Ecological Design (West Bengal), Gujarat Ecological Education and Research Foundation (Gujarat) support the state government through capacity building, research and development and formulation of management plans.
Site level	Wetland dependent communities	These are specific to each site. Wetland communities derive livelihoods through harvest of resources, as well as influence ecosystem state through their livelihood capitals and institutions.
	Private Sector	In several sites private sector operations influence the status of wetlands. There are some models of wetlands conservation being promoted by private sector. Godrej, a major private sector player, has established the Soonabai Pirojsha Godrej Marine Ecology Center, which has restored an extensive mangrove patch in the urban agglomerate of Mumbai, and operates research and outreach programme. Similarly, Tata Chemicals and IUCN-India under guidance of MoEFCC are working on restoration of coastal wetlands of Dwarka, Gujarat.

2.6 Baseline analysis and gaps

51. Wetland conservation in India, as has been the trend globally, emerged along the broader environmental protection and management agenda. The MoEFCC has in the last four decades has created the broad programmatic framework for conservation of wetlands in the country. The 'wise use' approach, balancing conservation and development needs related to wetlands has been the guiding principle of the national programmes and intervention strategies. Providing funding to the SGs for implementation of management plans for a network of priority wetlands have been the key instruments for addressing site level drivers of degradation. The Ministry has also evolved a policy and regulatory framework for wetland conservation in the country. The international commitments under Ramsar Convention, CBD and CMS further reinforce the national policy framework.

52. In order to ensure that the ecological integrity of the wetlands of national and international significance is maintained, the role of SGs becomes crucial. The analysis of baseline programmes contains several indications that the required institutional architecture and policy framework has not evolved for most of the states limiting effectiveness of the national programmes.

53. Being located at the interface of land and water, wetlands are influenced by a range of developmental activities which take place within their direct and indirect basins and coastal zones. Institutional arrangements for managing wetlands need to be capable of coordinating across multiple sectors, and balancing the needs of a diverse stakeholder group while ensuring that ecological integrity of these fragile ecosystems is not adversely affected. However, in most states, wetland management is placed within the ambit of Department of Forests and Environment, Science and Technology, Urban Development (for wetlands in urban areas) and fisheries[61], with very limited inter-sectoral coordination.

54. Given the need to bring in multiple departments and stakeholders together to implement management plans, the different state governments have considered constitution of dedicated wetland authorities. The Loktak Development Authority (LDA) constituted in 1986 was one of the first wetland development authorities set up in the country. This was in the context of rapid degradation of Loktak Lake, one of the largest freshwater lakes in the northeast due to species invasion, shrinkage in area and reduction in water holding capacity, particularly after the commissioning of Loktak Hydro-electric Project in 1983. The Authority was initially placed under the aegis of Irrigation and Flood Control Department, but later on transferred under the administrative control of the Forest and Environment

[61] Of the 26 Ramsar Sites designated by the country as on date, management is placed under the departments of forests, wildlife, and environment for 11 sites, whereas science and technology is the nodal institution for 9 sites. One site each has been placed under department of irrigation and fisheries.

Department. In 1992, the Government of Orissa constituted the Chilika Development Authority to address the pressures on Chilika Lake, the largest brackish water lagoon on the east coast threatened by increasing silt load, declining fisheries and expansion of shrimp aquaculture. In 1997, the Government of Jammu and Kashmir constituted the Lakes and Waterways Development Authority under the Aegis of the Housing and Urban Development Department for restoration of Dal and Nigeen Lakes. Within the decade of 2000, separate wetland authorities were created for waterbodies of Madhya Pradesh, lakes within Bengaluru City, and East Kolkata Wetland. The Lake Conservation Authority of Madhya Pradesh initially focused on Bhoj Wetlands but was entrusted the mandate for conservation of all waterbodies of the state in 2004. The State of Odisha constituted a distinct wetland authority for the entire state in 2012.

55. The ability of the wetland authorities to spearhead design and implementation of integrated restoration plans is evident. Of the seven authorities, five have site management plans in place and all (except the recently established Odisha State Wetland Authority) are implementing restoration and management plans. The Chilika Development Authority has successfully enabled a participatory ecosystem restoration approach resulting in the restoration of ecological environs as well livelihoods of dependent communities. The restoration of Chilika has been recognized by Ramsar Convention with the prestigious Ramsar Wetland Conservation Award to the Authority in 2002, and removal of the site from the Montreaux Record. Loktak Development Authority has formulated an integrated management plan for the site at river basin level and has been able to secure financial support from the Planning Commission[62] for implementation of the plan. The Lake Conservation Authority implemented a restoration plan for Bhoj wetlands with financial support of Japan Bank for International Cooperation leading to tangible improvement in lake environments. However, changing complexities within the river basin and securing financial support have been major challenges faced by most of the authorities.

56. There has been a limited replication and scaling up of the experiences and lessons emerging from cross-sectoral institutional arrangements for wetlands. Further, most of the wetland authorities have been formed as government societies under the provisions of the Societies Registration Act, and do not have the necessary regulatory backing[63]. The authorities mostly function as strategic bodies responsible for planning, ecosystem monitoring, networking, stakeholder participation and awareness generation. Field implementation of the restoration activities is organized through line departments and external agencies. Absence of a regulatory backing to the authorities is seen as a major constraint for most of the wetland management authorities.

57. Management plans remain a major instrument for site level action. To be able to comprehensively address drivers of wetland degradation, and provide opportunities for sustaining livelihoods of dependent communities, the plans need to be based on diagnostic evaluation of wetland features and governing factors, enabled through participation of experts and stakeholders. Presently, barring a few exceptions such as Loktak Lake (Manipur), Chilika Lake (Odisha) and some others, management plans are not based on comprehensive landscape scale assessments. Most of the plans are prescriptive in nature, and devoid of the required diagnostic approaches for identification of root causes of degradation. As a result, the investments are largely sub-critical and spent on maintenance of the wetland condition (through deweeding, desilting and catchment treatment), rather than treatment of problem at source. The adequacy and effectiveness of investments made in terms of improvement of wetland biodiversity, ecosystem processes, resource-base and / or reduction in drivers of wetland degradation is not known for most of these sites in absence of adequate baselines and effective monitoring mechanisms.

58. A significant proportion of funding is still being made to wetlands located within protected areas[64], which have comparatively better regulatory regime support and financing opportunities.

59. There has been very limited uptake of regulatory framework for wetlands[65]. Despite nearly three years of notification of the Wetland Rules (2010), none of the states has come forward with list of wetlands to be notified.

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[62] Recently reconstituted by Government of India as Niti Ayog.

[63] East Kolkata Wetlands Management Authority and Loktak Lake draw their constitution and powers through specific acts, and therefore have "statutory authority" in the true sense. The Government of Odisha is also in advanced stages of considering a regulatory backing for Chilika Development Authority, particularly to control detrimental fishing practices.

[64] As on February 2013, of the 79 sites for which funds were given to state governments, 21 were located within protected areas.

[65] At the time of writing the proposal, the Ministry had already set the process for revision of Wetland (Conservation & Management) Rules (2010) in motion. A consultation workshop with state governments was organized on August 8, 2014,

60. Wetlands figure, at the best, marginally in sectoral policies indicating lack of clarity and understanding on their functioning. The National Water Policy (2012) refers to wetlands in a very narrow sense. While recommending allocation of water for maintaining ecosystems, the policy does not consider wetlands as a solution in achieving water management objectives such as flood control, groundwater recharge and increasing overall freshwater availability. The National Action Plan for Climate Change includes wetlands as minor subcomponent of National Water Mission, without referring to the role they play in climate change adaptation, and the risks imposed on wetland ecosystems by mal-adaptation. Wetlands do not find mention in National Agriculture Policy, despite agriculture being one of the most significant drivers of wetland degradation nationally and wetlands themselves being sources of food production.

61. A skewed financing arrangement for implementation of wetland management plans has developed. Though wetlands contribute to states' developmental programming in a number of ways, only a few states have created budgetary allocations for wetlands within the state level planning processes. Funding of wetland management plans is mostly seen as a responsibility of central government. Further, there are very few instances of private sector funding and participation being sought for wetland restoration.

62. In summary, the following gaps have limited the effectiveness of investment in wetland conservation:

63. **Sectoral approaches.** The full range of ecosystem services and biological diversity values of aquatic ecosystems are rarely integrated in sectoral developmental programming, impeding their ecological and hydrological functioning of aquatic ecosystems and increasing the potential for stakeholder conflicts. In several circumstances, interventions for increasing food production and water supply (eg through construction of hydraulic structures and expansion of irrigated area) have reduced the capacity of aquatic ecosystems to recharge groundwater and buffer floods. In most states, wetlands are not recognized as a land use category and often grouped into 'wastelands' meant to be used for alternate developmental purposes.

64. **Adhoc approach to implementation of management plans.** Where they exist, management plans for wetlands are mostly formulated, financed and implemented on annual cycles, and in several circumstances not based on comprehensive landscape scale management plans. Most of the plans are therefore prescriptive by nature, and do not address the root causes of degradation (for example fragmentation in hydrological regimes or pollution). Post-project sustainability strategies are also not worked out. Very few SGs have included budget allocations for wetlands, and where they have been included it is mostly for establishment expenses and not for supporting restoration activities. Similarly, though NLCP was implemented on a cost sharing basis, the allocation made by most states is marginal.

65. **Ineffective governance mechanisms.** Implementing restoration plans for aquatic ecosystems requires cross sectoral institutional arrangements. This was envisaged to be achieved through creation of dedicated authorities responsible for developing management plans, site monitoring and evaluation and implementation through line departments. However, only a few states have been able to designate distinct authorities. Further, in very few circumstances, the designated authorities have any form of regulatory backing.

66. **Insufficient capacity for integrated management.** Review of management plans submitted to the Ministry indicates lack of capacity in formulation of management plans addressing the full range drivers of ecosystem degradation. Equally significant is lack of training and capacity building opportunities for site managers.

67. **Limited research management interface.** Management of wetlands requires continuous research inputs to be able to address the diverse drivers of change. However, this has failed to happen for most sites. Much of the research is focused on structural elements of aquatic ecosystems (limnology, biodiversity) with very limited emphasis on functional aspects as ecosystem services and community livelihoods. Of specific concern is the limited availability of tools for wetland managers to assist in development of response strategies for changing climate.

68. An analysis of drivers and pressures on wetlands indicate the need to transform the national programmatic approach, and bring in specific focus on the role of wetlands in societal development, as

in which the issues of addressing private property rights within wetlands, creating incentives for regulation and alignment with wise use principle were highlighted. These concerns are being taken on board while revising the Rules. The revised draft shifts the onus of regulation of wetlands on states through constitution of state wetland authority. Regulation of developmental activities is proposed to be based on evaluation of site's ecological character.

against conservation triggered by biodiversity arguments alone. By enhancing focus on wetland ecosystem services, the role of wetlands in societal well-being can be better articulated, and a case built for furthering wetland conservation within the development agenda, as against a stand-alone conservation agenda.

69. The NPCA design presents a fundamental shift in the programmatic approach for wetland conservation in the country. The programme mandates a shift from sectoral approaches adopted for management of wetlands towards mainstreaming of wetland ecosystem services and biodiversity values within state level developmental programming. The implementation strategy recommends dovetailing management plans with existing conservation and development sector investments, while ensuring that adequate regulatory regimes are put in place to ensure that wetlands are not converted for alternate uses and their ecological integrity maintained. The programme also promotes adoption of diagnostic and holistic approach for defining management and regulation needs in line with individual site biophysical and socio-political characteristics.

70. For NPCA investment to translate into better ecological state of wetlands underpinning maintenance of biodiversity and ecosystem services values, a range of knowledge, capacity and institutional barriers would need to be addressed, so as to develop an enabling environment for proactive and strategic participation of SGs. The IMWBES project, responds to these barriers so as to improve management effectiveness of the network of wetlands of international and national significance, enabling delivery of global benefits from the network.

2.7 Linkages with other GEF and non-GEF interventions

71. IMWBES will ensure effective linkages with a range of GEF and non-GEF interventions in order to benefit from concepts, approaches and lessons relevant to improving management effectiveness of wetlands.

72. The following ongoing GEF projects being implemented by the MoEFCC, bear high relevance for IMWBES implementation:

- Biodiversity Conservation and Rural Livelihoods Improvement (GEF-IDA Blend project: GEF Agency: World Bank) aimed at conserving Biodiversity in selected landscapes, including wildlife protected areas/critical conservation areas while improving rural livelihoods through participatory approaches.
- Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the Godavari River Estuary in Andhra Pradesh State (GEF Agency: UNDP)
- Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the Malvan Coast, Maharashtra State (GEF Agency: UNDP)

73. The following ongoing non-GEF interventions complement the project objectives:

- The Economics of Ecosystems and Biodiversity –India Initiative (implemented by MoEFCC and GIZ-India) aimed at highlighting the values of natural capital. Inland wetlands have been selected as one of the three priority ecosystems, for which application of economic approaches is being tested in policy contexts through demonstration projects
- Sustainable Management of Coastal and Marine Protected Areas (CMPA) – An Indo German Bilateral Technical Cooperation Project co-managed by MoEFCC and GIZ-India, aims at improving management of selected existing and potential coastal and marine protected areas through strengthened participatory management, capacity development and information, communication and training
- Mangroves for the Future – India Initiative (coordinated by IUCN-India) which aims at application of landscape scale approaches for conservation of coastal ecosystems
- Partners for Resilience (coordinated by Wetlands International South Asia) aimed at building livelihood resilience through approaches integrating wetlands and water management, disaster risk reduction and climate change adaptation

74. The project would also stand to benefit from global and regional projects focused on ecosystem services and biodiversity values. Significant are the following two initiatives :

- Wealth Accounting and Valuation of Ecosystem Services (WAVES) – Global partnership on ecosystem services valuation supported by World Bank
- Values – Methods for integrating ecosystem services into policy, planning and practice –supported by German Federal Ministry

75. The LTSA will bring on-board experiences and best practices in integrated wetland management nationally and globally into the IMWBES project. WISA has carried out integrated management

planning for 7 Ramsar Sites in India, and has been supporting several state governments in implementing the plans and building capacity for integrated management. WISA will bring on board these experiences into the respective project components. The project will also stand to benefit from capacity development modules developed by Wetlands International and its partners, particularly relevant for capacity development objectives of the project. Further, experiences in development and implementation of Asian Wetland Inventory (AWI) and climate vulnerability assessment will assist in development of tools to strengthen delivery of project objectives.

76. UNEP project (31-P1) - 'Tools and Methodologies for Assessing and Maintaining Freshwater Ecosystems' has generated useful knowledge and materials for using in assessment of water resources, use and protection of minimum ecological flows in the targeted pilot sites and three river-basins. UNEPs ongoing global program and partnership (incl. in India) on TEEB and Integrated Ecosystem Assessment, has definitely added value and will be used in providing example methodologies for establishing the national knowledgebase, as well as conducting the state-level integrated assessments of wetland resources, value and scenario analysis. Collaboration has been agreed with the UNEP/ROAP project 'Policy Support to Sustainable Polices and Innovation for Resource Efficiency in Asia' (SWITCH) in fields such as sector specific policies and training tools, such as e.g. on efficient water use in agriculture and industries, and mainstreaming resource efficiency aspects in local economic development planning.

Section 3: Intervention strategy (Alternative)

3.1 Project rationale, policy conformity and expected global environmental benefits

77. Maintenance of ecosystem services and biodiversity values the Indian network of nationally and internationally significant wetlands[66] requires their integration into developmental programming. The MoEFCC, through NPCA, has created the necessary institutional and financial architecture for supporting SGs in integrated management of wetlands through cross-sectoral governance mechanisms, funds convergence, adopting diagnostic approaches for management planning and mission mode implementation of management plans. Improved management effectiveness of this network will enable delivery of expected global environment benefits. To enable this, the NPCA architecture needs to be complemented by knowledgebase, capacity and demonstration inputs to improve overall effectiveness with which the wetland network is managed. The IMWBES project is designed to address these complementary needs.

78. IMWBES Project conforms to the national policy environment favoring integrated management of wetlands and their integration in design and implementation of sectoral development programming. The FSP design in line with the objectives of The National Environment Policy (2006) which recognizes wetlands as "entities of incomparable value", recommending their integration into river basin management and sectoral development plans for poverty alleviation and livelihood improvement. The baseline project NPCA is a significant expression of MoEFCC's policy support for wetland conservation and sustainable management. The project also conforms to the National Biodiversity Action Plan which identifies wetlands as key components of biodiversity and thereby seeks their integrated management as one of the key pathways for achieving national biodiversity conservation objectives. In line with the CBD Strategic Plan 2011-2020, India has formulated 12 National Targets of which Target 3[67], Target 6[68] and Target 8[69]are predicated on integrated management of wetlands. These targets will guide investment and resource allocation for biodiversity conservation at the national level, and therefore bear high significance for wetlands. The National Climate Action Plan identifies Conservation of Wetlands as a component of the National Water Mission, which is one of the 8 missions identified by the government as a response strategy to climate change mitigation and adaptation. IMWBES Project will significantly improve implementation of aforementioned policy commitments through promotion of integrated approaches for wetland management, and mainstreaming biodiversity and ecosystem services values in developmental programming. By creating linkages between wetland conservation and sectoral programmes for water management, WASH, rural development, urban development, DRR and others, IMWBES project will significantly enhance opportunities for cross-sectoral coordination of wetland network and integration into production landscapes.

79. India is a signatory to the Ramsar Convention on Wetlands and committed to including wetland conservation in her national resource planning and promoting, as far as possible, the wise use of wetlands in their territory. NPCA is a clear manifestation of the approach advocated under the Ramsar Convention. However, knowledge, capacity and institutional barriers[70]hinder the achievement of sustainable management of the wetland network. IMWBES project will address the barriers to delivering the wise use of wetlands and strengthen and enhance the capacity of institutions to implement the objectives of the NCPA. Constraints such as lack of funding to successfully implement obligations under the Convention, weak uptake of cross-sectoral management approaches, limited consideration of wetland values within decision-making frameworks and a paucity of baseline information on wetlands across the country, as mentioned in the 11th National Report will be specifically addressed. By doing so the project will not only contribute to a more robust delivery of India's obligations under the Ramsar Convention, but will generate trans-boundary benefits through improved management of wetlands as migratory habitats as required under the CMS, resulting in global

[66] Reference to 170 wetlands prioritized by the SGs for conservation till date. Also includes 26 sites that have been designated by the MoEFCC as Wetlands of International Importance.
[67] Strategies for reducing rate of degradation, fragmentation and loss of natural habitats are finalized and actions put in place by 2020
[68] Ecologically representative areas on land and in inland waters, as well as coastal and marine zones, especially those of particular importance for species, biodiversity and ecosystem services, are conserved effectively and equitably
[69] By 2020, ecosystem services, especially those related to water, human health and livelihoods and well-being are enumerated and measures to safeguard them are identified
[70] Enlisted in section 3.2 and drawing from the conclusions of Section 2.3 and 2.6.

environmental benefits both within wetlands in India and across the region and especially along the Central Asian Flyway.

80. The IMWBES Project will enhance the effective management of freshwater and coastal wetlands to ensure that threatened species will be better protected and that reporting on the threats to these species and the habitats upon which they depend are better understood. Capacity will be built to enhance site management practices as well as addressing the wider institutional and knowledge barriers which compromise the delivery on national and international biodiversity targets.

81. Wetlands form an important and critical component of the local and global hydrological cycle[71]. A well-managed network of wetlands will contribute significantly to water security (and related food and energy security) and ensure flow of transboundary services.

82. Expected global environmental benefits resulting from IMWBES project are as follows:

- Conservation of globally threatened habitats and species: The enhanced conservation and effective management of the network of Indian wetlands of national and international significance will support delivery of CBD Aichi Targets through meeting the wetland related targets in the National Biodiversity Action Plan.
- Delivering wise use of wetlands of international importance: The effective management of the network of Indian Ramsar Sites will promote application of wise use principles and delivery of the obligations of the Ramsar Convention at international, regional and national level.
- Improved conservation status of species using migratory flyways: Through effective management of national site network there will be an improved status of threatened migratory species in Central Asia and East Asian-Australasian Flyways.
- Transboundary flows of ecosystem services: The effective management of national wetland networks will sustain and enhance the flows of transboundary ecosystem services benefits.
- Implementation of Aichi Targets, specifically target 11 (seeking conservation of 17% of inland waters), 14 (conservation of ecosystems providing essential services including related to water) and 9 (related to management of invasive species) enhanced through work in the three demonstration sites and through effective implementation of NPCA.

3.2 Project goal and objective

83. The IMWBES project has a goal of "*conservation and wise use of wetlands for maintenance of biodiversity and sustained provision of their full range of ecosystem services"*. The project objective is to "*enhance management effectiveness of wetlands of national and global significance"*.

84. The project design addresses the following knowledge, capacity and institutional barriers which limit the effectiveness of wetland management:

Knowledge Barriers	• Prioritization of sites for management not based on systematic evaluation of ecosystem services and biodiversity values. • Integrated management planning approaches are not applied to address drivers and pressures emerging from developmental programming in the wider landscape • Management planning approaches are insufficient to address vulnerabilities induced by climate change. • Limited dissemination and use of available guidance and best practices for integrated management of wetlands
Capacity Barriers	• Limited capacity within SGs for formulation and implementation of integrated management plans • Absence of learning platform(s) and network(s) to foster sharing of best practices and lessons learnt • Weak outreach on societal benefits linked with wetlands, resulting in limited stakeholder participation in management • No national capacity building and outreach strategy in place to support integrated management of wetlands of national and international significance
Institutional Barriers	• Limited efforts in creating mechanisms for cross sectoral management of wetlands • Adhoc site management plans which do not systematically address drivers of degradation • Weak monitoring and evaluation mechanisms which limit the ability of MOEFCC and SGs to assess impact of management and communicating outcomes to stakeholders

[71]Bullock, A., & Acreman, M. (1999). The role of wetlands in the hydrological cycle. *Hydrology and Earth System Sciences*, *7*(3), 358-389.

- Limited private sector participation in wetland conservation and wise use

3.3 Project components and expected results

85. The IMWBES project is organized in the following four components aimed at addressing the knowledge, capacity and institutional barriers limiting effectiveness of wetland management, and ensuring application of project results in national policy contexts:

Component 1: National wetland biodiversity and ecosystem services based knowledge systems

Component 2: National scale capacity building for applying integrated wetland management

Component 3: Demonstration of integrated wetland management

Component 4: Project monitoring, evaluation and outcome dissemination

86. The overall project objective will be delivered through achievement of planned outcomes in all the four components. Components 1 and 2 will be delivered at national scale, whereas work under component 3 is entailed to take place at three demonstration sites with lessons drawn for application at the national scale. Component 4 will simultaneously enable effective BES monitoring and evaluation of intervention under Component 3, as well as dissemination of outcomes at national scale. Project elements are summarised in Table 3 and detailed in the current section. The overall project results framework and key deliverables and benchmarks contained in Appendix 4 and 6 respectively. The complementarity of the project components with NPCA implementation is presented in Figure 1.

Figure 1. Complementarity between IMWBES and NCPA.

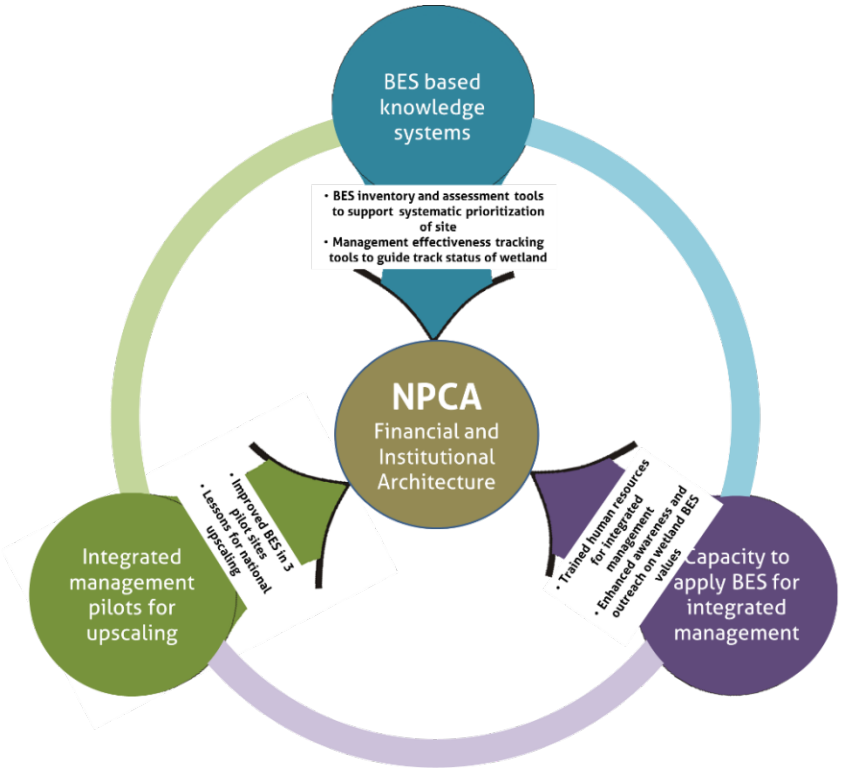


Table 3: Project components, outcomes and outputs.

Components	Outcomes	Outputs
Component 1: National wetland biodiversity and ecosystem services based knowledge	**Outcome 1.1:** Increased national scale application of integrated wetland management planning tools and approaches	1.1A Hierarchical wetland BES assessment tool developed, field tested at six sites and wetland managers trained in application 1.1B Climate vulnerability assessment tool developed, field tested in six sites and wetland managers trained in

systems		application
	Outcome 1.2: Wetland BES knowledge systems applied to improve management effectiveness of sites of national and international significance	1.2A Wetland management effectiveness tool developed and applied to Ramsar sites 1.2B Small grant programme administered to support wetland managers in improving site management effectiveness 1.2C Improved wetland information synthesis and accessibility to support wetland policy and management implementation.
Component 2: National scale capacity building for applying integrated wetland management	**Outcome 2.1** Enhanced institutional capacity and trained human resources for integrated management of wetlands	2.1A Modules for integrated management of wetlands developed and implemented for training wetland managers 2.1B Communities of Practice established for sharing best practices and lessons learnt on wetland management developed for wetland managers 2.1C National Communication and Outreach Strategy developed and supported by the establishment of a web-portal, outreach material and events
Component 3: Demonstration of integrated wetland management	**Outcome 3.1** Integrated wetland management applied in three protected wetlands	3.1A Baseline assessment and evaluation of biodiversity and ecosystem services values carried out for three pilot sites 3.1B Cross-sectoral institutional arrangements for integrated management enabled for three pilot sites. 3.1C Potential private sector partnerships identified at three pilot sites and actively engaged in integrated management. 3.1D Implementation of management plan reviewed and adapted periodically to address site and landscape scale drivers and pressures
Component 4: Project monitoring, evaluation and outcome dissemination	**Outcome 4.1** Project impacts and performance are measured	4.1A Project monitoring and reporting systems established 4.1B Site and wetland catchment scale monitoring implemented assessing management effectiveness and outcomes for BES values
	Outcome 4.2 Evidence base on benefits of BES based-wetland management established	4.2A Project best practices guidelines on ES based wetland management disseminated for national scale replication 4.2B Increased use of BES based monitoring systems to assess maintenance and restoration of wetland ecological character, and enhanced livelihoods for wetland dependent communities

87. ***Component 1: National wetland biodiversity and ecosystem services based knowledge systems.*** This component of IMWBES project is designed to make available knowledge systems that enable wetland managers systematic inclusion of wetland BES values in site identification, management planning, developing cross-sectoral institutional arrangements and responding to emerging challenges of 'climate change'.

88. **Outcome 1.1: Increased national scale application of integrated wetland management planning tools and approaches.** IMWBES project seeks to improve integration of wetland BES values in site management through tools which enable systematic and hierarchical capture of these values in relationship with broader developmental programming with river basins and coastal zones. The outcome will also enable integration of 'response strategies' for climate induced vulnerabilities to wetland functioning and BES values. The outcome will ultimately contribute to further expansion of

NPCA site network taking into account wider water and food security needs of the society along with conservation of biodiversity habitats.

89. The outcome will build upon the existing wetland inventories, which are based on earth observation data and provide information on extent and broad vegetation types (eg. National Wetland Atlas and State Atlases[72]), or are conducted at the site levels through baseline investigations on selected wetland features and biodiversity values (eg site atlases[73] and evaluation sections of management plans for select sites[74]). The available information is useful in assessing wetland distribution at macro-scale, but have limited application in indicating ecosystem services trade-offs resulting from wetland degradation, and the resultant impact on food and water security or on broader developmental programming in the associated river basin or coastal zone. In particular, very limited effort has been placed to express the consequence of trade-offs in economic terms to support their mainstreaming in local level policy and decision making, and enabling multi-stakeholder partnerships to this effect. In the absence of these knowledge systems, site selection and prioritization is mainly based on limited information on site values and threats, and does not take into account the role of wetland ecosystem services in the wider development contexts, or the threats induced by sectoral development on ecosystem functioning. There is also a need to incorporate response options to the impacts of climate change on wetland functioning, which are presently not included within the static management planning approaches.

90. ***Output 1.1A: Hierarchical wetland BES assessment tool developed, field tested at six sites and wetland managers trained in application.*** The output will lead to delivery of a tool to enable systematic assessment and evaluation[75]of wetland ecosystem services and biodiversity values to support site prioritization for integrated management. The tool will be based on indicators enabling identification and assessment of extent of ecosystem services provision at multiple scales, underlying biophysical and socio-economic conditions (significant being resource access, gender and social equity) that support delivery of ecosystem services, and impacts of sectoral developmental programming will be identified.

91. An assessment of the available national and international methodologies, tools and best practices for wetland ecosystem services and biodiversity values will precede tool development. Some of the major tools and methodologies identified during scoping phase include: a) Ramsar Convention Wise Use Handbooks[76]covering a wide range of issues regarding designation of Ramsar Sites and wise use of wetlands including topics such as partnerships (HB5), water-related guidance (HB6), participatory skills (HB7), water allocation and management (HB10), managing wetlands (HB18) and addressing change in wetland ecological character (HB19); b) UNEP Ecosystem Services Methodology related toolkits[77]; c) TESSA (Toolkit for Ecosystem Services Site Based Assessment)78; d) TEEB framework[79]; e) WAVES[80]; and f) Values[81]. Similarly, standardized census techniques have been developed for a range of faunal and floral species and groups. For instance, protocols have been established for waterbird counts[82] and similar guidance is available for other taxa. Asian Wetland Inventory[83], developed by Wetlands International in collaboration with several experts, is a model of

[72]Published as an outcome of National Wetland Inventory and Assessment Project implemented by Space Application Center of Indian Space Research Organization. National Atlas published as SAC (2011), whereas state atlases have been published in 2011 and 2012.

[73]For example, Atlas of Loktak Lake, published as Trisal and Manihar (2004)

[74]An example is Management Planning Framework for Lake Chilika, published as Kumar and Pattnaik (2012)

[75] Inventory is aimed at establishing the baseline, whereas assessment refers to deriving status and trends in various wetland features, governing factors and threats. Reference: Ramsar Handbook 11 – An Integrated Framework for Wetland Inventory, Assessment and Monitoring

[76] http://www.ramsar.org/library/field_document_type/guidelines-429/field_document_type/handbooks-4th-edition-494/type/document?search_api_views_fulltext=handbooks&items_per_page=20#

[77]List available at: http://www.unep.org/publications/contents/pub_details_search.asp?ID=4041

[78] Available at: http://www.birdlife.org/worldwide/science/assessing-ecosystem-services-tessa

[79]Available at: www.teebweb.org

[80] Wealth Accounting and Valuation of Ecosystem Services, tool available at: https://www.wavespartnership.org/en

[81] Available at: http://www.aboutvalues.net/

[82] http://www.wetlands.org/Portals/0/Black%20Sea/Protocol%20for%20waterbird%20counting_En.pdf

[83] Finlayson CM, Begg GW, Howes J, Davies J, Tagi K & Lowry J.2002. A Manual for an Inventory of Asian Wetlands: Version 1.0.Wetlands International Global Series 10, Kuala Lumpur, Malaysia. Manual available online at: http://www.wetlands.org/Portals/0/publications/Book/WI_AWI-ManualEN_2002.pdf

systematic and hierarchical inventory of information on various wetland features and governing factors, will be used a template to structure information hierarchically[84].

92. The tool will be developed by a team of knowledge institutes commissioned under the project and piloted in three sites (Component 3) and in three other Ramsar sites (to be identified during project inception) to enable demonstration, refinement and subsequent upscaling. Methods for economic assessment of conservation-development tradeoffs, enabling recognition of economic consequences of policy choices made related to wetlands will form an important component of the tool. An evaluation of required financial and human capacity will be conducted to ensure that the resourcing implications are commensurate with the utility of the tool. The tool will be made accessible to all managers through the website (see Outcome 2.1) and training (Output 1.1C). Managers will also have the opportunity to apply the tool through the small grants programme established under the project (Output 1.2B).

93. ***Output 1.1B: Climate vulnerability assessment tool developed, field tested in six sites and wetland managers trained in application.*** Wetlands, owing to their ability to store carbon, regulate hydrological regimes, buffer extreme events, ensure water and food security and support a range of biodiversity habitats; present inherent opportunities for adapting to the impacts of changing climate. Yet, their integration into climate change adaptation policies and programmes remains a major challenge. A key limiting factor is absence of tools through which the degree and nature of vulnerability in wetland features due to climate change can be assessed and suitably responded through changes in management.

94. Much of the climate related research on wetlands has focused on bio-physical aspects of impact as they are expected to manifest with wetland components and processes, with very limited extension in portraying vulnerability as a property of a socio-ecological system. Management planning approaches in use by wetland managers are largely static and do not factor in the requirement to address vulnerability imposed by climate change. There is limited understanding of the ways and methods in which inventory and monitoring protocols need to be revised in order to be able to monitor the impacts of changing climate and develop adequate responses. This output will address this gap through development of a 'climate vulnerability assessment tool' to be piloted in six sites for demonstration and further upscaling.

95. Climate vulnerability is the degree to which wetland is sensitive to and unable to adapt to or moderate the consequences of climate change and other anthropogenic pressures on ecological character. Through a system of wetland vulnerability assessment (biophysical and social), it is possible to assess the degree to which various ecological character elements are susceptible to and unable to adapt to impacts of changing climate. Tools such as CRiSTAL (Community based Risk Screening Tool – Adaptation and Livelihoods[85]), ADAPT (World Bank Tool for Screening Development Projects for Climate Risk)[86]provide methods through which such an analysis can be built into wetland management planning processes. National experiences also exist through projects implemented by WWF-India (vulnerability assessment of wetlands of Ladakh under High Altitude Himalayan Wetland Conservation Programme) and Wetlands International South Asia (Climate vulnerability assessment of Lake Chilika, Odisha).

96. The Output will lead to delivery of a climate vulnerability assessment tool suited for Indian conditions. Available international and national methodology, tools and best practices for integrating climate vulnerability in wetland management will be synthesized. The tool will be developed by a team of knowledge institutes commissioned under the project and piloted in three sites (Component 3) and in three other Ramsar sites (to be identified during project inception) to enable demonstration, refinement and subsequent upscaling. The tool will be made accessible to all managers through the website (see Outcome 2.1) and training (Output 1.1C). Managers will also have the opportunity to apply the tool through the small grants programme (Output 1.2B).

97. **Outcome 1.2: Wetland BES knowledge systems applied to improve management effectiveness of sites of national and international significance.** Outcome 1.2 intends to develop and put in place tools for comprehensive assessment of management effectiveness applied to sites of international and

[84] Outcomes of Asia Pro Eco supported project 'Support for conservation of high altitude wetlands through application of the Asian Wetland Inventory Approach and stakeholder led catchment management in Bhutan, China, India and Nepal' implemented by Wetlands International and ICIMOD will form one of the basis of the tool design. The High Altitude Wetlands inventory manual is available as WI and ICIMOD (2009)

[85] Available at: https://www.iisd.org/cristaltool/

[86] Available at: http://siteresources.worldbank.org/INTCC/Miscellaneous/21315775/Poster_of_ADAPT.pdf

national importance. This will enable wetland managers to detect any adverse change in ecological character, leading to adoption of corrective measures through implementation of suitable response strategies. The outcome is also intended at enhancing the national reporting processes required under commitments to multi-lateral environmental agreements such as Ramsar, CBD and CMS.

98. The outcome will lead to significant improvement in present systems for assessing management effectiveness which are largely limited to activity based evaluation, sporadic scientific studies or third party evaluations. There are no uniform protocols to assess the impact of management on ecological, hydrological, socio-economic and institutional features of wetlands and governing factors. This severely limits the possibility of adapting management in response to changing status of wetland features, or emerging threats.

99. ***Output 1.2 A: Wetland management effectiveness tool developed and applied to Ramsar sites.*** The output will entail development of a management effectiveness tool for Indian wetlands covered under NPCA.

100. Management effectiveness reflects broadly three themes, namely: a) design of management plan, both in relationship with site features as well as governing factors located within the wider basin or coastal zone landscape; b) adequacy and appropriateness of institutional arrangements and resources deployed; and, c) delivery of ecosystem services and biodiversity outcomes as a result of management. While maintaining a focus on outcomes as a result of management, the tool will enable compilation of information on planning (policy context, site evaluation and management objectives), adequacy (financial and technical resources and institutional arrangements) and delivery (activities, and resultant outcomes on wetland ecosystem services and biodiversity in relation to identified management objectives)[87].The ultimate objective is to identify interventions that would enhance management to ensure sustained provision of wetland ecosystem services and maintenance of biodiversity values in longer term. In sites with no management in place, the tool will lead to identification of resources and institutional arrangements that are required to maintain site values.

101. Development of the tool will build on critical review and evaluation of available international and national guidelines on assessment of management effectiveness. Some of the potential resources identified during the PPG Stage include: a) Management Effectiveness Tracking Tool[88] ; b) Rapid Assessment and Prioritization of Protected Area Management (RAPPM) Methodology[89]; c) World Heritage Assessment Outlook[90]; d) Management Effectiveness Evaluation of MoEFCC and WII; e) Ramsar-Management Effectiveness Tracking Tool (presently under consideration of the Ramsar Contracting Parties for CoP 12) and others. The GEF Management Effectiveness Tracking Tool applied during the PPG phase was found to be too coarse to capture changes in stakeholder dynamics, livelihoods and conservation-development tradeoffs associated with management. This Output will use stakeholder workshops to enhance the review processes and to ensure that a thorough understanding of both the utility and resource implications of existing methodologies and tools is conducted.

102. Key considerations for developing management effectiveness tools for Indian wetlands would include: a) status and trends in ecological, hydrological, socioeconomic and institutional features and governing factors; b) adequacy of management objectives in terms of site features as well as broader developmental programing contexts; c) cross sectoral institutional arrangements; d) sufficiency of resources applied with respect to key sites characteristics and governing factors; e) extent of stakeholder participation (with specific focus on gender and social equity related outcomes) ; f) degree to which ecosystem services and biodiversity values have been maintained as an outcome of management. Guiding principles for tool development will include: a) Relevance in improving management; b) logic and systematic; c) use of holistic and balanced indicators; d) ability to deliver objective, consistent and up-to-date information; e) balance between measuring, reporting and managing; f) linked to effective management cycle; g) stakeholder participation; and, h) promotes

[87] Broadly in line with management effectiveness cycle from Hocking et al (2006). Evaluating effectiveness: a framework for assessing the management of protected areas. Second Edition. IUCN, Gland, Switzerland and Cambridge, UK.

[88] Stolon S, Hockings, M, Dudley, N, MacKinnon, K, Whitten, T, and Leverington, F (2007). Reporting Progress in Protected Areas A Site-Level Management Effectiveness Tracking Tool: second edition'. World Bank/WWF Forest Alliance available from www.panda.org

[89] Ervin, J. (2003). WWF: Rapid Assessment and Prioritization of Protected Area Management (RAPPM) Methodology. WWF. Gland, Switzerland

[90] IUCN (2012). IUCN Conservation Outlook Assessments – Guidelines for their application to Natural World Heritage Sites. Version 1.3, Gland, Switzerland.

timely communication and use of results. An evaluation will also be conducted of the resource implications, both in terms of financial and human capacity, to implement the methodologies.

103. In line with national priorities, the management effectiveness tool will be applied on the 26 existing Ramsar Sites. In sites wherein management plans have been implemented, the tool will provide information on the extent to which management has been effective and sufficient, and the necessary adaptations required to ensure that site conditions are maintained and drivers of degradation addressed. In sites, wherein in no management is in place, the tool will identify the trends in features and governing factors, and key actions required for securing ecosystem services and biodiversity values. The outcomes will be used by the respective SGs for refining management. The objective will be to ensure that the methodologies and tools are fit for purpose and deliver on the desired objectives to allow systematic implementation at national or state level. Information generated through application of tracking tool will also contribute to updating of Ramsar Information Sheets (RIS) for all the sites and will feed into National Reports provided by India to the meeting of the Conference of the Parties of Ramsar.

104. Training workshops will be convened to facilitate knowledge exchange and capacity building around wetland management effectiveness and the application of tools and methodologies. Both government officials and wetland site managers will be trained in the use of the relevant management effectiveness tools and methodologies. Training will be followed by back up technical support to the SGs for further replication.

105. ***Output 1.2B: Small grant programme administered to support wetland managers in improving site management effectiveness.*** A small grant programme is envisaged to be administered under the ambit of the IMWBES project which will provide an opportunity for wetland managers to apply integrated management approaches for securing ecosystem services and biodiversity values.

106. Specifically the programme will assist wetland managers in: a) designing integrated management plans; b) conducting climate vulnerability assessments to update site management; c) assessing site management effectiveness and developing response strategies; d) application of site ecosystem services and biodiversity inventory tools for prioritization; and, e) building partnerships for integrated site management. Programme management will be supported by a Small Grants Review Committee, which will serve to evaluate, recommend and review implementation. Specific programme management procedures, including call for proposals, grant administration mechanism and monitoring and review procedures will be set in consultation with wetland managers during the inception stage of the project.

107. ***Output 1.2C: Improved wetland information synthesis and accessibility to support wetland policy and management implementation.*** This output will lead to creation, collation and dissemination of wetland biodiversity and ecosystem services data and information system to support systematic prioritization and management at national scale. Biodiversity information will be collated in collaboration with Zoological Survey of India (ZSI), Botanical Survey of India (BSI), Wildlife Institute of India (WII), IUCN Freshwater Fish Specialist Group (FFSG), Salim Ali Center for Ornithology (SACON) and others. National information systems as hosted on protected areas (Envis Center of WII) and water resources (India-WRIS WebGIS[91]) will also be linked to wetland information system. Output will also involve strengthening waterbird monitoring programmes (Asian Waterbird Census) enabling better linkages with site prioritization and reporting protocols under various multi-lateral environmental agreements (MEAs). A website, as envisaged under Output 2.2A, will be one of the key instruments through which access to datasets will be ensured to wetland managers.

108. As part of her commitments under MEAs, India is required to report routinely on implementation of the various conventions, such as Ramsar, CBD and CMS. Similar requirements exist for assessing progress under the National Biodiversity Action Plan. This project output will provide a mechanism to collate, analyse and present information related to wetland status, trends and management in a consistent manner, thereby making reporting mechanisms robust and more effective. To achieve a consolidated picture of information requirement, a review followed by workshop with corresponding Administrative Authorities, subject matter experts and relevant civil society organizations will be convened. Project will lead to establishment of mechanisms and methods through which the required data can be efficiently collated and made available for reporting.

[91] Developed by a consortium of Central Water Commission, Ministry of Water Resources and Indian Space Research Organization under the project "Generation of Database and Implementation of Web Enabled Water Resources Information System in the Country", accessible at: http://www.india-wris.nrsc.gov.in/

109. NPCA envisages mainstreaming of wetlands within state level developmental programming. Existing methods of site identification and prioritization are adhoc and mostly based on specific conservation values or threats. There is no framework in place to assist systematic prioritization of wetlands for management, considering various developmental objectives pursued by the states. The output will focus on development of guidance document to enable such a prioritization mechanism, and specific sectoral policy considerations to ensure that the contribution of wetlands to societal well-being are adequately recognized, and integrated in planning and implementation processes. The work on the National Wetland Inventory and Assessment (NWIA) project will be built upon to develop and deliver a guidance document based on the state-of-the-knowledge on how to integrate wetland inventory information with state developmental and investment programming. The framework will be applied to two states (to be identified during project inception phase) for demonstration and further upscaling.

110. The guidance will also include outlining elements of national wetland policy through a series of stakeholder workshops and expert consultations. Effective management of wetlands of national and international importance is predicated on availability of an overall policy architecture for wetlands, defining the contexts, instruments and required actions through which wetland biodiversity and ecosystem services values can be conserved and sustainably managed. Such a policy does not exist in India. The existing NPCA guidelines and complementing regulatory framework (Wetland (Conservation and Management) Rules, 2010 being revised at the time of FSP drafting) outline parts of national strategy for conservation and sustainable management of wetlands, a generic articulation of the ways in which wetlands are inventoried, 'wise use' secured, and wetland management integrated into developmental programming remains a gap area. The proposed policy elements will be subject to a rigorous review process involving national and international experts. The policy will provide a robust framework for the wise use of wetlands in India and its future implementation will be supported by enhancement in knowledge and capacity for effective wetland management delivered as part of this project. This will also help fulfill the Ramsar Convention call on the Contracting Parties 'to develop and implement policies for the wise use of wetlands'.

111. ***Component 2: National scale capacity building for applying integrated wetland management.*** The second component of IMWBES project intends to build the capacity of managers of national network of wetlands to deliver and apply integrated management. A range of capacity building and outreach tools will be applied for the said purpose.

112. **Outcome 2.1: Enhanced institutional capacity and trained human resources for integrated management of wetlands.** Limited capacity within SGs to design and implement integrated wetland management plans is a critical factor limiting conservation and wise use of wetlands in the country. Reviewing, testing and developing tools and guidance for effective wetland management need to be complemented by developing adequate capacity of wetland managers to put these approaches in practice. Experiences from elsewhere in Asia have demonstrated that training alone is seldom enough to deliver on the ambitions of integrated management, but needs to be supported with learning networks and platforms, and operational hand-holding under a broader umbrella of a national capacity building and outreach policy[92]. Outcome 2.1 intends to address this need through development of training modules and learning networks.

113. ***Output 2.1A: Modules for integrated management of wetlands developed and implemented for training wetland managers.*** Work under this output will entail development of a comprehensive integrated wetland management module, to be used for training wetland managers.

114. Specific elements of the module identified during the PPG stage include: a) Wetland identification and delineation; b) Integrating Wetlands in Water Management; c) Wetlands and Sustainable Livelihoods; c) Wetland inventory, assessment and monitoring; d) Conservation of wetland biodiversity; e) Sustainable management of wetland fisheries; f) Wetlands and agriculture interactions; g) Management of Aquatic Invasives; h) Stakeholder Participation; i) Gender and Integrated Wetland Management; j) Wetland Communication and Outreach; k) Integrated management planning of wetlands; and l) Institutional arrangements for wetland management.

115. A training needs assessment of wetland managers will be conducted to further refine the modules, to be developed engaging expert institutions (preliminary list included in Section 4), and subject to peer-review.

[92] Dudgeon, D. (2003). The contribution of scientific information to the conservation and management of freshwater biodiversity in tropical Asia. *Hydrobiologia* 500**:** 295–314.

116. Existing modules and handbooks on wetland management will be critically reviewed for development of integrated management modules suited in Indian contexts. Notable are Wetlands International capacity building modules on Ecosystems and Community Based Climate Change Adaptation Training Kit (by Wetlands International, WWF US, Conservation International, Cooperative Programme on Climate and Water); Ramsar Wetland Wise Use Hand Book series; Flyway approach to conservation and wise use of waterbirds and wetlands (developed under UNEP GEF African Eurasian Flyways Project); Wetland Management Planning: and Methodology Manual for Indian Managers (developed by Wetlands International South Asia).

117. The modules will be used for conducting training through a set of nodal institutions. Salim Ali Center for Ornithology (SACON, Coimbatore, Tamil Nadu); Wetland Research and Training Centre (Balugaon, Odisha); IIT-Roorkee (Roorkee, Uttarakhand); Center for Water Resources Development and Management (CWRDM, Kozikode, Kerala) and Gujarat Ecological Education and Research Foundation (GEER Foundation, Gujarat) have been initially shortlisted as nodal institutions to roll out the training module in various regions of the country. The potential to twin regional centres with international centres of excellence will be investigated as a means to facilitate knowledge exchange, international cooperation and awareness raising. It is also proposed to conduct international training involving specialized international institutions such as Wetlands International (The Netherlands), Wetland Link International (UK), and Center for Ecology and Hydrology (UK), as well as established international experts, to enable sharing of best practices and lessons learnt pertaining to integrated management of wetlands. Periodic assessment of impact of training would be conducted to assess the degree of capacity development in integrated wetland management (including specific focus on capacity development for addressing gender dimensions in wetland management, identified as one of the performance indicators in Results Framework). During the course of project implementation, sustainability of the training efforts beyond project lifetime will be worked out, through measures as internalization in organizational programming, and building capacity to raise resources for continuation of the training programmes and periodic updation of modules.

118. ***Output 2.1B: Communities of Practice established for sharing best practices and lessons learnt on wetland management developed for wetland managers.*** A Community of Practice provides an informal knowledge exchange environment with due recognition of specific social, cultural and political contexts. Training efforts for wetland managers are proposed to be complemented through creation of learning networks, enabling exchange of information and tools, best practices and lessons pertaining to integrated management of wetlands. IMWBES envisages to support communities of practice and learning forums for wetland managers, both physical as well as virtual, so as to benefit individual and collective knowledge of practitioners and experts. Access to established networks, such as Wetland Link International (WLI)[93] which specializes in exchange of knowledge and best-practices on wetland education centres, and UN-Solution Exchange will also be incorporated.

119. ***Output 2.1C: National Communication and Outreach Strategy developed and supported by the establishment of a web-portal, outreach material and events*** While capacity will be established in a variety of institutions and stakeholders through the project, there will also be the need to enhance greatly the overall levels of awareness of the importance of the integration of biodiversity and ecosystem services in wetland management planning.

120. In the context of wetland management, awareness is understood to be the process that "brings the issues relating to wetlands to the attention of individuals and key groups who have the power to influence outcomes". Therefore awareness can be considered as an agenda-setting and advocacy exercise that helps people to know what and why integrated wetland management is an important issue, the aspirations for the management targets, and what is being and can be done to achieve these. This output will focus on establishing and raising awareness and developing a lasting legacy that will endure beyond the timeframe of the project.

121. A National Communication and Outreach Strategy will be established to facilitate improved systematic dissemination of information along existing communication channels and to ensure that new audiences are actively engaged. It will identify the variety of perceptions and knowledge that different stakeholders will have of wetland issues, and subsequently provide options to intervene at national, state and local levels. Development of the Strategy will require collation of information on other national strategies and also input from national and international wetland communication experts. State and national government will be engaged in the development and drafting process to ensure appropriate institutional understanding and buy-in. The strategy will be communicated through the website and a

[93] Wetland Link International, http://wli.wwt.org.uk/

outreach programmes that are planned within the IMWBES project. Ultimately, the National Communication and Outreach Strategy will mesh seamlessly with the broader CEPA targets and reporting required under the Ramsar Convention.

122. IMWBES will also endeavor to develop a website (in English and Hindi, more languages to be added subsequently) as an information and knowledge sharing platform on wetlands of India. The website will function as a platform to make available various datasets, guidance, information and case studies related to wetlands. It is also intended to use the website as a virtual national online platform for wetland managers.

123. The development of knowledge in Outcomes 1.1 and 1.2 will contribute to the creation of a variety of outreach materials for wetland managers. Engagement with wetland managers through the pilot sites and wider knowledge exchange networks will help to identify key knowledge gaps and needs. Similarly, engagement with stakeholders, local communities and the private sector will also help to shape and guide their needs with regard to outreach materials.

124. Specific outreach materials will be developed in a variety of media including, for instance, web-based, printed word or artwork, radio broadcasts, art installations or drama-based activities. The key issue will be to ensure that the message, medium and audience are understood and appropriate. Opportunities for co-badging and co-financing will be investigated to bring benefits to multiple actors.

125. IMWBES will support national outreach events to and activities with significant anniversaries or cultural dates. A key event which is already celebrated in India and beyond, is World Wetlands Day (WWD). Launched in 1997, WWD, 2nd of February, celebrates the signing of the Ramsar Convention in February 1971, in the Iranian city of Ramsar. Each year, government agencies, NGOs, and groups of citizens at all levels of the community undertake actions to communicate the range of ecosystem services which wetlands deliver to people, and to raise awareness about the Ramsar Convention across a broad range of target audiences. It is expected that project will raise greatly the profile of WWD and increase significantly the number and quality of events. Wetland authorities and state biodiversity boards will be supported for organization of outreach events at regional and state levels.

126. Private sector partners will be actively encouraged to participate in a range of outreach events at a variety of scales. Opportunities will be explored to improve the environmental and/or social performance of corporate partners with regard to their relationships with wetlands through delivery of outreach events. Private sector partners will also be encouraged to promote their activities and to feed into national CEPA reports.

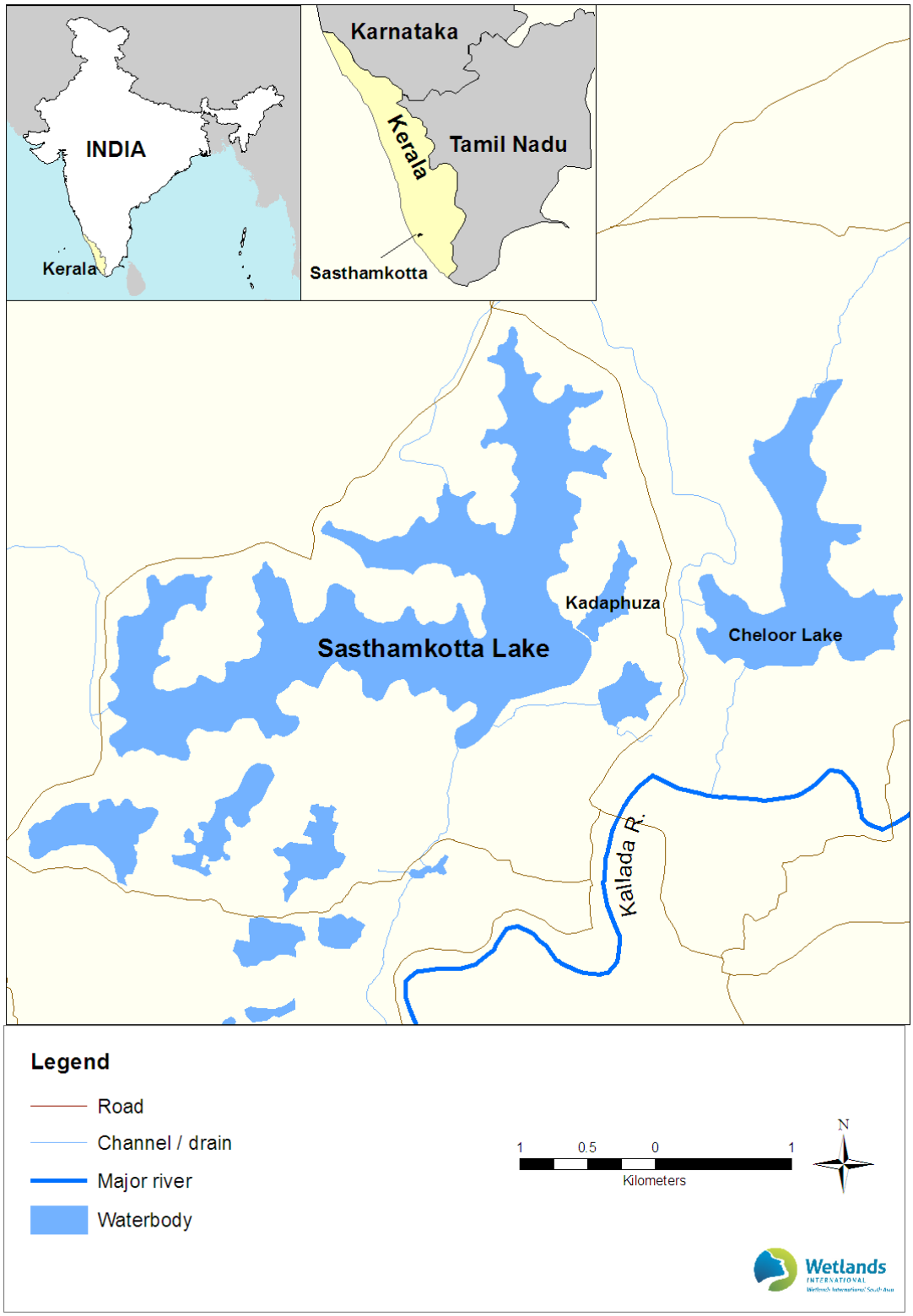
127. **Component 3: Demonstration of integrated wetland management.** Through the use of pilot sites, Component 3 will apply integrated and multi-sectoral wetland management approaches in three protected wetlands to facilitate learning and the development of best practices for up-scaling and wider implementation within SGs.

128. **Outcome 3.1: Integrated wetland management applied in three protected wetlands.** The IMWBES project will demonstrate application of integrated management approaches at three sites to enable replication and national upscaling. Each of these sites provide vital ecosystem services and biodiversity values underpinning local and regional food and water security. Lack of consideration of these values in regional developmental programming has been detrimental to wetland functioning, constraining delivery of ecosystem services on a long term basis. Through implementation of pilots, the project intends to showcase pathways for mainstreaming wetland ecosystem services in developmental programming. Application of assessment tools developed under the project will also serve to enhance knowledgebase and capacity of wetland managers (Baseline analysis of pilot sites is presented in Appendix 16).

129. In line with the objectives of baseline project and gap analysis conducted for the project design, the selected sites conform to the following criteria: a) Identified as priority by state governments through inclusion in the list of NWCP, b) Sites provide distinct developmental benefits, c) Commitment of SGs to support integrated management (as evidenced through a management planning process set in motion during or prior to IMWBES project formulation), and d) Global Environment Benefits.

130. ***Pilot Site 1- Sasthamcotta Lake, Kerala:*** Located in Kunnathur Taluk of Kollam District, Sasthamcotta is the largest freshwater wetland of Kerala State and one of its three designated Ramsar Sites (since 2002). Its maximum waterspread extends to 4,500 ha, within a predominantly agrarian direct catchment of 9,340 ha. Vegetation around the lake includes 29 species of herbs, shrubs and grasses and 56 species of trees. 34 species of waterbirds have been recorded here, besides records of 26

species of freshwater fish and two species of freshwater prawns. The lake is the principal source of water for 0.5 million people living in Kollam City and its suburbs. A water supply project, designed in sixties and operated by Kerala Water Authority (KWA) withdraws nearly 37.5 million litres on a daily basis. The lake also plays a role in cycling nutrients received from the agricultural catchment, utilized within the ecological production processes and the food chain. Sastha temple, from which the lake is believed to have got its name is an important cultural centre for the region.



Map 1: Sasthamcotta Lake, Kerala

131. Sasthamcotta is evolving towards a marsh dominated stage due to frequent drying out of large sections of the lake. Hydrological assessments carried out by CWRDM indicate the regimes to be primarily governed by rainfall, which have inter-temporal variability. While the outflows for water supply have been constant, any reduction in rainfall tends to expose the lake bed. The thickly populated and intensively cultivated catchment is a source of enhanced siltation leading to gradual reduction in water holding capacity. Sand and clay mining in the catchment are also reported to have impacted groundwater recharge. Conversion of floodplains in the southern reaches is also likely to be a

contributing factor for declining water availability. Sasthamcotta is also subject to excessive pollution loading from the catchments. Waste management practices in the shoreline villages are far from being comprehensive. In certain parts, even the wastewater from the water treatment facility of Kerala Water Authority is leached back to the lake. Continued prevalence of these trends is only likely impair wetland functioning and increase water insecurity for the dependent communities.

132. Key BES outcomes that are intended to be achieved through the site management are restoration of hydrological regimes, reduction in silt loading, improved water quality status, implementing agreements to reduce water intake for domestic purposes to levels that can be supported by existing water regimes, enhancing fisheries and integrating wetland management with Panchayat development programmes.

133. ***Pilot Site 2 – Kanwar Jheel, Bihar:*** Kanwar Taal is a part of an extensive floodplain wetland complex formed in the lower reaches of Gandak – Kosi interfan in north Bihar. Located at a distance of 21 km from Begusarai town, Kanwar is the largest of a series of shallow permanent as well as intermittently inundated wetlands formed in the depression between River Burhi Gandak and paleochannel of River Bagmati. During monsoon, Kanwar connects with 17 adjacent waterbodies to form a large inundated area extending to nearly 6700 ha. With retreat of monsoon, the inundated areas shrink to around 600 ha mainly around two small patches, Mahalaya and Kochalaya, exposing 2600 ha of grasslands, large parts of which are used for agriculture.

134. The dynamic fluvial regimes of Kanwar underpin its rich biological diversity and wide ranging ecosystem services. Exchange of water, sediment and species with the flood pulses of River Burhi Gandak (and Kosi prior to the 1950s) support highly productive fisheries and agriculture sustaining livelihoods of nearly 15,000 households living in 16 villages in and around the wetland. A basis of land use management of the wetland was worked out between *sahni*, local fishers and the farmers enabling the two to harvest resources and avoid conflicts. Kanwar also plays an important role in hydrography of the region by accommodating significant proportion of rainfall and bankflows of River Burhi Gandak protecting the adjoining settlements from flood risk as well as recharging groundwater. The wetland teems with waterbirds in the winters, and is one of the important congregation areas in North Bihar, particularly for migrating ducks and coots. Over 200 bird species have been recorded at Kanwar, of which 58 are migratory waterbirds. Besides birds, recorded biodiversity at Kanwar include 140 flora, 55 fish, eight annelids, 74 anthropods and 10 molluscan species, several of which are rare and endangered. Kanwar is also an important source of animal fodder. The island of Jaimangalgarh located in the southern tip has high archaeological significance. The temple of local deity located on the island forms an integral part of culture and belief systems of the local communities.

135. Despite having such high ecological and socioeconomic significance, conservation and sustainable management of Kanwar has received very limited attention in developmental planning in the state. River Burhi Gandak was channelized though construction of embankments during early 1950s as a part of flood protection measures impeding the natural hydrological connectivity of the rivers with the wetland complex. Support for policies aimed at enhancing food security by bringing in additional areas under agriculture brought in tremendous pressure on the naturally fertile floodplain wetlands as Kanwar. Efforts to reduce the area under permanent inundation were initiated in the 1950s in the form of construction of canals to connect the wetlands artificially to the River Burhi Gandak to aid drainage. Migrating waterbirds were subject to intensive poaching. Reports from1984 – 85 indicate that local duck trappers netted over 135,000 birds in one season alone. Agriculture has gradually intensified with shrinking inundation areas, and traditional varieties giving way to more water demanding crops as sugarcane, and peppermint. Shrinking resource base further accentuated conflicts between farmers and fishers, the latter having to shift to aquaculture fisheries and agriculture labour as source of livelihoods. Kanwar has gradually transformed into contested common with the wetland use made subservient to conflicting sectoral and stakeholder interests.

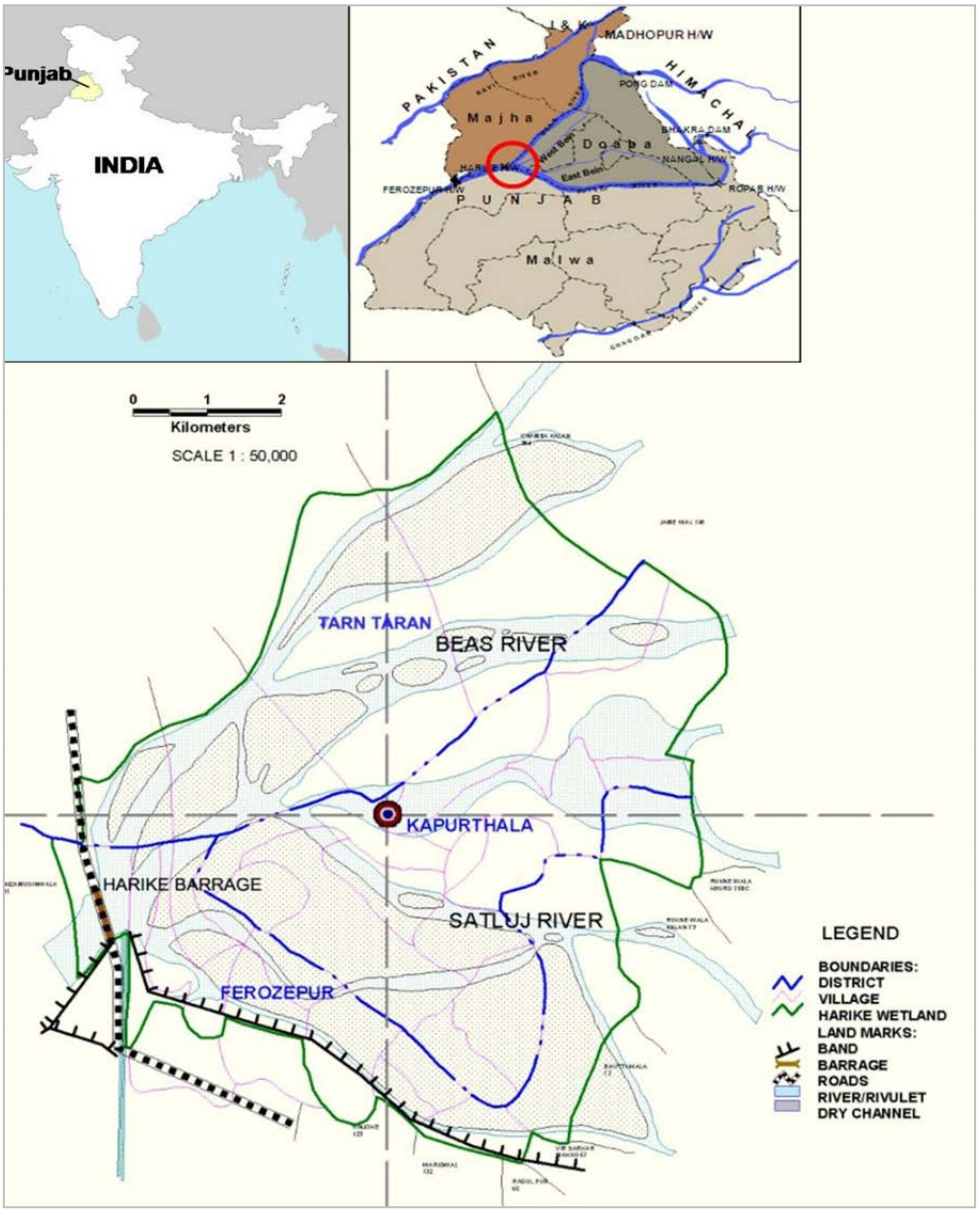
Map 2: Kanwar Jheel, Bihar

136. In an effort to control killing of waterbirds, the Government of Bihar declared a large area of Kanwar as a sanctuary by the name of 'Kanwar Lake Pakshi Vihar' in 1989 under the provisions of Indian Wildlife (Protection) Act, 1972. Management of the protected area was vested with the State Forest Department. A management plan for the site considering the needs of protected area management was drafted in 2003. Limited interventions in the form of afforestation of parts of Jaimlangalgarh Island and enforcement of regulations were made. Kanwar Taal, Bariela and Kusheshwarsthan were identified by the Government of Bihar as wetlands of national importance under the National Wetland Conservation

Programme (presently merged into National Plan for Conservation of Aquatic Ecosystems- NPCA); though no substantial funding support was received from the national government.

137. Key BES outcomes that are expected to be achieved through site management are restoration of hydrological regimes, improved water holding capacity, improved status of waterbird habitats, rejuvenation of capture fisheries, sustainable management of culture fisheries and improved livelihood of wetland dependent communities. An integrated wetland inventory, assessment and monitoring system is also envisaged to be established to support adaptive management.

138. ***Pilot Site 3 - Harike Lake, Punjab:*** Harike is a riverine wetland created at the confluence of Rivers Sutlej and Beas, covering an area of over 28,500 ha spread across four districts of Amritsar, Ferozepur, Kapurthala and Jalandhar. The wetland stands out as one of the significant habitats of migrating waterbirds in Central Asian Flyway. Nearly 0.1 million waterbirds annually winter here. Recorded biodiversity in Harike include 360 species of birds, 50 species of fish, seven species of turtles, four species of snakes, six taxa of amphibians, 189 taxa of invertebrates and 38 taxa of plants. In 1950, an irrigation barrage was constructed here. Over 450 km long canals linked to the barrage provide irrigation and drinking water to parts of southern Punjab and adjoining desert state of Rajasthan. A substantial part of the wetland is used for agriculture. In 1982, 4100 ha of area was declared as wildlife sanctuary, which was extended to 8600 ha in 1992. In 1990, the MoEFCC declared Harike as a Ramsar Site.



Map 3: Harike Lake, Punjab

139. Located within an intensively cultivated catchment and a modified hydrological regime, Harike is subject to intensive pollution from upstream industrial townships of Ludhiana and Kapurthala, as well as runoff from neighboring agricultural fields. Bathymetric surveys of Harike Lake in 2010 indicated that the wetland had lost 83% of its water holding capacity over the last 54 years as a result of rapid siltation. Continued discharge of pollutants from upstream townships brought into Harike by Rivers Sutlej and Beas have led to extensive proliferation by aquatic plant invasives. The open water expanse has also significantly reduced from 4100 ha in 1952 to 2800 ha at present. Degradation of wetlands puts the significant hydrological services, as well as biodiversity habitats at risk.

140. Key BES outcomes to be achieved through site management is improvement of waterbird and other aquatic biodiversity habitat, reduction in silt loading, improved water quality, reduction in aquatic invasives, sustainable fisheries and alternate livelihoods for wetland dependent communities. A wetland inventory, assessment and monitoring system is also envisaged to be established to support adaptive management.

141. A summary of key Global Environment Benefits to be achieved through management of the selected sites, baseline initiatives and proposed coordination mechanism for integrated management is presented in Table below (Detailed information contained in Baseline analysis for the three sites at Appendix 16).

Baseline analysis for the three pilot sites

	Pilot Site 1. Sasthamcotta Lake, Kerala	Pilot Site 2. Kanwar Jheel, Bihar	Pilot Site 3. Harike Lake, Punjab
Global Environment Benefit expected from integrated management	Forms a part of the Global Network of Ramsar Sites Supports breeding ground of 3 fish species of high conservation significance	IBA Site (5 critically endangered, 3 endangered, 5 vulnerable, and 14 near threatened bird species and 2 near threatened fish species.	Forms a part of the Global Network of Ramsar Sites IBA Site and is a habitat for 2 critically endangered, 1 endangered, 7 vulnerable, and 8 near threatened bird species; 1 vulnerable otter species
Baseline	Designated as a Ramsar Site in 2002 Gradually evolving towards marshy conditions, impacting its ability to act as freshwater source and support biodiversity habitats High risks of adverse change in ecological character due to increasing urbanization within catchments, and increased water abstraction Kerala Conservation of Paddyland and Wetland Act, 2008 promulgated to provide the regulatory framework for wetlands, however, implementation has been limited. No integrated management plan in place	Designated as a Wildlife Sanctuary in 1987 in order to control illegal waterbird hunting. Inundation regime shrinking due to changes in land use and fragmentation of hydrological regimes Significant livelihood stress and resource use conflicts due to rapid decline in capture fisheries An integrated management planning framework for the site has been drafted in 2014 and under review by the state government State Wetland Authority constituted in January 2015 as nodal agency for management of wetland resources of the state.	Designated as a Ramsar Site in 1990 and a bird sanctuary in 1992 Siltation, infestation by invasive macrophytes and pollution impede wetland functioning. Limited conservation measures undertaken for improving vegetative cover in the catchments, promoting organic agriculture in peripheral areas and control of invasives Site management plan under development
Incremental change to be targeted through	Institutional mechanisms for integrated	Institutional mechanisms for integrated	Institutional mechanisms for integrated

IMWBES project	management established Minimum inundation maintained at 80% of wetland area Stakeholder led water management plan balancing human needs with wetland functioning requirements implemented Communities living in 4 Panchayats benefit from wetland resources and gain tangible incentives for adopting sustainable livelihood practices Integrated wetland inventory, assessment and monitoring system established Management plan adaptation is supported by periodic management effectiveness assessment	management established Inundation regimes restored to cover entire wetland area Improvement in fisheries benefits livelihoods of 15000 fisher households Waterbird habitats enhanced and migratory pathways between river-floodplains established Integrated wetland inventory, assessment and monitoring system established Management plan adaptation is supported by periodic management effectiveness assessment	management established Area under aquatic invasives restricted to 10% of open water surface 10,000 households living around wetland benefit from community managed ecotourism and livelihood diversification opportunities Integrated wetland inventory, assessment and monitoring system established Management plan adaptation is supported by periodic management effectiveness assessment
Coordination mechanism for implementation of pilot projects	Assessments and finalization of management plan by CWRDM which will support constitution of State Wetland Authority as overall responsible for management plan implementation	Finalization of management plan by Forest Department, implantation to be coordinated through Bihar Wetland Development Authority	Assessments and finalization of management plan by PSCST which will support constitution of State Wetland Authority as overall responsible for management plan implementation

142. A mapping of stakeholders for the three pilot sites on the basis of degree of importance of and degree of influence on site management is presented below:

	Degree of influence on site management	
	High influence	Low influence

Degree of importance for site management	High importance	***User groups*** Sasthamcotta: KWA (Kollam City), Village Panchayats (Sasthamcotta, Mygnapalli, East Kallada) Harike: Agriculture farmers Kanwar: Fisher cooperatives, wetland agriculture farmers, capture fishers Indigenous communities: Ehzwa (Sasthacotta), Sahni (Kanwar) ***Community institutions*** Village Panchayats ***Civil society*** Sasthamcotta: Sasthamcotta Action Council, KSSP Kanwar: KSS	***User groups*** Sasthamcotta: Fishers, Agriculture Farmers, Plantation Owners, Navigation boat operators, Local tourists Harike: Reed gathers, fishers, wetland communities living downstream, local tourists Kanwar: Reed gatherers, Downstream farmers, local tourists ***Community institutions*** Sasthamcotta: Fisher Cooperatives Kanwar: Village panchayats of downstream villages. Mandar Nature Club ***Civil society*** Harike: WWF local office ***Private Sector*** Harike: Industrial units of Ludhiana and other major upstream centers, ITC Kanwar: Private Sugar Mills
	Low importance	***Government departments / agencies*** Sasthamcotta: DoI, DoA, DoF, DoE, DoFr, PCCB, DoT, KSBB Harike: DoFr, DoA,DoF, DoWR, PSBB Kanwar: DoFARD, DoFr, DoA, DoWR, KVK, DoEE, BSBB ***Academic and Research agencies/ institutions*** Sasthamcotta: CWRDM, DB College Harike: PSCST, Kanwar: Magadh University, Bhagalpur University ***Private Sector*** Harike: Industrial units of Ludhiana and other major upstream centers	Sasthamcotta: Service sector communities living around wetland Kanwar: Barauni Refineries, Sudha Milk Cooperative

143. Management of three sites has distinct gender and social equity dimensions. In Kanwar Jheel (Bihar), the gradual predominance of agriculture has led to marginalization of capture fishers, who have tended to migrate to wage labor or seek engagement in culture fisheries. While the male members are engaged in culture fisheries, women have a predominant role in capture fishing, reed gathering and collection of molluscs. The entire region has very weak access to basic health and education infrastructure, which affects the overall well-being of the communities living in and around the wetland. Communities in Sasthamcotta Lake (Kerala) have an overall higher and better gender inclusion as compared to rest of the country, managing wetland for meeting downstream water requirements has put the water availability for the neighboring Panchayats at stake. In the case of Harike Lake, the wetland farmers are the predominant groups socially and politically, and influence the state of wetland, whereas fishers and reed gathers occupy a lower social status and voice in site management. Integrated management of the three sites will place specific focus on addressing the livelihood capital and BES linkages, and seek opportunities for addressing social (including gender) and economic equity through better state of wetlands. Management effectiveness indicators will include gender and social equity related indicators to assess overall performance.

144. ***Output 3.1A: Baseline assessment and evaluation of BES values carried out for three pilot sites.*** For all the three sites, baseline information to describe status and trends in ecosystem components, processes and services exists, however in a fragmented manner. In the case of Harike Lake, detailed wetland delineation and biodiversity inventories have been conducted by Punjab State Council for Science and Technology (PSCST). Hydrological assessments have also been carried out by Irrigation and Power Research Institute (IPRI) and National Institute of Hydrology, Roorkee (NIH). Similarly, Wetlands International South Asia has collated the existing information base for a preliminary evaluation of ecological character for Kanwar Jheel. For Sasthamcotta Lake, hydrological assessments and evaluation of catchments have been conducted by CWRDM. Work under this component will involve systematic compilation and evaluation of biodiversity and ecosystem service values, and related drivers and pressures to support development of an integrated management plan. Hierarchical

inventory systems (Outcome 1.1) and climate vulnerability assessment tool (Outcome 1.1) will be applied to inform development of management strategies. Ecological character assessments will also involve identification of priority elements and links thresholds which will assist in development of regulatory regime for site, in line with the mandate of NPCA. These assessments will be carried out by the nodal agencies identified for implementation of pilots (PSCST for Harike Lake, DEE for Kanwar Jheel, and CWRDM for Sasthamcotta Lake) with support of expert agencies, LTSA and State Biodiversity Boards. Work under this component will greatly benefit from the experience of LTSA in developing integrated management plans for Ramsar sites. Experiences on implementation of management action plan funded through the MoEFCC or other agencies will also be taken on board.

145. ***Output 3.1B: Cross-sectoral institutional arrangements for integrated management enabled for three pilot sites.*** For each of the three pilot sites, the project will work with SGs towards putting in place cross sectoral institutional arrangements (wetland authorities), which will lead to consideration and adequate incorporation of stakeholder needs and aspirations into management planning processes. The authorities will have representation from all concerned line departments, State Biodiversity Boards, experts, civil society and representatives of local stakeholders. The cross sectoral institutional arrangements will also lead to identification of specific mechanisms through with wetland BES values will be integrated in state level developmental programming. Funding for implementation of site management plans will be mobilized through various public and private sources. Monitoring and evaluation systems will also be developed. Mechanisms for defining and enforcing regulatory regimes will be identified through stakeholder engagement. Experiences of functioning of existing State Wetland Authorities will be taken on board.

146. Wetland communities and stakeholders can represent a diverse and disparate collection of individuals and organizations with intertwining polycentric social and environmental interests (Figure 2). Stakeholder analysis and participation can be a complex element of natural resource management which necessitates not just identifying stakeholders but also categorizing them and mapping and understanding the plurality of their relationships[94].

147. The management plan formulation, implementation and monitoring phases will proactively seek engagement of local and indigenous communities living within the wetlands and its catchments. During project development, following indigenous communities were identified:

a) Sahni – fisher communities living in and around Kanwar: Intensification of agriculture within wetland complex has led to occupational displacement within these communities
b) Ezhwa – riverine fisher communities living around Lake Sasthamcotta. Loss of riverine connectivity has led to these communities shifting occupations and livelihods.

During the project preparation phase, meetings were held with these communities, alongwith other stakeholders, on wetland livelihood interlinkages, impacts of wetland transformation on livelihood systems, capacity development needs to promote community led management of wetlands, and the addressing social, power and gender equity concerns.

148. Inventory of wetland features will pay specific attention to wetlands –livelihoods interlinkages (livelihoods being interpreted in a broader senses to include *inter alea* economic subsistence, social and cultural relationships, traditions, identity and indigenous knowledge). Participation of the local and indigenous communities would be on the basis of Free and Prior Informed Consent. Management plan implementation would include investment into sustainable livelihoods and capacity development of these communities. Cross sectoral institutional arrangements for site management would seek representation of these communities into planning and decision making processes.

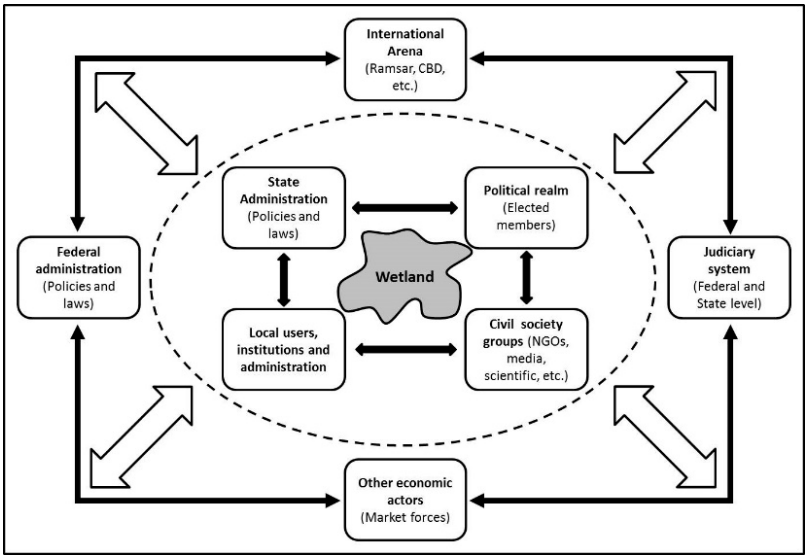
149. An important component of the project will include building capacities of wetland communities and stakeholders in these sites to promote local stewardship. Building on the outcomes of wetland ecological character – livelihood interlinkage assessments (Outcome 1.1), project will seek to identify and implement interventions supporting community actions for biodiversity conservation and sustained provision of ecosystem services. Mechanisms for resolution of resource use conflicts will be established through the strengthening local community institutions and using a responsive and adaptive approach to management.[95]A range of adaptive, participatory approaches will be utilized to actively

[94]Reed, M. S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J.& Stringer, L. C. (2009). Who's in and why? A typology of stakeholder analysis methods for natural resource management. *Journal of environmental management*, 90(5), 1933-1949.

[95]Narayanan, N. C., & Venot, J. P. (2009). Drivers of change in fragile environments: Challenges to governance in Indian wetlands. *Natural Resources Forum* 33(4), 320-333.

engage, and secure the long-term involvement of, wetland communities and stakeholders in order to bring even marginalized stakeholders into the decision-making process. Guidelines as contained in Ramsar Wise Use Handbook on participatory skills (HB7) will be used and national and international experts will be engaged to deliver the necessary approaches for community engagement.

Figure 2: Polycentric governance framework for Indian wetlands (redrawn from Narayanan & Venot, 2009).



150. ***Output 3.1C: Potential private sector partnerships identified at the three pilot sites and actively engaged in integrated management***. There is a considerable and growing body of evidence which demonstrates that the private sector can profit from active engagement in natural resource management and specifically from the benefits which flow from wetland ecosystem services[96].NPCA envisages increasing resource availability for wetland conservation through engagement of private sector[97] alongwith conventional public sources. To date there have been very limited instances of corporate sector participation in wetland conservation in India (eg. Godrej in mangrove restoration in Mumbai, and TATA Chemicals in an upcoming project in Chandrabhaga wetland, Jamnagar, Gujarat). IMWBES will proactively identify opportunities for private sector participation in the three pilot sites, and their active engagement in management. In the 2013 amendment of the Indian Companies Act, application of 2% of the average net profits for the immediately preceding three financial years on Corporate Social Responsibility Actions has been made mandatory for companies having profits of Rs. 5 cr or more, or having net worth of Rs. 500 cr or a turnover of Rs. 1000 cr. Environment has been identified as an area of CSR investment. The IMWBES project will use this amendment, and experiences of platforms as India Business Biodiversity Initiative (established by the MoEFCC) to raise resources for implementation of management plans, as well as application of tools and capacity development modules developed under Components 1 and 2. Through an analysis of the barriers and understanding the needs and constraints of the private sector, partnerships will be established at the pilot sites to meet wise use objectives through support to: a) formulation of management planning; b) application of BES assessment and management effectiveness assessment tool; c) building capacity of wetland managers and stakeholders for integrated management; and d) communication and outreach on wetland values (further details will be worked out during the furst year of project implementation). It is envisaged that the private sector engagement in the three pilot sites will act as potential templates or exemplars within the Indian context.

151. Work under this output will also involve development of a generic guidance document for private sector engagement in wetland conservation. An essential element behind this Output is to understand the motivations and incentives behind private sector engagement and to work with the sector to develop

[96] Lambooy, T., & Levashova, Y. (2011). Opportunities and challenges for private sector entrepreneurship and investment in biodiversity, ecosystem services and nature conservation. *International Journal of Biodiversity Science, Ecosystem Services & Management*, *7*(4), 301-318.

[97] As per new Indian Companies Act (2013), companies having a networth of Rs. 500 crore, turnover upto Rs. 1000 cr and net profit of atleast Rs. 5 cr are required to invest 2% of their average net profits for a block of three previous years on Corporate Social Responsibility (CSR) activities.

new business models and practices. Potential partnerships will be examined which will deliver mutual benefits for wetland biodiversity and ecosystem services and the private sector. Opportunities including inter alia innovative finance models, payment for ecosystem services, mitigation banking or corporate social responsibility will be investigated.

152. The pilot sites will provide information on the barriers to private sector engagement and also on the opportunities and suggested solutions. The following obstructions have been identified from other natural resource management situations, and these, and others, will be tested through engagement with the private sector at the pilot sites:

- Lack of exchange of information and knowledge between the private sector and wetland managers.
- Biodiversity and ecosystem service-based business projects often face higher risks.
- Potentially high transaction costs for investors.
- Lack of management capacity and entrepreneurs.
- Small or localized projects offering lower revenues.
- Lack of enabling environment and appropriate regulatory framework.
- Inability of private sector actors to think 'long term'.

153. ***Output 3.1D: Implementation of management plan reviewed and adapted periodically to address site and landscape scale drivers and pressures.*** Site management plans for maintenance of ecological character through addressing direct and indirect drivers of degradation, and specifically creating opportunities for stakeholder participation will be implemented. Management planning frame will address ecological, socioeconomic and institutional outcomes in relationship with drivers and pressures governing site features. Opportunities for creating sustainable livelihoods through better management of wetland resources and value addition opportunities will be focused, as a means to incentivize sustainable management of wetlands resources. Some of these opportunities identified during the PPG phase are as follows:

- Kanwar Jheel: Improving capture fisheries through restoration of hydrological connectivity, protection of breeding and spawning grounds and regulation of destructive gears; improving culture fisheries in associated wetlands through fish hatcheries and building capacity of fish cooperatives; ecotourism development; enterprise based on macrophytes; micro-enterprise to reduce dependence on wetlands(apiculture, mushroom cultivation, natural dyes, duckery and poultry); improving WASH infrastructure
- Sasthamcotta Lake: Sustainable agro-practices in areas around wetlands; revival of fisheries; ecotourism development; augmentation of WASH infrastructure
- Harike Lake: Sustainable fisheries and wetland agriculture; aquatic vegetation based microenterprises ; community managed tourism

154. At local level, direct socioeconomic benefits emerging from project interventions will emerge through implementation of activities under Component 3 (Demonstration of integrated management), wherein approximately 35,000 wetland dependent communities in the three sites will benefit through sustainably managed resources (fisheries, wetland agriculture, aquatic plants) and alternate / additional livelihood options designed to reduce pressure on wetland resources as well as incentivize natural resource stewardship. Improved resource base will create benefits indirectly to communities living within wetland catchments , eg Kollam City (~ 82,000 households depending on sustained supply of water coming from Sasthamcotta), agriculture farmers in southern Punjab and Rajasthan (~0.2 million farmers benefitting from irrigation linked with wetlands) and fish farmers in and around Kanwar Jheel (~20,000 households) dependent on healthy wetland habitat and associated fish production.

155. Participation of communities in management plan will be based on the Free Prior and Informed Consent (FPIC). Implementation of management plans will also seek to address social and gender equity issues. To this effect, the baseline and management tracking will include indicators listed under Outcome 4.1.

156. In line with NPCA strategy, management plans will mainly be implemented through resources generated on the basis of convergence financing from public and private sector sources, with the project supporting core management activities (for which no complementary funding stream exist). Implementation will be periodically reviewed through use of management tracking tool developed under Component 1.

157. ***Component 4:*** **Project monitoring, evaluation and outcome dissemination.** This component is designed to ensure that project monitoring and evaluation systems are established, site and basin scale

monitoring systems put in place to assess changes in BES values and outcomes disseminated for national replication and upscaling.

158. **Outcome 4.1: Project impacts and performance are measured.** The outcome will ensure that project reporting and performance assessment are put in place so as to ensure that the desired results are achieved and monitoring outcomes are applied to take up necessary mid-course correction.

159. ***Output 4.1A: Project monitoring and reporting systems established.*** A results-based project monitoring and reporting system will be established to ensure that the project management and stakeholders are well-informed on progress, mid-course correction decisions can be taken, and results achieved with application of available human and financial resources. The monitoring and reporting systems will conform to the MoEFCC, UNEP and GEF guidelines.

160. ***Output 4.1B: Site and wetland catchment scale monitoring implemented assessing management effectiveness and outcomes for BES values.*** IMWBES project will enable mechanisms for assessing BES values changes in the three pilot sites, through a set of ecological, socio-economic and institutional indicators, set within the management plan and linked with the management effectiveness tracking tool developed under Component 1. The monitoring programme will includes set of indicators to assess gender and social equity within the BES indicators. (An incomplete and suggestive list identified during PPG phase include: Participation of women in capacity building and outreach programmes; Participation of marginalized section in capacity building and outreach programmes; Equity in access to resources; Social and gender equity in operation of user groups related to wetland resources (eg. fish cooperatives); Changes in gender roles induced through implementation of project interventions; Community (including gender segregated assessment) involvement in monitoring of management plan implementation). Respective State Biodiversity Boards will be involved in site and catchment scale monitoring, for which specific institutional arrangements will be identified in the management planning phase.

161. **Outcome 4.2.Evidence base on benefits of BES based wetland management established.** The outcome will focus on using the results of the project to mainstream BES based management approaches within national implementation.

162. ***Output 4.2A: Project best practices guidelines on ES based wetland management disseminated for national scale replication.*** Information produced through implementation of assessment tools (Component 1) and implementation of integrated management plans at the three pilot sites will be synthesized to assist with identifying commonalities and exceptions and to understand the implications for up-scaling for the implementation of NPCA. The information would be synthesized into a draft report which would be subject to national and international peer review and consultation through an expert workshop.

163. The aforementioned information supplemented with national and international lessons and best practices will lead to development of a national guidance on integrated BES based wetland management. The national guidance would seek to integrate BES assessment protocols, including climate vulnerability assessment protocols, across India. The key lessons learnt from the pilot sites and also from of wider input by national and international experts would be synthesized within the guidance document. The guidance document would be subject to peer review and workshop evaluation, and, ultimately, to acceptance by national government. The national guidance will address not just the practicalities of implementing effective management of wetlands but also the capacity, in terms of human resources, knowledge and institutional structures, and policy frameworks within which the delivery can be achieved.

164. Project outreach will involve dissemination of lessons learnt and best practices emerging from IMWBES project to national and international audience. The knowledge developed throughout this project will not only catalyse and enhance delivery of the objectives of the NCPA, but it will generate lessons that will resonate beyond India's boundary and will have application in other countries. Opportunities will be taken to disseminate the lessons learnt to wide range of international audiences through a variety of events and media.

165. Regional (Asian) and international workshops will be convened to disseminate lesson learnt and to facilitate knowledge exchange. Key outcomes and outputs will be shared in order to assist with building capacity and extending knowledge across the region. Partnerships with national and international agencies will be sought and NGO networks will be utilized to ensure that key messages reach the relevant audiences. Academic and scientific networks will be engaged through the

dissemination of peer-reviewed, high quality publications which will demonstrate the substantive basis for effective wetland management and the integration of biodiversity and ecosystem services.

166. ***Output 4.2B: Increased use of BES based monitoring systems to assess maintenance and restoration of wetland ecological character, and enhanced livelihoods for wetland dependent communities.*** Project will train wetland managers in applying BES based monitoring systems to assess impacts of restoration programmes on wetland ecosystem components, processes and services as well as on well-being of dependent communities.

3.4 Intervention logic and key assumptions

167. Wetlands in India have continued to be degraded and converted for alternate uses, despite providing a range of benefits, particularly towards water and food security and climate change adaptation. The MoEFCC, through its restructured national programme NPCA envisages stemming the continued loss and degradation of wetlands in the country by promoting a cross sectoral policy, planning and decision making environment for wetland conservation and sustainable management within states. While the NPCA has created the necessary financial and institutional architecture for management of network of wetlands of national and international significance, the overall objective of mainstreaming wetland conservation in development programming requires addressing knowledge, capacity and institutional barriers which limit management effectiveness. IMWBES provides the investment complementary to NPCA to enable addressing the barriers described in Table 4, with an overarching objective of enhancing management effectiveness of wetlands in the country.

Table 4: Barriers and expected project responses

Barriers		**Project response**
Knowledge	Prioritization of sites for management not based on systematic evaluation of ecosystem services and biodiversity values. Integrated management planning approaches are not applied to address drivers and pressures emerging from developmental programming in the wider landscape. Management planning approaches are insufficient to address vulnerabilities induced by climate change. Limited dissemination and use of available guidance and best practices for integrated management of wetlands	Hierarchical assessment tool developed and piloted to enable consideration of wetland ecosystem services and biodiversity values in site prioritization and development of management plans. (Outcome 1.1) Capacity building and outreach interventions targeted at national wetland managers to promote application of integrated wetland management approaches. (Outcome 2.1) Climate vulnerability assessment tool developed and piloted to enable inclusion of response strategies in design and implementation of management plans (Outcome 1.1) Access to international and national guidance, best practices and lessons on integrated management of wetlands to wetland managers (Outcome 1.1, 1.2,2.1 and 4.1)
Capacity	Limited capacity within SGs for formulation and implementation of integrated management plans Absence of learning platform(s) and network(s) to foster sharing of best practices and lessons learnt Weak outreach on societal benefits linked with wetlands, resulting in limited stakeholder participation in management No national capacity building and outreach strategy in place to support integrated management of wetlands of national and international significance	Modules, exchange visits, demonstration and applied small grants facility support capacity building of wetland managers for integrated management. (Outcome 2.1 and 3.1) Learning networks for sharing best practices and lessons learnt on wetland management established. (Outcome 2.1) National communication and outreach strategy, bi-lingual website, multi-lingual outreach materials and events enable stakeholder outreach. (Outcome 2.1)
Institutional	Limited efforts in creating mechanisms for	National guidance and outreach support on

	cross sectoral management of wetlands Adhoc site management plans which do not systematically address drivers of degradation Weak monitoring and evaluation mechanisms which limit the ability of MOEFCC and SGs to assess impact of management and communicating outcomes to stakeholders Limited private sector participation in wetland conservation and wise use	mainstreaming wetlands in developmental programming. (Outcome 1.2) Management effectiveness tool developed and applied in Ramsar Sites to guide integrated management. (Outcome 1.2) Cross sectoral governance mechanisms enabled in three pilot sites for integrated management, and results disseminated for national replication and upscaling. (Outcome 3.1) Financing arrangements for management plans for three pilot sites demonstrate funding convergence from public-private sources. (Outcome 3.1)

168. The project will enhance the management effectiveness of wetlands of national and global importance through improving knowledge, strengthening capacity and demonstration. This will be achieved by greatly enhanced provision and dissemination of knowledge on wetland biodiversity and ecosystem services (Outcomes 1.1 and 1.2); enhanced institutional capacity of wetland managers to apply integrated management approaches (Outcome 2.1); increased awareness on the value of wetlands and the development of community and private sector partnerships to facilitate delivery (Outcome 2.2); improved monitoring, reporting and evaluation (Outcome 1.2); and significant improvements in the integration of wetland values into a range of decision-making fora including on food and water security. Demonstration is a key component of this project in order to identify barriers and constraints (Outcome 3.2) and to develop integrated and effective wetland management (Outcome 3.1).

169. This project represents a significant advance on historical attempts to co-ordinate effective wetland management across India and to deliver wetland wise use. In addition to the knowledge, tools and demonstration activities accruing benefits within India, the opportunity to disseminate across the region and to wider international audiences will also be taken to maximize the global reach of the project outputs and outcomes.

170. The overall project delivery and the three components (knowledge, capacity and demonstration) are all underpinned by assumptions (Table 5). The main assumption underlying the delivery of long-term effective management of wetlands is that the resources and policy framework are sufficient to ensure that the resolution of issues which are currently driving the loss and degradation of wetlands is achieved. The need to effectively integrate biodiversity and ecosystem services into wider decision-making processes is vital in order to achieve the overall project objective. However, in addition to the development of knowledge and capacity there remains the need for political support and stakeholder buy-in, therefore it is also assumed that the national policy and legislative bodies will be willing to receive inputs to strengthen the enabling environment for wetland wise use.

Table 5 Key assumptions.

Component	**Assumption**
Entire project	Emphasis on integrated management of wetlands is maintained within the Ministry, and is further strengthened and enhanced during the project implementation timeframe. MoEFCC continues to champion 'mainstreaming in developmental programming' as a pathway for wetland conservation and wise use, and articulate to other central government ministries and agencies, particularly water resources, urban development, agriculture and rural development. Sufficient resources, financial and technical, are allocated to implement wetland related commitments under various MEAs. Information from management effectiveness assessment is used to strengthen management of Ramsar Sites. NPCA architecture continues to promote adaptive management through incorporation of lessons learnt from implementation of management plans.

Component 1: Knowledge	SGs reflect Ministry's approach for mainstreaming wetlands in developmental programming, and are use inventory and assessment tools for identifying priority wetlands SGs allocate sufficient financial and technical resources for integrated management of wetlands SGs consider wetland ecosystem services and biodiversity values alongwith developmental imperatives within programming SGs promote cross sectoral governance for wetlands to address various drivers and pressures. SGs recognize wetland ecosystem services as a means for climate change adaptation, and provide a conducive environment for promoting integration of wetland management in climate change action plans. SGs proactively engage in design and review of inventory and assessment tools.
Component 2: Capacity	National government support formulation of a national capacity building and outreach strategy for wetlands and are willing to allocate resources for strategy implementation Participants of capacity building programmes are strategically selected considering their ability to apply the training to support integrated wetland management Network of institutions identified for roll out of training programmes remain committed to the implementation and follow up support Modules are periodically updated to bring in new knowledge, lessons, experiences and best practices. Governments endorse participation of wetland managers, civil society and private sector in national and international capacity building and outreach events. Outreach programmes and interventions are implemented in a collaborative framework, and supported by civil society and private sector
Component 3: Demonstration	SGs of Kerala, Bihar and Punjab further the process of constituting state wetland authorities as cross sectoral institutional arrangements for wetland management. Opportunities for private sector participation in wetland management are proactively identified, supported by government, and linked with management plan implementation. SGs evince interest in learning from implementation of demonstration projects and use the results within their individual policy and development programming contexts. Demonstration sites are not subject to unforeseen events that risk project implementation.

171. The development and embedding of knowledge is predicated on ensuring that all available guidance, tools and information are available for review. State, national and international experts have been actively engaged in the development of the project and while a broad range of resources is known to be available, possible gaps may remain. A central assumption following the development of the appropriate knowledge-base is that it will be possible to develop the necessary capacity across the full range of institutions, stakeholders and communities in order to deliver the effective management of wetlands. These various institutions will need to be receptive to the need to develop capacity and provide the appropriate enabling environment for delivery. This will be particularly relevant within state government institutions as they represent a key delivery agent.

172. Capacity development will also require a robust network of appropriately skilled trainers to implement the necessary knowledge exchange and to ensure that effective capacity is developed across all skill areas and stakeholders. Without a strong knowledge exchange network the ability to embed knowledge and build capacity within the necessary institutions and stakeholders would be compromised.

173. The demonstration sites have already been engaged in the development of the project, however, the assumption remains that these sites may not be representative of the wider state or national situation and as such are limited in their role to scale-up messages and knowledge. Similarly, the effective management of wetlands depends on being able to enact the necessary response action to address any particular issue. It is assumed that the demonstration sites will be appropriate to enable the necessary response protocols to be developed at least on a conceptual if not an actual level for a variety of drivers

of wetland loss and degradation. Furthermore, the delivery of effective wetland management may require concerted action to be taken over a number of years or for external issues and actors, beyond the immediate jurisdiction of wetland managers, to be adequately addressed. It is assumed that five years of the project represents an adequate timeframe for the demonstration sites to be effective and representative.

3.5 Risk analysis and risk management measures

174. The overall risk to achieve the project objective is likely to be moderate. The project and its design build on the experience of implementation of wetland management programmes for over three and half decades, and address some of the key constraints that limit integrated management of these ecosystems. Selection of pilots have been done with due consideration to the demonstrated efforts placed for conservation and integrated management, reorganization of institutional arrangements to enable cross-sectoral participation, and agreement to broad terms and conditions of the baseline project. A summary of the potential risks to project implementation and measures to address these are set out in Table 6. Risks will be identified, categorised and tracked throughout the project. Potential impacts and necessary management strategies will be updated and modified if the status of any risks changes.

Table 6. Risk Assessment and Management Measures

Project Stakeholder Risks	**Rating: Moderate**
Wetland management in India has been largely dealt with as a conservation issue. The focus on mainstreaming wetland ecosystem services and biodiversity values is a relatively recent emphasis, and can lead to delayed uptake of the project in the initial stages.	***Risk management measures:*** In the initial stages, the project would seek to work with select states having significant wetlands, demonstrated intent for according policy significance to wetland management through their engagement with erstwhile NWCP and NLCP, and policy interventions underway for creation of State Wetland Authorities for cross sectoral management. The project would focus on creating a demonstration effect by proactively targeting capacity building and knowledge interventions to network the remaining states into the national programme. Within the three demonstration sites, the project will seek participation of all sectors influencing wetland functioning and benefitting from wetland ecosystem services. The project would also focus on highlighting and bringing to fore the economic benefits of integrated approaches and ways of achieving a common institutional design in the context of wetland management. The project would also build capacity of wetland managers to engage across sectors, work at river- and landscape level, including equipping them with relevant assessment and communication tools.
Operating Environment Risks	**Rating: Low**
National government's priority for wetland conservation and integrated management reduces over a period of time.	***Risk management measures:*** The government, through its various policy documents and programmes, as well as being a signatory to the Ramsar Convention, has expressed the need to strengthen conservation and integrated management of wetlands. An important value add of the project would be enhanced communication and outreach on wetland ecosystem services, especially in the context of water, food and climate security, which will serve to embellish the existing policy support for wetlands.
Implementing Agency Risks	**Rating: Moderate**
Limited staff strength of the national implementing agency (MoEFCC) to provide technical assistance and hand holding support to the states on various aspects of project implementation. Limited capacity in the states to ensure integrated management plans for identified pilot sites.	***Risk management measures:*** Adequate provision for engagement of experts, communication and capacity building has been made under the project, which will enable hand-holding support to various partners. Wetland managers will stand to directly benefit from the capacity building and knowledge related interventions. In all the three sites, efforts are underway to create wetland authorities, with clear definition of roles and responsibilities, particularly inter-agency coordination and cooperation.
Project Risks	**Rating: Moderate**
Design: Commitment at state levels to maintain and enhance focus on wetland conservation is not sufficient	***Risk management measures:*** The national government has a very proactive approach to maintaining environmental sustainability within its policies and programmes with wetlands placed at high priority, however enactment at local government level remains to be improved. The project would seek to support this momentum and enable state level delivery by establishing multi-stakeholder consultation bodies and decision support mechanisms,

	strengthening stakeholder commitment by awareness and capacity building, supported by providing policy relevant knowledge on the economic role of wetlands in local developmental planning and other emerging issues, provide solutions to how best mitigate the impacts on wetlands due to development projects and ensure liaison with policy makers at national, state and district levels on issues related to wetlands.
Social and environmental: The stakes and related conflicts on wetland resources such as e.g. access to land and water resources are too high to be solved in the timeframe of the project.	***Risk management measures:*** The project includes investment in science-based assessments, communication, education and awareness raising and consensus building, multi-stakeholder approaches and conflict management, to showcase that investment in natural capital as water and wetlands is crucial to economic development. The project would specifically invest into opportunities wherein communities can have tangible livelihood benefits through sustained flow of ecosystem services and conservation of biodiversity values. Support of local political leadership will be sought to promote conservation and wise use of wetlands.
Climate related risks: Linkages of wetlands with climate change adaptation is yet to be accorded the required priority at national level, and may hamper interest and participation in climate assessment tool development and application.	IMWBES will highlight the role of wetlands in climate change adaptation specifically in the context of food and water security. The project would serve to build baseline information and provide practical demonstration on the ways wetlands, biodiversity conservation and water management can contribute to climate change adaptation. The project would seek more emphasis on the role of wetlands in State Climate Action Plans and National Policy on Climate Change.
Program and Donor: The GEF-India Wetlands Project is a small project financed by GEF-TF and NPCA is the baseline project. Implementation of site management plans will require raising of resources from various national and state level development schemes as well as through private sources. Issues with engagement and coordination of the various national and state level, public and private sector actors, timely release of funds, terms and conditions associated with funds, and other factors may risk smooth implementation of the project.	***Risk management measures:*** Identification of funding sources will be one of the key outcomes of management planning process, and will be included in the Project Implementation Plan. Key readiness criteria that have been used to identify pilot sites include commitment of state governments to site management, ongoing processes to constitute state wetland authorities, and acceptability of the NPCA norms.
Delivery monitoring and sustainability: Uneven progress across various components and sites.	***Risk management measures*** Addressing this risk will be built explicitly into the monitoring and evaluation strategy, determining roles and responsibilities for all actors and identifying potential bottlenecks and solutions.

3.6 Consistency with national priorities or plans

175. The FSP complements the MoEFCC, GoI's national flagship programme for wetland conservation and sustainable management, the NPCA. In addition to this, the project would support implementation of several national strategies and plans, key being the National Environment Policy (2006), National Water Policy (2012), National Biodiversity Action Plan (2008), National Biodiversity Action Plan (2008) and Biodiversity Targets (2014) and National Climate Action Plan (2008). Additional details are found in section 2.4.

176. Conservation of wetlands has been identified as a high priority area under the National Environment Policy by recognizing their biodiversity and ecosystem services as "entities of incomparable value" and recommending integration into river basin management and sectoral development plans for poverty alleviation and livelihood improvement. The MoEFCC has identified conservation and sustainable use of wetlands as one of the key areas under natural resources management, reflected in the investment put forth under the NPCA. The National Biodiversity Action Plan identifies wetlands as key components of biodiversity and thereby seeks their integrated management as one of the key pathways for achieving national biodiversity conservation objectives. In line with the CBD Strategic Plan 2011-2020, India has formulated 12 National Targets. IMWBES will directly contribute towards Target 3

(Strategies for reducing rate of degradation, fragmentation and loss of natural habitats are finalized and actions put in place by 2020), Target 6 (ecologically representative areas on land and in inland waters, as well as coastal and marine zones, especially those of particular importance for species, biodiversity and ecosystem services, are conserved effectively and equitably), and Target 8 (by 2020, ecosystem services, especially those related to water, human health and livelihoods and well-being are enumerated and measures to safeguard them are identified).

177. The National Climate Action Plan identifies conservation of wetlands as a component of the National Water Mission, one of the 8 missions identified by the government as a response strategy to climate change mitigation and adaptation.

178. The FSP project compliments the results framework of the 'United Nations Development Action Framework for India 2013-2017', which has the following relevant outcomes:

- Outcome 2: Food and Nutrition Security - the goal is to concentrate more on animal husbandry and fisheries. Since land and water are the critical constraints, technology would focus on land productivity and water use efficiency. The FSP does align with this through targeted support for wetland-based agriculture, improved water management and security for wetland dependent agriculture and communities, as well as incorporating resilience to CC in river basin management planning.
- Outcome 5: Governance Systems are more inclusive, accountable, decentralized and programme implementation more effective for the realization of rights of marginalized groups, especially women and children. The FSP does align with this through facilitating multi-disciplinary and multi-stakeholder processes on wetland management at state and district level.
- Outcome 6: Sustainable Development - government, industry and other relevant stakeholders actively promote more environmentally sustainable development, and resilience of communities is enhanced in the face of challenges of Climate Change, Disaster Risk and natural resource depletion. Specifically, Output 6.3 'community-based institutions are better able to value the ecosystem goods and services for sustainable ecosystem management'. The FSP does align with this by adopting a ecosystem-services and economics approach to wetland management and decisions making – including through applied science as well as multi-stakeholder processes.

3.7 Incremental cost reasoning

179. The MoEFCC accords high priority to wetland conservation, and has instituted a dedicated scheme (NPCA) to support SGs in designing and implementing integrated management plans. A set of priority wetlands have been identified for the said purpose. A review of programme implementation during the last three and half decades, and regional and global experiences elsewhere highlight the need for mainstreaming wetland ecosystem services and biodiversity values within developmental programming. Programme guidelines have therefore been revised to that effect, with a greater emphasis placed on constitution of cross-sectoral governance arrangements (in the form of wetland management authorities with states) and application of diagnostic approaches for formulation of management plans.

180. Achieving the broader objective of mainstreaming wetlands in developmental programming requires complementary GEF and co-financing support to the state governments to be able to prioritize sites with due consideration of ecosystem services and biodiversity values in the context of wider developmental programing, build capacity for integrated management, and put in place procedures to assessment effectiveness of site management. Management of Ramsar Sites, for which a commitment exists for wise use, needs to be given urgent priority. There is also a need to develop enabling policy frameworks which will promote stewardship of wetlands within the concerned SGs, as key societal assets. The IMWBES project therefore enables a complementary investment to the existing NPCA to address specific knowledge, capacity and institutional barriers within states, which constrain management effectiveness. Improved management effectiveness will enable the national wetland network to deliver several global biodiversity and ecosystem services benefits, ultimately contributing to GEF Biodiversity Focal Area objectives of: a) improving sustainability of protected area systems; b) mainstreaming biodiversity conservation in production landscapes and sectors; and c) integrate CBD obligations into national planning processes through enabling activities. Table 7 summarizes the incremental global and national benefits. Further detailed information is also included in Appendix 3.

Table 7: Summary of the incremental global and national benefits**.**

Benefits	Baseline	Alternative	Increment
Global benefits	Wetland loss and degradation is progressing at a rate that is greater than for any other ecosystem. Both direct and indirect impacts on wetland	Conservation and effective management of wetlands of national and international importance supports delivery of international biodiversity	Enhanced knowledge and institutional capacities for the effective management of wetlands of international importance. Delivery of

	ecosystems are not only degrading global biodiversity, and especially rare and threatened species that as residents or migrants depend on these habitats, but the long-term well-being of human society is also under threat.	objectives, ensures the delivery of the wise use wetlands as required under the Ramsar Convention, improves the status of threatened migratory species along the Central Asia and East Asian-Australasian Flyways and secures the flow of transboundary ecosystem services benefits.	global wetland nature conservation objectives and the wise use of wetlands, especially with regard to migratory species. Flows of transboundary ecosystem services are recognized within regional policy fora and secured for the benefit of future generations.
National, state and local benefits	Limited implementation of the NPCA and regulation of the Wetlands (Conservation and Management) Rules, 2010 are failing to stem conversion of wetlands for non-wetland uses and weakly regulate development pressures on notified wetlands. There is limited funding and capacity within state governments to develop integrated management plans and integrate wetland ecosystem services and biodiversity values in developmental programming. There are limited diagnostic assessments of the pressures on wetland biodiversity and ecosystem services. There is no system in place to track effectiveness of application of human and financial resources in site management and limited exchange and application of best practices and lessons learnt for integrated management of wetlands. Limited mechanisms exist to track progress on meeting India's international commitments related to wetlands	Improved conservation status of wetlands of national and international significance through enhanced management effectiveness, improvements in understanding of the landscape scale pressures on wetlands and strengthening of management partnerships. Strengthened implementation of Wetland Rules and clear enforcement and monitoring mechanisms Enhanced capacity within SGs to formulate and implement integrated wetland management and the establishment of functioning learning and experience sharing networks to promote application of evolving tools and best practices in wetland management. Improved inter-sectoral decision making for wetlands of national and international significance. Improved capability of tracking compliance to national commitments related to wetlands under MEAs.	The benefits which flow from wetland ecosystem services are better understood and integrated into effective management practices. Policies and regulations are clarified and enforced to ensure that effective wetland management delivers biodiversity and ecosystem service benefits. Increased cross-sectoral knowledge and capacity underpins successful integrated wetland management which will benefit human society and improve water and food security. National obligations under MEAs are more clearly and robustly fulfilled.

3.8 Sustainability

181. The project is designed to initiate, develop and promote the long-term sustainability of all its outcomes through a combination of knowledge exchange, institutional strengthening, policy development and financing mechanisms including: integration of project outcomes into the existing remit of NPCA, enhancement of existing institutional frameworks; establishment of practical arrangements and local mechanisms for sustainable management of wetlands (including protected and non-protected areas); involvement of relevant institutions, agencies and stakeholders at international, national and local levels; and demonstration of delivery at internationally important wetlands. The wetlands division within the MoEFCC will serve as the repository of all knowledge products, tools and best practices. The national portal on wetlands developed under the project will be linked to the main portal of the Ministry, and ultimately maintained jointly by the ENVIS Center for Excellence on Wetlands and LTSA. At state level, State Wetland Authorities will serve as the repository of all knowledge, communication and outreach products and best practices.

182. Social *sustainability* will be embedded throughout the project in two key dimensions. Firstly, through the engagement and participation of local communities in the effective management of wetland biodiversity and ecosystem services in the three demonstration sites, whereby the flow of ecosystem services from the wetlands will be secured, and where possible enhanced, to ensure local societal benefits and enhanced human well-being. Secondly, that at state, national and even trans-boundary levels the flow of societal benefits from wetland ecosystem services will be better recognized, appreciated, as well as more effectively managed through the various project Outcomes. This will ensure the wetland wise use delivers socially sustainable solutions during and beyond the lifetime of the project.

183. At national level, incorporation of project lessons and best practices within NPCA implementation will ensure that these are acted upon beyond the life of project. Mechanisms will be ensured within project timeframe such that the identified CABIs internalize integrated management modules within their work programmes, and continue addressing capacity development needs of wetland managers on longer term. Beyond NPCA, the project will also contribute to strengthening the national policy environment for wetlands by demonstrating co-benefits of wetland restoration and economic development, and promoting convergence approaches. Within states and the wider wetland network, constitution of wetland authorities and their effective functioning will be the *institutional sustainability* instrument, providing the necessary cross-sectoral management arrangements for management of wetland ecosystems. The project will proactively disseminate various tools and best practices to wetland managers, and link them up, to the best possible extent, with a network of experts. agencies.

184. *Environmental sustainability* will be delivered through the implementation of the NPCA and the wise use of wetlands. Wetlands will be managed within their limits of acceptable change and to ensure that their biodiversity and ecosystem services are protected and, where possible, enhanced. Environmental sustainability is at the heart of the project and the explicit integrated management of wetlands to deliver multiple benefits will represent the true manifestation of environmental sustainability.

185. *Economic sustainability* will be achieved by raising the awareness of the economic benefits provided by wetlands and mainstreaming information about wetland ecosystem services into strategies, policies, guidance and state and national regulatory frameworks. This knowledge will also be further embedded in of stakeholders, the private sector and governmental institutions. Currently many of the benefits delivered by wetlands remain as externalities within decision-making frameworks. The project will actively seek to remove these externalities and to ensure that the true value of wetlands is understood and that the economic benefits they deliver are clearly and explicitly ingrained in future decision-making.

3.9 Replication

186. The project will ensure dissemination of knowledge, guidance and lessons learnt both at the state and the national level. Outcome 3.2 specifically addresses the issue of replication and up-scaling for broader delivery of NPCA. Formal synthesis documents will be produced to facilitate expansion of the demonstration sites both within the targeted states and beyond. National guidance documents will be produced to facilitate effective integrated wetland management across nationally and internationally important wetlands in India. The enhanced capacity across a variety of institutions, the establishment of functional Capacity Building Centres and the communication of the multiple benefits provided by wetlands to the private sector and broader stakeholders will create a community of potential practice and learning networks to facilitate replication and delivery at multiple wetlands. The availability of a small grant programme (Output 1.2B) will also contribute to future application and delivery based on the guidance and lessons learnt at the demonstration sites.

187. Replication will also be possible beyond India. The lessons learnt, guidance and tools produced and the best practice demonstration information will also be promoted through project workshops and other regional and global meetings and fora and through links with other GEF and non-GEF projects in the region. WI and UNEP are well placed to facilitate that. NGO networks will also be encouraged to actively disseminate the project information in order to develop and deliver similar projects within the region and along migratory routes.

3.10 Public awareness, communications and mainstreaming strategy

188. Public awareness and outreach on wetland biodiversity and ecosystem services values are one of the three objectives of the project (Outcome 2.1). IMWBES will deliver a range of outputs, including a website, outreach materials, support to public events, and a national capacity building and outreach strategy to promote broader stakeholder engagement in wetland management. Engagement of private

sector in wetland conservation and management is an incremental and hitherto novel intervention under the project, setting necessary exemplars for national upscaling.

189. Project management will entail a specific focus on awareness on project implementation, through information on MoEFCC's website, a separate project website, project plan brochures, ensuring wider availability of products (eg., tools, reports, case studies, workshops).

190. Mainstreaming wetlands in developmental programming is the guiding objective of the IMWBES project. A range of knowledge, capacity and demonstration interventions have been included within the project design. Project outcomes, lessons and best practices will be incorporated in implementation of NPCA. The project will also work with SGs to improve the overall emphasis on wetland conservation, and make available tools, knowledge, and best practices to support state level programmes.

3.11 Environmental and social safeguards

191. The project explicitly addresses wetland biodiversity and ecosystem services and the sustainable or wise use through access and benefit sharing provisions it can be assumed that Outcomes will have minimal negative environmental impacts. On the contrary, the project will promote wetland wise use through its focus on enhancing conservation and equitable use of natural resources. Additionally the project will strengthen integrated wetland management at the local community levels and also through engagement with the private sector. The project outcomes will also contribute to poverty alleviation, through securing and enhancing the provision of livelihoods for local communities in the demonstration sites, and enhanced food and water security more widely. Full details on the Environmental and Social Safeguards applied by the project and UNEP are summarized in Appendix 15.

192. Social safeguards are embedded in the principles of wise use and the effective management of wetland biodiversity and ecosystem services. The project will specifically mainstream decisions regarding the provision of ecosystem services across institutions and policies to ensure social sustainability and the equitable sharing of benefits. The project will address the rural communities in particular by securing multiple livelihood opportunities for the marginalized (poor, women and children and youth) through the effective management of wetlands. A specific focus will be placed on gender mainstreaming within project implementation. In the three demonstration sites, gender and power relationships will be specifically addressed within site management planning processes. Gender dimensions of natural resources management will be included within capacity building and outreach processes. Implementation of site management plans will proactively seek integration of gender dimensions in community engagement and resource use sustainability programmes.

193. The monitoring and evaluation processes includes indicators that capture negative relationships or perverse incentives should they occur. The process will involve the participation of all stakeholders, including the local communities, from the demonstration sites with the lessons learnt being up-scaled to ensure wider guarantees.

Section 4: Institutional Framework and Implementation Arrangements

194. ***National Executing Agency (NEA)*:** IMWBES project will be implemented nationally by MoEFCC, GoI, which will assume the overall responsibility for achievement of the project outcomes, as well as financial management. MoEFCC will facilitate the required level of inter-sectoral coordination with other relevant ministries and departments of GoI, and also ensure the required level of participation from the three state governments (Punjab, Kerala and Bihar) in which demonstration sites are located and from states in which various methods, tools and best practices are to be applied and replicated. MoEFCC's project finance and management responsibilities will include: a) ensuring that the project co-financing is made available on a timely basis for project implementation by all concerned; b) ensuring that funds are made available for three state governments in which pilots are to be implemented; c) coordinating and reporting GEF financing from/to UNEP and other sources; d) guiding preparation of Terms of Reference for engagement of contractors and tender documentations; and e) chairing the National Project Steering Committee. The MoEFCC as the Executing Agency will be responsible to the GEF Implementing Agency (UNEP) for the financial administration and technical execution of the project; as well as will enter into an agreement with UNEP for the duration of the project.

195. UNEP is the ***GEF Implementing Agency*** for this project (through the UNEP-DEPI/GEF BD Unit) fulfilling a supervision and oversight role, ensuring that the project progresses appropriately and in line with the agreed Project Document as well as he UNEP and GEF policies. The UNEP Task Manager of the project is based with UNEP Regional Office Asia Pacific in Bangkok, Thailand. In addition, UNEP GEF will administer the mid- and full-term evaluations.

196. ***National Project Steering Committee:*** National Project Steering Committee (NPSC) will be responsible for ensuring the project implementation with agreed project design and consistent with national and state development policies. The NPSC will meet at least two times in a year, of which at least once in person, and will provide the required oversight to the project as well as ensuring overall co-ordination. It will ensure that the project outcomes are achieved in a defined timeframe, as well as review the project progress and suggest implementation strategies and mid-course corrections. The NPSC is also responsible for reviewing and endorsing Annual Workplans and Budgets. The NPSC will be chaired by Additional Secretary, MoEFCC, GoI. Its members include the concerned Joint Secretary handling NPCA matters within MoEFCC, GoI; GEF OFP within MoEFCC, GoI; CBD Focal Point within MoEFCC, GoI; the Principal Secretary or the Principal Chief Conservator of Forests of the Department of Environment and Forests of the three states; the Director and/or a representative of Wetlands International South Asia; one representative of UNEP; and two non-government representatives nominated by the government, one from private sector and one from the field. The meetings of the NPSC will be convened by the National Project Director (NPD), supported by the PMU for administrative aspects.

197. ***National Project Director:*** Advisor (NRCD), MoEFCC, GoI will be the National Project Director (NPD). The NPD will coordinate project execution on behalf of GoI and ensure its proper implementation. Project implementation will be overseen by NPSC.

198. ***Lead Technical Support Agency (LTSA)*:** Wetlands International South Asia will be the Lead Technical Support Agency (LTSA) for the project, and provide the technical backstopping by performing the following functions : a) coordinate development of tools on wetland inventory (Output 1.1A), climate vulnerability assessment (Output 1.1B) and management effectiveness assessment (Output 1.2 A); b) coordinate development of training modules (output 2.1A) and learning networks (Output 2.1B); c) coordinate evaluation of management effectiveness of Ramsar sites; d) provide technical support to development of management action plans for the pilot sites (output 3.1 B); and, e) support state governments in implementation of management action plans. LTSA will also support PMU in developmental of annual work plans and budget, contribute to technical and financial reporting, as well as backstopping to implement recommendations made by Technical Advisory Group (TAG). LTSA will also manage the GEF project funds, under supervision of the NEA and NPD.

199. ***Project Management Unit (PMU)***: will be the administrative hub for the project located within MoEFCC. The PMU with a full-time Project Manager, supported by a Wetland Specialist, one Project Administrative Assistant and one Accounts Officer will assist the NEA in implementation of the project. PMU will be staffed by the LTSA, with approval of the NPD. The Project Manager will be: a) in-charge of overseeing the day-to-day project implementation and management of project activities; b)

organizing and overseeing national and international consultant input; c) overseeing monitoring and evaluation and ensuring that the project is on track; d) assessment performance on gender and social equity dimensions of project implementation; e) working effectively with the NPD and members of NPSC to ensure that the project-inspired activities are on track within each implementing partner; f) responsible for timely preparation and timely submission of Annual Work Plan (AWP) and budgets, as well as Semi-Annual progress and quarterly financial report to UNEP; g) maintain a log of main issues that may require direction from NPD and NPSC; and, h) maintain a log of risks that may affect project implementation and require intervention of the NPD and NPSC.

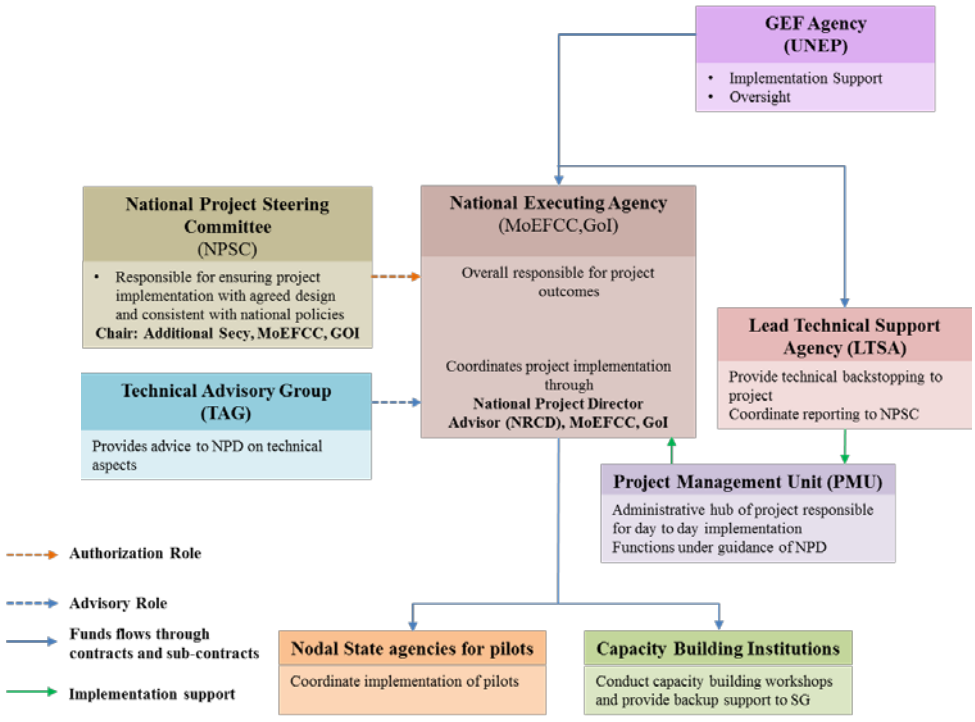
200. ***Technical Advisory Group (TAG)*****:** A Technical Advisory Group (TAG) will be constituted to advise the NPD and concerned state government agencies on technical aspects of the project. The TAG will: a) Review technical outcomes; b) Review tools, methods and best practices developed and collated under the project; c) Evaluate performance of capacity building interventions; d) Guide development of training modules; e) Evaluate outreach programmes; f) Approve technical assessments and reports; and, g) Recommend measures for improving delivery of technical content. The TAG, with approval of PSC, will also support implementation of capacity building programmes, and support state governments in various aspects of integrated management of wetlands. The TAG will meet at least once a year, and its meeting will be convened by the NPD. Membership of the TAG will comprise experts from the drawn from the field of wetland management, and selected on the basis of expertise, project requirement and ability to devote time and advise the project.

201. ***Implementation of pilots*****:** Center for Water Resources Development and Management, Kerala (CWRDM); Punjab State Council for Science and Technology (PSCST) and Department of Ecology and Environment, Forest Department, Government of Bihar (DEE) will be the nodal agencies regarding implementation of pilots. As per the mandate of NPCA and as a part of project strategy, the three agencies will be provided support towards constitution of state level wetland authorities, which are likely to take over implementation of management plans, and function as the nodal institutions for conservation and sustainable management of wetlands located within their jurisdiction.

202. ***Capacity Building Institutions:*** Implementation of training modules for wetland managers and tools developed under the project will the through a network of capacity building institutions. The following have been identified during the FSP development: Salim Ali Center for Ornithology (SACON, Coimbatore, Tamilnadu); Wetland Research and Training Centre (Balugaon, Odisha); IIT-Roorkee (Roorkee, Uttarakhand); Center for Water Resources Development and Management (CWRDM, Kozikode, Kerala) and Gujarat Ecological Education and Research Foundation (GEER Foundation, Gujarat). The list is likely to be expanded during development of the annual detailed workplans.

1. The overall institutional arrangement for the project is presented in Fig 3.

Fig 3. Project Institutional Arrangement



203. ***Financial Management*:** The NEA will be assisted in administrative and financial management by the LTSA. LTSA will manage GEF project expenses with approval of and as per directions of NEA, and under direct supervision of NPD. LTSA will prepare the draft expenditure, cash advance and project progress reports on behalf and with the approval of NEA (MoEFCC), and as per directions of the NPD, who will provide the certifying signatures. LTSA will open a separate bank account for the project and ensure adherence to MoEFCC, UNEP and GEF accounting standards. As such a tripartite legal instument (contract) will be established between the MoEFCC, the LTSA and UNEP, where each contracting partners's role and responsibilities will be defined.

204. ***Audit*:** Project shall be subject to audit in accordance with procedures of UNEP and MoEFCC, and as per the annual audit plan drawn in consultation with Department of External Affairs (DEA), GoI. The project shall be informed of audit requirements by January of the following year. The audit covering annual calendar year expenditure and financial year expenditure will focus on the following parameters: a) GEF sourced financial accounting, documentation and reporting; b) monitoring, evaluation and reporting; c) use and control of non-extendable reporting..

Table 8: **Roles and Responsibilities with respect to project deliverables.**

	Project Components			
	Component 1: Wetland BES based knowledge systems	**Component 2:** Capacity building for integrated wetland management	**Component 3:** Demonstration of integrated wetland management	**Component 4:** Project Monitoring, Evaluation and outcome dissemination
National Executing Agency MoEFCC	• Responsible for national implementation through a contract with UNEP • Responsible for ensuring the project implementation with agreed project design; Oversee the execution of project activities • Have full financial and administrative responsibility on use of GEF funds, and report to UNEP accordingly • Constitute NPSC and PMU • Appoint a full time NPD • Facilitate inter-agency coordination			
National Project Steering Committee (NPSC)	• Responsible for ensuring the project implementation consistency with national and state development policies • Constitute TAG • Approve the detailed annual workplan and budget produced by the NPD for submission to UNEP (for annual approval) • Ensure proper coordination and cooperation with related initiatives at the institutional level • Assist in mobilizing available data and ensure a constant information flow between all concerned parties • Allow for effective communication and decision-making between the NPD and other actors • Approve guidelines for management of Small Grants Facility (SGF) • Approve SGF projects • Conduct periodic review of project implementation and take decisions for mid-course correction • Review and approve the FSP outputs and documents. The NPSC conducts meetings at least twice each year – with once a year in person with all executing partners including UNEP to fulfill steering mechanism responsibilities including: oversight of project implementation, monitoring of project progress, strategic and policy guidance and to review and approve annual work plans and budgets.			
National Project Director (NPD) and Project Management Unit (PMU)	National Project Director • Manage and supervise the PMU & LTSA • Coordinate, manage and monitor the implementation of the FSP – at a day-to-day basis, conducted by the local and international experts, consultants, subcontractors and cooperating partners; this includes planning, initiating and managing national project activities according to the project document and the procedures in the official UNEP Operational Guidelines • Sign off on all formal reports, cash advance requests, financial statements, and sub-contracts under the GEF grant • Foster, establish and maintain links with other related national and international programmes and initiatives • Identification of additional national co-finance as the FSP develops			

	• Organize, contract and manage the Subject Matter Specialists and consultants/experts, and supervise their performance • Coordinate and oversee the preparation of the outputs of the FSP • Ensure that information is available to the NPSC about all Government, private and public sector activities, which impact on FSP outputs • Manage the FSP finance, oversee overall resource allocation and where relevant submit proposals for budget revisions to the NPSC and UNEP • Manage the overall FSP, ensuring that all the activities are carried out on time and within budget to achieve the stated outputs • Act as a Secretary to NPSC and TAG **Project Management Unit** • Help the NPD organize NPSC and TAG meetings • Prepare detailed annual workplan and budget for review by the NPSC, signing by NPD and review/approval by UNEP • Ensure effective communication with the relevant authorities, institutions and Government departments in close collaboration with the NPD/NEA • Act as the technical focal point for national stakeholders and broaden national stakeholder base where relevant, e.g. by organizing national stakeholder consultations and facilitating national stakeholder meetings • Prepare and oversee the development of Terms of Reference for FSP components, Subject Matter Specialists, Pilot Project Site Teams, and consultants • Monitor progress of project in relationship with gender and social equity related outcomes • Coordinate the work of all stakeholders under the guidance of the NEA and the NPSC and in consultation with the UNEP Task Manager • Prepare and submit to NPD, regular progress and financial reports			
Technical Advisory Group (TAG)	• Review technical outcomes • Review tools, methods and best practices developed and collated under the project • Evaluate performance of capacity building interventions • Guide development of training modules • Evaluate outreach programmes • Review technical assessments and reports • Recommend measures for improving delivery of technical content			
Lead Technical Support Agency (LTSA) *Wetlands International South Asia*	• Collate and review tools, methods and best practices related to WBES inventory and assessment (Output 1.1A) • Develop and pilot test, under guidance of NPD, hierarchical WBES tool (Output 1.1 A) • Develop and pilot test, under guidance of NPD, climate vulnerability assessment tool (Output 1.1B) • Development and pilot test, under guidance of NPD, wetland management effectiveness tool (Output 1.2 A) • Coordinate	• Collate, under guidance of NPD and with support of CABI and external experts, modules for integrated management of wetlands (Output 2.1A) • Support capacity building of wetland managers and stakeholders at three pilot sites (Output 3.1C)	• Support, under guidance of NPD and with approval of SAP, integrated management planning of pilot sites (Output 3.1D) • Collate lessons learnt and best practices from pilot sites (Output 4.1C)	• Manage GEF finances with approval and as per directions of NPD • Support NPD and PMU in development of Annual Workplans and Budget • Compile annual technical and financial report for submission to NPD

	• management effectiveness assessment of Ramsar sites (Output 1.2 A) • Coordinate drafting of guidance document for integration of wetlands in state developmental planning (Output 1.2 E)			
Capacity building institutions (CABI, SACON, WRTC,IITR, CWRDM,GEER)	• Support development of wetland inventory and management effectiveness tools (Output 1.2A, 2.1A) • Support development of outreach materials) and organizing outreach events (Output 2.1D)	• Implement integrated wetland management modules (Output 2.1 A) • Establish and support best practice wetland managers' learning networks (Output 2.1 B) • Develop and disseminate outreach materials to wetland managers (Output 2.1D) • Organize outreach events (Output 2.1D)	• Support SAP in implementation of pilots (Output 3.1 C)	• Contribute to development of Annual Workplans and budgets • Contribute to technical and financial reporting
Nodal State Agencies for pilots (SAP) CWRDM (Kerala); PSCST (Punjab) and DEE (Bihar)	• Support application of tools on WBES inventory and assessment, climate vulnerability and management effectiveness (Output 1.1 A, 1.2 A) • Designate, in consultation with NPD and state governments, participants in training and outreach programmes • Conduct stakeholder outreach programmes at three pilot sites (Output 3.1B)	• Designate, in consultation with NPD and state governments, participants in training and outreach programmes	• Coordinate implementation of pilots as per approved workplans (Output 3.1C)	• Contribute to development of Annual Workplans and budgets • Contribute to technical and financial reporting

Section 5: Stakeholder Participation

205. The objective of mainstreaming wetlands within developmental programming is predicated on the extent to which wetland ecosystem services and biodiversity values are recognized by different actors and stakeholders, and integrated in sectoral action plans.

206. The participatory approach is an integral part of the project's implementation strategy, as it has been the case during the Preparation Phase. A participatory approach to activities is built in all stages of the project cycle, including monitoring and evaluation, and will be refined during the inception phase. A variety of institutions, stakeholders and partners have been identified to facilitate the various activities during the GEF project's implementation phase. Table 8 contains an overview of range of international, national, state and site level stakeholders, their likely benefit from IMWBES, and engagement strategy.

207. Successful participation requires transparency and full and fair access to information. The project, as part of component 2, will devise a communication strategy to ensure that the flow of information is continuous and targeted to the selected audiences. Several mechanisms will be put in place through the project to ensure that all stakeholders are informed about activities and overall advances and progress in implementation. These mechanisms will be targeted at different stakeholder groups taking into account their unique requirements.

208. The project will take complete advantage of the national, state and site level policy driven participatory structures constituted under the aegis of NWCP, NLCP and related programmes of the MoEFCC. The project will provide a platform to the MoEFCC to engage with and benefit from the knowledge and networks available with the MEAs related to wetlands and international networks. Conventions will also stand to benefit from an improved reporting on international commitments and application of guidance for improved management of wetlands of national and international significance. The project will also establish twinning arrangements with select institutions and networks (eg. Ramsar Center for East Asia, South Korea; Centre for Ecology and Hydrology, UK; Institute of Land, Water and Society, Charles Sturt University, Australia) to support exchange of knowledge and best practices for wetland management. At national scale,the project will work with state governments for constitution of state wetland authorities as nodal policy and inter-agency coordination agencies. Within NPCA, the MoEFCC has been advising the SGs regarding constitution of state wetland authorities as nodal state level policy making and cross sectoral institutional coordination arrangements. IMWBES will proactively engage with these institutions to promote recognition of wetland ecosystem services and biodiversity values. The project will also engage with NGOs and CSOs which support Ministry and state governments in integrated management of wetlands. The delivery mechanisms of the project will engage a range of stakeholders at the international, national and state levels to promote cross sectoral arrangements for wetland management.

209. The project specifically intends to demonstrate stakeholder led management at three designated sites. Integrated management, in line with wise use principles, will aim to outline pathways for sustainable livelihoods of wetland dependent communities, while maintaining ecological integrity of wetlands. The baseline assessment will include identification and evaluation of wetlands livelihoods – wetland ecological character interlinkages. The management plan will also outline interventions for building capacity within community institutions to be natural resources stewards as well as seeking involvement of local political leadership in conservation and wise use of these sites. A mapping of local stakeholders in terms of their degree of importance and influence on site management is presented in para 141. In addition, the project will also engage with private sector to support implementation of site management plans, and as a means of establishing best practices for national network.

210. Specific emphasis will be put on addressing gender equity and proactive engagement of marginalized communities in wetland management. Gender dimensions and power relationships will be evaluated as a vital element in the baseline information collated on the stakeholders and community participation in wetland management at the pilot sites (Outcome 3.1). Outcome Indicator 3.1.3 mentioned in Appendix 4 & 7 (improved gender equity in community institutions engaged in managing wetland) has been included to address gender equity in local resource management practices at the three pilot sites. Outcomes of integrated management plans will include well-being indicators (assessed as part of Outcome indicator 3.1.1 and 3.1.2 – monitoring protocols included in Appendix 4 & 7) related to gender disaggregation, such as proportion of time spent by women on wetland management activities or women's involvement in decision-making, and broader social equity issues. The capacity building modules will also include gender and social equity dimensions in the context of integrated

management. Gender disaggregated data will be included in the reporting processes within the relevant sections. The National Project Coordinator will be responsible for monitoring and reporting progress on gender and power equity related indicators in the three pilot sites and knowledge and capacity components of the project.

Table 8 Stakeholder engagment in project implementation

Project stakeholders	Benefit from IMWBES Project	Engagement and Coordination Mechanism
International		
International Conventions Secretariat of Convention on Biological Diversity Secretariat of Ramsar Convention Convention on Migratory Species	• Improved information base on status and management needs for Ramsar Sites • Improved reporting on international commitments related to wetlands • Enhanced application of wise use principles	• Communication through reports • Invitation to participate in best practices and lessons learnt seminars • Engagement with science panels of the MEAs (eg. Scientific and Technical Review Panel of the Ramsar Convention) on guidance and best practices for integrated management of national wetland network • Co-branding of outreach material • Possible co-financing for outreach and knowledge systems related activities
International wetland related networks Ramsar Regional Centers, Wetlands Link International, Wetlands International Specialist Groups, IUCN Commissions	• IMWBES will serve as a platform for exchange of tools, methodologies and best practices on integrated wetland management	• Invitation to workshops • Opportunities for contributing to the training modules and tools • Exchange and twinning programmes to facilitate sharing of knowledge and best practices (for example to Ramsar Regional Center for East Asia)
National		
Ministry of Environment and Forests (MoEFCC)	• Effective application of NPCA mandate of mainstreaming wetland biodiversity and ecosystem services in developmental planning. • Management effectiveness assessment mechanisms to guide allocation of resources to various sites • Expansion of ambit of NPCA through sites prioritized on biodiversity and ecosystem service values in relationship with developmental programming • Improved information system and management for Ramsar Sites • Improved reporting mechanisms on international commitments related to wetlands within MEAs	• National Executing Agency • IWMBES will provide the requisite knowledge and capacity tools to enable engagement with other central government ministries responsible for sectoral policies related to water and food security and climate change adaptation. • IWMBES project will provide a platform for Ministry to support capacity building of respective state governments on integrated wetland management • IWMBES project will provide a national platform for SGs to exchange priorty issues and policy directions to be considered in shaping up and implementation of NPCA
Central Government Ministries having programmes related to wetlands (MoWRRD, MoA, MoUD)	• Information systems related to wetland biodiversity and ecosystem services • Availability of best practices and lessons related to integration of wetland biodiversity and ecosystem services in sectoral planning	• Engagement in policy dialogue (through policy briefs and thematic seminars) related to development of draft national wetland policy, and national wetland CEPA strategy

Project stakeholders	Benefit from IMWBES Project	Engagement and Coordination Mechanism
		• Proactive outreach of methods, best practices and lessons leant through project implementation • Develop and proactive dissemination of sectoral policy briefs for integrating wetland BES values in design and implementation of sectoral develop plans • Invitation to nominate participants to capacity building and outreach workshops • Representation in NPSC • Sharing of reports and findings through the NEA
Capacity building, research and training centers Wildlife Institute of India, Central Inland Fisheries Research Institute, Zoological Survey of India, Botanical Survey of India, Universities as IIT – Roorkee, Delhi University, JNU and others WRTC, Odisha; IWMED, West Bengal; SACON, Tamil Nadu; NIH, Roorkee; GEER Foundation, Gujarat	• Capacity building toolkit for integrated management of wetlands • Communication and outreach products on wetland biodiversity and ecosystem services • Strengthened capacity to train wetland managers and stakeholders in wetland management • Availability of datasets and knowledge products to support setting conservation and development priorities	• Involvement in development of integrated wetland management training modules • Involvement in development and delivery of various toolkits and assessment of best practices • Lead delivery of training courses • Function as outreach centers on wetlands • Sharing of reports, findings and project outcomes through PMU
International organizations, INGOs and NGOs with wetland related work programmes BoBP-IGO, Wetlands International South Asia, IUCN-India, BNHS, WWF-India, MSSRF	• Toolkit and best practices for inventory and assessment of wetland ecosystem services and biodiversity values	• Engagement in development of capacity building module • Engagement in development of toolkits on wetland biodiversity and ecosystem services inventory and assessment, climate vulnerability assessment • Participation in training programmes • Dissemination of toolkits, best practices and lesson learnt • Participation in learning networks • Support for organizing outreach events • Sharing of reports, findings and project outcomes through PMU
State level		
Nodal agencies responsible for conservation and management of Ramsar Sites and wetlands of national significance	• Guidance for establishment for State Wetland Authorities (in states where yet to be constituted) for cross sectoral coordination on wetland management • Toolkit and best practices for inventory and assessment of wetland ecosystem services and biodiversity values • Assessed management effectiveness to	• Regular exchange between state government agencies and ministry on wetland management, enabled through seminars and workshops • Engagement in development of capacity building module • Engagement in development of toolkits on wetland biodiversity and

Project stakeholders	Benefit from IMWBES Project	Engagement and Coordination Mechanism
	support improved management of national wetland network • Information on status and trends in wetland ecological character available for Ramsar Site • Technical and financial resources for updation of RIS and site management plans for Ramsar sites • Technical and financial resources (to select states) for systematic prioritization of wetlands considering full range of BES values • Built capacity for integrated management of wetlands in the state	ecosystem services inventory and assessment, climate vulnerability assessment • Participation in training programmes • Dissemination and support for application of toolkits, best practices and lesson learnt to improve wetland management • Participation in learning networks • Support for organizing outreach events • Support for applying inventory and assessment tools and integrated management planning through Small Grants Facility • Technical support and guidance to SGs for systematic prioritization of wetlands considering full range of BES values • Financial support to (select 6 states) for systematic prioritization of wetlands considering full range of BES values • Sharing of reports, findings and project outcomes through PMU
State Wetland Authorities	• Guidance on systematic prioritization of wetlands considering wetland biodiversity and ecosystem service values within developmental planning • Built capacity for integrated management of wetlands • Best practices and lessons learnt for integrated management of wetlands	• Engagement in development of capacity building module • Engagement in development of toolkits on wetland biodiversity and ecosystem services inventory and assessment, climate vulnerability assessment • Participation in training programmes • Dissemination of toolkits, best practices and lesson learnt • Participation in learning networks • Support for organizing outreach events • Support for applying inventory and assessment tools and integrated management planning through Small Grants Facility • Support to select states for systematic prioritization of wetlands considering full range of BES values • Sharing of reports, findings and project outcomes through PMU
State Biodiversity Boards	• Improved information base on wetland biodiversity and ecosystem service values • Built capacity for integrated management of	• Engagement in development of capacity building module • Engagement in development of toolkits on wetland biodiversity and

Project stakeholders	Benefit from IMWBES Project	Engagement and Coordination Mechanism
	wetlands • Best practices and lessons learnt for integrated management of wetlands	ecosystem services inventory and assessment, climate vulnerability assessment • Participation in training programmes • Dissemination of toolkits, best practices and lesson learnt • Participation in learning networks • Support for organizing outreach events • Sharing of reports, findings and project outcomes through PMU
Site level		
Agencies leading implementation of pilot sites *CWRDM, PSCST and Forest Department, GoB*	• The overall project would be supervised and supported technically through the UNEP Regional Office and the South East Asia Regional Programme Coordinator.	• Technical and financial support for formulation of integrated management action plan • Technical support for setting up cross-sectoral governance mechanisms • Participation in national and state level capacity building programmes • Technical and financial support for implementation of management plans • Technical support for collating lessons and best practices for wetland management • Sharing of reports, findings and project outcomes through PMU
Wetland dependent communities at the pilot sites	• Enhanced livelihoods through sustainable resource use practices • Improved awareness of wetland values and functions • Enhanced participation in site management • Interventions for sustainable livelihoods linked to wetland restoration • Engagement in site management • Improved gender balance and social equity in community engagement with site management	• Specific consideration of community views, rights and capacities while formulating management action plan • Integration of site management plans in village level developmental plans to ensure convergence with local developmental programming • Targeting of improved livelihoods of wetland dependent communities through sustainable resource use practices • Integration of gender equity concerns in site management planning and implementation • Integration of indigenous and local knowledge, practices and values in site management • Specific targeting for communication and outreach programmes • Engagement in participatory monitoring and evaluation
Private sector	• Established mechanisms for participation in wetland management • Enhanced sustainability of core operations	• Proactive identification of corporate sector engagement in site management planning and

Project stakeholders	Benefit from IMWBES Project	Engagement and Coordination Mechanism
	• Reduction in investment and reputational risks	implementation • Shared best practices and lessons learnt on engagement of private sector in wetland management • Opportunities to engage in development of training modules on private sector participation in wetland management • Opportunities of engagement in capacity building programmes • Specific targeting for communication and outreach programmes • Sharing of reports, findings and project outcomes through PMU

Section 6: Monitoring and Evaluation Plan

211. The project will follow UNEP standard monitoring, reporting and evaluation processes and procedures. Substantive and financial project reporting requirements are summarized in Appendix 8. Reporting requirements and templates are an integral part of the UNEP legal instrument to be signed by the executing agency and UNEP.

212. The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Appendix 4 includes SMART indicators for each expected outcome as well as mid-term and end-of-project targets. These indicators along with the key deliverables and benchmarks included in Appendix 6 will be the main tools for assessing project implementation progress and whether project results are being achieved. Additionally, METT (Appendix 14a,b & c) as well as Capacity Building Scorecards (Appendix 17 are used to measure the impact of the project. The means of verification and the costs associated with obtaining the information to track the indicators are summarized in Appendix 7. Other M&E related costs are also presented in the Costed M&E Plan and are fully integrated in the overall project budget.

213. The M&E plan will be reviewed and revised as necessary during the project inception workshop to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and evaluation. Indicators and their means of verification may also be fine-tuned at the inception workshop. Day-to-day project monitoring is the responsibility of the PMU but other project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the Project Director or LTSA to inform UNEP of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

214. The NPSC will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E plan if applicable. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility to the Task Manager in UNEP-GEF. The Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

215. Project supervision will take an adaptive management approach. The Task Manager will develop a project supervision plan at the inception of the project which will be communicated to the project partners during the inception workshop. The emphasis of the Task Manager supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring. Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the NPSC at agreed intervals. Project risks and assumptions will be regularly monitored both by project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources. The PIRs will be submitted to GEF-OFP for review and comments prior to submission to GEFSEC by UNEP.

216. UNEP will be responsible for managing the mid-term review/evaluation and the terminal evaluation. The Project Director, NEA, LTSA and NPSC and partners will participate actively in the process.

217. The project will be reviewed or evaluated at mid-term (tentatively in Sept 2018 as indicated in the project milestones). The MTR will be carried out using a participatory approach whereby parties that may benefit or be affected by the project will be consulted. Such parties were identified during the stakeholder analysis (see section 2.5 of the project document). In addition, it will verify information gathered through the GEF tracking tools. However, if deemed required due to bad project performance or otherwise being ‘at risk’, a Mid-Term Evaluation (MTE) is to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way.

218. The project Steering Committee will participate in the MTR or MTE and develop a management response to the evaluation recommendations along with an implementation plan. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented. An MTR is managed by the UNEP Task Manager. An MTE is managed by the Evaluation Office (EO) of UNEP. The EO will determine whether an MTE is required or an MTR is sufficient.

219. An independent terminal evaluation (TE) will take place at the end of project implementation. The EO will be responsible for the TE and liaise with the UNEP Task Manager throughout the process. The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes:

- to provide evidence of results to meet accountability requirements, and
- to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP and executing partners.

220. While a TE should review use of project funds against budget, it would be the role of a financial audit to assess probity (i.e. correctness, integrity etc.) of expenditure and transactions. The TE report will be sent to project stakeholders for comments. Formal comments on the report will be shared by the EO in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six point rating scheme.

221. The final determination of project ratings will be made by the EO when the report is finalised. The MTR and TER will be submitted to GEF-OFD within MoEFCC, GoI for review and comments before finalization. The evaluation report will be publically disclosed and will be followed by a recommendation compliance process.

222. The direct costs of reviews and evaluations will be charged against the project evaluation budget.

223. The GEF tracking tools are attached as Appendix 14. These will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above the mid-term and terminal evaluation will verify the information of the tracking tool.

Section 7: Project Financing and Budget

7.1 Overall project budget

224. The IMWBES Project entails a total budget of US$24,413,575 of which US $4,196,575 is to be funded through the GEF Trust Fund (GEFTF) and the rest through co-finance. The GEFTF contribution forms 17.19% of the project budget. Component wise project budget is provided in Table 9 and detailed in Appendix 1. Component 1 (Wetland BES based knowledge systems) has an implementation cost of US$ 2,368,497, of which US $668,497will be contributed from GEF TF. Component 2 (Capacity Building) has an implementation cost of US$4,144,286 of which GEFTF will contribute US $647,286. Component 3 (Demonstration of integrated wetland management) entails the maximum outlay of $14,506,366 of which GEF contribution has been budgeted to be $2,531,366. Component 4 on Monitoring and Evaluation and dissemination of lessons learnt will require a budget of US $3,394,426.

225. Annual phasing of GEFTF budget as per UNEP budget items is presented in Appendix 1. Implementation of scheduled activities in first half year (2015) will require 3% of the total budget. The two subsequent years will require 23% and 24%of allocation each. The following two years will require 21% and 18% of the allocation respectively. The final half year will require 12% of the budget allocation. These allocations have been firmed up to the best available information available during FSP preparation, but are subject to further refinements during project inception and PIP development.

Table 9: Component-wise project budget

Components/Outcomes	**Budget (US$)**		
	GEF	Co-finance	Total
Component 1: National wetland biodiversity and ecosystem services based knowledge systems	$703,333	$1,700,000	$2,403,333
Outcome 1.1 Increased adoption of integrated wetland management through application of climate-smart integrated wetland ecosystem services and biodiversity assessment tools	$256,544	$680,000	$936,544
Outcome 1.2 Wetland BES knowledge systems applied to improve management effectiveness of sites of national and international significance	$446,790	$1,020,000	$1,466,790
Component 2: National scale capacity building for applying integrated wetland management	$578,843	$3,497,000	$4,075,843
Outcome 2.1 Enhanced institutional capacity and trained human resources for integrated management of wetlands	$578,843	$3,497,000	$4,075,843
Component 3: Demonstration of integrated wetland management	$2,563,661	$11,975,000	$14,538,661
Outcome 3.1 Integrated wetland management applied in three protected wetlands	$2,563,661	$11,975,000	$14,538,661
Component 4: Project monitoring, evaluation and outcome dissemination	$140,910	$1,995,860	$2,136,770
Outcome 4.1 Project impacts and performance are measured	$23,443	$609,000	$632,443
Outcome 4.2 Project best practices guidelines on ES based wetland management disseminated for national replication	$117,467	$1,386,860	$1,504,327
Sub-total	$3,986,747	$19,167,860	$23,154,607
Project Management Costs	$209,828	$1,049,140	$1,258,968
Project Total	$4,196,575	$20,217,000	$24,413,575

7.2 Project co-financing

226. A total co-finance of $20,217,000 will support implementation of project and contribute towards achievement of its objectives. NPCA, the baseline project is the major source of co-finance, through which the MoEFCC will make available US$ $19,807,000 cash and in-kind resources towards project implementation. WISA (the LTSA) will also make available US$ 150,000 in cash contribution as co-finance towards project implementation. Similarly, GEF Agency will also make available US$ 260,000 in kind. Details of co-financing is presented in Table 10.

Table 10: Details of project co-finance

Co-finance Source	Co-finance type		
	In-kind	Cash	Total
MoEFCC	$17,807,000.00	$2,000,000.00	$19,807,000.00
Wetlands International South Asia	$0.00	$150,000.00	$150,000.00
UNEP	$260,000.00	$0.00	$260,000.00
	$18,067,000.00	$2,150,000.00	$20,217,000.00

227. A judicious application of available GEF-finance and co-finance resources will be made towards achievement of project results. The GEF TF Funds will be mostly applied to catalytic activities triggering integrated management of wetlands, whereas the co-finance will be used to achieve on-ground results within pilot sites and replication and upscaling within the wider national network. Details of activities to be implemented with GEF TF and co-finance resources is presented in Table 11.

Table 11: Component-wise allocation of GEF and co-finance resources

Components/Outcomes	**Application of resources**	
	GEF	Co-finance
Component 1: National wetland biodiversity and ecosystem services based knowledge systems		
Outcome 1.1 Increased adoption of integrated wetland management through application of climate-smart integrated wetland ecosystem services and biodiversity assessment tools	• Development of hierarchical wetland BES assessment tool, field testing at six sites and training of wetland managers in application • Development of climate vulnerability assessment tool, field testing in six sites and training of wetland managers in application	• Application of BES assessment tool in national wetland network • Application of climate vulnerability assessment tool in national wetland network • Integration of BES assessment outcomes in management planning for sites within national wetland network • Dissemination of toolkit amongst policy and decision makers and managers of national wetland network
Outcome 1.2 Wetland BES knowledge systems applied to improve management effectiveness of sites of national and international significance	• Development of management effectiveness tool and application to Ramsar Sites • Administration of small grant programme to support wetland managers in improving site management effectiveness	• Support for revision of site management plans in response to management effectiveness outcomes • Improved wetland information synthesis and accessibility
Component 2: National scale capacity building for applying integrated wetland management		
Outcome 2.1 Enhanced institutional capacity and trained human resources for	• Development of modules for training wetland managers • Establishing and maintaining	• Training of wetland managers • Periodic review and updation of the training modules

integrated management of wetlands	communities of practice for sharing best practices and lessons learnt • Development of national communication and outreach strategy and maintenance of website	• Finalization of National Capacity Building, Education and Awareness Strategy, GoI endorsement and integration in NPCA implementation • Maintenance of national web-portal on wetlands
Component 3: Demonstration of integrated wetland management		
Outcome 3.1 Integrated wetland management applied in three protected wetlands	• Baseline assessment and evaluation of BES values • Building private sector partnerships and engagement in management plan implementation • Review and adaptation of management plan implementation	• Establishment of cross sectoral institutional arrangements for wetland management • Formulation of integrated management plans for securing BES values for the pilot sites and wider national wetland network • Implementation of management action plan
Component 4: Project monitoring, evaluation and outcome dissemination		
Outcome 4.1 Project impacts and performance are measured	• Establishment of project monitoring and reporting system • Implementing site and catchment scale monitoring	• Project review and adaptation • Review and adaptation of site management
Outcome 4.2 Project best practices guidelines on ES based wetland management disseminated for national replication	• Development and dissemination of best practices for ES based management	• Application of best practices for management of national wetland network

228. The project has significant potential for raising additional co-finance, particularly for implementation of demonstration projects. An important part of management planning process is identification of sources of funding through convergence with existing developmental sector funding of the national and state government, and the private sector. Table 11 contains a list of potential government co-financing sources for implementation of pilots, which will be confirmed during the management planning process (Outcome 3.1).

Table 11: Details of potential sources for project co-finance

Name of Scheme and implementing Ministry	Areas for convergence
Jawaharlal Nehru National urban Renewal Mission (JnNURM) / Urban infrastructure Development Scheme for Small and Medium Towns (Ministry of Urban Development)	Restoration of urban lakes
Repair, Renovation and Restoration of Water Bodies (Ministry of Water Resources)	Restoration of aquatic ecosystems used as sources of drinking water
Nirmal Bharat Abhiyan (Ministry of Rural Development)	Development of sanitation infrastructure to improve water quality of aquatic ecosystem
Mahatma Gandhi National Rural Employment Guarantee Act (Ministry of Rural Development)	Engagement of rural communities in various components of management action plan
National Afforestation Programme (Ministry of	Catchment conservation

Environment and Forests)	
Green India Mission (Ministry of Environment and Forests)	Catchment conservation
Natural Resources Management, Rainfed Farming System, Horticulture, Integrated Nutrient Management (Ministry of Agriculture)	Sustainable agriculture
National Scheme on "Welfare of Fishermen" and "Development of Inland Fisheries" (Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture)	Sustainable fisheries development
State government schemes on fisheries, agriculture, forestry, wildlife protection, irrigation development etc.	Various components of management action plan

7.3 Project cost effectiveness

229. The central focus of the project design is on wetlands as a means of food and water security considering their role in provision of water, food, fiber along with regulating services (as regulation of hydrological regimes, buffering of extreme events, groundwater recharge). Conventional solutions for achieving food and water security are mostly physical infrastructure based with environmental costs and sustainability implications. Use of wetlands as 'natural infrastructure' provides a cost effective means of delivering a range of services as co-benefits while at the same time addressing food and water security objectives. While several estimates are available indicating cost effectiveness of these measures globally, the project would use valuation and ecosystem service assessment tools to enable site managers and policy makers use these arguments for cross sectoral communication (for example promoting synergies between water management, wetlands and agriculture sectors) and multi-scalar interventions.

230. The baseline project, NPCA, envisages stemming the continued loss and degradation of wetlands in the country by mainstreaming wetland BES values in developmental programming. A key outcome sought is that the SGs are able to fund wetland management not by seeking central government assistance (as has been the norm in the last decades), but by leveraging resources from ongoing developmental schemes of the public sector. The IWBES project will create the necessary tools, methods and evidence base which will assist SGs in implementing wetland management plans in convergence with ongoing developmental sector investment. It will also build capacity of SGs in accessing private sector funds for the said purpose. This will significantly improve the cost effectiveness of maintaining health of national wetland network.

231. Implementation of management plans at three sites, which accounts for nearly 59% of total project costs (63% of GEF TF funds allocation), will be largely through convergence funding sources, including a mix of public and private sources. Implementation of management plans will use a balanced mix of nature based solutions and hard engineering measures, so as to prevent any adverse change in ecological character of the sites.

232. Investment in three pilot sites will create a demonstration effect for the national wetland network. The project funding will be applied for catalytic support to trigger integrated management, and mainstreaming with ongoing developmental programming pursued by SGs.

233. Project delivery would involve established institutional arrangements and organizations (state wetland authorities, national capacity building centers, science and knowledge centers) which will substantially reduce delivery costs. The focus on improving management effectiveness will also enhance efficiency of investments.

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