

**INTEGRATED SAFEGUARDS DATA SHEET
APPRAISAL STAGE**

Report No.: ISDSA19028

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I. BASIC INFORMATION

1. Basic Project Data

Country:	India	Project ID:	P148775
Project Name:	Capacity Augmentation of the National Waterway -I (P148775)		
Task Team Leader(s):	Arnab Bandyopadhyay, Charles Kunaka, Tapas Paul		
Estimated Appraisal Date:	24-Oct-2016	Estimated Board Date:	18-Jan-2017
Managing Unit:	GTI06	Lending Instrument:	Investment Project Financing
Is this project processed under OP 8.50 (Emergency Recovery) or OP 8.00 (Rapid Response to Crises and Emergencies)?			No
Financing (In USD Million)			
Total Project Cost:	800.00	Total Bank Financing:	375.00
Financing Gap:	0.00		
Financing Source			Amount
Borrower			425.00
International Bank for Reconstruction and Development			375.00
Total			800.00
Environmental Category:	A - Full Assessment		
Is this a Repeater project?	No		

2. Project Development Objective(s)

The Project Development Objective is to enhance transport efficiency and reliability of National Waterway 1 and augment institutional capacity for the development and management of India's inland waterway transport system in an environmentally sustainable manner.

3. Project Description

The project consists of two main components: (A) Improving the navigability of NW-1 between Haldia and Varanasi at an estimated cost of USD 770 million; and (B) Improving the investment climate, vessel design and construction framework and institutional strengthening at an estimated

cost of USD 30 million.

1. Component A: Improving the navigability of NW-1 (Haldia to Varanasi). The sub-components are:

a) A1 (USD 10 million): detailed topographic and bathymetric surveys, preparation of technical feasibility and detailed engineering studies, preparation of social and environmental impact assessment studies and other supporting technical assistance/studies for project preparation. This component will also support preparation of engineering designs for six passenger terminals which would be constructed and operated by the participating states. All activities under this component are currently in progress.

b) A2 (USD 372 million): improvement of river fairway through dredging and river conservancy works. These works will be undertaken to provide the target LAD in the various reaches (see Technical Section IV(B)). The works will be executed through a combination of three performance-based assured depth contracts and one input based dredging contract (already in place) on the Farakka to Varanasi stretch. IWAI's internal resources will be used to carry out marginal maintenance dredging in the Haldia to Farakka stretch. Procurement of one assured depth dredging contract (Farakka to Bhagalpur stretch) is currently in progress.

c) A3 (USD 17 million): construction of permanent protection works for erosion prone banks in selected locations, totaling up to 20 km. The works will be executed through EPC contracts.

d) A4 (USD 57 million): rehabilitation of the existing ship-lock in Farakka and construction of a new parallel lock to allow concurrent two-way working. The works will be implemented through an EPC contract and procurement is currently in progress.

e) A5 (USD 303 million): (i) construction of six multi-modal freight terminals with future provision to allow evolution as market clusters ; (ii) two vessel repair and maintenance facilities; and (iii) five ro-ro crossings. IWAI would provide land and road access for the ro-ro terminals, while private sector would build and operate ro-ro facilities. All other works will be executed through EPC contracts. Construction of a multimodal terminal in Varanasi has been initiated and procurement is currently ongoing for Sahibgunj and Haldia multimodal terminals. Land acquisition and resettlement, environmental management, utility relocation and independent monitoring and quality assurance are included.

f) A6 (USD 11 million): (i) navigational aids in form of night navigation facilities and channel marking; (ii) enhancement of existing river information system through addition of app-based systems, improved communication platform and expanded user reach; and (iii) provision of other support services e.g. search and rescue, distress response and casualty incident management, and upgrading vessel and river monitoring systems. These activities will be implemented through a combination of small civil works, services and goods contracts.

2. Component B: Institutional Strengthening and improving the investment climate, vessel design and construction framework: The sub-components are:

a) B1 (USD 11 million): institutional strengthening of sector institutions and capacity building of the sector through: (i) undertaking a review of current IWAI staffing, future institutional options

and enhanced staffing/skill needs including on areas such as logistics and marketing, social development, grievance redressal, health, safety and environmental (HSE) management; (ii) undertaking review and alignment of laws and regulations in respect to IWT vessel design, construction, manning, operation, maintenance, insurance and multi-modal transport; and (iii) exploring the option of developing sector institutions including a Research and Development Unit/Center for IWAI and enhancement of training institutions (NINI). Adequate training, exposure visits and international benchmarking will be supported through this component. The procurement process for activity (i) has been initiated and IWAI has also commenced activity (ii) through the recent initiative in amending the Inland Waterways Act.

b) B2 (USD 5 million): improving the overall investment climate through (i) undertaking market development studies and preparation of business cases (by location, industry and cargo type); and (ii) investigating arrangements for private sector participation in the construction and operation of terminals. Both of these activities would be executed through service contracts. IFC has been engaged as a transaction adviser to support activity (ii) which is well underway. Activity (i) is also in progress.

c) B2 (USD 14 million): (i) vessel design and standardization with a focus on low draft and efficient and clean fuel (LNG) vessels; (ii) undertaking public/private stakeholder consultations to encourage investment in modern vessel technology through review of fiscal and other barriers hindering vessel construction; and (iii) leasing of ten low draft vessels to kick-start the use of modern vessels in NW-1. Activities (i) and (ii) would be implemented through service contracts, while activity (iii) will be implemented through goods contracts. Procurement for activity (i) is already underway.

4. Project location and salient physical characteristics relevant to the safeguard analysis (if known)

The National Waterway 1 or NW1 passes through the states of Uttar Pradesh, Bihar, Jharkhand and West Bengal, and is located between Allahabad (Uttar Pradesh) to Haldia (West Bengal) on a 1,620km stretch on the Ganga (between Allahabad to Farakka), on the Bhagirathi (between Farakka to Jangipur) and on the Hooghly (downstream of Jangipur) river system. While the Ganga and the Hooghly are natural rivers, the Bhagirathi is a regulated river primarily influenced by the barrages at Farakka and Jangipur. The Feeder Canal and the navigation lock at Farakka become the link between the Bhagirathi and the Ganga upstream of the barrage.

The notified waterway includes the whole flow zones of the rivers; but navigation channels are narrower (does not and need not use the entire width of the river), and best navigation width at any stretch is defined by the IWAI (and used by the operators based on navigation aid provided by IWAI). The Allahabad-Varanasi stretch (237km) of the river Ganga has low flow condition except in the monsoon, and it is difficult to maintain least available depth (LAD) of more than 1.2 m. The Varanasi-Patna (363km) and the Patna-Farakka (460km) stretches include several braided portion of the river, and substantial regular dredging is carried out each year to maintain 1.8 to 2m of LAD. The Farakka-Tribeni stretch (364km) has river erosion and shoal issues, and requires bandalling and regular dredging to maintain a 2.5m LAD, except that in the Bhagirathi river stretch due to the controlled discharge from the Farakka Barrage and due to the river conservancy work a navigable depth of at least 2m is maintained throughout the year. The Tribeni-Haldia stretch (196km) is tide dominated, and a 3m LAD is usually maintained by the natural tidal processes. Overall, however, maintenance of navigational channels in all the stretches is a complex task, due to large variation in discharge (where peak flows are very large, and low flows very low), unstable morphological

condition of bank and bed, heavy sediment load, continuous braiding and meandering of the river upstream of Farakka.

Of the two biosphere reserves in the Ganga basin, one (Sundarban in West Bengal) is located on the NW1. Of the 29 national parks in the Ganga basin, one (Sundarban) is within the influence area Of the 75 wildlife sanctuaries, 2 are on the NW1 (Turtle Sanctuary at Varanasi/Uttar Pradesh, and Vikramshila Gangetic Dolphin Sanctuary at Bhagalpur/Bihar) is located on the NW1, and 8 more are also located within the influence area of NW1 (Kanwarijheel at Begusarai and Surha Tal, Balia/ Bihar; Udhawa Lake at Sahebganj/Jharkhand; Bibhutibhusan, Haliday Island, Lothian, Narendrapur and Sajnekhali - all in West Bengal). The NW1 currently has 5 fixed terminals (Haldia, Kolkata, Pakur, Farrakka and Patna) and 15 floating terminals (at Haldia, Kolkata, Diamond Harbour, Katwa, Tribeni, Baharampur, Jangipur, Bhagalpur, Semaria, Doriganj, Ballia, Ghazipur, Varanasi, Chunar and Allahabad). Each of these could be expanded and augmented in the project, but are all located within or adjacent to urban settings. The project also has planned 10 Ro-Ro jetties, 2 barge maintenance facilities and significant portion of river engineering works all for which detailed EIA and EMP will be prepared based on the engineering design and investigations (the terms of reference for preparation of EA/EMP are included in the project's EIA Report). The project carried out a detailed social impact assessment (SIA) was carried out and Resettlement Policy Framework was prepared to guide the preparation of mitigation plans for all sub-projects. The SIA cum Resettlement Action Plan/Social Management Plan has been prepared for the identified terminals at Haldia, Farrakka ship-lock, Sahibganj and Varanasi.

5. Environmental and Social Safeguards Specialists

Mridula Singh (GSU06)

6. Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	The project has been carefully designed and will be implemented in ways that unintended impacts both in near and long term could be avoided. Potential major environmental issues considered included: (i) modifications to the riverbed, riverbanks and the flood plains, and the consequent impacts; (ii) potential modifications to the river and sediment flow, especially during the lean season and the associated impacts; (iii) potential damage to the aquatic fauna including dolphins, turtles, fishes, and to the nesting and breeding grounds and sanctuaries on and along the river bed; (iv) construction related impacts including impacts from dredging; disposal of dredged materials; siting of terminals, bank protection works and jetties; (v) potential pollution of the waterway and safety and health issues arising during operation from regular operations or by accidental spills. Further, this project strives to complement the parallel initiatives of the government for clean-up of the Ganga (which is a national priority issue). These issues were examined as part of the cumulative impact analysis (CIA) and the EA, and were be addressed through incorporation in the project design (including substantial progressive modification of plans and designs

Natural Habitats OP/BP 4.04	Yes	<p>of the project) and the EMP.</p> <p>Although the nearest national park (Sundarbans) is more than 50km away from the NW1, the project and its operation have potential adverse impacts on the 2 aquatic wildlife sanctuaries which are located within the river bed (Turtle Sanctuary at Varanasi/Uttar Pradesh, and Vikramshila Gangetic Dolphin Sanctuary at Bhagalpur/Bihar), and on all other stretches of the river Ganga, which supports a variety of aquatic life.</p> <p>The direct and indirect impacts to aquatic fauna including key species such as dolphins, turtles, otter, and fishes were minimized by (i) avoiding construction as far as possible in the flow zones of the river; (ii) avoiding capital dredging; (iii) absolute reduction in the design quantity of annual maintenance dredging, which is less than 1% of the annual sediment load in the river; (iv) providing incentive for minimizing dredging through the use of assured depth maintenance contract, instead of a usual dredging contract; (v) use of low draft vessels, which reduces the design dredging requirement, but also avoids impacting bottom-dwelling fauna; (vi) avoiding dredging, disposal of dredged materials, and vessel movement away from confluences of rivers as these are known to be good habitats for the key species; (vii) mandating use of noise control mufflers in vessels, ensuring underwater noise levels remain within 140dB, which is within the tolerance level of the turtles and dolphins; (viii) mandating zero discharge standards for vessels; and provision of consequent solid and liquid waste management facilities in the terminals; (ix) mandating exclusion devices in the vessels; (x) integration of aquatic habitat information with the river information system, so that vessels can operate away from known habitat areas, and (xi) restricting the navigable channel to a width of 45m within the flow zone of the river, which in most places are more than a km wide.</p> <p>In addition to the above, to further avoid any impact, within the aquatic sanctuaries, (i) dredging will be prohibited; (ii) number of vessel traffic will be limited; (iii) speed of vessels will be limited to 5km/h; (iv) vessel traffic will be avoided during the basking hours of the key species, and during nights .</p> <p>Indirect impacts that could have occurred on the 8 other wildlife sanctuaries located within 50km of the NW1 and are connected by smaller waterways, or on a biosphere</p>
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		<p>reserve (Sundarban), or on 6 important bird areas located close by (Surha Taal//Barh, Danapur Cantonment, Mokama Taal in Bihar, Kurseala River Course and Diyara Floodplain, Gogabil and Baldia Char in Jharkhand, and Farakka barrage areas in West Bengal) were avoided by minimizing physical interventions, and examining the potential of noise and air pollution that will not change the ambient environment in these places.</p> <p>Further, Gangetic dolphin (the recently declared national aquatic animal) has most of its population in the middle Ganga stretches (from upstream of Allahabad down to Farakka), and conservation of the Gangetic Dolphin will be a key issue during operation, and the project will support studies in support of the conservation plans of the National Mission for Clean Ganga, Ministry of Water Resources and Ganga rejuvenation, Government of India. Several other precautionary measures are part of all the EMPs.</p>
Forests OP/BP 4.36	No	The project activities including its operation are not expected to involve any logging, forestry activities or any other activity that may impact quality of the forests.
Pest Management OP 4.09	No	The project activities including its operation do not use or encourage any use of pesticides.
Physical Cultural Resources OP/BP 4.11	Yes	<p>The Ganga is an iconic river; and the project will complement the ongoing parallel government programs of cleaning and rejuvenating the Ganga including its cultural dimensions. In addition, important heritage and cultural assets lie on either bank of the Ganga throughout the NW1 stretch including built structures, bathing ghats and crematoria, which have been inventorized in the EIA, some of which are protected sites and/or structures. Impacts on any of these protected sites will be avoided by insistence that no construction activity will take place within 300m of the GoI protected cultural assets and 100m of the state protected cultural assets. Dredge disposal will carried out at from banks where any of the inventories important heritage sites are located. Dredging and barge operations that generate generate noise would not be carried out in the areas close to ghats in Varanasi, and during time of religious gatherings in these places.</p> <p>Several other actions including a chance find procedure is part of the EMPs to mitigate the impacts on locally significant cultural assets. Specific studies were conducted for the Varanasi Fort to understand if vibration from construction and other impacts due to NW1 operations would affect the structure (as this was the</p>

		<p>closest heritage site to NW1). The study found that the project (and potential vibrations) will not impact this heritage structure.</p> <p>The project itself, by promoting river tourism will make the project activities complementary to the need of conservation of the cultural resources.</p>
Indigenous Peoples OP/ BP 4.10	No	<p>The social impact assessment has established that at no location are Scheduled tribe inhabiting the area, hence they are neither benefitting nor adversely impacted by the project interventions.</p>
Involuntary Resettlement OP/BP 4.12	Yes	
		<p>The project carried out social impacts assessment at the four identified locations for terminals and locks, i.e. Farraka, Haldia, Sahibganj and Varanasi. Government and private land is transferred and private land is under acquisition. A Resettlement Policy Framework is prepared to comply with the Right to Fair Compensation and Transparent land acquisition and Rehabilitation and Resettlement Act 2014 and World Bank Operational Policy 4.12. Mitigation plans are prepared for the identified sub-projects which includes relocation of people displaced by facility at Sahibganj. An assessment will be undertaken for passenger services at 3 locations to prepare gender informed designs for safe and secured mobility of women, physically challenged people, children and old and infirm. Moreover, social impact assessments will be undertaken to prepare mitigation plans for the fisher folk who may be impacted at the operational stage with increase in number and frequency of vessels with improved navigation facilities. The Assessment will be undertaken for the remaining terminals at Ghazipur and Kaulaghat, last mile connectivity for all terminals, and for RO-RO services at locations that are yet to be identified. The Resettlement Policy Framework developed for the project will guide the preparation of mitigation plans.</p> <p>The project will not involve any dam or dam-like structures (such as barrages, river bed pondages).</p> <p>The project will finance improvement of a ship-lock at Farakka and construction of a parallel ship-lock. Ship-locks are structures very dissimilar to dams or barrages (i.e., these do not create any pondage, whether continuous or seasonal or diurnal). Nevertheless, these works on the ship-locks are being undertaken complying with appropriate safety standards by qualified designers and supervising engineers, who have requisite qualification on construction and operational safety.</p>

Safety of Dams OP/BP 4.37	No	The project will not involve any dam or dam-like structures (such as barrages, river bed pondages).
		The project will finance improvement of a ship-lock at Farakka and construction of a parallel ship-lock. Ship-locks are structures very dissimilar to dams or barrages (i. e., these do not create any pondage, whether continuous or seasonal or diurnal). Nevertheless, these works on the ship-locks are being undertaken complying with appropriate safety standards by qualified designers and supervising engineers, who have requisite qualification on construction and operational safety.
Projects on International Waterways OP/BP 7.50	Yes	The project activities take place on the river Ganga, which is an international river flowing through the nations of India, Nepal and Bangladesh. The Bank, on behalf of India, notified the riparian countries - China, Nepal and Bangladesh on 10 June 2016.
Projects in Disputed Areas OP/BP 7.60	No	No part of the project influence area is disputed.

II. Key Safeguard Policy Issues and Their Management

A. Summary of Key Safeguard Issues

<p>1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:</p> <p>A large meandering river system such as the Ganga is highly complex dynamic ecosystem due to its high levels of sediment transport. The river has large water level fluctuation and unreliable water depths; leading to unavailability of adequate depth suitable for navigation. The high silt loads (estimated 700 million tonnes at Farraka close to India-Bangladesh border) which lead to shoal formation, and in many cases cause splitting of main channel. Addressing these challenges, would usually require structural measures within the water body, and if these are not designed well, could have environmental and ecological implications. River training works and dredging have the risk of eliminating habitats, and natural composition of ecological communities. In addition navigation can also have other impacts on the water environment, such as pollution. The maintenance of navigational channels in all the stretches is a complex task, due to large variation in discharge (where peak flows are very large, and low flows very low), unstable morphological condition of bank and bed, heavy sediment load, continuous braiding and meandering of the river. Due to the complexity of investment and operations, geographical extent and ecological richness of the project areas, the project financed investments, unless carefully designed, could potentially lead to significant impacts on the river system as well as site-specific impacts, and changes in sediment flow of the river. Based on such initial assessment of risks, Environmental Assessment of the project set out to avoid (as far as possible) these potential environmental impacts and risks; and manage and mitigate the residual potential impacts and risks. As a result of the Environmental Assessment, and subsequent incorporation in plans and designs for the project has reduced the risks (by avoiding specific interventions, such as dredging in the critical stretches of protected areas; or by minimizing the interventions). Consequently, there is no potential large scale, significant and/or irreversible impacts from the project. The plan for mitigating and managing the residual risks are reasonable and implementable. In addition, the project is aiming at very</p>
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substantial environmental enhancements through energy efficient terminals, introduction of "cleaner" vessels and consequent waste management in terminals and facilities , switching to liquefied natural gas as vessel fuel, adopting low-draft vessels, augmenting riverine fishery or by supporting conservation of protected aquatic areas), reduction in congestion and air pollution impacts in urban areas and contributing to GHG emission reduction of an order of 4.5 million tCO_{2e}.

The investments in facilities will have limited adverse impact on livelihood and lead to displacement of people affected by land acquisition. Based on the risks associated with loss of livelihood of close to 233 household at Sahibganj, social impact assessment was carried out to identify the scale of impact at household level. The Resettlement action Plan clearly lays down appropriate mitigation plan including the relocation site and process of rehabilitation. The project will carry out a detailed assessment in the first year of project implementation on the likely impact on fisher folk who may be impacted by increase in number and frequency of vessel movement. Overall, the adverse impacts are not significant.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

The surrounding of the project (i.e., either banks of the river Ganga) is densely populated, with some 67 cities and large towns located on the Banks of the river. Consequently, the transport network is also dense, albeit the capacities are not sufficient to cater to the expected rise in traffic - both passenger and goods in the short and medium term. The World Bank has financed capacity augmentation national highways parallel to the river, and a large number projects improving the state highways and rural roads (especially in Uttar Pradesh and Bihar); and is currently financing the Eastern Dedicated Freight Corridor Project (aimed at improving the capacity and efficiency of goods movement by rail) which is also parallel to the waterway. In addition to the World Bank financed projects, a larger number of road and rail improvement or capacity augmentation projects were also implemented in last 10 years, and further larger number of such projects are being implemented and planned. Owing to this improvement in transport network, the pace of urbanization and industrialization has increased in the recent years, and in future, such urban-industrialization and consequent land use changes are expected to be rapid. Overall, the nature of agrarian economy in the districts abutting the river is changing in favor of more manufacturing and service industry driven economy. It could be noted that the rapid urban-industrialization (and associated land use changes) are happening irrespective of river transport.

During operation of the project, it is expected that further improvement to navigational reliability and safety will induce increased river traffic; and may induce similar improvement in river transport in tributaries and distributaries of the Ganga, which in turn may induce urbanization of the additional multi-modal transport nodes. Although the project mainly aims at goods traffic, in future the demand for passenger transport including tourist transport will also increase. On the beneficial side, the medium and long term impacts will involve additional livelihood and employment opportunities, not only from the river transport, but also from the induced urban-industrialization. The benefits will also include further additional reduction of GHG emission. On the negative side, there would be increased risks of wastewater generation, ballast waters, and oil spills - with associated impacts to aquatic species and on the livelihood of the fisherpersons. With increased traffic, especially induced in tributaries with narrower flow zones, the risks of bank erosion from wave actions caused by vessels would be there, as well as capital and maintenance dredging in those tributaries might change the dynamic river morphology and associated decrease in abundance and diversity of benthic and aquatic communities. In the project area (which does

not include the tributaries), such risks are limited. The risks are also further limited due to the operation of the Namami Gange Program (National Program for Clean Ganga, partly financed by the World Bank NGRBA Project), which aims to clean up the Ganga, avoid any further pollution load, and aims at restoring the natural flow and quality of the River. This project, and all other projects - current or upcoming - need to conform with aims of the Namami Gange Program, and therefore will need to comply with strict pollution control regime.

In the long term, the currently envisaged multi-modal terminals and repair facilities may need expansion. It could be anticipated that more terminals will come up, even in the medium term. These will have the potential to change the local land uses. However, given that the both banks of river Ganga is already densely populated, that there is no significant large continuous stretches of natural forests or protected terrestrial areas, and that sufficient number of cities, towns, and large villages are located on both banks (where these terminals could be located), the chances of destruction of these natural forests or wetlands or protected areas are low. It is highly likely that the land use changes will be about agricultural areas or fallow lands converted to commercial transport infrastructure land uses.

As part of the cumulative impact assessment, to understand the impacts of a large program of investments, additional actions over and above those described in the ESIA and EMPs were recommended. These include GRIHA energy-efficiency standards for design and construction of terminals; appropriate waste management standards for terminals and vessels, state of the art river information system, health and safety standards for operations; siting for multimodal terminals as to reduce congestion and pollution impacts in cities; integrating passenger services and tourism; greenhouse gas emissions accounting for construction and maintenance of NW1. These recommended improvements to the standards of construction and operation of NW1 would ensure impacts over the longer term are minimized, and operations are more sustainable.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

The EA included an analysis of alternatives of the proposed development options based on three aspects, strategic (with or without project), planning (location, tree cutting, proximity to critical environmental resources, and connectivity) and technology considerations. Overall, the 'With Project' Scenario is considered the better option as it will (i) improve the freight transportation efficiency, thereby reducing environmental impacts, (ii) substantially reduce the GHG emissions, in part fulfilling India's Nationally Determined Commitments by 2030; (iii) reduce fuel requirements, and transport of large quantity of fuel from distant ports, saving emissions and pollution; and (iv) improve the socio economic conditions. With the already saturated rail and road networks, inland navigation will reduce pressure on land acquisition (especially in the case of agriculture and forest land), and tree cutting for expanding other modes of transport. With respect to planning of facilities such as terminals, and the navigation channel within the river flow zone, all possible locations upstream and downstream on either banks were studied, and sites and channel that avoids most of the local environmental issues were selected. Additionally, the operational requirements including avoidance of barrage, speed of vessel, etc., were modified to minimize impacts on protected aquatic areas. On the technology side, alternatives were studied, and best technology choices were made, such as low-draft vessels to avoid dredging, intended switch to compressed natural gas as fuel for the vessels, zero discharge and green buildings for all terminals and repair facilities, the highest health and safety standards for operation of terminal facilities and navigation operations clean and efficient vessel fleet, and state of art river information systems - all aimed to minimize environmental, health and safety

risks, or maximise the environmental enhancement opportunities. Even after avoiding and/or minimizing impacts, there will be residual anticipated impacts on ecological and aquatic environment, but these are low to moderate and manageable with implementation of the Environmental management Plans.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

The Borrowers prepared (i) a cumulative impact analysis (CIA) report which includes a study on the critical environmental resources to provide guidelines to avoid impacts on these as possible, and recommends measures to manage direct, indirect and induced impacts; (ii) a consolidated environmental impact assessment (EIA) report including an overall plan for avoiding, mitigating and managing environmental, health and safety impacts; and (iii) stand-alone environmental assessment including environment management plans, suitable to be incorporated in the contracts for design-build-operate contracts of all major interventions planned in the project. The consolidated EA was not limited individual sub-projects, rather it addressed environmental impacts of investment sectors taken together based on two categories (a) impacts associated with barge and dredging operations and (b) impacts associated with civil interventions. To supplement this consolidated EA, detailed EAs and management plans have been prepared for the construction and operation of all investment categories (construction and operation); and site specific EMPs have been prepared for known works prior to appraisal. These include (i) dredging requirements, (ii) barge operations, (iii) navigation lock at Farraka, and (iv) multi-modal terminals at Sahibganj, Varanasi and Haldia. The Borrowers also prepared a Social Assessment (SIA) Report, and Resettlement Action Plans (RAP).

The EIA provides for the management of social and environmental risks and impact mitigations for works. Specifically it includes (a) analysis of alternatives based on locations, design, proximity to markets and transport modes and technology selection (b) impact of project interventions on air quality, noise, water quality, sediment transport, aquatic habitats and avifauna and riverbanks, and (c) environmental management plan for various categories of infrastructure for management of environmental impacts. Environmental impacts and requisite safeguard documentation for (i) installing navigation aids, (ii) construction of Ro-Ro jetties, (iii) low draft fleet optimization and (iv) barge maintenance facilities will be assessed in detail once the exact location and scope of specific activities have been identified during project implementation.

The IWAI including its regional offices, although not familiar with the Bank safeguards policies, are implementing projects within the national and state environmental policy and legal frameworks, which are, in many cases, close to the Bank Safeguard Policies. The Government of India (the borrower) has a number of institutions dealing with social and environmental safeguards, albeit with mixed records of implementation and enforcement. Usually, a project of this scale and magnitude goes through a process of environmental due diligence. However, inland navigation is exempt from the requirements under the EIA Notifications, and unless there are massive civil construction works, this project will not require mandatory EIA clearance from the Government of India (even if at the state level, there will be need for specific approval from regulatory institutions with respect to Water Act, Hazardous Material (Transport, Handling and Storage) Notification, etc.). IWAI is already attempting to develop and implement standards for occupational health, safety and pollution management, akin to applicable national and international standards. However, IWAI itself will need to augment its capacity so as to be able to implement the standards among all potential future (private sector) operators on the NW1.

To initiate the capacity building for management of environmental and social issues in the project, IWAI (the implementing agency) has already designated a few staff (albeit with turnover issues) at the project management unit (PMU). The regional field offices will have social specialists to implement the mitigation plans who will be trained. The environmental and social assessments and the institutional strengthening studies of the project has will proposed capacity building plans for the IWAI at the HQ and its regional/field offices, which would then by duly to be implemented by the project. Project staff will be trained in the planning and implementation of the environmental and social management plans and frameworks. Further, the curricula of the national level training institute(s) are being revamped to incorporate HSE issues, and augmentation of such capacity building initiative (targeting the future cadre of operators) are part of the Institutional Study. ICT tools will be used for supervision and monitoring to ensure flow of information on 'real time' basis.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

The EA and SA reports were prepared in very substantial consultation with stakeholders, to ensure the environmental and social assessment, and other safeguard requirements be carried out in compliance with the social and environmental policies and procedures as specified by the Government of India and the World Bank Group safeguard policies. The draft EA documents (the CIA, the consolidated EA, the stand-alone EA/EMPs for Farraka Lock, Sahebganj, Varanasi and Haldia Terminals, and the Executive Summary) along with the SIA and the RAP (and their executive summary) were disclosed in the Bank's InfoShop on June 2, 2016. All these EA and SA documents along with an Executive Summary in vernacular Hindi and Bengali were disclosed in-country on May 22, 2016. The final versions of the EA and SIA/RAP documents are disclosed in the Bank's InfoShop, All upcoming investments that require preparation of safeguard instruments such as an EA, EMP, SIA/RAP will also follow Bank operational policy rules for disclosure and public consultation. Consolidated EA and the stand-alone EA/EMPs and SIA/RAP has been disclosed in-country on May 22, 2016 (in the website of the IWAI), assisted by advertisements in prominent national and state (English, Hindi and Bengali) newspapers.

B. Disclosure Requirements

Environmental Assessment/Audit/Management Plan/Other	
Date of receipt by the Bank	23-May-2016
Date of submission to InfoShop	02-Jun-2016
For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors	02-Jun-2016
"In country" Disclosure	
India	23-May-2016
<p><i>Comments:</i> The environmental and social assessments were carried out in substantial consultation with stakeholders, to ensure the environmental and social assessment, and other compliance requirements be carried out in compliance with the policies and procedures as specified by the Government of India and the World Bank Group safeguard policies. The CIA, the consolidated EA and the stand-alone EA/EMPs along with their executive summary (in English, Hindi and Bengali) has been disclosed in-country on May 20, 2016 (in the website of the IWAI), aided by advertisements in prominent national and state (English, Hindi and Bengali) newspapers. These advertisements in the newspapers were published on May 23, 2016.</p>	

Resettlement Action Plan/Framework/Policy Process	
Date of receipt by the Bank	23-May-2016
Date of submission to InfoShop	02-Jun-2016
"In country" Disclosure	
India	02-Jun-2016
<i>Comments:</i> The investments in facilities will have limited adverse impact on livelihood and lead to displacement of people affected by land acquisition. Based on the risks associated with loss of livelihood of close to 233 household at Sahibganj, social impact assessment was carried out to identify the scale of impact at household level. The Resettlement action Plan clearly lays down appropriate mitigation plan including the relocation site and process of rehabilitation. The project will carry out a detailed assessment in the first year of project implementation on the likely impact on fisher folk who may be impacted by increase in number and frequency of vessel movement. Overall, the adverse impacts are not significant.	
If the project triggers the Pest Management and/or Physical Cultural Resources policies, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.	
If in-country disclosure of any of the above documents is not expected, please explain why:	

C. Compliance Monitoring Indicators at the Corporate Level

OP/BP/GP 4.01 - Environment Assessment	
Does the project require a stand-alone EA (including EMP) report?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
OP/BP 4.04 - Natural Habitats	
Would the project result in any significant conversion or degradation of critical natural habitats?	Yes [<input type="checkbox"/>] No [<input checked="" type="checkbox"/>] NA [<input type="checkbox"/>]
If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?	Yes [<input type="checkbox"/>] No [<input type="checkbox"/>] NA [<input checked="" type="checkbox"/>]
OP/BP 4.11 - Physical Cultural Resources	
Does the EA include adequate measures related to cultural property?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
OP/BP 4.12 - Involuntary Resettlement	
Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]

Is physical displacement/relocation expected? 1165 Provided estimated number of people to be affected	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] TBD [<input type="checkbox"/>]
Is economic displacement expected? (loss of assets or access to assets that leads to loss of income sources or other means of livelihoods) 1165 Provided estimated number of people to be affected	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] TBD [<input type="checkbox"/>]
OP 7.50 - Projects on International Waterways	
Have the other riparians been notified of the project?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
If the project falls under one of the exceptions to the notification requirement, has this been cleared with the Legal Department, and the memo to the RVP prepared and sent?	Yes [<input type="checkbox"/>] No [<input type="checkbox"/>] NA [<input checked="" type="checkbox"/>]
Has the RVP approved such an exception?	Yes [<input type="checkbox"/>] No [<input type="checkbox"/>] NA [<input checked="" type="checkbox"/>]
The World Bank Policy on Disclosure of Information	
Have relevant safeguard policies documents been sent to the World Bank's Infoshop?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
All Safeguard Policies	
Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Have costs related to safeguard policy measures been included in the project cost?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]

III. APPROVALS

Task Team Leader(s):	Name: Arnab Bandyopadhyay, Charles Kunaka, Tapas Paul	
<i>Approved By</i>		
Safeguards Advisor:	Name: Maged Mahmoud Hamed (SA)	Date: 05-Dec-2016
Practice Manager/ Manager:	Name: Martha B. Lawrence (PMGR)	Date: 06-Dec-2016