# Regional Transport Connectivity in South Asia - Is Bangladesh Ready?

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## Abstract

*The process of globalization has brought about a surge in the economic integration and initiatives on transport connectivity among countries and regions throughout the world. Considering the economic significance of transport communication network in the globalized world, the Government of Bangladesh (GOB) has been pursuing seamless transport connectivity under different regional, sub-regional and bilateral initiatives. The overarching goal of promoting transport connectivity is to integrate Bangladesh with regional economies so that it can accelerate and sustain economic growth. In addition to that, a seamless transport network would enable the neighbouring landlocked countries or territories to integrate with global economic activities. As the countries of the region work on towards an early implementation of transport connectivity, this study embarks into a comprehensive examination of the related issues from Bangladesh's perspectives of preparation. Being located at the vital geographical location, Bangladesh plays an important role in facilitating regional transport connectivity. Therefore, this study explores through the current status of communication infrastructures in Bangladesh as well as the progress in implementing the plans to install and upgrade required facilities to promote transport connectivity efficiently.*

**Keywords:** Transport connectivity in south asia, Communication network, Land ports, Transit and transshipment

### 1. Introduction

The long awaited Indo-Bangladesh transshipment deal was formally inaugurated when a Bangladeshi vessel carrying the first consignment of Indian goods reached Ashuganj river port on 15 June 2016. Although it took 12 days for the ship to travel from Kolkata to Ashuganj, no one had any complaint considering it as a humble beginning that would bring about positive changes as the process gets moving. Point to note here is that the ship remained moored idly at Angtihara Checkpoint of Bangladesh for four days as the crews had to go to National Board of Revenue (NBR) office located at Khulna city to deposit the transshipment fees and obtain clearance (Byron & Rahman, 2016). This instance is just one example of the state of preparedness of Bangladesh and a modest reminder to expedite preparations to manage cross border movements as we enter into regional, sub-regional and bilateral transport connectivity initiatives that are likely to materialize soon. Considering the economic importance of seamless communication network, Bangladesh has been pursuing transport connectivity plans with the neighbouring countries at regional, sub-regional and bilateral platforms. While the first two initiatives are under consideration now, the bilateral connectivity between Bangladesh and India is already in place for more than two years.

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Connectivity across borders facilitates movement of people, goods and services between countries enabling mutual growth and development. It can build regional production networks and connect supply chain of goods and services generating productivity and economic activity. To do so, good infrastructural facilities are essential to ensure seamless communication network that has the power to integrate economies by deepening trade and investment. Good connecting infrastructure enables countries to benefit from better allocation of resources and provision of basic services. Despite global progress in the quantity and quality of communication infrastructure, the South Asian region is generally lower than the global average and has not been keeping pace with the region's economic growth (Gilbert & Banik, 2012). The state of infrastructure is also not uniform in Asia, as it varies from country to country and from region to region. Under this circumstance, as Bangladesh embarks into long pursued cross-border transport connectivity, it is vital to take an account of the state of our preparedness. In this backdrop,this paper attempts to examine the current state of cross border communication infrastructures in Bangladesh. In doing so, the study reveals the physical infrastructures, the future plans of the GOB and the progress of their implementation to facilitate cross-border transport connectivity efficiently.

## 2. Methodology

This research adopts a qualitative approach that seeks to carry out study of the infrastructural facilities vis-à-vis the capabilities of our communication networks. It includes the road, river and rail networks and their related integral facilities. Broadly, the research has been conducted in three chronological steps. At the onset, the study focuses on content analysis of primary and secondary sources of information, taking into account various government and research documents, agreements, protocols, booksand journals. After obtaining sufficient knowledge on the plans and agreements on connectivity at different platforms, the second stage of the study begins with field visits and examination of existing facilities. Currently, out of total twenty three land ports, ten are operational while the rest thirteen land ports are not yet functional. This study focuses on the physical study of some of the selected operational land ports that handle major share of cross border movement. During field visits of these ports, their co-located agencies and other associated facilities have also been examined. The ports that have been chosen for the field visits are - Akhaura, Benapole, Bhomra, Bibirbazar and Tamabil Land Ports, Ashuganj and Pangaon River Ports and Chattogram and Mongla Sea Ports. These key areas have been selected for physical study because of the fact that bulk of the cross-border trade and movement take place through them. Some important road segments have also been included during field survey. Concurrently, information on the rest of the ports and road, rail and river networks have been collected from the concerned departments through visits and from their official database. The Third Phase of the study focuses on interviews and informal discussion with different departments of the Government, members of the business community, freight forwarders, port officials, customs and immigration police. Besides, a Focused Group Discussion (FGD) has been held with the members of the business community at Sylhet Chamber of Commerce and Industries (SCCI), who are involved with cross border trade

with the regional countries. The study focuses to make a comparison of the existing vis-à-vis the planned institutional and infrastructural facilities to identify progress and deficiencies in the system.

## 3. Literature Review

Transport connectivity is a vital element for better competitiveness in global economy. Strengthening connectivity, both within and between countries has been the basis of growth and development. In this regard, Bose (2011) emphasizes that physical investment in transport connectivity and economic corridors can help link markets and resources, and provides corresponding benefits in terms of economies of scales. The word "connectivity" has different connotations under different circumstances. In the context of integration and competitiveness, connectivity has two dimensions - "physical" connectivity and "software" connectivity (Groff, 2014). Physical connectivity refers to the physical infrastructure that links countries and/or regions together. It includes road, rail, air and maritime transport, telecommunications, power supply and other energy transmission networks. While physical connectivity is a prerequisite for increased regional competitiveness, it is not complete at its own. It is complemented by software that is needed in terms of cross border deals, trade facilitation agreements, customs one-stop service, government policies, institutions, procedures, capacities and systems to facilitate seamless movement of transports across borders. To supplement basic essential infrastructures further, Bhattacharyya (2012) emphasizes on "second generation" connectivity infrastructure such as quality logistic centers, ports, industrial clusters and social economic zones as vital for smooth connectivity.

Transport connectivity is a critical issue for landlocked countries (LLC) and territories. In South Asia there are three LLCs - Afghanistan, Bhutan and Nepal. Besides that the North Eastern states of India are also almost isolated from their mainland. Their lack of direct access to the sea and isolation from supply chain has substantial negative impact on their economic growth and development (World Bank, 2008). Like the LLCs, transit is also a critical issue for the countries that provide transit to other countries. Transit may offer economic opportunity and be a major source of foreign exchange earnings. However, there are problems associated with greater connectivity in the form of human trafficking, illegal arms and drugs trade, smuggling, traffic congestion, environmental degradation, transmission of communicable disease etc (Bose, 2011). To address these issues, mechanisms are needed to manage the problems associated with the negative impacts of greater connectivity. Therefore, for the countries that offer transit, a significant level of capacity building is needed at national level to facilitate transport cooperation with other countries.

South Asia is a unique region that serves as a vital link between East and West Asia. Studies have identified (De, 2014) the significant role of South Asian Association for Regional Cooperation (SAARC) as an important forum for transport connectivity cooperation. There are initiatives like the SAARC Regional Multimodal Transport Study (SRMTS), the Bay of Bengal Initiative on Multi-Sector Transport and Economic Cooperation (BIMSTEC) and the Asian Land Transport Infrastructure Development (ALTID) project. Such initiatives on connectivity are likely to offer larger opportunities for trade, investment and livelihood of the people by boosting economic growth. This is particularly true in case of

South Asia, where the regional cooperation is low. In this regard, Rahman (2015) argues that lack of connectivity in South Asia discourages intra-regional investment and undermines the possibilities of reaping benefits of intra-regional trade cooperation. Rahmatullah (2009) suggests that due to poor intra-regional connectivity in South Asia, the countries of the region are failing to derive benefits from each other's capabilities and resources. A consignment from Assam to Europe is required to travel 1400 km to reach Kolkata port through the Shiliguri Corridor, since no agreement exists for India to use the route through Chattogram port, which could have been more than 50% shorter in distance. Similarly, the state of Tripura is only 75 km from Chattogram port, but goods from Agartala are required to travel 1645 km to reach Kolkata.Thus Rahmatulla (2009) argued that if there were transport cooperation between Bangladesh and India, goods would have traveled only around 400 km across Bangladesh to reach Kolkata which is a much shorter distance to reach Chattogram Port.

Study of transport connectivity in different regions of the world reveals wide range of experience. European Union (EU), Association of South East Asian Nations (ASEAN) and Greater Mekong Sub-region (GMS) are all successful in moving their respective regional cooperation forward to their larger interest (Rahman, 2015). The ASEAN leaders recognized transport cooperation and integration as the very basis of their economic development and adopted Vision 2020 for integrated and harmonized Trans-ASEAN transport network (Rahmatullah, 2006). Sobhan (2000) views this initiative as the important building block for realizing the goal of a fully integrated Trans-Asian Transport network. The GMS programme launched in 1992 is another example of sub-regional transport cooperation that connected six countries namely – Cambodia, China, Lao PDR, Myanmar, Thailand and Vietnam. A study of ADB (2011) reveals that the scope of GMS connectivity was further expanded with three sets of transport sub-sectoral network for roads, railways and inland waterways. Realizing that the infrastructure development is the only part of the solution for efficient international movement of goods and people, the GMS countries simplified the cross border regulations and procedures (Rahman, 2015). The EU model also offers example of regional integration as an essential means for mutual growth and development. In case of the EU countries, Cameron (2010) argues that they have been able to deepen the economic cooperation and raise intra-regional trade by establishing closer transport connectivity within the region. The EU countries have been able to set up a wide range of multi-modal transport network for speedy movement of goods and people within the region.

In case of South Asia, the attempts to develop intra-regional trade and transport facilitation have generally been fragmented with each country undertaking reforms with other countries according to their mutual priorities. During the SAARC summit in Islamabad in 2004, it was decided to strengthen transport, transit and communication links across the region. It was in pursuance of this decision that SRMTS was initiated with the ultimate objectives of enhancing multimodal transport connectivity among SAARC countries (World Bank, 2008). SRMTS recommended ten road corridors for future development based on several criteria. Out of the ten SAARC Highway Corridors (SHC), six pass through Bangladesh (SRMTS, 2006). Thus, the SAARC Motor Vehicle Agreement (MVA) was planned to be signed at its 18th Summit in November 2014 in Kathmandu. But this ambitious proposal of

connectivity of the region got stalled due to Pakistan's inability to complete the internal formalities (Pal, 2016). However, parallel to the SAARC MVA, the discussion and implementation of bilateral MVA between Bangladesh and India has also been under process since 2011. By now bilateral transit and transport cooperation with India has gained significant momentum.

Meanwhile, in the sideline of SAARC forum, at sub-regional level the Bangladesh, Bhutan, India and Nepal MVA (BBIN MVA) was initiated with the objective to reach consensus for the seamless travel of passenger, personal, and cargo vehicular traffic within the sub-region.The BBIN MVA is defined as a framework Agreement. Its implementation details, including customs formalities, routes of application, traffic volume and applicable fees will be set out in detailed bilateral and possibly multilateral protocols (RTHD, 2016).

## 4. Infrastructures

The communication structure of Bangladesh includes roads, railways and rivers. According to the World Economic Forum's (WEF) report on competitiveness, Bangladesh lags behind on its comparators on roads, railroads and ports as shown in Table 1. Though progress has been made in case of ports, performance on roads and railroads has not been up to the expected standard. The state of our roads is among the worst ones in Asia as reveled in the survey of WEF. It is placed 113$^{th}$ in global ranking and is the worst among Asian countries for road quality posing a major barrier to development (WEF, 2017). In response to its inherent weaknesses in transport sector, the GOB has drawn a strategic framework for more efficient and balanced multimodal transport system that conforms with regional connectivity requirements in its 6$^{th}$ and 7$^{th}$ Five Year Plan (FYP) covering FY 2011-2015 and FY 2016-2020 respectively.

**Table 1:** Comparison of Infrastructure Quality 2014-2015

| Country | Country Ranking | Overall Infrastructure Score | Roads | Railroads | Ports |
|---|---|---|---|---|---|
| Bangladesh | 130 | 2.8 | 2.9 | 2.4 | 3.7 |
| India | 87 | 3.6 | 3.8 | 4.2 | 4.0 |
| China | 46 | 4.7 | 4.6 | 4.8 | 4.6 |
| Cambodia | 107 | 3.1 | 3.4 | 1.6 | 3.6 |
| Myanmar | 137 | 2.1 | 2.4 | 1.8 | 2.6 |
| Pakistan | 119 | 2.7 | 3.8 | 2.5 | 4.4 |
| Sri Lanka | 75 | 4.0 | 5.1 | 3.7 | 4.2 |
| Thailand | 48 | 4.6 | 4.5 | 2.4 | 4.5 |

Source: WEF Report 2015 (Ranking out of 144 countries)

**5. Road Network**

Situated at a vital geographical location in South Asia, Bangladesh plays a crucial role in advancing intra-regional and inter-regional road transport connectivity. Among different modes of transports in Bangladesh, road transportation is the most dominant one, carrying over 70 percent of passenger and 60 percent of freight traffic internally (7th FYP, 2015). The principal road network of Bangladesh consists of national highways, regional highways and district roads. The highway network constructed and maintained by Road Transport and Highways Division (RTHD) has the total length of 21,571 km (RHD, 2009). There are other roads – upazila, union and village roads that serve mainly rural areas, and are constructed and maintained by the Local Government Engineering Department (LGED). The Vision 2021 of the GOB envisages developing an efficient road network system to facilitate movement throughout the country, where primary attention has been given on upgrading the existing highways rather than on new road construction (7th FYP, 2015). With a view to realizing this vision, the Government has embarked on a wide range of plans to upgrade its major highways with four lane capacities by 2021 to reduce travel time and traffic congestion, and to facilitate cross border movement of vehicles (Planning Commission, 2012). The Dhaka-Chattogram Highway and the Dhaka-Mymensingh Highway has already been upgraded into four-lane roads, while there is a plan to upgrade Dhaka-Chattogram Highway into six lane road. The construction works on Dhaka-Rangpur Highway is going on and likely to be finished by 2021. This road will be part of the corridor that will connect with India and Nepal. The 51 kilometer Ashuganj-Akhaura Highway has also been given a higher priority by the Government that will connect Agartala. This road will be converted to a four-lane road and scheduled to be completed by 2020.

As Bangladesh is signatory to various regional and international connectivity initiatives, all its national plans are integrated to the regional and international connectivity plans, designed to connect Bangladesh with regional and global supply chain and offer link for the landlocked countries. In addition to the regional and sub-regional initiatives, Bangladesh Government signed number of protocols with India for cross-border movement of cargo and passenger transports. Currently bus services are operating on Dhaka-Kolkata, Dhaka-Agartala and Dhaka-Shillong-Guwahati routes, while cargo traffics have started plying between Ashuganj River Port and Agartala via Akhaura.

In global standard, the roads and infrastructures of Bangladesh has serious limitations. The roads lack the ability to handle the number and type of vehicles including modern multi-axle articulated transports. Efforts to expand and develop the road network encounter multifarious problems. Firstly, the rivers, their tributaries and the low laying areas significantly increase the cost of road construction. Secondly, the high population density and thick habitations put lands at their scarce, complicating the plans of widening the road capacity; and finally, complicacy in land acquisition for widening and construction of new roads delays the expansion plan. It is often observed that the poorly constructed roads lack timely repair and maintenance after they are damaged. As the repair and maintenance are done irregularly on an adhoc basis, the road conditions deteriorate due to heavy traffic and rainfall, which increases the chance of fatal accidents and traffic jams. Even the country's main artery Dhaka-Chattogram Highway finds difficulty to take heavy traffic loads at some

critical segments due to the substandard level of road construction and maintenance. Severe congestion frequently interrupts traffic at these places at regular intervals incurring high costs, delays and other traffic hazards. The main problem with the national highways is that the road shoulders are not sealed to prevent unauthorized use. As such the highways are open for use by pedestrians, rickshaws, carts and slow moving indigenous transports. Road encroachment is also a severe problem as the roadsides are occupied by habitations, shops, rural markets, truck depots and irregular bus stoppages. This scenario is even worse for the roads emanating from the bordering areas that link different parts of the country. In most cases, these border side roads were constructed as single lane district roads not designed for the current type and volume of vehicle movement. In some of the areas the plan for upgrading and expanding the roads are getting stalled due to the complicacy in land acquisition.

The problem of traffic congestion is further complicated as most of the highways converge towards Dhaka to link with other parts of the country. This leads to excessive traffic loads in and around Dhaka. The 48 kilometer Dhaka Bypass, that has been planned to connect the port city Chattogram with the north and the north western part of the country may ease the situation, provided unauthorized entry and encroachment of the roadsides can be prevented. Another serious drawback in the communication structure of Bangladesh is the mix of motorized and non-motorized vehicles on the same roads, affecting efficiency of the system. To address the current limitations of the road networks and improve the system, the Government has adopted a progressive development plan in its 7th FYP (2016-2020). The physical targets of RTHD for the FY 2016-2020 is shown in Table 2:

**Table 2:** Roads and Highways Targets for the Seventh FYP

| Seventh FYP Physical Activities | 7th FYP Targets |
|---|---|
| Construction of 4 lane roads | 300 km |
| Construction of roads other than 4 lane | 340 km |
| Improvement/Rehabilitation of roads | 2,500 km |
| Construction of Flyover/Overpass | 7,000 meter |
| Construction of bridges/culverts | 14,800 meter |
| Reconstruction of bridges/culverts | 6,800 meter |

Source: Seventh FYP 2016-2020, Ministry of Planning, 2015

### 6. Land Ports

The concept of land port is comparatively new, evolved to complement cross border road movement of goods and passengers between states. In 2001, Government established Bangladesh Land Port Authority (BLPA) to facilitate export-import with the neighbouring countries. Among 23 land ports of Bangladesh, 22 are with India and one is with Myanmar. Six landports namely Benapole, Bhomra, Burimari, Tamabil, Akhaura and Nakugaon are operatedby BLPA and Sonamosjid, Hili, Teknaf, Bibirbazar and Banglabandha Land Ports are operated by Private Port Operators (PPO) on the basis of Build Operate and Transfer (BOT). A PPO has also been appointed to develop and operate Birol Land Port. The devel-

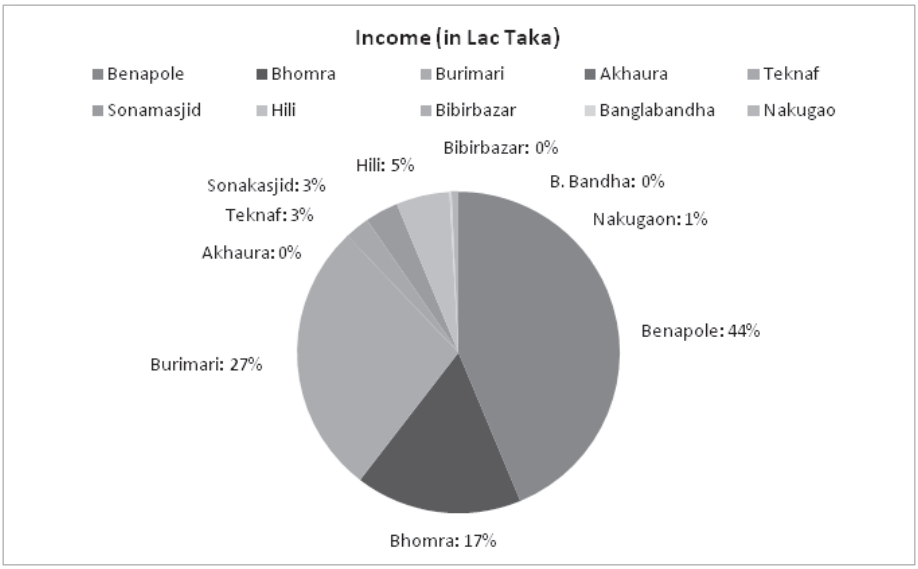
opment of remaining 11 land ports is under process without significant progress (BLPA, 2017). Development budgets allocated for the land ports in last two years are given in the following table (Table 3):

**Table 3:** Development Budgets for Land Ports (in Crore Taka)

| Year | Total Budget | Funded by Bangladesh | Project Aid from ADB |
|---|---|---|---|
| **2016-17** | 52.05 | 37.05 | 15 |
| **2017-18** | 88.89 | 58.89 | 30 |

Source: BLPA (2017), Ministry of Shipping, Annual Development Projects: 2017-2018

Study of the land ports reveals that most of the land ports are yet to attain the required standard and capacity to handle the volume of consignments that has been originally designed. Among all the land ports, Benapole is one of the oldest one, started its operation as land port in February 2002 (BLPA, 2018). In terms of annual revenue earnings, Benapole ranks highest (44%) among all. 70% of Indo-Bangladesh border trade takes place through this land port (BLPA, 2018). Income of the landports in the FY 2016-2017 is shown in Chart 1 below:



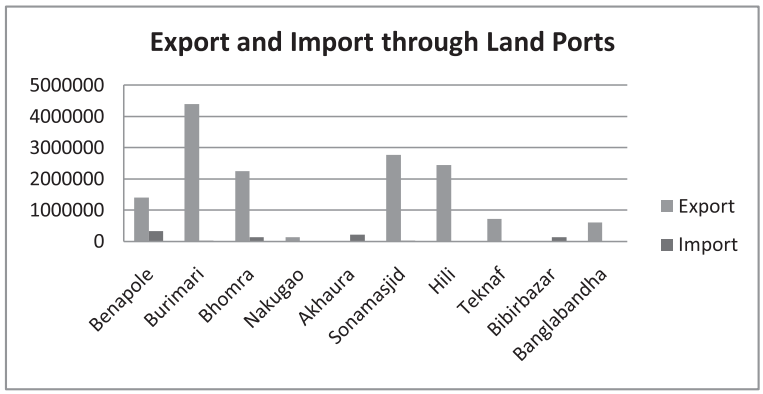

Source: BLPA Report 2016-2017

**Chart 1:** Income of the Land Ports in FY 2016-17

In last few years, extensive development works have been done at Benapole Land Port. It has reasonably good infrastructure with warehouses, transshipment yards, loading/unloading platforms etc. But it is observed during the field visit (17 Sep 2018) that the volumes of cargo traffic with consignments are much more than the capacity of the port. As such trucks with consignments are parked everywhere - in terminals, roads, roadsides and other areas. Dhaka-Kolkata bus service signed under a 1999 protocol also passes through this port. The bus terminal is about three hundred meter away from the passengers' terminal.

Thus tourists have to walk down with baggage or take assistance of porters on payment. The passenger lounge lacks appropriate facilities causing myriad sufferings during their waiting and travel document processing. Besides that, it is learned from some travelers that the practice of undue favours in return of extra money is also prevalent to expedite the immigration formalities (field visit, 2018). However, the port clearance of the cargo in Benapole is generally satisfactory.

Scenarios in other land ports are similar or even worse. Akhaura, Bhomra, Burimari, Tamabil, Banglabandha, Hili and Sona Masjid are widely used land ports for passage of tourists and cargo transportation, which account for 700-1500 tourists daily (BLPA, 2018). Lack of adequate facilities in these ports cause delays and disruptions for the travelers. As there is no well planned passenger terminals in the ports immigration, customs, banks and security check points are scattered all around. People need to move from one building to another to complete all formalities. The terminals in some land ports cannot accommodate all vehicles inside; and the whole area remains disorganized. Vehicles of all types – passenger and cargo, are parked everywhere unplanned. In absence of appropriate cargo handling equipments unavoidable delays occur in transshipments. The automated customs management system faces difficulties due to the shortage of efficient operators and frequent disruption of electricity. Open air stacking of cargo also leads to the deterioration of the quality of products, especially during inclement weather. Trade through different land ports are shown in Chart 2.




Source: BLPA Report 2016-2017

**Chart 2:** Trade through the Land Ports in FY 2016-17
(In Metric Tons)

### 7. River Communication

Rivers, canals and streams of Bangladesh cover about 24,000 kilometers all together, that make 7% of the country's surface area. Most part of the country is linked by a complex network of waterways which reaches to its maximum during the monsoon. Out of 24,000 kilometers only 5,968 kilometers is navigable by mechanized vessels during monsoon, which shrinks to 3,865 kilometers during the dry season. The Inland Water Transport

(IWT) in Bangladesh carries over 50% of all arterial freight traffic and one quarter of all passenger traffic (BIWTA, 2017). Since British period, these river routes have been used for the passage of cargo vessels between Assam and West Bengal through the then East Pakistan. The river communication ceased as a result of Indo-Pak war in 1965. After independence, the Indo-Bangladesh Protocol on Inland Water Transit and Trade (PIWTT) was signed in 1972 to restore transit through these rivers (Rahmatullah, 2009). Later on, the river transit declined substantially because of lack of round the year navigation, low draft and absence of night navigation. In June 2015, during the visit of Indian Prime Minister Narendra Modi, several trade and transport agreements were signed between the two countries. The agreements included signing of Coastal Shipping Agreement, the renewal of the Trade Agreement and the PIWTT (MoU, 2015). The agreements marked the beginning of a new chapter of connectivity by road, rail, rivers and sea through Bangladesh. In pursuance to the trade agreement, the two governments agreed to make mutually beneficial arrangements for using the waterways for commerce between the two countries, for the passage of goods between two places in one country and to connect with the third countries through the territory of the other. The protocol allows transshipment of cargos by shallow draft vessels. The PIWTT identified the following river routes for facilitating transit through Bangladesh:

1) Kolkata – Raimangal – Mongla – Barishal – Chandpur – Sirajganj – Dhubri – Shilghat.
2) Kolkata – Mongla – Barisal – Chandpur – Bhairab Bazar – Ajmiriganj – Karimganj.
3) Rajshahi – Godagori – Dhulian.
4) Karimganj – Ajmiriganj – Bhairab Bazar – Chandpur – Sirajgonj – Dhubri .

The protocol also stipulated to provide the facilities of Ports of Call (POC) to the vessels of the other country engaged in inter country trade. On the Bangladesh side Narayanganj, Khulna, Mongla, Sirajganj, Ashuganj and Pangaon are identified as the designated POCs. So far, considerable amounts of cargo have been transshipped by India using the protocol routes. Statistics of the transshipment of Indian cargo during the period 2016-17 is shown in Table 4:

**Table 4:** Statistics of Indian Transshipment through Bangladesh

| Vessels | Number of Vessels | Goods Carried (MT) |
|---|---|---|
| Bangladeshi Ship | 999 | 25,98,065 |
| Indian Ship | 09 | 8433 |
| **Total** | **1008** | **26,06,498** |

Source: BIWTA Annual Report, 2016-17

Typical challenges that BIWTA faces in maintaining smooth IWT communication consist of the needs for frequent hydrographic survey, navigational channels shrinkage, shallow drafts needing dredging and difficulties in night navigation in some parts of the rivers. As regards to the port facilities, the problems include inadequate warehouse, non-availability of cranes and handling facilities, shortage of lighter vessels etc (Interview, 2018b). Dredging of the rivers in Bangladesh is an expensive operation as the river courses are inconsistent and dredging needs to be repeated very frequently. For the maintenance of the waterways periodical hydrographic survey is essential for dredging and updating the navigational charts. Usually, BIWTA have been carrying out hydrographic survey at a limited scale on few selected segments of rivers on the basis of their priority of use. Important river routes of IWT and the ferry service routes usually get priority for survey and dredging to prevent disruption of communication on important river routes. Meanwhile, Indo-Bangladesh bilateral traffic teams have been regularly inspecting the protocol routes and the designated ports in Bangladesh. These routes are still underutilized due to rapid siltation and lack of sufficient navigational aids. Till now there are no inter-country passengers' movements by IWT.

**8. Inland River Ports**

There are large numbers of inland ports and landing facilities spread all over the country offering various levels of services. Bangladesh Government has so far designated 31 such facilities as inland river ports. These river ports and related facilities are usually built and regulated by BIWTA. However, the passenger and cargo operations in most of these river ports are done through private operators under short term lease agreements. There are few ports that are operated by BIWTA, where lease agreements are made for cargo operations only. As the duration of the lease is for a limited period only, private operators are less interested to invest money in port development and periodical maintenance. It is found that damages caused to the port facilities and structures by natural or man-made disasters are left without any repair. A survey conducted by World Bank concluded that 40 percent of port operators prefer a two-year lease agreement, 33 percent prefer three to five-year agreement and only 27 percent operators agree with a one-year agreement. The river ports are given to operate through tender (World Bank, 2008). The lease agreement is supposed to be awarded on the basis of highest offered rental fee. But on many occasions the selection procedure of port operators is influenced by local leaders or other pressure groups, accompanied by dubious financial deals (World Bank, 2008).

Currently, BIWTA has a priority plan to transform river routes as the main means of transportation of cargo and containers from Chattogram and Mongla ports to reduce pressure on road and rail traffic (Interview, 2018b). As part of that plan, Pangaon Inland Container Terminal (PICT) has been established on the bank of Buriganga River, Dhaka in 2013. The terminal is expected to help reduce the cost of carrying goods from Chattogram and Mongla to Dhaka, and ease the traffic pressure on the Dhaka-Chattogram and Dhaka-Khulna Highways. BIWTA's current master plan proposes to equip all the river ports with modern berthing, loading-unloading and storage facilities by the year 2021. If it is implemented as planned, the river routes are expected to boost the communication system of the

country to a great extent.

**9. Railway Network**

Since independence, railway sector of Bangladesh has not been given enough attention for development in comparison to the road development. Railways in Bangladesh potentially offer a cheaper, safer, and more fuel-efficient means of transportation for goods and passengers than road transports. But it has been held back by lack of investment with age old wagons and poorly maintained railway lines. Prior to independence, railway dominated in the transport sector for freight and passenger services. But gradually its position declined due to inadequate investment in infrastructure and rolling stock over an extended period (ADB, 2014). Bangladesh Railway (BR) has 2,884.67 kilometer rail route consisting of three different gauges. The Meter Gauge (MG), Broad Gauge (BG) and the Dual Gauge (DG). DG is the combination of MG and BG that was introduced in 2001. One of the major problems for Bangladesh Railway is the harmonization of the incompatibility between BG and MG lines. This discord is somewhat minimized by introducing DG lines in some areas. Bangladesh Railway has two operational zones, the Eastern Zone (EZ) and the Western Zone (WZ), divided by the River Jamuna. EZ mostly uses MG lines, while the WZ consists of MG, BG as well as DG lines. Railway network in the southern part of Bangladesh is very limited. Barisal Division does not have railway system, and the Mongla Port, the second largest seaport of the country is not yet connected by railway networks. Details of the railway line in EZ and WZ are given in Table 5 below:

**Table 5:** Bangladesh Railway Route in Each Zone (in Kilometer)

| Items | Eastern Zone | | | Western Zone | | | |
|---|---|---|---|---|---|---|---|
| | Meter Gauge | Dual Gauge | Total | Meter Gauge | Broad Gauge | Dual Gauge | Total |
| **Operational Route** | 1283.04 | 83.60 | 1366.64 | 501.64 | 507.10 | 280.55 | 1289.29 |
| **Closed Route** | 24.14 | - | 24.14 | 29.51 | 175.09 | - | 204.60 |
| **Total Route** | 1307.18 | 83.60 | 1390.78 | 531.15 | 682.19 | 280.55 | 1493.89 |

Source: GIS Database, TSMR, TSC Wing, Planning Commission. BR Master Plan 2013

The construction of Bangabandhu Multipurpose Bridge (BMB) over the River Jamuna incorporating railway lines, opened great opportunities for East-West railway connectivity, which were earlier, linked by rail ferry services only. In addition, this bridge unlocked the potentials of BG and MG lines in the country. Major development programmes of the Government over the last ten years are given in Table 6 below:

**Table 6:** Major Developments in Last Ten Years

| S. No. | Items | East Zone | West Zone | Total |
|---|---|---|---|---|
| 1. | Construction of new rail lines | 167 km | 32.87 km | 199.87 km |
| 2. | Upgrading to DG rail lines | - | 93.50 km | 93.50 km |
| 3. | Rehabilitation of existing rail lines | 262.96 km | 136 km | 398.96 km |
| 4. | Rail station construction & modernization | 50 | 46 | 96 |
| 5. | Modernization of signal systems | 24 | 23 | 47 |
| 6. | Locomotive procurement | 11 (MG) | 26 (BG) | 37 |
| 7. | Carriage procurement | 100 | 120 | 220 |
| 8. | DEMU set procurement | 6 set | - | 6 set |
| 9. | Carriage rehabilitation | 28 | 1634 | |

Source: BR APA (East & West), 14 July 2017

Currently, Bangladesh railway is facing enormous competition with road transportation. Major challenges that BR faces now is the need to increase passenger and cargo carrying capacity, reduction of travel time, generation of more revenue, construction of new rail lines, upgrading existing rail corridors to double lines, procurement of coaches and locomotives, and gauge unification to have uninterrupted link between eastern and western part of the country (BR Master Plan, 2013).

Bangladesh Railway has a physical rail connection with India established long before independence. This rail link, once known as the East Bengal Railway, provided an outlet to the entire tea exports of Assam (Sobhan, 2000). The regional transport connectivity initiative mooted by SAARC, has the proposal for railway linkage for establishing efficient cross-border multi-modal transportation of goods and people (SRMTS, 2006). Meanwhile, the sub-regional transport connectivity plan - the BBIN MVA framework agreement has also incorporated the provisions for railway linkage among the sub-regional countries. In the recent years, Bangladesh and India has undertakena number of joint projects to boost the railway communication between the two countries. The Dhaka – Kolkata passenger train service known as Maitree Express was inaugurated on 14 April 2008 under an inter-governmental agreement. The Maitree Express runs around 375 kilometers to reach Kolkata from Dhaka. The second cross-border passenger train service known as the Bandhan Express started operating between Khulna and Kolkata from 09 November 2017. In 2015, Bangladesh and India agreed to construct a fifteen kilometer long new railway line connecting Akhaura and Agartala. This project is considered very crucial for transit/transshipment of goods between West Bengal and North Eastern states of India. While the project implementation deadline is up to 31 December 2018, physical progress of construction till April 2018 is 21.50% only. In addition to the train service, a project to construct two new rail bridges - the second Bhairab Bridge and the Titas Bridge is at hand. These bridges are planned with the Line-of-Credit (LOC) assistance from India (BR, 2018).

Meanwhile, Bangladesh Railway has taken up several projects for the construction of new railway lines, rehabilitation and upgrading of old lines and establishing of DG line. These development works will enable faster movement of trains and in some cases double the existing capacity of plying passenger and carriage trains. Among those lines, a good number of projects for construction and up-gradation of lines could not be completed within the deadlines. The priority project of connecting the two sea ports, Mongla and Chattogram has not achieved any progress. The slow progress of other projects like Dhaka – Tongi 3rd and 4th DG line, Akhaura – Laksam double DG plus conversion to DG line, Dhaka – Chattogram High Speed Railway line and Dohazari – Ramu – Cox Bazaar – Gundum single DG line makes it doubtful to complete the projects in time (BR, 2018). Besides, the procurement plan for 70 diesel engine locomotives have not yet been completed within the stipulated time, while the procurement and rehabilitation of passenger coaches totaling 470 are under process.

## 10. Major Challenges and Ways Forward

Among different modes of connectivity through Bangladesh, the road transportation system plays a crucial role in advancing the intra-regional and inter-regional transport connectivity. It is the most dominant mode of transportation in Bangladesh, carrying over 70 percent passenger and 60 percent freight traffic internally (7th FYP, 2015). However, for an effective form of transport connectivity, the road network needs to be integrated with railway and inland water network systems. The integration of multi-modal forms of transport system coupled with compatible infrastructure facilities and standardized institutional procedure are vital for the success of a connectivity arrangement.

The road network of Bangladesh is among the worst ones in Asia in terms of quality and infrastructure. They have two serious lacking which need to be addressed with top priority. Firstly, their inability to cope with high volume of routine traffic that frequently chokes at the critical points and secondly, the lack of road fitness including the low capacity bridges to take modern multi-axle articulated transports and heavy vehicles. These problems are particularly evident on the roads emanating from the bordering areas. Gradual upgrading of all the highways into minimum four-lane roads is therefore very important. Similarly, upgrading the lower classified bridges and sealing of the road-shoulders to prevent unauthorized entry and encroachment is also vital for our national highways. Future development and extension of the highways should cater for the provision of separate roads for non-mechanized vehicles. Major roads like Dhaka-Chattogram, Dhaka-Rangpur, Dhaka-Rajshahi, Dhaka-Sylhet and Dhaka-Khulna Highways should be upgraded to six-lane roads gradually.

The ease with which cross border road movement of goods and passengers can be facilitated largely depends on the standard and efficiency of the land ports between the countries. Almost all the land ports of Bangladesh have severe limitations in terms of their standard and efficiency. The land ports of the country are not well planned to facilitate smooth completion of all the formalities in a systematic order under one roof. Rather the land ports are being operated with their various elements and facilities are scattered widely in a haphazard manner. The parking areas, entry and exit routes and other facilities are common for both passenger vehicles and goods carrying trucks, causing serious inconvenience for

the users. Frequent power failure severely disrupts smooth processing of automated customs clearance and immigration formalities. In none of the land ports, banks are collocated under the same roof. Rather in some cases banks are dispersed from half kilometer to fifteen kilometer away from the ports (field visit, 2018). The land ports of the country therefore, need to be designed in conformity to the international standard.There should be a well planned layout of the land ports with central terminal having co-located passengers' lounge; customs, immigration, security check points, medical center and banking services for travelers. Similarly, for movement and transshipment of cargo there should be separate truck terminal with customs check point, warehouse, open yard, quarantine labs, weight-bridges and banks.

The challenges facing the railway sector of the countryis quite significant. With age-old rail tracks and limited network coverage to meet vast transportation needs of the country, BR has not been performing as expected. The railway stations, locomotives, wagons and rolling stocks have been in a relatively poor state. The rail tracks have a mismatch between BG and MG, and need gauge unification. Considering the current transportation needs of the country, railway could have taken major share of the freight traffic reducing the traffic load on the roads, which is now largely dependent on the road transportation. Railway also faces greater competition with road transports and needs significant improvement in service quality and operational efficiency to survive as a viable option for transportation.Therefore, railway's long term development plan in response to the regional connectivity plans should be able to contribute significantly in reducing the load on road traffic on freight and passenger transportation. To augment in the transportation sector of the country therefore, current railway networks should be integrated with road and IWT systems.

As regards to river communications of Bangladesh, despite having 24,000 kilometer countrywide river network, the navigable channels for mechanized transports account for only 17 to 25 percent at different times of the year. Typical challenges that BIWTA faces in maintaining inland river communication consist of siltation and constant change of river course imposing frequent needs for hydrographic survey. Besides, navigational channels' shrinkage, shallow drafts, and difficulties in night navigation in some parts of the rivers pose compelling needs for frequent dredging. As regards to port facilities, the problems include inadequate warehouse, non-availability of cranes and cargo handling equipment, shortage of lighter vessels and berthing facilities. As dredging is an expensive operation, a significant portion of BIWTA budget goes for dredging of the rivers every year. More so, the number of dredgers in BIWTA's inventory are very limited compared to its requirements. Until recently however, inland water transport sector received a little attention with limited resources allocated to its development. BIWTA, therefore, needs to take systematic steps to restore the river communications with particular emphasis to turn it into a vital means of cargo transportation. They need to procure sufficient dredgers of different categories. Besides, a good number of ICT with adequate storage and handling facilities should be established to link major communication centers of the country. If well placed, these ICTs, along with adequate number of lighter vessels can establish direct link to the seaports from different parts of the country.

## 11. Conclusion

Under the globalized economic milieu, it is undeniable that seamless transport connectivity, that enables movement of people, goods and services between countries are vital for mutual growth and development. Economic integration and transport connectivity are closely knited to each other. Connectivity across borders builds regional network of production and supply chain, generating productivity and economic activity. The state of our road communication is a major barrier to development. Same is the case with railway and the rivers, where the standard of communication network and quality of transportations are even worse than the ones on the roads. In response to the recent initiatives on cross border transport connectivity, the Government has mobilized its action plans to develop road, rail and river transport networks of the country. It is indeed a challenging task for the Government now to revamp the current fragile state of communication system and transform it into a viable one that will fit the international standard, and at the same time generate revenue, growth and economic activity. The problems in each communication sector therefore need to be identified keeping in view the needs of increased volume of traffic with different size, weight and categories of transportation. Since the tasks are vast and multi-dimensional, the development works are to be chalked out after physical assessment of their order of priority and then executed with time bound specific objectives. Corresponding institutional and legal framework should be prepared in conjunction with the infrastructural developments to facilitate smooth and functional system of cross border movement. The development plans should be all encompassing to integrate all modes of transportation that are mutually supportive to each other. A judicious infrastructural and institutional development plan, if systematically executed, is expected to boost economic activity in the region and offer a win-win situation for all.

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