Promoting Inland Waterways: Prospects and Challenges
PROMOTING INLAND WATERWAYS: PROSPECTS AND CHALLENGES

A Unnayan Shamannay White Paper

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This document has been prepared by Unnayan Shamannay. Taking inspiration from connectivity related studies conducted by Unnayan Shamannay in recent years. This White Paper has been produced to provide a comprehensive situational analysis and present a set of recommendations for the IWT sector of Bangladesh.
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Is Bangladesh Utilizing The True Potential Of Inland Waterways?

Rethinking Inland Waterways

Bangladesh, being a riverine delta, boasts 5,968 kms of navigable waterway. Despite the fact that most of the urban centres and industrial belts being located close to the river networks, Bangladesh has not yet been able to fully utilize the massive potential of waterways.

Water transport sub-sector’s contribution to GDP (at constant price) down to 0.67 percent in 2019-20 while it was more than 1 percent in 2005-06. Again, water transport sub-sector constant average growth rate (CAGR) in the last decade was only 3.4 percent whereas the land transport sub-sector’s CAGR was 6.5 percent (calculated based on BBS statistics, 2020). Moreover, the trend has been present for quite some time now, cargo transport share of waterways has been estimated to have come down to around 16 percent in the last decade from nearly 70 percent in the past (World Bank. 2007). For comparison, Netherlands, which is considered the global leader in terms of Inland Waterways Transport (IWT), transports 43.2 percent (313 million tons) of its cargo through its 6,000-km IWT network.

Bangladesh Inland Waterways Transport Authority (BIWTA) classifies waterways into four categories based on the depth of the waterway. The class-I route connecting Chattogram with Narayanganj is most important IWT corridor of Bangladesh. It has guaranteed LAD (Least Available Draft) of 3.6 metre all year round. Mongla-Narayanganj IWT route is another important corridor which holds special significance as sizeable quantity of inter-country cargo are traded through this route utilising the PIWT&TT agreement. International transit also utilizes this class-I route. In the north-west of the country, Narayanganj-Sirajganj-Chilmar is another important IWT corridor of the country. It used to be one of the most widely used IWT corridors of Bangladesh prior to the construction of Bangabandhu Bridge over Jamuna River.

Share of water transport sub-sectors contribution fell to 0.67 percent in 2019-20 even though it was more than 1 percent in 2005-06.

Share of cargo transport via waterways came down to 16 percent which was once 70 percent in the past.
Baghabari River Port in Sirajganj is an important point of this route as it is used as a commodities, fuel and fertilizer distribution centre for the northern part of the country.

Connecting the north-eastern part of Bangladesh with the commercial hub of the central part, Narayanganj-Chatak route is an immensely important IWT corridor. According to BWTA data, this route alone accounted for 41 percent of total IWT trade by volume. The route is classified as Class-I up to Ashuganj, the depth decreases thereafter to 2.1 -1.5 m levels.

**Inland Waterways Trade Scenario**

IWT trade can be broadly categorized into two sectors namely domestic and international trade. Domestic IWT-based trade is concerned with transporting cargo from one location to another inside Bangladesh while International IWT-based trade is currently limited to trade with only India. Protocol on Inland Water Transit and Transport (PIWT&T) allows Bangladesh and India to facilitate waterborne transport transiting between the two countries.

PIWT&T defines the ports of call for IWT and specifies that inter-country cargo transit of cargo have to be shared between (operators of) the two countries on an equal tonnage basis. PIWT&T essentially joins India’s National Waterways 1 (Ganges) to National Waterways 2 (Brahmaputra) and National Waterways 16 (Barak). The protocol allows for a great opportunity to integrate the transport networks of Bangladesh and India. PIWT&T was further strengthened by the implementation of Coastal Shipping Agreement between Bangladesh and India.

In Bangladesh, currently 30 river ports are operational for cargo and passenger movements. On the basis of cargo transportation, the Chatak and Sunamganj River Ports account for 28 percent total tonnage of movement (mostly domestic) in the different IW routes. Apart from that, cargo transport through IWT in Dhaka, Narayanganj, Ashuganj-Bhairab totals to around 24 percent of the total IWT trade. In 2019-20, total cargo movement reached 60 million MT while it was about 56 million MT in 2018-19. In the last decade, IWT cargo transportation increased by 4.26 times. Interestingly, in comparison to 2017-18, cargo transportation through IWT increased by 2.60 times in 2019-20. Thus, it can be concluded that the utilization of IWT in comparison to roadways is increasing. However, cargo movements via IWT have not been increasing as expected due to high dependency on the roadway-based connectivity.
Historical Context

Historically, IWT has been the dominant mode of transport in Bengal. Both personal and commercial transport were centered on inland waterways. During the Mughal period, riverine traffic was the major mode of transportation in the Indian subcontinent and especially Bengal. In addition, there are evidence of trade between Agra and Bengal during that period. In the British era, Kolkata was an important port for East India company for loading and unloading goods and transporting them to different parts of Bengal. The external pressure, mutiny and many other factors directed the British government to invest in and develop railways and roads. This led to the abandonment of waterways for trade purposes. Some natural causes such as diversion of river channels due to earthquake or siltation acted as triggers in the abandonment of riverine trade routes as well.

Moreover, due to the permanent shifting of channels of Brahmaputra River because of the great earthquake of 1897, a lot of the river routes of the Northern Bangladesh started suffering from lack of navigable depth. While, on the other hand economies of scale was promoting the adoption of much larger vessels (1200-1200 ton DWT) which required much higher LAD. This marked the start of steady decline of IWT sector of Bangladesh.

After the partition of 1947, the nature of inland water navigation in Bengal changed drastically. Rail and road links connecting Assam and the other north-eastern states to the Indian mainland became a priority for the new nation of India, to ensure communication. Moreover, drainage congestion at the confluence of the river Hooghly with the Bay of Bengal, a long-pending issue in undivided India, remained unresolved.

The Farakka barrage was constructed in the 1970s. Prior to its construction, the line of navigation from Rest of India to North-East India went through the rivers Ganga, Padma and Jamuna, linking the river Brahmaputra at Dhubri. This route was also utilized by vessels plying between Kolkata and Assam, a major IWT route of British India.

The role of Jute in IWT

Historically, the vitality of inland waterways in Bengal was directly correlated with the Jute production and distribution. The fertile riverine Bengal delta was famous for the exceptional quality of Jute fibre. Narayanganj played the role of regional collection point of Jute for Bangladesh. Jute from all over Bangladesh was collected at different local collection points and eventually was sent to Narayanganj. According to Jute merchants, majority of the Jute produce was transported via waterways during the distribution. Thus, Jute transportation provided a consistent revenue generation opportunity for IWT logistics providers. This trade also helped in keeping operational many river routes which have since been abandoned with the steady decline in Jute production.
Challenges faced by Bangladesh's IWT Sector

Bangladesh faces a multitude of challenges in regards to IWT sector due to years of under-prioritization during policy formulation. The issues range from the absence of a comprehensive integrated IWT masterplan to even personnel training. Due to the immensity of the challenges and opportunities to improve the transport services provided by IWT sector, this paper provides a brief situational analysis of the challenges faced by IWT sector of Bangladesh.

Navigability is the biggest challenge faced by the IWT sector of Bangladesh. Bangladesh Inland Water Transport Authority (BIWTA) is mandated with the responsibility to maintain and develop the inland waterways of Bangladesh. As per its operational responsibility, BIWTA works to ensure that real depth of rivers reflect the advertised depth of the riverways as per classification. Unfortunately, due to budget constraints, BIWTA was under-equipped in terms river dredging equipment to ensure seamless IWT transport. But the situation is set to witness drastic improvement due to a renewed focus from GoB on dredging and dredger procurement in recent years. According to a study by Unnayan Shamannay, a total of BDT 3,060 crore was allocated on dredger procurement in the ten years between FY 2010-11 to FY 2019-20.

Inadequate infrastructure at river ports has been another issue plaguing Bangladesh’s IWT sector. Apart from Pangaon ICT, no river port of Bangladesh possesses the modern infrastructure required to handle a huge amount of cargo efficiently. Aging landing stations, overused pontoons, lack of mechanized transhipment facilities and lack of automated inspection and tariff collection facilities are hindering wider adaption of IWT by businesses and logistics providers.

Lack of capability to handle containerized cargo is another major challenge for IWT sector. Apart from Pangaon ICT and Summit Alliance Port Limited, Muktapur, none of the river ports of Bangladesh have the capacity to handle containerized cargo. Moreover, in case of most of the river ports, warehouse facility is not provided by port authorities. In order to cater to the demand of storage, private entities have set up warehouses in the vicinity charging exorbitant fees for storage making waterways a less lucrative option for businesses.

Bridge clearance is another major challenge faced by the IWT sector of Bangladesh. Due to low bridge clearance, navigability is severely hurt during the monsoon season. This problem is most acute in Ashuganj River Port.

Road network holds a substantial edge over waterways in terms of last mile connectivity. For Bangladesh, the situation is even worse as various bottlenecks exist in most of our river ports thereby precious downtime and cost is incurred during the transhipment and last mile connectivity.
**Disparity of investment between roadways and waterways**

It is widely accepted that waterway has historically remained under-invested due to a policy priority for improving the road network. Lack of investment has meant that the existing waterways were not maintained while new infrastructure projects aimed for improving IWT sector was also deprioritized. As per a study by Unnayan Shamannay looking at the development allocations for both road network and IWT during the period between FY 2010-11 to FY 2019-20, it was found that BDT 104161 crore was allocated for road development and maintenance while BDT 13084 crore was allocated for IWT. Thus, it can be observed that the amount invested in roadways development is nearly 8 times of that of waterways. Waterways received 11 percent of the total investment in road and IWT sector combined.

The difference in the amount of investment provides a clear picture of the place each sub-sector possesses in the policy priority. This chronic lack of investment came to light in the first decade of the 21st century when public attention was brought to the increasingly desperate situation of the water transport both freight and passenger. In the last decade, GoB embarked on a journey of focusing on connectivity infrastructure and major investments were made to modernize road network. Finally, policy focus returned to waterways with calls to revive the IWT sector. PIWT&T between Bangladesh and India has acted as a catalyst to shift the focus back on IWT and the huge potential of this sector which could not yet be achieved due to chronic lack of investment.

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**Waterways received 11% of the combined investment for both roads and IWT**

*Calculated from Annual Development Program (ADP) of Various Years (2010-11 to 2019-20)
CHALLENGES FACING IWT

Challenges faced by Bangladesh’s IWT sector are multidimensional. Here a compilation of the challenges has been presented in brief.

**LACK OF DEPTH**

The single biggest issue facing Bangladesh’s IWT sector is the navigability crisis of major river routes. Apart from Meghna River Basin, all the rivers of Bangladesh suffer from lack of navigable depth in dry season.

**Bridge Clearance**

Low bridges have become a huge issue for IWT sector of Bangladesh. Ashuganj River Port suffers the most from this problem due to the Meghna Bridge at Bhairab.

**Inadequate Port Infrastructure**

All of the river ports of Bangladesh apart from ICT Pangaon has been reported to not have adequate infrastructure by stakeholders.

**Manual Transshipment**

None of river ports of Bangladesh, apart from Pangaon ICT, has mechanized transshipment facilities thereby greatly increasing transport cost.

**Lack of Cold-storage and Warehouse**

Stakeholders have complained about lack of warehouses and cold storage in river ports. Due to the absence of cold storage, perishable products cannot be transported via IWT.

**LAST MILE CONNECTIVITY**

Waterways cannot provide last-mile connectivity if the point of delivery doesn’t have its own landing station. This issue has globally been one of the biggest challenge for IWT.
Opportunity to Reduce Pressure on Roadways

Congestion reduction potential

Waterways have been the preferred mode of cargo transportation due to its unique feature of permitting the transportation of large volumes of cargo in one shipment along with its cost saving benefits. For example, Bashundhara Group owns and operates a cement factory in Mongla and they import around 15 shiploads of fly ash from Haldia every month with each ship containing approximately 850 tons of fly ash. To transport 850 tons of fly ash, 56 trucks would be required. In a month, they would require 840 trucks loaded with fly ash. Considering the fact that the figure represents the transport requirements of just one factory, the traffic diversion and congestion reduction potential of waterways is beyond the scope of imagination.

Moreover, due to extreme congestion in the land-based international crossing points, Bangladesh Land Port Authority (BLPA) and National Borad of Revenue (NBR) are facing a tremendous challenge in order to minimize the lead time to facilitate the export and import process. But trade facilitation not only depends on the well-experienced soft infrastructure but also better physical infrastructure (like road network, warehouse, truck parking areas, other storage facilities etc.). As per calculations based on BLPA data, it was found that more than 60% import cargoes used the three land ports namely Benapole, Sonamasjid and Burimari. Thus, it is evident that pressure on the three land ports which connect Bangladesh with India and other two BBIN sub regional countries are increasing day by day. But the optimal use of the inland waterways can be a possible solution to this issue. The trade diversion of specific products from the Benapole, Sonamasjid and Burimari Land Ports can reduce the pressure on the land port infrastructure and roadways. For Benapole, the cargo will be diverted through Kolkata-Mongla-Barishal-Narayanganj-Dhaka route. For Sonamasjid, the diverted route will be a mix-modal one via. Dhulian-Maia-Sultanganj-Rajshahi-Dhaka. But the potential to reconnect Ganges to Padma is immense if the proposed navigational lock at Jangipur is constructed. This route will allow Indian industrial heartland of Sahibganj to be connected directly with Bangladesh’s river network.

For Burimari, the possible diverted waterway route will be Jogigopa-Dhubri-Chilmari-Sirajganj-Narayanganj. However, the waterways route will be economically feasible if the selected products are mandated to be transported via waterways.
Alternative Routes for Traffic Diversion

Three busiest and highly congested land ports and their connecting roadways were selected for the simulation. These ports’ cargo traffic can be reduced through utilizing the waterways under PIWT&T routes.

Benapole Land Ports’ traffic can be reduced by diverting some of the bulky products to Kolkata to Mongla to Narayanganj IWT route. In the same way, the traffic from Burimari Land Port can be decreased by using Dhubri-Chilmari-Narayanganj-Chattogram IWT route. In case of Sonamasjid Land Port traffic, Dhuliyan or Maia to Godagari route waterway can temporarily be used and then roadways network for last mile connection is required. But, new protocol route from Rajshahi to Aricha can be a future route for trade.
Above mentioned products selected for each of the land ports can be diverted from roadways to waterways. Except the Dhuliyan to Godagari route, the other two routes are operational. The Kolkata-Mongla-Narayanganj stretch up to Ashuganj can be categorized as a Class-I route with guaranteed minimum draft of 3.5 meters. Hence, the bulk vessels with carrying capacity below 1500 MT can be ply this route. In case of Dhuliyan to Sultangaj to Godagari inland waterway route, the minimum draft during dry season is about 1.5 meter. Bulkheads with carrying capacity below 300-400 MT can be traverse the route. From Sultanganj or Godagari, road network must be used. In case of Dhubri-Chilmari-Sirajganj-Narayanganj Route, the minimum draft is about 2.5 meters. Vessels with carrying capacity of 600/700 MT can easily go through this waterway route.

List of products suitable for transport mode shift

**Benapole**
- **Import**: (1) Iron Products and Raw Materials, (2) Pebbles, Crushed Stones, (3) Cotton, (4) Unwrought Aluminium, (5) Tar distilled from coal, and other mineral tars
- **Export**: (1) Rope, cables and textile materials, (2) Jute yam and jute textile materials, (3) Bran, Oil-cake, and other residues, (4) Plastic and Rubber Materials, (5) Textile Rags, Sacks and Bags for Packaging

**Sonamasjid**
- **Import**: (1) Pebbles, Crushed Stones, (2) Oil-cake and other solid residue, (3) Cereal (Maize, Rice, Wheat)
- **Export**: (1) Jute yam and jute textile materials, (2) Palm oil, Soyabbin oil and its fraction, (3) Rope, cables and textile materials

**Burimari**
- **Import**: (1) Pebbles, Crushed Stones, (2) Oil-cake and other solid residue, (3) Cereal (Maize, Rice, Wheat), (4) Plywood, Veneered Sheet, Panels
- **Export**: (1) Water/Drinks (added sugar, flavoured) (2) Used or new rags, scrap twine, cordage, rope and cables, (3) Cotton waste and other waste (including yarn waste and garnnetted stock)

*List of products are identified based on the land port specific trade data from Bangladesh Bank and Bangladesh Land Port Authority (BLPA). Initially, products are ranked according the trade volume. Then, based on the experience and interviews with different stakeholders, the products are selected. No perishable products were selected considering the time-consuming nature of IWT trade.*
Land Port Congestion Reduction Potential

Reducing the number of trucks per day and percentage of traffic which can be diverted from the selected congested ports

<table>
<thead>
<tr>
<th></th>
<th>205 Trucks</th>
<th>503 Trucks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benapole</td>
<td>290 Trucks</td>
<td>90%</td>
</tr>
<tr>
<td>Sonamasjid</td>
<td>99%</td>
<td></td>
</tr>
<tr>
<td>Burimari</td>
<td></td>
<td>99%</td>
</tr>
</tbody>
</table>

Assumption: Different land ports allow trucks with different weight limit due to issues of bridge capacity and road condition. Sometimes land ports allow trucks with heavy loads, but the road network is not able to handle such weight. Hence, based on the field insight, we assume different level of capacity for the different land ports during the simulation.

Nearly 290 trucks can be rerouted from the Benapole Land Port per day which will reduce 53% traffic of the Benapole Land Port

If the identified products can be diverted with the possible policy level changes or tweaking the different port-specific restrictions. Then, a lot of pressure on the above-mentioned land ports can be reduced. It has been found that about 290 trucks can be rerouted per day from the Benapole Land Port which will reduce 53% traffic from the Benapole land port. In case of Sonamasjid and Burimari, more that 90% traffic can be shifted from roadways to waterways. The number of trucks per day from Sonamasjid and Burimari can be reduced by 205 and 530 respectively. In addition, the pressure on the roadway infrastructure will be reduced. Besides that, the added benefit is that the environmental pollutions from movements of trucks over roads can be reduced to some extent.
It is universally accepted that the transportation cost through waterways is much cheaper than roadways transportation. According to international benchmarks, it is widely accepted that transportation costs in waterways are 1/15th of that of roadways. In the context of Bangladesh, despite the numerous issues plaguing IWT, it is still on average around 50 percent cheaper when compared to road transport cost. If the IWT infrastructure is improved, it will further drive the cost down and make waterways even more competitive.

Transport Cost Comparison

ASHUGANJ-HALDIA ROUTE

BDT 3885 (Truck) vs BDT 1227 (Ship) = 68% SAVINGS

ROWMARI-NARAYANGANJ ROUTE

BDT 1533 (Truck) vs BDT 651.5 (Ship) = 58% SAVINGS

*As per Unnayan Shmannay findings
Transport cost is measured in BDT per ton.
Yangtze River Economic Corridor (China)

Yangtze River is the third longest river of the world and possibly the most important in terms of economic contribution as Yangtze River region accounts for 40 percent of China’s total GDP. Chinese government has identified Yangtze River region as an economic super-zone and has created the Golden Waterway Yangtze River Economic Belt. According to Hong Kong Trade and Development Council, Yangtze River links 11 provinces of China starting from the East China Sea to Sichuan, one of the most industrialized provinces in western China. With its 6,400 kilometers of navigable waterways, Yangtze River Economic Corridor is by far the world’s busiest waterway. Over the course of this river a total of 91 ports are situated with 4 major ports namely Port of Chongqing, Port of Yichang, Port of Wuhan and Port of Shanghai.

Industrialization of Yangtze River Economic Corridor was not a spontaneous economic process, it was born out of political considerations also. It was part of China’s broader aim of better integrating China’s inland provinces. As coastal regions of China develop into mature economic regions and the cost competitiveness of the manufacturing industry is decreasing, China is looking forward to the less developed inland provinces to continue powering it’s growth industrial output.

Thus, Chinese government is further promoting the utilization of Yangtze River Economic Corridor and has taken an initiative which calls for strengthening shipping capacity along the Yangtze River by expanding roadway and railway networks, and building large-scale logistics centers in the economic zone. According to Yangtze River transport corridor plan, known as Golden Waterway, which mainly focuses on upgrading logistics and shipping centers in Shanghai (downstream), Wuhan (middle stream) and Chongqing (upper stream). The plan also aims at improving intermodal container transport along the river, supported by spreading manufacturing lines in the middle and west of the country, as part of the Chinese government’s Go West policy. Yangtze River Economic Corridor project has seen huge amount of infrastructure investment with both river training and river dredging projects in recent past. A dredging project to increase the LAD to 12.5 metres between Nanjing to Shanghai concluded in 2018 effectively opening up the route for vessels carrying upto 50,000 metric tons.
Vietnam has established itself as a role model of development for the developing countries with rapid development since the 1990s. IWT plays an important role in Vietnam’s overall development story as it accounts for 18.1 percent of the freight transport of the country. The IWT sector of Vietnam is dominated by two major rivers of the region namely Mekong River and Red River. Vietnam is a lower riparian nation of Mekong River system. From the Tibetan Plateau the river runs through China, Myanmar, Laos, Thailand, Cambodia, and Vietnam. The three major IWT corridors in the Mekong River Delta are:

- Quảng Ninh – PL – Việt Tri
- QNinh – NB
- Hanoi-LGiang

For Vietnam some strategic points of interest were the focus of investment. Cho Gao Canal is one of them. It is the most critical freight link of the region. With investment from World Bank, Cho Gao Canal was improved and as a result the freight traffic in the Mekong delta region has increased by 3.5 times after 8 years of the project’s completion.

Another strategic investment was made in Can Tho port. The investment provided great returns on investment as the port which handled around 100,000 tons of cargo has increased to around 1.1 million tons after the upgradation project.

All the projects were undertaken with the goal of moving away from the philosophy of natural exploitation to focused investment. More importantly priority was given to improvement of soft skills. The port administration along with inland waterways transport authorities were provided training on cutting edge managerial practices. Investment was made to integrate chain and port operations integration. Thereby improving the operational efficiency of the River Ports. In the dry season, the mean LAD in Mekong River is around 2 meters but navigability issues in Mekong Delta is marked by another important factor namely sand dredging. Due to rampant dredging, a 250-km stretch of the river has become unusually deep with LAD improving from five meters in 2008 to seven meters in 2016.
Netherlands features Europe’s most dense network of inland waterways. It boasts around 6000km of rivers and canals. Many of these canals serve dual purpose namely flood drainage and navigation. The complex network of rivers and canals serve all parts of the country, but with widely varying characteristics, from the tranquil 17th century trekvaarten to the extraordinarily busy Amsterdam-Rhine Canal, completed in 1953. The main commercial waterways (Class IV and higher), with a total length of 2200km, account for about 40% of international freight movements in the Netherlands and 20% of domestic freight.

These river routes are some of the busiest in the world. Thus, one of the key issues in development of Dutch waterways now is the provision of alternative routes and navigation structures for recreational navigation. The busiest locks on the network see more than 50,000 boats passing per year. But Netherlands also faces the issue of over bureaucratization due to a lot of inland waterways transport authorities established to provide the best overall service to both commercial and recreational users. The main network is state-owned and operated by the Rijkswaterstaat, but the smaller waterways, potentially offering attractive routes for recreational boating, are managed by many different provincial authorities or drainage boards, for which navigation is often a low priority.
Promotion of IWT
A Holistic Approach

Revitalizing IWT

Through extensive literature review and on-ground analyses, we can safely conclude that reviving Bangladesh’s waterways require a set of structural reforms along with a constant and steady prioritization at the policy level.

First and foremost, we are required to set a definition and a national guideline as to how we perceive rivers. This step of utmost importance as it will allow us to navigate through the myriad of complexities which arise due to ambiguous classification of such national resources. While attempting to answer the question of how to classify rivers, plethora of suggestions have been made over the years, ranging from natural resource, strategic resource, agricultural resource, transportation and logistical resource and to even in extreme cases rivers are deemed as harbingers of calamity.

Due to the complex nature of river as a resource and strength in the claim of various arguments in the definition of riverways, a traditional method of setting up a static definition would not be the most suitable candidate to encompass the myriad of complexities. Rather, a dynamic and all-encompassing definition of rivers should be set which takes into account the considerations of all the stakeholders, thereby ensuring the formulation of a definition that can accommodate all the considerations.

There are essentially two areas to the revitalization of IWT in Bangladesh namely River Infrastructure and Hinterland Development. The reason behind the proposal of a two-pronged strategy of both facilitating river transport and developing hinterland confirms return on investment of public spending by revitalizing both the mode of trade and hub of trade.

River Infrastructure
River infrastructure can be broadly categorized into two categories namely River Route Infrastructure and Port Infrastructure.

River route infrastructure encompasses a wide range of physical, digital and signaling infrastructures along with the maintenance work carried out to ensure seamless water transport all year around. According to industry stakeholders, Bangladesh would heavily benefit from investing in River Route Infrastructure. This aspect of Bangladesh’s IWT sector deserves the most attention and is the most physically apparent aspect of IWT. River Route Infrastructure includes (River Training) bank protection, canal creation, dykes and levees, locks and dams, capital and maintenance dredging, night navigation buoys, real time channel information, onboard traffic management integration and navigation signaling.

The recommendations to improve the River Route infrastructure of Bangladesh are the most important considerations while formulating the plan to invigorate IWT in Bangladesh. Investment requirement in this sector is huge just like the potential return on investment.

River Training is the most important aspect of River Route Infrastructure in Bangladesh. Historically, River Training in Bangladesh has mostly focused on flood protection and bridge protection due to the nature of the topography and history of calamity. Till date there has been no infrastructure project taken up aimed solely at improving navigability of a river route as they were always planned with multiple objectives of flood protection or flood drainage. GoB has invested on the river course maintenance projects for improving navigation temporarily but did not approach a sustainable manner of developing the river network infrastructure. However, Bangladesh has historically invested heavily in River Bank Protection infrastructure which invariably has had some navigability benefits.
1. Navigability Solution

Focus on river engineering based navigability solutions which provides long-term benefit and move away from unsustainable maintenance dredging investments.

2. Innovative Infrastructure

For Brahmaputra-Teesta-Jamuna River network, emphasizing on navigation channel stabilization, bank stabilization and land reclamation has been proposed by stakeholders. The rationale behind the call for such is integrated river training plan is rooted in volatile nature of this river network. In the dry season, this river network distributes into countless channels with LADs of 1 meters in extreme cases thus deeming that stretch of the river unnavigable. Moreover, any attempt to dredge and maintain navigable depth would require a lot of expense such that it will not make any economic rationale. Thus, Hydrologists and Civil engineers have proposed plans to create a single navigation channel in this river network and construct a stabilized bank throughout the course of the river. This will essentially allow the river to flush down the sediment due to the larger volume and velocity of water in that single channel and stabilized bank. Such innovative and sustainable physical infrastructure solutions should be considered to invigorate this route.

3. Locks And Dams Feasibility Study

Though locks and dams are unsuitable for river networks with high siltation rates, modern lock and dam designs should be considered for feasibility study where the sufficient LAD cannot be maintained despite single channel and bank stabilization solutions.

4. Going Digital

Advanced Real Time Channel Information (ARTCI) technology should be developed and implemented for the river networks of Bangladesh. This technology provides pilots of the vessel with the precise and real time information about the channel thus ensuring smooth and seamless travel in IWT routes by averting the risk of getting stuck in a shoal.

5. Smart Traffic Management

Developing a Digital Onboard Integrated Traffic Management System will provide the real time information of a vessel’s position to the central control network of the river network as well other vessels in the vicinity. Such SMART solutions and data-based integration will allow the vessels to be connected to logistics supply chains and provide advance notification thus reducing the all-important downtime. Moreover, electrical sensor-based network will also be able to provide advance signaling services. This information is crucial in improving the services provided by IWT sector.
**Port Infrastructure**

Port Infrastructure is the other but equally consequential aspect of IWT. A smooth River Route Infrastructure will mean nothing without an equally smooth port infrastructure. Port infrastructure must avoid becoming a bottleneck.

1. Formulation of a priority list of strategically important river ports to upgrade to international standards based on the hinterland connectivity potentials.
2. Making ports able to handle both bulk cargo and containerized cargo.
3. Warehouse infrastructure for bulk cargo needs to be present in every port. Adequate yard space should also be available for container storage. Cold storage needs to be available to facilitate the handling of perishable cargo thus opening up another dimension in regards to the IWT.
4. Implementation of completely mechanized transhipment methods.
5. Develop Digital and Modular Port Management software.
7. Enhancing security services and earning the trust of logistic support providers.
8. Establishing and operating a one-stop service for port users.
9. Drastically reduce clearance procedures and completely automate inspection procedures.
10. Service-centric philosophy development and management training of port operators.
11. Opting for dynamic Public-Private Partnership to improve the services so that the commercial interests don’t overshadow the strategic importance of the IWT which might hinder the long-term prospects of the sector.

This can be achieved by Port-centric Special Economic Zones (SEZ).

Bangladesh has already embarked on this model of development with the sanctioning of Sirajganj SEZ on the bank of Jamuna in Sirajganj. Sirajganj SEZ is set to become the largest private SEZ of Bangladesh. Port-centric SEZ is particularly suitable for fast-tracking the development of Hard-to Reach (HTR) areas. As Bangladesh has been following an export-led growth model, SEZs play and important role to facilitate the domestic and foreign enterprises to set up their operations in Bangladesh and export their products and services. Combining river ports and SEZ essentially takes out the biggest logistic hindrance faced by businesses which provides them with a superlative edge in this highly competitive global market.

Additionally, with the commercial belt of Chattogram witnessing the setting up of ever more industrial units, the demand for labour is also increasing which is driving the cost of labour higher by the day. By implementing the Port Centric SEZ model in the north-western areas of the nation, enterprises will be able to pull off a labour cost arbitrage compared to the more developed areas of coastal south-eastern region.

Finally, as per the aforementioned recommendations of establishment of single navigation channel in the river and bank stabilization activities, it will lead to land reclamation. This reclaimed land can be used to establish SEZs which will reduce the huge burden of land acquiring while establishing any SEZ in Bangladesh.
ENDNOTE

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This document has been prepared by Unnayan Shamannay taking inspiration from connectivity related studies conducted by Unnayan Shamannay in recent years, this White Paper has been produced to provide a comprehensive situational analysis and recommendations for the IWT sector of Bangladesh.
About Us

Unnayan Shamannay (UnSy) is a non-profit and non-governmental research organization. It stands for Research, Policy Advocacy, Development and Cultural Learning. It has been in operation for more than 25 years. Its major strength is participatory research and advocacy.

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A Unnayan Shamannay White Paper

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