Although the current account deficit widened to 2.1 percent of gross domestic product (GDP) in FY18/19, robust capital inflows during the second half of the year allowed for a buildup of international reserves to US$411.9 billion at the end of the fiscal year (equivalent to 10 months of imports). Going forward, subdued import growth and benign oil prices are expected to contain the current account balance.

The proposed project is focused on improving the public passenger transport by river ferries in the state of Assam (primarily on the Brahmaputra but also on the Barak River) and the institutional capacity and framework to develop the sector.

Flowing through the heart of the state, the Brahmaputra is a formidable physical barrier, with only five bridges along its entire length, which reflects the high costs of bridging such a river.

In addition to the Brahmaputra, navigational facilities are also maintained on the Barak River (designated National Waterway 16), which flows through southern Assam for a stretch of 121 km before flowing into Bangladesh.

The challenge is multifaceted: it includes the governance and regulation of the sector; the standards, equipment, and amenity of many vessels; the rudimentary navigational aids currently used; and the condition of many ferry terminals that are no more than improvised moorings needing relocation with changing river conditions, often for substantial distances and to locations with poor last mile connectivity.

Development of waterways and ferry services provides low-cost options to integrate transport networks north and south of the river compared to the construction and maintenance of flood-resilient roads and bridges across the long stretches of the Brahmaputra. Inland water transport (IWT) is also sustainable in that it provides opportunities for modal shift to low-carbon transport option for passenger as well as potential freight movements. However, the development of fixed terminals in the waterways has been challenging due to the long flood season from June to September and the subsequent dry period which reduces and alters the river flows and navigation channels considerably.

The GoA has constituted the Assam Climate Change Management Society in 2018 to tackle the impacts of climate change and environmental issues.

The GoA itself is responsible for about 89 operational ferry routes in Assam and there are 272 others overseen by the local (village) and district councils. The GoA ferry routes are managed by the Directorate of Inland Water Transport Assam (DIWTA), either directly (11 routes) or under different contract arrangements with private vessel operators (78 routes). DIWTA has a total of 171 vessels (excluding pontoons and vessels used as terminals), around 60 of which are leased to the private contractors.

With World Bank support, the GoA is creating a more rigorous, tripartite institutional framework that can provide a stronger foundation for sector governance and sustain the desired sector improvements.

This proposed Assam Inland Water Transport Project (AIWTP) is therefore an integrated package of institutional, regulatory and physical measures that will help Assam both to improve specific ferry services and strengthen the capacity of GoA institutions to administer, regulate, and deliver better services throughout Assam Alongside its support for the sectorwide reform program, the World Bank will finance priority investments in safety management, private and public ferry fleet improvements, and replicable terminal improvements on the major Guwahati and Majuli routes and several pilot rural routes.

The proposed project is focused on passenger ferry services.

The Inland Waterways Authority of India (IWAI) of the Government of India (GoI), established in 1986, provides and maintains the fairway navigation 3 on national waterways.4 4 The IWAI, in coordination with DIWTA, is considering augmenting commercial freight transportation on the Brahmaputra, which is a national waterway (National Waterway 2).

The IWAI participates in the GoA meetings on this project and the GoA participates in the GoI meetings on commercial development of National Waterway 2 and National Waterway 16. One of the key synergies between the projects is that the new Assam Inland Water Transport RA will also regulate commercial freight shipping in the state. The World Bank support for establishing the Authority in this project will therefore also benefit inland waterways freight service. This project will also seek to derive mutual benefits by synergizing with other initiatives in the region including the ongoing flood management of the Brahmaputra and its tributaries supported by the Asian Development Bank, flood protection programs by the Brahmaputra Board, and a newly formulated Technical Assistance Project requested by the Ministry of Development of the Northeast region for planning and management of water resources.

At the regional level, cooperation policies between India and Bangladesh envisage a crucial future trade and transport role for IWT.

In a recent development, Chittagong and Mongla Ports have been opened for riverine traffic from Northeast India on the Indo-Bangladesh protocol route. This agreement allows goods to move by coastal shipping from Kolkata to Chittagong Port in Bangladesh and thereafter by inland waterways (predominantly through the Brahmaputra River) or other modes to Assam and other northeastern Indian states The two countries also agreed to seek international financing for development of year-round navigability of the protocol (waterway) routes between the two countries, as envisaged in the Bilateral Framework Agreement on Trade and Transit.

Developing the

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[3] The fairway is the channel occupied by vessels using the waterway and its main technical parameters are its width, least available water depth, standards of markings/lighting, and so on.

[4] The Brahmaputra is classified as National Waterway 2 under the 1985 Inland Waterway Authority of India Act, which mandates the IWAI to develop navigation infrastructure.

In a sprawling city such as Guwahati, service improvements would also contribute to more efficient land use and urban consolidation by allowing the city to develop on its relatively close but underdeveloped north bank instead of just sprawling further along its congested southern bank.

Moreover, the project will target improvements in the resilience of waterway transport to climate change and finance equipment and systems that will permit more effective emergency management on the waterways.

First, it is underpinned by the commitment of the GoA to strengthen the public institutions by which the IWT sector is managed: the current cumbersome and internally conflicted apparatus of state management will be replaced by the tripartite structure that will clearly separate state administration, industry regulation, and commercial operations.

Resilience to climate change has been built into the flexible and modular design of terminal infrastructure. Improvement of ferries will also help lessen pressures for road bridges that would tend to propagate more road-oriented and emissions-intensive transport patterns in the state.

The Project Development Objectives (PDOs) are to (a) improve passenger ferry infrastructure and services in Assam and (b) improve the institutional capacity and framework for inland water transport in Assam.

The project is supported by an Investment Project Financing (IPF) of US$88 million, which includes a financing of US$53 million based on achievement of DLIs. The project will support ferry infrastructure and services (terminals and vessels), institutional reforms, consultancies/analytical studies, training and capacity building, goods including information and communication technology equipment, and development of software applications for safe and efficient management of the sector.

The project activities are organized under the following four components collectively intended to tackle the regulatory, operational, and infrastructure challenges of the sector.

Component 1: Institutional, regulatory and safety strengthening (estimated cost US$21 million)

24.

Safety Management: (i) Assessing, procuring and deploying navigations aids in the Brahmaputra and Barak rivers to allow 24-hours/night navigation services in the most trafficked routes/crossing points; and (ii) establishing a search and rescue organization, piloting an emergency response system (including developing policies and procedures, procuring equipment and setting up/supporting management and operation teams), and improving existing systems for emergency preparedness for natural disasters and climate change (US$10 million).

## Component 3: Improvement in terminal infrastructure (estimated cost US$55 million)

26.

Provision of Smaller Terminals: Designing and constructing at least four (4) small and mainly rural terminals, as per standard designs for modular and scalable infrastructure adaptable to rural and urban areas (US$15 million).

Component 3 will provide standard designs for modular and scalable infrastructure that can be adapted for other urban and rural ferry terminals.

This component will support implementation of the above three components and provide for costs on project preparation, implementation, coordination, and monitoring and evaluation (M&E). An important element of the component would support capacity augmentation and policy support on climate mitigation and adaptation through consultancies, knowledge events, staff training, and so on.

The activities supported under the component specifically include the following:

Providing support for Project implementation, coordination, monitoring and evaluation, through: (i) establishing and ensuring the operability of AIWTDS, including the provision of training, staffing, office modernization and equipment; (ii) ensuring the operability of the AIWTRA, including the provision of training, staffing, office and equipment; (iii) providing technical assistance and management support, including hiring the services of the General Consultant and the Independent Verification Agency; (iv) carrying out Project audits; and (v) setting up monitoring and evaluation systems (US$9 million).

ortant element of the component would support capacity augmentation and policy s
climate mitigation and adaptation through consultancies, knowledge events, staff training, and so on.
An important element of the component would support capacity augmentation and policy support on
costs on project preparation, implementation, coordination, and monitoring and evaluation (M&E).

The four main beneficiary groups of the project are the users of ferry services throughout the state of Assam, through better and safer services; private vessel owners through fleet modernization and upgrading of the existing fleet to better safety and service standards for operations under a strengthened regulatory regime; government employees in the institutions of the sector who will be trained to fulfill more effective and focused roles in the new institutions in industry; and the citizens of Assam who will benefit from the more efficient and effective public governance of the sector.

The total project cost is US$110 million, of which US$88 million will be funded by IBRD and the balance US$22 million will be the counterpart contribution.

The EEP provides for all project-related investments (goods, works, non-consulting services, consulting services, training, and operating costs) included under the four project components mentioned earlier (detailed in annex 2).

The World Bank is supporting the state of Assam in delivering this project.

Most of the investment and maintenance costs of navigation infrastructure in

Typically, only a small proportion of such costs are charged to waterway users, especially to passenger services.

The project design is based on the expectation of a similar long-term disposition of roles in Assam with public sector management of infrastructure provision and a mix of public and private sector operations in transport services.

The project would address these challenges and help ensure that the direct impacts of IWT infrastructure and services on the environment do not detract from the overall environmental merits of IWT as a transport mode in terms of energy efficiency, greenhouse gas (GHG) emissions, land take, and other impacts.

Most waterways need investments in and maintenance of reliable channels, supported with navigation aids, provision of suitable vessels, and landing facilities to make IWT an efficient alternative and/or complementary transport mode to roads and railways.

The scale and type of ferry use and the operating conditions (river behavior, bank stability, and so on) require a flexible and modular approach to terminal design, with simpler local solutions encouraged for rural areas.

In particular, the ongoing capacity augmentation of the National Waterway 1 has helped assess the right resources and the baseline techno-commercial and institutional assessments needed for project design.

The project has led to the establishment of the AIWTDS under the Transport Department, GoA, to implement the project. The newly formed AIWTDS acts as the Project Management Unit (PMU), which is headed by a State Project Director (SPD) not below the rank of the Secretary, Transport Department, GoA, while the Director, IWTA, acts as the Additional State Project Director (ASPD). The SPD is responsible for overall project control and delivery, while the ASPD supports the SPD in providing day-to-day administrative guidance to the project. The society is supported by professionals in procurement, financial management (FM), transport and logistics, social development, environment safeguards, and so on.

The project has
sport Department, GoA, while the Director, IWTA, acts as
The newly
The SPD is responsible

Corporate oversight and management of the AIWTDS is provided by a Project Guidance Council (PGC) headed by the Chief Secretary, GoA, as the President and a Governing Body (GB) headed by the seniormo Secretary of the Transport Department as the Chairman.

ed to the
the Additional State Project Director (ASPD).
establishment of the AIWTDS under the Transp

The GC would continue to provide functional support as the project enters the implementation phase when closer ground-level monitoring is needed. A technical services and supervision consultant (TSSC) will be hired to assist with technical design review, construction supervision, quality control, and monitoring of terminal works under the project components.

ort Department, GoA, to implement the project.
delivery, while the ASPD supports the SPD in providing day-to-day administrative guidance to the project.
The SPD is responsible for overall project control and
ort Department, GoA, to implement the project

The PIUs are not expected to manage any funds and will thereby have no fiduciary function in the project.

Environmental sustainability has also been built into project design in terms of the higher environmental performance of new vessels, the retrofitting of existing vessels with newer and less-polluting engines under the planned incentive scheme, and design of ferry terminals in an environmentally sensitive way that reduces dredging requirements.

The planned corporatization of public ferry and ports operations will create transparency of commercial performance of ferry services, which is currently concealed within the overall administrative budget of DIWTA and therefore inextricably mixed up with the costs of its numerous nonoperating functions. Therefore, the planned institutional reforms will provide the enabling framework for gradually improving financial sustainability.

The untamed character of the Brahmaputra River also makes the provision of fixed infrastructure technically challenging.

The project is improving the existing passenger ferry market in Assam through better and technically designed terminals and energy-efficient vessels (both new and retrofitted) and is making these sustainable through a more responsive institutional framework. The infrastructure investments do not envisage any disruption to the water balance, large-scale dredging activity, or land acquisition.

The project would improve the landside infrastructure as well as the vessel fleet and navigation aids.

The investments are planned and prioritized under an integrated strategic development plan (ISDP) for the state, aiming to mainstream IWT as a mode of transport in Assam that is attractive and suited to a much wider user base.

Certain priority ferry routes (in Guwahati and Dibrugarh) have been identified for investments under the project.

The focus is to design and develop infrastructure in a way that is modular and scalable, limiting the need for fixed structures or substantial acquisition of land or heavy capital dredging

To reduce dredging requirements, the ferry terminals will developed in the river where water levels provide better depths for berthing of vessels round the y This approach is expected to significantly reduce costs and delays attributed to constant changes in river morphology.

Terminals are planned with waste management facilities so that no solid waste or sewage is released into the river. All sewage generated at the terminals shall be routed to a package treatment plant [illegible] More specifically, waste management will follow the Environment Impact Assessment (EIA) recommendations.

The project will support more landings (mostly smaller rural ghats) that will be selected by the GoA based on the strategic development plan and identification of upgrading needs.

Alongside terminal infrastructure, the Guwahati and Dibrugarh (Majuli) ferry corridors will be taken up initially for installing navigation aid facilities. Fixed terminal lights and level markers at the berth and navigational aids to mark fairways for ferries from and to the ghats are being considered. A new state-level RA for IWT is already established under the project, and rules for safe and sustainable operations and management of the IWT system are being drafted. The enforcement of regulations is aimed to transform the operating scenario where only registered vessels are approved for deployment on the ferry services.

The existing vessels of DIWTA and the private ferry operators registered with DIWTA are being modernized and upgraded to minimum safety standards through project interventions and incentive schemes.

The project will generate direct transport economic benefits in the form of improved services to existing ferry users, benefits from generation of ferry trips (including fewer road trips and savings in their resource costs), time savings from the shorter river crossings along the Brahmaputra where there are only five bridges to commute across the banks, connectivity for largely rural communities in the upper reaches of the river, and possible benefits in vessel operating efficiency.

Tertiary benefits include stimulating local economic activity and production in the form of flow-through benefits of boosting shared prosperity by creating more jobs associated with cross-river trade, more livelihood opportunities with improved and more reliable connectivity, increased incomes for farmers and riparian communities, and reduced poverty.

The project investments are supporting the sector to make a step-change transition to sustainably superior and safer standards. The economic analysis captures some of the direct benefits from the main fixed investments in ferry infrastructure that are proposed on the identified priority ferry routes between North and South Guwahati and the Aphalamukh-Neamati route serving the Majuli River Island.

The economic internal rate of return (EIRR) of the investments is estimated to be 18.0 percent in real terms.

The benefits of improved urban amenity, encouragement of lower-cost land use development on the north bank, and contribution to tourism will be additional to the direct transport benefits measured.

Also, the design of the water transport infrastructure under Components 2 and 3 incorporates resilience parameters to better cope with increased precipitation and flooding. Climate-smart engineering solutions will be applied, including modular floating designs for ferry access points at the passenger terminals. The project will include fleet modernization of the vessels with higher power marine engines with sufficient speed to safely navigate the higher velocity current during the flood season. The safety management system and terminal/vessel operating systems will incorporate climate considerations.

The project will thus remove critical transport bottlenecks through modal shift options and reduce the pressure on the government to build new bridges and roads.

## Fiduciary

### (i) Financial Management

63. The project has acceptable FM arrangements to account for and report on project expenditures including (a) use of funds in an efficient and economical manner for the purposes intended, (b) preparation of accurate and reliable periodic financial reports, and (c) acceptable audit/assurance arrangements. The FM arrangements for the project are reliant on the use of country fiduciary systems to the extent feasible.

The society is implementing a World Bank-financed project for the first time; adequate training on World Bank procedures will be provided to the staff.

Adequate budget provisions of INR 400 million (FY17/18), INR 500 million (FY18/19), and INR 1,000 million (FY19/20) have been made during the life of the project preparation facility (PPF) and for the follow-on operation.

The World Bank loan will be available to the GoA in accordance with standard arrangements between the GoI and the states.

All project-related payments will be centralized in the AIWTDS and funds for imprest or advances for specific activities may be provided on a need basis.

The AIWTDS will prepare quarterly unaudited interim financial reports (IFRs) based on these accounting records, reflecting the actual expenditures under the EEP to support the DLIs achieved by the project (see disbursement arrangements agreed against the DLIs in the following paragraph).

The legal documents provide that this category be fully withdrawn as a precondition of the borrower accessing the funds under Category 2.

(b) Access to the remaining fund of the loan (that is, US$53,000,000 provided for under Category 2 of the disbursement table) will be contingent on the achievement of results/DLIs (that is, will be disbursed pursuant to a result-based financing approach).

(ii) On validation of DLIs achieved, the project will seek reimbursement from the World Bank for an amount equivalent to the lesser amount of DLI value achieved or the eligible expenditures incurred and to be reimbursed.

(iv) In case the audited eligible expenditure are less than the reported expenditures, the difference will be, at the discretion of the World Bank, either refunded to the World Bank or adjusted against disbursement of subsequent DLRs.

Audit report for the project will be submitted by the AIWTDS to the World Bank within nine months from close of the financial year, that is, December 31.

The World Bank will undertake at least semiannual implementation support missions (ISMs) to ensure that agreed FM arrangements are appropriately followed.

The strategy presents a view on complex and large procurement contracts, assesses market and implementation risks, and proposes mitigations for the smooth implementation of procurement under the project. The key contracts that present a potential market risk are (a) the construction of the ferry terminals, (b) procurement of vessels, and (c) procurement of night navigation equipment.

This is the first World Bank-funded project to be handled by the society.

As part of the project preparation process, an assessment of procurement capacity of the implementing entity was conducted using PRAMS and, accordingly, risk mitigation measures have been proposed.

The main areas of potential procurement risks are delays in procurement and contract management process, external interference in the procurement process, poor participation of bidders in bidding process, and lack of satisfactory complaint handling system.

Procurement risk and the progress on various mitigation measures will be reassess during the implementation phase and risk rating will be done accordingly.

Even for post review cases, the inputs of World Bank on technical specifications/ToRs will be obtained by the project.

The AIWTDS will retain all records pertaining to award of tenders, including bid notification, bid opening minutes, bid evaluation reports, and all correspondence pertaining to bid evaluation, communication exchanged with the World Bank and the bidders/consultants in the process, bid securities, and approval of invitation/evaluation of bids.

Oversight and monitoring by the World Bank.

IWT is generally environmentally benign compared to other modes of transport with respect to GHG emissions per unit moved, but some issues such as water quality, aquatic and terrestrial ecology along the route and close to onshore facilities, soil quality and material extraction, as well as local drainage and noise and vibration, especially during construction period, may need to be managed properly.

In light of potential impacts, in the context of the sensitive water environment-related impacts, the project has been classified as Category A. The following operational policies have been triggered for the project: Environmental Assessment (OP 4.01), Natural Habitats (OP 4.04), and Physical Cultural Resources (OP 4.11)

The project has triggered the Environmental Assessment (OP 4.01) policy to analyze the potential impacts of the project using a multistage environmental assessment, which started with a screening and scoping stage Since all the designs for investments to be supported under the project have not yet been finalized, an Environmental Management Framework (EMF) has been prepared to guide the preparation of the EIA with consequent Environmental Management Plan (EMP). The EMP describes the feasible and appropriate measures to be implemented during subsequent stages of the project and assigns responsibilities for supervision and monitoring of these along with a budget estimate.

To ensure that the impacts on these species are appropriately managed, the project has triggered OP 4.04 - Natural Habitats. As part of the EIA, the potential impacts on the local flora and fauna has been analyzed.

To meet the requirements of OP 4.11 - Physical Cultural Resources, the EIA has identified the resources that could be potentially affected.

Relevant portions of the EMP have been integrated with the works/equipment contracts as part of the bidding documents.

Specifications for the equipment, including vessels, and facilities being provided in the ghats have been made environmentally sound. A separate budget of INR 9.1 million has been estimated for the implementation of the EMP measures for the subprojects currently selected for implementation, beyond the costs integrated with design and specifications of the project components.

Supervision consultant support has been provided to ensure that there is adequate environmental supervision and monitoring of equipment supply and execution of works. Third-party monitoring of EMP implementation is included in the EMF and specific EIA for activities is already identified. This support will be made available in synchronization with the construction and delivery schedule. In addition, since this is the first project handled by the AIWTDS, capacity building on environmental management aspects of its staff and PIU members is also being supported in line with the training plan developed as part of the EIA.

An integrated grievance redress mechanism (GRM) for social and environmental aspects is being developed building on the complaint handling system already in place in the AIWTDS.

Operational policy on Involuntary Resettlement (OP 4.12) is triggered as construction of new terminals and upgrading of existing terminals to be financed under Component 3 could result in land acquisition and resettlement impacts.

Since the specific alignments with detailed technical design for investment to be supported under the project are being finalized, a Social Management Framework (SMF) and a Resettlement Policy Framework-cum-Indigenous Peoples Development Framework (RPF-cum-IPDF) have been prepared to guide the Social Impact Assessment (SIA) to prepare site-specific Social Management Plan, Indigenous Peoples Development Plan-cum-Resettlement Action Plan (SMP, IPDP-cum-RAP).

An e-RAP management information system and mobile application will be managed by the AIWTDS for real-time monitoring of land acquisition process and R&R as per the requirements of the Assam Land Acquisition and Rehabilitation and Resettlement Rule, 2015.

To build the capacity of the AIWTDS, contractors and vessel crew on social safeguards and management (land acquisition, R&R, labor standard compliance, GBV, gender sensitization, GRM, RTI, among others), a three-year training plan has been developed.

CE for the AIWTP includes stakeholder/community consultations, a multilevel GRM, and beneficiary survey on draft designs for the terminals to be constructed/upgraded (Component 3), including activities listed under other components.

For addressing grievances related to land acquisition and R&R provisions, divisional- and AIWTDS-level GRCs have been established.

A Standard Operating Procedure (SOP) will be developed, which would include procedures and communication strategy for information dissemination on GRM among project employees, users, and ferry operators.

All planning and design considerations for proposed infrastructure for the AIWTP have been aimed at fully avoiding (or absolutely minimizing), where possible, any potential adverse transboundary affects (which could have had impacts such as reduction and/or modification of flow of water or sediments and increased water pollution). The avoidance of any obstruction to or modification of flow, the designs that ensure that there is no pollution of the river, and the limits placed on dredging and disposal of dredged materials mean that there will be no impact on the quality and quantity of flow in the transboundary rivers.

As per the scheme, each of the private boat owners shall be given 70 percent incentive for replacement of existing engines (with marine engines) for registered boats that are up to 10 years old and in good condition. Subsequently, to meet the insurance cost of passengers and the boats for three years, additional finance will be provided under the scheme.

Loans at special terms shall be provided to boat owners and new entrepreneurs including women SHGs as incentive for buying new boats and operating services as registered service providers, as part of the subsequent phase of the Jibondinga scheme.

These measures include project informed design and support for value addition of goods.

Upgrading and rehabilitation of approach roads up to the terminals will be considered under the project. Additionally, memorandum of understanding to establish links with different land transport authorities will be considered to ensure intermodal connectivity for feeder services and other paratransit modes to and from the terminals.

Timings and frequency of the ferry services will be regulated to meet the requirement of all user groups.

Based on their suggestion and footfall of passengers, night navigation facilities will also be provided.

(c ) Facilities for value addition of goods near the terminals, Guwahati and Majuli. The AIWTDS will consider, in coordination with other state agencies, facilities at the terminals to store, sort, and grade the goods to achieve higher value for the goods in the market.

While specific measures such as a dedicated helpline number will be integrated into the GRM system for the Assam IWT project to address and monitor GBV cases, the project will also provide the following digital media and Internet-based communication tools to enhance safety and security of the ferry service users/passengers.

Additionally, the SOP that outlines the steps with guidance for safety and security of passengers relating to GBV on IWT will be drawn up, followed and used in the training of all IWT operators, terminal staff, and river police.

Two of the key risks, namely safeguards and institutional capacity for implementation and sustainability, are rated Substantial. The substantial risk in institutional capacity for implementation and sustainability partly derives from perceived client capacity and also from the challenges of (a) major organizational change that might not be welcomed by all stakeholders and (b) the need for effective coordination by the World Bank and client with many departments at national, state, and local levels with specific roles and interests in the development or management of waterways or IWT.

Since this is the first project being undertaken by AIWTDS, management of potential impacts on these important ecosystem components, as well as from construction of landside facilities, can be a challenge.

Also, as part of the project preparation process, an assessment of procurement capacity of implementing entity was conducted using PRAMS and accordingly risk mitigation measures have been proposed.

Procurement risk and the progress on various mitigation measures will be reassessed during the implementation phase and risk rating will be done accordingly. .

Target 4: Verify Gazette notification on Safety and Economic regulations for passenger ferries in Assam.

order and publication of draft Economic Regulations on route licensing and tariff rationalization for operations of intra-state passenger ferries, calling for public consultation / feedback with 30 days of publication

Target 4: Verify Gazette notification on Safety and Economic regulations for passenger ferries in Assam. The safety regulations are to be in line with Assam Vessel Rules as approved by Government of Assam Economic regulations to include route licensing and tariff rationalization.

Review approval letter from State Public Investment Board (SPIB) on the Business plan / feasibility of the APC, clearing the way for its incorporation. The business plan / feasibility should typically (while SPIB's own guideline will prevail) include details on the capital structure, capitalization levels, investment plan and staffing e

y The business plan / feasibility should typically (while SPIB's own guideline will prevail) include details on the capital structure, capitalization levels, investment plan and staffing e

The Transport Department self certifies an approved asset devolution plan for APC. The devolution plan at minimum includes details of the assets, their location and approximate valuation and time line for the devolution.

The Transport Department self certifies an approved asset devolution plan for ASC. The devolution plan at minimum includes details of the assets, their age, approximate valuation and time line for the devolution.

Target 3:

a. Govt order on asset devolved to APC or Audited Balance Sheet of APC validating transfer of fixed assets (primarily public ferry terminals)

b. Govt order on asset devolved to ASC or Audited Balance Sheet of ASC validating transfer of floating assets (primarily public vessels)

The DLI will be monitored by the World Bank (for target 1 and 2) while IVA will verify Target 3.

The project is anchored with the Transport Department, GoA. The project has precipitated establishment of an AIWTDS under the Transport Department to prepare and implement the project.

The SPD is responsible for overall project control and delivery, while the ASPD supports the SPD in providing day-to-day administrative guidance to the projec The society is supported by professionals in procurement, FM, transport and logistics, social development, environment safeguards, and so on.

Coordination of day-to-day project implementation, planning and scheduling, procurement management, financial control, and reporting and monitoring will be the responsibility of the AIWTDS.

Where institutional capacity is limited and special skills are required, the project will acquire outside expertise, including international technical assistance and consulting services. The AIWTDS currently draws on technical resources from DIWTA on need basis and the project will support establishment/strengthening of a Hydrography Unit that shall be manned by dedicated river engineers, technical surveyors, and so on.

To strengthen the project management capacity early, a professional consulting firm has been competitively selected and appointed as GC to assist the AIWTDS in providing day-to-day functional/management support. The project implementation will itself be facilitated by early improvements to the institutional makeup that are expected to address conflicting interests and any blurring of lines, which currently constrain sector management.

TSSCs will be hired for Component 3, as the project enters the implementation phase and closer ground-level monitoring is needed. These consultants will assist with technical design review, construction supervision, quality control, and monitoring of works under the project components.

Safeguards monitoring consultants, independent of the supervision consultants, will be hired to inform the AIWTDS regarding the extent to which safeguards are being implemented in project activities.

The project is focused on improving ferrying of cross-river passengers in Assam and seeks to use the opportunity to establish a tenable foundation for development of a modern IWT sector in Assam.

Despite the odds, however, Assam manages to provide ferry services to about 9 million people annually, usually along with their vehicles, livestock, or goods.

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. The project has four components collectively intended to tackle the regulatory, operational. and infrastructure challenges of the sector including one component supporting project management.

Component 1: Institutional, regulatory and safety strengthening (estimated cost US$21 million)

2.

Sector planning, design and rollout, operationalization of new Regulatory Authority (RA), business planning and operationalization of Assam Shipping Company (ASC) and Assam Ports Company (APC), including remuneration of staff/specialists hired at the RA, ASC, APC, and Assam Transport Policy; modernization of crew training center and training of staff to fulfill new roles in the restructured industry (US$11 million)

3.

An ISDP for water transport in the state is being prepared. The exercise involves preparing a water transport strategy for Assam and an investment plan to help mainstream water transport in the state including multimodal integration and last mile connectivity.

Complementing the investments in infrastructure, the project aims to strengthen the Assam IWT sector through a supportive institutional framework.

In doing so, the study has already provided the basic legislation for an independent IWT RA to carry out the safety, environmental, and economic regulation of the sector (shipping, ports, and shipbuilding).

Recently, the bill has been passed by the state in November 2018 for establishing an independent RA for IWT The operationalization and salaries cost of the RA will be financed under this subcomponent through the life of the project.

The incremental operational cost and salaries cost of the ASC and the APC will be financed under this subcomponent for the first three years after incorporation of these companies. The water transport strategy will assist the state in developing a water transport policy with a broad road map for future investments that promote a more balanced modal mix, improved modal integration, mainstreaming of IWT, and better climate adaptability/resilience and emission reduction.

In particular, developing or consolidating capacity to undertake regular surveys, charting of the river, and recording and analysis of data, which in turn helps institutionalize knowledge on river navigation, is of immense importance. The project therefore proposes to establish a Hydrography Unit under the DIWTA of IWT Assam. The component would also support modernizing the CTC, embedding the Lighthouse India Initiative.

Safety management: river navigation aids, night navigation technology on some routes, and emergency response system (policy, procedures, vessels, and equipment) (US$10 million)

7. The subcomponent would draw on national/international experience in assessing appropriate aids to navigation, procurement, and deployment to allow 24-hour services/night navigation on the most vulnerable, trafficked routes, or crossing points.

An important objective will be to support the establishment of a Search and Rescue Unit; or pilot an emergency response system (policy, procedures, equipment, and management); and improve systems for emergency preparedness including climate and natural disasters. The emergency mechanism to respond to expected climate risks would involve advance weather information systems, which would help better schedule inspections to ensure resilience of old/new structures to climate change pressures and improve and integrate emergency evacuation procedures into operations.

This will include financing of the two subcomponents.

The objective of supporting an incentive scheme is to ensure safe, secure, and sustainable transport and to encourage investment in modern shipping technology including adoption of more efficient, greener, and safer technologies, through review of fiscal and other barriers affecting quality of boat construction and maintenance.

Vessel design and specifications for procurement and retrofitting will be standardized to have better regulation as well as for ease of repair and maintenance. However, the incentive scheme is designed to assist industry transition to the new regulatory regime beginning with direct support on retrofitting existing but acceptable vessels with modern marine engines and safety equipment. Subsequently, a market-based financing framework will be developed to support the scrapping and replacement of unsafe or obsolete private vessels with new vessels, the expected capital cost and financing requirements for which will need much deeper assessment. But it will be a high borrowing amount for private boat operators, and due to the small-scale business (small and medium enterprises /micro, small, and medium enterprises) nature of many operators with a weak balance sheet and insignificant personal collaterals, accessing financing from commercial sources remains extremely difficult. Further, due to lack of familiarity and high-risk perception, commercial banks may also not be willing to lend to private operators with vessels as collaterals, thus further limiting access to long-term financing. Without an affordable cost of financing, the private operators would not be able to upgrade to new and safer vessels and eventually not participate in the program, thus affecting the overall development objective. The component will therefore provide for a detailed analysis to assess financing requirements and structure a government program that mitigates the risk perception of commercial banks and increases access to financing for private boat operators to procure new vessel The component will identify suitable interventions needed by the Government through design of appropriate incentive mechanisms specifically targeting increasing private participation in vessel purchases and operations. Both IBRD loans and guarantees will be contemplated and structured in a way to meet this objective in subsequent projects, which may include a combination of government incentive and/or IBRD loans and guarantees to be structured through a financial intermediary (a domestic commercial bank or financial institution) to provide loans at competitive financing terms to private boat operators.

Procurement of new vessels for the Assam Shipping Company and retrofitting of existing public vessels (US$15 million)

11.

To ensure substantially improved stability, the two-wheelers will be carried below the gunwales of the vessels.

A few medium-speed shallow draft roll-on/roll-off (Ro-Ro) passenger/cargo catamarans for selected major traffic routes are also planned for procurement.

The project would also like to improve connectivity/access to basic services for many islands, villages, and far-off chars by using additional floating stock which is customized to specific needs.

For this, the project plans to use the existing government fleet, which may no longer be suited for intensive passenger ferrying but could be usefully converted into mobile clinics, schools/library, and for other such important services.

Component 3: Improvement in terminal infrastructure (estimated cost US$55 million)

14. This component will support development of improved and technically designed/engineered ferry landings at feasible locations along the Brahmaputra in Assam. The project will finance the activity under two subcomponents.

Provision of priority terminals including repair facilities (US$40 million)

15. In particular, this subcomponent will finance the design and construction of few priority terminals at identified busy crossings (such as Guwahati and Majuli).

The developments would offer opportunities for ecotourism development, rejuvenating the river waterfront and integrating quality ferry terminals in the urban context.

This subcomponent will provide standard designs for modular and scalable infrastructure that can be adapted for other urban and rural ferry terminals.

Component 4: Project management support (estimated cost US$9 million)

17. This component will support implementation of the above three components and provide for costs on project preparation, implementation, coordination, and M&E.

An important element of the component would support capacity augmentation and policy support on climate mitigation and adaptation through consultancies, knowledge events, staff training, and so on.

The activities supported under the component specifically include the following:

Providing support for Project implementation, coordination, monitoring and evaluation, through: (i) establishing and ensuring the operability of AIWTDS, including the provision of training, staffing, office modernization and equipment; (ii) ensuring the operability of the AIWTRA, including the provision of training, staffing, office and equipment; (iii) providing technical assistance and management support, including hiring the services of the General Consultant and the Independent Verification Agency; (iv) carrying out Project audits; and (v) setting up monitoring and evaluation systems.

The total cost of the project is estimated at US$110 million. The IBRD support is estimated at US$88 million while the GoA share will be US$22 million.

The remainder of the loan will be disbursed pursuant to regular IPF procedures (US$33.6 million) and results-based lending procedures (US$53 million) for the financing of the same eligible expenditures.

The project is improving the existing passenger ferry market in Assam through better and technically designed terminals and energy-efficient vessels (both new and retrofitted) and making these sustainable through a more responsive institutional framework. The infrastructure investments do not envisage any disruption to the water balance, any large-scale dredging activity, or land acquisition.

The untamed character of the Brahmaputra River also makes the provision of fixed infrastructure technically challenging.

The authorities constantly struggle to shift and reposition the location of ghats (ferry landing stations), in response to changing river geometry and seasonally varying water levels.

While DIWTA is responsible for services on 89 designated routes, it has contracted 78 of them to private operators (in many cases using leased DIWTA vessels).

The project would improve the landside infrastructure as well as the vessel fleet and navigatio aids.

The investments are planned and prioritized under an ISDP for the state aiming to mainstream IWT as a mode of transport in Assam, attractive and suited to a much wider user base.

In consultation with the GoA, the project has prioritized the following high-demand ferry routes for development.

The focus is to design and develop infrastructure in a way that is modular and scalable, limiting the need for fixed structures or substantial acquisition of land or heavy capital dredging.

In addition to the geotechnical and topographic investigations, location assessment required understanding the riverbed and bank stability.

At the feasibility stage, a time series of satellite imagery triangulated with sample field readings has been carried out instead of indicative cross-sectional bathymetric surveys (detailed design and Detailed Project Report preparation are based on actual bathymetric surveys).

To reduce dredging requirements, the ferry terminals will developed in the river where water levels provide better depths for berthing of vessels round the y This approach is expected to significantly reduce costs and delays attributed to constant changes in river morphology.

Terminals are planned with waste management facilities so that no solid waste or sewage is released into the river. Estimation of the sanitary sewage flow is 20 percent above the water supply rate and it will be routed to a package treatment plant.

More specifically, waste management will follow the EIA recommendations.

The project will support more landings (mostly smaller rural ghats) that will be selected by the GoA based on the strategic development plan and identification of upgrading needs.

The design of passenger ferries is being standardized for improved efficiency and sustainability.

For maintenance, the vessels will be serviced at suitable locations where refueling (bunkering), supply with freshwater, and disposal of wastewater and solid waste as well as cleaning and repairs can take place.

A GoA incentive scheme (known as Jibondinga) to assist industry transition to the new regulatory regime will begin with direct support on retrofitting existing but acceptable vessels with modern marine engines and safety equipment. Subsequently, a market-based financing framework will be developed to support the scrapping and replacement of unsafe or obsolete private vessels with new vessels. Detailed analysis will be developed to assess financing requirements and structure a government program that mitigates the risk perception of commercial banks and increases access to financing for private boat operators to procure new vessels. Suitable interventions needed by the Government shall be identified through design of appropriate incentive mechanisms specifically targeting increasing private participation in vessel purchases and operations.

The project will strengthen the presence of physical navigation aids as well as suitable communication technology on land as well as on the ferries.

Alongside terminal infrastructure, the Guwahati and Dibrugarh (Majuli) ferry corridors will be taken up initially for shore-based pilots for installing navigation aid facilities. Fixed terminal lights and level markers at the berth and navigational aids to mark fairways for ferries from and to the ghats are being considered.

In parallel, the project will help set up a Hydrography Unit at DIWTA by consolidating and strengthening capabilities, which would provide the necessary technical capacity to regularly scan and understand changes in the riverbed. An important activity for efficient navigation guidance will be to continuously update electronic river charts by responses from traveling ferries equipped with echo sounders and onboard global positioning system.

The state-level RA is already established under the project, and rules for safe and sustainable operations and management of the IWT system are being drafted. The enforcement of regulations is aimed to transform the operating scenario where only registered vessels are approved for deployment on the ferry services. Besides safety specifications and modern communication systems for all vessels, the IWT vessel rules would state the operating conditions, training and qualifications for the vessel crew and shore staff, mandatory requirement for vessels to display safe passenger load painted on the vessel hull, stringent monitoring of ferry service operations, and suspension of operating licenses for nonconformance to the rules.

The existing vessels of DIWTA and the private ferry operators registered with DIWTA are being modernized and upgraded to minimum safety standards through project interventions and incentive scheme. Procurement of bigger and faster vessels for deployment on high traffic routes and specialized fleets of search and rescue vessels for emergency response services are also being mobilized under the project.

The project is expected to have economic and social benefits much wider than the direct improvements in transport service. The project will generate (a) direct transport economic benefits in the form of improved services to existing ferry users, (b) benefits from generation of ferry trips (including fewer road trips and savings in their resource costs), (c) time savings from the shorter river crossings along the 891 km where there are only five bridges to commute across the banks, (d) connectivity for largely rural communities in the upper reaches of the river, and (e) possible benefits in vessel operating efficiency. Climate change resilience outcomes will arise from more efficiently designed modular and floating terminals as well as by relieving the pressure to build new road bridges that would have encouraged a more carbon-intensive transport system. Tertiary benefits include stimulation of local economic activity and production in the form of flow-through benefits of boosting shared prosperity by creating more jobs associated with cross-river trade, more livelihood opportunities with improved and more reliable connectivity, increased incomes for farmers and riparian communities, and reduced poverty.

The economic analysis captures some of the direct benefits from the main fixed investments in ferry infrastructure that are proposed on the identified priority ferry routes between North and South Guwahati and the Aphalamukh-Neamati route serving the Majuli River Island.

The benefits of improved urban amenity, encouragement of lower-cost land use development on the north bank, and contribution to tourism will be additional to the direct transport benefits measured.

A 10 percent bus operator surplus has been allowed for a non-air-conditioned bus with operating costs of about INR 1.1 per passenger-km.

The EIRR of the investments is estimated to be 18.9 percent in real terms. The user benefits of these ferries were estimated as the socioeconomic costs saved by the availability of ferry services compared with the shortest available road route.

The capital costs of vessels have been incorporated in vessel operating costs, as has the capital cost of buses in the operating cost estimate for buses.

A reality to reckon, however, while reviewing the economics associated with the investments is the fact that the sector, which has remained underfunded, rudimentary, and unsafe for decades (while being operational somehow), is now being scaled up to international engineering standards with due consideration also to sustainability.

It would be a complex challenge to provide a detailed estimate of such benefits and so this has not been attempted given the scale of the other benefits.