



Linking Inland Waterways with Industrial Corridors and Logistic Parks for Economical and Ecological Freight Movement in the BBIN Sub-region



Joining Dots • Connecting People • Shared Prosperity

Syed Monowar Hussain* and Arun Roy**

Historically, waterways were the most preferred mode of transport between West Bengal and East Pakistan. After the emergence of independent Bangladesh, Protocol on Inland Water Transit & Trade (PIWTT) was signed between India and Bangladesh to revive the waterways but a lot of focus was placed on developing roadways and railways hence waterways were left behind due to non-utilisation.

Fortunately, both the governments along with Nepal and Bhutan have decided to enhance transboundary Inland Water Transport (IWT) connections. Several treaties, Memorandum of Understandings (MoUs) and agreements have been signed between the Bangladesh, Bhutan, India, Nepal (BBIN) countries to ensure the revival of IWT. Serious planning and revival of IWT facilities are required for making IWT a vibrant mode of transport to make the BBIN sub-region more connected and bring trade treaties between the countries to complete fruition.

To promote multi-modal connectivity in the BBIN region, the role of waterways should be examined. Also, several industrial hubs have developed around the inland waterway protocol or international sea trade routes due to rapid industrial growth in Southeast Asia.

In this context, this Discussion Paper aims to analyse the state of current infrastructural facilities in the IWT network and nearby industrial hubs lying close to the river network so that an integrated multi-modal corridor can be established within the BBIN sub-region. It will not only benefit trade but also help employment generation for the local communities and reduce the impact of multiple handling costs and procedural delays.

Introduction

Till the British era and also during the post-independence period of India and Pakistan, most of the cargo movement between Kolkata to different parts of East Bengal/East Pakistan as well as northeast India were taking place through the numerous rivers connecting through Kolkata Port. The road and rail connectivity were in their early

stage and cargo as well as passenger steamers used to sail almost on daily basis. However, during the Indo-Pakistan war of 1965, the entire riverine movement came to a sudden halt, many ships were ceased.

Immediately after the emergence of independent Bangladesh, a PIWTT was signed between India and Bangladesh in 1972. But since the focus of subsequent governments in both countries was on

* Former Secretary, Bangladesh Inland Water Transport Authority

** Former Chief Engineer, Inland Waterways Authority of India

To promote multi-modal connectivity in the BBIN sub-region, the role of waterways should be examined

improving road and rail communication, the IWT movement started sinking from its earlier days of glory.

Fortunately, both the governments along with neighbouring land-locked countries like Nepal and Bhutan have decided to enhance transboundary IWT connections. Several treaties, MoUs and agreements have been signed between the BBIN countries to ensure the revival of IWT.

Unfortunately, the non-utilisation of rivers crisscrossing the sub-region has wiped out the good old IWT network when most of the commodities were being traded using riverine routes. Hence, serious planning and revival of IWT facilities may have to be initiated for making IWT a vibrant mode of transport like its earlier days.

To promote multi-modal connectivity in the BBIN sub-region, the role of waterways should be examined. Rapid industrial growth in Southeast Asia has resulted in the growth of few industrial hubs in the BBIN sub-region, which are fortunately based close to the inland waterways or beside the international sea trade link routes.

Out of all the growth centres and logistic hubs, several industrial hubs lie within a short distance from the Indo-Bangladesh Protocol route¹, which runs through parts of River Ganges, the Sundarbans estuaries of both India and Bangladesh and parts of the Padma and Meghna river basins of Bangladesh. The movement of barges carrying different types of cargo destined for the industry hubs close to waterways is of noticeable quantum.

The active zone of the Indo-Bangladesh Protocol route can be promoted by connecting the following origin-destination points:

Kolkata-Haldia-Mongla-Chattogram-Dhaka-Narayanganj-Ashuganj

It is interesting to note that out of the above mentioned seven locations, four identified locations namely, Kolkata, Haldia, Mongla and Chattogram, have good maritime port facility, road and rail

connectivity in addition to having waterways connectivity.

These four locations are already operating as multi-modal transit points; receiving and transferring goods simultaneously through all the three modes of transport namely water, road and rail though not having any Ro Ro (Roll-on/Roll-off) jetty set up as yet. The Port of Mongla in Bangladesh is not yet connected by rail.

Dhaka, Narayanganj and Ashuganj are inland river ports, connected by class-I inland waterways with maritime ports in Bangladesh and have also decent linkage with adjacent industrial hubs by road and rail.

Another maritime port namely the Payra Port is developing in Bangladesh along the coast between Chattogram and Mongla with road and IWT connectivity.

In addition to the above-mentioned nodal points, there are also several active river terminals lying close to these nodal locations, which are also being regularly used by river barges for loading, unloading and transportation of IWT cargo.

These terminals do have the necessary road linkage but if they are taken under a pre-planned river network system and further developed with required facilities, a very good river linkage among BBIN sub-region can be set up.

Each country of the BBIN sub-region is tied with sound bilateral trade agreements with others, which envisage seamless passage of goods of both bilateral and transit trade for facilitating trade and commerce in the region. But due to the lack of holistic multi-modal connectivity, an adequate and efficient regional transport system could not be developed as yet.

An integrated port system consisting of ports in India and Bangladesh with efficient multi-modal connectivity can create a larger catchment area extending up to Nepal, Bhutan and northeast India for initiating and sustaining economic development of the BBIN sub-region. A map showing the proposed river linking network with terminal hubs is depicted in the map on page 3.

Map showing the proposed river linking network with terminal facilities



Very close to these terminal hubs and the above-mapped river link, there lies several industrial hubs, which import a considerable amount of raw materials partly sourced from several locations of India as well as from other countries and export finished goods to different parts of the BBIN countries and the outside world. This validates the idea of linking all these port locations as viable epicentres for 'to and fro' movement of raw materials and finished goods between them as well to other regions.

Given this backdrop, this Briefing Paper attempts to map IWT terminal facilities and active industrial hubs, which are lying close to the above river network so that an integrated multi-modal corridor can be established within the BBIN sub-region, benefiting not only trade but helping employment generation for the local communities and reducing the impact of multiple handling costs and procedural delays.

India-Bangladesh Waterways and their Linkages with Industrial Corridors

The IWT sector once again gained importance after the formation of Bangladesh and in 1972 both the countries signed a Protocol laying down all required norms for allowing movement of steamers of both the countries using the then International Steamer

route presently termed as Indo-Bangladesh Protocol Route. Out of several notified protocol routes, due to various reasons, only four routes are presently actively used for the movement of cargo (Table 1).

As already mentioned above, Chattogram Port being the principal port shares more than 85 per cent of the international seaborne trade cargo. Most of the cargo to and from Chattogram Port uses IWT mode to reach other inland ports of Bangladesh. The same is considered to be a vital point on the proposed multi-modal circuit to reap the benefits of alternative connectivity between Kolkata and Haldia through coastal shipping, deep-sea connectivity and also by inland barges.

A huge volume of different types and dimensions of cargo is presently being moved through Chattogram Port and by multi-modal connectivity. Cargo destined for northeast India can have a seamless flow through this port.

At present, the port of Chattogram is not along the Protocol Route. As such, the Chattogram port is required to be linked with the network of protocol routes. So, the route between Chandpur and Chattogram, a stretch of 220 km long waterway needs to be included as Protocol Route to achieve multi-modal transport facilities.

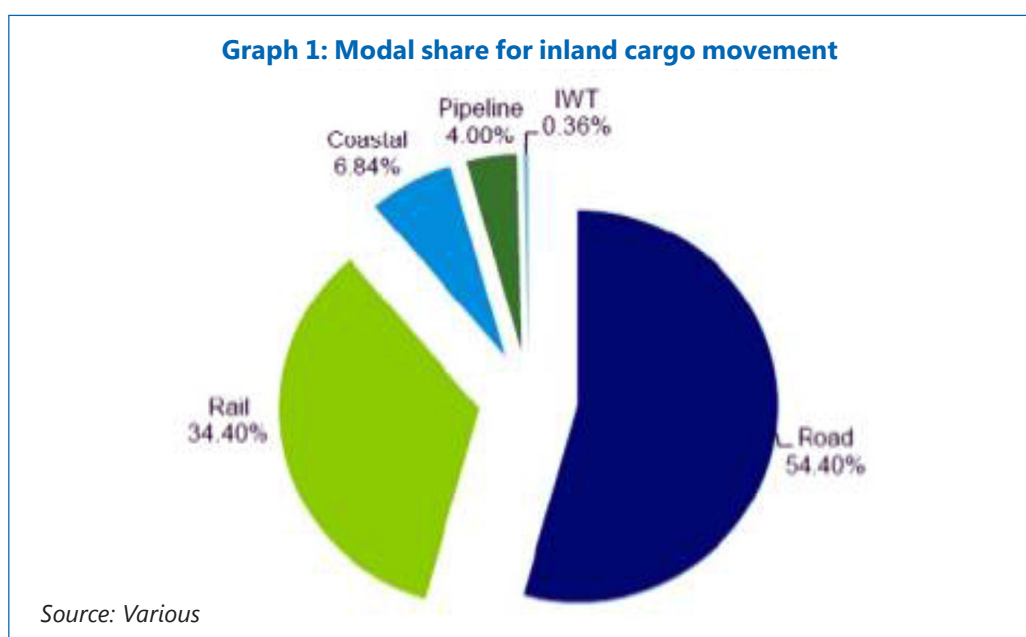
Table 1: Routes used for the movement of cargo

Route No	Route description	Already Developed Port/ Inland Terminal en route	Type and Capacity of Inland vessels operating through these Port/terminal locations			
			Type	Maximum permissible draft at		
				Port	In Route	
1 & 2	Kolkata-Kolaghat-Haldia-Chalna-Mongla-Chandpur-Pangaon-Narayanganj-Aricha-Sirajganj-Chilmari-Dhubri-Jogighopa-Pandu-Silghat and return	Kolkata	Bulk/ Liquid/ Container	8.0 m	3.60	
		Haldia		9.0 m		
		Mongla		6.0 m		
		Pangaon	Container	3.6m		
		Narayanganj	Bulk	3.6 m		
		Dhubri	Bulk	2.0 m		2.0
		Pandu		2.0 m		
3 & 4	Kolkata-Kolaghat-Haldia-Chalna-Mongla-Chandpur-Pangaon-Narayanganj-Ashuganj-Karimganj-Badarpur and return	Kolkata	Bulk/ Liquid/ Container	8.0 m	3.60	
		Haldia		9.0 m		
		Mongla		6.0 m		
		Pangaon	Container	3.6 m		
		Narayanganj	Bulk	3.6 m		
		Ashuganj	Bulk	3.6 m		
		Karimganj	Bulk	2.0 m	2.0*	
		Badarpur	Bulk	2.0 m	1.8*	

Understanding Cargo Share by IWT Mode in both Countries

Indian Context

Though Kolkata Port during 2017-18 reported movement of 20 million tonnes of cargo through its port, most of this was moved by seagoing vessels. The movement through inland waterways through the Protocol Route was limited to 3 million tonnes. As per data received from different sources, IWT accounts for only 0.36 per cent of total inland movement while that by road contributes to 54.4 per cent and railway is 34.3 per cent.²



Bangladesh Context

As much as 56 million tonnes of goods were transported in Bangladesh every year by inland water transport in 2018-19.³ Out of these routes, inland water corridors between Dhaka and Chattogram; and between Dhaka and Ashuganj (with extensions to Narayanganj and Barisal) appear to be most critical for Bangladesh as these handles about

80 per cent of the country’s IWT transport, and daily movement of about 200,000 passengers.⁴

Transport output of inland water routes is further augmented by inflow and outflow of traffic from and to other IWT routes. Accessibility to road transport corridor has helped to increase traffic flow.

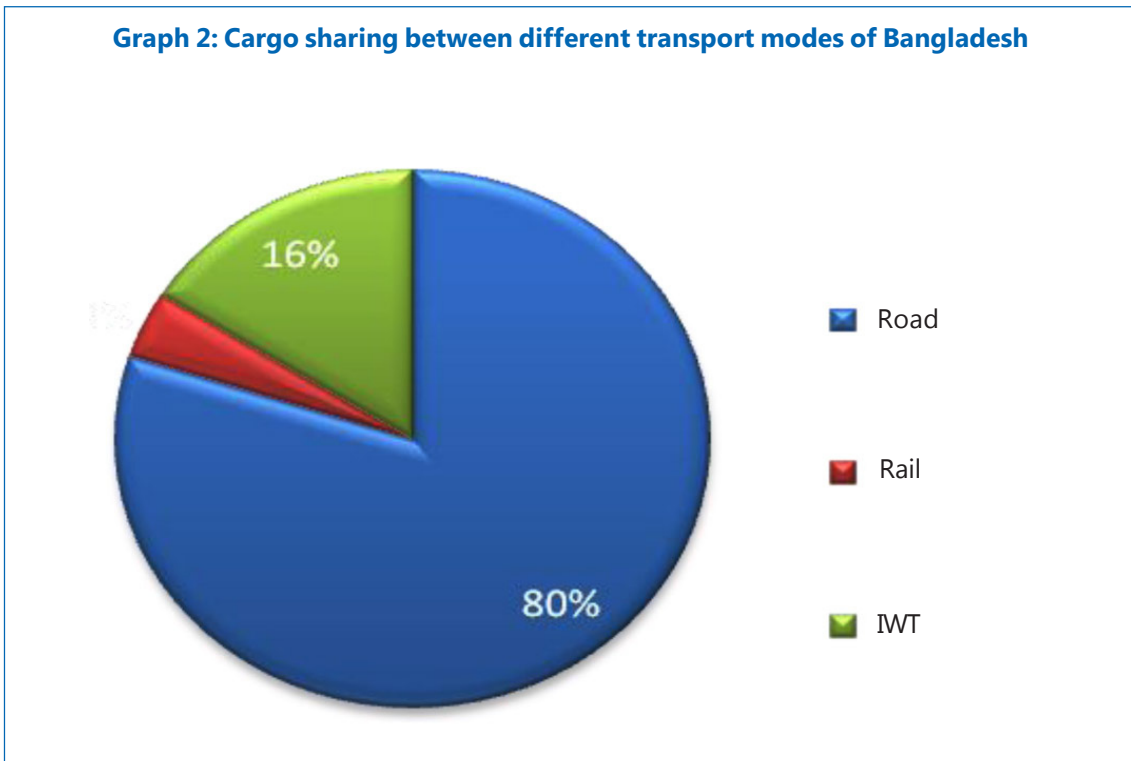


Table 2: Availability of Rail, Road and IWT modes

Availability of Rail and Road Connectivity at the Identified Port/terminal Points lying along Protocol Routes Modal Point	Road	Rail	Sea Going Vessel Berthing	IWT Vessel Berthing	Warehouse facility	Ro-Ro Jetty facility
Kolkata	Available	Available	Available	Available	Available	Not available
Haldia	Available	Available	Available	Available	Available	Not available
Mongla	Available	Not available	Available	Available	Available	Not available
Chattogram	Available	Available	Available	Available	Available	Not available
Pangaon	Available	Not available	Not Available	Available*	Available	Not available
Narayanganj	Available	Available	Not Available	Available	Available	Not available
Ashuganj	Available	Available	Not Available	Available	Not Available	Not available

Inland container vessels only

It is found that road, rail and IWT are available at all locations. A project for establishing a rail link between Khulna and Mongla is underway. None of the above terminals also has a Ro Ro⁵ facility.

Industrial Hubs Lying Close to IWT Network with Intermodal/Multi-modal Junctures

A. West Bengal, India

SI No	Name of Sea cum River Port/ IWT Terminal	Name of nearby Industrial Hub/Zone	No of the Major Industries in the hub	Road Connect & Approx dist. From port	Approx dist. from Main Rly Line
1	Kolkata	Industrial hub at Hide Road Kolkata	10	15 km	10km
2	Kolkata	Industrial hub at Bhasa, D.H Road South 24 Parganas	9	25km	25 km
3	Has its own terminal	Industrial hub at Falta Special Economic zone , Falta, South 24 Parganas W.B	9	50 km	50km
4	Kolkata	Industrial hub at Uluberia , Howrah	9	50 km	10 km
5	Kolkata	Industrial hub at Barrakpore , N.24 Parganas, Kolkata	8	40 km	10 km
6	Kolkata	Industrial hub at Dankuni , Hooghly District	10	30 km	5km
7	Bandel/Kolkata	Industrial hub at Kalyani , Nadia District	10	45 km	10km
8	Kolkata	Industrial hub at Durgapur , Paschim Bardhaman District	11	150 km	10 km
9	Haldia	Industrial hub at Kolaghat , East Medinipur District	6	75km	10km
10	Haldia	Industrial hub at Haldia , East Medinipur District	10	10 km	10 km
11	Haldia/Kolkata	Industrial hub at Kharagpur , West Medinipur District	8	120km	10km

B. Jharkhand, India

SI No	Name of Sea cum River Port/ IWT Terminal	Name of nearby Industrial Hub/Zone	No of the Major Industries in the hub	Road Connect & Approx dist. From port	Rail Connect & dist. from Main Rly Line
1	Kolkata	Industrial hub at Tatanagar Jamshedpur	10	290km	15km

C. Bangladesh

Commodity	Location of the industrial hub	Roadway	Nearest Rail station	Nearest IWT station
Leather	Savar area adjacent to Dhaka and Bhairab in Kishoreganj district	NH01, NH05, NH07, NH08, NH102	Tejgaon (18 km), Kamlapur 27 km, Bhairab 01 km.	Dhaka 29 km, N'ganj 35 km, Ashuganj 5 km.
Jute	Dhaka-Narayanganj	NH01, NH07, NH05, NH08	Kamlapur (12 km) & Narayanganj (5 km)	By the side of rivers both at Dhaka & N'ganj.
Cotton	Tongi, Dhaka, Narayanganj	NH105, NH01	Kamlapur (15 km), Narayanganj (5 km)	Dhaka (18 km and Narayanganj by the side of the River)
Cement	Dhaka-Narayanganj area	NH105, NH01	Kamlapur (30 km), Narayanganj (12 km)	<u>By the side of rivers.</u>
Ceramic	Adjacent to Dhaka	NH01, NH105	Kamlapur 35 km	Dhaka 18 km
RMG	Tongi, Dhaka, Narayanganj	NH01, NH05, NH07, NH08, NH105	Kamlapur 30 km, Narayanganj 12 km	Dhaka 26 km, Narayanganj 10 km.
Knitwear	Narayanganj	NH01, NH05, NH07, NH08	Narayanganj 5 km	Narayanganj 5 km
Plastics	Dhaka, Narayanganj	NH01, NH05, NH07, NH08, NH105	Kamlapur 15 km, Narayanganj 12 km	Dhaka 20 km, Narayanganj 12 km

All the above details as mentioned in the tables have been obtained from Google Image

Road & Rail Corridors between the Two Countries

The entire infrastructural development scenario in the Indian sub-continent is undergoing a sea change in terms of regional and international connectivity. Connectivity within India in terms of expansion of good road network and in terms of broad-gauge rail connectivity has been constantly appended by the addition of extended sections and new links.

The extremely remote locations of northeast India are all being connected by at least four-lane standard highways and by broad-gauge railway lines. Similar action is also being taken in the neighbouring countries like Bangladesh, Bhutan and Nepal.

The trans-border connectivity between India and Bangladesh has also been taken due care of by both governments. Several new links, dedicated freight corridors as well as passenger travel routes through road, rail and water transport have commenced. It is to be mentioned that the railway network between the eastern part of present Indian Territory to its

northeast and North Bengal destinations were mostly through present Bangladesh.

However, these railway lines were mostly of metre gauge and when the Indian government took up the task of converting metre gauge lines to broad gauge, these interlinked railway sections got blocked and defunct. To date, also many railway links of Bangladesh are metre gauge, which the present government is gradually converting to broad gauge.

At present regular goods train movement is taking place for a long time through the Gede–Darshana rail corridor of West Bengal. India and Bangladesh have launched trans-boundary rail linking projects at Chilahati to Haldibari, Biral to Radhikapur, Benapole to Petrapole, Rohanpur to Singhabad, Shahbazpur to Mahisasan, and Burimari to Changrabandha.

Therefore, for enhancing the movement through the planned waterway circuit as mentioned at the beginning of this write-up, the following issues need to be addressed both by India and Bangladesh:

- Improve the waterways of India and make them ready for the sailing of vessels of 1,000 metric tonnes and above throughout the year.



- b) Improve the road and rail linkage between industrial hubs and inland terminals of Bangladesh
- c) Add container handling crane facility at all ports with Reinforced Cement Concrete (RCC) jetty for placement of trailer trucks next to the barge for direct loading of containers
- d) Add a ramp to facilitate Ro-Ro Vessel movement
- e) Build and deploy container barges with economical size in sufficient numbers to facilitate the modal shift of cargo.

In addition to the above, looking into the prospect of multi-modal transit all necessary facility for Radio Frequency Identification Device (RFID) tagging of barges, containers and amend relevant statutory rules and procedures to add to the strength of multi-modal transport in line with developed countries.

Strength & Weakness of the Circuit and Locations

Strength

Industrial growth is based on infrastructure and skilled labour. The consumption of raw materials and export of finished goods takes place continuously between these industrial growth centres while a seamless mode of transportation using all three modes efficiently and economically needs to be addressed.

This can be achieved by further close examination of the multi-modal circuit as mentioned here, identifying the goods that can be routed through the multi-modal option by undertaking detailed origin-destination studies, meticulous cost analysis of possible movements and with favorable data backup developing all required facilities and laying down procedures for avoiding any hindrance to free movement.

The aviation services among the BBIN countries are mostly confined between the capital cities. This is particularly true in the case of Bangladesh, Bhutan, and Nepal

Weakness

Water transport is a relatively slow mode of transport compared to railways and roadways. Over the last few decades, the railway network in India has been laid out very extensively reaching all corners and even dedicated freight corridors have come into existence.

Indian Railways has also modernised its railway engines and wagons ensuring optimisation of the cargo-carrying capacity, safe movement of cargo and tailor-made solutions for cargo transit and doorstep delivery.

The trailer and their prime movers along roadways have become modern (with e-tracking system) and environment friendly over the last two decades. Their capacity also increased considerably. For certain sections of the proposed trans-boundary multi-modal circuit, it passes through the Sundarbans estuary, with very poor or at times no mobile network making it difficult for any e-tracking or e-documentation process.

Further, the waterway sections in Sundarbans also contain several shallow areas, which will also need attention to allow movement of deep drafted barges.

Future Possibilities of Extending the Waterway Network

A multi-modal terminal is planned to be developed shortly at Jogighopa (Assam), which once operational will become a nodal point for connectivity to Bhutan. Though the Dhubri terminal of IWAI also provides connectivity to Phuentsholing and Gelephu in Bhutan, the same has a comparatively narrow road connection with no railway connectivity.

The main navigable channel of the river due to its volatile nature has also shifted away from the berthing point at Dhubri terminal. The Jogighopa terminal location is next to the National Highway and also as per plan will also be connected with a railway siding.

However, the biggest challenge for this future section shall be stabilisation and improvement of the channel, marking of the fairway to allow 24X7 movement and also investment at the terminal locations to make the mode more competitive.



Benefits to the Local Economy

A smooth multi-modal transport system will cut down the transport time and reduce manpower wastage and will lead to efficient use of all infrastructural facilities including the carriers. This will also lead to enhanced cargo movement through the region with an increase in production capacity by the industries.

Looking into the success story of the multi-modal transport system, more industries will be attracted to set up facilities close to the circuit, which, in turn, will help in employment generation in the surrounding area.

In brief, a well-coordinated material transportation system will help the region boost production, efficient manpower management and initiate fresh employment opportunities.

Sustainable Mode of Transportation

As per studies carried out by RITES with respect to the Integrated National Waterways Transportation Grid, one litre of fuel will move 24 tonnes through one kilometre on road, 95 on the rail and 215 kilometres on inland water transport.⁶

Therefore, any modal shift of cargo movement from road or rail to inland water transport will ultimately lead to a major quantum of saving fossil fuel burning further leading to a cleaner environment.

This gives an additional thrust to the basic aim of this paper, the attempt to planning and development of a Multi-Modal Transport system primarily using the vast river network that remains under-utilised in the BBIN sub-region and allows the last mile connectivity by rail/road as rivers cannot easily reach every industry or every corner of any region.

However, before concluding it is important to mention that this paper only indicates the possible industrial zones of both countries, their connection through different modes of transport with the nodal points of the multi-modal connectivity, but a detailed Origin-Destination study is required to establish the supply-demand gap with authentic cargo projection figures for pursuing both countries towards planned investment.

Endnotes

- 1 The Protocol Routes are designated riverine routes between India and Bangladesh for trade and transit and have been operational since 1972 under PIWTT.
- 2 <https://www.slideshare.net/saihemant/inland-waterway-transportation-iwt-in-india/1>
- 3 Statistical Yearbook Bangladesh 2019 (P-252), accessed on December 24, 2020, available at http://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/b2db8758_8497_412c_a9ec_6bb299f8b3ab/2020-09-17-15-30-d0e641b2e659019f2aa44cbaf628caa8.pdf
- 4 Project Document on 'Environmental and Social Assessment: Bangladesh Regional Waterway Transport Project 1 (Chittagong-Dhaka-Ashuganj Corridor)' accessed on December 24, 2020
- 5 A Ro-Ro Terminal generally has a sloped jetty, on which Ro Ro vessels with the help of their ramp can unload wheeled vehicles for their further movement over land.
- 6 <https://pib.gov.in/Pressreleaseshare.aspx?PRID=1557459>

With the support of



Asian Development Bank