# **EXECUTIVE SUMMARY**

**ENVIRONMENTAL MANAGEMENT FRAMEWORK** 

# 1. Background

Governments of Assam intend to upgrade the existing Inland water transport system in state. To modernize and transform IWT in Assam, the World Bank is assisting the GoA through a phase-wise project which includes up gradation of ferry Infrastructure, last mile connectivity. Fleet modernization, institutional capacity development etc. for total 11 identified Terminal / Jetty / Landing point locations. However, in phase-I, three ghats/ landing points have been selected. The project includes civil works along with new construction activity; for which it has been categorized as Environment Category-A according to World Bank classifications.

Project development / civil intervention works during development may have interface with various physical, social and biological components of the environment, i.e. water quality, aquatic and terrestrial flora & fauna, air quality, noise levels etc. at all project development stages. All these environmental components will get affected due to development and operation of the terminals and a detailed environment and social impact assessment has been carriedout toassess all the potential impacts of the project. Further the impacts of development can be due to its location or due to the nature of activities to be performed during its development and operation phase thus both these aspects should be looked into while carrying out EIA study.

As the complete lists of project activities and locations havenot been finalized, a framework approach has been adopted. Under this approach, the present Environmental ManagementFramework (EMF) has been prepared to identify all the potential but generic negative environmental and social impacts, propose mitigation measures, provide basic screening criteria for selecting subprojects, implementation and provide institutional arrangements, grievance redressal mechanismsand monitoring, reporting and documentation measures for environmental and social safeguards compliance. The EMFcovers all physical works activities as well as feasibility and other studies to be carried out under the project.

# 2. **Project Description**

# 2.1 Strategic Components and Action Plan of the Project

# 2.1.1 **Project Development Objective (PDO)**

The Project's Development Objectives are to: (a) Improve passenger ferry infrastructure and services in Assam, and (b) to improve the institutional capacity and framework.

# 2.1.2 **Project Components**

The project is focused primarily on improving ferrying of cross-river passengers on the Brahmaputra, and seeks to use the opportunity to establish a tenable foundation for development of a modern IWT sector in Assam. The long absence of adequate policy response and piecemeal investments in IWT in the state (as also nationally) have resulted in somewhat unorganised and weak condition for the sector, which is not predisposed to a linear scale-up. Despite the odds however, Assam manages to provide ferry services to about 5 million people annually, usually along with their vehicles/livestock/goods. In order to support the functioning but ill-equipped IWT sector therefore requires a more granular approach encompassing a range of supply and demand side factors. As such, the project is guided by a binding philosophy that admits wider, and even incremental interventions as long as they contribute to strengthening institutions and planning; operational efficiency and safety; and importantly sustainability. Estimated cost of the project is USD 150 million. Broadly, the project is structured through the following three components:

# 2.1.2.1 Component 1: Institutional and Safety Strengthening

# a. Technical assistance in sector planning;

An Integrated Strategic Development Plan (ISDP) for the state is being prepared. The exercise involves preparing an overall transport strategy for Assam, and more specifically preparing investment plan to help mainstream Water Transport in the state including multi-modal

integration and last mile connectivity. Detailed Project Report is also under preparation for three priority terminals which will incorporate the EMP to be prepared for all the specific priority ghats.

# b. Technical assistance in design and roll-out of new regulatory authority;

Complementing the investments in infrastructure, the project aims to strengthen the AIWT Sector through a supportive institutional framework. A wide-ranging consultancy on Institutional Strengthening and Business Plan (ISBP) is assigned to study the apparent system weaknesses in detail and develop prescription for more effective institutions. In doing so, the study has already provided the basis for legislation for an Independent IWT regulatory authority (RA) to carry out the safety, environmental and economic regulation of the sector (shipping, ports, and shipbuilding). An important emphasis of the sub-component while assessing sector laws and regulations is particular attention to Safety regulations for vessel and passenger movement, even more specifically for women and children. Recently, the bill has been passed by the state in November 2018 for establishing an independent regulatory authority for Inland Water Transport.

# c. Business Planning for Assam Shipping Company and Assam Ports Company;

The operational and commercial functions of the government's shipping operations and terminal services have been decided to be vested in two new corporations, the Assam Shipping Company Limited (ASCL) and the Assam Ports Company Limited (APCL) respectively. The two new corporations will be constituted under the Companies Act (2013), subject to rigors of the market. The ISBP will develop a business plan for the two companies and guide them through the initial period of independent operation.

# d. Navigation aids, including night navigation on some routes;

The sub-component would draw on national / international experience in assessing appropriate aids to navigation, their procurement and deployment to allow 24-hour services / night navigation on most vulnerable / trafficked routes / crossing points. Beginning with pilots at 2-3 crucial locations, deployment of navigation aids will be scaled up based on the investment strategy for the sector.

# e. Establishment of an emergency response system (policy, procedures, equipment, and management);

An important objective will be to support establishment of a Search and Rescue (SAR) organization/piloting emergency response system (policy, procedures, equipment, and management) as well as improving systems for emergency preparedness including climate and natural disasters.

# 2 Training of staff for roles in restructured industry.

The ISBP consultancy will also undertake a detailed assessment of capacity building needs of DIWTA staff from the point of view of their professional development, re-skilling and job mapping needs.

# 3 Component 2: Fleet Modernization

This will include financing of an incentive scheme (known as Jibondinga) to drive private sector fleet upgrading by scrapping of unsafe or obsolete vessels and replacement with new vessels or retrofitting newer vessels with new marine engines and safety equipment.

The objective of supporting an incentive scheme is to encourage investment in modern shipping technology including adoption of greener and safer technologies, through review of fiscal and other barriers affecting quality of boat construction and maintenance. GoA has prepared a draft proposal entitled '*Jibondinga*' – meaning water as source for life/livelihood for private country boat operators, which provides incentive both for new vessel acquisition as well as for retrofitting. The scheme considers special incentive to encourage women entrepreneurs and women self-help groups. Vessels design and specifications for procurement and retrofitting will be standardized to have better regulation as well as for ease of repair and maintenance.

The project will facilitate condition surveys of the existing govt. fleet, hull & machinery, deck and outfit items to trade suitability, impact stability (for the area of operation), loading and other conditions. Select vessels may be retrofitted. This will also include measures to "green" the vessel fleet, including on waste management practices, as well as fuel efficiency and fuel mix.

Potential pilot development of a CNG refuelling station for vessels, likely in Guwahati, will also be explored.

The project would also like to improve connectivity between the many islands, villages and faroff chars by inducing additional floating stock which is customized to the specific demands. Discussion with the district administration and local governments during early preparation missions, particularly to the upper reaches of Brahmaputra (Dibrugarh, Jorhat, Majuli), had revealed serious connectivity constraints between numerous small islands and remote chars. These have had profound impacts on health (high maternal and infant mortality), education, jobs and trade. For example, many inhabited islands do not have medical facilities and people have to travel to other nearby bigger towns to access the services, which become critical during emergencies. Similarly there are several riverine islands that are used by people only for their livelihood - cultivation and to keep their livestock, requiring people to travel between their village and the island on a daily basis, while the ferry services are limited and irregular. The project therefore will prepare specifications and support procurement of appropriate Vessels (preferably smaller and high speed) to operate as water ambulance emergency services, school ferry / regular ferry services, search and rescue boats.

# 4 Component 3: Improvement in terminal infrastructure

This would involve developing modern, scalable floating terminal (a mix of fixed and floating) infrastructure at major urban and rural ferry ghats; road accesses, terminal buildings and other amenities that is user friendly, specifically for physically challenged, women, children, old and infirm and passengers travelling for health facilities. Given the limited bridges / land connection across the banks and the regular demand to access markets to trade local produce etc., the project will also consider providing a few RO-RO / RO-Pax (about 5 pairs) landing stations.

In particular, the component will finance the design and construction of eight new priority terminals at four busy crossings plus approximately 20 terminal (10 routes) at other locations where upgrading is urgent. It would also provide standard designs for scalable infrastructure that can be adapted for other urban and rural ferry terminals (Ghats). The infrastructure improvements / designs will in particular adopt a 'working with nature' approach which ensures that project objectives are satisfied in a way that places natural ecosystem at centre stage thereby making solutions non-damaging and sustainable (limit dredging, utilize portable / modular infrastructure design adaptation for landing stations to enhance climate change resiliency, low draft vessel designs, etc.). The developments would offer opportunities for ecotourism development, rejuvenating the river waterfront and integration of quality ferry terminals in the urban context.

This EMF lays out the requirements to ensure that appropriate screening, and implementation of relevant environment management and mitigation measures as necessary, will be carried out for all the project components (1, 2 and 3).

# 5 Summary of Works

The components of the project that may potentially cause environmental and social impact and therefore relevant for the present analysis are the physical works. The summary list of potential physical activities is provided below:

• Up gradation of Terminals / Ghats / Ferry locations as per ISDP

In addition, the present EMF covers the feasibility and other studies to be carried out under the project.

Most of the proposed activities comprise rehabilitation, maintenance or repair works. The works on flood protection structures would not involve any structure large enough to trigger the dam safety policy. The activities will be screened to ensure none of the activities result in any irreversible or significant environmental or social, negative impact. Hence all the activities carried out under the project will fall under WB Environment Category A.

# 6 Safeguards Policies Triggered

Based on an assessment of the civil works involved the following safeguards policies are relevant for the project:

Name	Key Requirements	Project Applicability
OP 4.01 Environmental Assessment	Ensures sustainability and environmental feasibility of the project. Projects are classified into A, B & C category depending on the nature and extent of the impact.	Triggers
OP 4.04 Natural habitats	Ensures conservation of natural habitats and discourages disturbance of nay natural habitat due to project development by recommending adoption of alternative method/route/approach or adopting management measures	Triggers
OP 4.36 Forests	Ensures that project activities do not disturbs/interfere with the forest, forest dwellers activities, fauna and flora of the forest. Prevents and discourages deforestation and impacts on rights of forest dependent people.	May be triggered for Forest Triggers for tree cutting
WBG Environmental, Health and Safety (EHS) Guidelines (general)	The applicability of the EHS guidelines should be tailored to the hazards and risks established for each project on the basis of the results of an environmental assessment	Applicable
WBG sector- specific EHS guidelines for Jetty, Harbours and Terminals.	The EHS Guidelines for ports, Harbours, and Terminals are applicable to marine and freshwater jetties, harbours, and terminals for cargo and passengers.	Applicable

# 7 Environmental and Social Safeguards Screening

As part of environmental and social assessment process, environmental and social safeguards screening exercises have been conducted. The screening exercise has identified the following potential impacts from the project activities:

### **Positive Impacts:**

- Improvement in IWT and north south connectivity in Assam
- Protection of human lives
- Poverty reduction through protection of livelihood and productive assets
- Protection of vulnerable population from extreme poverty, deprivation, social and economic inequalities that would impact positively on economic growth and human development index.
- Well-being of children
- Improvement in income and living standards.
- Protection of vulnerable groups from disasters
- Protection of villages and settlement from damages to housing and other physical assets.
- Reduction in temporary displacement.
- Decrease in area of land lost due to erosion.
- Improvement in local environmental and social conditions.
- Decrease in public health risk by reducing incidence of water borne and other disaster related diseases, and mental fears
- Protection against damages to crop and livestock.
- Increase in agricultural production and economic gain.
- Reduction in poverty through generation of employment opportunities for the locals.

#### **Negative Impacts:**

- Water pollution
- Use of water for construction
- Elimination of washing areas/sites
- Leakages of chemicals etc.
- Land pollution may happen when solid waste material, camp site area, stone stacking area and removed vegetative cover is left unattended
- Noise and vibration due to use of machinery and movement of vessels
- Air pollution due to smoke and dust

- Traffic and public nuisance
- Removal of vegetation (mostly herbs and shrubs) during site clearance
- Land use change
- Health and safety issues of subprojects professional staff/labor and communities residing near project areas
- Access issues for communities residing near projects areas
- Threat to cultural environment due to influx of work force, may have impact on gender
- Risk hazard
- Terrestrial and aquatic ecology

The EMF assess all of these potential negative environmental and social impacts and provide mitigation measures to address these impacts as well as lists down institutional arrangements to ensure that the mitigation measures are implemented.

A Social Management Plan (SMP) as a part of sub-project specific ESMP will be prepared to address construction related social impacts of the sub-projects. A Resettlement Policy Framework (RPF) will be developed as a part of SMFto allow application of OP 4.12 requirements. RPF defines objectives and principles of resettlement, including a screening mechanism for sub-projects to ensure that no such sub-projects would be selected, which involve acquisition of private land and significant resettlementimpacts. In case the land is required from government departments, common community land and private titleholders; it will be acquired as voluntary donation. Inaddition to this, RPF includes mechanism for preparation of Resettlement Action Plans(RAPs) to efficiently mitigate and compensate low to moderate level social impacts, institutional arrangements to implement RAPs, monitoring and reporting of RAPs implementation and funding mechanism for them. During preparation of RAPs and ESMPs consultations will be conducted with potentially affected persons and other stakeholders, to ensure support of potentially affected and beneficiary communities, and other stakeholders. These stakeholders will be engaged during implementation of RAPs and ESMPs and monitoring of subproject results will be done via development of a citizen's engagement mechanism such as access to information, education and communication, feedback and grievance redressalmechanisms. These mechanisms will ensure transparency and accountability of project implementers and enhance positive impacts of the project.

The EMF identifies and categorizes all potential activities (subprojects) that may require physical works, identifies the instrument type that will be used to screen, assess, and mitigate the negative environmental impacts, details and extent of the stakeholder consultation that shall be needed for each assessment type, the disclosure requirements and the institutional, reporting and monitoring measures that shall be needed to ensure implementation of mitigation measures.

The EMF includes identification of all possible project-environment interactions, categorization of environmental impacts, identification of mitigation measures, a comprehensive environmental and social baseline, identification of stakeholders and details and results of a comprehensive stakeholder consultation exercise, institutional arrangements needed to ensure implementation of mitigation measures, monitoring, reporting and documentation regimes and table of costs associated with implementation of the EMF.

# 8 ScreeningSafeguards

The EMFcategorizes subprojects on the basis of nature of activities, potential impacts on environment and or people. The EMF specifies types and extent of environmental and social assessments that will need to be carried out before initiating each subproject. The EMF includes social and environmental checklists that will be used to assess the potential impacts of each subproject on the basis of its scale/size, nature and potential negative impacts. These checklists prescribe further screening and environmental and social management instruments to be prepared for subprojects which might have more expansive impacts.

# 9 Monitoring and Reporting

The project will employ a three tiered monitoring structure with focal persons nominated from the construction staff to monitor impacts during works phase. The environmental and social safeguards specialist will compile the monitoring checklists to prepare and collate regular environmental progress reports. In addition to this, annual third party validation will also be conducted to validate compliance with the EMF and RPF, and implementation of safeguard instruments such as RAPs, ESMP.

# 10 EMF Disclosure

The EMF shall be released on the IAs and project website, hard copies shall be sent to all institutional stakeholders and all their regional offices. The EMF shall be disclosed internally within the World Bank and shall be released on info shop. The EMF and RPF will be translated into local language and disclosed on the websites of IAs and the projects, and distributed among institutional stakeholders and affected and beneficiary communities at the early stage of sub-projects.

# 11 Stakeholder Consultations

Stakeholder consultations have been carried out while finalizing the project details and during the preparation of EMF and RPF. These consultations have been carried out with institutional as well as grass-root stakeholders. The consultations have revealed that the project is considered to have a number of positive social and environmental impacts. However, in particular, the stakeholders suggested that mechanisms in EMF should ensure selection of sub-projects on the basis of community needs, regular consultations, participation, communication, access to information, grievance redressal of project affected and beneficiary communities and other stakeholders; and mitigation of environment and social/resettlement impacts in an effective manner.

# 12 Grievance Redress Mechanism (GRM)

Complaints can be registered through multiple grievance uptake channels, such as a dedicated helpline, email, by letter to the GRCs (a divisional level or upper level GRC) or walk-ins and registering a complaint on grievance logbook to be provided at each project site/ghat or suggestion box. There will be specific procedures for Gender Based Violence (GBV) including confidential reporting with safe and ethical documenting of GBV cases. An SOP/Guidebook will be developed which will lay down procedures for handling grievances in a timely and effective manner.

A divisional level Grievance Redressal Committee (GRC) will be set up to resolve the complaints from the field. The GRC will comprise of Divisional Executive Engineer; Additional Deputy Commissioner of concerned district; Social Officer-PIU, representatives of the concerned Village Panchayat/Council President or his/her authorized representative and supporting NGOs for implementing the RAP. Grievances of PAPs in writing will either be brought to GRC for redressal by the supporting NGO or through multiple uptake channels. The GRC will respond to the grievance within 7 days. Grievances brought to the GRC shall be redressed within a period of one month (30 days) from the date of receipt of grievance. The decision of the GRC will not be binding to PAPs i.e., decision of the GRC does not debar PAPs taking recourse to court of law.

Petitioners who wish to submit an appeal to the higher authorities can directly appeal to the GRC at the PMU, which will comprise of the Project Director, Advisor (Administration), Social Development Specialist, member of the Assam IWT Regulatory Authority, representative from the Revenue Department and a recognised NGO. On receiving the complaint, the Advisor (Administration), designated as the Officer in charge of GRM at the PMU will issue an acknowledgement to the petitioner within 7 days. The case will be disposed by the PMU within 30 days of receiving the complaint. Details of the resolved cases will be documented and published on the website.

As per the provisions of the Assam Right to Fair Compensation and Transparency in Land Acquisition Resettlement and Rehabilitation Rules 2015 (Section 45) the state Government will designate a Rehabilitation & Resettlement Authority to handle the disputes related to the payment of compensation for L.A and R&R issues.



# 13 Institutional Arrangements

The Project implementation will be led by the Project Implementation Unit (PIU) that will be established within AIWTDS. The PIU will be headed by the Project Director (PD). The PIU consist of Environmental & Social Development Expert. These experts will assist PIU on issues related to environmental and social management and also provide trainings to the field personnel of PIU & DIWT responsible for monitoring of environmental compliance during both construction and O&M phases of the project.

The overall responsibility of environmental performance including EMP implementation of the Project will rest with the PIU. The Technical Supervision Consultant (TSC) will take up the role of supervision and monitoring of the Project activities during the implementation phase. An independent third party monitoring will be done on a quarterly basis, engaging independent Consultants as Safeguard Monitoring Consultants (SMC)' further for monitoring the safeguard aspects.



#### **Organization Structure for Implementation of EMP**

# **Environmental Management Plan**

The key components of EMP are summarized below and each of thiscomponents are explained in detail in the following subsections:

- Mitigation Measures
- Monitoring Measures
- Institutional Arrangement
- Reporting Requirements
- EMP Budget

Impact identification and EMF application for the development interventions are carried out to set the management framework

The Environmental Management Plan, covering project activities and relevant environmental components for proposed Terminal Project for both constructional and operational phase has been worked out and approximate timeframe and institutional responsibilities have been specified. The same has been presented in Tabular form.

A three-tier monitoring program has been proposed:

- Compliance monitoring,
- Effects monitoring, and
- External monitoring.

The main purpose of this monitoring program is to ensure that the various tasks detailed in the EMP are implemented in an effective manner, and also to evaluate program impacts on the key environment and social parameters.

# Institutional Set-up for Effective EMP Implementation and its Monitoring

The Project implementation will be led by the Project Implementation Unit (PIU) that will be established within AIWTDS. The PIU will be responsible for engagement of consultants for carrying out the various studies related to EMP. The PIU will be headed by the Project Director (PD).

The PIU consists of an Environment and Social (E&S) Cell with environmental & social expert. E&S Cell will assist the PMU on issues related to environmental and social management and oversee the Construction Supervision Consultant (CSC) and contractors .Quarterly monitoring reports on EMP compliance is to be sent to the Project Director and also shared with the World Bank, throughout the construction period. The CSC will supervise and monitor the contractors for effective EMP implementation. The contractors in turn will also have HSE supervisors who will ensure EMP implementation during construction activities

# **Environmental Codes of Practices and Performance Indicators**

The contractor will be required to follow the environmental codes of practice (ECoPs) by preparing site-specific management plans. For evaluating the performance of the environmental management and monitoring plan, performance indicators are identified to evaluate the efficiency. The indicators are defined both for construction and operation phase.

# Capacity Building / Training and environmental awareness

Capacity building for effective implementation EMP is highly essential. Capacity building on environmental and social safeguard will be taken up for all levels stakeholders, including AIWTDS,

E&S Cell of AIWTDS, supervisor, and contractors. At the construction site, supervisor will take the lead in capacity building plan. The contractors will also be responsible to conduct trainings for their own staff and workers. During the O&M phase of the project, these trainings will continue to be conducted by AIWTDS staff for all relevant O&M personnel and community.

It is vital that all personnel are adequately trained to efficiently perform their designated tasks. In addition to training, general environmental awareness must be fostered among the project's workforce and general public to encourage the environmentally sound practices.

# **Documentation and Record Keeping**

A document handling system will be established to ensure updating of EMP documents, and availability of documents for the effective functioning of the EMP. The document handling system have been suggested

# Stakeholder Engagement

It is expected that the stakeholders would have opportunity to comment on the content of the EIA report.

# **Environment Monitoring Plan Budget**

Tentative Environment budget has been prepared for design, construction and operation phase of the project. The Environmental budget includes the cost of environmental structures like septic tank &soak pit, Air Pollution Control System at terminals, monitoring, enhancement measures, training and awareness and technical support for establishment, enhancement measures and environmental guidelines. EMP cost estimates of North Guwahati Terminal, Gateway Guwahati Terminal and Aphalamukh ghat are Rs .30,58,650/-, Rs 30,58,650/- and Rs .31,42,650/- respectively.

# Summary and Conclusion

Environmental impact assessment is carried out pertaining to the up-gradation proposals of Ghats and other components of the project. The investigation is taken into account both national and international legal requirements (as per WB). The EIA is prepared based on field investigation, secondary data/information, environmental quality monitoring and feedback from the stakeholders.

Both positive and negative environmental impacts are evaluated.

The positive environmental impacts of the Project are development of all weather navigation routes for transportation of passengers and generation of employment opportunities during construction, operation and maintenance stages. The project will induce economic growth in the region. The negative environmental impacts are not significant. However, the positive impact of the project will improve the sanitary condition, proper waste management and over all aesthetics of the area.

EMP has been formulated to mitigate the negative impacts during various phases (predredging/construction, during dredging/ construction and Post dredging/O&M). The main monitoring parameters include monitoring of dredging and dredge material disposal, biological monitoring and enhancement, environmental quality monitoring (air, noise, surface water, river bed sediment), health and safety, etc. Most of the potential impacts are short-term that can be addressed by adopting mitigation measures and relevant ECoPs. To keep the project influence area environmentally friendly, AIWTDS should ensure that the Contractor prepare site specific EMPs including Emergency response plan, Oil Spill Contingency Plan and Workers Health and Safety plan and Environmental Pollution Abatement and Mitigation Measures Plan. Regular and effective monitoring of environmental quality parameters as indicated in this EIA report.AIWTDS should follow the EMP for improvement of navigation and environment quality of the area.