



KRS Infra Ventures Pvt. Ltd.



KNOWLEDGE PAPER

Inland Waterways

Opportunities



From
Director's Desk

Dear Friends,

Indian vision on Waterway Transportation for domestic trading has huge opportunities, Government of India desperate to expand this Green Transport System asap.

Yes, this investment is long term but feasibility is ensured by Government.

Contractors & Operators worldwide invited to work in viable Business Venture.

Please keep in touch to develop business opportunities together.

Regards

Keshav Gandhi
Executive Director,
KRS Infra Ventures Private Limited

Introduction

Indian Government working on to develop the cheaper and greener mode of transportation. Goods still travel by congested road and rail networks, slowing the movement of cargo, adding to



uncertainties, and increasing the costs of trade. So much so that logistics costs in India are estimated to account for as much as 18 percent of the country's GDP.

The Government of India is actively working to develop inland waterways as an alternative mode of transport in the country, for which they have designated 111 National Waterways (including 5 existing and 106 new)



in the country with 20275 Kms Waterways covering 24 States in India, which comprise of rivers, canals, backwaters, creeks, etc. About 55 million tons of cargo is already being moved annually by Inland Water Transport (IWT), economical viable and environment Friendly. These waterways are being developed to make them operational/ navigable and usable for transportation.

The Maritime India Vision-2030, a 10-year blueprint with the aim of overhauling the Indian maritime sector, envisages Rs 3 lakh crore investment in port projects, shipping, and inland waterways categories that in turn promises to generate employment for 20 lakh persons.



The country's maritime sector plays a crucial role in its overall trade and growth, with 95 per cent of the country's trade volume and 65 per cent of the trade value being undertaken through maritime transport

Until about a hundred years ago, the Ganga river, too, was a busy waterway. But with the coming of the railways, this watercourse fell into disuse. The Government of India is now reviving the Ganga waterways known as National Waterway-1 (NW1) to ferry cargo from the eastern seaport of Haldia to Varanasi, some 1,360 km inland Waterways. The Jal



Marg Vikas Project (JMVP) for capacity augmentation of navigation on NW-1, which is being implemented at a cost of Rs 5369.18 crore with the technical assistance and investment support of the World Bank. The Project is expected to be completed by March 2023. The waterway has the potential to emerge as the leading logistics artery for northern India.

The waterway's stretch between Kolkata and Delhi passes through one of India's most densely populated areas. A sizeable 40 percent of all India's traded goods either originate from this resource-rich region or are destined for its teeming markets. While the region is estimated to generate about 370 million tonnes of freight annually, only a tiny fraction of this i.e. only five million tonnes - currently travels by water.

Currently, cargo from the Gangetic states of Bihar and Uttar Pradesh takes circuitous land routes to reach the sea ports of Mumbai in Maharashtra and Kandla in Gujarat, rather than going to the much-closer port at Kolkata. The development of NW1 will help these states direct some of their freight to the Kolkata-Haldia complex, making the movement of freight more reliable and reducing logistics costs significantly.

The World Bank is financing the development of the Ganga waterway with a loan of \$ 375 million. The

Capacity Augmentation of National Waterway 1 Project will help put in place the infrastructure and services needed to ensure that NW1 emerges as an efficient transport artery in this important economic region.

Once operational, the waterway will form part of the larger multi-modal transport network being planned along the river. It will link up with the Eastern Dedicated Rail Freight Corridor, as well as with the area's existing network of highways. This web of water, road and rail arteries will help the region's industries and manufacturing units switch seamlessly between different modes of transport as they send their goods to markets in India and abroad. Farmers in the agriculturally-rich Gangetic plain will also benefit, as the waterway opens up markets further afield.

Based on the outcome of techno-economic feasibility and Detailed Project Reports (DPRs) of NWs, 25 NWs have been found viable by Inland Waterways Authority of India (IWAI) for cargo / passenger movement. The list of the 25 NWs is given in **Annexure-A** to this document. Developmental activities have been initiated in 13 NWs. Rest Waterways will soon get action plan ready. These National Waterways offer various investment opportunities for transport companies.

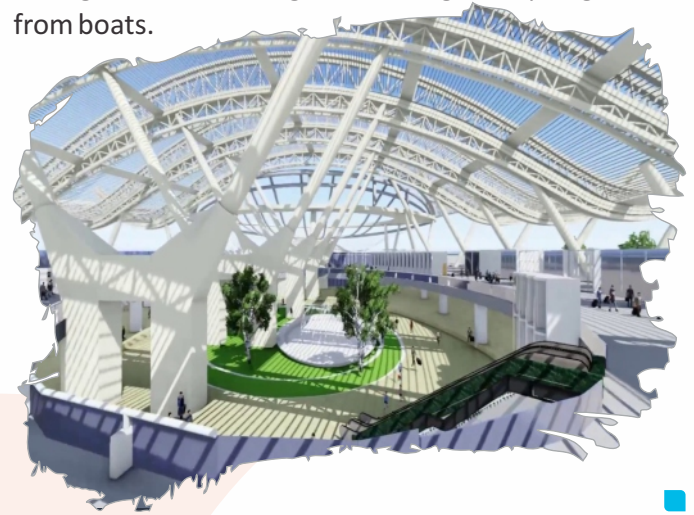


Setting up Navigational Infrastructure

Since the absence of essential infrastructure such as cargo terminals and jetties has been one of the reasons for the slow development of water transport in the region, the Project will help establish six multi-modal freight terminals-at Varanasi, Ghazipur, Kalughat, Sahibgunj, Triveni and Haldia. In addition, five new Roll On-Roll Off (RO-RO) crossings at different locations will help trucks and other vehicles transfer from road to river and vice versa. The six new cargo terminals have the potential to evolve into thriving logistics hubs, providing jobs for thousands of people in one of the poorest and most populous parts of the country. The Project will also help set up a vessel repair and maintenance facility at Doriganj.

Furthermore, the Project will help set up a state-of-the-art River Information System (RIS). Among its many benefits, the RIS will enable barge-operators and cargo-owners to track their vessels, locate berths in advance

in terminals and better plan their logistics. To make navigation safe both day and night, the Project will help mark out the central channel for boats to ply in and install night navigation facilities. Besides, detailed protocols are being laid down for dealing with emergencies, including for tackling the spillage of oil from boats.



Water Transport will become New Highways in INDIA

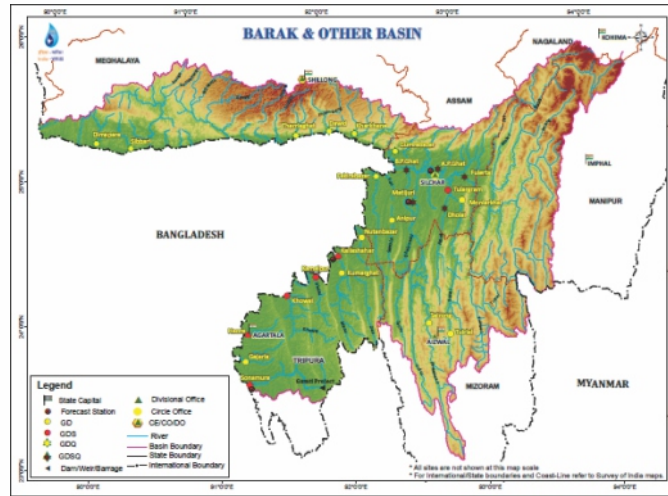
Transportation has always played an important role in a country's development. India, given its diverse topography, enjoys a plethora of transportation options to choose from. Inland waterway transport is one of the options, the least developed so far.

Government of India discussed this subject in various forum as well with global experts in last few years. China conducts 47% of its trade through waterways, while Europe conducts 40% and our neighbour Bangladesh conducts 35%. India carries out a minuscule 5.0% of its trade through waterways. Due to lack of infrastructure in water ways, this become priority of Government and IWAI looking for investment in waterways infrastructure to make as a preferred mode of transport.

The National Waterways Act mandates the central government to regulate waterways for the systematic and orderly development of shipping and navigation. India has nearly 20,000 KMs of navigable waterways spread across the eastern, western, southern, and central regions of the country. These waterways can be used to move passengers and cargo within India and to neighbouring countries. Transport by inland waterways is cost-effective, environment-friendly, and can work to supplement congested road and rail networks. The cost of developing waterways is much lower than the cost of developing railways or roads. Also, one litre of fuel moves 105 tonnes on inland water transport, thereby reducing carbon dioxide emission by 50%, as compared to that of trucks. These will enhance supply chain management needed for India to become a global manufacturing hub.

Network of Rivers

It is estimated that the North Eastern Region has about 1,800 KMs of river routes that can be used by steamers and large country boats. The inland water transport departments of both the state and central governments have been trying to improve the water transport system in the region. The Brahmaputra now has several small river ports. In addition, there are more than thirty pairs of ferry ghats (crossing points) on the Brahmaputra, transporting both passengers and cargo. The Barak also has small ports at Karimganj, Badarpur, and Silchar and ferry services at several places across it.



In Arunachal Pradesh the rivers Lohit, Subansiri, Burhi Dihing, Noa Dihing, and Tirap are used for navigation by small country boats in those stretches where there are no rapids. The rivers Dhaleshwari, Sonai, Tuilianpui, and Chintuipui in Mizoram are also used for navigation with small country boats in convenient stretches. Similarly, in Manipur, the Manipur River, along with its three main tributaries, the Iril, Imphal, and Thoubal, is used for transporting small quantities of merchandise by country boats.

Potential for Cargo

The largest expected cargo movements in the North Eastern Region shall arise from the ambitious power projects being implemented by various private sector companies along with the National Hydroelectric Power Corporation Ltd (NHPC), North Eastern Electric Power Corporation Ltd. (NEEPCO), National Thermal Power Corporation (NTPC) on various tributaries of the Brahmaputra particularly in Arunachal Pradesh. These developments are expected to generate cargo movements of about 50 - 100 million metric tons over a period of 20 years. (2.5 - 5.0 million metric tons per year). Accordingly, the infrastructure requirements for the same will be enormous in size. IWT can play the most complementary role in catering to the needs of such large requirements.

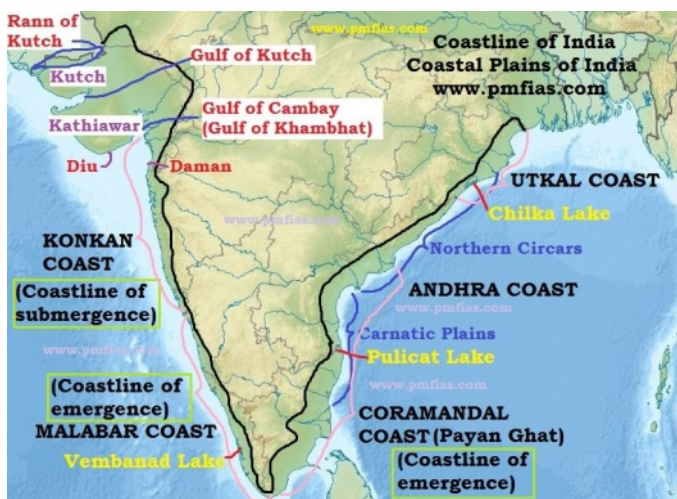
Other identified cargo movements include coal from Meghalaya, fly ash from Farakka to various destinations

in the Northeast, limestone for cement plants, petroleum products from Numaligarh refinery, bitumen from Haldia, and food grains from Kolkata to various destinations in the Northeast for the Food Corporation of India Ltd. (FCI).



Western Coastline

Given the availability of rich minerals and resources, the west coast districts are suitable for the development of the extractive industry. With the growth potential of these industries, there is a



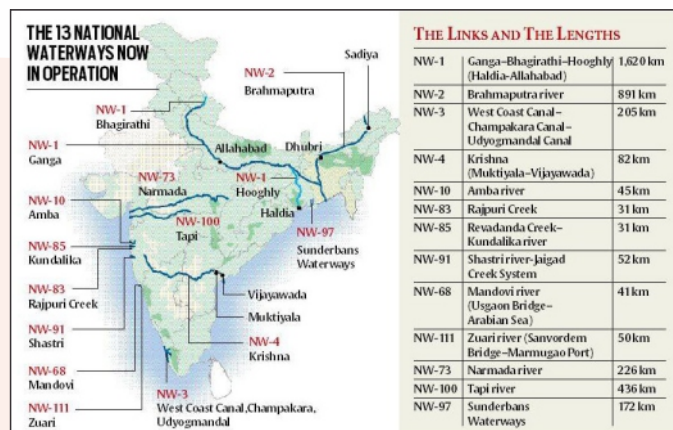
huge potential for the growth of coastal and inland waterways. Inland waterways are now the focus of the Maharashtra Maritime Board.

New water transport projects that have been initiated include the Coastal Road Project, the Mumbai Trans Harbour Link, the RoRo services for Alibaug, the Thane-Borivali creek connection, the Thane coastal road, and the Thane-Navi Mumbai intracity water services. All

these projects are going to benefit industry and the city's infrastructural development in the long run.

The Coastal Road Project will not only solve present problems of commuting in Mumbai but will ensure that the city is "future-ready" for economic growth. We can see the advantage that infrastructure projects create for real estate development. There is no doubt waterway transport will have a similar positive impact.

The 22-kilometer bridge connecting Sewri in Mumbai and Nhava Sheva port in Navi-Mumbai will be a game changer. Connecting two twin cities will show growth in commercial as well as residential real estate also.



The same way, NE region has about 1800km of river routes that can be used by streamers and large country boats. The inland water transport departments of both the state and central Government's have been trying to improve the water transport system in the region. The river Brahmaputra has several small river ports (terminals) like Sadiya, Dibrugarh, Disangmukh, Neamati, Tezpur, Pandu-Guwahati, Jogighopa and Dhubri. There are more than thirty pairs of ferry-ghats on river Brahmaputra used for transporting passengers and material besides the above river terminals. The river Barak has also small ports at Karimganj and Badarpur along with ferry services at several places.



Besides, the major tributaries of river Brahmaputra namely Lohit, Dhansiri, and Subansiri, rivers of Tripura namely Gumti and Haora, Tizu river in Nagaland, Kaladan river in Mizoram etc., being explored for navigation potential and for development for better utilization of both cargo and passenger transportation.



Terminal development, Navigational Systems as well Operation Management offer opportunities to Global as well as Local Players to become part of Growth Story of Indian Inland Waterways Development.

Recently, the International Finance Corporation (IFC) is providing transaction advisory service for PPPs in inland waterways projects. It

In North East Region there are 20 National Waterways including Brahmaputra. The 19 New National Waterways of North East Region were declared as National waterways. Various Infrastructure need like

is also investing in creating warehousing facilities in connecting waterways with industrial corridors. These are:

Sr No	NW	Stretch	Length
1	1	River Ganga Haldia to Allahabad	1620 km
2	2	River Brahmaputra from Dhubri to Sadiya	891 km
3	3	West Coast Canal from Kottapuram to Kollam with Udyogamandal & Champakara canal	205 km
4	4	Kakkinada-Puducherry stretch of canalswith river Godavari & Krishna	1078 km
5	5	Kakkinada-Puducherry stretch of canalswith river Godavari & Krishna	588 km

Passenger movement has increased all along the rivers and also on the coast. New ro-ro vessels, ro-pax vessels, mainland-island and inter island vessels and ferry vessels are being ordered all across the country. An ambitious project, Cochin water metro project, is being carried out by Cochin Metro Rail Limited for easy passenger movement



seamlessly between metro rail, water and road in and around Cochin. A minimum of 16 stations on the waterfront have been identified. Through an international tendering process an order for twenty-three 100 pax aluminium catamaran vessels have been ordered on Cochin Shipyard Limited at Cochin. The vessels will have dimensions



24.8m length, 6.4m breadth with 2.0m demi hull width, 1.7m depth with 0.9m draft having a service speed of 8 knots. Slightly smaller 50 pax aluminium catamaran boats are on the anvil for procurement.

Cargo movement is expected to increase substantially with 500 to 5,000 dwt steel self-propelled vessels are being procured for movement in NW 1 to 5 and along the coast. Design know how is available in the country. Modern design tools including CFD analysis of vessel shapes for optimized operation in shallow water have been used for vessel design by IIT Kharagpur as well as by private designers. IWAI has embarked on developing standard designs for NW1 with help of DST, Duisburg and IIT Kharagpur. Propeller design for low draft vessels have also been developed. A series of model tests for surface piercing propellers have been conducted and data is available for design.

Cochin water metro boats will be driven by battery power. There is a large effort to use batteries even for very small powers and effort is also on for augmenting such power with solar energy.

The Government of India is funding the

waterways projects through budgetary allocations and extra budgetary resources of Rs 1000 crores through GOI Fully Serviced Bonds was approved by Ministry of Finance.

In addition, it has launched several schemes to promote IWT like vessel building subsidy of 30%, equity participation by government in BOT (Build operate transfer) projects up to 40%, viability gap funding, tax exemption similar to National Highways, enhancement in depreciation rate for inland vessels, joint venture by IWAI and customs duty concessions.

Along with the above initiatives the Government, with a view to promoting public-private-partnership (PPP) in IWT sector, has identified several areas which include:

Construction and operation of river terminals or river ports, Ownership and operation of vessels for cargo and passenger, provision and operation of mechanized cargo-handling systems, fairway development and maintenance, putting up and maintenance of navigational aids and setting up and running of IWT training institution.



ANNEXURE A- IST OF 25 NATIONAL WATERWAYS FOUND FEASIBLE FOR CARGO MOVEMENT

Sl. No.	National Waterway No.	Details of Waterways	STATES	Status
1	National Waterway 1	Ganga-Bhagirathi-Hooghly River System (Haldia - Allahabad)	Uttar Pradesh, Bihar, Jharkhand & West Bengal	Development taken up with Assistance from World Bank Jal Marg Vikas Project
2	National Waterway 2	Brahmaputra River (Dhubri - Sadiya)	Assam	Development taken up as per approved SFC for FY 20-21 to 2024-25
3	National Waterway 16	Barak River	Assam	
4	National Waterway 3	West Coast Canal (Kottapuram - Kollam), Champakara and dyogmandal Canals	Kerala	Mostly Operational Waterways and development and maintenance work taken up.
5	National Waterway 4	Krishna River (Vijayawada – Muktyala)	Andhra Pradesh	
6	National Waterway 5	Dhamra-Paradio via Mangalagadi to Pankopal	Odisha	
7	National Waterway 8	Alappuzha- Changanassery Canal	Kerala	
8	National Waterway 9	Alappuzha-Kottayam – Athirampuzha Canal	Kerala Alternate route: 11.5km	
9	National Waterway 27	Cumberjua River	Goa	
10	National Waterway 68	Mandovi River	Goa	
11	National Waterway 86	Rupnarayan River	West Bengal	
12	National Waterway 97	Sunderbans Waterway	West Bengal	

ANNEXURE A- IST OF 25 NATIONAL WATERWAYS FOUND FEASIBLE FOR CARGO MOVEMENT

Sl. No.	National Waterway No.	Details of Waterways	STATES	Status	
13	National Waterway 111	Zuari River	Goa	Projects at appraisal stage	
14	National Waterway 10	Amba River	Maharashtra		
15	National Waterway 40	Ghagra River	Bihar		
16	National Waterway 44	Ichamati River	West Bengal		
17	National Waterway 52	Kali River	Karnataka		
18	National Waterway 57	Kopili River	Assam		
19	National Waterway 25	Chapora River	Goa		
20	National Waterway 37	Gandak River	Bihar		
21	National Waterway 28	Dabhol Creek Vasisti River	Maharashtra		Substantial cargo moves in tidal waters/ river mouth under respective State maritime board. No interventions are contemplated by IWAI as of now.
22	National Waterway 73	Narmada River	Maharashtra & Gujarat		
23	National Waterway 85	Revadanda Creek - Kundalika River System	Maharashtra		
24	National Waterway 94	Sone River	Bihar		
25	National Waterway 100	Tapi River	Maharashtra & Gujarat		



KRS MARKETING Partnership Proposal

Marketing Requirements

Handling business opportunities in India require various steps and KRS Marketing Partnership will help you to understand the practice and management to work in India. Considering the promotion before official participation in business, few steps like promotion, introducing own product range to manage the requirement development accept our standard products or services, advance preparation of participation in Indian Opportunities, management of local vendor team, if required for joint participation, handling tenders, offers, negotiations, contract management support etc., the list is ongoing and KRS Infra Ventures Pvt. Limited ensure that our experience being in this trade from last three decades offer you wider experience base in INDIA.

Marketing Proposal

The KRS Group herewith introduce KRS Infra Ventures Pvt. Limited herewith offers the marketing partnership to your organization to promote you and yours associates interest in Indian Infrastructure Sector with following ways:

- ▶ Informing Business Opportunities in India for business scope of your organization.
- ▶ Promoting your organization with introducing and presenting details to various clients in Government and

Private Sector and follow-up for acquisition formalities (tendering process, finalization of business, all assistance during implementation & after sales etc.)

- ▶ Informing the current scenario of market in view of Government Policies, Procurements plans etc.
- ▶ Advising the strategies required during promotion for successful business opportunities .

The partnership terms will require discussions to finalize, which will be second step after receiving your principal approval and suggest you to work on following options for understanding:

- ▶ Marketing Partnership Joint Venture-which means “KRS Infra Ventures” will be offering all Marketing support in India and your organization handle the technical & commercial need of the projects targeted and rest terms & conditions of arrangement will decided after in principal approval of partnership.
- ▶ Exclusive Agent in INDIA-KRS will be offered exclusive Agency Agreement for 3 years minimum to develop and managing business opportunities for your organization and terms & conditions of this agreement will be discuss after principal approval of working.



KRS Infra Ventures Private Limited

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