Transit Through Bangladesh – Challenges to Good Cross-Border Road Connectivity and Possible Ways Forward

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Abstract

Good transport connectivity and logistics are the key factors for collective development by promoting trade and investment. The geographical location of Bangladesh enables it a significant role in facilitating connectivity among the countries of the region and linking South Asia with other regions of the world. It also offers Bangladesh a unique opportunity to derive benefit from cross-border trade and investment. At present, several initiatives on transport connectivity are at hand. Starting from Indo-Bangladesh bilateral transit deals to sub-regional, regional and inter-regional connpectivity, Bangladesh is an active partner in all these initiatives. This study thus, aims to conduct an in-depth examination of the current road connectivity infrastructure of Bangladesh with a view to evaluating the weaknesses and suggesting some ways forward to achieve a meaningful connectivity. In the process the study addresses the questions on the state of roads, loopholes in regulating and managing the road traffic system and projected growth of traffic density. In doing so, the study progresses through a qualitative research, based on both primary and secondary information on road communication infrastructure of Bangladesh. Owing to the topography, high population density and thick habitation of the country, road infrastructure development has its inherent limitations in space and operation. Road connectivity through Bangladesh means further increase on road traffic load. The paper therefore, emphasizes on the need for developing a compatible road communication infrastructure. The paper then puts forward some policy recommendations for the maximum benefit of Bangladesh as it proceeds with implementing transport connectivity at bilateral, sub-regional or regional levels.

Keywords: Road Communication, Transport Connectivity, Transit, Infrastructure.

1. Introduction

Bangladesh has a unique geographical location in South Asia with two land-locked neighbours of Nepal and Bhutan to the North, and the Indian land-locked states of 'seven sisters' to its North East (NE). The location and proximity of Bangladesh offers huge potential of connectivity for these landlocked countries and territories for trade and investment with rest of the world. Due to poor regional connectivity, the countries and their territories have been losing a great deal economically. For example, freights from

Nepal and Bhutan travel a long distance to reach Kolkata port as their only access to sea. Cargo carrying goods from Agartala travel around 1645 kilometers to reach Kolkata port through 'Shiliguri Corridor'. With transit across Bangladesh this distance could be reduced to 400 kilometers. A sea freight takes 15 - 20 days to move between New Delhi and Dhaka, as the maritime route from New Delhi is via Mumbai and Singapore or Colombo to Chittagong Port and then by rail to Dhaka. But the same freight could reach Dhaka within 3-4 days, if direct land communication were there between the -two countries (Rahmatullah, 2009). This lengthy communication network and consequent cost of transportation in South Asia poses a significant barrier in mutual trade and investment.

The Indo-Bangladesh transit agreement of 2010 and the MOU signed in 2015 paved the way for Indian transit through Bangladesh (BIWTA, 2015). During Prime Minister Sheikh Hasina's visit to India in October 2019, Bangladesh agreed to allow Indian use of Chitagong and Mongla ports. This agreement also permits India to use Bangladeshi road, rail and river routes for carrying freights from Chittagong and Mongla ports to Indian destinations (Bayron, 2019).Similarly, recently concluded Motor Vehicle Agreement (MVA) at sub-regional level will enable Bhutan and Nepal to connect with Chittagong and Mongla ports using road and railway links. Beside that Bangladesh is also a signatory in a good number of cross border communication initiatives (RTHD, 2016). Success of some of these transport connectivity projects hinges on the quality of the infrastructure that we may offer. Effective implementation of these projects would promote regional trade through integrated communication systems that will fetch benefit for all the countries of the region. As Bangladesh embarks into implementing the transport connectivity agreements, this study explores through the current state of road communication and existing road infrastructures of Bangladesh. In doing so, the study reveals weaknesses in infrastructure and management with a view to suggesting some ways forward.

2. Objectives

This research has been carried out with the following objectives:

a. To examine the current state of road connectivity infrastructures in Bangladesh to facilitate cross border transport connectivity.
b. To identify the major challenges to transit through Bangladesh and suggest the plausible ways to overcome those challenges.

3. Methodology

This study is carried out as part of a research on regional transport connectivity. I adopted a qualitative approach that sought to carry out study of the infrastructural facilities vis-à-vis the capabilities of our road communication networks. At the onset, the study focused on content analysis of primary and secondary sources of information, taking into account various government and research documents, agreements, protocols, books and journals. After obtaining sufficient knowledge on the plans and agreements on connectivity at different platforms, second stage of the study began with field visits and examination of existing facilities. It included visit of some of the important road segments emanating from the borders and ports. Study of the land ports have been an important part of this research as efficiency of managing all cross-border road movement involves the infrastructure, facilities and services at the land ports also. Currently, there are total twenty-three land ports in the country. Out of these, ten are operational, while the rest thirteen land ports are not yet functional. This study focused on physical study of some of the selected operational land ports that handle major share of cross border movement. Some important road segments have also been included during field survey. Concurrently, information on rest of the ports and road segments have been collected from the offices of Road Transport and Highways Division (RTHD) and Bangladesh Land Port Authority (BLPA) and from their official database. Then interviews and informal discussion were held with different departments of the Government, freight forwarders, port officials and customs. A Focused Group Discussion (FGD) was also organized with business community involved with cross border trade. The study in all stages pondered on examining the infrastructural facilities connected to cross border road transportation to discern the weakness with a view to suggesting plausible ways forward.

4. Literature Review

In global trade and economy better transport connectivity offers a higher competitive advantage, which is a vital indicator of a country's competitiveness in doing business. Good communication infrastructure, both within and between countries has been the basis of growth and development. In this regards, Bose (2011) emphasizes that physical investment in transport connectivity helps link markets and resources, and provides corresponding benefits in terms of economies of scales. The connotation of "connectivity" is more of a contextual based of its application. In the context of integration and competitiveness, Groff (2014) suggests that its scope has two dimensions - "physical" connectivity and "software" connectivity. Physical connectivity, that links countries and regions together, includes road, rail, air and maritime transport, telecommunications, power, energy and information networks. Physical connectivity is

further complemented by software in terms of cross border deals, trade facilitation agreements, customs automation, one-stop service, policies and procedures to facilitate smooth passage across borders (Groff, 2014).Bhattacharyya (2012) stresses further on the needs for "second generation" connectivity infrastructure such as quality logistic centers, ports, industrial clusters and social economic zones as vital for smooth connectivity.

In South Asia transport connectivity is a critical issue for landlocked countries (LLC) and territories. Their lack of direct access to the sea and isolation from global supply chain has substantial negative impact on their economic growth and development (World Bank, 2008). In his study, Sobhan (2006) points out that, prior to independence of India in 1947, Assam was a net exporter of tea, timber, bamboo and jute to the rest of the world, exporting about 3,80,000 tons of goods a year through the then East Bengal for overseas shipment from Kolkata. But with the partition of British India this promising province was cut off from its hinterland in Bangladesh and became a landlocked territory. While looking at the deplorable state of the NE states of India, Sobhan (2006) argues that the economic isolation has made it an inhospitable region and deprived from all external investment.

However, like these LLCs, it is also critical issue for the countries like Bangladesh that provide transit to other countries. Transit may fetch economic benefits, but it imposes some negative impacts of transit offering countries. Bose (2011) argues that seamless connectivity may give rise to illegal activities in the form of smuggling, arms trade, human trafficking, drugs market to heavy traffic, environmental pollution, transmission of communicable disease etc. Therefore, he (Bose, 2011) stresses that strategies to deal with such menaces are needed to overcome the negative impacts of greater connectivity; and at the same time substantial level of capacity building is needed at national level to facilitate transit to other countries.

In the context of South Asia, it is obvious that given the transit opportunities to the neighbouring countries and territories, Bangladesh may lose its chance of exploring the potential export markets of its products in Nepal, Bhutan and in the Indian Seven Sister States. However, Rahmatullah (2009) argues that if transport connectivity is conceived in the sub-regional context, both Bangladesh and its neighboring countries can derive significant economic benefits.He (Rahmatullah, 2009) believes that the two seaports, with another potential deep-sea portmay generate investment in transportation and foreign exchange earnings from the services.

Similarly, on the question of huge investment for building the required infrastructure, Rahman, (2019) emphasizes on step-by-step development of the infrastructures for our own needs, as these investments can be recovered through appropriate charges and services, and would create increased opportunities for export. Chawla (2017) argues that transit or transshipment of cargo across Bangladesh is important to India because it would greatly boost the economy of North East India. It would also fetch benefits for the country in the form of transit fees and transport charges.

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 as the very basis of their economic development and adopted Vision 2020 for Trans-ASEAN transport network (Rahmatullah, 2006). 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 (ADB, 2011). The EU model also offers example of regional integration as an essential means for mutual growth and development. Cameron (2010) argues that EU has 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,based on their mutual priorities (Rahman, 2015). During the 2004 SAARC summit in Islamabad, it was decided to strengthen transportlinks across the region. Accordingly, the initiative on SAARC Regional Multimodal Transport Study (SRMTS) was mooted to establish connectivity among SAARC countries (World Bank, 2008). SRMTS recommended ten SAARC Highway Corridors (SHC), out of which six pass through Bangladesh (SRMTS, 2006). The SAARC MVA was planned to be signed in November 2014, which stalled due to Pakistan's inability to complete the internal formalities (Pal, 2016). Meanwhile, at sub-regional level, the Bangladesh, Bhutan, India and Nepal MVA (BBIN MVA) was initiated with the objective to reach consensus for the seamless traffic within the sub-region. The BBIN MVA is a framework agreement. Its implementation details, including customs formalities, routes, traffic volume, and fees etc will be set out in bilateral or multilateral protocols (RTHD, 2016).

5. Bangladesh in Regional and Global Connectivity Initiatives

As Bangladesh is signatory to various regional and international connectivity initiatives, all the national plans are integrated to the regional and international connectivity plans to connect Bangladesh with regional and global supply chain. 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 and cargo traffic are operating between the two countries. The trans-border connectivity initiatives that involve transit through Bangladesh are as follows:

5.1 Asian Highway (AH): The AH project was conceived in 1959 under the auspices of UN-ESCAP with the aim of establishing regional road transport linkage among the mainland Asian countries. The potential routes were identified and analyzed during 1960-1970. However, the original plan of the AH was further modified in 1992 under the Asian Land Transport Infrastructure Development (ALTID) project. The modified project incorporated other elements such as the railway and inland dry ports in addition to the road transport linkage. The AH project comprises of 1,44,630 km roads passing through 32 Asian countries linking Europe. There are three routes, namely AH-1, AH-2 and AH-41 that pass-through Bangladesh covering a total length of 1771 km (Table 1).

Table 1: Asian Highway Routes through Bangladesh

Routes	Description	Remarks
AH 1	Guwahati - Dawki - Tamabil - Sylhet - Dhaka-Mawa - Narail - Jessore- Benapole	Total length: 492 km.
AH 2	Guwahati - Dawki - Tamabil - Sylhet - Dhaka-Hatikamrul - Rangpur - Banglabandha.	Total length: 811 km(common 294 km of H1).
AH 41	Teknaf - Cox's Bazaar – Chattogram - Feni - Dhaka - Hatikamrul - Banpara - Paksey - Khulna – Mongla.	Total length: 924 km (common 162 km of AH2).

Source: RTHD Report 2016, pp. 13-22.

5.2 SAARC Highway Corridor (SHC): The idea of SHC was mooted at the 12th SAARC Summit in 2004 with a view to strengthening economic cooperation further by establishing transport links across the region. Accordingly, SAARC Regional Multimodal Transport Study (SRMTS) was taken at hand to establish connectivity among SAARC countries. SRMTS recommended 10 road corridors for future development based on several criteria. There are six corridors that involve Bangladesh as shown in Table 2.

Table 2: SAARC Highway Corridor Routes through Bangladesh

Routes	Description	Remarks
SHC 1	Lahore – New Delhi – Kolkata – Benapole – Jashore - Dhaka – Akhaura – Agartala	Out of total 10 SAARC Highway Corridors (SHC), six corridors involve Bangladesh.
SHC 4	Kathmandu – Phulbari – Banglabandha – Mongla /Chattogram	
SHC 5	SandropJongkhar–Guwahati–Shillong– Sylhet–Dhaka–Kolkata	
SHC 6	Agartala–Akhaura–Chattogram	
SHC 8	Thimphu–Phuentsholing–Jaigaon–Burimari–Mongla/Chattogram	
SHC 9	Maldha–Shibganj–Jamuna Bridge (Bangladesh)	

Source: RTHD Report 2016. pp. 23-32

5.3 South Asian Sub-regional Economic Cooperation (SASEC): SASEC comprises of six South Asian countries: Bangladesh, Bhutan, India, Maldives, Nepal, and Sri Lanka to promote prosperity and improve economic opportunities for the sub region. The programme was initiated with the financial assistance of ADB. The SASEC initiative was launched to boost intraregional cooperation and at the same time to connect the region with Myanmar, China and the global market. In 2004 the SASEC Transport Working Group agreed to establish 21 transport corridors, with three corridors that pass though Bangladesh (Table 3).

Table 3: SASEC Road Corridors through Bangladesh

Routes	Description	Remarks
SASEC 9	Kathmandu–Kakarvitta–Banglabandha – Mongla or/and Chattogram	Among the 21 SASEC corridors three road corridors involve Bangladesh.
SASEC 4	Thimphu–Chengrabandha – Burimari - Chattogram or/and Mongla	
SASEC 5A	Kolkata– Benapole – Khulna - Mongla/Magura Dhaka – Chattogram	

Source: RTHD Report 2016. pp. 33-42

5.4 Bangladesh, China, India & Myanmar (BCIM) Economic Cooperation Project: The BCIM spans across South, South East and East Asia. It is a civil society initiative, which later involved respective governments. The civil society initiative launched in Kunming sought to explore possibilities of regional and sub-regional

cooperation involving Bangladesh, China, India and Myanmar and specifically the land-locked and relatively backward regions. The BCIM Route 1 was initially chosen to pass through some geographically challenging terrain. Later on, an Alternative Route has been chosen (Table 4). In addition, eight dry ports have been selected along the route, of which one each at Benapole and Sheola are to be provided by Bangladesh.

Table 4: BCIM Economic Corridor Routes through Bangladesh

Routes	Description
BCIM Route 1	Kolkata – Benapole – Dhaka – Sylhet – Sheola /Sutarkandi-Silchar – Imphal - Tamu – Mandalay – Ruili – Tengchong – Kunming.
Alternative Route	Kolkata - Dhaka – Chattogram -Cox's Bazar –Ghundum – Taungbro- Kyauktaw – Mandalay - Lashio - Ruili - Kunming.
Dry Ports	Petrapole (India), Benapole (Bangladesh), Sheola (Bangladesh), Sutarkandi (India), Moreh (India), Tamu (Myanmar), Mose (Myanmar), Ruili (China)

Source: RTHD Report 2016. pp. 43-50

5.5 Bay of Bengal Multi-Sectoral Technical & Economic Cooperation (BIMSTEC): The BIMSTEC initiative involves eight countries of South Asia and South East Asia. The BIMSTEC identified fourteen road corridors, four rail corridors, two IWT corridors, eleven maritime gateways and fifteen aviation gateways. Some of the road and railway corridors overlap with the Asian Highway and Trans Asian Railway routes. There are seven BIMSTEC corridors (Table 5) that involve Bangladesh.

Table 5: BIMSTEC Routes through Bangladesh

Route	Description
Bangladesh, India	Kolkata-Dhaka-Agartala
Nepal, India, Bangladesh	Katmandu-Phulbari-B.Bandha-Mongla/Chattogram
Bhutan, India, Bangladesh	Bhutan-Shillong-Tamabil-Sylhet-Dhaka-Kolkata
India, Bangladesh	Agartala-Chattogram
Bhutan, India, Bangladesh	Thimpu-Chengrabandha-Burimari-Chattogram/Mongla
India, Bangladesh	Maldah-Jamuna Bridge
Myanmar, Bangladesh	Chattogram-Teknaf-Maungdaw

Source: RTHD Report 2016. pp. 51-60

5.6 Bangladesh Bhutan India and Nepal Motor Vehicle Agreement (BBIN MVA):

The BBIN MVA is a sub-regional transport connectivity initiative for vehicular traffic between Bangladesh, Bhutan, India and Nepal initiated in February 2015. It is a framework agreement; its implementation will require detailed bilateral and possibly trilateral arrangements. The BBIN MVA is designed to facilitate cross border movement of vehicles helping to boost trade and economy of the sub-region. There are five cargo routes and nine passenger routes identified through Bangladesh for passage of vehicular traffic. According to Article XVI of the Agreement, Bangladesh, India and Nepal have already ratified the BBIN MVA for making it enforceable, while Bhutan is yet to ratify the Agreement in the parliament.

Table 6A: BBIN-MVA Passenger Routes through Bangladesh

Route Description	Remarks
Khulna-Jessore-Benapole - Petrapole-Kolkata.	It coincides with SASEC 5A inside Bangladesh.
Chattogram- Dhaka- Banglabandha/Fulbari-Siliguri	The route in Bangladesh is similar to SASEC 9.
Chattogram- Dhaka- Burimari/Chengrabandha-Siliguri	The route is same as SASEC Corridor 4.
Chattogram- Dhaka- Benapole - Petrapole-Kolkata	Aligned to SASEC 4/9 and SHC 1.
Guwahati-Shillong-Dawki/Tamabil-Dhaka-Benapole - Petrapole-Kolkata	Coincides mostly with AH1.
Dhaka-Banglabandha/Fulbari-Siliguri-Panitanki/ Kakarvita-Kathmandu	
Kathmandu-Kakarvita - Panitanki-Siliguri-Chengrabandha – Burimari - Dhaka	
Dhaka -Burimari / Chengrabandha –Jaigaon / Phuentsholing - Thimphu	
Dhaka – Sylhet - Tamabil / Dawki - Guwahati/ Samdrukzongkhar	

Source: RTHD Report 2016. pp. 51-60

Table 6B: BBIN-MVA Cargo Routes through Bangladesh

S/No	Description
1.	Teknaf - Chattogram - Dhaka - Rangpur - Burimari/ Chengrabandha - Phuentsholing – Thimphu.
2.	Mongla - Jessore - Hatikamrul - Rangpur - Burimari / Chengrabandha - Phuentsholing – Thimphu.
3.	Teknaf - Chattogram - Dhaka - Rangpur - Banglabandha / Phulbari - Kakarvita – Kathmandu.
4.	Mongla - Jessore - Kushthia - Rangpur - Banglabandha/ Phulbari - Kakarvita – Kathmandu.
5.	Agartala/Akhaura - Ashuganj - Joydevpur - Chandra - Jessore - Benapole/Petrapole – Kolkata.

Source: RTHD Report 2016. pp. 51-60

6. Organization and Management of Road Network

Located at a vital geographical location of South Asia, Bangladesh plays a crucial role in advancing the intra-regional and inter-regional road connectivity. Among different modes of transport in Bangladesh, road transportation is the most dominant one, carrying over 70 percent of passenger and 60 percent of freight traffic internally (FYP, 2015). The roads and highways network cover a total length of 21,576.10 km. The highways of Bangladesh fall in three categories: The National Highways (N), Regional Highways (R) and the Zila (District) Highways (D). Details of Bangladesh road network are given in Table7:

Table 7: Road Networks of Bangladesh (in kilometers)

Roads & Highways	Numbers	Length	Remarks
National Highways (N): Highways connecting National capital with Divisional HQ's, sea/ land ports or Asian Highway.	96	3,826.78	8 Lane Road: 17.50 km 6 Lane Road: 20.60 km 4 Lane Road: 470.51 km
Regional Highways (R): Highways connecting District HQ's, main river or land ports or with each other not connected by National Highways.	126	4,470.45	Width: 5.50 – 7.30 m

Zila (District) Roads (Z): Roads connecting District HQ's with Upazilla or connecting between Upazillasby single main connection with National/Regional Highway through shortest distance/route.	654	13,278.87	Width: 3.70 – 5.50 m
Total	876	21,576.10	
Rural Roads	-	3,53,074.06	

Source: Compiled from ADB Report: Connecting Bangladesh-Economic Corridor Network, 2016. p. 8, RTHD Annual Report 2017-2018. pp. 29-30 and Road Master Plan 2009, Ministry of Communication, p. 30.

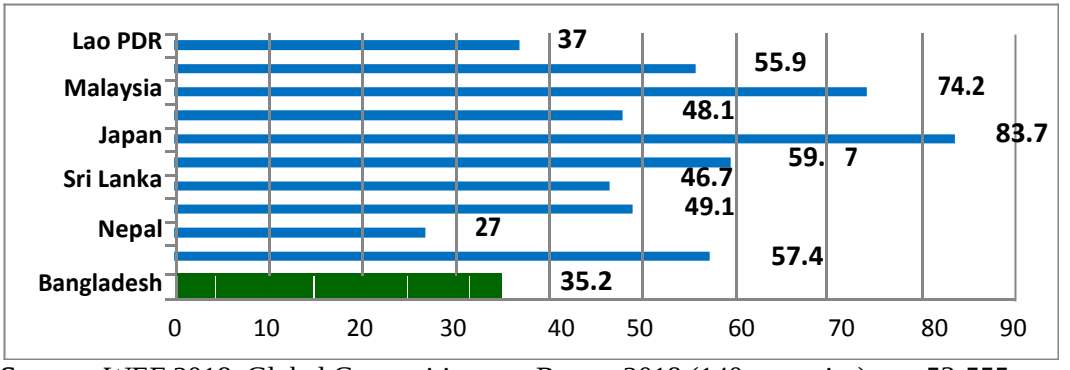
Traditionally, the Roads & Highways Transport Department (RTHD) gets major share of budget allocated for communication network development. The Government's Vision 2021 envisaged developing an efficient road network system to facilitate movement throughout the country (Planning Commission, 2012).The 6^{th} Five Year Plan (FYP) of Bangladesh stressed on corridor-based development with a view to accommodating regional traffic in Bangladesh, while the 7^{th}FYP has set investment projects for structural development (RTHD, 2016). Here primary attention has been laid on upgrading existing highways rather than on new road construction (Planning Commission, 2012).

Bangladesh Government in its Vision 2021has 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 the work to upgrade Dhaka-Chattogram Highway into six lane road is under process. The development works on Dhaka-Rangpur Highway is going on and likely to be finished by 2021 as planned. The Dhaka-Rangpur Highway will be part of the corridor that will pass through Bangalbandha Land Port to connect with India and Nepal. It is also planned to be integrated with Bhutan via India, as part of AH-2. The Ashuganj-Akhaura Highway will be up graded to four lane road to connect Agaratala. The construction works of this 51-kilometer road is expected to be completed by 2020.

7. Glimpses on the Current State of Roads

Although the above-mentioned initiatives are underway to promote regional transport connectivity, there remain hurdles to make these arrangements functional and effective. Most of the sections of the roads in the proposed plan are two-lane roads with very limited four-lane segments closer to the urban areas of district or divisional towns. In addition, there are some sub-standard sections of the roads also with broken pavements and road surfaces. On some major roads the links are broken due to non-availability of bridges. Ferries operate there to help maintain continuity of the links. One such major link is the Padma Bridge, where bridge constructions is under way beyond its scheduled time of completion. As most of these road corridors pass through the capital city Dhaka, it needs number of by-pass roads to avoid the congestion to the city traffic. Although the government has taken up projects for upgrading most the proposed roads into four and six lanes, the progress is falling behind the schedule. The road network of Bangladesh is among the worst in Asia, as revealed by World Economic Forum Survey 2018. Globally, Bangladesh ranks 111 on Road Quality and 121 on Road Connectivity out of 140 countries (WEF, 2018). A comparative study of the scores on road quality among the South Asian and East Asian countries shows the state of the quality of roads in Bangladesh as given in Chart1:

Chart 1: Comparative Scores on Road Quality



Source: WEF 2018, Global Competitiveness Report 2018 (140 countries). pp. 53-555

Physical study reveals that the roads of Bangladesh 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 some major problems. Firstly, the rivers and 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 task of widening or adding the road capacity; and finally, complicacy in land acquisition for widening and construction of new roads delays the expansion plan. The quality of construction and maintenance of the existing roads are not up to the standard. It is often observed that the poorly constructed highways and other roads lack timely repair and maintenance after they are damaged. The repair works are then undertaken hastily and finished somehow to manage the huge traffic load. As the repair and maintenance of the roads are done irregularly, without any prior plan, and on an adhoc basis, within few days the road conditions again deteriorate with numerous potholes 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, which has recently been upgraded to a four-lane road, finds difficulty to take traffic loads and container traffic at some critical segments due to 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 (ADB, 2010). Same is the case with other highways, which are planned for gradual development into four-lane.

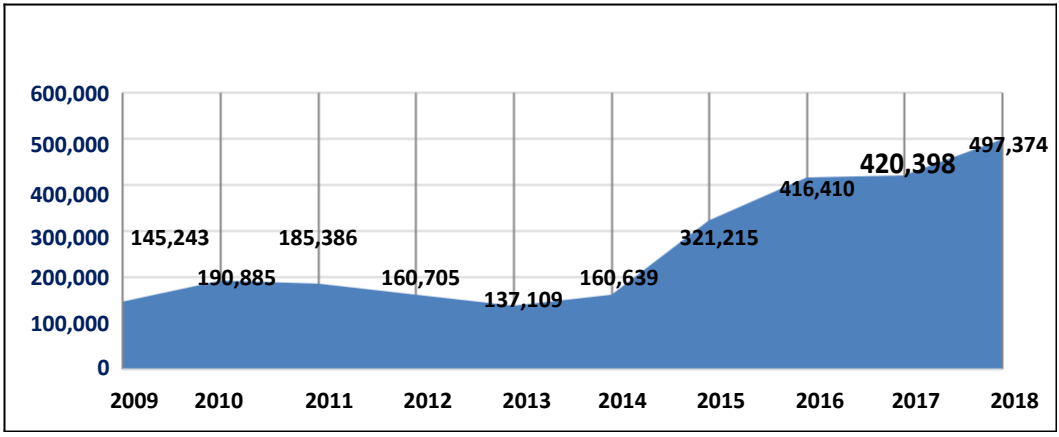
A main problem with the national highways is that the road shoulders are not sealed on both sides to prevent unauthorized use and development. As such the highways are open for use by pedestrians, rickshaws, carts and slow-moving indigenous transports. Road encroachment is also a severe problem as the roadsides are occupied by habitations, vendors, shops, workshops, 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 complicacy in land acquisition. The plan for upgrading the 51-kilometerAshuganj – Akhaura road into four lanes to link with Agartala is getting delayed due to the same complicacy, as revealed from land port sources during the field visit. Similarly, around 40 km segment of Jessore-Benapole road cannot be widened because of the old grown trees on both sides. These trees could not be chopped off in the face of severe protests by locals and environmentalists.

8. Road Traffic Management

Traffic congestion is one of the major hurdles of road communication system of Bangladesh. In some segments of major highways, it is a big barrier for uninterrupted movement of vehicles. The problem is further complicated as the highways converge towards Dhaka while linking with other parts of the country. This leads to excessive

traffic congestion in and around Dhaka. The 48-kilometer Dhaka Bypass i.e., the Modonpur-Bhulta-Joydevpur, that has been planned to connect Chattogram with north and north western part of the country may ease the situation provided the authority can prevent unauthorized encroachment of lands on the roadsides. This project had initially encountered problems of land acquisition from local landowners, causing delays to begin the construction work (Financial Express, 2018). It is learned that in some places the government is even ready to pay three times the higher price in its bargaining negotiation with the landowners. A significant concern is that the gradual increase in socio-economic activities of the rising population growth and consequent scarcity of lands has a severe impact on road network development. Another serious concern for road transport in Bangladesh is the presence of traffic mix on the roads. Mechanized and non-mechanized vehicles ply together on the same roads creating problem for economic and efficient operation of mechanized vehicles. This practice, to a large extent is responsible for traffic congestion and frequent road accidents. This particular aspect needs a special care during planning and designing of the roads. Currently Bangladesh Road Transport Authority (BRTA) has more than twenty varieties of passenger and cargo transports registered, which regularly plies on the roads. Every year the number of vehicles registration is on the rise. The Chart2 given below shows the statistics of vehicles registered in last ten years:

Chart 2: Number of Vehicles Registered Annually (2009-2018)



Source: http://brta.portal.gov.bd.sites/defaults/files/monthly/report-march-18-pdf

The BRTA record shows that so far the all-time highest number of vehicles registered were reported to be 4,97,373 vehicles in 2018. This records an increase from the previous highest number of 4,20,398 vehicles in 2017. The BRTA record shows an yearly average

of 1,00,788 vehicles registered since 1995, while the lowest record was 28,764 vehicles in 2000. The different categories of passenger and cargo vehicles registered by BRTA are given in Table 8.

Table 8: Categories of Vehicles Registered in Bangladesh 2010-2018

Type of Vehicles	Upto-2010	2011	2012	2013	2014	2015	2016	2017	2018/ March	Grand Total
Ambulance	2793	219	181	243	338	480	378	495	172	**5299**
A/ Rickshaw	126763	20423	23545	15697	19897	20000	11173	9168	2425	**249091**
Auto Tempo	14266	175	626	395	500	1095	1322	1592	451	**20422**
Bus	27778	1761	1439	1107	1488	2391	3833	3760	817	**44374**
Cargo Van	3522	489	282	687	608	399	1017	1413	413	**8830**
Covered Van	5658	2354	1421	2271	2869	2354	3340	5176	1675	**27118**
Delivery Van	17063	1004	774	894	1176	1719	2181	2410	715	**27936**
Human Hauler	6520	1152	715	385	225	1142	3487	3393	497	**17516**
Jeep	32286	2134	1569	1314	1870	3601	4892	5425	1346	**54437**
Microbus	66379	4051	3044	2537	4313	5224	5804	5575	1248	**98175**
Minibus	25644	276	249	148	256	323	472	492	102	**27962**
Motor Cycle	759257	114616	101588	85808	90685	240358	332057	326550	94740	**2145659**
Pick Up	32240	10460	7625	6553	9554	10257	11371	13512	3587	**105159**
Private Car	219830	12950	9224	10472	14699	21062	20304	21959	5160	**335660**
Special Type	6371	396	226	227	172	296	620	993	305	**9606**
Tanker	2706	317	195	226	362	324	394	319	96	**4939**
Taxicab	44380	75	172	51	374	88	44	15	32	**45231**
Tractor	20600	5200	3494	1885	1522	1699	2576	2777	1114	**40867**
Truck	82871	7327	4335	5129	8136	6330	7275	10353	3325	**135081**
Others	1317	7	1	1080	1595	2073	3870	5021	1558	**16522**
Total	**1498244**	**185386**	**160705**	**137109**	**160639**	**321215**	**416410**	**420398**	**119778**	**3419884**

Source: BRTA Report, 2018

In addition to the number of registered vehicles, there are large number of unregistered vehicles readily found almost everywhere in the country. Although there are no accurate official statistics of such vehicles, according to a rough estimate of the BRTA, over three lac vehicles are plying on the streets without registration, and 50,000 of them in the capital city (BRTA, 2018). In addition to that, BRTA Report (2018) also shows that there are more than 55,000 vehicles in the country which lack road fitness. According to Section 47 of Motor vehicle Ordinance of 1983, every motorized vehicle must be registered. The law states that anyone using vehicles on the street without registration or

fitness certificate would face a three-month imprisonment and a fine of Tk 2000 for the first time. And for any subsequent offence, the person may face up to six months in imprisonment, or up to Tk 5,000 fine, or both. However, BRTA claims that such violations are the concerns of the traffic department of police, and BRTA often conducts drives against unregistered and unfit vehicles through mobile courts (Khaled, 2017).

Besides different types and numbers of vehicles, the road network of Bangladesh has the lack of adequate east-west connections. The ongoing construction of 6.15-kilometer-long Padma Bridge is expected to facilitate the east-west link and improve connectivity with Mongla Port. For northwest – southeast and northeast – southwest connections the road networks are encroached upon at more than 30 locations each by local *haats*and bazaars. This encroachment means significant increase in traffic congestion, travel time and transportation cost, which will become even further worse with the forecasted growth of vehicles over the period 2015 – 2025 as given in Table 9 below:

Table 9: Forecasted Average Annual Vehicle Growth Rates: 2015–2025

Level	Year	Truck	Bus	Car	Others*	All Vehicles
Low	2015-2020	7.10	3.00	6.90	5.25	5.15
	2020-2025	1.40	3.00	5.50	2.00	2.45
	2005-2025	5.10	3.00	7.57	5.69	4.64
Medium	2015-2020	6.40	4.00	7.00	5.30	5.00
	2020-2025	2.80	4.00	5.70	2.90	3.18
	2005-2025	5.82	4.00	8.40	6.45	5.24
High	2015-2020	6.00	5.00	6.80	5.20	5.50
	2020-2025	5.22	5.00	5.45	4.20	4.90
	2005-2025	6.87	5.00	9.90	7.32	6.50

Note: "Others" refers to such vehicles as jeep, taxi, auto-rickshaw, tractor, motorcycle and trawler.

Source: Ministry of Communications, Road Master Plan – 2009, RTHD. Dhaka. p.23. and ADB South Asian Working Paper, 2016. Pp. 30-34

Traffic volumes along the roads and highways network are medium to high on the national highways and low on the regional highways and district (zila) roads. But the average volumes of vehicle traffic overall have been growing at 5.0%–6.3% per year as shown in the table above (Table 9). Here, the traffic growth has been seen consistent with the projections made in the set out in the Road Master Plan – 2009 of the Roads and Highways departments (Table 10).

The projected volumes of traffic in general are higher for busier routes like Dhaka–Chattogram Highway, which may eventually have to carry more than 30,000 vehicles a day. Although this has been a modest projection, if one considers the full implications of the development of regional and inter-regional connectivity, it could lead to increased transport with increased traffic flow. Moreover, increased economic and regional trade and transit activity would create a demand for the services of transport and logistics, which would spur capacity expansion. The projections of the Road Master Plan 2009 estimated the growth of traffic volume up to the year 2025 only. Beyond that, traffic volumes will likely rise further in response to modernization, increased mobility, and a projected GDP growth of 10% per year. Thusmulti-modal transport connectivity across the region may need to deal with even higher traffic growth. The projected motor traffic growth on the highways is shown at Table 10 below:

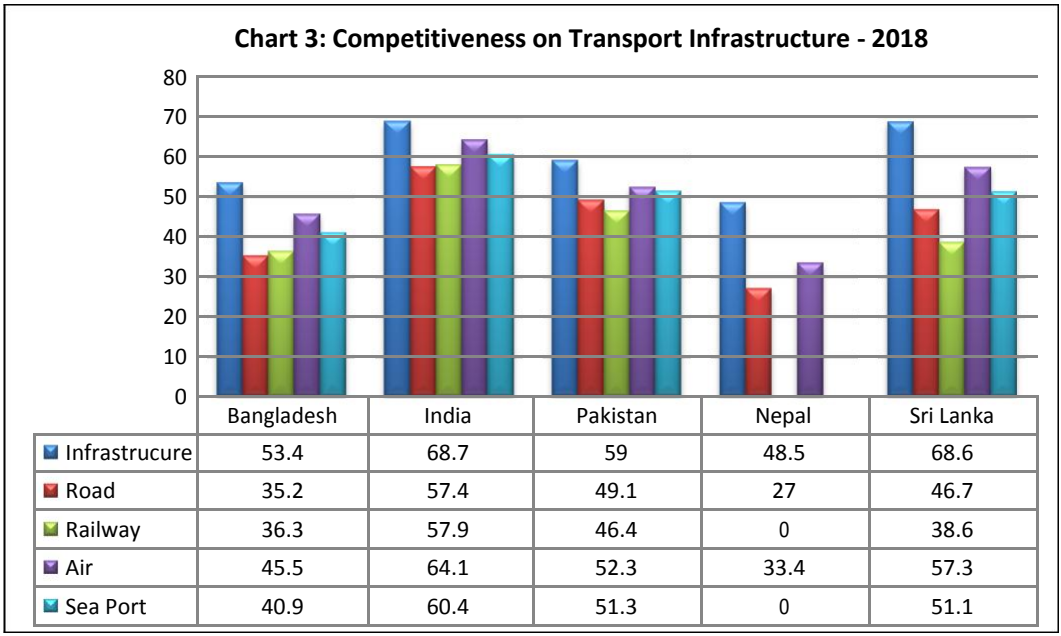
Table 10: Projected Motor Traffic Growth: 2015-2030

Road Type	Average Annual Growth Rate of Traffic (Percentage)
National Highway	8–10
Regional Highway	10–15
District (Zila) Road	10

Source: Road Master Plan 2009, RTHD and ADB South Asian Working Paper, 2016. Pp. 30-34.

9. State of Infrastructures in Global Perspective

According to World Economic Forum (WEF) quality and extension of transport infrastructure of a country is an important index of its economic competitiveness (WEF, 2018).A well-developed infrastructure lowers transportation costs and facilitates smooth movement of goods and people within and across the countries. The road connectivity system and infrastructures of Bangladesh consist of roads and highways network connected through the land ports and related services. Among different modes of transport, road transportation is the dominant mode, carrying over 70 percent of passenger and 60 percent of freight traffic (Planning Commission, 2015).



	Bangladesh	India	Pakistan	Nepal	Sri Lanka
Infrastrucure	53.4	68.7	59	48.5	68.6
Road	35.2	57.4	49.1	27	46.7
Railway	36.3	57.9	46.4	0	38.6
Air	45.5	64.1	52.3	33.4	57.3
Sea Port	40.9	60.4	51.3	0	51.1

Source: WEF 2018, Global Competitiveness Report 2018 (140 countries). pp. 53-555

According to WEF's report Bangladesh stands far behind its comparators in all modes of transportation infrastructure and services. The Global Competitive Index (GCI) of 2018 indicates that Bangladesh ranks 109 on transport infrastructure out of total 140 countries (WEF, 2018). A comparative statistic of competitiveness of Bangladesh in relation to other South Asian countries indicates it clearly as shown in Chart 3. To elaborate the regional countries' competitiveness further, the data on competitive index and rankings of the countries of South and South East (SE) Asia in 2018 are given in Table 11:

Table 11: Global Competitiveness - Transport Infrastructure of Asian Countries – 2018

Countries	**Infrastructure (Overall)**		**Road Connectivity Index**		**Road Quality**		**Train Service Efficiency**		**Air Transport Service Efficiency**		**Sea Port Efficiency**	
Countries of South Asia	Score (100)	Rank (140)	Score (100)	Rank (140)	Score (100)	Rank (140)	Score (100)	Rank (140)	Score (100)	Rank (140)	Score (100)	Rank (140)
Bangladesh	53.4	109	34.3	121	35.2	111	36.3	68	45.5	109	40.9	93
India	68.7	63	62	76	57.4	51	57.9	26	64.1	53	60.4	40
Nepal	48.5	117	34.3	122	27.0	126	NA	NA	33.4	130	NA	NA
Pakistan	59.0	93	66.9	62	49.1	69	46.4	52 N	52.3	89	51.3	69

Sri Lanka	68.6	65	45.5	103	46.7	79	38.6	63	57.3	74	51.1	71
Countries of East Asia and Pacific												
China	78.1	29	88.4	17	59.7	42	59	25	60.7	63	58.6	48
Japan	91.5	5	70	57	83.7	6	91.1	2	85	6	77.3	8
Indonesia	66.8	71	34.6	120	48.1	75	61.4	19	66.7	49	54.1	61
Malaysia	77.9	32	26.8	128	74.2	20	69.5	13	76.4	19	71.5	17
Thailand	69.7	60	70.2	55	55.9	55	27.4	91	66.8	48	51.5	68
Lao PDR	57.5	99	20.5	130	37	107	21.4	105	48.3	98	NA	NA

Source: Compiled from WEF 2018, Global Competitiveness Report 2018 (140 countries). pp. 53-555

From an analytical study of the table, it is clear that in South and SE Asia Bangladesh stands almost at the bottom of the list in transport infrastructure except Nepal, which is otherwise a land locked mountainous state with inherent geographical limitations of difficult road network, and no railway or port services. While these ratings are an indicator of performance, the poor scores of infrastructure and low country rating are suggestive of the existing problems, which will pose as challenges when road transit gets into motion. Indeed, overall infrastructure development is a long-term challenge that will need to be pursued through systematic development plans. The study of WEF Reports from 2012 to 2018 given in Table 12 indicates very inconsequential progress over the period of last eight years. The overall progress in the competitiveness score has been just + 0.1 from 3.6 to 3.7 on the scale of 7. Though little progress has been made in case of railways, achievement in the roads, ports and air are very insignificant. Among 140 countries that were surveyed by WEF under GCI, Bangladesh ranked 109 in 2017-2018. When compared Bangladesh's 133rd position eight years' back (2010-2011), one may be contended that Bangladesh shows some sign of improvement in its ranking, but the overall scores do not show significant qualitative progress. The improvements have been rather very slow. The infrastructural deficiency has also been identified as the most problematic factors in doing business in Bangladesh as shown in Chart 4:

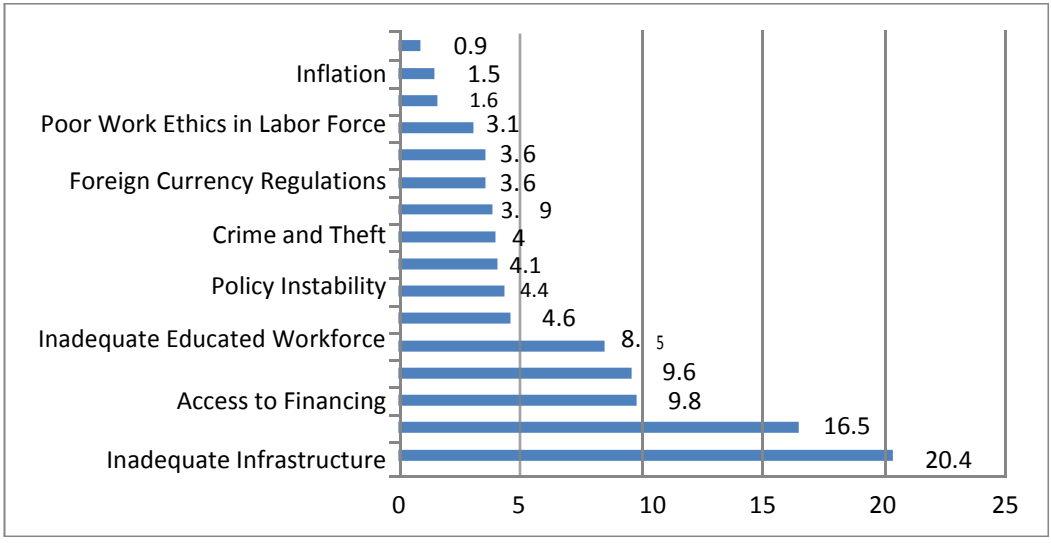
Table 12: Status of Bangladesh in Global Communication Infrastructure

Year	Total Countries Surveyed	GCI		Infrastructure				
					Value and Ranking on Quality			
		Rank	Score (1-7)	Rank	Roads (Value) (Rank)	Rail (Value) (Rank)	Port (Value) (Rank)	Air (Value) (Rank)
2010-2011	139	107	3.6	133	- 100	- 71	- 107	- 117
2011-2012	142	108	3.7	134	2.9 111	2.5 73	3.4 113	3.5 117
2012-2013	144	118	3.6	134	2.8 113	2.5 73	3.3 121	3.5 120

2013-2014	148	110	3.7	132	2.8 118	2.4 78	3.5 104	3.2 125
2014-2015	144	109	3.7	127	2.9 117	2.4 75	3.7 93	3.0 127
2015-2016	140	107	3.8	123	2.9 113	2.5 75	3.6 93	3.2 121
2016-2017	138	106	3.8	114	2.9 113	2.7 72	3.5 89	3.2 115
2017-2018	140	103	3.7	109	3.1 111	3.2 68	3.5 93	3.7 109

Source: Compiled from WEF Reports 2011, 2012, 2013, 2014, 2015, 2016, 2017 and 2018

Chart 4: Most Problematic Factors for Doing Business in Bangladesh



Source: WEF Executive Survey 2016-2017. p.110.

10. Possible Ways Forward

10.1 Integration into Multi-modal Network System: The road transportation system is the most dominant mode of transportation carrying over 70 percent passenger and 60 percent freight traffic (FYP, 2015). The pressure on road traffic can be reduced if certain part of its passenger and cargo traffic load is shifted to inland water transport (IWT) and railway. Bangladesh is crissed-crossed with numerous rives covering about 5,968 kilometers of navigable channels. Besides that, Bangladesh Railway covers about 2877 kilometers of rail route network. Taking cognizance of these means of communication, road development should be planned. For an effective form of transport connectivity, the road network needs to be integrated with IWT and railway network.

10.2 Compatible Infrastructural and Institutional Development: The projected traffic growth suggests that it will require massive upgrading of the roads and highway network in the form of improved quality and greater number of lanes. Major national arteries will have to comply with international benchmarks such as those of the Asian Highway network. Given the current condition of roads in Bangladesh, qualitative improvement is an immediate concern. Bangladesh will also have to apply appropriate measures to improve the resilience of its road infrastructure in the face of climate change. The real challenge of a road connectivity arrangement will be the huge investment required (both from domestic and external sources) for roads, bridges and related infrastructure and software, including environmental, social, security and climate change adaptation measures. Standardized institutional arrangements such as one stop service, universal customs rules, immigration and security procedures must be simplified.

10.3 Traffic Control Measures and Traffic Management: The road network of Bangladesh is among the worst in Asia in terms of quality and infrastructure. It has two serious lacking which needs to be addressed with top priority. Firstly, the 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, leading to heavy traffic congestions and frequent road accidents. These problems are particularly evident on the roads emanating from the bordering areas. Besides that, the highways and district roads are encroached at different locations by local marketplaces and irregular parking, which add to a significant increase in traffic congestion, travel time and transportation cost.

10.4 Road Repair and Development: Gradual upgrading of all the highways into minimum four-lane roads is very important now. Upgrading the lower classified bridges and sealing of the road-shoulders to prevent unauthorized entry and encroachment is also vital for our national highways. Major roads like Dhaka-Chattogram, Dhaka-Rangpur, Dhaka-Rajshahi, Dhaka-Sylhet and Dhaka-Khulna Highways should be upgraded to six-lane roads gradually. Encroachment of road shoulder along the highways by small traders and markets needs to be prevented at all cost. The tendency to link local roads with the highways should be curbed to stop entry and exit of different types of non-mechanized vehicles with the highways.

10.5 Increase East – West Connectivity: The lack of east-west connectivity in the road network of Bangladesh is also a serious limitation in our road network system due to the existence of mighty rivers Padma and Jamuna. The Bangabandhu Jamuna Multipurpose Bridge (BJMB) over Jamuna is the only direct east-west link to connect

with north-eastern part of the country, while the south-eastern part across the Padma River is connected through ferry services, or with a long detour through BJMB. However, the 6.15-kilometer-long Padma Bridge, which is under construction now will facilitate the east-west link and improve connectivity with Mongla Port.

10.6 Stop Multiple Mixes of Transports on the Same Road: Another issue of grave concern is that, the multiple mix of traffics on the roads of Bangladesh pose a major challenge to introducing an internationally accepted road communication system in the country. There are different categories of motorized and non-motorized vehicles plying on the highways of the country, many of which are indigenously developed with non-standard designs violating safety rules. Growth of these sub-standard and indigenous types of vehicles needs to be curbed. In addition, future development and extension of the highways should cater for the provision of separate roads for non-mechanized and local slow-moving vehicles.

10.7 Regulatory Measures on Drivers' License &Vehicle Registration: According to a rough estimate of BRTA, over three lacs of vehicles are plying on the roads without registration; and more than 55,000 vehicles are there, which do not have any road fitness. Some of the vehicles are operated by drivers, who do not have authorized license. This transgression has to be addressed to bring rule of law on the highways.

10.8 Division of Responsibility between BRTA and Police on Road Traffic: Although BRTA claims that they have frequent drives with mobile courts against the defaulters, they tend to avoid responsibility saying that such violations are the concerns of the traffic department of police. Therefore, unless a concerted drive is initiated by both these organization in coordination with each other, no fruitful remedy can be expected to this problem.

11. Concluding Remarks

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 knit to each other. Connectivity across borders builds regional network of production and supply chain, generating productivity and economic activity. Studies of ADB on the developing countries of Asia show that basic infrastructures such as transport communication, road network and power are the key factors to help poorer countries climb up the poverty line (ADB, 2008). As regards to Bangladesh, this factor

has not been given adequate attention until recent now, where communication networks were developed to meet the domestic needs of transportation only. The state of our roads is among the worst in Asia as reveled in an opinion survey of the World Economic Forum. Same is the case with railway and the inland water communication systems, where the standard of the communication network and quality of public and cargo transportations are even worse than the ones on the roads.

In response to the recent regional, sub-regional and bilateral initiatives on cross border transport connectivity, the Government of Bangladesh has also mobilized its action plans to develop road, rail and river transport networks of the country. It is indeed a challenging undertaking 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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