PROJECT INFORMATION DOCUMENT (PID)
CONCEPT STAGE

Report No.: PIDC23127

Project Name	National Waterways Development Project (P148775)
Region	SOUTH ASIA
Country	India
Sector(s)	Ports, waterways and shipping (90%), General industry and trade sector (10%)
Theme(s)	Trade facilitation and market access (30%), Other rural development (50%), Other environment and natural resources management (20%)
Lending Instrument	Investment Project Financing
Project ID	P148775
Borrower(s)	Department of Economic Affairs, Government of India
Implementing Agency	Inland Waterways Authority of India
Environmental Category	A-Full Assessment
Date PID Prepared/ Updated	07-Apr-2015
Date PID Approved/ Disclosed	08-Apr-2015
Estimated Date of Appraisal Completion	15-Feb-2016
Estimated Date of Board Approval	26-May-2016
Concept Review Decision	Track II - The review did authorize the preparation to continue

I. Introduction and Context

Country Context

The Government of India (GoI) is resolved to improve India's infrastructure which it recognizes as a serious constraint to future economic growth. Its Twelfth Five Year Plan (2012-2017) sets a high infrastructure investment target of US$1 trillion. An important part of that Plan is to develop critical parts of the country's ocean port and inland water transport infrastructure. In particular the Plan recognizes the huge and hitherto untapped potential of inland waterways to provide a clean and efficient system for the transportation of goods particularly large and bulk cargo, and hazardous goods. It also indicates that the total external costs of inland navigation after accounting for all externalities, including accidents, congestion, noise emissions, air pollution and other environmental impacts are seven times lower than that of road transport. GoI's enhanced commitment to revival of the ports and inland waterway sector is particularly reflected through two specific schemes announced during 2014, namely, (a) Development of National Waterway Grid for interconnecting

the National Waterways in the northern / eastern region of the country, and (b) 'Sagarmala', a scheme for connecting ports through coastal shipping and inland waterway and embarking on a port-centric development strategy.

Sectoral and Institutional Context

Huge untapped potential of IWT in India: India is well endowed with an extensive inland waterway network (IWT) of over 14,500 km of navigable rivers and canals. Out of these around 4,500 km have been designated as National Waterways. In the early 20th twentieth century, inland waterways were a significant mode of transport for freight (and passengers) in India but, as in many countries, the influence first of railways, and then of road motorization, has led to a neglect of IWT which now carries less than half a percent of India's freight traffic, whereas roads carry about 66 percent and railways about 27 percent. By contrast, inland waterways in some regions such as the USA, the European Union and China have maintained and upgraded their river systems on core routes where there remains a strong and vibrant commercial IWT industry.

Poor intermodal connectivity: The geography of inland water transport is such that traffic interchanges with other modes of transport, especially road and rail are critical. Road transport in particular provides last mile/first mile connectivity for IWT. At present, each of the modes of transport in India has evolved separately with only nascent efforts to facilitate efficient intermodal and multimodal transport operations. Discussions have recently started between the authorities responsible for different modes to define a shared vision on the evolution of the freight markets in the country. The moves are born out of a realization that there are significant opportunities for multi-modal connectivity and possibilities for more efficient co-existence and interfaces between the modes of transport, facilitated by the construction of appropriate transshipment terminals.

Low carbon, low energy mode of transportation: Inland water transport is globally recognized as an energy efficient, cost effective and environment friendly mode of transport vis a vis the other surface transport modes. It is estimated that 1 litre of fuel can move 24 t-km on road, 85 tonne-km on railways and 105 tonne km on inland water. Similarly, 1 HP can move 150 kg on road, 500 kg on rail and 4 tonne in water. For every tonne-Km transported on water, the GHG emission is estimated to be 50% of that by road. Considering that India has a very high logistic cost (about 15% of GDP) and loses about 4-5% of its GDP due to logistic inefficiencies (source: 2010 Mckinsey Infrastructure Study),inland water transport as a viable alternate mode of transport could be highly beneficial.

National Waterways 1 – GoI priority: The National Waterways are divided into six geographically separate systems. Of these, National Waterway-1 (NW-1), designated in 1986, is the longest. It is a natural network that links the seaport gateway at Kolkata to Allahabad some 1,620 km inland via the Hooghly/Bhagirathi and the Ganga rivers. Currently, the annual freight volume carried on this waterway is only approximately 3.2 million tons. As such it has the potential to emerge as the logistics artery for northern India as it provides the most economical, reliable, safe and environmentally friendly form of transportation, especially for bulk cargo. It can also potentially reduce congestion on this high-traffic transport corridor and spark complementary infrastructure investment in rail and road transport.

The Waterway passes through the four states of West Bengal, Jharkhand, Bihar and Uttar Pradesh. If developed in a sustainable manner, NW-1 has the potential to have a positive impact on the local economy of this region, by promoting greater complementarities in the economic strategies of in the

riparian states, enhancing intra-regional trade and, through increased economies of scale, significantly boosting the competitiveness of industry in this resource-rich but economically poor area. Needless to say, these developments will also help create jobs in logistics, processing and ancillary industries.

The World Bank has received a request from the Government of India (GOI) in December 2014 for financial and technical assistance to conduct project preparatory studies and for limited investments on the Haldia to Varanasi stretch of NW-1.

Need to minimize social and environmental impacts: However, given the socio-religious significance of the Ganga river, and its importance as a vital environmental resource for the country, both GoI and the World Bank are committed to ensuring that any development of the waterway will be done only after the possible social and environmental impacts have been fully understood and strategies to avoid or minimize those impacts have been put into place. The World Bank is supporting Inland Waterways Authority of India (IWAI), the implementing agency for the proposed project, to conduct comprehensive social and environment impact analyses – which will include consultations with a range of stakeholders -- as well as examine the various design alternatives in order to arrive at the least-impact option for the design and development of this waterway.

Some technical challenges facing NW1: The development of NW1 will also have to take into account some challenges thrown up by the particular morphological and hydrological patterns of the Ganga river. The Ganga in the plains is a meandering, at times braided, river which sees large variations in seasonal flows and high sediment content. Its available navigational depth also varies sharply and it also features numerous short radius bends, especially downstream of Farakka. The implications of all these elements for navigation will have to be studied before technical design can be worked on.

Potential for market development: The NW1 carries the potential to unlock significant growth in the area. A detailed assessment of market potential will be carried out to determine the types of facilities that may be needed to facilitate efficient multimodal transport and logistics possibilities for different types of commodities (e.g. agriculture and fertilizer). In addition to logistics infrastructure and service providers, state and municipal level authorities will also be involved in the design and development of such logistics clusters and related facilities. The project will support the IWAI in the planning, design and development of terminals and other facilities for enhancing local access and multimodal operations. The location, layout and equipping of the terminals would depend on various factors including (a) origins and destinations of various trades, (b) types of and volume of potential cargoes, (c) identification and mapping of potential cluster industries, and (d) available draft and engineering suitability for IWT operations.

Relationship to CAS

Support of the Capacity Augmentation of National Waterway-1 (Jal Vikas Marg) project contributes to the three themes in CPS 2013-2017: integration, transformation and inclusion. The project will integrate northern and eastern India’s industries and regions with the rest of the country through better transport connectivity and freight logistics, and help extend economic development to the relatively poorer states of Uttar Pradesh, Bihar, Jharkhand and West Bengal. It will be transformational for several reasons: (i) reducing greenhouse gas emissions and improving safety in the transport sector by balancing the transport metrics; (ii) promoting the use of inland water transport as a viable complementary mode of transportation to the rail or road network; (iii)

strengthening the institutional capacity of the sector; (iv) potential of evolving as a development corridor by unlocking the economic potential of rural hinterlands of northern and eastern India. In terms of inclusiveness it will provide communities with better access to employment opportunities, health, education and other social services.

II. Proposed Development Objective(s)

Proposed Development Objective(s) (From PCN)

The PDO for the project is to enhance the transport capacity and reliability of National waterway 1 and augment institutional capacity for the development and management of India's inland waterway transport system.

Key Results (From PCN)

The project seeks to achieve the following key results: (i) increase in freight-volume on NW1 (in tonne kilometers); (ii) increase in volume of traffic using multimodal/intermodal transport; and (iii) reduction in cost and time of cargo traffic transported by inland water transport.

Key intermediate indicators include: (i) Length of channel maintained to desired least available depth; (ii) Improvement in last mile connectivity to IWT network; (iii) Improvement and construction of cargo terminals and logistics parks: (iv) Introduction of clear management structure and adoption of IWT strategy; (v) Number of locks rehabilitated; (vi) Reduction in backlog maintenance ; (vii) Installation of critical navigational aids

III. Preliminary Description

Concept Description

Based on current estimates, it is estimated that the total project cost for the Haldia-Varanasi stretch could be about USD 600 million. Once the feasibility and preliminary detailed engineering studies are undertaken, it would be possible to arrive at a more accurate estimation.

The project envisages two components, namely: (i) Improving the Navigability of NW-1 (Haldia to Varanasi) at an estimated cost of USD 565 million; and (ii) Market Development and Institutional Strengthening at an estimated cost of USD 30 million. The description and sub-components/ elements of the components are given below.

Component 1: Improving the Navigability of NW-1 (Haldia to Varanasi) (Estimated Cost US$ 565 million): This component would be divided into the following sub-components:

i. River Works (including implementation of EMPs and RAP, as required)

a) Preparation and Technical Assistance (Estimated Cost US$ 10 million)

i) Upfront Surveys, including digital terrain modeling (using airborne LiDAR) for environmental and flood monitoring, land-use mapping and engineering design purposes;

ii) Feasibility Studies, Options Analysis and Front-End Engineering and Design for river navigability improvement works;

iii) Environmental Studies.

b) Improvement of River Fairways (Estimated Total Cost US$ 400 million) – while the majority of these works will depend upon the outcomes of the detailed assessments, possible early investment could include the backlog maintenance and upgrading works at the existing Farakka Ship Lock.

ii. Terminal and Immediate Access Works (Estimated Cost US$ 155 million) (including

implementation of EMPs and RAP, as required)

a) Preparation Works (Estimated Cost US$ 5 million)

i) Options Analysis and Detailed Design;

b) Terminal and Access Infrastructure Works (Estimated Cost US$ 150 million) – this will include possible investments in ferry crossings and roll-in-roll-off crossings, as well as in common user terminals at major centers e.g. Varanasi, Haldia and Sahibgunj with the potential of evolving as market clusters. The location, layout and equipping of the IWT terminals would depend on the outcome of the detailed feasibility and preliminary design and the business and market development studies.

Component 2: Market Development and Institutional Strengthening (Estimated Cost US$ 30 million): This component would be divided into the following sub-components:

i. Market Development

a) Undertaking Market Development Studies and Preparation of Business Cases (by location, industry and cargo type);

b) Undertaking public/private stakeholder consultations to encourage investment in modern shipping technology through review of fiscal and other barriers hindering ship construction and operation;

c) Investigating arrangements for private sector participation in the construction and operation of terminals.

ii. Institutional Strengthening

a) Undertaking a review of current IWAI staffing, future institutional options and enhanced staffing/skill needs including on areas such as health, safety and environmental (HSE) management;

b) Undertaking a review of Government and State roles and responsibilities in respect to River Conservancy, Environmental Management and Trade;

c) Undertaking review and alignment of laws and regulations in respect to IWT vessel design, construction, manning, operation, maintenance, insurance and multi-modal transport;

d) Exploring the option of developing a Research and Development Unit/Center for IWAI and Enhancement of Training institutions (NINI);

e) Developing a robust communication engagement strategy for the project (that encompasses beneficiary surveys), for enabling stakeholder involvement and outreach.

f) Providing facilities for Search and Rescue;

g) Providing facil ities to respond distress or casualty incidents;

h) Upgrading vessel and river monitoring arrangements; and

i) Improving the availability of aids to navigation.

Social and Environmental Safeguards Management: This project could face some significant environmental issues including: (i) possible modifications to the riverbed, riverbanks and the flood plains; (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 disposal of dredged materials if any; siting of terminals, logistics parks, bank protection works and jetties; and (v) potential pollution of the waterway and safety and health issues arising during operation from regular operations or by accidental spills. However, it is worth noting that a well-designed and implemented project would have a good potential to complement the government's "Clean Ganga" program. Potential social impacts include issues relating to land acquisition (in keeping with the Land Acquisition and Resettlement

and Rehabilitation Act 2013), potential adverse impacts on livelihoods, and passenger movement to islands inhabited by communities. The finalisations of detailed technical designs will be done only after taking into account possible environmental and social impacts.

The environmental and social issues identified will be mitigated through detailed social and environmental impact assessments, public consultations, preparation of cumulative impact assessment (CIA), environmental management plans (EMPs), resettlement action plans (RAP), and augmentation of IWAI's internal capacity to address these risks. The Bank team is also working closely with PMU to develop a capacity building strategy including on mitigating and managing social and environmental impacts.

IV. Safeguard Policies that might apply

Safeguard Policies Triggered by the Project	Yes	No	TBD
Environmental Assessment OP/BP 4.01	×		
Natural Habitats OP/BP 4.04	×		
Forests OP/BP 4.36		×	
Pest Management OP 4.09		×	
Physical Cultural Resources OP/BP 4.11	×		
Indigenous Peoples OP/BP 4.10	×		
Involuntary Resettlement OP/BP 4.12	×		
Safety of Dams OP/BP 4.37			×
Projects on International Waterways OP/BP 7.50	×		
Projects in Disputed Areas OP/BP 7.60		×	

V. Financing (in USD Million)

Total Project Cost:	600.00	Total Bank Financing:	200.00
Financing Gap:	0.00		

Financing Source	Amount
Borrower	400.00
International Bank for Reconstruction and Development	200.00
Total	600.00

VI. Contact point

World Bank

Contact: Arnab Bandyopadhyay
Title: Sr Transport. Engr.
Tel: 5785+47768
Email: abandyopadhyay@worldbank.org

Contact: Charles Kunaka
Title: Senior Trade Specialist
Tel: 473-3018

Email: ckunaka@worldbank.org

Borrower/Client/Recipient

Name: Department of Economic Affairs, Government of India
Contact: Bhaskar Dasgupta
Title: Director
Tel: 91-11-23092883
Email: bhaskar.dasgupta@nic.in

Implementing Agencies

Name: Inland Waterways Authority of India
Contact: Pravir Pandey
Title: Project Director
Tel: 91-120-2544004
Email: mf@iwai.gov.in

VII. For more information contact:

The InfoShop
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 458-4500
Fax: (202) 522-1500
Web: http://www.worldbank.org/infoshop

Public Disclosure Copy