Data Collection Survey
on the Comprehensive Transport Plan
between Dhaka and Chittagong

Final Report

November 2017

JAPAN INTERNATIONAL COOPERATION AGENCY

PADECO Co., Ltd.

The exchange rates applied in this study are;
USD1.0 = BDT80.0 (November, 2017)
BDT: Bangladesh TAKA

Executive Summary

Background and Objectives

Dhaka and Chittagong are the two largest cities in Bangladesh, accounting for 13% of the national population and 50% of gross domestic product (GDP). Strengthening the linkages between the two cities (250 km by road, 320 km by rail, and 300 km by waterway) by infrastructure development is essential for the national economic growth.

The objectives of the Survey are as follows:
- To review ongoing/planned transport projects and urban development plans for strengthening major intercity (mainly between Dhaka and Chittagong) and regional cross-border transport networks in Bangladesh;
- To analyze transport demand that would result from future economic growth; and
- To examine project plans for unleashing the development potential along the Dhaka–Chittagong corridor by means of enhancing multimodal transport including rail, inland water, and road.

Current Situation of Transport Development

Transport and Related Infrastructure

Road

In 2009, the Roads and Highways Department (RHD) prepared the Bangladesh Road Master Plan to guide road sector investment over the 20 years. Nevertheless, RHD in collaboration with LGED is planning to update the road master plan due to various changes of the existing master plan scenario, including the recent government promotion of developing economic zones and the increasing importance of regional connectivity, road maintenance, and traffic safety.

There are two overlapped expressway projects for the Dhaka–Chittagong corridor. One is the Dhaka–Chittagong Expressway proposed by RHD, and its F/S was done as of October 2017, while the other is the Dhaka–Chittagong Multimodal Transport Corridor proposed by Bangladesh Bridges Authority (BBA), and its EOI has been called as of October 2017. Another major projects under implementation are the Kanchpur, Meghna, and Gumti 2nd Bridge Construction and Exiting Bridge Rehabilitation Project (I) (II).

Rail

In 2013, the Bangladesh Railway (BR) prepared the Railway Master Plan with the support of the UK Department for International Development (DFID). The master plan proposes a total of 235 projects costing Taka 23 billion ($30 billion) over the 2010–2030 period. BR has been undertaking the activities under the ADB-funded SASEC Railway Connectivity Investment Program including the updating the existing master plan. The revised master plan looks at the next 30 years until 2045. There are two overlapped high-speed railway projects for the Dhaka–Chittagong corridor, one proposed by BR and the other by BBA

Inland Water Developments

There are various development plans and projects. Seventh Five Year Plan was prepared over the 2016-2020 period, covering the development of Inland Water Transport. Annual Development Program was also prepared over the 2016–2017 period and includes various development projects. There is also Inland Water Transport Master Plan studied in 2009. The World Bank conducted their study in 2016 and formulated the Bangladesh Regional Inland Water Transport Project 1.

Summary of Major Issues

Road

- Lack of integrated planning and coordination among relevant agencies
- Insufficient road capacity and traffic congestion
- Lack of a transport hierarchy and connectivity
- Inadequate maintenance of damaged roads and bridges
- Low level of road safety, prevalent vehicle overloading, and inadequate traffic management

Rail

- Insufficient rail track and structure
- Insufficient capacity of ICD and rolling stock.
- Operational inefficiency

Inland Water

- Shortening of navigable route length
- Inadequate river ports and jetties
- Shortage of facilities and services for international trade
- Management of increasingly large vessels
- Inadequate container transport
- Lack of navigational aids
- Deficient access road to river ports

Transport Survey

By gathering information on actual transport services from administrators/operators of i) railway and (ii) inland waterway, the JICA Study Team clarified movements of passengers and goods between Dhaka and Chittagong.
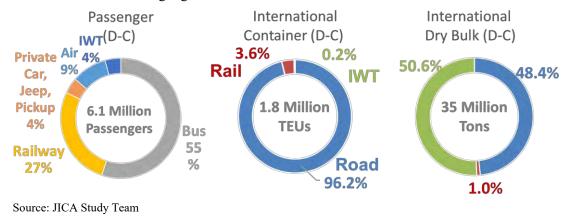

Source: JICA Study Team

Figure 1: Transport Demand in 2015 between Dhaka and Chittagong

Interview Survey on User Preferences

The JICA Study Team conducted interview surveys about users' preference on transport mode between Dhaka and Chittagong. Based on the result of the survey, two mode choice models were developed, one for passengers another for cargoes. Using the model, likely outcome of the introduction of a High Speed Rail (HSR) service to this corridor was also analyzed.

The result indicates that the air transport users have a high time value and have high willingness to pay for the reduction of travel time. Passenger car users have the second highest time value,

but passenger car users are highly preferable to passenger cars as their mode of transport. Therefore, the passenger demand for the HSR would fluctuate greatly depending on its travel time and fare.

Future Transport Demand

Transport Demand by Transport Mode in 2031 and 2041

Figure 2 shows the future transport demand by transport mode in Dhaka-Chittagong in 2031 and 2041. Different colored lines indicate each mode of transport. The National highway is shown in light green, toll-expressway in dark green, existing railway in red, high-speed railway in purple, and inland water transport in blue. The thickness of the line indicates the traffic volume per day.

| Passenger Traffic Flow in 2031 | Cargo Traffic Flow in 2031 |

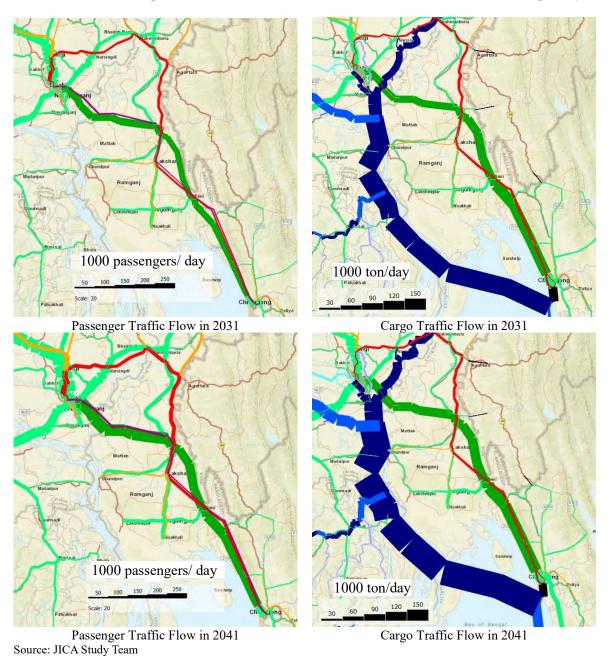| Passenger Traffic Flow in 2041 | Cargo Traffic Flow in 2041 |

Source: JICA Study Team

Figure 2: Future Transport Demand in 2031 and 2041 by Transport Mode between Dhaka and Chittagong

Figure 3 shows the comparisons between the planned supply of transport services and the forecasted transport demand by transport mode. For several sections of the road and the rail, the traffic demand is expected to be larger than the planned capacity in the long term, where it is expected that traffic congestion and the deterioration of transport services are expected to take place.
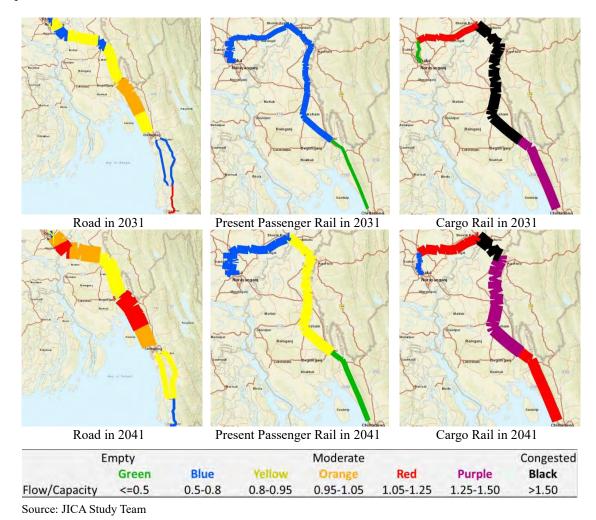

| | Road in 2031 | | Present Passenger Rail in 2031 | | Cargo Rail in 2031 |

| | Road in 2041 | | Present Passenger Rail in 2041 | | Cargo Rail in 2041 |

	Empty			Moderate			Congested
	Green	**Blue**	**Yellow**	**Orange**	**Red**	**Purple**	**Black**
Flow/Capacity	<=0.5	0.5-0.8	0.8-0.95	0.95-1.05	1.05-1.25	1.25-1.50	>1.50

Source: JICA Study Team

Figure 3: Planned Supply of Service and Forecasted Demand Comparison

Prioritization of Projects and Phased Development Program

The projects at the planning and proposed stage were prioritized based on common criteria applied across individual projects in different transport sectors. The four indicators used for evaluation include (i) urgency, (ii) (potential) effect, (iii) implementability, and (iv) environmental and social considerations. The phased development plan for each mode was formulated the careful evaluation of the planned and proposed projects based on the above criteria as shown in Figure 4.

Road

Item	Short Term (2017-21)	Medium Term (2022-31)	Long Term (2032-41)
Primary Develop-ment Initiatives	⬇ Urgent major capacity expansion along the corridor ⬇ Removal of major bottlenecks ⬇ Urgent accessibility development	⬇ Continued capacity expansion along the corridor ⬇ Continued accessibility development ⬇ Connectivity enhancement and user-friendly measures	⬇ Continued capacity expansion along the corridor ⬇ Network expansion through the construction of new routes ⬇ Continued connectivity enhancement
Roads	■ Construction of DC Expressway ■ Development of Access Roads to DC Expressway ■ KMG 2nd Bridges Construction and Existing Bridge Rehabilitation (Ongoing) ■ Construction of Multi-Lane Tunnel under the River Karnaphuli (Ongoing)	■ Continued Construction of DC Expressway ■ Continued Development of Access Roads to DC Expressway ■ Chittagong–Cox's Bazar N1 Widening ■ Development of Regional Highways and Zila Roads ■ Construction of Resting Places along N1	■ Construction of Chittagong–Cox's Bazar Expressway ■ Continued Chittagong–Cox's Bazar N1 Widening ■ Continued Development of Regional Highways and Zila Roads

Rail

Item	Short Term (2017-21)	Medium Term (2022-31)	Long Term (2032-41)
Primary Develop-ment Initiatives	⬇ Urgent major capacity expansion along the corridor ⬇ Integration of multimodal transport system ⬇ Preparation for high-speed railway development	⬇ Electrification along the corridor ⬇ Rail connection development to Matarbari seaport ⬇ High-speed railway development ⬇ Enhancement of maintenance capacity	⬇ Continued Enhancement of maintenance capacity ⬇ High-speed railway network expansion
Rail	■ Enhancement of the Existing Railway along the DC Corridor (Fully Dual Gauged, Double Truck) ■ Construction of a New ICD near Dhirasram Railway Station ■ Preparation for Construction of DC High-Speed Railway ■ SASEC Chittagong–Cox's Bazar Railway Project (Ongoing)	■ Enhancement of the Existing Railway along the DC Corridor (Electrification) ■ Construction of Connecting Line to Matarbari Seaport ■ Construction of DC High-Speed Railway ■ SASEC Chittagong–Cox's Bazar Railway Project (Ongoing)	■ Enhancement of the Existing Railway along the DC Corridor (Maintenance Practice) ■ Construction of Chittagong–Cox's Bazar High-Speed Railway

Inland Water

Item	Short Term (2017-21)	Medium Term (2022-31)	Long Term (2032-41)
Primary Develop-ment Initiatives	⬇ Urgent major capacity expansion along the corridor ⬇ Removal of major bottlenecks ⬇ Steady implementation of ongoing projects	⬇ Continued capacity expansion along the corridor ⬇ Implementation of priority projects ⬇ Preparation for Vessel Tracking System (VTS) as a Pilot Project	⬇ Continued capacity expansion along the corridor ⬇ Enhancement of regular and maintenance capacity ⬇ Expansion of VTS along the corridor
Inland Water	■ Establishment of Terminal Facilities at Shashan Ghat, Area under Dhaka River Port (Ongoing) ■ Bangladesh Regional Inland Water Transport Project 1 (Ongoing) ■ Construction of BIWTC Passenger Vessels for providing efficient services in Chittagong-Sadwip-Hatiya-Barisal route (Ongoing) ■ Procurement of Two New Passenger Vessels for Dhaka–Barisal–Khulna River Route (Ongoing) ■ Construction of Walkway and Bank Protection on Evicted Foreshore Land of Rivers Buriganga, Sitalakhya, and Turag ■ Preparation for Development and Improvement of Facilities at Inland Ports and Terminals, Procurement of Vessels, and Improvement of Port Operation and Enhancement of Passenger Safety	■ Preparation for the Construction of Inland Container River Terminal (ICT) at Khanpur, Narayaganj ■ Development and Improvement of facilities at Inland Ports and Terminals ■ Procurement of Vessels, Improvement of of Port Operation and Enhancement of Passenger Safety	■ Construction of ICT at Khanpur, Narayaganj ■ Continued Development of Inland Ports and Terminals (Regular Repair and Maintenance) ■ Evaluation of the VTS Pilot Project and its extension in entire Bangladesh in order to enhance safety and security of vessels and passengers

Related Development

Item	Short Term (2017-21)	Medium Term (2022-31)	Long Term (2032-41)
Primary Develop-ment Initiatives	⬇ Urgent major capacity expansion along the corridor ⬇ Steady implementation of ongoing projects ⬇ Preparation for Matarbari seaport development	⬇ Continued capacity expansion along the corridor ⬇ Continued implementation of ongoing projects ⬇ Matarbari seaport development	⬇ Continued capacity expansion along the corridor ⬇ Handling efficiency improvement at the existing seaports and airports
Seaport	■ Matarbari Ultra Super Critical Coal-fired Power Project (Ongoing) ■ Preparation of Matarbari Seaport Development Project (Ongoing)	■ Measures to increase capacity of the existing seaports ■ Implementation of Matarbari Seaport Development Project	■ Measures to improve handling efficiency at the existing seaports
Cross-border Transport	■ Bangladesh Regional Connectivity Project (Ongoing) ■ Cross-border Road Network Improvement Project (Ongoing)	■ Continued Bangladesh Regional Connectivity Project (Ongoing)	■ Measures to improve cross-border transport
Air	■ Hazrat Shahjahal International Airport Expansion Project (Ongoing) ■ Preparation for the Construction of Bangabandhu International Airport (Ongoing) ■ Upgrading of Cox's Bazar Airport to an International Airport (Ongoing)	■ Measures to increase capacity of the existing airports ■ Construction of Bangabandhu International Airport	■ Measures to improve handling efficiency at the existing airports
Economic Zones (EZ)	■ Preparation for the Development of EZ (Ongoing)	■ Development of EZ (and Peripheral Infrastructure) along the Corridor	■ Continued Development of EZ (and Peripheral Infrastructure) along the Corridor

Source: JICA Study Team

Figure 4: Phased Multimodal Transport Development Plan on the Corridor

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Abbreviations and Acronyms

ADB	Asian Development Bank
ADP	Annual Development Program
BAFFA	Bangladesh Freight Forwarders Association
BBA	Bangladesh Bridge Authority
BEPZA	Bangladesh Export Processing Zones Authority
BEZA	Bangladesh Economic Zone Authority
BKMEA	Bangladesh Knitwear Manufacturers and Exporters Association
BG	Broad Gauge
BGMEA	Bangladesh Garments Manufacture and Export Association
BIWTA	Bangladesh Inland Water Transport Authority
BIWTC	Bangladesh Inland Water Transport Corporation
BLPA	Bangladesh Land Port Authority
BOT	Build-Operate-Transfer
BR	Bangladesh Railway
BRT	Bus Rapid Transit
BRTA	Bangladesh Road Transport Authority
BRTC	Bangladesh Road Transport Corporation
CAAB	Civil Aviation Authority of Bangladesh
CCT	Chittagong Container Terminal
CPA	Chittagong Port Authority
DEPTC	Deck and Engine Personnel Training Center
DFID	Department for International Development
DOS	Department of Shipping
DPP	Development Project Proforma/Proposal
EDCF	Economic Development Cooperation Fund
EIA	Environment Impact Assessment
EOI	Expression of Interest
EPZ	Export Processing Zones
GCB	General Cargo Berth
GDP	Gross Domestic Product
GOB	Government of Bangladesh
HSIA	Hazrat Shajalal International Airport
ICD	Inland Container Depot
ICT	Inland Container River Terminal
IRI	International Roughness Index
IWT	Inland Water Transport
JICA	Japan International Cooperation Agency
LAD	Least Available Depth
LGED	Local Government Engineering Department
LoC	Line of Credit
LPG	Liquefied Petroleum Gas
MG	Meter Gauge
MOS	Ministry of Shipping
MPA	Mongla Port Authority
MRT	Mass Rapid Transit
NCT	New-mooring Container Terminal
NLTP	National Land Transport Policy
OD	Origin and Destination
ODA	Official Development Assistance
PFR	Periodic Financing Request

PIWTA	Protocol on Inland Water Trade and Traffic
POL	Petroleum, Oil, and Lubricants
PPP	Public-Private Partnership
RCC	Reinforced Cement Concrete
RFP	Request for Proposal
RHD	Roads and Highways Department
RMG	Ready-made Garments
RMIP	Road Maintenance Improvement Project
ROW	Right of Way
SAARC	South Asian Association for Regional Cooperation
SASEC	South Asian Sub-Regional Economic Cooperation
TA	Technical Assistance
TEC	Tender Evaluation Committee
TEU	Twenty-foot Equivalent Unit

1. Introduction

1.1 Background

Dhaka and Chittagong are the two largest cities in Bangladesh, accounting for 13% of the national population and 50% of gross domestic product (GDP). Both passenger and freight traffic between the two cities (250 km by road, 320 km by rail, and 300 km by waterway) are serviced by roads, railways, air transport, and inland waterways. The urban population in Bangladesh is anticipated to grow at an average rate of 2.8% per year over the period 2015–2030,[1] while the robust economic growth is expected to continue at an average rate of 7.0% per year between 2017 and 2022.[2] Thus, strengthening the linkages between the two cities is essential.

The Government of Bangladesh has prepared the Seventh Five Year Plan, a national development plan for the fiscal years of 2016–2020,[3] with the goal of realizing an annual average growth rate of 7.4%. Under the plan, the government intends to accelerate economic growth, strengthen inclusiveness, reduce poverty, and create employment, while also setting core targets which include infrastructure development. The key issues raised and targeted for development include, among other things, the improvement of intercity highways, promotion of regional connectivity, improvement of port handling capacity, and efficient use of river and rail transport.

In order to develop major intercity transportation systems, it is necessary to prepare and utilize multiple modes in an efficient and effective manner. This requires the consideration of various measures, including those that serve to increase transport capacity through the widening and upgrading of roads, constructing highways, upgrading and developing railway facilities and rolling stock, institutionally reforming inland water, dredging, and developing navigation aid facilities. Therefore, it is desirable that the development strategy for multimodal transport be considered from a diversified and comprehensive perspective, and thereby multimodal transport can be enhanced towards the strengthening of major intercity (centered on the Dhaka–Chittagong corridor) and regional cross-border transport network in Bangladesh.

This Final Report was prepared following the study activities that were performed from mid-December 2016 to November 2017. A total of seven field surveys were conducted over the period. Details of the organizations visited in each field survey are shown in Appendix 1.

1.2 Objectives

The objectives of the Survey are as follows:

- To review ongoing/planned transport projects and urban development plans for strengthening major intercity (mainly between Dhaka and Chittagong) and regional cross-border transport networks in Bangladesh;
- To analyze transport demand that would result from future economic growth; and
- To examine project plans for unleashing the development potential along the Dhaka–Chittagong corridor by means of enhancing multimodal transport including rail, inland water, and road.

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[1] Source: UN, *World Urbanization Prospects: The 2014 Revision.*
[2] Source: IMF, *World Economic Outlook Database*, April 2017.
[3] The fiscal year in Bangladesh begins on 1 July and ends on 30 June.

1.3   Survey Area
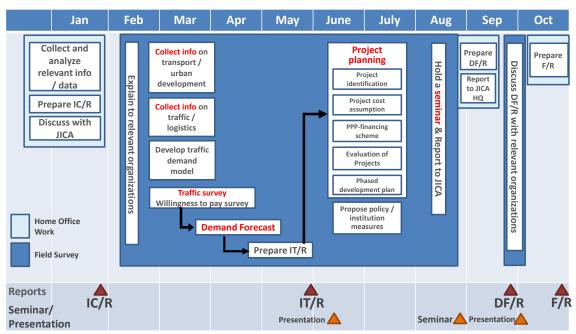
The subject area of the Survey is the entire country of Bangladesh, particularly its major cities (with population over 300,000) and areas between neighboring countries (especially India and Myanmar).

1.4   Survey Tasks

The specific tasks envisaged for the Survey were set out in the Terms of Reference (TOR) and include the following:

1.   Collect and analyze existing documents, information, and data relevant to the study;
2.   Prepare Inception Report (IC/R);
3.   Present the study plan to relevant organizations in Bangladesh;
4.   Collect detailed information and review transport and urban development sectors of Bangladesh;
5.   Interview relevant government organizations, shippers, freight forwarders, logistics companies, shipping lines, etc. to identify issues and needs of passenger and freight transport;
6.   Examine demand forecast methodology and zoning system;
7.   Conduct traffic surveys and develop present origin-destination (OD) matrices;
8.   Conduct user-stated preference surveys;
9.   Conduct future transport demand forecast and prepare Interim Report (IT/R);
10.   Formulate phased transport development plans;
11.   Propose policy and institutional system;
12.   Hold a seminar to present the development plans to relevant organizations;
13.   Report to JICA and prepare Draft Final Report (DF/R); and
14.   Discuss the contents of DF/R and prepare Final Report (F/R).

Figure 1.1 illustrates these tasks and periods of time in which they were (and will be) carried out, as well as inter-relationships among them.

Abbreviations: IC/R = Inception Report, IT/R = Interim Report, DF/R = Draft Final Report, F/R = Final Report
Source: JICA Study Team

Figure 1.1: Survey Flow and Schedule

2. Overview of Transport Development in Dhaka–Chittagong Region and Related Areas

2.1 Socio-Economic Conditions

2.1.1 Population

Over the period 2000-2015, the population of Bangladesh grew from 131 million people to 161 million, representing an average annual growth rate of 1.4% which is illustrated in Figure 2.1. While the rural population grew only slightly over this period (0.4% per annum), the urban population grew at an average of 3.9% per annum, the latter now comprises over one-third of Bangladesh's total population (less than one-quarter in 2000).[4]

Source: World Bank, World Development Indicator
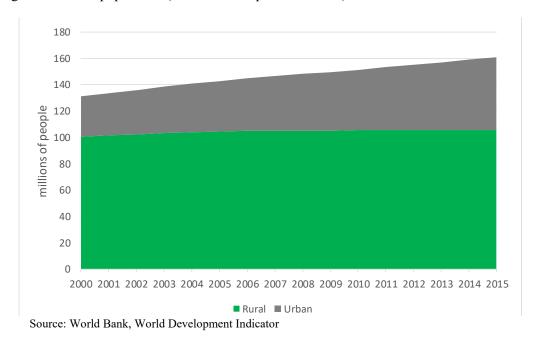
Figure 2.1: Bangladesh Urban and Rural Population 2000-2015

Population data at the District and Upazila levels exist for 2011 (Published in the 2011 Population and Housing Census). District-level data are shown in Table 2.1, whilst Upazila level data are shown in Appendix 2 (for both Chittagong and Dhaka Divisions).

Data on anticipated population growth rates for the Survey Area are hard to obtain, particularly at a zonal level. Partial forecasts on population might be taken from the Governance and Infrastructure Improvement under City Governance Project for Targeted Five City Corporations being undertaken by Local Government Engineering Department (LGED) with assistance from JICA; however, these only cover parts of Chittagong (41 Wards within Chittagong City Corporation), Comilla (27 Wards within Comilla City Corporation and 10 areas in the vicinity thereof), Gazipur (57 Wards of the Gazipur City Corporation) and Narayanganj (27 Wards comprising the Narayanganj City Corporation, plus 12 Unions nearby).

On the ADB project for the Dhaka–Chittagong Expressway, trip forecasting was undertaken using the envisaged GDP growth rates, which are set out in the next subsection. The same approach is intended to be used in this Study.

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[4] Source: World Bank, World Development Indicator

Table 2.1: Population and Number of Households by Division and District, 2011

Zone	Division	District	Households	Population		
				Male	Female	Total
n/a	**Bangladesh**	**Country Total**	**32,173,630**	**71,933,901**	**72,109,796**	**144,043,697**
10000	**Chittagong**	**Division Total**	**5,626,310**	**14,489,705**	**13,933,314**	**28,423,019**
10100	Chittagong	Bandarban	80,102	184,985	203,350	388,335
10200	Chittagong	Brahmanbaria	538,937	1,473,787	1,366,711	2,840,498
10300	Chittagong	Chandpur	506,521	1,270,187	1,145,831	2,416,018
10400	Chittagong	Chittagong	1,532,014	37,774,998	3,838,854	7,616,352
10500	Chittagong	Comilla	1,053,572	2,812,270	2,575,018	5,387,288
10600	Chittagong	Cox's Bazar	415,954	1,120,386	1,169,604	2,289,990
10700	Chittagong	Feni	277,665	743,243	694,128	1,437,371
10800	Chittagong	Khagrachhari	133,792	300,124	313,793	613,917
10900	Chittagong	Lakshmipur	365,339	901,408	827,780	1,729,188
11000	Chittagong	Noakhali	593,918	1,622,914	1,485,169	3,108,083
11100	Chittagong	Rangamati	128,496	282,903	313,076	595,979
20000	**Dhaka**	**Division Total**	**10,849,315**	**23,252,101**	**24,172,317**	**47,424,418**
20100	Dhaka	Dhaka	2,786,133	5,488,185	6,555,792	12,043,977
20200	Dhaka	Gazipur	826,458	1,628,602	1,775,310	3,403,912
20300	Dhaka	Gopalganj	249,872	594,547	577,868	1,172,415
20400	Dhaka	Kishoreganj	627,322	1,479,665	1,432,242	2,911,907
20500	Dhaka	Madaripur	252,149	591,370	574,582	1,165,952
20600	Dhaka	Manikganj	324,794	716,508	676,359	1,392,867
20700	Dhaka	Munshiganj	313,258	724,108	721,552	1,445,660
20900	Dhaka	Narayanganj	675,652	1,426,779	1,521,438	2,948,217
21000	Dhaka	Rajbari	238,153	529,779	519,999	1,049,778
21100	Dhaka	Shariatpur	247,880	596,749	559,075	1,155,824
21200	Dhaka	Faridpur	420,174	970,724	942,245	1,912,969
21300	Dhaka	Tangail	870,102	1,847,713	1,757,370	3,605,083
21400	Dhaka	Narsingdi	477,976	1,122,001	1,102,943	2,224,944
21500	Dhaka	Jamalpur	563,367	1,163,950	1,128,724	2,292,674
21600	Dhaka	Netrokona	479,146	1,118,336	1,111,306	2,229,642
21700	Dhaka	Sherpur	341,443	681,937	676,388	13,583,225
21800	Dhaka	Mymensingh	1,155,436	2,571,148	2,539,124	5,110,272
30000	**Rajshahi**	**Division Total**	**4,486,829**	**9,227,948**	**9,256,910**	**18,484,858**
30100	Rajshahi	Joypurhat	242,556	454,484	459,284	913,768
30200	Rajshahi	Bogra	867,137	1,692,068	1,708,806	3,400,874
30300	Rajshahi	Naogaon	655,801	1,299,930	1,300,227	2,600,157
30400	Rajshahi	Natore	423,875	852,490	854,183	1,706,673
30500	Rajshahi	Nawabganj	357,982	837,303	810,218	1,647,521
30600	Rajshahi	Pabna	590,749	1,260,245	1,262,934	2,523,179
30700	Rajshahi	Sirajganj	714,971	1,546,121	1,551,368	3,097,489
30800	Rajshahi	Rajshahi	633,758	1,285,307	1,309,890	2,595,197
40000	**Rangpur**	**Division Total**	**3,817,664**	**7,905,934**	**7,881,824**	**15,787,758**
40100	Rangpur	Dinajpur	715,773	1,481,458	1,508,670	2,990,128
40200	Rangpur	Gaibandha	612,283	1,210,128	1,169,127	2,379,255
40300	Rangpur	Kurigram	508,045	1,058,831	1,010,442	2,069,273
40400	Rangpur	Lalmonirhat	290,444	627,300	628,799	1,256,099
40500	Rangpur	Nilphamari	421,572	911,267	922,964	1,834,231
40600	Rangpur	Panchagarh	228,581	490,919	496,725	987,644
40700	Rangpur	Rangpur	720,180	1,437,270	1,443,816	2,881,086
40800	Rangpur	Thakurgaon	320,786	688,761	701,281	1,390,042
50000	**Barisal**	**Division Total**	**1,862,841**	**4,236,158**	**4,089,508**	**8,325,666**
50100	Barisal	Barguna	215,842	455,368	437,413	892,781
50200	Barisal	Barisal	513,673	1,187,100	1,137,210	2,324,310

Zone	Division	District	Households	Population		
				Male	Female	Total
50300	Barisal	Bhola	372,723	892,726	884,069	1,776,795
50400	Barisal	Jhalokati	158,139	353,522	329,147	682,669
50500	Barisal	Patuakhali	346,462	782,413	753,441	1,535,854
50600	Barisal	Pirojpur	256,002	565,029	548,228	1,113,257
60000	**Khulna**	**Division Total**	**3,739,779**	**7,845,226**	**7,842,533**	**15,687,759**
60100	Khulna	Bagerhat	354,223	735,952	740,138	1,476,090
60200	Khulna	Chuadanga	277,464	564,196	564,819	1,129,015
60300	Khulna	Jessore	656,413	1,378,254	1,386,293	2,764,547
60400	Khulna	Jhenaidah	422,332	884,902	886,402	1,771,304
60500	Khulna	Khulna	547,347	1,142,841	1,175,686	2,318,527
60600	Khulna	Kushtia	477,289	973,320	973,518	1,946,838
60700	Khulna	Magura	205,902	463,680	454,739	918,419
60800	Khulna	Meherpur	166,312	330,758	324,634	655,392
60900	Khulna	Narail	162,607	368,141	353,527	721,668
61000	Khulna	Satkhira	469,890	1,003,182	982,777	1,985,959
70000	**Sylhet**	**Division Total**	**1,790,892**	**4,976,829**	**4,933,390**	**9,910,219**
70100	Sylhet	Habiganj	393,302	1,063,410	1,025,591	2,089,001
70200	Sylhet	Moulvibazar	361,177	974,334	944,728	1,919,062
70300	Sylhet	Sunamganj	440,332	1,231,862	1,236,106	2,467,968
70400	Sylhet	Sylhet	596,081	1,707,223	1,726,965	3,434,188

Source: Bangladesh Bureau of Statistics, Statistical Year Book Bangladesh 2015

2.1.2 Economy

Just as obtaining detailed population data at the zonal level has proven difficult (2011 census data are available, but up-to-date information and forecasts are not), so too has it been to obtain spatially-oriented economic data of Bangladesh. On the other hand, statistics are available at the national level. Over the period 2000-2015, real GDP grew at an average rate of 5.8% per annum, while real GDP per capita growth over that same period averaged 4.4% per annum. These trends have been illustrated in Figure 2.2.

Source: World Bank, World Development Indicator
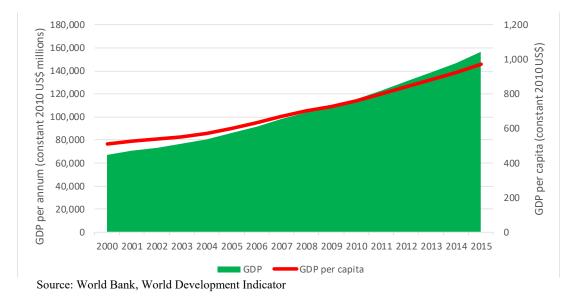
Figure 2.2: Bangladesh GDP and GDP per Capita, 2000–2015

Moreover, as can be seen in Figure 2.3, growth in GDP per capita has been accelerating in recent years, averaging over 5% per annum over 2010-2015 (real GDP grew at 6.3% per annum over the same period).

Source: World Bank, World Development Indicator
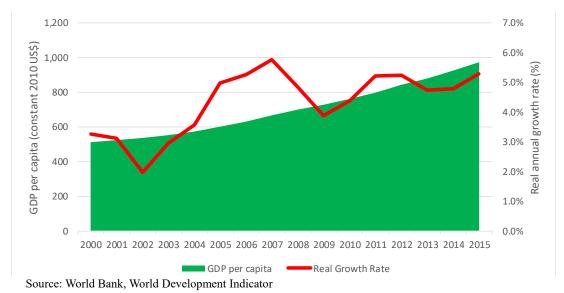
Figure 2.3: Bangladesh GDP per capita Growth, 2000–2015

2.1.3   International Trade

The Bangladeshi economy is heavily reliant upon foreign trade. Figure 2.4 and Figure 2.5 show the value of imports and exports moving in and out of Bangladesh over the period 2000–2015; as can clearly be seen, both imports and exports have been growing.

Source: World Bank, World Development Indicator
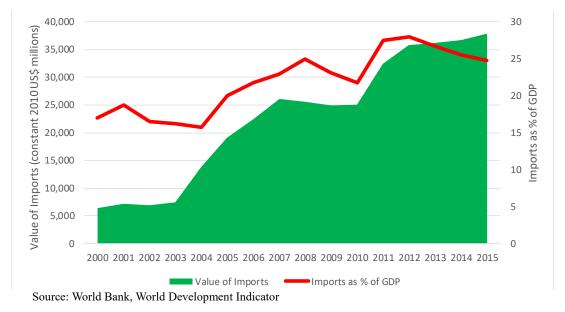
Figure 2.4: Bangladesh Imports, 2000–2015

Source: World Bank, World Development Indicator
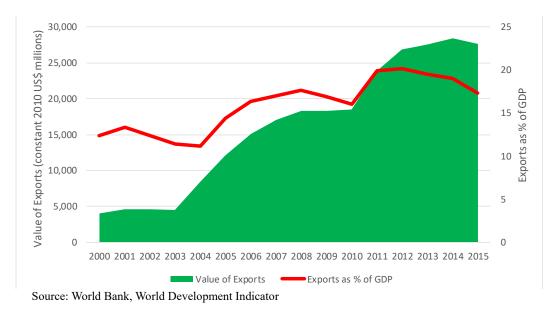
Figure 2.5: Bangladesh Exports, 2000–2015

As shown in Figure 2.4 and Figure 2.5, the value of imports exceeds the value of exports. Moreover, whilst growth in the value of imports has outpaced that of imports (as shown in Figure 2.6), the growth in the value of exports since 2000 has largely been in line with growth in the volume of exports (see Figure 2.7), although there was slight growth in the value of exports relative to volume of exports since 2009. Nevertheless, comparing these Figures shows that since 2000, there has been more substantial growth in exports than in imports. Consequently, it is likely that Bangladesh's ongoing development will be reliant on this growth in exporting to continue.

Source: World Bank, World Development Indicator
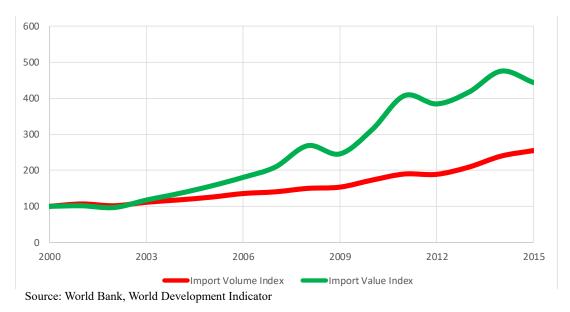
Figure 2.6: Bangladesh Import Volume and Value Indices (2000 = 100), 2000–2015

Source: World Bank, World Development Indicator
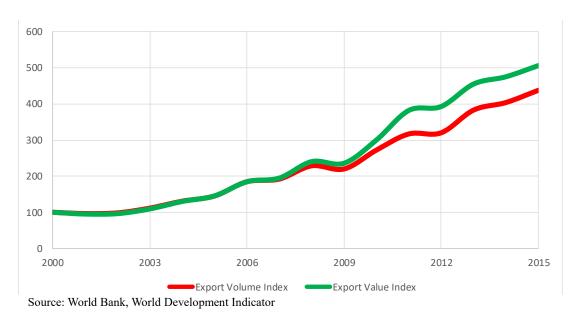
Figure 2.7: Bangladesh Export Volume and Value Indices (2000 = 100), 2000–2015

Finally, Figure 2.8 shows that foreign trade has grown as a proportion of Bangladesh GDP. In 2000, foreign trade was equivalent to 29% of GDP, whereas now it contributes over 40%; despite having declined slightly from a high in 2012 of 48%, the overall trend still remains one of growth.

Source: World Bank, World Development Indicator and JICA Study Team
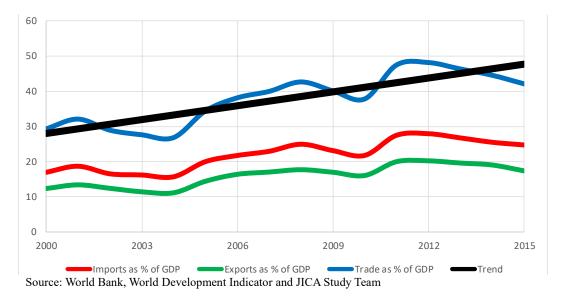
Figure 2.8: Foreign Trade as Proportion of Bangladesh GDP, 2000–2015

2.2   Transport and Related Infrastructure

With a focus on infrastructure, the remaining sections in this chapter provide an overview of transport development in the Dhaka–Chittagong region and related areas. Three different types of major transport infrastructure were closely examined: road, rail, and inland waterways; while the other transport and related infrastructure such as seaports, cross-border transport, air, export processing zones, and economic zones are also described. It should be noted that an analysis of operation and services in the road, rail, and inland water transport is provided in Chapter 3.

2.2.1   Roads

(1)   Overview

The transport system of Bangladesh has undergone significant changes over the last four to five decades. Prior to its independence in 1971, there were no national or regional roads. There were only roads connecting Dhaka with the rest of the country. In its stead, the extensive waterway network has played a vital role in connecting most of the nation, along with the railway network.

Since gaining its independence, the government has made road development a priority. As a result, road transport has become the dominant mode of surface transport in Bangladesh, responsible for carrying over 70% of passengers and 60% of freight. The Bangladesh Road Master Plan (see Subsection 2.3.1 for details) forecasts an average annual growth of 5.2% over the 2005-2025 period (medium case).

(2)   Road Network

As of 2015, the Bangladesh road network managed by the Roads and Highways Department (RHD) amounts to some 21,302 km.[5] This network consists of 3,813 km of National Highways (designated by a number preceded by "N"), 4,247 km of Regional Highways ("R" numbers), and 13,242 km of Zila or District Roads ("Z" numbers).[6] The overview of these roads is presented in Table 2.2, while the road network is mapped in Figure 2.9.

Table 2.2: RHD Road Network (Definition and Length)

Road Class	Definition	**Length** (km)
National Highways	Connecting with national capital and regional headquarters (HQs), seaports, land ports, and the Asian Highways.	3,813
Regional Highways	Connecting district HQs, main rivers, land ports or each other not connected by National Highways.	4,247
Zila Roads	Connecting district HQs with upazila HQs or connecting one upazila HQ to another upazila HQ via a single main connection with National/Regional Highways, through shortest routes/distance.	13,242
	Total	**21,302**

Source: RHD

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[5] In addition to these main roads managed by RHD, Bangladesh has over 300,000 km rural roads (upazila, union, and village roads) managed by the Local Government Engineering Department (LGED).

[6] Among them, total paved road network is around 19,387 km (91% of total road length) of which 3,759 km is National Highways, 4,403 km is Regional Highways, and 11,584 km is Zila Roads.

Source: RHD

Figure 2.9: Road Network in Bangladesh

(3)   Road Conditions

RHD has been assessing the actual road conditions to project the total maintenance needed for the paved road network within five years. The results of the 2015-2016 road conditions survey have been summarized in Table 2.3, indicating that a total of 16,621 km of road was surveyed, 39% of which was rated good (up from 19% in 2014-2015), 23% was fair (down from 37% in 2014-2015), while the remaining 37% was poor or worse (down from 43% in 2014-2015).[7]

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[7] The road condition has been grossly categorized into descriptive bands based on roughness measured by the International Roughness Index (IRI). These categories of National Highways for example are as follows: Good (IRI = 0–3.9), fair (IRI = 4.0–5.9), poor (IRI = 6.0–7.9), bad (IRI = 8.0–9.9), and very bad (IRI = 10.0 or above).

Table 2.3: Overall RHD Road Network Conditions Surveyed in 2015-2016

Road Conditions	National Highways (km)	Regional Highways (km)	Zila Roads (km)	Total (km)	Share (%)
Good	1,977	1,688	2,845	6,509	39
Fair	935	1,040	1,930	3,905	23
Poor	490	797	2,179	3,466	21
Bad	159	246	1,494	1,900	11
Very bad	96	170	574	841	5
Total	**3,658**	**3,941**	**9,022**	**16,621**	**100**

Source: RHD, Maintenance and Rehabilitation Needs Report of 2016-2017 for RHD Paved Roads

Based on the analysis of road conditions and traffic flow, RHD has identified the maintenance demand requirements for the 2016-2017–2020-2021 period. As shown in Table 2.4, this maintenance demand includes 3,570 km of National Highways, 4,224 km of Regional Highways, and 9,207 km of Zila Roads (excluding those under maintenance and/or improvement projects). Relatively high demand in the first year indicates a historical lack of maintenance. Unless this maintenance backlog is addressed shortly, many of these roads would require costly rebuilding.

Table 2.4: Maintenance Demand in 2016-2017–2020-2021

Year	National Highways (km)	Regional Highways (km)	Zila Roads (km)	Total (km)
2016–2017	2,435	2,379	4,265	9,080
2017–2018	620	711	1,136	2,467
2018–2019	282	437	1,909	2,628
2019–2020	144	512	1,359	2,015
2020–2021	88	185	539	812
Total	**3,570**	**4,224**	**9,207**	**17,002**

Source: RHD, Maintenance and Rehabilitation Needs Report of 2016–2017 for RHD Paved Roads

2.2.2 Rail

(1) Overview

The Dhaka–Chittagong railway corridor has a route length of 320.79 km and is of the utmost importance for Bangladesh Railway (BR). The main revenue stream for BR comes from the internal transportation of containers through this corridor. This corridor is also important with respect to passenger transport as it is part of some sub-regional corridors.[8] Although the country's economic growth has boosted the demand of this corridor, the existing railway infrastructure will not be able to accommodate the increasing demand for railway traffic.

(2) Tracks

The BR network has a two-gauge system: Meter Gauge (MG = 1,000 mm) and Broad Gauge (BG = 1,676 mm). MG is used in the East Zone and parts of the West Zone, while only BG is used in the West Zone. This two-gauge system is a physical barrier for movement of cross-border and sub-regional traffic. BR needs gauge unification to facilitate cross-border connectivity. Dual Gauge (DG), a mixture of MG and BG on the same track, was introduced in Bangladesh in 2001. DG realizes trains passing through between the East Zone and the West Zone.

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[8] These include the South Asian Association for Regional Cooperation (SAARC), the South Asian Sub-Regional Economic Cooperation (SASEC), the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), the Trans-Asian Railway Network, etc.

Of the Dhaka–Chittagong corridor, Dhaka–Tongi (22.94 km) has DG double track and Akhaura–Laksham (71.24 km) will be DG double track by 2019. The remaining 225.85 km is MG (a mixture of single and double tracks). It is desirable that these be converted to DG double track.

The southern part of Chittagong has MG single track between Chittagong and Dohazari (47.04 km). Although no track exists between Dohazari and Cox's Bazar, the government has started a project to construct a DG single line from Dohazari to Cox's Bazar and Gundum near the border of Myanmar.[9] The existing Chittagong–Dohazari section is a MG single track which must be converted to DG. Table 2.5 summarizes the overall existing rail types on the Dhaka–Chittagong corridor.

Table 2.5: Existing Rail Types of Dhaka–Chittagong Corridor

Section	Length (km)	Gauge Type	Track Type
Dhaka–Tongi	23	Dual	Double
Tongi–Bhairb Bazar	64	Meter	Single
Bhairb Bazar–Akhaura	33	Meter	Double (Partially)
Akhaura–Comilla	49	Meter	Single
Comilla–Laksham	22	Meter	Single
Laksham–Feni	40	Meter	Single
Feni–Chinki Astana	21	Meter	Single
Chinki Astana–Chittagong	69	Meter	Double
Chittagong–Dohazari	47	Meter	Single

Source: JICA Study Team

Mechanized track maintenance methods are under active consideration of the Railway Administration to replace conventional methods. Mechanical track lifting, slewing, tamping, and laying machines have been introduced along the Dhaka–Chittagong main line for track maintenance. A track recording trolley car is in use.

(3)   Structure

Most railway bridges were built over 100 years ago and are still in use. The permitted speed on most of the bridges is limited to 30-50 km/h. According to railway requirements, the bridges need to be replaced or rehabilitated due to damage to the abutments, piers, and girders. In addition, some existing bridges need to be completely rebuilt because the Dhaka–Chittagong corridor is in the process of converting from single to double track and from Meter to Dual Gauge.

(4)   Inland Container Depot

Kamalapur Inland Container Depot (ICD) is in operation near Kamalapur station. It handles both the inbound and outbound containers handled exclusively by BR. Kamalapur ICD has a capacity of 90,000 TEUs per year, but it is not enough to handle the increasing share of containers diverted towards BR. Expansion of Kamalapur ICD is difficult due to heavy built-up of the surrounding area. Furthermore, a daytime truck ban in Dhaka City makes it difficult to fully utilize the facility.[10]

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[9] On 21 June 2017, ADB signed two loan agreements with the Government of Bangladesh to provide a total of $300 million loan ($210 million for work and $90 million for consulting services) for the SASEC Chittagong–Cox's Bazar Railway Project, Phase 1–Tranche 1. The project aims at improving transport system in the Chittagong–Cox's Bazar corridor, by connecting the Cox's Bazar district to the national and sub-regional railway network. It includes (i) the construction of part of a new 102 km railway line including nine stations with integrated elderly, women, children, and disabled friendly design features, and (ii) the strengthening of BR capacity in project implementation. The project is expected to be completed by 31 December 2023.

[10] Under the truck ban, commercial vehicles including truck, container lorry, pick-up, etc. are not allowed to enter the city from 7:00 a.m. to 8:00 p.m.

Therefore, it was necessary to establish another full-fledged ICD with constant access to container handling and transportation. For this purpose, it was decided to construct a new ICD near Dhirasram Railway station attached to the Dhaka eastern by-pass road. Dhirasram ICD will have a capacity of 354,000 TEUs per year. BR has considered implementation of the project through PPP scheme.

(5)   Signal and Telecommunications

The importance of the Dhaka–Chittagong railway corridor increased immediately after the partition of India in 1947 as the corridor connects the capital city of Dhaka and the principal port city of Chittagong. To meet the needs for the speed and density of the traffic, signaling systems on the section were modernized in phases starting from the early 1960s.

The entire Tongi–Chittagong section is equipped with color light signal and relay interlocking with token-less block working except for Akhaura. In addition, modernization of signal and interlock system of 11 stations from Chittagong Junction cabin to Chinky Astana is under pipeline.

BR has an optical fiber-based digital telecommunication network, spanning over 2,009 km and connecting about 300 railway stations. This system serves about 1,300 users through ten telephone exchanges. In addition to 1,300 dial-up type digital telephones, the BR telecommunication system provides about 260 train control telephones and 503 station-to-station telephone connections. Copper conductors are used for block instruments and the block telephones. Computerized seat reservation and ticketing system and computerized wagon control system have been installed using this network.

(6)   Rolling Stock

Locomotive:

BR owns two types of locomotives: Diesel Electric (DE) and Diesel Hydraulic (DH). As of June 2015, there was a total fleet of 282: 274 of which were Diesel Electric (94 BG and 180 MG) and 8 were Diesel Hydraulic (2 BG and 6 MG) locomotives (Table 2.6).

Table 2.6: Locomotives

	Broad Gauge	Meter Gauge	Total
Diesel Electric	94	180	274
Diesel Hydraulic	2	6	8
Total	**96**	**186**	**282**

Source: BR, Information Book, 2015

Pahartali and Dhaka Diesel Workshops undertake the repairs of MG diesel locomotives, while Parbatipur Diesel Workshop services both BG and MG diesel locomotives. Heavy repairs and overhauls of diesel locomotives are conducted at the Central Locomotive Workshop at Parbatipur.

The existing main line locomotives are all DE types. These are manufactured by ALCO (USA), MLW/Bombardier (Canada), and Hitachi (Japan) for BG; while General Motors (USA/Canada), MLW (Canada), Hitachi (Japan), ABB Henschel (Germany), DLW (India), and Hyundai (South Korea) for MG. It is understood that over half of the Meter Gauge locomotives are over 30 years of age, indicating that the fleet is aging progressively.

Coaching Vehicles:

As of June 2015, BR has a total of 1,507 coaching vehicles, 1,474 of which are for passengers, 33 are for tourists, motor vans, and departmental use. Table 2.7 shows the gauge-wise breakdown of passenger carriages and other coaching vehicles owned by BR.

Table 2.7: Coaching Vehicles

		Broad Gauge	**Meter Gauge**	**Total**
Passenger		312	1,162	1,474
Other		12	21	33
	Total	**324**	**1,183**	**1,507**

Source: BR, Information Book, 2015

Freight Wagons

As of June 2015, BR has a total of 9,179 wagons: 5,847 covered, 975 open, and 2,357 special type wagons. Table 2.8 shows the gauge-wise breakdown of the BR-owned wagons.

Table 2.8: Freight Wagons

		Broad Gauge	**Meter Gauge**	**Total**
Covered Wagon		1,182	4,665	5,847
Open & Special		897	2,435	3,332
	Total	**2,079**	**7,100**	**9,179**

Source: BR, Information Book, 2015

Containers

BR has entered a new era of moving cargo in containers from Chittagong to Dhaka. Initially, special type flat wagons were arranged by converting some existing wagons. Subsequently, 130 bogie container flats were procured from China, and another 100 from India. An ICD was opened at Dhaka with custom and port facilities for clearance of container traffic. Since the introduction of exclusive container trains in August 1991, the volume of container traffic has been gaining momentum.

Mechanical Workshops

BR has mechanical maintenance workshops where rolling stocks are maintained. The details are shown in Table 2.9.

Table 2.9: Mechanical Workshops

Rolling Stock	**Mechanical Workshop**	**Location**
Locomotive	Central Locomotive Workshop	Parbatipur, Dinajpur
Locomotive	Diesel Workshop	Pahartali, Chittagong
Locomotive	Diesel Workshop	Dhaka
Locomotive	Diesel Workshop	Parbatipur, Dinajpur
Carriage and Wagon	C & W Shop	Nilphamari
Carriage and Wagon	C & W Shop	Pahartali, Chittagong

Source: BR, Information Book, 2015

Source: JICA Study Team
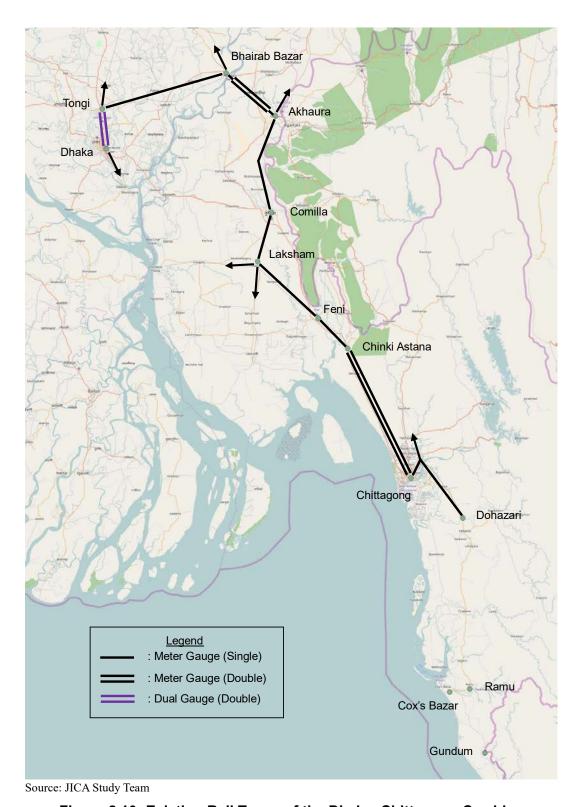
Figure 2.10: Existing Rail Types of the Dhaka–Chittagong Corridor

2.2.3   Inland Water

(1)   Overview

Bangladesh is a land that is naturally endowed with a network of inland waterways. The Dhaka–Chittagong Inland Water Transport (IWT) corridor plays an important role in this network. It connects Chittagong Port with the capital city Dhaka and Narayanganj, a major industrial and commercial hub of the country.

Although the road sector has expanded tremendously since the liberation of the country in 1971, the naturally existing inland waterways have made significant contribution to economic progress of the country.

The Dhaka–Chittagong IWT corridor serves as a life-line for the country. It is used for the importation of petroleum, oil, and lubricants (POL), fertilizer, raw materials for the garment factories, etc. these inputs, in turn, fuel the country's much needed foreign exchange earners, and facilitate the export of tea, leather products, finished garments, etc. For this reason, performance of the corridor always remains a matter of concern for the government.

In order to cope with rising import and export volume demand, the infrastructure of Chittagong Port has continued to develop over the years; yet even more is required. Similarly, there is a need to develop the IWT corridor which connects the port with the country's interior regions. This is all-the-more necessary now in view of the continuously increasing traffic congestion along highways and railways.

The corridor connects Chittagong Port with Dhaka and Narayanganj, where many commercial and industrial establishments are situated. Cargo vessels and fuel tankers use this route to transport import materials to factories in Dhaka, Narayanganj, and surrounding areas; similarly, products designated for export are transported from the region to the ports for shipping overseas.

The corridor is connected to Baghabari River Port which acts as a gateway to the north-western region of the country. Predominantly agricultural in character, the area serves as a granary and needs regular and timely supply of fuel to run irrigation pumps and fertilizer to grow crops. The corridor is also connected to the country's north-eastern region via waterway. Stones, gravel and coarse sand are transported to different parts of the country using cargo vessels and country boats.

The corridor constitutes a part of one of the inland waterway routes under the Protocol on Inland Water Trade and Traffic (PIWTT), a bilateral agreement signed between Bangladesh and India. The agreement allows vessels belonging to Bangladesh and India to enter either country through designated entry points and sail in the country using designated waterway routes and ports of call.

(2)   Inland Water Network

The corridor is about 300 km and is principally comprised by the Buriganga, Dhaleswari, Lower Meghna, Hatiya Channel, Sandwip Channel, and Karnaphuli River. A part of the route crosses through open sea (the Bay of Bengal).

The corridor is classified as Class-I, which means that it has a guaranteed navigation depth of at least 3.6 m. The Bangladesh Inland Water Transport Authority (BIWTA) is required to maintain this draft 24 hours a day, all throughout the year. To this end, BIWTA is expected to take all necessary measures, which includes expensive methods such as dredging. Navigation depth in the corridor is seldom allowed to fall below 3.6 m, even during low water seasons.

Navigating a vessel in the stretch passing through open seas often becomes risky during monsoon season due to occasional occurrence of seasonal storms (commonly known as *kal-boisakhi),* cyclones and storm-surges. Sailing ships are required to heed 'cyclone-warnings' which announce impending high winds and cyclonic weather over radio and television channels.

BIWTA provides adequate aids to navigation for day and night sailings. BIWTA also carries out 'maintenance dredging' as and when a fall in designated navigation depth is noted.

There exist two patches of under-water sand bars, locally known as *char,* west of Sandwip island. These have formed over the years due to the continuous deposit of silt. Navigation depths are not adequate in this location, and thus vessels are required to sail through by taking advantage of high tides.

(3)   Inland Container River Terminal

There is a purpose-oriented Inland Container River Terminal (ICT) at Pangaon, which is situated within port limits of Dhaka River Port. This facility is backed by Chittagong Port Authority who has provided a designated handling point for inland containers in the port itself. Chittagong Port also possesses three specialized container vessels which are in operational condition; yet there is not much container traffic in the corridor. This is mainly due to lack of interest on the side of the users.

(4)   Inland River Port

There are major inland river ports along the corridor.[11] Dhaka provides the country's most prosperous river port. The other important river ports are situated at Narayanganj, Chandpur, and Barisal. Mirkadim is another river port that has exhibited great potential.

The inland river ports are berthing and handling points along the corridor which have better passenger and freight handling facilities. Generally, they are equipped with infrastructure and service-facilities of a comparatively higher scale than those provided in launch berthing stations, also called launch stations or launch ghats, e.g., reinforced cement concrete (RCC) jetty, pontoon, separate waiting rooms and separate toilet facilities for gents and ladies, drinking water, etc.[12]

(5)   Launch Landing/Berthing Station, Launch Station, or Launch Ghat

The launch landing/berthing stations, launch stations, or launch ghats are terms used commonly as berthing points for vessels where little or no facilities could be extended, the principal reason being fund constraints. Although there is a need to provide minimum facilities for the travelling public particularly for women carrying babies, the old and infirm, and ill and disabled persons, poor funding to the sector does not allow it. There are some launch ghats with absolutely no facilities; in such places, launches are compelled to berth against the river bank and passengers use a long wooden plank, provided by the launch crew, over which they walk from vessel to shore, and vice versa. Table 2.10 is a list of more important launch stations and launch ghats lying along the corridor:

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[11] The inland river ports are declared as such by government gazettes.
[12] Compared to launch berthing stations, launch ghats are berthing points with facilities of a lower scale.

Table 2.10: Name of Launch Stations (Launch Ghats)

#	Name	#	Name	#	Name
1	Badamtali	16	Mirkadim	31	Alubazar
2	Nawab bari	17	Munshiganj	32	Ibrahimpur
3	Wiseghat	18	Gozaria	33	Nayarhat
4	Simpsonghat	19	Satnal	34	Hizla
5	Sadarghat (Dhaka Port)	20	Sugandhi	35	Mozu Chowdhury hat
6	Lalkuthi	21	Dashani	36	Ilshaghat
7	Shyambazar	22	Mohonpur	37	Chitalkhali
8	Mill Barack	23	Ekhlaspur	38	Daulatkhan
9	Shashanghat	24	Farazikandi	39	Char Gazaria
10	Shyampur	25	Zahirabad	40	Ramgati
11	Pagla	26	Amirabad	41	Boddarhat
12	Pangaon	27	Kanudi	42	Boyar Char
13	Fatulla	28	Safarnali	43	Chairmanghat
14	Baktabali	29	Madrasaghat	44	Sandwip
15	Madanganj	30	Harina	45	Sadarghat (Chittagong)

Source: BIWTA

2.2.4 Seaport, Cross-border Transport, Air

(1) Seaport

Bangladesh has two operating seaports for international trade. Chittagong Port is the largest with 1.87 million TEUs and 54.78 million tons of throughputs in 2014–2015. Mongla Port comes in at second, albeit with a huge gap, with 0.04 million TEUs and 5.80 million tons of throughputs in 2015–2016. The recent statistics are shown in Table 2.11 (in TEU) and Table 2.12 (in tons), indicating the overwhelming disproportion of imports over exports at both ports in tonnage. Chittagong Port is managed by Chittagong Port Authority (CPA), while Mongla Port is managed by Mongla Port Authority (MPA), both are overseen by the Ministry of Shipping.

Table 2.11: Container Throughput (in TEU), 2010–2011 through 2015–2016

	Chittagong Port			Mongla Port		
	Import	**Export**	**Total**	**Import**	**Export**	**Total**
2010–2011	729,693	739,221	1,468,914	13,699	13,424	27,123
2011–2012	675,796	667,612	1,343,408	15,460	14,585	30,045
2012–2013	743,547	725,166	1,468,713	21,994	21,879	43,873
2013–2014	812,918	812,591	1,625,509	21,947	21,060	43,007
2014–2015	940,827	926,235	1,867,062	21,036	21,101	42,137
2015–2016	n.a.	n.a.	n.a.	20,717	21,236	41,953

Abbreviation: n.a. = not available
Source: CPA, MPA

**Table 2.12: Cargo and Container Throughput (in tons),
2010–2011 through 2015–2016**

	Chittagong Port			Mongla Port		
	Import	**Export**	**Total**	**Import**	**Export**	**Total**
2010–2011	39,914,145	4,980,375	44,894,520	2,529,853	166,418	2,696,271
2011–2012	36,184,935	4,716,374	40,901,309	2,482,432	137,465	2,619,897
2012–2013	38,312,028	5,059,640	43,371,668	2,946,222	201,352	3,147,574
2013–2014	41,960,170	5,338,377	47,298,547	3,402,402	141,547	3,543,949
2014–2015	48,941,406	5,839,986	54,781,392	4,429,449	100,830	4,530,279
2015–2016	n.a.	n.a.	n.a.	5,709,664	87,857	5,797,521

Abbreviation: n.a. = not available
Source: CPA, MPA

Chittagong Port

Chittagong Port, situated on the right bank of the Karnaphuli River, is located 16 km upstream from the Bay of Bengal. It has access to the Dhaka–Chittagong corridor by road, rail, and inland water; however, the road is congested at its port entry and exit points, the rail is short of freight wagons, and the inland water is not fully utilized due to the lack of vessels and other reasons. Nevertheless, the port has increased its handling volume in recent years and exceeded its nominal operating capacity of 1.77 million TEUs in 2014–2015.

The main area of Chittagong Port is divided into General Cargo Berth (GCB), Chittagong Container Terminal (CCT), and New-mooring Container Terminal (NCT). The annual container handling capacity is 0.85 million TEUs at GCB, 0.52 million TEUs at CCT, and 0.40 million TEUs at NCT.[13] Table 2.13 lists construction years and major dimensions of these terminals, while Figure 2.11 shows the layout of Chittagong Port. The ADB-funded Strategic Master Plan for Chittagong Port has analyzed the current port operations as follows:

- GCB handles a mixture of bulk, break-bulk, and containers. It operates beyond current capacity, and simultaneously its quay and yard operations are sub-standard owing mainly to spatial and operational issues. As a short-term measure, the Strategic Master Plan has recommended that berths 10–13 (near CCT) be transferred to a modern container terminal, while berths 1–9 (away from CCT) be converted to a dedicated multi-purpose terminal for non-containerized cargo handling.
- CCT operations are hindered by the direct delivery of export containers to the quay with limited area availability and the lack of export storage planning. This has resulted in low crane productivity and long vessel waiting times. Immediate measures proposed under the Strategic Master Plan include, among other things: a 100% through the yard policy for export containers, the reduction of dwell time at terminals, and the removal of overdue containers by charging high tariffs.
- NCT is an extension of CCT, functioning as buffer for quayside handling. Its operations began in October 2015 by a private operator (same operator at CCT), but are hampered by the lack of cargo handling equipment.

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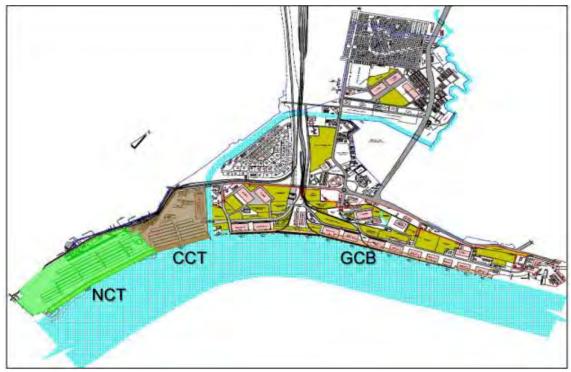
[13] Source: ADB, *Strategic Master Plan for Chittagong Port*, Final Report, September 2015

Table 2.13: Construction Year and Dimensions of Port Facilities

	Year of Construction	Number of Berths	Length (m)	Width (m)	Depth (m)
General Cargo Berth	1954–1979	13	2,100	30–45	8.5–9.5
Chittagong Container Terminal	1986	3	450	40	9.5
New-mooring Container Terminal	2007	5	1,000	43	12.0

Source: CPA

Abbreviations: CCT = Chittagong Container Terminal, GCB = General Cargo Berth, NCT = New-mooring Container Terminal
Source: ADB, *Strategic Master Plan for Chittagong Port*, Final Report, September 2015

Figure 2.11: Chittagong Port Area

Mongla Port

Located at a latitude of 21 degrees, 26.9 minutes North and longitude 89 degrees, 34.4 minutes East, Mongla Port is located 220 km southwest of Dhaka (by road) and approximately 71 nautical miles (131 km) upstream from the Bay of Bengal. It has access to its hinterland by road and inland water; however, the current road conditions and unavailability of railway transport make it difficult to mobilize goods between the port and Dhaka. In response to this, the construction of a 6.15 km multi-purpose road-rail bridge over the Padma River is underway with a planned completion by 2020. The key dimensions of the port facilities are summarized as follows:

- The port has five berths available for ocean-going vessels, handling both general cargo and containers.
- The maximum permissible draft of vessels that can berth the port varies from 6.0 m to 8.5 m.
- The Pashur River, which connects the Bay of Bengal with Mongla Port, can accommodate vessels up to the length of 200 m.
- The port has a handling capacity of 6.5 million tons and 50,000 TEUs.

(2)   Cross-border Transport

In order to facilitate the development of land trade, the Bangladesh Land Port Authority (BLPA) under the Ministry of Shipping has declared 20 land customs stations as land ports (see Figure 2.12 for the location of major land ports). Table 2.14 provides an overview of the 10 ports where data is available, indicating that five are managed by BLPA, while the other five are managed by build-operate-transfer (BOT) operators. The key points are summarized as follows:

Source: BLPA

Figure 2.12: Location of Major Land Ports

- The total traffic handled in 2015–2016 amounted to 8.57 million tons: 7.28 million tons (85.0%) for import and 1.29 million tons (15.0%) for export.
- Most of the traffic was handled at the land ports bordered with West Bengal in India, including Benapole (20.6%), Sonamasjid (19.7%), Hilli (9.9%), and Bhomra (22.3%).
- Traffic handled in northern Bangladesh accounts for 18.7%, which consists of 7.0% in Burimari, 11.3% in Banglabandha, and 0.5% in Nakugaon.
- The land ports in the vicinity of the Dhaka–Chittagong corridor includes Akhaura (6.6%) and Bibirbazar (1.3%).

Table 2.14: Traffic at Bangladesh's Major Land Ports, 2015-2016

	Import (tons)	Export (tons)	Total (tons)	Ratio (%)	Notes
Benapole	1,288,938	475,739	1,764,677	20.6	Self-managed. Road and rail gate
Sonamasjid	1,688,572	0	1,688,572	19.7	BOT
Hilli	841,877	6,135	848,012	9.9	BOT
Burimari	597,301	0	597,301	7.0	Self-managed
Akhaura	11	568,480	568,491	6.6	Self-managed. Export-oriented
Bibirbazar	231	108,915	109,146	1.3	BOT. Export-oriented. Rail gate
Banglabandha	935,486	31,128	966,614	11.3	BOT
Teknaf	70,697	5,967	76,664	0.9	BOT
Bhomra	1,816,930	91,109	1,908,039	22.3	Self-managed
Nakugaon	42,841	0	42,841	0.5	Self-managed
Total	**7,282,884**	**1,287,473**	**8,570,357**	**100.0**	

Note: BOT = build-operate-transfer
Source: BLPA
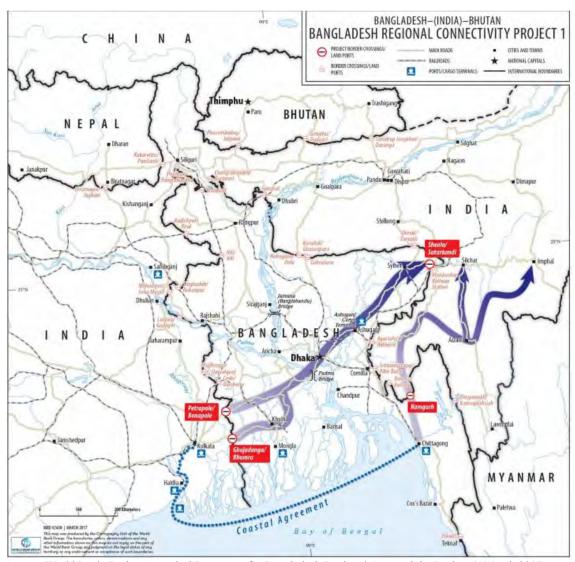
Major bottlenecks for the land ports are related to inadequate infrastructure (both hard and soft) and inadequate coordination among trade-related agencies, which have resulted in lengthy clearance times for traded goods. Understanding this situation, on 5 April 2017, the World Bank approved $150 million in International Development Association credit for the Bangladesh Regional Connectivity Project 1, towards the goal of improving conditions for trade through: (i) improving connectivity (from West Bengal and Southwest Bangladesh through Dhaka to Northeast Bangladesh and Northeast India, as depicted in Figure 2.13), (ii) reducing logistics bottlenecks, and (iii) supporting the adoption of modern approaches to border management and trade facilitation.[14]

The project will invest in infrastructure, systems, and procedures to modernize the selected land ports at Bhomra, Sheola, and Ramgarh (which is located at Chittagong Hill Tracts), as well as to improve security at Benapole. It will also modernize customs and develop Information Communication Technology infrastructure to reduce border crossing time and costs to traders associated with regulatory requirements. The $150 million fund is divided into three components as summarized in Table 2.14.

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[14] It is planned that the project will be completed in December 2023.

Source: World Bank, Project Appraisal Document for Bangladesh Regional Connectivity Project 1, March 2017

Figure 2.13: Map of Bangladesh Regional Connectivity Project 1

Table 2.15: Overview of Bangladesh Regional Connectivity Project 1

Component (Total $150 million)	Overview
Component 1: Investment in infrastructure, systems, and procedures to modernize key land ports ($75 million)	• Development and improvement of land ports at Bhomra, Sheola, and Ramgarh • Security improvement at Benapole land port • Project management services and capacity support
Component 2: Enhancement of trade sector coordination and economic empowerment and opportunities in trade for women ($8 million)	• Development of programs to support female traders and entrepreneurs • Capacity development for the National Trade and Transport Facilitation Committee • Improvement of Bangladesh Trade Portal and establishment of a National Enquiry Point for Trade
Component 3: Implementation of National Single Window and Customs Modernization Plan ($67 million)	• Development and implementation of the Bangladesh National Single Window system • Procurement and implementation of a sophisticated automated risk management system

Source: World Bank, *Project Appraisal Document for Bangladesh Regional Connectivity Project 1*, March 2017

(3)   Airport

As of April 2017, Bangladesh has a total of eight operational airports: three are international airports located in Dhaka, Chittagong, and Sylhet, and five domestic airports situated in Rajshahi, Saidpur, Jessore, Cox's Bazar, and Barisal. All are under the control of the Civil Aviation Authority of Bangladesh (CAAB), a regulatory body under the Ministry of Civil Aviation and Tourism. In addition to regulatory matters, CAAB handles traffic control (navigation), airport security, as well as airport planning, construction, operations and maintenance.

Along the Dhaka–Chittagong corridor, there are airports in Dhaka, Chittagong, and Cox's Bazar. The Hazrat Shajalal International Airport (HSIA) in Dhaka is the largest, handling about 75% of air passenger and 90% of air cargo of the country. In 2015, it handled 6.48 million passengers (14% for domestic and 86% for international) and 0.26 million tons of cargo (1% for domestic and 99% for international).[15] It is anticipated that the airport will reach its passenger handling capacity of 8 million in 2018. In response to this, CAAB (with assistance from JICA) began implementing the Hazrat Shahjalal International Airport Expansion Project (I) in June 2017 to address the short-medium term capacity issues.[16] The project includes the construction of a new international passenger terminal, rehabilitation of the existing cargo terminal, and development of peripheral infrastructure (e.g., approach road to the national highway); and is planned to be completed in July 2021 (at the time of service provision at the facilities).

After HSIA, the second highest demand is at the Shah Amanat International Airport in Chittagong, which handled about 1 million passengers in 2014. There are 19 flights per direction per day along the Dhaka–Chittagong route, operated by the domestic airlines including Biman Bangladesh Airlines, US-Bangla Airlines, Novoair, and Regent Airways.[17] The Cox's Bazar Airport, is in the process of upgrading to an international airport to attract tourists from overseas. There are about nine flights per direction per day on the Dhaka–Cox's Bazar route, serviced by the same companies mentioned above.

2.2.5   Export Processing Zones, Economic Zones

(1)   Export Processing Zones

Bangladesh has eight export processing zones (EPZ) – five of them are located along the Dhaka–Chittagong corridor which include Dhaka, Adamjee, Comilla, Chittagong, and Karnaphuli. The remaining three are outside the corridor, which are Mongla, Uttara, and Ishwardi. The EPZs established in strategic locations of the corridor have been fully occupied, attracting much of the investment; while those in remote areas remain unoccupied due mainly to the lack of lines to suppliers and insufficient infrastructure services in the zones.[18] All the EPZs are managed by the Bangladesh Export Processing Zones Authority (BEPZA) under the Prime Minister's Office.

Overall, the overall exports from the EPZs have increased steadily over the last five years, at an average of 12.5% per year in 2010-2011 through 2015-2016, as shown in Table 2.16. Considering the EPZ's total exports of $6,677 million and the country's total exports of $33,214 million in 2015-2016,[19] the EPZ's contribution to national export reached 20.1%. Over that same time

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[15] Source: JICA, *Preparatory Survey for the Dhaka International Airport Expansion Project*, Final Report, March 2017.

[16] To address the long-term capacity issues, CAAB commenced the Detailed Feasibility Study for Construction of Bangabandhu Sheikh Mujib International Airport Project in September 2016, with a planned schedule of 18 months.

[17] This flight number is based on the flight schedule available at the website of each airline. As domestic flights are prone to cancelation, the actual number would be a bit less than that.

[18] In addition, EPZs are mostly operating as enclaves with less backward linkages to the local economy, which led to the government decision to suspend new EPZ development. The government instead launched an initiative to develop economic zones, expecting that local firms can enjoy more spillovers from foreign direct investment.

[19] The country's total export is based on the foreign trade statics data released by the Bangladesh Bureau of Statistics.

frame, the exports from the five EPZs along the Dhaka–Chittagong corridor was $6,298 million, accounting for 94% of the total exports from all the EPZs.

Table 2.16: Establishment Year, Area, Export, and Growth, 2010–2011 through 2015–2016

Location	Establishment Year	Area (Acre)	Export ($ million)		Growth Rate (% per year)
			2010–2011	2015–2016	2010-2011 – 2015-2016
Chittagong	1983	453	1,667	2,420	7.7
Dhaka	1993	361	1,522	2,184	7.5
Comilla	2000	267	145	308	16.2
Adamjee	2006	245	165	563	27.9
Karnaphuli	2006	209	138	823	42.9
Mongla	1999	255	28	75	21.7
Uttara	2001	212	7	189	94.6
Ishwardi	2001	309	26	115	34.6
Total		**2,311**	**3,698**	**6,677**	**12.5**

Sources: BEPZA

Table 2.19 provides statistics for the overall performance of EPZs from 1983 (when the first EPZ was established in Chittagong) to March 2017, indicating that a total of 462 industries operating in EPZs is and those under implementation is 129, with a cumulative investment of $4,247 million, exports of $57,630 million, and employment of 468,467.

Table 2.17: Industry, Investment, Export, and Employment up to March 2017

Location	Industry		Investment ($ million)	Export ($ million)	Employment
	In Operation	Under Implementation			
Chittagong	172	12	1,530	25,857	197,713
Dhaka	102	9	1,273	22,056	91,191
Comilla	41	30	274	1,931	25,912
Adamjee	50	16	411	2,717	53,118
Karnaphuli	48	16	471	3,548	66,924
Mongla	22	15	46	476	2,112
Uttara	12	12	133	520	23,312
Ishwardi	15	19	109	526	8,185
Total	**462**	**129**	**4,247**	**57,630**	**468,467**

Sources: BEPZA

(2)   Economic Zones

In recent years, the government promoted the development of economic zones (EZ) with the goal of strengthening linkages and towards integration with the domestic economy, thereby serving to promote industrial diversification. In 2010, the Bangladesh Economic Zone Authority (BEZA) was established under the Prime Minister's Office with the objective of developing 100 EZs in the country over the next 15 years.[20] These candidate sites are presented in Figure 2.14, indicating that a relatively large number of EZs are planned in the corridor from Dhaka to Chittagong, and even further to Cox's Bazar (especially Matarbari where the construction of a new deep seaport is planned, and the development of coal-fired power plants and the surrounding infrastructure is underway with JICA assistance).

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[20] It also aims at generating 10 million employment and growing export from the economic zones to $ 40 billion.

Several projects have been implemented with donor assistance. Since 2011, the World Bank has undertaken the $120 million Private Sector Development Support Project, which has helped not only with the licensing for 16 EZs and Hi-Tech Parks, but also with the assessment of 33 new sites. In June 2016, the bank agreed to provide an additional $130 million to expand their assistance for the project. Similarly, JICA has implemented the Project for Development Study and Capacity Enhancement of BEZA in 2015–2017, which included the formulation of development guidelines for EZs, preparation of short-medium term development plans for some candidate sites, implementation of capacity development in BEZA, etc.

Sources: BEZA
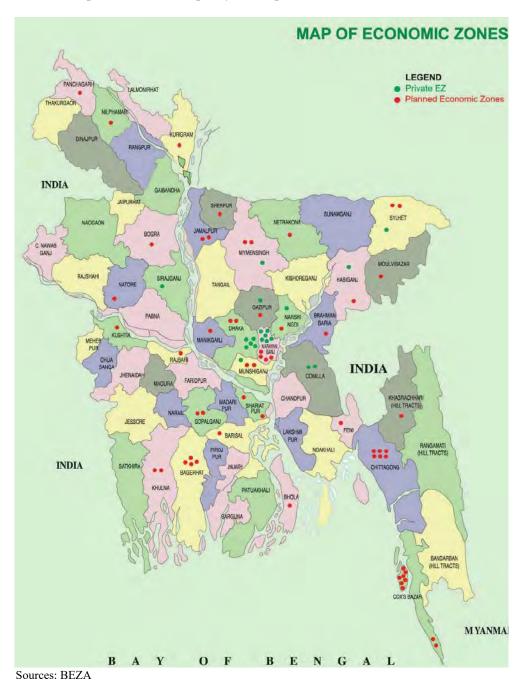
Figure 2.14: Location of Economic Zones

2.3   Development Plans and Projects

2.3.1   Road Developments

(1)   Road Master Plan

In 2009, the Roads and Highways Department (RHD) prepared the Bangladesh Road Master Plan following the direction provided by the National Land Transport Policy (NLTP), which committed the government to developing a long-term plan. This master plan was intended to guide road sector investment over the 20 years. It has been compiled based on a thorough diagnosis of the following existing issues of the RHD road network and future challenges to be faced:

- Roads and bridges are continuously damaged from a lack of adequate maintenance and vehicle overloading;
- Continuing traffic growth that will exceed the capacity of many National Highways within the next 20 years;
- A mix of motorized and non-motorized traffic, and encroachment onto roads, leading to high accident rates;
- The country's rural centers are not fully connected with the main road network; and
- The large number of rivers that are still crossed by ferries hampers smooth movement of traffic.

The objectives of the master plan are to set out a comprehensive investment program that will:

- Protect the value of RHD's road and bridge assets;
- Improve the connectivity of the road network;
- Enhance and develop the strategic road network to meet economic and traffic growth targets;
- Improve the Zila Road network to enhance connectivity to the country's growth centers;
- Improve road safety and reduce road accidents;
- Provide environmental and social protection; and
- Outline the institutional improvements required for RHD to deliver the above.

RHD in collaboration with LGED is planning to update the road master plan. It is considered that the update is needed due to various changes of the existing master plan scenario, including the recent government promotion of developing economic zones (see Subsection 2.2.5 (2) for details) and the increasing importance of regional connectivity, road maintenance, and traffic safety. As of August 2017, it is planned that the update will commence in 2018, with a planned study period of 13 months, and that ADB will provide technical assistance under the SASEC Road Connectivity Project II.

(2)   Dhaka–Chittagong Expressway Project

The Asian Development Bank (ADB) assisted in designing the Dhaka–Chittagong Expressway Project for financing under a public-private partnership (PPP) scheme.[21] A feasibility study has been undertaken with the objective of assessing various route alignment options in terms of technical, financial, economic, environmental, and social perspectives so that the government could decide the most advantageous alignment for the project. Key recommendations of the feasibility study are as follows:

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[21] According to the ADB's Project Data Sheet for Bangladesh: Dhaka–Chittagong Expressway Public-Private Partnership Design Project (updated in March 2017), the project began in June 2013 (when the credit became effective) and is due to close in March 2018.

- The project may be developed in three separate phases (i.e., Dhaka–Comilla, Comilla–Feni, and Feni–Chittagong) to reduce the upfront capital costs and increase private sector participation.
- Instead of developing the Expressway as a green field project, the government could change the project scope to include widening the existing National Highway N1 to eight lanes and operating and maintaining the highway on a PPP basis to mainly reduce the land acquisition costs.

Following the feasibility study, transaction advisory services began in September 2015. The scope of the services is to: (i) review the financial parameters and examine the viability of the project; (ii) prepare the concession agreement including the pre-qualification and bid documents; (iii) assist the Roads and Highways Department (RHD), an executing agency, in the bid process; (iv) provide advice relating to financial and legal issues, etc. As of August 2017, the transaction advisory service is underway with a planned completion by March 2018.

According to RHD, the proposed alignment has a total length of 218 km, of which 83.8 km is on the Dhaka–Comilla, 53.2 km is on the Comilla–Feni, and 81 km on the Feni–Chittagong sections.[22] The total project cost is estimated at $ 2,376.9 million, 30% of which is planned to be covered by the Viable Gap Financing (VGF). It is planned that construction will begin in 2018, and that the expressway will be open in 2023. The other key features of the project are summarized as follows:

- Elevated section amounts to a total of 14.49 km, accounting for 7% of the entire length.
- There will be 36 flyovers, 29 bridges, 7 toll plazas, and 77 underpasses.
- Access will be limited to the following seven interchanges: Madanpur, Daudkandi, North Comilla, South Comilla, Feni, Bariyarhat, and Salimpur.
- The annual average daily traffic is projected at 23,942 vehicles per day in 2030, up from 10,830 vehicles per day in 2023, assuming the average growth rate of 12.0% per annum over the 2023-2030 period.
- While the project is intended to provide a four-lane expressway, it will require six lanes in 2037 considering the traffic growth assumed in the demand forecast.

(3)   Dhaka–Chittagong Multimodal Transport Corridor (Elevated Expressway)

Apart from the above Dhaka–Chittagong Expressway Project being formulated under the ADB assistance, the Bangladesh Bridge Authority (BBA) is planning to undertake the feasibility study on the Dhaka–Chittagong Multimodal Transport Corridor using their own funds. Although this would include both high-speed rail and expressway, little coordination has been made between the relevant organizations.

The expression of interest (EOI) for this consultancy service was issued in October 2016. As of October 2017, BBA is preparing the request for proposal (RFP) with a plan to procure a consultant in six months, and to conduct the feasibility study in another 18 months. The tentative assignments of the consultancy services include, among other things, the following:[23]

- Geotechnical investigation, topographic survey, as well as a hydrological and morphological study for rivers crossing the corridor.
- Traffic survey, traffic analysis, and traffic forecasts for different scenarios.

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[22] As of August 2017, RHD is planning to implement the Dhaka–Comilla, Comilla–Feni, and Feni–Chittagong sections simultaneously, and the request of VGH and the Detailed Project Proposal for land acquisition and utility relocation are both based on the simultaneous implementation.

[23] Source: BBA, *Request for Expression of Interest (EOI) for the Consultancy Services for Feasibility Study to develop the Dhaka–Chittagong Multimodal Transport Corridor (Elevated Expressway)*, October 2016.

- Assessment of location and alignment of the main corridor, access/approach roads, ramps, etc.
- Preliminary design of the elevated expressway including high-speed train.
- Cost estimate, economic and financial analysis, and risk assessment.
- Environment impact assessment (EIA) and preparation of land acquisition and resettlement action plans.
- Determination of the optimal implementation model of the project.
- Review of legislation related to project financing and project implementation model.

(4) Kanchpur, Meghna, and Gumti 2nd Bridges Construction and Existing Bridge Rehabilitation Project (I) (II)

In March 2013, JICA signed a loan agreement with the Government of Bangladesh to provide a Japanese ODA loan of up to 28,945 million yen ($311 million) for the Kanchpur, Meghna, and Gumti 2nd Bridges Construction and Existing Bridge Rehabilitation Project (I).[24] The project aims to improve the safety of the exiting bridges concerning bridge pier corrosion and earthquake resistance, as well as to satisfy increasing transport demand, by rehabilitating and constructing the three bridges on the National Highways N1 between Dhaka and Chittagong, thereby contributing to the revitalization of the Bangladesh economy.[25] The project components are as follows:[26]

- Repair of Kanchpur, Bridge (0.4 km, four-lane), Meghna Bridge (0.9 km, two-lane), and Gumti Bridge (1.4 km, two-lane);
- Construction of 2nd Kanchpur Bridge (four-lane), 2nd Meghna Bridge (four-lane), 2nd Gumti Bridge (four-lane), and their approach roads;
- Installation of overloading control equipment: axle load scales (two for each bridge), deck scales (one for each bridge), and an inspection vehicle (one for all bridges); and
- Consulting services, including detailed design, bidding assistance, and construction supervision.

In November 2015, an executing agency of RHD signed the contract with a joint venture of Japanese contractors. In June 2017, JICA signed another loan agreement with the government to provide an additional Japanese ODA loan of up to 52,730 million yen for the project. It is planned that the project will be completed in January 2020 (at the time of service provision at the facilities).

(5) East West Elevated Expressway, Dhaka

BBA is preparing the implementation of the East West Elevated Expressway Project. The 39-km proposed expressway connects N5 in the western perimeter of Dhaka with N8 in the south and further to N1 in the east, thereby removing through traffic from Dhaka and reducing traffic congestion in the capital. According to BBA, it is planned that the project is divided into two separate packages, with an estimated project cost of approximately $1 billion for each. BBA plans to implement the project by utilizing a BOT scheme, and hopes to procure funding by the end of 2018.

(6) Construction of Multi-Lane Tunnel under the River Karnaphuli, Chittagong

BBA is also preparing the implementation of four-lane tunnel under Karnaphuli River in Chittagong. The 9.1-km tunnel (including the length of approach roads in both sides) connects

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[24] The total project cost is estimated at 88,464 million yen ($ 950 million).

[25] It is noted that the four laning of Dhaka–Chittagong National Highway Project (Daudkandi–Chittagong section with 192 km) was completed in July 2016.

[26] Source: JICA, *Ex-Ante Evaluation (for Japanese ODA Loan) for the Kanchpur, Meghna, and Gumti 2nd Bridges Construction and Existing Bridges Rehabilitation Project (I)*. March 2013.

the Chittagong Port City with other side of the Karnaphuli River. The project cost is estimated at $ 681.84 million. The project has been planned with Chinese assistance: its feasibility study is completed in April 2013, with detailed design and land acquisition is ongoing as of April 2017. According to BBA, the project is planned to be completed in June 2020.

2.3.2   Rail Developments

(1)   Railway Master Plan

The government has approved the Railway Master Plan prepared by Bangladesh Railway (BR) with support of the UK Department for International Development (DFID). The master plan proposes a total of 235 projects costing Taka 23 billion ($30 billion) over the 2010–2030 period. It sets out the infrastructure requirements to achieve the following goals:

- Increase railway efficiency with interventions to make best use of assets;
- Extend railway (infrastructure) to meet policy objectives;
- Integrate railway network through a multimodal approach;
- Allow railways to pay a greater role in the overall transport sector with a view toward contributing to economic and social development;
- Prepare railways to play a role in regional and international context;
- Establish Broad Gauge throughout the country to bring uniformity to the Gauge System;
- Extend its network within the capital city of Dhaka by introducing metro system to reduce traffic congestion; and
- Modernize its loco-workshops and training institute with an eye towards increasing its operation and human capacity.

Nevertheless, the government has emphasized the development of the railway sector in recent years, which has led to changes in the present BR scenario from what was envisaged in the master plan. In response to this, BR has been undertaking the following activities under the ADB-funded SASEC Railway Connectivity Investment Program:

- Updating the Railway Master Plan;
- Assessment of the rolling stock maintenance sector of BR and recommendations for the future strategy, investments, and organization;
- Assessment for the establishment of Mechanized Track Maintenance Unit of BR and recommendations for the strategy, investments, and organization; and
- Assessment for the establishment of a Research and Development Wing for BR

The revised master plan looks at the next 30 years until 2045. The TA outlined above came into effect in December 2014, and is planned to be completed in December 2017 as of October 2017.

At present, BR has 43 development projects at the total cost of Taka 8,643 million. Annual Development Program's (ADP) allocation in the current fiscal year is Taka 881 million, including Taka 337 million of GOB's self-funding and Taka 544 million from Project Aid.

To date, several important projects have been completed in recent years. Furthermore, construction of the dual gauge double line of Tongi–Bhairab Bazar (64 km) and Laksham–Chinki Astana (61 km) on the Dhaka–Chittagong railway corridor will be completed shortly.

(2)   Sub-Regional Transport Project Preparatory Facility

Since 2010, ADB has been providing a $53 million technical assistance (TA) loan under Sub-Regional Transport Project Preparatory Facility to facilitate the preparation of a series of regional cooperation and integration transport projects in roads and railways. Under the TA project,

feasibility studies and detail design have been undertaken including those on the construction of missing links, increase of line capacity through double line construction, construction of new bridges, strengthening of existing bridges, and improvement of signal and telecommunications system and rolling stock. Table 2.18 shows seven sub-projects under the TA project.

Table 2.18: Subprojects of the Technical Assistance

	Description
1	Feasibility study for construction of railway link from Dhaka–Bhanga–Jessore through Padma Bridge (Phase I and Phase II) and detail design and technical services for Phase I (Dhaka–Bhanga line).
2	Feasibility study, detail design and tending services for construction of double for upgrade of existing rail line between Akhaura and Laksham.
3	Feasibility study for construction of railway bridge parallel to existing Bangabandhu Bridge with provision of dual gauge double track over the Jamuna River.
4	Update previous feasibility study, detail design and tendering services for construction of meter-gauge single line track from Dohazari to Cox's Bazar via Ramu and to Gundum via Ramu.
5	Feasibility study for construction of double line on the Joydebpur–Ishurdi section.
6	Feasibility study for strengthening / reconstruction of Hardinge Bridge to allow Trans-Asian Traffic.
7	Feasibility study for construction of railway bridge over Jamuna River near Phulchari–Bahadurabad Ghat including approach rail link.

Note: Colored items are related to the Dhaka–Chittagong corridor
Source: JICA Study Team based on an interview with the Ministry of Railways and Bangladesh Railway

(3)   Development Projects, Technical Assistance Projects

There are various development projects and technical assistance projects for the Dhaka–Chittagong corridor. Donor-assisted development projects for the corridor are shown in Table 2.19 (for ongoing projects) and Table 2.20 (for planned projects).

Table 2.19: Ongoing Donor-Assisted Development Projects

	Project Name	**Source of Finance**
A1	Construction of single line dual gauge (DG) railway track from Dohazari to Cox's Bazar via Ramu and Ramu to Gundum	ADB
A2	Construction of dual gauge rail line and conversion of existing rail line into dual gauge between Akhaura and Laksham	ADB
A3	Construction of 2nd Bhairab & 2nd Titas Bridges with approach rail lines	LoC (India)
A4	Construction of 3rd & 4th dual gauge line in Dhaka–Tongi and dual gauge double line in Dhaka–Joydevpur section of BR	LoC (India)
A5	Construction of double line track from Tongi to Bhairabbazar including signaling (physical works has been completed)	ADB
A6	Track doubling between Laksham and Chinki Astana (physical works has been completed)	JICA
A7	Replacement and modernization of the existing railway signaling system at 11 stations of Chiki Astana–Chittagong section	EDCF

Abbreviations: ADB = Asian Development Bank, EDCF = Economic Development Cooperation Fund, JICA = Japan International Cooperation Agency, LoC = Line of Credit
Source: JICA Study Team based on an interview with the Ministry of Railways and Bangladesh Railway

Table 2.20: Planned Donor-Assisted Development Projects

	Project Name	Source of Finance
B1	Conversion of existing MG double track to DG track between Tongi–Bhairab	Financial assistance is yet to be finalized
B2	Conversion of existing MG double track to DG track between Laksham–Chittagong	Financial assistance is yet to be finalized
B3	Construction of new road cum railway bridge with DG single track over Karnafuli river parallel to existing railway bridge	EDCF has committed to providing financial assistance

Abbreviations: DG = Dual Gauge, EDCF = Economic Development Cooperation Fund, MG = Meter Gauge
Source: JICA Study Team based on an interview with the Ministry of Railways and Bangladesh Railway

Table 2.21 summarizes donor-assisted technical assistance projects for the Dhaka–Chittagong corridor.

Table 2.21: Ongoing Donor-Assisted Technical Assistance Projects

	Project Name	Source of Finance
1	Consulting engineering service for Dhaka–Chittagong development project and skill development program	JICA
2	Technical assistance for Dhaka–Chittagong–Cox's Bazar rail project preparatory facility	ADB
3	Technical assistance for supervision consultancy service for sector improvement project under 2nd PFR of ADB	ADB
4	Technical assistance for sub-regional rail transport project preparatory facilities	ADB
5	Technical assistance for institutional support of BR	ADB
6	Technical assistance for SASEC railway connectivity investment program	ADB

Abbreviations: ADB = Asian Development Bank, BR = Bangladesh Railway, JICA = Japan International Cooperation Agency, PFR = Periodic Financing Request, SASEC = South Asia Sub-Regional Economic Cooperation
Source: JICA Study Team based on an interview with the Ministry of Railways and Bangladesh Railway

Table 2.22 shows the government's self-funded railway development projects related to the Dhaka–Chittagong corridor. Note that these include both planned and ongoing projects.

Table 2.22: Government's Self-Funded Railway Development Projects

	Project Name	Source of Finance
1	Rehabilitation of Sholosahar–Dohazari and Fateabad–Nazirhat section including other allies works	GOB
2	Thorough renewal of worn-out rails and allied works in Chinki Astana–Ashuganj section of BR	GOB
3	Rehabilitation, construction and upgradation of important level crossing gates of East Zone of BR	GOB

Abbreviations: BR = Bangladesh Railway, GOB = Government of Bangladesh
Source: JICA Study Team based on an interview with the Ministry of Railways and Bangladesh Railway

(4) High-Speed Railway, Inland Container Depot, Rolling Stock (Plans, Projects)

In addition to the existing railway development projects above, there are two planned high-speed railway projects for the Dhaka–Chittagong corridor (Table 2.23. See also Subsection 2.3.1 (3) for details of the Dhaka–Chittagong Multimodal Transport Corridor). In addition, there is one planned new Inland Container Depot project (Table 2.24). Furthermore, there are several rolling stock procurement projects (Table 2.25).

Table 2.23: Planned High-Speed Railway Projects

	Description	Source of Finance
C1	• Bangladesh Railway (BR) is planning to construct a new high-speed railway from Dhaka to Chittagong via Comilla / Laksham. • The feasibility study has been approved by Planning Commission and the EOI was announced. • According to the plan, the new high-speed railway will have both passenger and freight trains. Its track is standard gauge and mainly on the ground with level crossings.	PPP is considered, but the scheme is yet to be finalized.
C2	• The Bangladesh Bridge Authority (BBA) is planning to undertake the feasibility study on the Dhaka–Chittagong Multimodal Transport Corridor with Elevated Expressway including High-Speed Train. • The project is envisaged to have expressway and high-speed trains on the same alignment to reduce land acquisition. Therefore, their structures would have three layers (ground, rail and road).	PPP

Abbreviation: EOI = Expression of Interest, PPP = Public-Private Partnership
Source: JICA Study Team based on an interview with the Ministry of Railways and Bangladesh Railway

Table 2.24: Planned Inland Container Depot Project

	Description	Source of Finance
C3	In response to increasing container transfer, Dhirasram ICD will be constructed near Dhirasram Railway station attached to the Dhaka eastern by-pass road. Dhirasram ICD will have a capacity of 354,000 TEUs per year. Bangladesh Railway has considered the implementation of the project through PPP scheme.	PPP is considered, but the scheme is yet to be finalized.
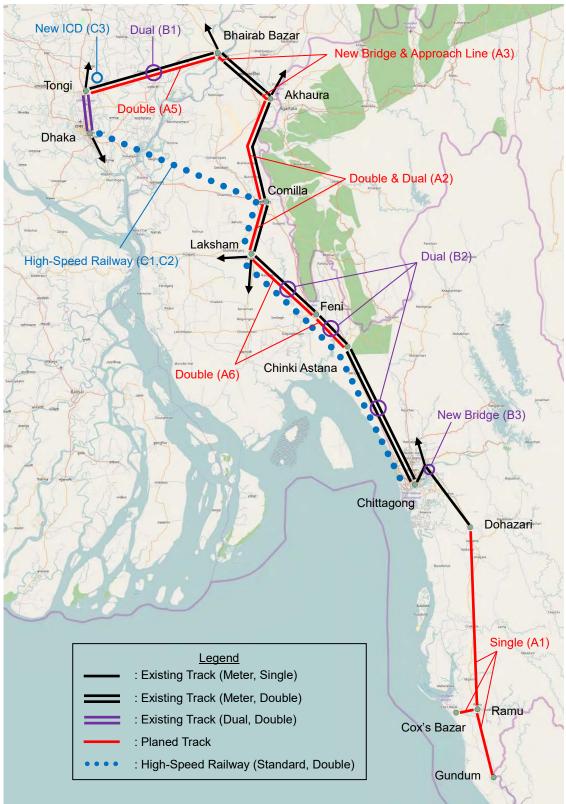
Abbreviations: ICD = Inland Container Depot, PPP = Public-Private Partnership
Source: JICA Study Team based on an interview with the Ministry of Railways and Bangladesh Railway

Table 2.25: Rolling Stock Procurement Project

	Project Name (Implementation Period)	Estimated Cost (Taka billion)		Status
1	Procurement of 70 meter gauge (MG) diesel electric (DE) locomotives for BR (July 2011–June 2017)	Total PA (RPA) GOB (FE)	19.1 0.0 19.1	Under Evaluation
2	Procurement of meter gauge passenger carriages for BR (September 2015–June 2019)	Total PA (RPA) GOB (FE)	13.7 10.0 3.7	Waiting for approval of tender evaluation report by ADB
3	Procurement of 200 MG passenger carriage for BR (July 2016–June 2020)	Total PA (RPA) GOB (FE)	9.3 7.1 2.1	Waiting for loan negotiation and contract approval
4	Procurement of locomotives, relief cranes and locomotive simulator for BR (July 2015–June 2019)	Total PA (RPA) GOB (FE)	7.3 5.3 2.0	1. Waiting for approval of tender evaluation report by ADB for locomotives 2. Waiting for approval of tender evaluation report by TEC for crane and simulator
5	Procurement of 20-meter-gauge diesel electric locomotives and 150 meter gauge passenger carriages for BR (July 2016–June 2020)	Total PA (RPA) GOB (FE)	18.8 14.8 4.0	Waiting for DPP approval by Planning Commission
6	Procurement of 25 BG locomotives for BR	-	-	DPP under Preparation
7	Procurement of 75 MG & 50 BG luggage vans for BR	-	-	DPP under Preparation
8	Procurement of 390 MG & 300 BG bogie covered vans and 180 MG and 120 BG bogie open wagons for BR	-	-	DPP under Preparation

Abbreviations: ADB = Asian Development Bank, BR = Bangladesh Railway, DPP = Development Project Proforma/Proposal, FE = Foreign Exchange, GOB = Government of Bangladesh, PA = Project Aid, RPA = Reimbursable Project Aid, TEC = Tender Evaluation Committee
Source: JICA Study Team based on an interview with the Ministry of Railways and Bangladesh Railway

Note: Figure in brackets (e.g., B1) corresponds to the project listed in Table 2.19, Table 2.20, and Table 2.23.
Source: JICA Study Team

Figure 2.15: Railway Development Project of the Dhaka–Chittagong Corridor

2.3.3   Inland Water Developments

(1)   Seventh Five Year Plan, 2016–2020

The Government of Bangladesh, cognizant of the country's naturally advantageous network of vast inland waterways, prepared the current Seventh Five Year Plan. It principally aims to develop a low-cost, safe and environment-friendly mode of transport. The main priorities enumerated in the document are as follows:

a)   Development of navigability of inland waterways by dredging and resuscitation of dead and dying river routes;
b)   Maintenance of navigable waterways by regular dredging;
c)   Facilitating flow of passengers and cargo through development of inland river ports, and by providing navigational aids for smooth and safe movement of cargo and passenger vessels;
d)   Development of inland container river port for transportation of containers by waterways to/ from two sea-ports;
e)   Develop river port handling facilities as well as storage facilities and introduce mechanical equipment for handling cargo in order to save waiting time for berthing of vessels;
f)   Develop rural launch landing stations by providing pontoon facilities for smooth embarkation/ disembarkation of passenger and loading/ unloading of cargo;
g)   Digitize all the services provided by BIWTA introducing web-based data base application;
h)   Protect the main channel of the river by clearing and removing garbage and unauthorized encroachment; and
i)   Restoration of Buriganga river and waterways around Dhaka city to make it pollution-free, navigable and wider.

The goals and targets set for the Seventh Plan are set forth in Table 2.26.

Table 2.26: Inland Water Development Program in Seventh Plan

Sl. No.	Goals	Targets
i	Development of new waterways and maintaining navigability of existing channels	• Hydrographic survey of inland waterway 6,000 km and 1,000 m^2 of coaster waterways; • Dredging of 3,600 lakh cubic meter; • Procurement of 30 dredgers; • Several lots of navigational aids; • Procurement of different no of service vessels.
ii	Operation, maintenance and establishment of landing stations and river ports for cargo and container	• Construction of 10 river ports; • Modernization of 9 river ports; • Construction of 2 container terminals (ICT); • Procurement of various sizes of 135 pontoons; • Several lots of civil structure.
iii	Digitization of services related to IWT system	• Introduction of e-governance; • Institutional reform and restructuring.
iv	Facilitating maritime education and training	Establishment of a training institution

Source: Ministry of Shipping

(2)   Annual Development Program, 2016–2017

A list of projects included in the Annual Development Program (ADP), 2016–2017 is shown in Table 2.27 (for BIWTA) and Table 2.28 (for BIWTC). These fully relates to development activities in the Chittagong–Dhaka Waterway Route.

**Table 2.27: Inland Water Development Program by BIWTA
in Annual Development Plan, 2016–2017**

Sl. no.	Project Name (Execution Period)	Project cost (mil. tk)	Progress up to Jan 2017 (%)	
			Financial	Physical
(A) Ongoing projects under development budget (2016–2020)				
1	Establishment of Inland Container River Port at Ashuganj (January 2011–June 2019)	4,610	-	-
(B) Ongoing projects under agency's self-funding (2016–2017)				
2	Extension of Sadarghat Terminal at Dhaka Port (March 2014–June 2017)	191	71 %	80 %
3	Development of Sadarghat to Shasanghat Road in Dhaka River Port (January 2015–June 2017)	199	73 %	82 %
(C) Future programs				
(C-1) Projects proposed under annual development program				
4	Establishment of 2nd Terminal Facilities at Shashan Ghat Area under Dhaka River Port.			
5	Construction of walkway and bank protection on evicted foreshore land of Rivers Buriganga, Sitalakhya and Turag (partly)			
6	Development of Sadarghat to Shasanghat Road and ancillary Infrastructure under Dhaka River Port (1st revised)			
(C-2) Projects proposed under foreign aid				
7	Bangladesh Water Transport Project 1 (to be implemented by the World Bank fund)			
(C-3) Projects proposed under public-private partnership				
8	Construction and Operation of Inland Container (ICT) Terminal at Khanpur, Narayanganj			

Source: BIWTA

**Table 2.28: Inland Water Development Program by BIWTC in Annual
Development Plan, 2016–2017**

Sl. no.	Project Name (Execution Period)	Project cost (mil. tk)	Progress (%)	
			Financial	Physical
(A) Ongoing projects under development budget (2016-2020)				
1	Construction of Passenger Vessels for providing Efficient Passenger Services in Chittagong–Sandwip–Hatiya–Barisal Coastal Route (December 2014–June 2017)	519	19%	44%
2	Procurement of two New Passenger Vessels for Dhaka–Barisal–Khulna river route (April 2015–December 2017)	722	15%	25%
3	Construction of four 108 TEU (Revised 158 TEU) Self-Propelled Multi-Purpose Inland Container Vessels (January 2010–June 2013)	1,378	99%	96%
(B) Future programs				
4	Construction of a Rest House at Chittagong			
5	Development of berths and improvement of passenger and goods handling facilities at BIWTC terminals in Chittagong [1]			

Note: Recommended by BIWTC to the JICA Study Team at a meeting held on 7th March 2017.
Source: BIWTC

(3)   Inland Water Transport Master Plan Study, 2009

The Planning Commission carried out a study in 2008–09 with the objective of preparing a policy paper and a master plan for overall development of the waterways in Bangladesh. Limited in scope by sparse data and information, time constraints did not allow for carrying out first-hand

field and traffic surveys; however, frequent purpose-oriented field visits were made, numerous detailed discussions and formal meetings were held with officials, and stakeholders were interviewed and their opinions considered.

The study took note of the fact that despite being an inexpensive and pro-poor transport mode, water transport has not received support and needs resources as does its two other competing modes (railways and roadways). This has led to its cumulative deterioration in quantity (navigable length, draft restriction, etc.) and quality (navigability, safety, pollution, etc.). The study was aimed at arresting this trend of decline and aims to maintain it at the present level.

The Master Plan is still valid; it sets out a guideline for rehabilitation and maintenance of existing facilities and developing new ones over a twenty-year period (up to 2029), in phases. BIWTA has already implemented many of the recommendations and is continuing to do so. Principal actions, among many others, that have been taken by it are enumerated below:

(1) **Waterways Network**: BIWTA has formulated and implemented several projects for improving navigability and network efficiency. It is continuing its effort by including more such projects in the Government's Seventh Five-Year-Plan and the Annual Development Programs (ADP).

(2) **Dredging of Waterways**: BIWTA continues to maintain its vast network of waterways through capital (investment) and maintenance dredging. To this end, 8 dredgers were procured in phases, raising the fleet number to 21, which thereby increased its dredging capability. Furthermore, private sector entrepreneurs are being encouraged to enter the field and perform dredging activities as well.

(3) **Inland River Ports**: There were 21 inland river ports in the country in 2009. The layout, infrastructure and operation of many of these have been rehabilitated and improved. Notable instances are Dhaka River Port, Barisal River Port, Paturia Ferry Port, Mawa Ferry Port, etc. In addition to this, eight launch landing stations have been raised in status; and now the number of (government gazetted) inland river ports is up to 29.

(4) **Launch Landing Stations**: A number of launch landing stations and smaller launch ghats were improved by constructing jetties and/or installing pontoons. Such action is still being continued based upon their relative importance and user preference. Special care is being taken to ensure ease and comfort to women, aged, and disadvantaged users.

(5) **Container Transport**: A purpose-oriented river based container handling port has been constructed at Pangaon for which operations have begun. Operated by Chittagong Port Authority, it is not being utilized to its full capacity; the reasons for this require identification and actions must be taken to ensure its proper utilization. A number of container handling ports are being built by entrepreneurs in the private sector. BIWTA also plans to construct and operate the terminal at Khanpur specifically for handling containers through public-private partnership (PPP). Construction of four container vessels by BIWTC is nearing completion.

(6) **Cross Border IWT Traffic**: The transit and in-transit trade and traffic between Bangladesh and India via inland waterways display a tremendous degree of goodwill and cooperation between the participating countries. The Ashuganj inland river port acts as a port of call for Indian vessels in Bangladesh, and is already in use for multimodal (waterway-road and vice-versa) transport initiatives which have served to extend and upgrade its infrastructure and improve its operations further. Although some

improvements have been made in cross-border multimodal transport with Bhutan, Nepal and Myanmar, further action is still required.

(7) **Safety**: BIWTA is cognizant of the need to ensure safety of vessels and passengers in waterways and has created a separate department, which is managed by a departmental head, who oversees safety and related issues. There were two salvage vessels in 2009; since that time, two additional modern salvage vessels have been procured; moreover, very recently BIWTA initiated steps to build "safe shelters" for distressed vessels facing impending cyclonic storms.

(8) **Environmental Issues**: Other than sporadic actions taken by BIWTA for the removal of unauthorized encroachment from foreshore areas, not much has been performed. A more concerted and coordinated effort by all organizations and individuals, both in public and private sector, is necessary.

It is apparent from the above that BIWTA is moving forward and implementing actions as per guidelines set forth in the IWT Master Plan 2009.

(4)   Bangladesh Regional Inland Water Transport Project 1

The Chittagong–Dhaka–Ashuganj Corridor is a priority waterway route for Bangladesh. It enjoys importance as it serves both domestic and international traffic, including Bangladesh–India bilateral trade. A major portion of the country's IWT transport, approximately 80%, is routed through this corridor. In addition, six major inland river ports: Dhaka, Munshiganj (Mirkadim), Narayanganj, Ashuganj, Chandpur and Barisal are situated along the corridor, their role in handling passengers and freight being of great significance.

A study conducted by the World Bank in 2016, found that the IWT corridor or waterway suffers from chronic siltation at places and lacks adequate navigational aids. It also found that facilities existing in inland ports and launch terminals are not adequate for berthing of vessels, handling of cargo, and fall short in maintaining the comfort and safety of passengers. The study further noted that although there is a growing trend in IWT passenger and freight transport, its performance in extending services to users has not kept pace.

Project Details: The findings of the World Bank study consequently resulted in the formulation of a project. The project aims to develop safe navigation routes as well as passenger and cargo ports/terminals along the Chittagong–Dhaka IWT corridor. Estimated Project Cost is Taka 32 billion (including the Project Aid of Taka 28.8 billion). It is expected that World Bank will support its implementation. Estimated execution period is about eight years. The Ministry of Shipping is the sponsoring ministry, the executing agency being BIWTA.

Overall Objective of the Project, as stated in the Development Project Proforma (DPP) is: "to improve Inland Water Transport (IWT) efficiency and safety for passengers and cargo along Chittagong–Dhaka–Ashuganj Regional Corridor and to enhance sector sustainability"

Specific Objectives of the Project are to achieve the following which would contribute to reductions in travel time and cost along the corridor:

- To increase the number of days per year that the minimum advertised Least Available Depth (LAD) is available, from the current 150 to a target of 347 days per year;
- To increase the hours per day that safe navigation is possible, from the current 12 hours (day time) to 24 hours (day and night), by increasing the availability of Aids to Navigation, from the current 30 % to 95%;

- To decrease travel time from 40 hours to 30 hours on the Chittagong–Ashuganj–Dhaka IWT Corridor; and
- To improve the satisfaction of passengers at the project terminals.

Brief Description of the Project: The Project is comprised of three components. A brief description of the components is given below:

Component 1: Improved Inland Waterway Navigation ($235 million)

This component primarily consists of dredging and allied civil engineering works in the Chittagong–Ashuganj–Dhaka Corridor. The objective is to provide designated drafts (depths) and widths in navigation channels. The work also includes provision of aids to navigation in order to ensure round-the-clock navigation. Moreover, the component shall introduce *performance-based contracts*, a system which is different from existing traditional dredging contracts used in Bangladesh. It is expected to ensure *design draft* in the channel over the entire contract period, which is six to seven years. Another activity that forms an important part of this component is construction of six safe harbors for distressed vessels facing impending cyclones or storms. The proposed six sites include Shatnol, Amirabad, Chandpur (Madrasaghat), Mehendiganj, Sandwip (Sarikait), and Nolchira.

Component 2: Improved Services at Priority Inland Waterway Ports and Landing Stations/ Ghats ($75 million)

The component consists of development of two cargo terminals, four passenger terminals and 14 launch landing stations/ghats. These installations are already in existence as part of BIWTA's network of river terminals. In order to meet increasing passenger and freight traffic demand, existing infrastructure shall be modernized and improvements made; new installations shall be built at green field sites. The selected landing points along with their corresponding major interventions are mentioned in Table 2.29.

Table 2.29: Priority Inland Waterway Ports and Landing Stations/ Ghats

Major Passenger Terminals					
1	Dhaka Port (Sashanghat)	construction of a new passenger terminal			
2	Narayanganj Port	rehabilitation work of passenger terminal			
3	Chandpur Port	rehabilitation work of passenger terminal			
4	Barisal	extension of existing passenger terminal			
Major Cargo Terminals					
1	Ashuganj	rehabilitation and modernization of cargo terminal			
2	Pangaon (Dhaka Port)	construction of new berths for cargo vessels			
Landing Stations / Launch Ghats					
1	Bhairab	6	Ilisha (Bhola)	11	Chairman Ghat (Char Bata)
2	Alubazar	7	Veduria	12	Sandwip
3	Horina	8	Laharhat	13	Tajumuddin
4	Hijla	9	Boddarhat	14	Monpura
5	Moju Chowdhury	10	Daulatkha		

Notes: Existing sites: present infrastructure shall be improved and modernized; New sites: new installations shall be built in green field sites.
Source: World Bank

Component 3: Institutional Capacity Development and Sustainability ($50 million)

This component is comprised by a number of activities that aim to develop or improve BIWTA's managerial system and human resources capability. These include:

a) Develop *River Information Systems* to improve data collection for planning, development and maintenance of IWT in Bangladesh; as well as to provide a *Traffic Monitoring System;*

b) Upgrade and modernize BIWTA's Deck and Engine Personnel Training Center (DEPTC) into a *Regional IWT Training Center* and open it for all users in the region and the world,

c) Initiate a study to develop an effective *Search and Rescue Organization* as well as to propose its required institutional structure;

d) Initiate formation of *project preparation facility* to finance surveys, feasibility, design, safeguard studies, etc.;

e) Extend support to *Project Management Unit* for efficient implementation of the Project.

A long-term and dedicated action plan in IWT sector by the Government of Bangladesh, such as this project, was long overdue. If such actions had been taken earlier, then the quantity (length) and quality of Inland Water Transport in Bangladesh would not have deteriorated to such an extent. The support extended by World Bank is commendable.

It is now anticipated that Bangladesh Government supported by development partners would follow the example shown by considering taking up similar development activity in other corridors.

2.4   Related Laws and Regulations

2.4.1   Roads

The basic law for the road sector is the Highways Act 1925, which has been updated in subsequent years. This act aims to establish effective administrative control over government highways and bridges as well as land within the Right of Way (ROW) and to facilitate efficient management at the time of maintenance and/or construction of highways and related structures.

The Highways Act 1925 came into force on 1st July 1928. Some amendments, though not significant, were made to this act at different times over the period of 1932 to 1974. The next changes in the act were covered by the Highways (Amendment) Act 1994, which was published and notified in the Bangladesh Gazette dated 18th May 1994. Through another Gazette notification in June 2001, the government made rules titled the Highways (Security, Protection, and Restriction of Movement) Rules 2001. In a further Gazette notification dated 23rd August 2001, amendments were made in Section 2(i) of the Highways (Security, Protection and Restriction of Movement) Rules 2001 and Section 2 of the Highways Act 1925.

Under ADB assistance, the Highway Acts, Rules & its amendments etc. vis-a-vis the changes required were reviewed through the Road Maintenance Improvement Project (RMIP) by a legislation consultant. A draft document for rules named the Highways (Restricted Access Highways) Rules were prepared on 20 August 2000 to be made under the Highways Act 1925 which is awaiting consideration of the government and legislation there. Table 2.30 summarizes the general rules and regulations related to the road sector.

Table 2.30: General Rules and Regulations

Ref No.	Title	Latest Amendment/ Edition	Issued by	Key Contact
G1	The Highways Act 1925 (Bengal Act III of 1925)	2001	Ministry of Law Justice & Parliamentary Affairs	Law Officer
G2	The Administrative Tribunal Act, 1980	1991	Ministry of Law Justice & Parliamentary Affairs	Law Officer
G3	The Arbitration Act 1940	2001	Ministry of Law Justice & Parliamentary Affairs	Law Officer
G4	Acquisition and Requisition of Immovable Property Manual, 1982	1995	Ministry of Land	Executive Engineer Land Record
G5	General Information on Annual Confidential Report (ACR)	-	Ministry of Establishment	Additional Chief Engineer Management Services Wing
G6	Order for Replacement of Bangladesh Form No.2911	2001	Ministry of Communications	Additional Chief Engineer Planning and Maintenance Wing
G7	Bangladesh Allocation Rules 1982	-	Ministry of Establishment	Additional Chief Engineer Management Services Wing
G8	The Official Secrets Act., 1923	1985	Ministry of Establishment	Additional Chief Engineer Management Services Wing
G9	The Secretariat Instructions 1976	-	Ministry of Establishment	Additional Chief Engineer Management Service Wing

Source: RHD

Another set of important rules and regulations are administrative rules (Table 2.31), which provide for the establishment of Administrative Tribunals to exercise jurisdiction with respect to matters related to or arising out of the terms and conditions of the persons in the service of the Republic or any statutory public authority. Certain procedures are to be followed while appealing to the Administrative Tribunal. The Tribunal may reject the incomplete application of the aggrieved person or give him opportunity to apply again fulfilling the requirements. The judgment of Tribunal Court will be made effective following the same procedure as under the Code of Civil procedure 1908 (Act of 1908). See also Table 2.32 for financial rules and regulations.

Table 2.31: Administrative Rules and Regulations

Ref No.	Title	Latest Amendment/ Edition	Issued by	Key Contact
A1	Bangladesh Service Rules (BSR Part I & II)	1993	Ministry of Establishment	Additional Chief Engineer Management Services Wing
A2	Bangladesh Civil Service Recruitment Rules 1981	1994	Ministry of Establishment	Additional Chief Engineer Management Services Wing
A3	Bangladesh Civil Service (Examination for Promotion) Rules 1986	1994	Ministry of Establishment	Additional Chief Engineer, Management Services Wing
A4	Roads and Highways Department (Gazetted & NonGazetted Employees) Recruitment Rules, 1984	1985	Ministry of Establishment	Additional Chief Engineer, Management Services Wing
A5	BCS Seniority Rules, 1983	1988	Ministry of Establishment	Additional Chief Engineer, Management Services Wing
A6	The Government Servants (Seniority of Freedom Fighters) Rules 1976	1 989	Ministry of Establishment	Additional Chief Engineer, Management Services Wing
A7	The Government Servants (Conduct) Rule, 1979	1993	Ministry of Establishment	Additional Chief Engineer, Management Services Wing
A8	The Government Servants (Discipline & Appeal) Rule, 1985	1989	Ministry of Establishment	Additional Chief Engineer, Management Services Wing
A9	The Government Servants (Special Provisions) Ordinance, 1979	1989	Ministry of Establishment	Additional Chief Engineer, Management Services Wing

Source: RHD

Table 2.32: Financial Rules and Regulations

Ref No.	Title	Latest Amendment/ Edition	Issued by	Key Contact
F1	The Govt. and Autonomous Bodies Employees Benevolent Fund and Group Insurance Ordinance, 1982	1994	Ministry of Finance	Director of Finance Audit and Accounts Circle
F2	The General Provident Fund Rules, 1979	-	Ministry of Finance	Director of Finance Audit and Accounts Circle
F3	Pension & Gratuity Rules	1994	Ministry of Finance	Director of Finance Audit and Accounts Circle
F4	Charge Allowance Rules, 1982	1989	Ministry of Finance	Director of Finance Audit and Accounts Circle
F5	Festival Allowance Rules, 1988	-	Ministry of Finance	Director of Finance Audit and Accounts Circle
F6	Treasury and Subsidiary Rules	1998	Ministry of Finance	Director of Finance Audit and Accounts Circle
F7	General Financial Rules	1998	Ministry of Finance	Director of Finance Audit and Accounts Circle
F8	Accounts Code Volumes-I to IV, Audit Code, Audit Manual	1986	Comptroller & Auditor General	Director of Finance Audit and Accounts Circle

Source: RHD

The other road transport-related laws, rules and regulations include: Gazette for Founding Bangladesh Road Transport Authority (BRTA); Motor Vehicle Rules, 1984; Motor Vehicle Ordinance, 1983; and Bangladesh Gazette for Axle and Laden Weight Limit.

2.4.2 Rail

(1) Relevant Policy, Plans, Laws

Principal policies, plans, laws and ordinances that are pertinent to the Railway sector in Bangladesh are the following:

National Transport Policy

Railway development projects are aligned with the Policy regarding Fostering Inter-National Rail Links where it is mentioned that "8.7.1 International rail services will be encouraged where they are in the greater interest of Bangladesh", "8.7.2 Bangladesh will play an active role in international rail communications" and, "8.7.3 The Government will encourage investment in additional and extended international rail infrastructure where there are clear economic benefits to Bangladesh".

Perspective Plan Vision 2021

The vision regarding regional cooperation is: "(d) participation in the grand Asian Highway and Asian Railway Systems that generate win-win outcomes".

Vision regarding Transport and Communication is that: "Special emphasis, therefore, will be placed on introduction of modern technology for increasing capacity and improving quality and productivity of the system, development of the two sea ports with smooth transport links to Dhaka, establishment of effective railway linkages between the east and west zones of the country integration of road, rail and inland water transport, and participation in global and regional

transport connectivity initiatives that help develop the land route links between South Asia and East Asia through Bangladesh". To this end, the proposed bridge is the most important project.

Vision regarding sound infrastructure is: "The efficient and safe movement of people and goods needs well-built, efficiently operated and maintained physical infrastructure and transportation systems, along with reliable and affordable supplies of water, electricity and power, telecommunications, postal and waste management services. In addition to well-planned urbanization, attention will be paid to multimodal transport, integration of roads and highways, railways, water transport, rural transport and airports. Railways will receive much greater attention as a means of passenger and goods transportation throughout the country". The proposed project is the highest priority project, and for this reason, is in line with Vision 21.

Seventh Five Year Plan

"Address the biggest capacity constraint found on the single line sections in major railway corridors like Dhaka–Chittagong, Dhaka–Sylhet, Dhaka–Khulna, and Dhaka–Parbatipur. BR needs to undertake double tracking of all major railway corridors by phases" and "strengthen South Asia regional and Trans-Asian railway connectivity". Table 2.33 depicts the specific targets outlined in the Seventh Five Year Plan.

Table 2.33: Railway Development Program in Seventh Plan
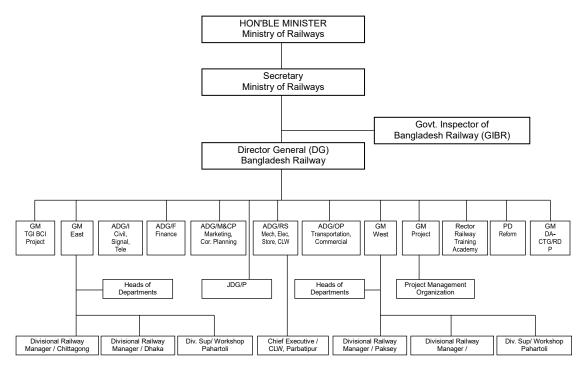
Goal / Objectives	Actions	Specific targets
Expand and improve railway system to provide safer, better, environment friendly & less expensive transport facilities to the national and international traffic to increase its market share. Increase its market share from 4% to 15% in freight transport, 10% to 15% in container transport between Dhaka–Chittagong Port and 4% to 10% in passenger transport.	Expansion of railway network to expand rail operations	Undertake construction of 856 km of new rail track
	Double tracking of important sections and gauge unification to overcome operational bottlenecks	Undertake dual gauge double tracking of 1110 km
	Rehabilitate/upgrade existing rails for improved speed and safety	Undertake rehabilitation of 725 km of existing rail track
	Construction of railway bridges and other infrastructure for operational improvement	Undertake construction of rail bridges, improvement of level crossing gates and improvement of other infrastructure.
	Procure new locomotives to improve service quality	Purchase 100 new locomotives, 1 locomotive simulator and 4 relief cranes.
	Procure new coaches for passenger comfort.	Purchase 1,120 passenger coaches and rehabilitate 624 coaches.
	Upgrade railway workshops and maintenance	Procure modern maintenance equipment
	Improve rail speed and safety	Upgrade rail signal for 81 stations
	Improve rail efficiency	Strengthen railway management
	Improve railway finances	Eliminate operational deficit through price increases and operational efficiency gains.

Source: Seventh Five Year Plan

There are also some documents that describe the railway policy, plan, and law in Bangladesh, such as: Railway Master Plan, 2013; Poverty Reduction Strategic Paper; Integrated Multimodal Transport Policy; The Railway Act 1890; General and subsidiary rules; and Manuals and Codes for different railway departments.

(2)   Public Sector Institutions

Figure 2.16 shows the current organization chart of BR.

Source: JICA Study Team

Figure 2.16: Bangladesh Railway Organization Chart

2.4.3   Inland Water

(1)   Relevant Policy, Plan, Law, and Ordinance

Principal policies, plans, laws and ordinances that are pertinent to the IWT sector in Bangladesh are the following:

- **Ports Act, 1908.** Enacted as early as 1908, it addresses issues related to Ports and other berthing and handling stations as well as their management.

- **Inland Shipping Ordinance 1976.** It deals primarily with administration, registration, competency, etc. of inland waterways, inland ports and landing facilities, inland shipping, etc.

- **Merchant Shipping Ordinance 1983.** It lays down directives for use of coastal and inland shipping in Bangladesh as well as overseas shipping.

- **Rules for Inland Ship Safety 1994 (Draft).** The rules were drafted to protect inland waterways and related activities from impacts of air emission, handling and storage of harmful materials, waste discharges, dredging and dredge-spoil disposal, oil spill, etc.

- **National Policy for Ports, Ocean Shipping and Inland Water Transport, 2000.** The policy lays down guidelines for administration of inland shipping, ocean shipping, sea ports, river ports, launch stations, etc.

- **National Water Management Plan (NWMP), 2001.** The Plan, formulated in 2001, states that "for the NWMP the main IWT concern is with navigability" and rightly points out that, "due to inadequate maintenance dredging in the past and changing river conditions, a considerable amount of capital dredging is now required". This statement still holds true.

- **Coastal Zone Policy, 2005.** The policy is enacted principally for development of the coastal zones of Bangladesh. As such it also addresses issues related to inland water transport in the area.

- **National Strategy for Accelerated Poverty Reduction, 2005.** The policy addresses issues related to people belonging to the lower strata of society. It lays down guidelines for reducing their poverty and improving their living standard. Inland waterways being less expensive and providing access to less developed village areas, it is not only preferred by the poor; but it also provides employment opportunities to them; therefore, improvement of inland waterways sector has a direct positive influence upon the lot of the poverty-stricken people.

- **Inland Water Transport Policy 2009 (Draft).** The importance of inland water transport demanded a separate policy document for its development, maintenance and operation. Drafted in 2009, the policy provides guidelines for arresting continuous deterioration of waterways and reviving it. In general, it extends recommendations for sustainable improvements of waterways, inland ports and landing facilities, inland vessel management, safety, pollution control, etc.

- **National Integrated Multimodal Transport Policy (NIMTP), 2013.** The policy aims at integrating all transport sectors and developing them in a balanced manner. The principal objectives of the policy are to ensure that transport meets social needs in terms of cost and accessibility to all strata of society, reduce transportation costs, improve safety, reduce adverse environmental effects, and improve the country's fuel and energy security.

- **Dredging and Dredged Material Management Policy 2013 (Draft).** The policy lays down guidelines for planning and execution of dredging works, and for disposal of dredged spoils.

- **Inland Water Transport Master Plan, 2009.** The Master Plan is a comprehensive report on Inland Water Transport sector. Completed in 2009, it extends recommendations for need-based development over a period of 20 years. Although its efforts are limited by chronic resource constraints, BIWTA is following its guidelines and has successfully implemented many of its directives.

- **Protocol on Inland Water Trade and Traffic (PIWTT), 1972 and renewed thereafter.** This bilateral agreement between Bangladesh and India, first signed in 1972 and subsequently renewed, is still in force. The agreement allows vessels of one country to enter and sail safely in inland waterways of the other for trade and mutual benefit.

(2) Public Sector Institutions

The principal public sector institutions that oversee and deal with activities related to Inland Water Transport (IWT) sector in the country are the following:

- Ministry of Shipping (MOS);
- Department of Shipping (DOS);

- Bangladesh Inland Water Transport Authority (BIWTA); and
- Bangladesh Inland Water Transport Corporation (BIWTC).

Ministry of Shipping (MOS)

The Ministry of Shipping is a ministerial branch of the Government of Bangladesh. Besides its many other responsibilities, it formulates policies and oversees development, maintenance and operational activities of its parastatal bodies. A minister, who is generally a political figure and a Member of Parliament, heads the Ministry. He is supported by secretarial personnel from the civil service cadre.

Department of Shipping (DOS)

The Department of Shipping is a department under the Ministry of Shipping. It generally carries out the following routine responsibilities:

- Inspection of vessel construction and issuance of completion certificate;
- Registration of vessels constructed in Bangladesh and those imported from overseas;
- Annual survey of vessels, and issuance/ renewal of ship survey certificates;
- Approval of design and drawings of vessels;
- Examination of deck and engine hands, and issuance of competency certificates;
- Implementation of safety rules, regulations and orders;
- Making post-accident enquiries; and
- Managing ship-based IWT-related environmental aspects.

The department is headed by a Director General. He has two aids, a Chief Engineer and a Chief Nautical Ship Surveyor. There are four vessel survey stations at Dhaka, Narayanganj, Barisal and Khulna, each manned by an Engineer and Ship Surveyor. There is also an office of the Inspectorate of Inland Ships, headed by a Chief Inspector. It has a head office at Dhaka and seven regional offices at Sadarghat (Dhaka), Narayanganj, Chandpur, Barisal, Patuakhali, Khulna and Chittagong. The broad functions performed by the Inspectorate of Inland Ships are to:

- Check certificate of registration of inland vessels;
- Check survey certificates;
- Check certificates of competency of inland masters, engineers and drivers;
- Check life-saving equipment onboard the vessels;
- Check overloading in inland vessels; and
- Report to Marine Court for violation of any rules including those listed above.

There is also an officer of the rank of Director, who is responsible for all administrative and secretarial work.

Bangladesh Inland Water Transport Authority (BIWTA)

An autonomous body under the Ministry of Shipping, the responsibilities of BIWTA relate to development, maintenance and operation of inland waterways. Broad responsibilities vested upon it are to:

- Provide and ensure safe navigation in inland and coastal waterways;
- Construct, maintain and operate inland river ports and launch landing stations;
- Perform conservancy works including dredging, navigational aids, pilotage services, etc.;
- Perform hydrographic and other IWT-related surveys;
- Perform regulatory functions related to vessel movement in inland waterways and ports (like passenger fare rate, time table, route permit, etc.);

- Impart training to deck and engine personnel of inland and coastal vessels; and
- Act as 'Competent Authority' on behalf of the Bangladesh Government for matters related to Bangladesh–India Transit and Trade Protocol.

BIWTA performs its responsibilities through eight functional departments, viz. Civil Engineering, Dredging, Mechanical & Marine Engineering, Hydrography, Conservancy & Pilotage Services, Ports, Marine Safety, and Planning. The activities are overseen by a Board consisting of a Chairman (who is the Chief Executive) and three other Members, all four are nominated to represent the government.

Bangladesh Inland Water Transport Corporation (BIWTC)

BIWTC is an autonomous body under the Ministry of Shipping. It was established in 1972 by Presidential Order (P.O. No. 28). Its principal functions are to:

- Provide safe passenger and freight transportation services in inland and coastal waterways;
- Provide ferry services for transporting vehicles across major rivers;
- Provide transport service between the mainland and the offshore islands; and
- Maintain dockyards and repair yards for repair and rehabilitation of vessels.

It is a commercial organization in the public sector engaged in transporting passengers and freight in inland and coastal waterways of Bangladesh. Its affairs are managed by a Board of Directors consisting of a Chairman who acts as the Chief Executive, and four Directors.

The organization carries out its activities in four separate units: passenger service unit, cargo service unit, ferry service unit, and ship repair service unit.

2.5   Summary of Major Issues

The following is a summary of the major issues and challenges related to the transport infrastructure along the Dhaka–Chittagong corridor, identified through stakeholder consultation and a review of existing studies.

2.5.1   Roads

(1)   Lack of Integrated Planning

Setting investment priorities is necessary in gaining the most effective results; however, there has been a lack of an integrated transport policy, transparent planning framework, and adequate understanding of traffic demand for prioritizing investments, as pointed out in the Seventh Five Year Plan. Some consequences of this include: (i) parallel, competing project plans for the Dhaka–Chittagong expressway, (ii) the absence of mater plan for BBA to follow, and (iii) a lack of integrated freight transport system master plan.

(2)   Coordination among Relevant Agencies

There is also a serious deficiency in the current planning approach followed by different ministries and agencies. In the present top-down approach, transport policy is developed by the responsible government agency with very little or no cognizance of other stakeholder views. Broad participation of different interest groups and consumers is essential for the effectiveness of such planning which is absent in the present practice.

(3) Road Capacity and Provision

With future road transport demand growth, an additional burden will be placed on the road infrastructure which already has several constraints including: (i) insufficient capacity with no access controlled highway and with remaining bottlenecks at Kanchpur, Meghna, and Gumti Bridges, (ii) a lack of integrated planning and the absence of a clearly defined transport hierarchy, and (iii) a lack of resting places (or service areas) for truck drivers, which is a key concern raised from Bangladesh Truck & Covered Van Owners Association.

(4) Traffic Congestion

Without integrated planning, future traffic congestion on the Dhaka–Chittagong corridor is set to compound existing issues and further constrain the corridor. The causes of congestion are wide ranging, including increased car use; mixture of motorized and non-motorized traffic; encroachment of roadside activities onto the main carriageway; lack of road capacity and connectivity; inadequate traffic management; and lack of high quality public transport.

(5) Lack of a Transport Hierarchy and Connectivity

Bangladesh suffers from no clear transport hierarchy which has led to an inefficient network, congestion, lack of connectivity, and safety issues. A key concern from road users, in addition to congestion itself, is the enforcement of regulating appropriate vehicle types on national highways and other key roads (principally to remove rickshaws). In addition to congestion and no clear hierarchy, connectivity itself will worsen and constrain development.

(6) Road Safety

Many of the issues stated above lead to safety problems which will only intensify if left unchecked. These include: unorganized driving/parking behavior of heavy vehicle drivers, encroachment of roadside activities, poor pedestrian environments, lack of strict enforcement of traffic rules and regulations, lack of driver and pedestrian education, and lack of accident data recording. The Road Master Plan recognizes these issues and has set out a policy to improve road safety.

(7) Inadequate Maintenance

The sustainability of roads and bridges has been threatened due to inadequate maintenance. The Road Master Plan stresses the needs to introduce routine maintenance across the whole RHD network and to prioritize recurrent (maintenance) expenditure. Whilst JICA is providing technical assistance under Bridge Management Capacity Development Project over the 2015–2018 period, more needs to be undertaken to address this issue.

It is clear from the RHD's Maintenance and Rehabilitation Report that maintenance requirement has been identified quantitatively. In the past, there was no indicator to evaluate the level of maintenance, leading to a situation where the maintenance needs themselves were unknown or were not identified quantitatively. On the other hand, there has been undeniable lack of budget to conduct sufficient rehabilitation. Although the government has come to focus on maintenance and is trying to increase fund, these have not reached a sufficient level. Therefore, it can be said that budget implementation system is also insufficient.

(8) Vehicle Overloading

Vehicle overloading has continuously damaged roads and bridges. Current axle load control policy states that an overloaded vehicle needs to turn back the way the vehicle has come, which causes the road to endure further surface damage. Because of this outcome, the policy is currently

under amendment. RHD needs to cooperate with the police to enforce the overloading penalty. ADB TA consultants have proposed that the axle load control station connect with the BRTA control center. The station can detect the overload and transmit information on the overloaded vehicle to the control center, which can then send an alert message to the driver.

2.5.2   Rail

In terms of the railway Dhaka–Chittagong corridor, several issues exist but these are mostly addressed through countermeasure projects. In this subsection, major issues of this corridor and its countermeasure projects have been listed up for each category.

(1)   Track and Structure

Although the country's economic growth has recently boosted the demand of the Dhaka–Chittagong corridor, the existing railway infrastructure alone cannot accommodate the increasing demand for railway traffic. As many parts of this corridor are installed with a single track, many ongoing and planned projects exist to increase railway capacity. These are financially assisted by ADB, JICA etc.

There is no railway link to Cox's Bazar and the planned deep-sea port in Matarbari. Cox's Bazar is a major sightseeing spot while the deep-sea port will be a significant logistic base. In recent years, there is a construction project for DG single line from Dohazari to Cox's Bazar via Ramu under ADB assistance.

The BR network has a two-gauge system: Meter Gauge (MG) and Broad Gauge (BG). This two-gauge system is a physical constraint for movement of cross border freight traffic. For this issue, the entire Dhaka–Chittagong corridor has projects to convert from MG to DG, most of which have been financially assisted by ADB, while the donor for the remaining projects has not been finalized.

Most railway bridges were built over 100 years ago and need to be replaced or rehabilitated. BR has been undertaking Sub-Regional Transport Project Preparatory Facility, under which, feasibility studies and detail design have been conducted for construction of missing links, increasing line capacity by constructing double line, construction of new bridges, strengthening of existing bridges, and improvement of signaling and telecommunications system and rolling stock.

Mechanized track maintenance methods are under active consideration of the Railway Administration to replace conventional methods. Mechanical track lifting, slewing, tamping, and laying machines have been introduced on the Dhaka–Chittagong main line for track maintenance. A track recording trolley car is in use.

(2)   Inland Container Depot

The capacity of the existing Kamalapur ICD is not enough to handle the increasing share of container traffic diverted towards BR. Expansion of Kamalapur ICD is difficult due to the heavily built-up surrounding area. Furthermore, a daytime truck ban in Dhaka City makes it difficult to fully utilize the facility. A decision has been made to construct a new ICD near Dhirasram Railway Station. BR has considered the implementation of the project through a PPP scheme.

(3)   Rolling Stock

The number of rolling stock is not sufficient to handle the increasing demand for rail traffic. In addition, much of the fleet is aging progressively. In response to this, BR has begun undertaking projects for the procurement of rolling stock under the financial assistance of ADB, etc.

(4)   Finance

BR has recorded an operating deficit every year. Operating loss in 2014–2015 was Taka 7.5 billion. Figure 2.17 shows the changes in the revenues and the expenditures of BR over the period from 1997-98 to 2005-06. It indicates that the operating revenue, particularly the tariff, has not grown as much as the expense has risen, causing the increasing operating loss.

Source: Railway Master Plan 2013
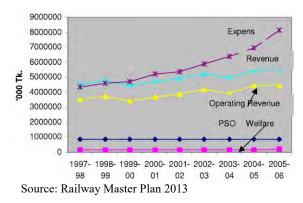
Figure 2.17: Revenues and Expenditures of BR

2.5.3   Inland Water

(1)   Inland Waterway Network

- The most important parameter that influences efficiency and safety is *navigation draft* that is maintained for inland waterway channels. Proper attention was not given to this aspect in previous years due to resource constraints, leading to deterioration in the quality and quantity (length) the waterway network. The World Bank has come forward to assist Bangladesh in maintaining the Dhaka–Chittagong corridor, but there exist other important corridors, including dead and dying waterways, which need attention.

- Prescribed vertical and horizontal clearances are not adhered to during construction of bridges and other river-crossing infrastructure; this constricts the channel and generates hazards to navigating vessels.

- The present 'waterways classification' was completed in 1989 and has now outgrown its usefulness; the system requires to be re-classified so that investment needs and priorities can be properly determined.

- Navigational aids and night navigation are not provided in a major portion of the waterways transport network. This reduces its capacity and contributes to the higher frequency of accidents.

- The IWT sector suffers from a serious lack of reliable data and information, particularly those related to traffic and user preferences, which is of vital importance to determine investment priorities and to solicit development partners. It was learned that BIWTA has set up recently an Information Technology Cell which constitutes an important step that can support this much-needed activity. It is now necessary that due importance is given

and necessary institutional and budgetary arrangements are set up in order to carry out related surveys, data collection, and storage on a regular basis.

(2)   River Ports, Launch Landing Stations, and Launch Ghats

- Main Inland River Ports do not have proper access roads and adequate vehicular parking space. There is also no adequate loading/unloading spaces, which force the labors to stack goods on jetties, road-sides and side-walks.

- Dhaka Inland River Port is the largest in Bangladesh in terms of size and traffic. Its development could not keep pace with its continuously increasing demand. Presently it faces congestion both on land and in water. The access roads are narrow and cannot cope with the heavy vehicular and pedestrian traffic. The water side also suffers from congestion --- ships usually cannot berth alongside and resort to nose-berthing. This causes discomfort to passengers and coolies. As there is little scope for making improvements here, additional terminals may be built elsewhere.

- Buriganga River Pollution: Dhaka river port is situated on bank of Buriganga river which suffers from acute pollution and pungent smelling water. This is a source of passenger discomfort and an acute health hazard for city citizens.

- Ashuganj Inland River Port: also acts as a port of call under the Protocol on Inland Water Trade and Traffic. It is playing a significant role in Bangladesh–India IWT sector. It is providing multimodal transport facilities in recent days. In order to enhance its efficiency its facilities and services must be upgraded and modernized.

(3)   Regional Waterway Traffic

- Inland waterways in use under Protocol on Inland Water Trade and Traffic (PIWTT) often suffer from inadequate navigation drafts. There is also a shortage of aids to navigation as well as night navigation, etc.

- The ports of call lack proper berthing and handling facilities. There is also a need for trade facilitation to reduce paper work at borders and removing other non-physical barriers.

(4)   Vessels

- The average vessel size has increased over time. Competing among themselves, the owners continue to build bigger and bigger ships. It is common to see passenger vessels which are more than 250 feet in length and three-stories high. These do not necessarily have the maneuverability to negotiate some narrower channels. The controlling authority is DOS which should enforce necessary control over their activities.

- DOS annually carries out fitness inspection of vessels, but there is a lack of capacity to do this in a strict manner.

(5)   Container Transport by Inland Waterways

- There is growing congestion in Dhaka–Chittagong highway and railway corridors. Although both concerned government bodies are implementing and planning future developments, the congestion may not be fully resolved in the near future. In view of emerging trends of container handling at the sea ports, the inland water corridor offers an alternative for transporting containers to Dhaka, Narayanganj, and surrounding areas, where an overwhelmingly large proportion of containers originate or are destined. A

container handling river terminal (ICT) has been constructed at Pangaon (near Dhaka city) and a few container-carrying vessels have been procured by the public sector, but these are not properly utilized. The government should look into the matter and encourage enterprising entrepreneurs to transport containers by waterways through the extension of incentives like reduced tariffs, soft loans, tax holidays, etc.

(6) Country Boats

- Country boats do not need large-scale investment in infrastructure – passenger services often operate without using formal landing stations, often using very rudimentary ghats. Cargo-carrying country boats have little need to use formal ports. Small shoals can disrupt the free movement of country boats. In some ways, the vibrancy and growth in the sector represents a response to the lack of investment in the formal sector. However, they have suffered from navigation channels in rural areas being cut by indiscriminate and uncoordinated road building.

(7) Bulkheads (Sand Carriers) and Engine Boats

- Bulkheads are locally constructed mechanized vessels used for carrying sand. Crude and unwieldy, these cannot be maneuvered properly and are a hazard to other sailing vessels. DOS is the responsible organization to oversee their fitness for use and regulate them.

- Engine boats are traditional country boats fitted with shallow tube-well pumps. These have no back-gears and cannot move away quickly from the path of on-coming ships which lead to accidents. As hazard to safe navigation, engine boats should be regulated.

(8) Unhealthy Living Conditions of River Port Personnel

- Due to the essential nature of their service, officers and employees engaged in maintaining and operating river ports live near the ports. This allows them to be available at short notice, particularly during natural calamities like seasonal storms. There exist such dwelling places at Chandpur and Barisal which were developed during pre-liberation period (i.e. prior to 1971). However, these buildings have outgrown their use and are presently in damaged condition. As necessary funds are not forthcoming for their repair and/or rehabilitation, they are now in a damaged and unhealthy state. Consequently, the personnel suffer, which in turn affects their workability.

- The residents and employees working in offices situated in Barisal estate suffer the most. Unplanned urbanization has caused the surrounding areas to be built up at a higher level, causing its premises to get flooded and waterlogged even during the slightest rainfall. The drainage system has also grown old and passes through heavily built-up living quarters and needs to be re-designed and re-aligned

3.   Transport Services

This chapter examines the services of road, rail, and inland water transport that require use of the Dhaka–Chittagong corridor. Throughout the Survey, the JICA Study Team conducted interviews with transport suppliers such as relevant government organizations, shippers, freight forwarders, logistics companies, shipping lines, etc. to identify current situations, issues, and needs of passenger and freight transport.

3.1   Roads

3.1.1   BRTA

The Bangladesh Road Transport Authority (BRTA) is a regulatory body to control management and ensure discipline in the road transport sector and road safety in Bangladesh. It is an authority under the Ministry of Communication for carrying out the purposes mentioned in the Motor Vehicle Ordinance, 1983 (Amendment-1987). Bus operation is one of the areas of jurisdictions of its organization. However, according to an interview with BRTC (which is explained below), there are no regulations for entering the bus operation business. Thus, many private and public bus service companies operate their lines and start services within cities and inter-city without control.

3.1.2   Bus Services

It takes 6-8 hours and costs Taka 700-1,000 to ride a public bus between Dhaka and Chittagong. More than 50 private companies operate intercity bus services between the two cities. No regulations exist to control entry into the bus operation business. The Bangladesh Road Transport Corporation (BRTC), which is a sole state-owned corporation, has only a (less than) 1% share of the market of intercity bus service.

The current bus services have the following characteristics compared to other transportation modes:
- Private car is preferred from the viewpoint of convenience, time, and service frequency;
- Railway has less-frequent services (3-4 times a day) compared with bus; and
- Accessibility to the airport is a big obstacle against air transport. It sometimes takes 3 hours to go to the Dhaka airport.

The key issues of bus transport system include the following:
- Bottlenecks (most congested points) of road transport between Dhaka and Chittagong are Dhaka City, other cities such as Feni City and Comilla City, and bridges; and
- Many buses are parked in Dhaka City, which reduces road widths and hinders city traffic.

(1)   BRTC

Among predominant private transport services, the Bangladesh Road Transport Corporation (BRTC) is a sole state-owned corporation, maintaining a nationwide bus network. Recently it introduced a direct daily service on the Dhaka–Kolkata–Dhaka route. Bus capacity is 40 persons per vehicle, and the occupancy rate is 50%.

BRTC owns 130 buses and 50+ trucks (2 axles, up to 15 tons) with a plan to increase their fleet to 600 buses and 500 trucks. Introduction of smart cards to bus (public and private), Bus Rapid Transit (BRT), and Mass Rapid Transit (MRT) is in progress with a plan to complete introduction in mid-2017.

(2)   Private Bus Operators

Private bus operators are the main player in the country's bus transport. They provide charter bus, coach bus, public bus, and shuttle bus services on major routes including the Dhaka–Chittagong corridor with reasonable fares. The major bus companies operating various long-distance services between Dhaka and Chittagong include Desh Travels, Shohag Paribahan, Green Line, Shyamoli Paribahan, Unique Service, Soudia Paribahan, Eagle Paribahan, TR Paribahan, S. Alam Service, Hanif Enterprize, Silk Line, Bagdad Express, Aziz Travels, and Rajib Special.

3.2   Rail

3.2.1   Bangladesh Railway

(1)   Passenger Traffic

Passenger trains are operated on a regular basis. Two types of passenger trains are available: Intercity Train and Mail Express (Table 3.1). Intercity Train has four dedicated services per day between Dhaka and Chittagong in 2016-17, while Mail Express has two round trips per day. Intercity Train takes approximately 5-7 hours from Dhaka to Chittagong (Table 3.2).

Table 3.1: Average Number of Vehicles per Train

2014-15	East	West	Combined
Intercity	28.7	19.5	26
Mail Express	18.1	14.3	17.2
Local	12	12.5	12.2
Overall	21.7	15.9	19.9

Source: Bangladesh Railway HP

Table 3.2: Schedule of Intercity Trains (Dhaka–Chittagong)

From	Departure	To	Arrive	Time Required
Dhaka	7:45	Chittagong	13:50	6:05
Dhaka	15:00	Chittagong	20:10	5:10
Dhaka	21:00	Chittagong	4:30	7:30
Dhaka	23:30	Chittagong	6:20	6:50
Chittagong	7:00	Dhaka	12:10	5:10
Chittagong	12:30	Dhaka	19:00	6:30
Chittagong	15:00	Dhaka	21:00	6:00
Chittagong	23:00	Dhaka	5:25	6:25

Source: Bangladesh Railway HP

For the Dhaka–Chittagong corridor, the average total number of passengers per year is 3.1 million. The number of passengers has been rising due to the increased service capacity. Table 3.3 shows the number of passengers in east and west zones.

Table 3.3: Number of Rail Passengers

	East Zone (Thousand)	West Zone (Thousand)
2005-06	28,004	16,804
2006-07	28,536	17,520
2007-08	32,848	21,711
2008-09	38,863	26,467
2009-10	40,138	25,813
2010-11	41,271	22,538
2011-12	43,711	22,616
2012-13	42,105	20,733
2013-14	45,061	20,147
2014-15	45,426	21,916

Source: Information Book 2015

(2)   Freight Traffic

Freight trains are also operated on a regular basis. On the Dhaka–Chittagong section, there are two regular dedicated services per day. It takes approximately 9-18 hours from Dhaka to Chittagong (Table 3.4). Also, other goods trains use the same track.

Table 3.4: Schedule of Container Trains (Dhaka–Chittagong)

From	Departure	To	Arrive	Time Required
Dhaka ICD	15:40	Chittagong Port Yard	10:10	18:30
Dhaka ICD	21:20	Chittagong Port Yard	7:00	9:40
Chittagong Port Yard	15:10	Dhaka ICD	3:50	12:40
Chittagong Port Yard	22:30	Dhaka ICD	7:55	9:25

Abbreviation: ICD = Inland Container Depot
Source: Bangladesh Railway HP

In 2014-2015, a total of 66,942 containers were handled at Chittagong Port and Dhaka ICD (Table 3.5). A total of 584,369 tons of different commodities were transported in those containers (Table 3.6), which contributed to a total of Taka 701 million to the railway revenue.

Table 3.5: Number of Containers

Year (July-June)	Chittagong Port to Dhaka ICD		Dhaka ICD to Chittagong Port		Total
	Loaded	Empty	Loaded	Empty	
2010-11	32,336	80	18,898	14,057	65,401
2011-12	33,017	-	20,544	13,636	67,197
2012-13	30,768	145	20,160	11,427	62,500
2013-14	30,567	2	20,240	9,597	60,460
2014-15	33,239	-	21,573	12,130	66,942
2015-16	34,989	226	34,251	10,187	79,840

Abbreviation: ICD = Inland Container Depot
Source: Bangladesh Railway, Information Book, 2015

Table 3.6: Tons of Containers, 2014-15

Chittagong Port to Dhaka ICD	Dhaka ICD to Chittagong Port	Total
360,722	223,647	584,369

Abbreviation: ICD = Inland Container Depot
Source: Bangladesh Railway, Information Book, 2015

(3)   Track capacity

Table 3.7 shows the capacity of rail track and the number of trains for each section. In some sections including Dhaka – Tongi, Tongi - Bhairab Bazar, and Akhaura – Laksam, the number of trains has already exceeded the capacities of the rail tracks.

Table 3.7: Rail Track Capacity and Running Vehicles Volume (Dhaka–Chittagong)

Section	Dhaka - Tongi	Tongi - Bhairab Bazar	Akhaura - Laksam	Chinki Astana - Chittagong
Track Type	Double	Single	Single	Double
Capacity (trains per day)	88	42	36	86
Number of Passenger Trains (per day)	101.55	48.66	35.97	38.08
Number of Freight Trains (per day)	4.72	5.16	6.71	6.66
Total (trains per day)	106.27	53.82	42.68	44.74

Source: Railway Master Plan 2013, Bangladesh Railway Information book 2015

3.3   Inland Water

3.3.1   BIWTA

(1)   Passenger Traffic

There is a dearth of data and statistics in the Inland Water Transport (IWT) sector, particularly related to the private sector. It was revealed from discussions held with public and private stakeholders that the Bangladesh Inland Water Transport Authority (BIWTA) and the Department of Shipping (DOS), the two organizations responsible for development, management, and regulation of water transport in Bangladesh, do not conduct traffic and related surveys. Information referred herein has been taken from various reports and documents.

The World Bank study conducted in 2007 mentions that 12.3% of rural population, which is half of all rural households, has reasonable access to the inland waterway system, and is directly affected by availability of IWT services.[27] It also mentions that 3.7 million passengers and 2.8 million tons of cargo were carried on the Dhaka–Chittagong route in 1996.

A recent study reveals that 300 launches with an average of 250 passengers make one-way voyages daily in this corridor.[28] The data that the study provides are used to calculate the annual number of passengers, which is about 70 million (Table 3.8).

This performance of IWT, when compared with other modes, is quite commendable, particularly as IWT has suffered persistently from short-term policy decisions and low budgetary allocations.

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[27] World Bank, *Revival of Inland Water Transport: Opinions and Strategies*, May 2007
[28] BIWTA, *Environmental and Social Impact Assessment Study for the Dhaka–Chittagong Inland Water Transport Corridor Project*, Zero Draft Environmental and Social Impact Assessment Report, November 2015

Table 3.8: Annual Number of Passengers on the Dhaka–Chittagong Corridor

Daily number of passenger launches	300 round-trips
Average capacity of launches	250
Daily passenger movement (two-way trip)	300 * 2 * 250 = 150,000
Considering BIWTC passengers on (1) Dhaka–Barisal route, and (2) Hatiya–Swandip–Chittagong route	50,000
Daily passenger movement (two-way)	200,000 = 0.2 million
Annual Passenger No. (considering 320 working days)	0.2 * 320 = 64 million
Seasonal Movement (Eid festivals, considering 3 times higher movement for 10 days (i.e., 6 days for Eidul Fitr and 4 days for Eidul Azha)	0.2 * 3 * 10 = 6 million
Total Annual Movement of Passengers	**(64 + 6) = 70 million**

Source: BIWTC

(2) Cargo Traffic

BIWTA has constructed berthing and handling infrastructure in its designated inland river ports and numerous launch stations located along the waterway corridor. Private entrepreneurs, particularly owners of larger industries and power plants, also constructed similar infrastructure, having obtained prior consent from BIWTA.

BIWTA jetties are not preferred and are not used as much as the privately-owned jetties. This is mainly because private owners can build the structures in or near their industries, thereby facilitating transport to and from their factories.

Most of these privately-owned facilities are wooden structures; and handling is performed manually by "head load." Use of cranes would improve efficiency of loading/unloading, reduce vessel turn-around time, and increase utility of vessels; however, the present practice of using wood in constructing jetties provides no opportunity for using cranes.

Coasters and cargo vessels carry 60% of sea-borne traffic reaching Chittagong Port to different destinations by inland waterways, principally to the Dhaka–Chittagong areas. A vessel can load about 1,300 tons on average and takes a steaming time of 36 hours.

Volume of cargo transported is more than 22 million tons per annum. Cargo transported consists mainly of clinker, coal, gypsum, lime stone, urea, fertilizer, wheat, sugar, soya seed, maize, rock phosphate, and billets.

Dhaka–Chittagong is also the principal route for transporting petroleum, oil, and lubricants (POL) and liquid bulk. At present, there are about 220 tankers with a capacity of 1,500 tons each (average) in use. These are engaged in transporting 6.7 million tons of POL and 1 million ton of soya bean oil annually using this corridor.

(3) Inland River Port Throughput

There are four Inland River Ports situated along the Corridor, viz. Dhaka, Narayanganj, Chandpur, and Barisal. Passenger and cargo throughputs in these river ports are shown in Table 3.9, which highlights their importance.

Table 3.9: River Port Throughput

Port	2011-2012		2012-2013		2013-2014	
	Passengers (mil.)	Cargo (mil. ton)	Passengers (mil.)	Cargo (mil. ton)	Passengers (mil.)	Cargo (mil. ton)
Dhaka	19.05	6.00	21.11	6.70	20.55	7.53
Narayanganj	23.13	10.53	22.72	12.76	24.17	13.61
Chandpur	2.10	0.42	2.27	0.47	2.28	0.50
Barisal	5.75	0.60	5.81	0.66	6.47	0.68

Source: BIWTA, *Environmental and Social Impact Assessment Study for the Dhaka–Chittagong Inland Water Transport Corridor Project*, Zero Draft Environmental and Social Impact Assessment Report, November 2015

3.3.2   BIWTC

(1)   Passenger Traffic

The Bangladesh Inland Water Transport Corporation (BIWTC) is an operator in the public sector. Its vessels carry passengers on the following routes, which form a part of the Dhaka–Chittagong corridor:

- Dhaka–Barisal–Morrelgonj Passenger Service: 5 days a week
- Dhaka–Barisal–Morrelgonj–Khulna Passenger Service: once a week
- Chittagong–Sandwip–Hatiya Steamer Service: 6 days a week

Table 3.10 shows the number of travelling passengers in the Dhaka–Chittagong corridor in the past three years.

Table 3.10: Number of Passengers Carried by BIWTC Vessels (million)

Routes	2013-14	2014-15	2015-16
Dhaka–Barisal–Morrelganj			
Dhaka–Barisal–Morrelganj–Khulna	0.33	0.34	0.26
Chittagong–Sandwip–Hatiya	0.27	0.22	0.16

Source: BIWTC

In addition to the above, BIWTC also operates sea-truck services in coastal areas for ferrying passengers across rivers from one bank to the other.

(2)   Freight Traffic

BIWTC owns cargo vessels which are leased out on an annual basis. However, BIWTC keeps no information about their movement or cargo. Depending on the consignee's requirements, these vessels can carry any lawful cargo and move anywhere and everywhere.

(3)   Container Traffic

A container handling river terminal (ICT) is situated at Pangaon on the bank of the Buriganga River, which forms a part of the Dhaka–Chittagong corridor. Chittagong Port has provided a dedicated jetty for handling containers destined inland. It also possesses three container vessels in operational condition. However, these facilities are not fully utilized, as can be seen from Table 3.11.

Table 3.11: Number of Voyages and Handled Containers at Pangaon ICT

	Number of Voyages	Handled Containers	
		Boxes	TEUs
2013	7	231	358
2014	17	527	984
2015	36	1033	1247
2016	76	3581	4616

Source: JICA Study Team

The Inland Container River Terminal (ICT) is situated at Pangaon within the jurisdiction of Dhaka Inland River Port. It is operated by the Chittagong Port Authority. It had a planned annual capacity of 30,000 TEUs initially but is targeted to handle 116,000 TEUs on full completion.

It is obvious from the above Table that it is yet to reach its full capacity. The reason is learnt to be principally a management problem, and also due to adequate lack of interest from the cargo owners.

The authorities consider this a start-up problem which all new enterprises face; the issues are not insurmountable and action is already underway to ameliorate the situation.

(4) Fleet

The Dhaka–Chittagong corridor is used by a wide range of vessels. In fact, any kind of vessel --- mechanized, non-mechanized, or country boat --- which uses the country's inland waterways network can use the corridor. A summary of vessels which exist in Bangladesh and which have access to the corridor is given in Table 3.12 (for those registered with the Department of Shipping) and Table 3.13 (for those registered with the Mercantile Marine Department).

Table 3.12: Vessels Registered with the Department of Shipping

Sl. No.	Type of Vessel	Total number of vessels			
		2013	2014	2015	2016
1	Passenger Vessel	1,061	1,122	1,174	1,183
2	Cargo Vessel	2,213	2,755	2,982	3078
3	Ferry	27	29	42	37
4	Oil Tanker	260	284	296	294
5	Tug Boat	89	89	98	112
6	Dumb Barge	216	235	268	275
7	Speed Boat	226	236	240	245
8	Inspection Boat	44	23	23	-
9	Sand Carrier	3,811	3,988	4,141	4,263
10	Dredger	857	928	960	997
11	Others	563	163	72	109
12	Total	9,367	11,866	10,296	11,266

Source: Department of Shipping

Table 3.13: Vessels Registered with Mercantile Marine Department

Sl. No.	Type of Vessel	Total number of vessels		
		2013	2014	2015
1	Sea-going Vessel	67	63	47
2	Coastal Vessel (Cargo)	100	104	106
3	Tanker	143	163	179
4	Passenger Ship	23	24	24
5	Dumb Barge	15	15	15
6	Dredger/ Water Barge	07	07	05
7	Fishing Trawler	217	235	205
8	Fishing Boats Cargo Boats	8,313	8,792	9,040
9	Cargo Boat	2,728	2,770	2,795
10	Others	17	17	17

Source: Mercantile Merchant Department (MMD)

In recent years, the number of registered vessels have been broadly flat with minor fluctuations. It is to be noted that the figures of total number of vessels registered in the above two tables do not represent the actual number of vessels in operation. In addition to the above listed vessels, there are locally built engine-boats and traditional country boats which can access the corridor. It is generally accepted that there are about 1 million country boats of varied sizes and capacities operating in the country.

3.4   Issues in Transport Services

3.4.1   Overview

Outlined below are the current situations, issues, and needs related to transport demand by commodity, identified through stakeholder consultation:

(1)   Garment

Road is predominantly used for transporting ready-made garments (RMG) products. However, the biggest problem is unpredictable travel time between Dhaka and Chittagong. Air transport is also used for exporting RMG products from Dhaka to outside the country (i.e., not using the Dhaka–Chittagong corridor). The railway is hardly used, due to the lack of capacity and slower handling speed at the Inland Container Depot (ICD) in Dhaka.

The Bangladesh Garments Manufacture and Export Association (BGMEA) simply put that if travel time reliability is improved, an increase of transport costs would not be a problem. BGMEA also recognizes that the following measures, among other things, are of utmost importance: the development of access control highways, the development of ICD, and improvement of handling efficiency at ICD.

(2) Knitwear

The Inland Container River Terminal (ICT) at Pangaon is used for importing cotton. The ICT has been strongly promoted by the government, but it is not fully utilized, due to (i) narrow roads in its surrounding, (ii) lack of container vessels, (iii) necessity of customs clearance at both Chittagong and Mongla, and (iv) lower level of workers compared to Chittagong.

On the other hand, the road is basically used to transport knitwear from Dhaka to Chittagong for export. The railway is not much used because it requires arrangement of another transport between ICT and factories and reservation a week in advance (which makes it difficult to deal with urgent demand). The Bangladesh Knitwear Manufacturers and Exporters Association (BKMEA) expressed their intention to utilize inland waterways, and has requested the government to develop jetties along the Dhaka–Chittagong corridor.

(3) Automobiles

The railway is the major mode for transporting new automobiles from Chittagong to Dhaka. It is used for carrying automobiles that fit in the wagon, while the road is also used for transporting large vehicles (that do not fit in the wagon). There is one railway service available for transporting automobiles per direction per day between Dhaka and Chittagong, and three wagons are allocated to the automobile industry (one wagon can accommodate up to three automobiles).

Automobile carrier trailers are not allowed in Bangladesh; thus, large vehicles are transported by a company's own drivers. Similarly, loading onto wagons in Chittagong and unloading from wagons in Dhaka are undertaken by a company's own drivers to ensure no scratches, although loading/unloading charges are paid to the authority. Truck overloading is a problem, so it is desirable that an appropriate regulation be enforced.

(4) Liquefied Petroleum Gas

Liquefied Petroleum Gas (LPG) is imported through Chittagong Port and mostly transported to Dhaka, which is a major marketing area. It is sailed to Kumira (Sitakundu), discharged at the bottling plant through a 1.2 km long pipe-line, and then transported to Dhaka using trucks (both company's own and leased trucks). The railway is not used, due to its lack of reliability. As large vessels are used to transport LPG, high expectation is given to the development of Matarbari Port, including the development of an access road and rail spur.

(5) Cement

The modal split of transporting cement is 90% for road and 10% for inland water. However, it is considered that the inland water share should be increased to 20-30% in the future. There is a tendency for transporting cement by company's own trucks, especially among those handling large volume.

3.4.2 Roads

(1) Inadequate traffic management

While some traffic management measures are being developed, there is a lack of traffic management. This leads to a situation where rickshaws and other vehicles obstruct traffic, causing

congestion and safety problems. Additionally, a long-term plan for freight management is needed to better rationalize truck movements (e.g., separation of through traffic in Chittagong, installation of an automated signal system, etc.). The truck ban is in place in Dhaka, but a wider strategy is needed, as freight traffic and road maintenance issues are a continuing concern.

(2)   Truck ban

Trucks are prohibited from entering Dhaka City from 8:00 a.m. to 8:00 p.m. They are parked at distant locations (e.g., in Comilla) to await lifting of the ban, which causes a traffic problem. In recent years, several roads have been developed to enable trucks to bypass Dhaka, and new garment factories are generally opening in areas where the ban does not apply. Some are moving, but others remain in Dhaka, with trucking operations constrained by the ban.

(3)   Truck size

At present, many containers arriving at Chittagong Port are de-stuffed of their contents to be loaded onto trucks, as relatively few trucks can take containers. This takes time (typically taking up to 4 hours per container). In addition, whilst Bangladesh allows up to 40-foot containers on roads, the reality is that many of the containers are carried by 20-foot trucks. The large number of trucks on roads could raise customs problems, and further exacerbate traffic. With road improvement enabling the transport of large trucks (including automobile carrier trailers), the number of trucks would be reduced and congestion mitigated.

3.4.3   Rail

(1)   Insufficient service provision

The railway accounts for approximately 60% of the passenger traffic between Dhaka and Chittagong. Nevertheless, there are only four intercity train services (both directions) per day between the two cities, and their occupancy ratios exceed 100%, indicating insufficient service provision vis-a-vis the demand. In response to this, the government is in the process of converting the Dhaka–Chittagong corridor from single to double track to increase capacity.

(2)   Diverted route and slow speed

Even the fastest passenger trains take approximately 5.2 hours between Dhaka and Chittagong, because of the detoured route and slow speed. The actual route length is 110 km longer than the straight length between the two cities (i.e., 320 km for the route length and 210 km for the straight length), while the scheduled speed of the fastest passenger train is limited to approximately 60 km/h. In respond to these circumstances, the government is planning to develop a high-speed railway system.

3.4.4   Inland Water

(1)   Lack of unloading facilities

Inland river ports and launch stations (or launch ghats) lack necessary infrastructure facilities. Services provided by even developed ones like Dhaka River Port are much lower than expected. Level of services needs to be raised up in order to provide comfort and safety to the travelling public, including the old, the infirm, and the disabled. About 95% of all cargo is loaded or unloaded manually by head load at most jetties owned by factory owners themselves. This increases the dwelling time of vessels at the jetty.

4. Transport Surveys

The JICA Study Team reviewed the existing survey reports to understand the current transport patterns between Dhaka and Chittagong and to determine the scope of traffic survey needed to complement the lack of data. Then, the JICA Study Team conducted transport surveys to grasp the information on transport service and demand. The results of this analysis will provide part of the basis for the demand forecast to follow in Chapter 5.

4.1 Review of Existing Studies and Scope of Transport Survey

The existing relevant surveys are listed in Table 4.1. First, under the Cross-Border Road survey, JICA conducted traffic count surveys at several points on the roads leading to the neighboring countries and implemented country-wide road traffic forecast. Second, under The Project on the Revision and Updating of the Strategic Transport Plan for Dhaka, JICA conducted cordon line surveys at the roadside and counting surveys with OD interviews at terminals of the railway, airport, bus, and ferry. The results of the cordon line surveys help the JICA Study Team to understand the passengers' choice of transport mode from Dhaka City to its outside. Third, under the ADB Technical PPP F/S of the Expressway, ADB conducted a traffic counts survey at several points on the current N1 and the road traffic forecast with the Upazila-unit OD table. Fourth, under the Transactional PPP F/S of the Expressway, RHD has decided the alignment of the planned Dhaka–Chittagong Expressway, forecasted the traffic volume, estimated the project cost, and evaluated the financial feasibility using scenario analysis. Lastly, under the ADB Strategic M/P for Chittagong Port, ADB assessed the capacities of its hinterland transport (Table 4.2)

The JICA Study Team conducted three kinds of surveys to complement the lack of information. One is transport surveys to investigate the current rail and IWT traffic by interviewing terminal administers and operators. Surveyors visited the major stations and terminals to collect necessary information such as traffic volume and level of services at the stations. Another is Revealed Preference (RP) and Stated Preference (SP) surveys of travelers at major terminals and stations. A traveler is currently experiencing that behavior and making a choice based on his or her knowledge of the available travel options. The RP survey was conducted to capture travelers' current travel behavior, which included actual mode a traveler was using, actual travel times, and OD data. Meanwhile, the SP data were also collected, in which hypothetical situations were presented to the respondents, who were then asked to choose based on the given attributes for each alternative. The SP survey assumed the situation where High-Speed Rail would be developed between Dhaka and Chittagong. The other survey was an interview survey with freight forwarders and major cargo owners in Dhaka and Chittagong. This survey collected their current choice of transport mode, reasons for mode preference, current transport time and cost, and their thoughts on necessary improvements for railway and IWT in freight services.

Table 4.1: List of Past Transport Surveys

Abbreviation	Previous Reports
JICA CBR Survey	Preparatory Survey on the Cross-Border Road Network Improvement Project (Bangladesh) (JICA, February 2016)
JICA RSTP	The Project on the Revision and Updating of the Strategic Transport Plan for Dhaka (JICA, November 2016)
JICA Maritime Survey	Data Collection Survey on Cross-Border Maritime Traffic in South Asia: Final Report (JICA, March 2016)
JICA Airport Survey	Data Collection Survey for the Dhaka International Airport Expansion Project: Final Report (JICA, November 2016)
JICA Matarbari Port Survey	Data Collection Survey on the Matarbari Port Development (JICA, Ongoing)
ADB Technical PPP F/S of the Expressway	Consultancy Service for Feasibility Study and Detailed Design (Package-1) Under Technical Assistance for Detailed Study and Design of Dhaka–Chittagong Expressway on PPP Basis (ADB Loan 2856 - BAN), Draft Feasibility Study – Preferred Options Study and PPP Structuring Volume 1: Main Report (SMEC International Pty Ltd, Oriental Consultants Co Ltd, Castalia Ltd, and ACE Consultants, May 2015)
Transactional PPP F/S of the Expressway	Presentation on the Transaction Report of Dhaka–Chittagong Expressway (RHD, 2017)
ADB Strategic M/P for the Chittagong port	Strategic Masterplan for Chittagong Port, Final Report (ADB and CPA, September 2015)

Source: JICA Study Team

Table 4.2: Existing Traffic Data

Type	Mode	Data	Source	Availability	Remarks
Pax/Cargo	Road	Present traffic volume	JICA CBR, JICA RSTP, ADB Technical PPP F/S	※	
Pax/Cargo	Road	Present OD	JICA CBR: Whole Bangladesh with rough zoning in DC region ADB Technical PPP F/S: Fine zoning in DC region	※	JICA Study Team disaggregated the road OD of the JICA CBR into a district-level zone.
Pax/Cargo	Rail	Present traffic volume	Interview survey	●	
Pax/Cargo	Rail	Present OD	JICA RSTP, Interview survey	●※	JICA Study Team estimated the rail passenger demand among districts using a regression analysis.
Pax/Cargo	IWT	Present traffic volume	BIWTA/C, CPA, Interview survey	●※	JICA Study Team estimated the ferry passenger demand among districts using the Fratar method.
Pax/Cargo	IWT	Present OD	JICA RSTP, Interview survey	●	
Pax/Cargo	Air	Present traffic volume	JICA Airport Survey	○	
Pax/Cargo	Air	Present OD	JICA Airport Survey, Interview survey	●	
Cargo	All	OD in 2010	JICA Maritime Survey	※	JICA Study Team utilized the domestic cargo OD table of JICA Maritime Survey.
Cargo	Sea	Present traffic volume at ports	CPA, MOP, ADB	○	
Cargo	Road	Present traffic volume at land ports (border posts)	LPA, JICA CBR	○	

Source: JICA Study Team

○ = collected updated information
● = conducted survey
※ = used the existing set of data/model

4.2   Transport Survey

By gathering information on actual transport services from administrators/operators of i) railway and (ii) inland waterway, the JICA Study Team clarified movements of passengers and goods between Dhaka and Chittagong. The following information was collected by using the questionnaires: kinds of facilities available for the terminal; available intermodal facilities; annual number of passengers boarding and alighting for the last 10 years; freight services and timetables of rail, ship, and flight; data on freight services or timetables of the terminal; and characteristics of the services (express or ordinary, capacity, type and fare, bulk cargo, etc.).

The following Table 4.3 shows the location/places for the survey between Dhaka and Chittagong. In the case of railway survey, data were collected from 11 railway stations among three stations from Dhaka, five stations from Comilla, and three stations from Chittagong. In the case of inland waterway, six river ports were interviewed among four ports in Dhaka, one port in Comilla, and the remaining port was in Chittagong. Also, data were collected from Pangaon Inland Container Terminal (PICT).

Table 4.3: Stations and Terminals for the survey

	Railway	Inland Waterway
Dhaka	• Kamalapur, • Tongi • Bhairab Bazar Junction	• Sadarghat, • Narayanganj Bandar, • Mirkadim (Kalagachia, Munshiganj), • Meghnaghat River Ports, • Pangaon ICT
Comilla	• Ashuganj • Paghachang (Brahmanbaria), • Akhaura Junction, • Comilla • Laksam Junction	• Chandpur River Port
Chittagong	• Chinki Astana (Zorargonj, Mirsarai), • Feni • Chittagong	• Chittagong Port

Source: JICA Study Team

4.2.1   Result of Transport Survey

The annual number of passengers boarding and alighting at major stations and terminals are summarized in Table 4.4, Table 4.5, Table 4.6, and Table 4.7. Other collected data such as facilities, freight services, timetables of rail and ship, and characteristics of the services are shown in Appendix.

Table 4.4: Numbers of Rail Passengers at Major Stations (2007-2016)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Komolapur	570,455	572,560	574,318	576,454	678,672	679,540	680,560	783,216	784,315	786,589
Tongi	63,770	65,250	67,540	69,850	70,450	71,150	72,310	73,890	74,200	75,550
Bhoirob Bazar	52,342	53,468	56,560	60,345	68,540	70,342	72,462	78,560	81,828	85,528
Ashugong	5,075	5,228	5,425	5,320	5,215	4,865	4,960	5,020	5,120	5,025
Paghachong	183	182	168	170	157	162	155	26	32	40
Akhaora	71,040	79,614	78,818	82,273	81,610	96,185	86,080	77,046	70,671	75,197
Comilla	483,573	512,810	533,727	547,167	558,291	721,633	728,279	620,109	587,646	622,182
Laksham	505,091	518,318	509,665	525,122	552,319	683,280	649,627	610,124	513,372	515,733
Chinki Astana	No Data	23,899	18,571	24,711	28,148	28,187	29,331	38,419	18,250	16,553
Feni	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Chittagong	No Data	No Data	No Data	2,637,355	2,912,990	3,010,417	No Data	2,772,108	2,638,664	2,800,994

Source: JICA Study Team

Table 4.5: Numbers of IWT Passengers at Major Terminals (2007-2016)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sadarghat	1,408,964	1,519,577	1,505,448	1,594,132	1,664,996	1,701,978	1,706,172	1,751,764	1,823,736	1,828,336
Narayangong	963,926	958,867	986,755	990,327	985,461	992,746	991,453	995,308	978,200	963,600
Mirkadam	54,500	60,320	82,600	90,300	85,700	85,553	89,450	90,900	91,800	91,250
Meghnaghat	309,643	315,633	316,850	325,750	317,800	321,600	319,900	326,700	328,500	337,260
Chandpur River Port	1,409,364	1,415,757	1,503,963	1,593,442	1,665,826	1,700,451	1,703,973	1,715,678	1,821,785	1,825,633

Source: JICA Study Team
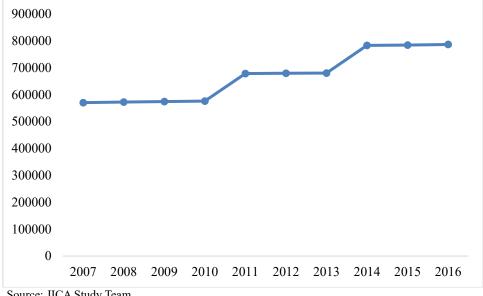
Table 4.6: Rail Cargos Handled at Major Stations (Tons) (2007-2016)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Komolapur	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Tongi	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Bhoirob Bazar Junction	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Ashugong	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Paghachong (B. Baria)	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Akhaora Junction Station	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Comilla	1,360,522	236,908	135,509	1,359,109	1,752,099	5,039,257	1,080,756	1,205,872	899,385	833,423
Laksham Junction	144,964	146,039	118,472	115,678	111,968	118,953	122,417	125,411	172,076	271,506
Chinki Astana	No Data	No Data	No Data	No Data	No Data	200	No Data	No Data	No Data	No Data
Feni	No Data	No Data	No Data	357,826	299,903	400,002	356,513	337,626	316,615	328,716
Chittagong	No Data	551,015	571,198	581,117	601,015	705,820	710,915	716,920	718,315	726,595

Source: JICA Study Team

Table 4.7: IWT Cargos Handled at Major Terminals (Tons) (2007-2016)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sadarghat	253,724	259,863	258,979	269,466	271,082	267,391	264,225	268,937	296,428	273,230
Bandar (Narayangong)	No Data	No Data	90,129	91,746	91,827	93,221	94,136	94,728	95,974	96,480
Mirkadam (kalagasia, Munshiganj)	No Data	No Data	7,696	8,864	10,211	9,865	10,118	10,335	10,976	11,877
Meghna Ghat	No Data	No Data	32,846	33,613	33,985	34,876	35,318	35,733	36,212	36,458
Chandpur River Port	No Data	No Data	65,838	65,547	66,230	68,870	69,890	71,400	75,450	80,160

Source: JICA Study Team

(1)   Kamalapur Railway Station

Figure 4.1: Number of Passengers at Kamalapur Railway Station

Even though Mohanagar Provati occupancy is 104%, the actual earnings are less than capacity earnings. In the case of Chattala, occupancy is 132%, and actual earnings are greater than the capacity earnings. On the other hand, with 80% occupancy, Sonar Bangla earns more than its capacity earnings. Actual earnings of Mohanagar Godhuli are much less than the capacity earnings, and it possesses 72% occupancy.

Table 4.8: Train-Wise Summary Occupancy Report for February 2017

Name of train	Total Quota	Total Passenger	Capacity Earnings	Actual Earnings	Quota _km	Passenger _km	Occupancy (in %)
Sonar Bangla	14,131	11,254	8,448,184	8,505,025	4,889,326	3,893,884	80
Mohanagar Provati	20,935	43,111	988,700	9,061,860	7,243,510	7,503,318	104
Chottola	11,948	35,561	2,454,740	3,192,500	4,134,008	5,446,228	132
Suborno	21,576	19,320	10,952,880	9,428,210	7,465,296	6,684,720	90
Mohanagar Godhuli	15,141	19,969	6,733,125	3,726,485	5,238,786	3,776,053	72

(2)   Kamalpur Inland Container Depot

According to official figures, the Kamalapur ICD handled nearly 64,000 TEUs containers annually on average from fiscal year (FY) 2010-11 to FY 2014-15. It handled 66,847 TEUs containers in FY 2014-15, with 33,191 TEUs inbound and 33,656 TEUs outbound containers. The ICD handled 64,334, 66,506, 62,267, and 58,927 TEUs containers from FY 2010-11 to 2013-14 respectively, which is far below the full capacity of the ICD, the official data showed.

The target for the current FY's revenue earnings has been fixed at 19.35 billion Taka from the ICD. In the FY 2015-16, revenue stood at 15.83 billion Taka, which is nearly 27% growth compared to that of the previous FY. However, the revenue stood at 12.43 billion Taka in FY 2014-15, which is nearly 12% lower than that of the previous FY's 13.95 billion Taka.

- Reefer containers are not acceptable at ICD, Dhaka, because of non-availability of power plug points.
- No LCL (Less than Container Load) shipments are allowed and no cargo storage facilities are available.
- Working time: 24 hours, same as Chittagong Port.

Table 4.9: Facilities at Kamalpur ICD

Yard holding	Area capacity (Sq.ft)	Daily capacity (TEUs)
Old Area	487,453	949
New Extension	985,772	2,978

Source: JICA Study Team

Table 4.10: Container Handling Statistics of Kamalapur ICD

Financial Year	Import in TUEs	Export in TUEs	Total in TUEs
2010-2011	32,238	32,949	65,087
2011-2012	33,123	33,582	66,705
2012-2013	31,053	31,585	62,638
2013-2014	30,177	29,807	59,984
2014-2015	32,976	33,701	66,677

Source: JICA Study Team

Kamalapur ICD has been handling both the inbound and outbound container cargoes transported by Bangladesh Railway only. But the capacity of Kamalapur ICD is not adequate to serve the increasing share of container handling diverted towards Bangladesh Railway. Handling of containers by the ICD remained almost static over the last few years despite a significant rise in export-import cargoes. Many traders prefer carrying their export-import cargoes directly to and from the Chittagong port by roads instead of using this ICD.

Further expansion of Kamalapur ICD is difficult due to heavy build-up of the surrounding area. Apart from capacity constraints, daytime prohibition on the movement of commercial vehicles (truck, container lorry, pick-up, etc.) also makes for great difficulty in Kamalapur ICD. Therefore, it was necessary to establish another full-fledged ICD with constant access to container handling and transport.

The ICD would perform better if a few challenges were addressed, such strengthening of the security system, as ICD is a Key Point Installation (KPI), setting up of more modern equipment and a chemical laboratory, as well as increased manpower.

(3)   Pangaon Inland Container Terminal

BIWTA and the CPA jointly built the Pangaon Internal Container Terminal (PICT) at the cost of 1.54 billion Taka. The terminal is expected to play a positive role in the country's economic development by opening up a new horizon in the transport of exported and imported goods through inland waterways. The project aims to help ease the pressure of cargo movement on the Dhaka-Chittagong railway and road/highway corridors. The terminal has a storage capacity of 3,500 TEUs of containers and handles 116,000 TEUs containers annually. As of July 2017, it serves ships travelling between Dhaka and Chittagong, Dhaka and Mongla, and Dhaka and Kolkata. Bangladesh has signed coastal shipping agreements with Thailand and China, which are planned to cover the Pangaon ICT.

Three vessels (Pangaon Success, Pangaon Express, and Pangaon Vision) are serving in this route and each vessel can carry about 128–140 TEUs at the moment on every alternate day. Steaming

time between Chittagong Port and PICT is 18 hours. Terminal operation time is 24 hours in weekly working days, or same as Chittagong Port.

Yard and Jetty:

- Length of the Jetty: 180 m (Two ships length of 70-75m can take the berth at the same time) and width of the Jetty: 26 m.
- Total Yard Area (within the boundary wall): 55,000 Sq. m.
- Total area of van pool (overflow yard): 9,100 Sq. m.
- Container holding capacity of yard: 2,400 TEUs
- Container freight station area: 5,815 Sq. m.
- Reefer plug-in points: 48

Equipment

- Mobile harbor crane: 1
- Straddle carriers: 2
- Forklifts: 4
- Tractor trailers: 2
- Cargo lifting crane: 1 of 10 ton capacity.
- Cargo lifting crane: 1 of 20 ton capacity.

Power Supply

24 hours uninterrupted electricity and water supplied for the container handling activities. For that:
- Two generators, each of a capacity of 1250(KVA/1 MW), installed.
- Another generator of a capacity of 2.5 MW is under construction.
- A pump house has been installed for water supply.

Amount of Freight

Official freight data from 2013 to 2016 show that after starting its activities, the amount of freight transport is positively increasing such that in 2013 the amount was only 231 Tons but in 2016 the PICT handled 3,581 Tons of freight (Table 4.11).

Table 4.11: Amount of Freight from 2013 to 2016 at PICT

Year	Import (Tons)	Export (Tons)	Total (Tons)
2013	150	81	231
2014	229	298	527
2015	547	486	1,033
2016	1,879	1,702	3,581

Source: JICA Study Team

Table 4.12: Number of Voyages and Handled Containers at PICT

	Number of Voyages	Handled Containers	
		Boxes	TEUs
2013	7	231	358
2014	17	527	984
2015	36	1033	1247
2016	76	3581	4616

Source: JICA Study Team

Travel Details

The travel history (from Chittagong to PICT) data reported that average running time for each vessel is about 30 hours (minimum 24 hours and maximum 48 hours). Most of the vessels traveled one time per week to one time per 10 days (Table 4.13).

Table 4.13: Travel Details of the Vessels in the Pangaon Internal Container Terminal

Code	From	Destination	Running Time (hours)	Number of Times
A	Chittagong	PICT	24	1 time per week
B	Chittagong	PICT	26	1 time per 10 days
C	Chittagong	PICT	27	1 time per week
D	Chittagong	PICT	24	1 time per 10 days
E	Chittagong	PICT	30	1 time per 9 days
F	Chittagong	PICT	48	1 time per 30 days

Source: JICA Study Team

Service Details

In case of data on service offered by the PICT, it was found that on average each vessel needs 4.5 hours for loading and unloading, with capacity ranging from 827 Tons to a maximum of 2,425 Tons. Among the imported and exported goods, the common types of goods were cloths, cosmetics, engine, auto-parts, steel, cotton, jewelers, garments items, etc. (Table 4.14).

Table 4.14: Service Details in the Pangaon Internal Container Terminal

Code	Loading/Unloading Time (hours)	Capacity (Tons)	Types of Goods
A	4.30	1,654	Cloths, cosmetics, engine, auto-parts, etc.
B	4.30	1,764	Steel coil, cloths etc.
C	4	1,874	Aid, cotton, auto-parts etc.
D	4	827	Garments
E	5	1,984	Cotton, auto-parts etc.
F	5	2,205	Garments
G	5	2,425	Jewelers, cosmetics, toys, clothes etc.

Source: JICA Study Team

4.3   Interview Survey on User Preferences

The JICA Study Team conducted interview surveys about users' preference on transport mode between Dhaka and Chittagong. Based on the result of the survey, a mode choice model was developed to analyze how the development of High-Speed Railway would change the passengers' mode choice.

Individual level face-to-face data were collected from three types of respondents: (i) car users along N1, (ii) passengers at the bus terminals, railway stations, ferry terminals, and airports, and (iii) cargo owners and transport service companies.

For the interviews with private vehicle drivers along N1, the five largest highway restaurants (e.g., Mayami Resort, Hotel Noorjahan, Hotel Food Palace, Time Square Restaurant, and Taj Mahal Complex) were selected where private cars usually take a break for refreshment or taking a meal. In the end, a total of 576 individuals from car users and passengers were interviewed from the Dhaka (230), Comilla (125), and Chittagong (221) routes (Table 4.15).

Table 4.15: Locations of Interviews and Sample Size Distribution

Location of Interviews	Dhaka	Comilla	Chittagong	Total
Car users along N1	-	125	-	125
Bus Terminals	64		63	127
Railway Stations	60	-	60	120
Ferry Terminals	56	-	45 (Chandpur)	101
Airports	50	-	53	103
Total	230	125	221	576

Source: JICA Study Team

4.3.1   Current Passengers' Mode Choice

The passengers chose their transport mode from their available alternatives by comparing the conditions of each transport mode. Representative factors affecting the choice of transport mode are transport time and cost. Figure 4.2 shows the actual distribution of responses on the transport time and cost for each transport mode. The figure also shows that each service provides users with different transport times and costs. The average transport time and cost for each transport mode is summarized in Table 4.16.

Source: JICA Study Team
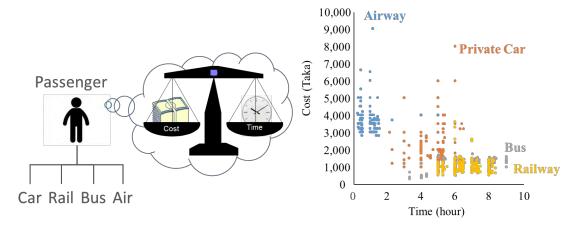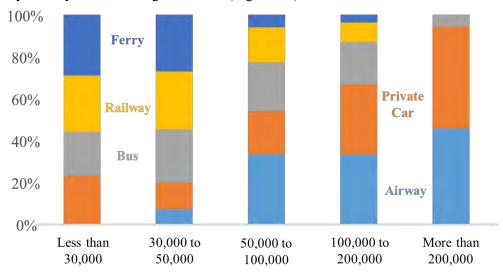
Figure 4.2: Distribution of Responses on the Transport Time and Cost for Each Transport Mode

Table 4.16: Average Transport Time and Cost by Transport Mode

	Private Car	Bus	Railway	Airplane
Transport average time (hours)	4.6	6.5	6.4	0.9
Delay (%)	20	20	9	-
Total transport average cost (Taka)	2,360	1,252	989	3,770
Cost uncertainty (%)		12	12	5
Transport Distance (km)	230	230	321	211

Source: JICA Study Team

Results show that the choice of transport mode has a high correlation with users' monthly income. Passengers with lower income have a higher proportion of ferry and railroad options, and there is no aircraft passenger with a monthly salary less than Taka 2,000. Water transport and railways are hardly used by those with higher income (Figure 4.3).

Source: JICA Study Team

Figure 4.3: Mode Choice by Monthly Income Group

Figure 4.4 shows the transport alternatives which had been considered by each passenger before they were actually on board. Most passengers found a bus as alternative means. 77% of passengers using airplanes deemed to use a private car. Ferry transport was not considered as an option by who selected another mode between Dhaka and Chittagong.

Source: JICA Study Team
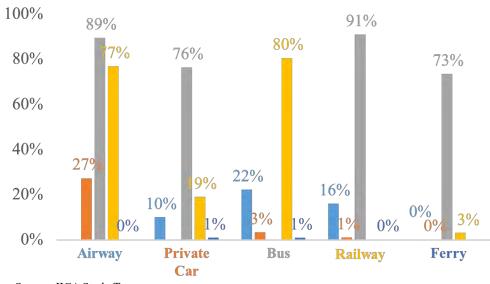
Figure 4.4: Available Alternatives by Users' Transport Mode

4.3.2 Passengers' Stated Preference on HSR

The JICA Study Team conducted an interview survey on passengers' preference on High-Speed Rail. Respondents were given some perceptions based the questions about whether they want to travel by their present transport mode or by the new HSR under the given conditions. Based on the pre-tested survey and interviews with Bangladesh Railway, the conditions of HSR were given as shown in Table 4.17. The result of passengers' stated preference survey was utilized to develop the mode choice model in Chapter 5.

Table 4.17: Assumed Conditions of HSR

Conditions	a)	b)	c)	d)	e)	f)	g)	h)	i)
Alignment	New Alignment (Direct line Dhaka-Comilla)						Present Alignment		
Service	High-Speed			Semi-Speed			Semi-Speed		
HSR Speed (km/Hour)	200	200	200	100	100	100	90	90	90
HSR Running Time (Hour)	1.3	1.3	1.3	3	3	3	4	4	4
HSR Cost (Taka)	1,200	2,400	4,000	1,200	2,400	4,000	1,200	2,400	4,000

Source: JICA Study Team

Table 4.18, Table 4.19, Table 4.20, and Table 4.21 show the respondents from the users of the private car, bus, rail, and airplane, respectively. With the same running time, the percentage of using new railway decreases gradually with the increase of running time. With the same transport cost, the percentage of using HSR increases gradually with the decrease of transport time. Passengers found it more beneficiary when both traveling time and fare are reduced.

Table 4.18: Private Car User's Choice Rates on HSR under the Given Conditions

Current Choice	Time-HSR (Hours)	Cost-HSR (Taka)	Will you choose the HSR?		
			No	Yes	HSR rate
Car	1.3	1200	3	77	96%
Car	1.3	2400	37	43	54%
Car	1.3	4000	64	16	20%
Car	3	1200	7	73	91%
Car	3	2400	64	16	20%
Car	3	4000	74	6	8%
Car	4	1200	13	67	84%
Car	4	2400	78	2	3%
Car	4	4000	78	2	3%

Source: JICA Study Team

Table 4.19: Bus User's Choice Rates on HSR under the Given Conditions

Current Choice	Time-HSR (Hours)	Cost-HSR (Taka)	Will you choose the HSR?		
			No	Yes	HSR rate
Bus	1.3	1200	2	107	98%
Bus	1.3	2400	37	72	66%
Bus	1.3	4000	92	17	16%
Bus	3	1200	3	106	97%
Bus	3	2400	75	34	31%
Bus	3	4000	99	10	9%
Bus	4	1200	12	97	89%
Bus	4	2400	88	16	15%
Bus	4	4000	103	6	6%

Source: JICA Study Team

Table 4.20: Rail User's Choice Rates on HSR under the Given Conditions

Current Choice	Time-HSR (Hours)	Cost-HSR (Taka)	Will you choose the HSR?		
			No	Yes	HSR Rate
Rail	1.3	1200	2	216	99%
Rail	1.3	2400	88	130	60%
Rail	1.3	4000	186	32	15%
Rail	3	1200	9	209	96%
Rail	3	2400	170	48	22%
Rail	3	4000	206	12	6%
Rail	4	1200	38	180	83%
Rail	4	2400	195	23	11%
Rail	4	4000	211	7	3%

Source: JICA Study Team

Table 4.21: Airplane User's Choice Rates on HSR under the Given Conditions

Current Choice	Time-HSR (Hours)	Cost-HSR (Taka)	Will you choose the HSR? No	Will you choose the HSR? Yes	HSR rate
Air	1.3	1200	0	45	100%
Air	1.3	2400	8	38	83%
Air	1.3	4000	27	19	41%
Air	3	1200	3	43	93%
Air	3	2400	26	20	43%
Air	3	4000	36	10	22%
Air	4	1200	9	37	80%
Air	4	2400	33	13	28%
Air	4	4000	38	8	17%

Source: JICA Study Team

Table 4.22 summarizes the choice rate on HSR by passengers of each transport mode. The choice data collected through the interview survey were utilized to analyze the future HSR demand in Chapter 5. the JICA Study Team applied a binomial logit model to estimate the shift from the car, bus, airplane, and existing railway to the new HSR.

Table 4.22: Choice Rates on HSR under the Given Conditions by Users of each Transport Mode

Conditions	Time-HSR (Hours)	Cost-HSR (Taka)	HSR Choice Rates Air	HSR Choice Rates Car	HSR Choice Rates Bus	HSR Choice Rates Rail
a)	1.3	1,200	100%	96%	98%	99%
b)	1.3	2,400	83%	54%	66%	60%
c)	1.3	4,000	41%	20%	16%	15%
d)	3	1,200	93%	91%	97%	96%
e)	3	2,400	43%	20%	31%	22%
f)	3	4,000	22%	8%	9%	6%
g)	4	1,200	80%	84%	89%	83%
h)	4	2,400	28%	3%	15%	11%
i)	4	4000	17%	3%	6%	3%

Source: JICA Study Team

4.3.3   Necessary Conditions for Rail Transport Service Improvement

The JICA Study Team interviewed users on the necessary conditions for transport service improvement between Dhaka and Chittagong.

(1)   Facilities

- Improve the rail track
- Introduce double rail tracks between Dhaka and Chittagong
- Increase the number of platforms at every station
- Increase the number of railway carriages or bogies
- Increase the number of seats
- Ensure separate washroom facilities for male and female
- Introduce high-speed trains
- Introduce high-speed electric trains
- Increase the number of AC cabins

- Construct foot over-bridges at rail crossings
- Increase the platform size

(2) Ticketing

- Ensure 24-hour online ticketing
- Ensure the availability of tickets
- Increase the number of ticket counters at every station
- Initiate an advanced ticket system
- Introduce proper law enforcement for stopping sales of tickets on the black market.
- Introduce fixed and affordable pricing of tickets
- Stop selling standing tickets

(3) Service

- Introduce at least 6 trains every day between Dhaka and Chittagong
- Improve the whole railway transport system in general
- Increase the number of trains to provide an hourly train service
- Reduce the number of stoppages or stations during journey
- Ensure the presence of an attendant in each bogie
- Arrange the provision of food at reasonable price

(4) Comfort

- Keep the train neat and clean at all times
- Make the seats more comfortable
- Improve the quality of services to the passengers
- Arrange the provision of food at reasonable price
- Improve the behavior of train staff and the authority
- Use modern technology inside the train
- Decorate rooms of train
- Provide neat and clean toilets in train
- Arrange the provision of separate washrooms for male and female

(5) Security

- Uphold the railway law strictly for proper security of the passengers
- Ensure the security of passengers
- Provide first aid boxes and treatment inside the train
- Ensure the boundary of the surroundings of the railroad
- Provide emergency service system in train
- Place security guards in each carriage/bogie in the train
- Improve the security system for the passengers
- Recruit female cabin crew members
- Provide toys and spaces for the children to play

(6) Schedule

- Maintain schedule of each train (departure and arrival)

4.4 Interview with Freight Forwarders and Cargo Owners

The JICA Study Team conducted interview survey with freight forwarders and cargo owners in Dhaka and Chittagong. The interviewees were chosen randomly from the list of companies/associations provided by BAFFA. Companies that do not engage in transport between Dhaka and Chittagong were excluded from the interview. The JICA Study Team collected their transport mode preference and level of services. The questionnaire used is shown in Appendix.

Table 4.23: Sample Size Distribution for the Interview of Cargo Owners and Transport Service Companies/Associations

	Number of Respondents		
Type of Interviewees	**Dhaka**	**Chittagong**	**Total**
Freight Forwarders and Cargo Owners	40	30	70

Source: JICA Study Team

4.4.1 The Surveyed Companies in Dhaka

(1) Types of Companies

Among the 40 surveyed freight operators, three types of companies operate in the Dhaka-Chittagong corridor. Forwarder companies transported the maximum amount (73.1%) of goods and commodities, followed by shippers (13.5%) and transporters (13.5%). Freight operators carry different types of goods for import and export, including: RMG (Ready Made Garment) products, cotton, hand gloves, frozen food items, leather and leather goods, handicrafts goods, jute products, chemicals, paper, dry foods, handicrafts, medical instruments, fodder, stones, IT goods, cosmetics, electronics, baby foods, chocolates, garment machinery, tents, furniture, gas, household daily goods, drilling equipment, aluminum and steel products, rice, wood, oil, etc.

(2) Transport Mode Choice

Different companies use different transport modes according to convenience. The largest transport (59.5%) mode is by containers. Some companies take orders from customers, but they do not deliver the item by themselves. Rather, they transfer the order to another party, which delivers the item to a customer. Around 33.3% of transport is done by this way. Around 4.8% of transport is done by general cargos, and 2.4% does not follow a fixed method of transport (Table 4.24).

Table 4.24: Types of Transport

Type of Transport	**Response (%)**
Container	59.5
General Cargo	4.8
Abnormal	2.4
Forwarder (Not Carrier)	33.3

Source: JICA Study Team

Around 89.7% of the total transport uses a single combination of transport (Truck/Trailer). However, 5.1% uses both waterway and truck/trailer, and 5.2% uses both rail and truck/trailer to meet the clients request.

(3) Reasons Behind Mode Preference

Interview participants are concerned more about time than other factors. Table 4.25 illustrates that 92.3% of respondents state time as the catalyst for choosing the transport mode. In addition, the security issue is also a major concern for 82.1% of respondents. Uncertainty regarding time and cost is another reason for choosing the mode for 76.9% of respondents. 66.7% of respondents

choose the mode due to minimizing the cost, and they have transit points and other clients on that particular route.

Table 4.25: Reasons for Mode Preference (Multiple Responses)

Reasons	Response (%)
This route/mode can minimize the time	92.3
This route/mode can minimize the fuel cost	66.7
This route/mode has less problem about security	82.1
This route/mode has less uncertainty of time and cost	76.9
We have transit points or other clients on this route	66.7
There are no alternative routes	25.6
Limitation of rail capacity and routes	5.3

Source: JICA Study Team

(4)   Necessary Improvements for Railway

In the case of railway, 97.4% respondents suggested reducing the time duration of the journey. Moreover, 89.7% and 82.1% respondents suggested improving service and trustworthiness, respectively. In addition, 74.4% respondents opened about safety and 71.8% about reduced cost (Table 4.26).

Table 4.26: Necessary Improvement Required for Railway (Multiple Responses)

Reasons	Response (%)
Total transport time should be less	97.4
Frequency of the rail transport operation must be improved	71.8
Reliability of the rail transport must be improved	89.7
Security condition of railway must be improved	74.4
Double rail lines are needed	16.8
Improved customer service from rail staff and authority	5.6
Needs to increase the container facilities	11.3
Increase the number of trains	5.6
Need high speed electric train	5.6

Source: JICA Study Team

Necessary conditions for Rail Transport Service Improvement

Infrastructure
- Introduce the double rail track
- Consider the Dhaka-Naranganj-Comilla-Chittagong train route

Facility
- Establish a new/transfer ICD (Internal Container Depot) outside city
- Improve the container facilities in loading and unloading the goods at the railway station
- Introduce high-speed electric trains

Service
- Increase the number of trains
- Ensure the honesty of railway authority during services
- Improve the quality of railway stations in general
- Response rapidly under critical situations (during accident, strike, etc.)
- Improve the quality of services
- Reduce transport cost
- Ensure transparency and accountability in ICD

- Ease the rules and regulations for exporters and shippers
- Increase the number of wagons/bogies
- Maintain the schedule properly
- Reduce time while loading and unloading
- Simplify the loading and unloading process.

Security
- Ensure the security of carrying goods

(5) Desired Improvements for Inland Water Transport

Service improvement (97.7%) and reduced journey time (87.5%) are mostly suggested by the respondents to improve the situation. Moreover, trustworthy service (85%) is a must to gain the satisfaction of the respondents. In addition, 77.5% of respondents emphasized reducing the cost and safety improvement (Table 4.27).

Table 4.27: Desired Improvements for Inland Waterway (Multiple Responses)

Reasons	Response (%)
Total transport time should be less	87.5
Frequency of the water transport operation must be improved	77.5
Reliability of the water transport must be improved	97.7
Route conditions must be improved	85
Security condition of waterway must be improved	77.5
There are no alternative routes	17.5
Limitation of waterway capacity and routes	5.5

Source: JICA Study Team

Necessary Conditions for Inland Water Transport Service Improvement

Infrastructure
- Establish the new inland water port between Dhaka and Chittagong
- Make available the tools and workforce to lift goods

Service
- Improve the quality of port services
- Reduce the carrying cost
- Increase the number of water vehicles
- Prepare separate line direct to ports
- Reduce total journey time
- Maintain schedule of each vehicle (arriving and reaching time)
- Control overall damage of cargo efficiently
- Establish cargo receiving facilities in Pangaon and other river ports
- Increase transparency in transport and goods handling
- Simplify the loading and unloading process.

Security
- Improve the goods security at terminals/ports
- Ensure proper security in route

4.4.2   The Surveyed Companies in Chittagong

(1)   Types of Companies

Among the 30 freight operators, two types of companies operate between Dhaka and Chittagong. Forwarder companies transport the maximum amount (96.7%) of goods and commodities, followed by shipper companies (3.3%).

On the other hand, freight operators carry different types of goods for import and export including: electrical goods, chemicals, fabrics, jute products, cosmetics, machinery, RMG products, pharmaceuticals, industrial machineries, garments accessories, rice, tiles, ceramics, leather and leather goods, tobacco, shoes, handicrafts, motor parts, wheat, aluminum and steel products, frozen and dry foods, animal fodder, etc.

(2)   Transport Mode Choice

Of total transport, all the freight operator companies (100%) used fixed transport route for goods transport. All the surveyed respondents (100%) mentioned that they choose truck/trailer transport/mode for their transport.

(3)   Reasons Behind Mode Preference

Freight operator companies were concerned more about time and safety than other factors. Table 4.28 illustrates that all the respondents state time and safety as the catalysts for choosing the transport mode. In addition, lower cost and uncertainty issue are also major concerns for 93.3% and 96.7% respondents, respectively.

Table 4.28: Reasons for Mode Preference (Multiple Responses)

Reasons	Response (in %)
This route can minimize the time	100
This route can minimize the fuel cost	93.3
This route has fewer security problems	100
This route has less uncertainty about cost and time	96.7
Existence of transit points or other clients	3.3

Source: JICA Study Team

(4)   Desired Improvements for Railway

All the respondents (100%) suggested improving the timing, cost, and service of the railway and only then they would prefer the railway route. Reliability is also opened by 93.3% respondents, followed by 16.7% suggested to improve the security of road and goods (Table 4.29).

Table 4.29: Desired Improvements for Railway (Multiple Responses)

Reasons	Response (in %)
Total transport time should be less	100
Frequency of rail transport operation must be improved	100
Reliability of rail transport must be improved	100
Road conditions must be improved	93.3
Security condition of railway must be improved	16.7
Double rail lines are needed	3.3

Source: JICA Study Team

(5)   Desired Improvements for Inland Waterway

Just like railway, all the respondents (100%) suggested that waterway needs improvements in

timing costing and service. Moreover, 96.7% of respondents suggested improving reliability and route and goods security (Table 4.30).

Table 4.30: Desired Improvements for Inland Waterway (Multiple Responses)

Reasons	Response (in %)
Total transport time should be less	100
Frequency of the water transport operation must be improved	100
Reliability of the water transport must be improved	100
Route conditions must be improved	96.7
Security condition of waterway must be improved	96.7
There are no alternative routes	13.3

Source: JICA Study Team

4.5 Mode Choice Model

Three models were developed to analyze the users' transport mode choice between Dhaka and Chittagong. Two of them were developed for passengers, based on the preferences of the actual users collected through the interview survey. One of these is the multimodal choice model among current transport modes, which includes private car, bus, present rail, and airplane. The other is the binary mode choice model which analyzed the extent to which passengers would shift their mode of transport into high-speed rail. The willingness to pay for decreases in travel time and the shifts of transport mode to HSR were also estimated. Lastly, the cargo mode choice model was also developed.

4.5.1 Passenger Mode Choice Model

The JICA Study team applied a multinomial logit model to estimate the mode choice among private car, bus, rail, and airplane as transport means between Dhaka and Chittagong. Parameters are estimated by inputting the mode choice, travel time by mode, and travel cost by mode collected from the interview survey. Note that the JICA Study Team did not include ferry transport into the logit model, since the public transport users between Dhaka and Chittagong do not consider the ferry option. The number of samples is 432. In Chapter 5, the model was utilized to project the future mode choice of users under the improved transport infrastructure.

Source: JICA Study Team
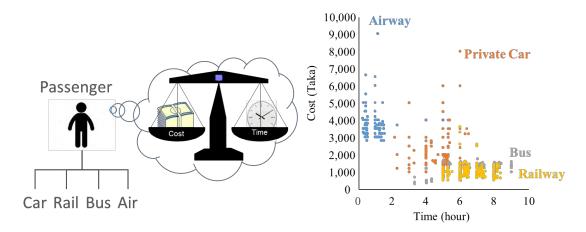
Figure 4.5: Multinomial Choice Model among Transport Modes

An index of satisfaction V_i for each transport mode which depends linearly on cost C_i and time T_i is defined as:

$$V_{car} = \propto_{car} + \alpha_1 \cdot T_{car} + \alpha_2 \cdot C_{car} \tag{2}$$

$$V_{rail} = \propto_{rail} + \alpha_1 \cdot T_{rail} + \alpha_2 \cdot C_{rail} \tag{3}$$

$$V_{bus} = \propto_{bus} + \alpha_1 \cdot T_{bus} + \alpha_2 \cdot C_{bus} \tag{4}$$

$$V_{air} = \alpha_1 \cdot T_{air} + \alpha_2 \cdot C_{air} \tag{5}$$

The probability of choosing the alternative *i* is formulated as:

$$P_i = \frac{\exp(V_i)}{\sum_i \exp(V_i)} \tag{6}$$

(1)   Result of Parameters Estimation

Table 4.31 shows the estimated parameters by application of maximum likelihood estimation. The goodness of fit is 0.42, and the value of time is estimated to be 587 Taka per hour.

Table 4.31: Estimated Parameters

	$\alpha_1 (hour^{-1})$	$\alpha_2 (Tk^{-1})$	$\propto_{car}$	$\propto_{rail}$	$\propto_{bus}$
	-0.4346920060	-0.0007404329	1.1755148047	0.4547128334	1.3972669572
t-value	-4.0633979	-3.5936529	1.9624701	0.5640845	1.6626464

Source: JICA Study Team

(2)   Sensitivity Analysis

The mode choice model is verified through sensitivity analysis. This simulation also helps understand the relationships between input and output variables in the model. The JICA Study Team conducted two sensitivity analyses about: the impact of changes in access time to terminal or station of each transport mode on the mode choice, and the impact of changes in railway fare on the mode choice. This simulation assumes the improvements in transport services including the introduction of High-Speed Rail between Dhaka and Chittagong as shown in Table 4.32.

Table 4.32: Assumed Improvements in Transport Services between Dhaka and Chittagong

	Private Car	Bus	Railway	Air
Time (hours)	4.5	6.3	3	1
Cost (Taka)	4,000	1,251	2400	4,469
Distance (km)	230	230	230	211

Source: JICA Study Team

Figure 4.6 shows the result of sensitivity analysis of access time to terminal or station of each transport mode on the mode choice. The result shows that better access to the hub points promotes the utilization of public transportation. Note that the mode choice is estimated without transport service capacity constraint.

Source: JICA Study Team
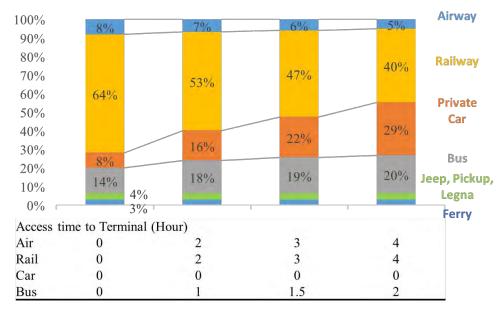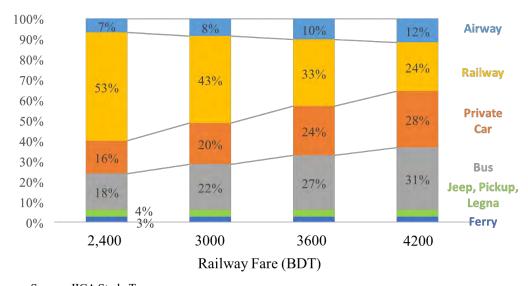
Figure 4.6: Sensitivity Analysis of Access Time to Terminal/Station on Passengers' Mode Choice

Figure 4.7 shows the sensitivity analysis of the fare of railway service on the mode choice. The result shows that the model enables us to analyze the impact of fare changes on the transport mode choice. Note that the mode choice is estimated without transport service capacity constraint.

Source: JICA Study Team

Figure 4.7: Sensitivity Analysis of the Railway Fare on Passengers' Mode Choice

4.5.2   Passengers' Shift to High-Speed Rail

The JICA Study Team applied a binomial logit model to estimate the extent to which the passengers would shift their mode of transport from each present transport mode to the newly developed high-speed rail. The present modes of transport include private car, bus, airplane, and present rail. The binary choice data were collected through interview survey on passengers'

preference on the high-speed rail. The respondents were given some perceptions based the questions about whether they want to travel by their present transport mode or by the new HSR. In Chapter 5, the result of interview survey was utilized to project the future shift to HSR by the users of each transport mode including private car, bus, present rail, and airplane.
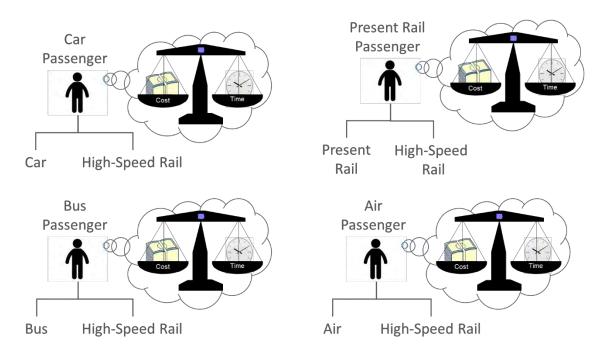
Figure 4.8: Binary Choice Model between High-Speed Rail and Each Transport Mode

An index of satisfaction V_i for each transport mode which depends linearly on cost C_i and time T_i is defined as:

$$P_k = \frac{\exp(V_k)}{\exp(V_k) + \exp(V_{hsr})} \tag{7}$$

$$V_k = \propto_k + \alpha_{k1} \cdot T_k + \alpha_{k2} \cdot C_k \tag{8}$$

$$V_{hsr} = \alpha_{k1} \cdot T_{hsr} + \alpha_{k2} \cdot C_{hsr} \tag{9}$$

(1)   Shift from Private Car to High-Speed Rail

The JICA Study Team conducted SP interview surveys with actual travelers using private cars between Dhaka and Chittagong and collected 720 responses. The breakdown of the responses was 418 chose the private car, and 302 chose the HSR. Table 4.33 shows the estimated parameters applying maximum likelihood estimation. The goodness of fit is 0.25, and the value of time is estimated to be 292 Taka per hour. The monetary value of the satisfaction to shift the mode of transport from a private car to a high-speed rail is -639 Taka.

Table 4.33: Estimated Parameters of Binary Choice Model (Private Car and HSR)

Car	$\alpha_1(hour^{-1})$	$\alpha_2(Tk^{-1})$	$\propto_{car}$
	-0.2774293041	-0.0009488524	0.6064349671
t-value	-4.268942	-13.270282	3.544175

Source: JICA Study Team

(2)   Shift from Bus to High-Speed Rail

The JICA Study Team conducted SP interview surveys with actual travelers using the bus between

Dhaka and Chittagong and collected 976 responses. The breakdown of the responses was 511 chose the bus, and 465 chose the HSR. Table 4.34 shows the estimated parameters applying maximum likelihood estimation. The goodness of fit is 0.41, and the value of time is estimated to be 102 Taka per hour. The monetary value of the satisfaction to shift the mode of transport from a bus to a high-speed rail is 751 Taka.

Table 4.34: Estimated Parameters of Binary Choice Model (Bus and HSR)

Bus	$\alpha_1(hour^{-1})$	$\alpha_2(Tk^{-1})$	$\propto_{bus}$
	-0.236379520	-0.002292472	-1.721286295
t-value	-21.624240	-3.936246	-7.161736

Source: JICA Study Team

(3)　Shift from Present Rail to High-Speed Rail

The JICA Study Team conducted SP interview surveys with actual travelers using the present rail between Dhaka and Chittagong and collected 1962 responses. The breakdown of the responses was 1105 chose the present rail, and 857 chose the HSR. Table 4.35 shows the estimated parameters applying maximum likelihood estimation. The goodness of fit is 0.40, and the value of time is estimated to be 169 Taka per hour. The monetary value of the satisfaction to shift the mode of transport from present rail to high-speed rail is 606 Taka.

Table 4.35: Estimated Parameters of Binary Choice Model (Present Rail and HSR)

Present Rail	$\alpha_1(hour^{-1})$	$\alpha_2(Tk^{-1})$	$\propto_{bus}$
	-0.365040531	-0.002162042	-1.309562008
t-value	-30.887153	-7.626573	-6.951379

Source: JICA Study Team

(4)　Shift from Airplane to High-Speed Rail

The JICA Study Team conducted SP interview surveys with actual travelers using airplane between Dhaka and Chittagong and collected 413 responses. The breakdown of the responses was 180 chose the airplane, and 233 chose the HSR. Table 4.35 shows the estimated parameters applying maximum likelihood estimation. The goodness of fit is 0.23, and the value of time is estimated to be 652 Taka per hour. The monetary value of the satisfaction to shift the mode of transport from airplane to high-speed rail is 320 Taka.

Table 4.36: Estimated Parameters of Binary Choice Model (Airplane and HSR)

Air	$\alpha_1(hour^{-1})$	$\alpha_2(Tk^{-1})$	$\propto_{air}$
	-0.822307447	-0.001261543	-0.403382993
t-value	-10.264362	-7.156282	-1.398359

Source: JICA Study Team

(5)　Willingness to Pay for HSR of Users of Each Transport Mode

Table 4.37 summarizes the willingness to pay of the users of each transport mode for the decreases in the travel time and the shifts in transport mode to the HSR. Also, the average travel time of users using each transport service are described in the table below. The airplane users have the most expensive willingness to pay for shortening travel time (652 Taka), followed in order by passenger car (292 Taka), present railway (169 Taka), and bus (102 Taka). Meanwhile the bus users have the highest willingness to pay for changing the mode of transport to the HSR (751 Taka), followed by present rail (606 Taka), airplane (320 Taka), and passenger car (-639 Taka) in descending order.

Table 4.37: Willingness to Pay for the Decreases in the Travel Time and the Shifts in Transport Mode to the HSR

	Private Car	Bus	Present Rail	Air
Willingness to pay for decreases in travel time (Taka/hour)	292	102	169	652
Willingness to pay for the shifts in transport mode to the high-speed rail (Taka)	-639	751	606	320
Travel average time (hour)	4.6	6.5	6.4	0.9

Figure 4.9 shows how the willingness to pay for the HSR service changes in accordance with the changes in a travel time by shifting to the HSR from each transport mode. It indicates that the airplane user has a high time value and has high willingness to pay for the reduction of travel time. Therefore, the rate of shift to high-speed rail is high when HSR would provide a shorter travel time. Passenger car users also have the second highest time value, but passenger car users are highly satisfied with the passenger cars as their mode of transport. Assuming that passenger cars and high-speed trains have the same travel cost, if the decreases in travel time would not exceed 2.2 hours when they change their transport mode from the car to the HSR, the rate of shifting to high-speed rail would be less than 50 %.

Willingness to pay for the shit in transport mode to the High-speed Rail (Taka)
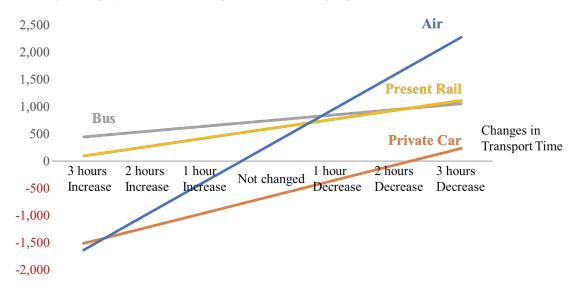
Figure 4.9: Willingness to Pay for the Shift to HSR in Accordance with Changes in Travel Time by Shifting to HSR for Each Transport User

4.5.3   Cargo Mode Choice Model

Seventy individuals from cargo owners and transport service companies/associations were interviewed between Dhaka and Chittagong. For the interview of cargo owners and transport service companies/associations, the interviewees were randomly chosen from the list of companies/associations provided by the Bangladesh Freight Forwarders Association (BAFFA). Companies which do not engage in transport between Dhaka and Chittagong were excluded from the interview.

Most of the goods transport starts through truck or trailer (92.5%), followed by less transport by train (2.5%), and the remaining 5% do not have fixed transport mode. Of total transport, 92.5% used the same route, and 7.5% do not use the same route to deliver the goods and commodities. Most of the respondents (87.5%) choose route in order to reduce journey time. Fuel cost and security issue are also concerns for 77.5% and 72.5% of respondents, respectively. Uncertainty problem is a major issue for 65% of the respondents, and they keep in mind the uncertainty regarding time and cost while choosing the route. Around 67.5% of respondents have transit point or other clients on the chosen route, and they have no choice but to maintain the route (Table 4.39).

Table 4.38: Sample Size Distribution for the Interview of Cargo Owners and Transport Service Companies/Associations

	Dhaka	Chittagong	Total
Cargo owners and agents in transport service industry	40	30	70

Source: JICA Study Team

Table 4.39: Reasons for Route Preference (Freight)

Reasons	Response (%)
This route/mode can minimize the time	87.5
This route/mode can minimize the fuel cost	77.5
This route/mode has less problems about security	72.5
This route/mode has less uncertainty of time and cost	65
We have transit points or other clients on this route	67.5
There are no alternative routes	20

Source: JICA Study Team

The JICA Study Team could not apply a logit model to reproduce the actual mode choice of the freight forwarders. The answers have weak relationships with transport time and cost, simply because most of the forwarders have never used other transport modes than the road. Therefore, the JICA Study Team applied a stochastic choice model and inputted the average level of transport services. The data on the level of services were collected through interviews with terminal operators and freight forwarders (Table 4.40). The probability of choosing the transport mode i was formulated as;

$$P_i = \frac{\exp(-\theta \cdot GC_i)}{\sum_i \exp(-\theta \cdot GC_i)} \tag{6}$$

$$GC_{road} = vt \cdot T_{road} + C_{car} \tag{7}$$

$$GC_{rail} = vt \cdot T_{rail} + C_{rail} + GC_{road}^{lm} \tag{8}$$

$$GC_{water} = vt \cdot T_{water} + C_{water} + GC_{road}^{lm} \tag{9}$$

where,

GC_i: generalized cost of transport mode i

$T_i = distance/V_i$

$C_{rail} = UC_{rail} \cdot Distance + FC_{rail}$

$C_{water} = UC_{water} \cdot Distance + FC_{water}$

UC_i: unit cost for transport mode i

FC_i: fixed cost for transport mode i

GC_{road}^{lm}: generalized cost for a "last-mile" road transport between a terminal and origin/destination. (10 km)

Adj_i: Adjustment parameter for transport i.

Table 4.40: Parameters Used for Cargo Transport Mode Choice Model

	Road	Rail	Water
Speed (km/h)	23	20.9	15.2
Unit Cost (Taka/km/Ton)	5.7	0.56	0.13
Fixed cost (Taka/Ton)	-	820	255
Value of Time (Taka/h)		4	

Source: JICA Study Team

The JICA Study Team calibrated the adjustment parameters so that the observed transport mode choice between Dhaka and Chittagong is approximately equivalent with the estimated mode choice by the model (Table 4.41). Figure 4.10 shows the relationship between mode choice and transport distance.

Table 4.41: Calibrated Parameters for Cargo Transport Mode Choice Model

	Road	Rail	Water
Distribution Parameter of Stochastic Assignment (/Taka)		0.005	
Adjustment Parameters (Taka/Ton)	-	960	1160

Source: JICA Study Team

Source: JICA Study Team
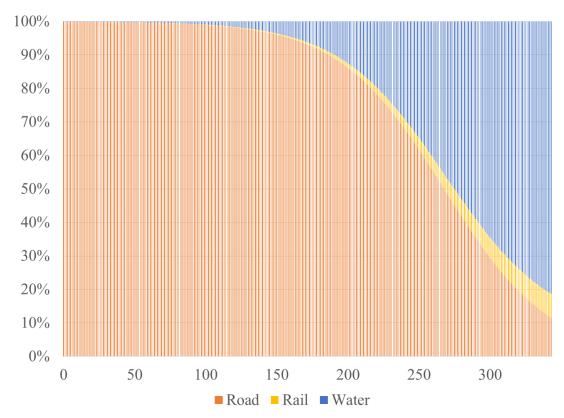
Figure 4.10: Estimated Changes in Cargo Owner's Mode Choice by Distance

5.   Demand Forecast

The Study Team conducted traffic demand forecast analysis along the Dhaka–Chittagong corridor to examine the project plans for development along the corridor. The forecasted transport demand was compared with the future capacity of transport services provided by planned infrastructures. If the service does not meet the demand, further plans and policies would be proposed to satisfy the demand, and conversely, if the plan is excessive against demand, the existing plans and projects need to be reconsidered.

One of the major goals of this survey is to examine project plans for development along the Dhaka–Chittagong corridor by enhancing multimodal transport. Therefore, this analysis focused on the transport mode choice on major intercity (mainly Dhaka–Chittagong) transport.

This analysis consists of five steps. First, the current transport demand by each transport mode was quantified based on the results of transport surveys. Second, the future traffic demand was estimated based on the assumed economic growth scenario. Third, the future transport mode share was predicted based on the users' preferences survey, which was described in Chapter 4. Fourth, the future traffic volumes on each route by each transport mode were estimated. Finally, the Study Team analyzed whether the planned transport development is adequate to the future transport demand. Based on the result of the demand forecast and others, the Study Team formulated the phased multimodal transport development plan in Chapter 6.

The Study Team forecasted the traffic demand of passenger and cargo by transport mode in 2031 and 2041. The future transport services, such as a transport time, capacity, and frequency, were assumed to be improved by the implementation of existing development plans and projects. The assumed plans and projects were described in Section 2.3 as well as Subsections 6.2.1, 6.3.1, and 6.4.1.

Figure 5.1 illustrates the objective of the demand forecast. When the expected transport demand exceeds the planned infrastructure capacity, further policy implementations to meet the traffic demand would be suggested. The indications from the result of demand forecast were summarized in Subsection 6.2.2, 6.3.2, 6.4.2 for each transport mode.

Source: JICA Study Team
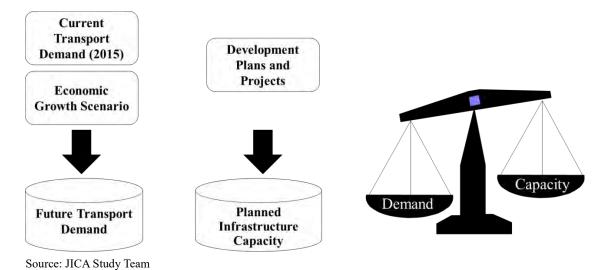
Figure 5.1: Objective of Demand Forecast

5.1   Current Transport Demand

The entire transport demand was grasped using (Origin-Destination) OD tables. An OD table is a table showing the amount of cargo and passenger flow from an origin to a destination. Since this analysis focused on transport mode choice including rail, road, and inland water, OD tables were prepared according to transport mode for both cargo and passengers (Figure 5.2).

Source: JICA Study Team
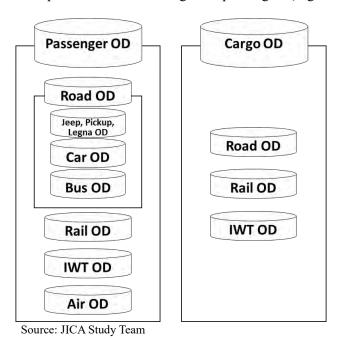
Figure 5.2: OD tables for Each Transport Mode

5.1.1   Traffic Analysis Zone

A traffic analysis zone (TAZ) is the basic real units of analysis for classifying the origin and destination of the trips in the forecasting procedure. The number of zones inside the survey area subject to the analysis should be closely connected to the goal of analysis. This analysis focused on the transport mode choice on major intercity (mainly Dhaka–Chittagong) transport. Theoretically, the accurate estimation of traffic demands based on fine zones can reproduce the actual traffic demands appropriately. However, the number of zones depends on the availability of data, which represents the socio-economic characteristic of each zone. If TAZs are assumed with Upazila as a base, which is a smaller local administrative territory than the district, the traffic demands among the TAZs must be estimated using more detailed data than the district-based data. The Upazila-based data is so limited that it must be estimated with other data sources, which would reduce the accuracy of the forecast.

This study assumes district-based zones in Bangladesh as shown in Figure 5.3 in addition to the port-based zones in major sea ports and land ports. The port based-zones include Mongla Sea Port, Chittagong Sea Port, Payra Sea Port, Matarbari Sea Port, Benapole Land Port, Bhomra Land Port, Hili Land Port, Akhaura Land Port, Bibir Bazar Land Port, Ramgarh border crossing and Teknaf border crossing. The district based zones are detailed enough to capture the traffic characteristics between Dhaka and Chittagong and enable the JICA Study Team to make maximum use of existing analytical data with a reliable data source. The total number of TAZs is 75.

Table 5.1: Traffic Analysis Zones

Zone #	District-Zones	Division	Zone #	District-Zones	Division
1	Dhaka	Dhaka	29	Barguna	Barisal
2	Narayanganj	Dhaka	30	Barisal	Barisal
3	Munshiganj	Dhaka	31	Bhola	Barisal
4	Shariatpur	Dhaka	32	Jhalokati	Barisal
5	Madaripur	Dhaka	33	Patuakhali	Barisal
6	Gopalganj	Dhaka	34	Pirojpur	Barisal
7	Faridpur	Dhaka	35	Bagerhat	Khulna
8	Rajbari	Dhaka	36	Chuadanga	Khulna
9	Manikganj	Dhaka	37	Jessore	Khulna
10	Tangail	Dhaka	38	Jhenaida	Khulna
11	Jamalpur	Dhaka	39	Khulna	Khulna
12	Sherpur	Dhaka	40	Kushtia	Khulna
13	Mymensingh	Dhaka	41	Magura	Khulna
14	Netrokona	Dhaka	42	Meherpur	Khulna
15	Kishoreganj	Dhaka	43	Narail	Khulna
16	Gazipur	Dhaka	44	Satkhira	Khulna
17	Narsingdi	Dhaka	45	Joypurhat	Rajshahi
18	Chittagong	Chittagong	46	Bogra	Rajshahi
19	Cox's Bazaar	Chittagong	47	Naogaon	Rajshahi
20	Bandarban	Chittagong	48	Natore	Rajshahi
21	Rangamati	Chittagong	49	Nawabganj	Rajshahi
22	Khagrachhari	Chittagong	50	Pabna	Rajshahi
23	Feni	Chittagong	51	Sirajganj	Rajshahi
24	Noakhali	Chittagong	52	Rajshahi	Rajshahi
25	Lakshmipur	Chittagong	53	Dinajpur	Rangpur
26	Chandpur	Chittagong	54	Gaibandha	Rangpur
27	Comilla	Chittagong	55	Kurigram	Rangpur
28	Brahmanbaria	Chittagong	56	Lalmonirhat	Rangpur
			57	Nilphamari	Rangpur
			58	Panchagarh	Rangpur
			59	Rangpur	Rangpur
			60	Thakurgaon	Rangpur
			61	Habiganj	Sylhet
			62	Moulvibazar	Sylhet
			63	Sunamganj	Sylhet
			64	Sylhet	Sylhet

Zone #	Port Zones	Zone #	Port Zones
65	Benapole Land Port	71	Matarbari Sea Port
66	Bhomra Land Port	72	Akhaura Land Port
67	Mongla Sea Port	73	Bibir Bazar Land Port
68	Hili Land Port	74	Ramgarh border crossing
69	Chittagong Sea Port	75	Teknaf border crossing
70	Payra Sea Port		

Source: JICA Study Team

Source: Website of Local Government Engineering Department

Figure 5.3: Districts of Bangladesh

5.1.2   Passenger OD Tables

Passenger OD tables were prepared according to transport mode, including road, rail, inland water transport (IWT), and air. The road OD tables consist of OD tables of the private car, bus and utility (Jeep, Pick up, Legna). The passenger OD tables are estimated using the result of latest surveys and the traffic survey conducted by the JICA Study Team. The OD tables developed by the JICA Study Team are shown in Appendix 5.

(1)   Road Passenger OD Tables

The JICA Study Team developed road OD tables with district-level zoning by disaggregating existing road OD tables, which had been developed by the JICA survey in 2016 entitled "Preparatory Survey on the Cross-Border Road Network Improvement Project (Bangladesh)" (hereinafter "JICA CBR Survey"). The JICA CBR Survey implemented a traffic count survey and a roadside OD survey to understand the road transport situation. The traffic count surveys were conducted as a 3-day survey (for 12 and 24 hours on weekdays, and 12 hours on the weekends) at two locations: at six locations for the 24-hour survey and two locations for the 12-hour survey. The roadside OD survey, which included a 14-hour OD interview survey and 24-hour traffic count surveys, was conducted at five locations.

The JICA CBR Survey estimated OD tables by using the zonal population and observed traffic volumes. The OD tables developed by the JICA CBR Survey adequately reflected the actual road traffic.

The JICA CBR Survey set district-level zoning in the Khulna, Dhaka, and Chittagong divisions, and division-base zoning in other divisions. The total number of zones was 34 including major land ports and the Mongla seaport. The JICA Study Team assumed that the traffic volume to and from a district is in proportion to the population in the district. The road OD tables of the JICA CBR Survey were disaggregated to the road OD table with district-level zoning.

(2)   Rail Passenger OD Tables

Bangladesh Railway did not have statistical data on the number of passengers and handling cargo volume at each station. The JICA Study Team collected the data through an interview survey with the operators of each station. Also, the result of OD interview surveys conducted at the four railway stations in Dhaka city by JICA survey, entitled "Project on the Revision and Updating of the Strategic Transport Plan for Dhaka" (hereinafter "RSTP"). The result of RSTP's OD survey is available as shown in Table 5.2. The Study Team utilized the results of the OD interview survey of RSTP and collected information from the operators at the stations.

First, the JICA Study Team estimated the theoretical rail OD table by using the results of the OD interview survey. Second, the theoretical rail OD table was compared with the actual rail traffic volume. Finally, the synthetic rail OD table was adjusted to reflect the actual service conditions.

Table 5.2: Result of OD Interview Survey by JICA RSTP

Zones set by JICA RSTP (2016)	Daily Railway Passengers from Dhaka City	Population (2011)	Transport time from Dhaka (hour)	Railway Service from Dhaka
Survey Area		12,043,977		
Gazipur	600	3,403,912	1.00	Intercity
Kishreganj	2,600	2,911,907	3.17	Intercity
Narsingdi	1,700	2,224,944	1.25	Intercity
Narayanganj	1,200	2,948,217	0.67	Commuter
Munshganj	100	1,445,660	2.67	Commuter
Faridpur, Gopalganj, Madaripur, Rajdari, Shariatpur	100	6,456,938	17.33	Intercity, but needed one transfer
Tangali	1,400	3,605,083	2.17	Intercity
Jamalpur, Mymensingh, Netrakona, Sherpur	9,100	23,215,813	2.83	Intercity
Rangpur Division	4,100	15,787,758	10.00	Intercity
Rajshahi Division	10,500	18,484,858	6.42	Intercity
Khulna Division	3,300	15,687,759	9.67	Intercity
Sylhet Division	3,000	9,910,219	6.75	Intercity
Chittagong Division	9,900	28,423,019	5.17	Intercity
Barisal Division	0	8,325,666		Intercity

Source: JICA Study Team

The JICA Study Team estimated the railway passenger demand among districts by applying a regression analysis. The target variable was set to be rail traffic from one district to another district. The candidate descriptive variables are population, area, rail transport time between districts, number of stations, length of the rail track and availability of direct inter-city rail service between districts. In the descriptive variable selection, a plurality of sets of data largely influential on the target variable, consisting of variables with smaller *p*-values (< 0.05), was selected as the descriptive variable from the candidates.

The developed regression analysis relates the number of passengers from one district to   another district to a function of the population of the two zones, rail transport time and   availability of the direct inter-city rail service as;

$$\log(F_{ij}) = \alpha_1 \cdot \log(Pop_i \cdot Pop_j) + \alpha_2 \cdot \log(\text{Tij}) + \alpha_3 \cdot \delta_{ij} \tag{1}$$

where

F_{ij}: Rail traffic flow from district *i* to district *j*,
Pop_i: Population of district *i*,
Tij: Rail transport time from district *i* to district *j*,
δ_{ij}: a delta, which is equal to 1 if there is a direct intercity rail service from *i* to *j*, and 0 otherwise, and
$\alpha_1, \alpha_2, \alpha_3$: Unknown parameters
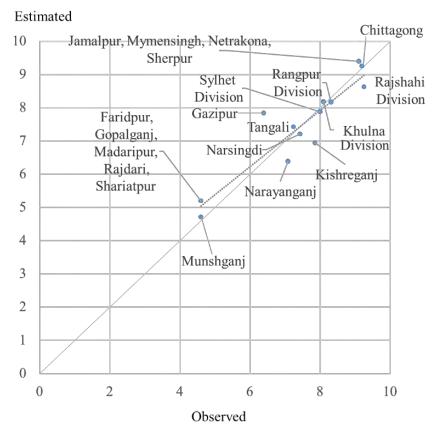
Source: Final Report/ Technical Appendix of JICA RSTP and JICA Study Team

Figure 5.4: Observed Rail Traffic versus Estimated Traffic from the Dhaka City

As a result of regression, α_1, α_2, and α_3 are estimated to be 1.15 (t-value is 3.92), -0.62 (t-value is -2.35), and -1.54 (t-value is -2.83), respectively (R-squared is 0.846). Figure 5.4 above shows the reproducibility of the regression analysis. The vertical axis shows the logarithm of rail transport demand from Dhaka city to the surrounding regions estimated by the analysis, while the horizontal axis shows the actually observed rail traffic flow.

The estimate daily number of rail passengers in the east and west zones were compared with the statistics as shown in Table 5.3. The result of rail passenger traffic volumes in West Zones are almost the same as the statistics, while the estimated volume in East Zones is less than actual traffic by 21 %. The Study Team adjusted the theoretical rail OD table to reflect actual traffic volumes.

The JICA Study Team collected information on service capacity, but did not utilize the capacity for demand analysis. This is just because the occupancy ratio in East Zones reached 190%, which makes it quite difficult to estimate the actual traffic demand from the data on service capacity. (Table 5.4)

Table 5.3: Number of Daily Rail Passengers (Actual versus Estimated)

	East Zones	**West Zones**
Actual	124,455	60,044
Estimated	156,696	60,262

Source: Bangladesh Railway, Information Book, 2015

Table 5.4: Occupancy Ratio of Intercity Trains

| Class | Broad Gauge | Meter Gauge | | Total |
		East Zone	West Zone	
Air-Conditioned	24.06	75.94	7.8	42.98
First	31.46	98.88	29.71	74.66
Shovan	89.22	195.71	77.56	134.03
Total	86.24	187.47	74.9	129.67

Source: Bangladesh Railway, Information Book, 2015

(3)   Inland Water

An inland water OD table was prepared using the Frater method by inputting the annual number of passengers of the main river terminals collected from BIWTA. Note that there is a dearth of data and statistics in the IWT sector, particularly related to the private sector. BIWTA officials explained that the number of passengers and volume of cargo passing through a port were estimated from the sale of passenger tickets and the lease-money of a cargo handling point.

Table 5.5: Passengers Embarked through Different River Ports

No.	Port/Ghat	Lac/Year (Lac=100,000)	No.	Port/Ghat	Lac/Year
1	Dhaka	670.45	13	Barisal	100.1
2	Tongi	20.74	14	Bhola	25.02
3	Narayanganj	272.49	15	Patuakhali	47.4
4	Mikradim	61.93	16	Borguna	14.16
5	Narsingdi	41.29	17	Aricha	165.9
6	Meghna Ghat	8.26	18	Dawalatdia	165.9
7	Chattak	8.26	19	Kazirhat-Nagarbari & Noradoho	142.2
8	Ashuganj-Bhairab	20.64	20	Faridpur CMB Ghat	0
9	Ghorashal	0	21	Baghabari	2.07
10	Khulna	18.59	22	Mawa	46.32
11	Nawapara	0	23	Charjanajat	46.32
12	Chandpur	57.99	24	Cox's bazar	14.88
			25	Different Ghat points under Chittagong Office	12.18

Source: BIWTA

5.1.3   Cargo OD Tables

The JICA Study Team utilized domestic cargo OD tables estimated by the JICA Maritime Survey Team. They used GSM developed by the Institute of Developing Economies, Japan External Trade Organization. The GSM incorporates changes in the transport network, as well as economic production/consumption in regions and the transport networks connecting them to each other. The end result of this step is matrices representing the cargo demand from which region to which region in monetary terms by commodity. Seven commodities were applied in the GSM: agriculture, automobile, electronic, garment, manufactured food, other productions and services.

5.2   Economic Growth Scenario

As shown in Table 5.6, over the last 15 years the rate of population growth in Bangladesh has slowed from just under 2% per annum to just over 1% per annum. Over the same period, real GDP growth rate has increased slightly (from 5.3% per annum in 2000 to 6.6% in 2015).

Table 5.6: Population and GDP Growth Rates 2000-2015

	Population		Real GDP growth rates	
	Population (millions)	Growth Rate	GDP	GDP per capita
2000	131.28	1.9%	5.3%	3.3%
2001	133.78	1.9%	5.1%	3.1%
2002	136.23	1.8%	3.8%	2.0%
2003	138.60	1.7%	4.7%	2.9%
2004	140.84	1.6%	5.2%	3.6%
2005	142.93	1.5%	6.5%	5.0%
2006	144.84	1.3%	6.7%	5.3%
2007	146.59	1.2%	7.1%	5.8%
2008	148.25	1.1%	6.0%	4.8%
2009	149.91	1.1%	5.0%	3.9%
2010	151.62	1.1%	5.6%	4.4%
2011	153.41	1.2%	6.5%	5.2%
2012	155.26	1.2%	6.5%	5.3%
2013	157.16	1.2%	6.0%	4.7%
2014	159.08	1.2%	6.1%	4.8%
2015	161.00	1.2%	6.6%	5.3%

Source: World Bank World Development Indicators

As shown in Table 5.7, whilst population growth slowed, real GDP growth has increased slightly: averaging 5.1% per annum from 2001-2005, 6.1% per annum from 2006-2010 and 6.3% per annum from 2011-2015. Taken together, this resulted in steady and slightly increasing growth in GDP per capita: from 3.3% per annum over 2001-2005 to 5.1% per annum on average during 2011-2015.

Table 5.7: Five Year Average Annual Population and GDP Growth 2001-2015

Period	Population Growth Rate	Real GDP	Real GDP per capita
2001-2005	1.7%	5.1%	3.3%
2006-2010	1.2%	6.1%	4.8%
2011-2015	1.2%	6.3%	5.1%

Source: Source data from World Bank World Development Indicators; analysis by JICA Study Team

Future economic growth assumptions were adopted from the IMF Country Report No.17/147 in June 2017 for Bangladesh (which gave economic growth projections to 2022), and thereafter according to the "central" case of the previous Asian Development Bank project on the proposed Dhaka–Chittagong Expressway PPP and design,[29] which assumed 4.5% per annum growth in real GDP from 2020 to 2030, and 4.0% per annum from 2030. These growth rates are consistent with the growth rates presented in Table 5.6 and Table 5.7, and allow for a gradual slowing of growth over the forecast horizon.

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[29] ADB Loan 2856-BAN

Regarding traffic growth, GDP growth is widely acknowledged as the primary driver of freight transport. As such, and in accordance with assumptions adopted in the ADB Dhaka–Chittagong Expressway project, freight traffic was assumed to grow directly in line with real GDP growth (i.e. adopting an income elasticity of demand of 1.0), as shown in Table 5.8.

Similarly, growth rate assumptions for car and bus traffic were also adopted from the ADB Dhaka–Chittagong Expressway Project, namely: 3% growth per annum to 2020; and, growth beyond 2020 at 1.33 times real GDP growth, the latter reflecting anticipated growth in motorization rates and in the demand for inter-city travel by modes faster than existing rail services ("wealth effects" in economic parlance).

Table 5.8: Economic and Traffic Growth Assumptions Adopted
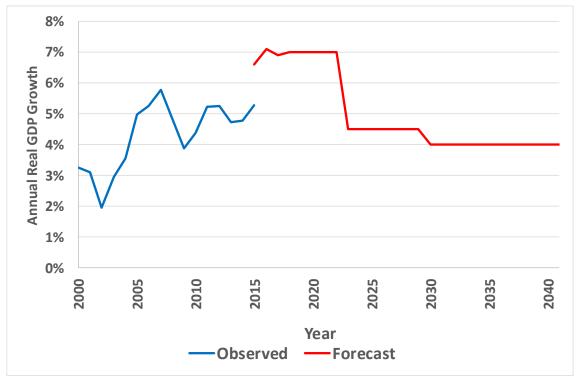
	Annual Growth					Compound from 2015			
	GDP	Truck	Car, Bus	Rail	IWT	Truck	Car, Bus	Rail	IWT
2015	6.6%	6.6%	3.0%	3.0%	3.0%	1.000	1.000	1.000	1.000
2016	7.1%	7.1%	3.0%	3.0%	3.0%	1.066	1.030	1.030	1.030
2017	6.9%	6.9%	3.0%	3.0%	3.0%	1.142	1.061	1.061	1.061
2018	7.0%	7.0%	3.0%	3.0%	3.0%	1.220	1.093	1.093	1.093
2019	7.0%	7.0%	3.0%	3.0%	3.0%	1.306	1.126	1.126	1.126
2020	7.0%	7.0%	9.3%	4.7%	4.7%	1.397	1.159	1.159	1.159
2021	7.0%	7.0%	9.3%	4.7%	4.7%	1.495	1.267	1.214	1.214
2022	7.0%	7.0%	9.3%	4.7%	4.7%	1.600	1.385	1.271	1.271
2023	4.5%	4.5%	6.0%	3.0%	3.0%	1.712	1.514	1.330	1.330
2024	4.5%	4.5%	6.0%	3.0%	3.0%	1.789	1.605	1.370	1.370
2025	4.5%	4.5%	6.0%	3.0%	3.0%	1.869	1.701	1.412	1.412
2026	4.5%	4.5%	6.0%	3.0%	3.0%	1.953	1.803	1.454	1.454
2027	4.5%	4.5%	6.0%	3.0%	3.0%	2.041	1.910	1.498	1.498
2028	4.5%	4.5%	6.0%	3.0%	3.0%	2.133	2.025	1.543	1.543
2029	4.5%	4.5%	6.0%	3.0%	3.0%	2.229	2.146	1.590	1.590
2030	4.0%	4.0%	5.3%	2.7%	2.7%	2.329	2.274	1.638	1.638
2031	4.0%	4.0%	5.3%	2.7%	2.7%	2.423	2.395	1.681	1.681
2032	4.0%	4.0%	5.3%	2.7%	2.7%	2.520	2.523	1.727	1.727
2033	4.0%	4.0%	5.3%	2.7%	2.7%	2.620	2.657	1.773	1.773
2034	4.0%	4.0%	5.3%	2.7%	2.7%	2.725	2.798	1.820	1.820
2035	4.0%	4.0%	5.3%	2.7%	2.7%	2.834	2.947	1.869	1.869
2036	4.0%	4.0%	5.3%	2.7%	2.7%	2.948	3.104	1.919	1.919
2037	4.0%	4.0%	5.3%	2.7%	2.7%	3.065	3.269	1.971	1.971
2038	4.0%	4.0%	5.3%	2.7%	2.7%	3.188	3.443	2.023	2.023
2039	4.0%	4.0%	5.3%	2.7%	2.7%	3.316	3.626	2.078	2.078
2040	4.0%	4.0%	5.3%	2.7%	2.7%	3.448	3.819	2.133	2.133
2041	4.0%	4.0%	5.3%	2.7%	2.7%	3.586	4.022	2.191	2.191

Source: JICA Study Team

However, in the case of existing rail (i.e., not high-speed rail) and inland waterway transport, it was assumed that due to the wealth effect (i.e., a shift towards car and bus), that demand would

grow more slowly than GDP.[30] 3% per annum growth was assumed in each case until 2020, but thereafter growth was assumed to be two-thirds of real GDP growth.

Table 5.8 shows the resulting forecast economic growth assumptions, trip growth rates and compound trip growth factors. Observed (historical) and assumed forecast real GDP growth rates are compared in Figure 5.5.

Source: JICA Study Team

Figure 5.5: Observed and Forecast Real Annual GDP Growth Rates

The above pertains to nationwide growth trends. However, it should be remembered that the Dhaka–Chittagong corridor is Bangladesh's economic hub, particularly for export-oriented manufacturing and industry in general. Furthermore, there is ongoing urbanization.

Therefore, in addition to the growth rates set out in Table 5.8, additional growth was added to certain zones as follows:

- In major urban centers within Dhaka and Chittagong Divisions: 6%
- In secondary urban centers within Dhaka and Chittagong Divisions: 4%
- In minor urban areas within Dhaka and Chittagong Divisions: 2%
- Other areas in Dhaka and Chittagong Divisions: 1%
- In urban centers outside of Dhaka and Chittagong Divisions: 1%

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[30] Note that the ADB Dhaka–Chittagong Expressway project did not consider rail or inland water transport in its demand forecasts.

5.3   Transport Networks

5.3.1   Introduction

Strategic transport networks for Bangladesh were coded into *EMME* not only for the Dhaka Chittagong corridor itself, but also for the entire country so as to enable proper consideration of transport costs and patterns, for example in mode choice modelling.

These are presented as follows:
- Strategic highway networks are described in Subsection 5.3.2
- Rail networks are described in Subsection 5.3.3
- Inland water transport networks are described in Subsection 5.3.4
- Subsection 5.3.5 presents all networks together

5.3.2   Strategic Highway Networks

The strategic highway network coded into *EMME* for the whole country is shown in Figure 5.6, with Figure 5.7 showing more detail within the Dhaka–Chittagong corridor. Light green links represent standard roads, whilst National Highway 1 (NH1) is shown in olive and the planned Dhaka–Chittagong Expressway in dark green. As can be seen in Figure 5.7, NH1 and the Expressway are aligned quite close to one another. The links in black represent border crossing points, including seaports.

Source: JICA Study Team

Figure 5.6: Strategic Highway Network - Whole Country

Source: JICA Study Team
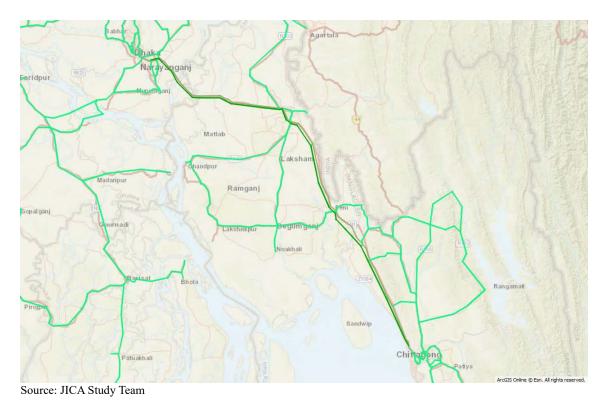
Figure 5.7: Strategic Highway Network: Dhaka–Chittagong Corridor

For the purpose of capacity analysis, the expressway was assumed to have a daily capacity of 25,000 pcu's per day per lane, NH1 and bridges of 15,000 pcu's per day per lane and other roads of 10,000 pcu's per lane per day. These assumptions are in line with those adopted in the ADB Dhaka–Chittagong Expressway Study, and as with that study also take account of the impacts of frontage interference and light vehicles on the capacities of the strategic highway network as appropriate. For this reason there are substantial differences in the capacity per lane of the access-controlled expressway, the partially-segregated NH1 (dual carriageway) and the typically unsegregated other roads.

However, these capacities were adjusted in two ways for the purpose of capacity analysis:
- Firstly, to take account of seasonal variations in traffic levels (Table 5.9 shows adjustment factors by month from the Roads and Highways Department (RHD) of the Bangladesh Government). Given that the largest adjustment is in February and March, a 15% reduction in the initial capacities above was applied.
- Secondly, whereas the ADB Dhaka–Chittagong Expressway Study was a traffic and revenue forecasting study, this Dhaka–Chittagong Corridor Study is more of a master-planning-type study. As such, a volume-capacity ratio of 0.85 is assumed the threshold at which additional capacity should be provided.

The compound factor applied was therefore 0.7225, being 0.85 x 0.85.

Table 5.9: Traffic Adjustment Factors by Month

Month	January	February	March	April	May	June
Goods Vehicles	0.92	0.9	0.9	0.97	0.97	0.99
Other Vehicles	1.00	0.98	0.98	1.01	0.96	0.95
Month	**July**	**August**	**September**	**October**	**November**	**December**
Goods Vehicles	1.04	1.10	1.17	1.16	1.03	0.95
Other Vehicles	0.96	0.99	1.04	1.07	1.04	1.02

Source: RHD

5.3.3   Rail Networks

Rail networks were coded as shown in Figure 5.8, with Figure 5.9 focusing on the Dhaka–Chittagong corridor. Orange denotes single-track railway, with red showing those sections due to be double-tracked. The purple sections, shown in Figure 5.8 and Figure 5.10 denote the alignment of the proposed Dhaka–Chittagong High-Speed Rail line.

Source: JICA Study Team
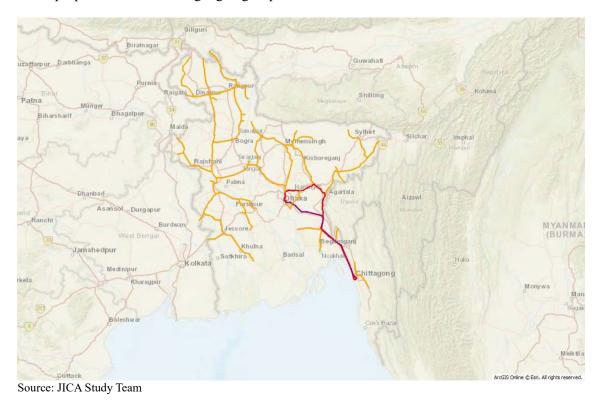
Figure 5.8: Rail Network - Whole Country

Source: JICA Study Team
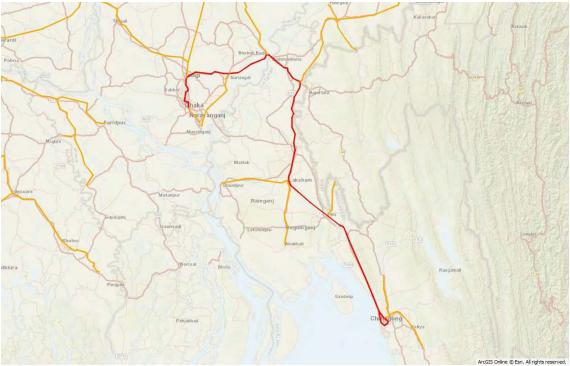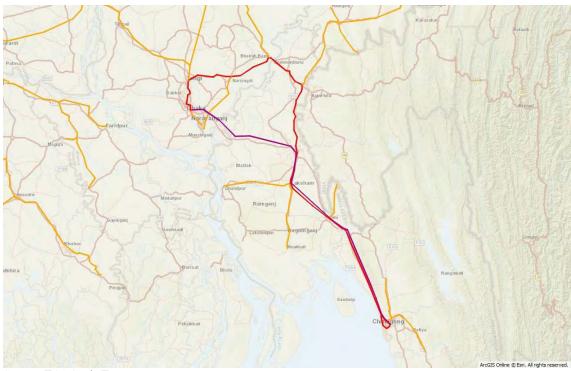
Figure 5.9: Rail Network - Dhaka–Chittagong Corridor

Source: JICA Study Team

Figure 5.10: Rail Network - Dhaka–Chittagong with High-Speed Rail Shown

Railway capacities were assumed as follows on a per train-basis:
- For passenger trains (non-HSR), 500 passengers per train in 2015 based on the information book by Bangladesh Railway, and increasing to 1,000 passengers per train by 2041: to take account of expected increases in train capacities over time.
- For freight trains, 200 Ton per train in 2015 based on the information book by Bangladesh Railway, and increasing to 500 Ton per train by 2041
- The above train capacities are then factored by 0.85 to take account of seasonal variations

The assumed number of trains per day by section was as set out in Table 5.10.

Table 5.10: Assumed Daily Train Schedule (non-HSR, Both Directions, Both Passenger and Cargo)

Section	2015-2017	2018-2022	2023-2027	2028 onwards
Dhaka–Tongi	176	302	372	456
Tongi–Bhairab Bazaar	84	160	202	252
Bhairab Bazaar–Akhaura	84	164	208	254
Akhaura–Comilla	72	164	204	252
Comilla–Feni	72	164	204	252
Feni–Chittagong	72	164	204	252

Source: Railway Master Plan

5.3.4   Inland Water Transport Networks

Inland waterways are categorized into four categories, depending upon dry season draft as follows:
- Class 1: typically with a 12'-13' draft (approximately 3.6-4 meters)
- Class 2: with a 7'-8' draft (approximately 2.1-2.4 meters)
- Class 3: with a 5'-6' draft (approximately 1.5-1.8 meters)
- Class 4: with a draft under 5' (less than 1.5 meters)

Waterways were coded into *EMME* taking account of information on drafts, as shown in Figure 5.11. Those links in turquoise are Class 4; Class 3 sections are shown in light blue; Class 2 is shown in medium blue; and Class 2 sections are in dark blue.

Source: JICA Study Team
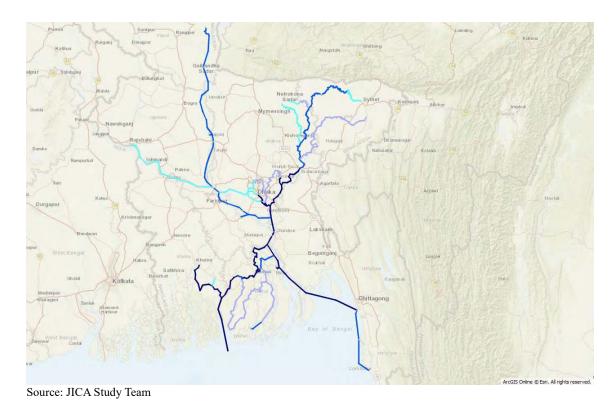
Figure 5.11: Inland and Coastal Water Transport Networks

5.3.5   Combined Transport Networks

Bringing together the mode-specific networks explained above, Figure 5.12 shows the multi-modal transport networks coded for Bangladesh as a whole.

Figure 5.13 shows networks for the Dhaka–Chittagong corridor itself, with further detail shown in Figure 5.14 (Dhaka and surrounding areas to Comilla) and Figure 5.15 (Comilla to Chittagong).

Source: JICA Study Team
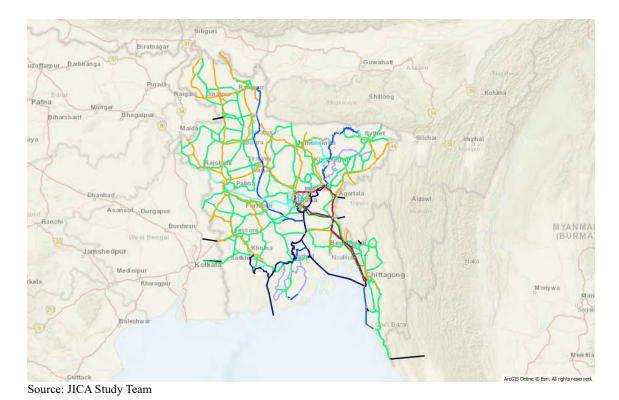
Figure 5.12: Bangladesh Coded Networks

Source: JICA Study Team
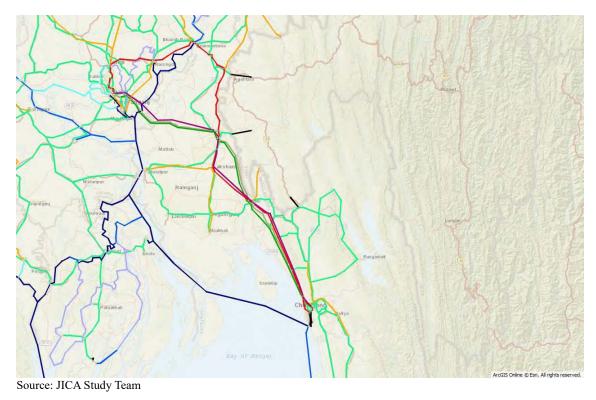
Figure 5.13: Dhaka–Chittagong Corridor Network

Source: JICA Study Team
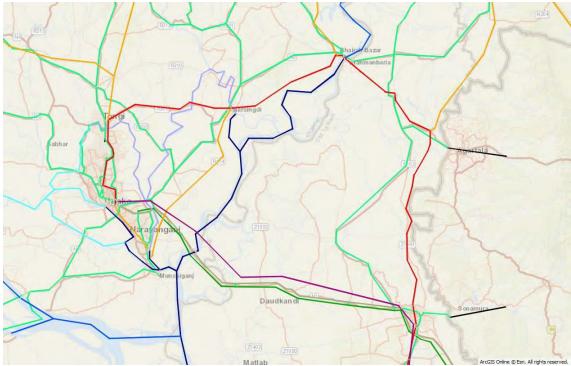
Figure 5.14: Network around Dhaka and to Comilla

Source: JICA Study Team
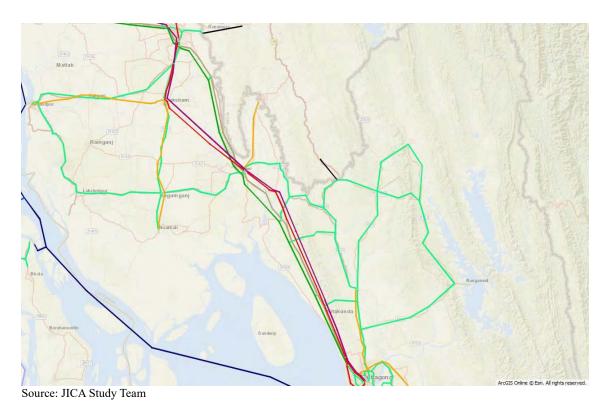
Figure 5.15: Networks: Comilla to Chittagong

5.4   Future Transport Demand

The JICA Study Team created passenger OD tables and cargo OD tables for 2031 and 2041 by multiplying the 2015 OD tables in Chapter 3 by the growth rate estimated in Section 5.1.

5.4.1   Passenger OD Tables

Future passenger OD tables by transport mode were outputted from the modal split model developed in Section 5.4. Inputs to the passenger modal split model are summarized in Table 5.11. This analysis maximized users' satisfaction and did not take into account the capacity of infrastructure services.

Table 5.11: Inputs to Passenger Cargo Mode Choice Model

	Private Car	Bus	Railway	Air	HSR
Access Time to/from Terminal (hour)	0	0	0.75	0.75	0.75
Waiting Time at Terminal (hour)	0	1.0	1.0	1.0	1.0
Passenger Unit Cost (Taka/km)	17.4	5.43	10.4	21.2	13.0

Source: JICA Study Team

5.4.2   Cargo OD Tables

The JICA Study Team also developed 2041 cargo OD tables by multiplying the 2015 cargo OD tables in Subsection 3.3.3 by the growth rate estimated by IHS Inc. (2015). The 2041 Cargo OD tables by transport mode were outputted from the modal split model developed in Subsection 3.4.2. This analysis also maximized users' satisfaction and did not take into account the capacity of infrastructure services.

The JICA Study Team utilized the international cargo throughput forecasted by the JICA Matarbari Port Survey, which incorporated port choice and transport mode choice in the hinterlands of each port as shown in Table 5.12 and Table 5.13. The inland border crossing cargo volume was estimated based on the survey of the JICA CBR Survey as shown in Table 5.14

Table 5.12: Estimated Container Volume Handled at Each Port (TEU)

Port	2026	2041
Chittagong	3409171	6,897,179
Payra	480,526	546,228
Matarbari	599,073	2,550,599

Source: JICA Matarbari Port Survey (JICA, ongoing)

Table 5.13: Dry Bulk Cargos Traffic Potential (Million Ton)

		2031	2041
Mongla	Imports	5.17	6.17
	Exports	0.00	0.00
Chittagong	Imports	60.58	75.53
	Exports	1.13	1.21

Source: Draft Final Report: Strategic Master Plan for Chittagong Port

Table 5.14: Crossing-Border International Cargo Volumes (Million Ton)

	2013		2031		2041	
	Import	Export	Import	Export	Import	Export
Benapole Land Port	1.25	0.3	3.98	0.796	7.45	1.28
Bhomra Land Port	1.45	0.04	3.8	0.76	7.12	1.23
Hilli Land Port	3.46	0.0225	8.94	1.79	16.8	2.88
Akhaura Land port	0.00025	0.27	0.623	0.125	1.17	0.201
Bibir Bazar Land Port	0.000024	0.063	0.145	0.029	0.272	0.0468
Ramgarh border crossing	0	0	0.681	0.681	0.715	0.715
Teknaf border crossing	0.11	0.06	0.392	0.0784	0.734	0.126

Source: JICA Study Team based on the Preparatory Survey on the Cross-Border Road Network Improvement Project (Bangladesh) (JICA, 2016)

5.5   Passenger Flows by Transport Mode

Passenger flow forecasts described in Subsection 5.4.1 were assigned to the networks described in Section 5.3 as follows:

Firstly for 2031 without HSR, i.e., demand forecasts prepared on the basis of no HSR being in place, as follows:
- Passenger flows for the entire country and for all modes are shown in Figure 5.16.
- Figure 5.17 focusses in on the Dhaka–Chittagong corridor.
- Passengers on highways are plotted in Figure 5.18, the vast majority of which are bus passengers.
- Figure 5.19 shows rail passenger flows.

Secondly, for 2031 with HSR considered in mode choice analysis and demand forecasting, as follows:
- Passenger flows for the entire country and for all modes are shown in Figure 5.20.
- Figure 5.21 focusses in on the Dhaka–Chittagong corridor.
- Passengers on highways are plotted in Figure 5.22, the vast majority of which are bus passengers.
- Figure 5.23 shows rail passenger flows.

Thirdly, for 2041, with HSR included in mode choice analysis and demand forecasting, as follows:
- Passenger flows for the entire country and for all modes are shown in Figure 5.24.
- Figure 5.25 focusses in on the Dhaka–Chittagong corridor.
- Passengers on highways are plotted in Figure 5.26, the vast majority of which are bus passengers.
- Figure 5.27 shows rail passenger flows.

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
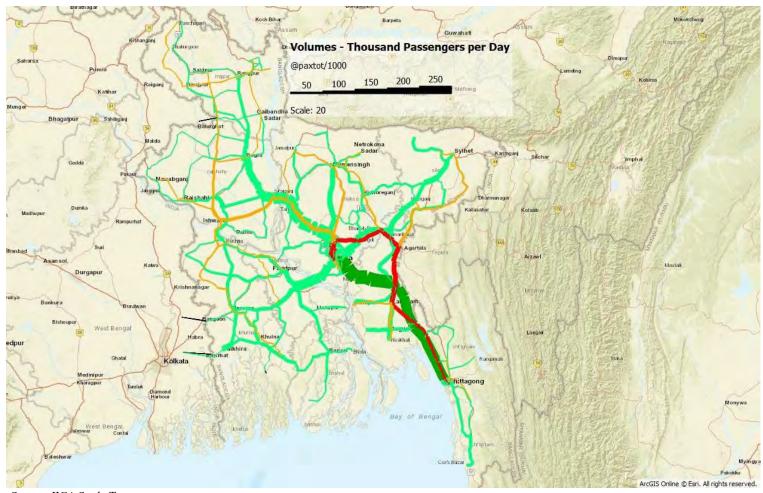
Figure 5.16: Daily Passenger Flows, Whole Country, All Modes, 2031, without HSR

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
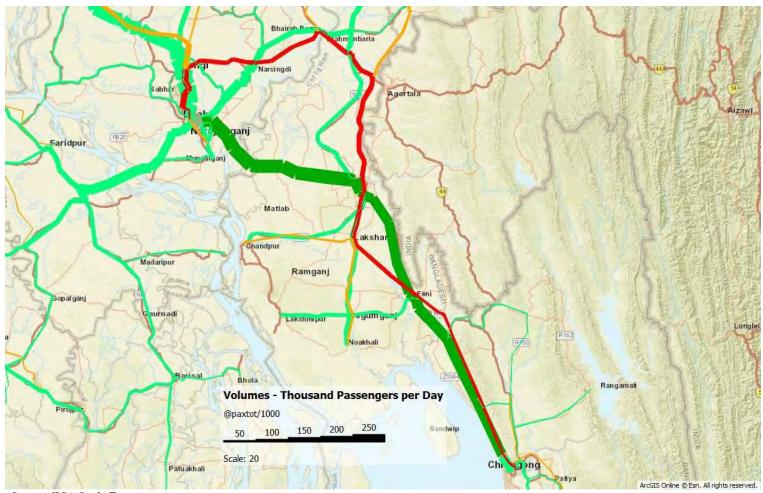
Figure 5.17: Daily Passenger Flows, Dhaka–Chittagong Corridor, All Modes, 2031, without HSR

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
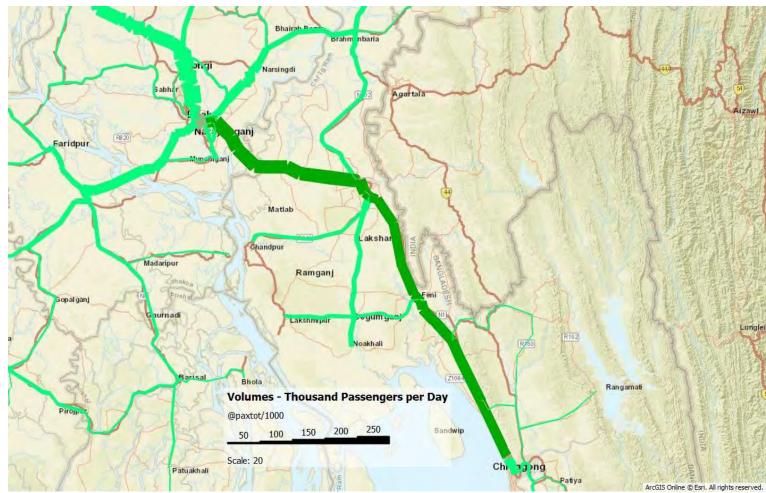
Figure 5.18: Daily Passenger Flows on Highways, Dhaka–Chittagong Corridor, 2031, without HSR

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
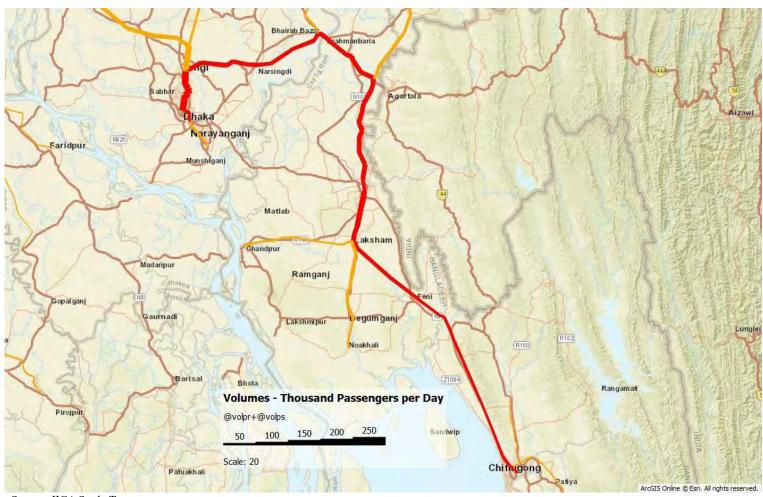
Figure 5.19: Daily Passenger Flows on Railways, Dhaka–Chittagong Corridor, 2031, without HSR

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
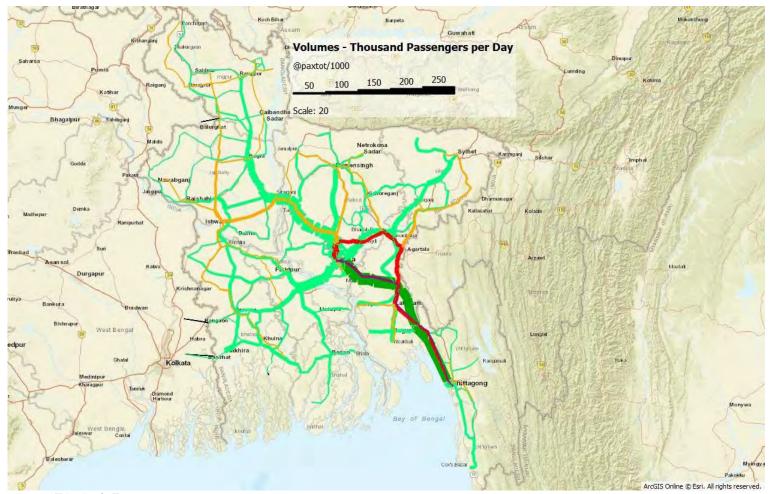
Figure 5.20: Daily Passenger Flows, Whole Country, All Modes, 2031, with HSR

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
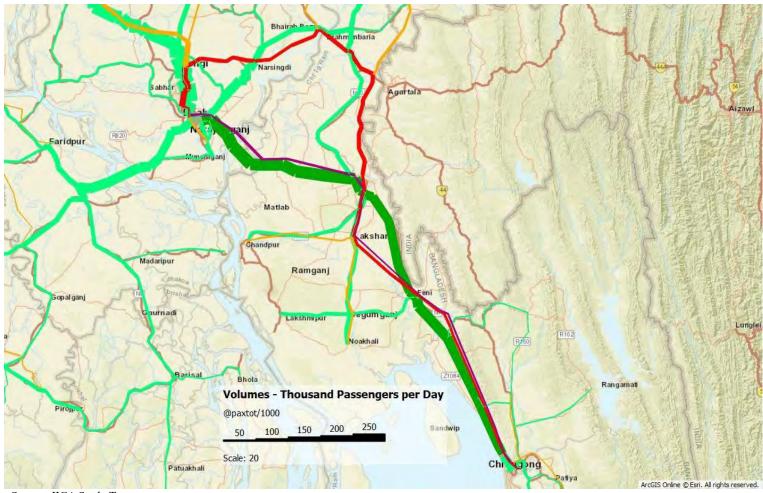
Figure 5.21: Daily Passenger Flows, Dhaka–Chittagong Corridor, All Modes, 2031, with HSR

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
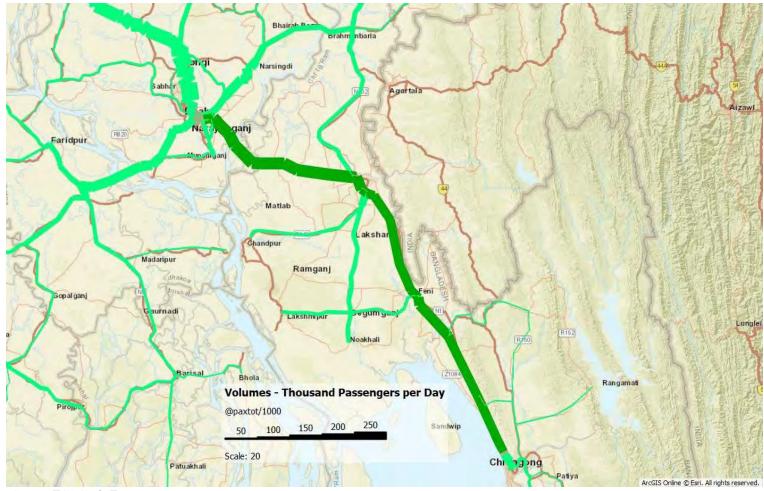
Figure 5.22: Daily Passenger Flows on Highways, Dhaka–Chittagong Corridor, 2031, with HSR

Source: JICA Study Team

Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
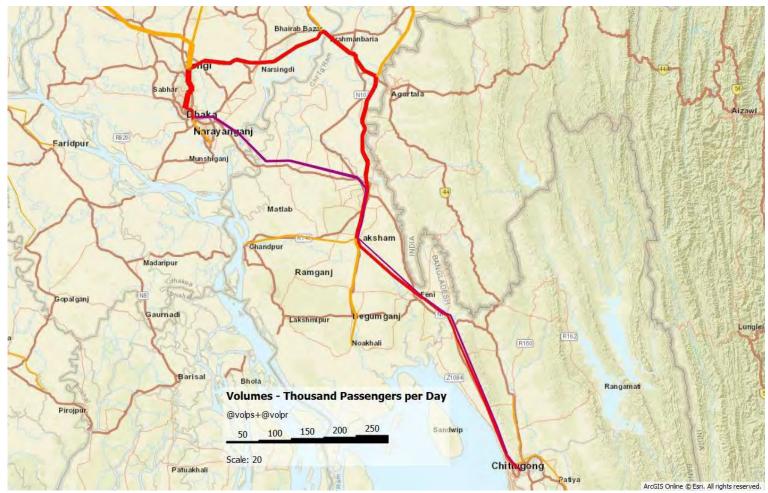
Figure 5.23: Daily Passenger Flows on Railways, Dhaka–Chittagong Corridor, 2031, with HSR

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
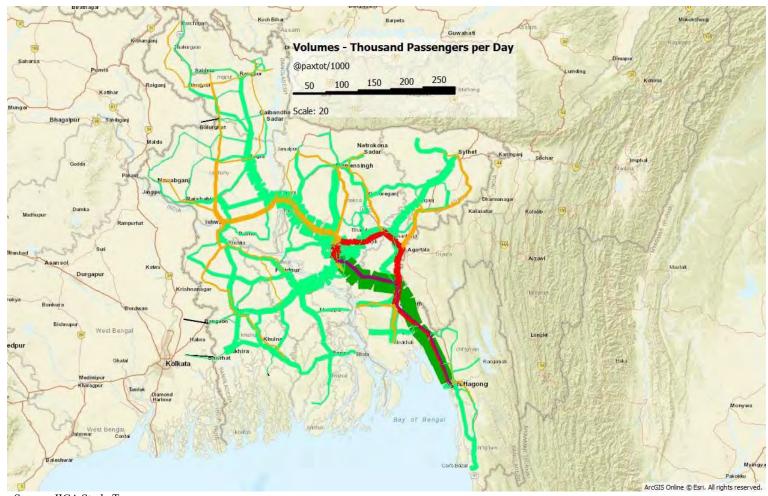
Figure 5.24: Daily Passenger Flows, Whole Country, All Modes, 2041, with HSR

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
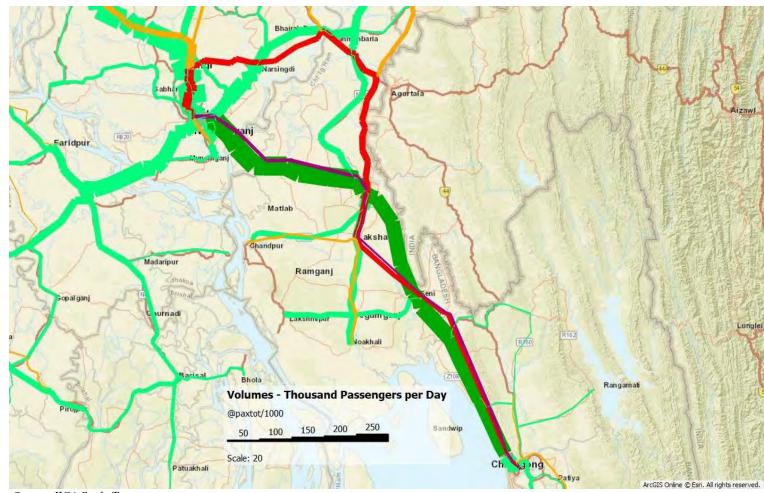
Figure 5.25: Daily Passenger Flows, Dhaka–Chittagong Corridor, All Modes, 2041, with HSR

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
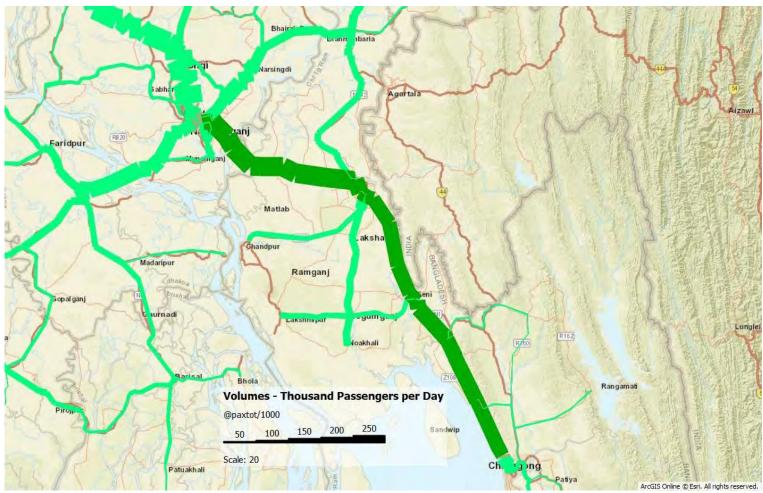
Figure 5.26: Daily Passenger Flows on Highways, Dhaka–Chittagong Corridor, 2041, with HSR

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
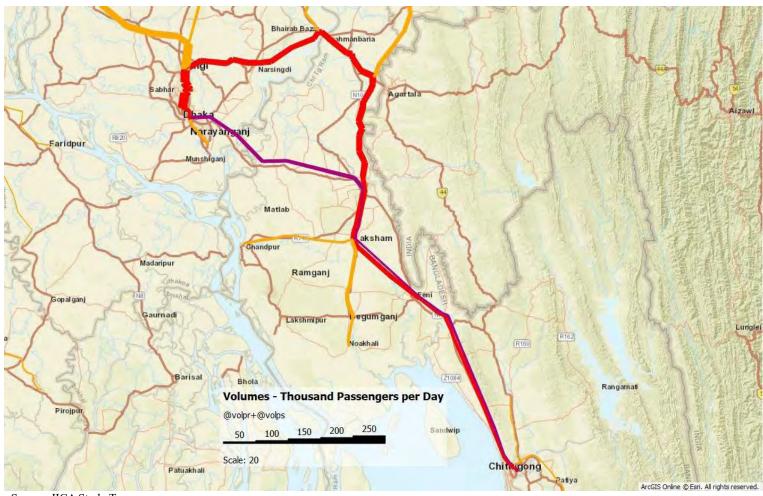
Figure 5.27: Daily Passenger Flows on Railways, Dhaka–Chittagong Corridor, 2041, with HSR

5.6   Cargo Flows by Transport Mode

Passenger flow forecasts described in Section 5.4.1 were assigned to the networks described in Section 5.3 as follows:

Firstly for 2031, as follows:
- Cargo flows for the entire country and for all modes are shown in Figure 5.28.
- Figure 5.29 focusses in on the Dhaka-Chittagong corridor.
- Tonnages on highways are plotted in Figure 5.30.
- Figure 5.31 shows rail cargo flows.
- Inland water cargo tonnages are shown in Figure 5.32.

Note that as High-Speed Rail is a passenger-only mode, it does not affect freight mode share.

And secondly, for 2041, as follows:
- Cargo flows for the entire country and for all modes are shown in Figure 5.33.
- Figure 5.34 focusses in on the Dhaka-Chittagong corridor.
- Tonnages on highways are plotted in Figure 5.35.
- Figure 5.36 shows rail cargo flows.
- Inland water cargo tonnages are shown in Figure 5.37.

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
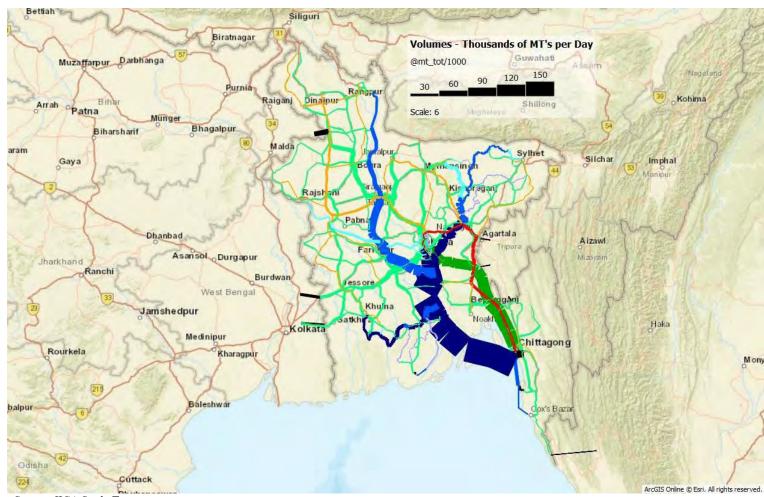
Figure 5.28: Daily Freight Flows, Whole Country, All Modes, 2031

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without transport service capacity constraint
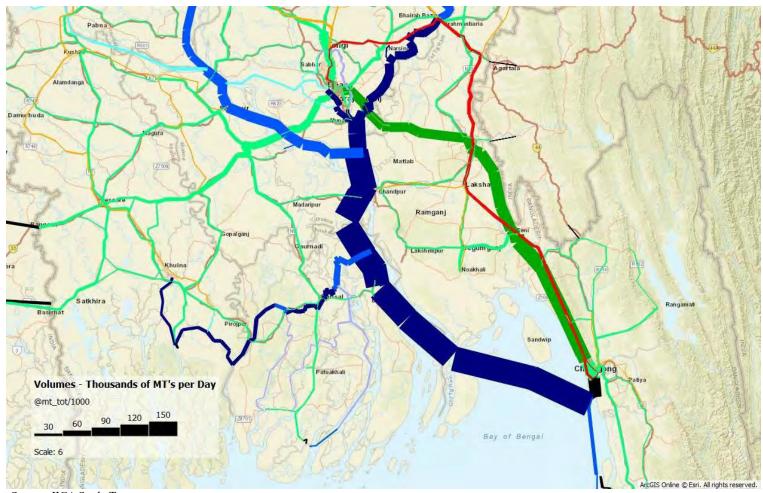
Figure 5.29: Daily Freight Flows, Dhaka-Chittagong Corridor, All Modes, 2031

Volumes - Thousands of MT's per Day

@mt_tot/1000

30　60　90　120　150

Scale: 6

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints

Figure 5.30: Daily Freight Flows on Highways, Dhaka-Chittagong Corridor, 2031

Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
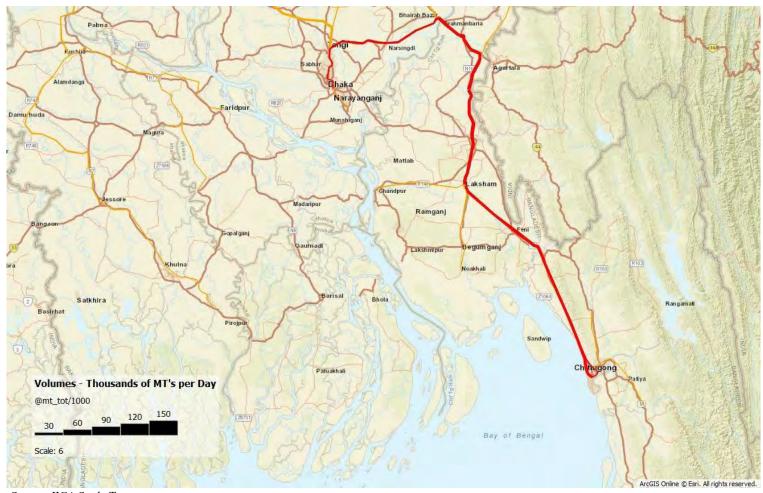
Figure 5.31: Daily Freight Flows on Rail, Dhaka-Chittagong Corridor, 2031

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints

Figure 5.32: Daily Freight Flows on Inland Waterways, Dhaka-Chittagong Corridor, 2031

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
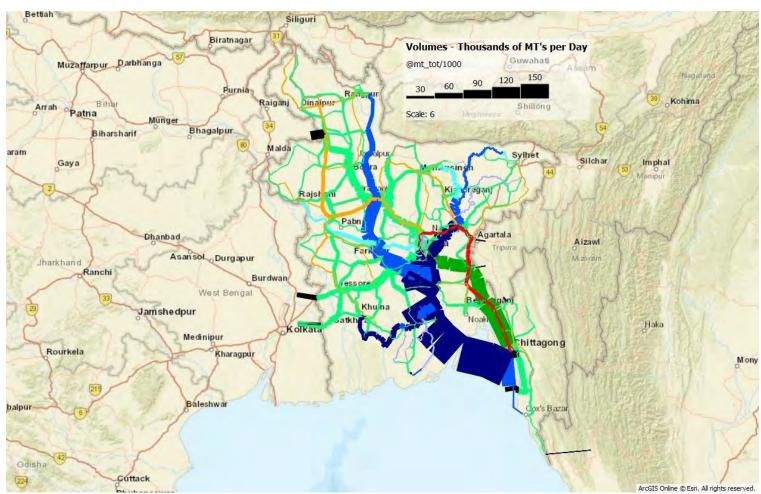
Figure 5.33: Daily Freight Flows, Whole Country, All Modes, 2041

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
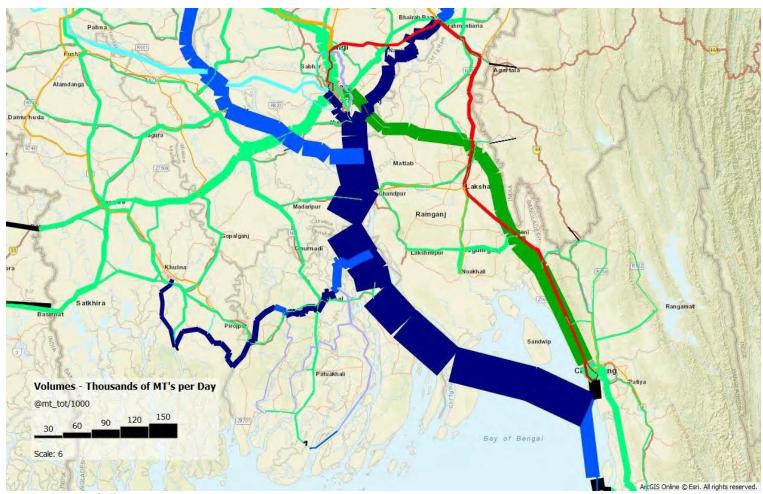
Figure 5.34: Daily Freight Flows, Dhaka-Chittagong Corridor, All Modes, 2041

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints

Figure 5.35: Daily Freight Flows on Highways, Dhaka-Chittagong Corridor, 2041

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
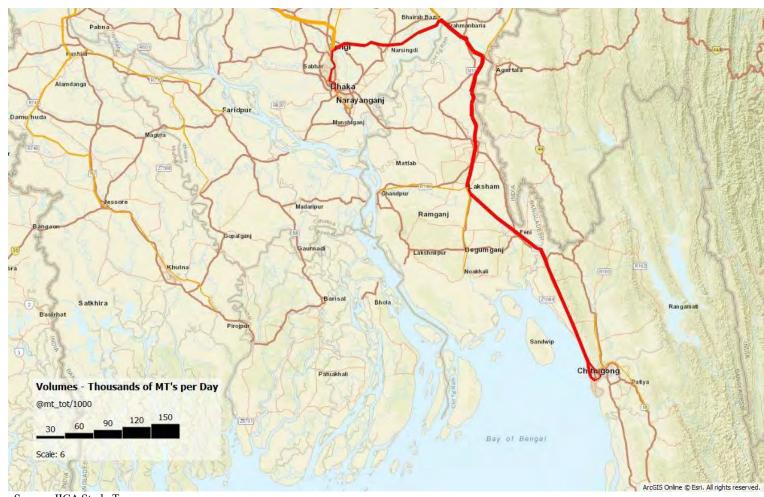
Figure 5.36: Daily Freight Flows on Rail, Dhaka-Chittagong Corridor, 2041

Source: JICA Study Team
Note that the JICA Study Team estimated the traffic flow by maximizing the users' satisfaction without any transport service capacity constraints
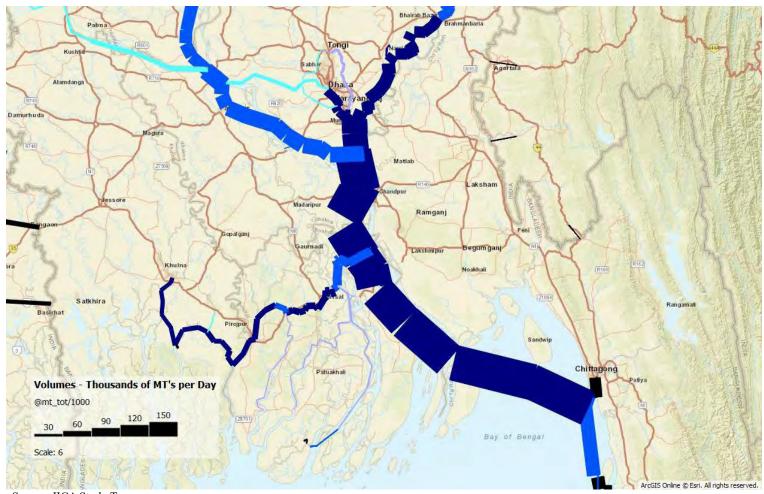
Figure 5.37: Daily Freight Flows on Inland Waterways, Dhaka-Chittagong Corridor, 2041

6. Transport Development Plan

6.1 Overview

This chapter sets out a major output of the Survey: the formulation of a phased multimodal transport development plan for unleashing the development potential along the Dhaka–Chittagong corridor. The transport development plan is prepared following (i) the identification of transport infrastructure projects (roads, rail, and inland water) needed for the corridor development, and (ii) the evaluation of the planned and proposed projects using multi-criteria analysis. This plan includes short-term, medium-term, and long-term development initiatives and projects.[31] In summary, the key steps involved in preparing the transport development plan are as follows:

    (i)   **Identification of projects**: Transport infrastructure projects (roads, rail, and inland water) needed for the Dhaka–Chittagong corridor were identified based on the ongoing and planned project plans, future transport network, and demand forecast results.

    (ii)   **Evaluation of projects**: The projects identified above (except those under implementation) were evaluated and prioritized using the following evaluation indicators: (i) urgency, (ii) (potential) effect, (iii) implementability, and (iv) environmental and social considerations.

    (iii)   **Preparation of phased development plan**: The short-term, medium-term, and long-term phased multimodal transport development plan was formulated based on the above evaluation of planned and proposed projects.

6.2 Roads

6.2.1 Identification of Projects

Outlined in Table 6.1 is a summary of road infrastructure projects, identified through stakeholder consultation and a review of existing studies. These projects include expressways, roads, bridges, tunnels, and other.

While the bridges and tunnel projects are under implementation with external assistance; the expressways, roads, and other projects have either been planned (but not secured funding) or been proposed by the Study Team. In the subsequent Section 6.5, the projects under implementation are excluded, and those in the proposed or planning stage are evaluated and prioritized.

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[31] The target year is 2021 for short term, 2031 for medium term, and 2041 for long term.

Table 6.1: Identified Road Infrastructure Projects

Type	Project Title	Outline of Project	Project Cost ($ million)	Implementing Agency	Status / Remark
Expressway	Dhaka–Chittagong Expressway	This project constructs an access controlled expressway between Dhaka and Chittagong (218 km) by utilizing a PPP scheme.	2,380	RHD	F/S and D/D completed. Transaction advisory service is ongoing as of August 2017.
Expressway	Dhaka–Chittagong Multimodal Transport Corridor (Elevated Expressway)	This project constructs a multimodal transport corridor with elevated expressway including high-speed train between Dhaka and Chittagong (230 km) on government-to-government basis.	11,960	BBA	EOI for consulting service completed.
Expressway	Chittagong–Cox's Bazar Expressway	This project extends the above Dhaka–Chittagong Expressway to Cox's Bazar.	2,680	RHD	Proposed.
Expressway	East West Elevated Expressway	This project constructs the East West Expressway (39 km) in Dhaka, connecting N5 with N8, and further with N1.	2,034	BBA	F/S completed, but no funding has been secured.
Roads	Chittagong–Cox's Bazar N1 Widening	This project widens N1 between Chittagong and Cox's Bazar to four lanes.	1,220	RHD	F/S and D/D completed, but no funding has been secured.
Roads	Development of Access Roads to the Dhaka–Chittagong Expressway	This project develops access roads to interchanges of the Dhaka–Chittagong Expressway in Madanpur, Daudkandi, North Comilla, South Comilla, Feni, Bariyarhat, and Salimpur.	508	RHD	Proposed.
Roads	Development of Regional Highways and Zila Roads	This project develops part of Regional Highways and Zila Roads between Dhaka and Chittagong.	19,200	RHD	Proposed.
Bridges	Kanchpur, Meghna, and Gumti 2nd Bridges Construction and Existing Bridge Rehabilitation Project	This project repairs Kanchpur (0.4 km), Meghna (0.9 km), and Gumti (1.4km) Bridges; and constructs 2nd Kanchpur, Meghna, and Gumti Bridges, and their approach roads.	1,061	RHD	Under implementation with JICA assistance.
Tunnel	Construction of Multi-Lane Tunnel under the Karnaphuli River	This project constructs a multi-lane tunnel (2 km) crossing under the Karnaphuli River to connect the divided two parts of Chittagong district.	720	BBA	Under implementation with Chinese Exim Bank assistance.
Other	Construction of Resting Places along N1	This project develops several resting facilities along N1, including approach roads, parking lots, toilets, fuel station, restaurants, etc.	80	RHD	Proposed.

Abbreviations: BBA = Bangladesh Bridge Authority, D/D = Detailed Design, F/S = Feasibility Study, JICA = Japan, International Cooperation Agency, RHD = Roads and Highways Department
Source: JICA Study Team

6.2.2   Supply-Demand Balance

The Study Team estimated the future supply of transport services under the situation where the bridges and roads will be constructed following the projects identified in Table 6.1. The Study Team then analyzed whether the planned infrastructures are appropriate for the future traffic demand. The future traffic demand was estimated by considering the transport mode choice with the model described in Chapter 5. If the service does not meet the demand, further plans and policies would be proposed to satisfy the demand, and conversely, if the plan is excessive against the demand, the existing plans and projects need to be reconsidered.

(1)   Bridges

The capacity of transport service on the Kanchpur, Meghna, and Gumti Bridges is determined by the total number of lanes. The number of lanes on the bridges are expected to increase by the ongoing second bridge (four lanes for each) construction project and by the planned toll road (four lanes) construction between Dhaka and Chittagong. The Study Team assumed that either RHD's Dhaka–Chittagong Expressway Project or BBA's Dhaka–Chittagong Elevated Expressway would be constructed.

The planned supply of transport service and forecasted transport demand are compared in Figure 6.1 (for Kanchpur), Figure 6.2 (for Meghna), and Figure 6.3 (for Gumti), indicating that it is quite important to proceed with the construction of these second bridges as planned, since their traffic demand has already exceeded its capacities, resulting into traffic congestion. In addition, third bridges need to be constructed for the toll road between Dhaka and Chittagong. If the third bridges are not constructed, the overall capacity will not be able to meet the traffic demand in the medium term, meaning that the bridge sections will be bottlenecks of the traffic between Dhaka and Chittagong. Furthermore, the demand on the Megna and Gumti Bridges probably exceeds its capacity in the long term even if the third bridges on the toll road will be constructed as four-lane bridges. From the long-term point of view, the third bridges need to be designed to have an extra width for the six-lane expansions. Otherwise, the construction plan for the fourth bridges needs to be examined in the medium term (around 2030).

Source: JICA Study Team
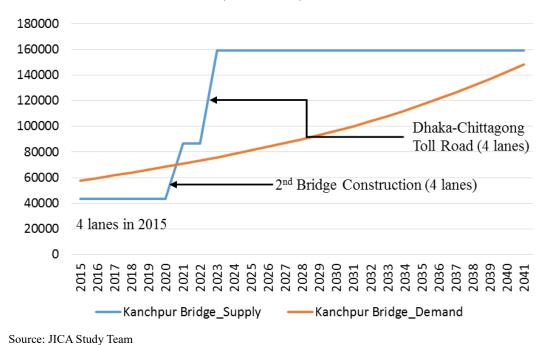
Figure 6.1: Planned Supply of Transport Service and Forecasted Transport Demand Comparison at Kanchpur Bridge (PCU/day)

Source: JICA Study Team
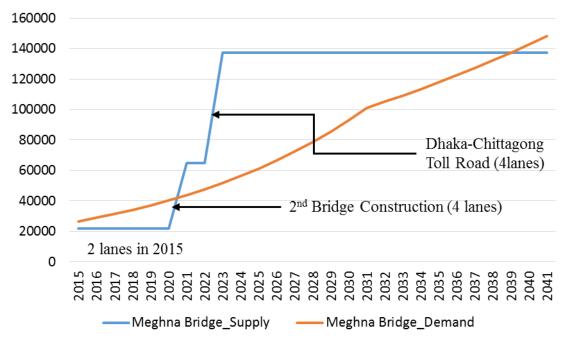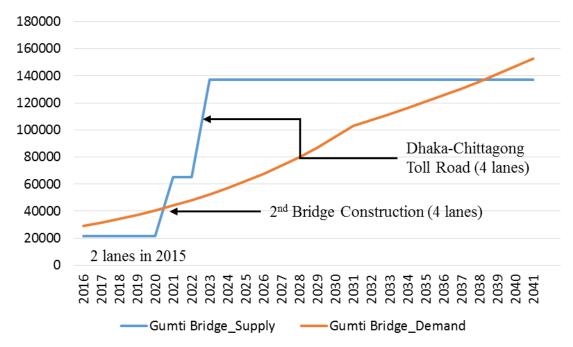
Figure 6.2: Planned Supply of Transport Service and Forecasted Transport Demand Comparison at Meghna Bridge (PCU/day)

Source: JICA Study Team

Figure 6.3: Planned Supply of Transport Service and Forecasted Transport Demand Comparison at Gumti Bridge (PCU/day)

(2) Dhaka–Chittagong Roads

The capacity of road transport service between Dhaka and Chittagong is also determined mainly by the total number of lanes. The number of lanes on the road transports are expected to increase by the planned construction of toll roads between Dhaka and Chittagong (four lanes) and its expansion in 2037 (two lanes). Again, it should be noted that the Study Team assumed either of the two proposed expressway projects (i.e., RHD or BBA initiatives) would be implemented.

The planned supply of transport service and forecasted transport demand are compared in Figure 6.4 (for Signboard on N1), Figure 6.5 (for Kanchpur–Sonargaon), Figure 6.6 (for Daudkandi–Comilla), Figure 6.7 (for Comilla–Feni), Figure 6.8 (for Feni–Sitakunda), and Figure 6.9 (for Sitakunda–Chittagong), indicating that the four-lane toll road would be sufficient in the medium term. The results also support the toll road expansion plan to six lanes in the long term. Accommodating the growing traffic demand, especially for the Kanchpur–Sonargaon and Sitakunda–Chittagong sections, requires implementation of the Dhaka–Chittagong toll road construction plan.

Source: JICA Study Team
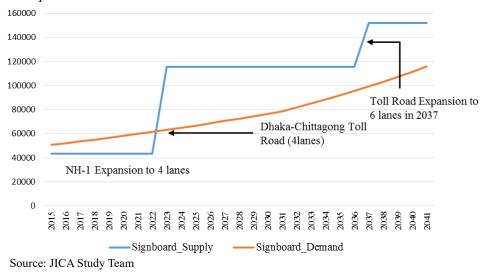
Figure 6.4: Planned Supply of Transport Service and Forecasted Transport Demand Comparison at Signboad (PCU/day)

Source: JICA Study Team
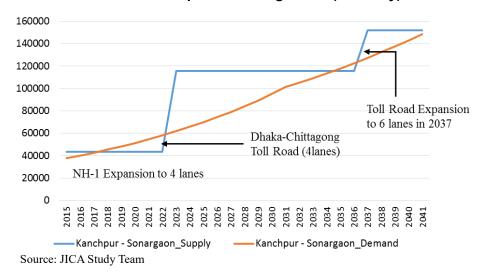
Figure 6.5: Planned Supply of Transport Service and Forecasted Transport Demand Comparison on the Kanchpur–Sonargaon Section (PCU/day)

Source: JICA Study Team
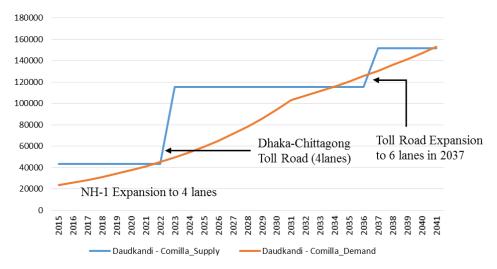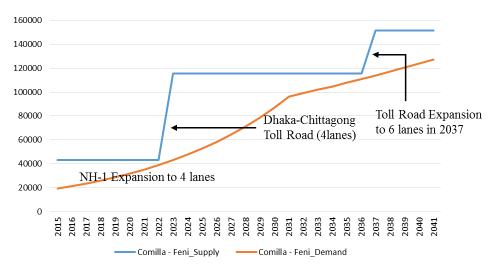
Figure 6.6: Planned Supply of Transport Service and Forecasted Transport Demand Comparison on the Daudkandi–Comilla Section (PCU/day)

Source: JICA Study Team

Figure 6.7: Planned Supply of Transport Service and Forecasted Transport Demand Comparison on the Comilla–Feni Section (PCU/day)

Source: JICA Study Team
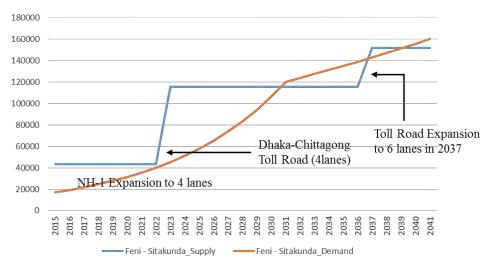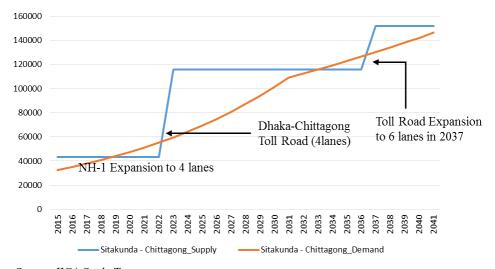
Figure 6.8: Planned Supply of Transport Service and Forecasted Transport Demand Comparison on the Feni–Sitakunda Section (PCU/day)

Source: JICA Study Team

Figure 6.9: Planned Supply of Transport Service and Forecasted Transport Demand Comparison on the Sitakunda–Chittagong Section (PCU/day)

6.2.3   Major Implementation Issues

Major implementation issues related to the road infrastructure projects include the following:

- One potential issue related to the road infrastructure projects is that the ongoing or planned projects may not be implemented as scheduled, due mainly to lack of integrated planning and insufficient coordination among relevant agencies as pointed out in Subsection 2.5.1. For example, the Dhaka–Chittagong Expressway is planned to be implemented in 2018-2022 and to be open in 2023; however, potential delays may not only cause cost overrun for the project itself, but also affect the other planned and proposed projects especially in terms of capturing traffic demand.

- Due partly to the deferred maintenance backlog, the budget for repairing and/or reconstructing newly developed roads will be limited unless large amount of private investment is made. Although the utilization of PPP scheme has been planned for some projects, their implementation is still uncertain.

- Another issue for road development is that once a certain stretch of road is improved to alleviate congestion, it attracts more traffic, resulting in exacerbating congestion again in a short time. Without better coordination between different modes of transport, this issue would be unavoidable.

- An integrated transport planning organization or at least an inter-ministerial coordination committee should effectively work to address the above issues, especially when preparing transport planning for metropolitan areas or major corridors.

- Although the road projects will have been implemented based on the physical and financial plans, there would be various issues to be solved for achieving efficient use of road infrastructures for freight and passenger transport. These are traffic congestion, road safety, law enforcement especially overloading as mentioned in Chapter 2 and systematic road network management and maintenance. Measures to solve the issues above would be;
  - ➢ Comprehensive traffic control and management system utilizing advanced ITS technologies. This includes; the information collection by vehicle detectors; information processing in the central control center; and information dissemination through variable message sign boards.
  - ➢ Toll collection system utilizing ITS technologies. This includes the introduction of toll collection systems with road design including IC design changes; promoting on-board equipment for ITS (ETC) use at the toll location; and introducing ETC system for all road users with onboard equipment in the future.
  - ➢ Comprehensive traffic safety survey and plan that includes; enforcement of traffic rules; safety audit for identifying possible black spots along the roadways; accident data recording; driver and pedestrian education; and axle load control.
  - ➢ Comprehensive road operation and maintenance system that includes; institutional setup for operation and maintenance; operation and maintenance system review with advanced equipment and machines; traffic control at work site; and strategic maintenance system for future maintenance demand and effective use of limited budget.

6.3   Rail

6.3.1   Identification of Projects

Table 6.2 summarizes rail infrastructure projects, identified through stakeholder consultation and a review of existing studies. These projects include (i) enhancement of the existing railway between Dhaka and Chittagong, (ii) construction of new railway lines between Chittagong (Dohazari) and Cox's Bazar (including Matarbari seaport connection), (iii) development of an inland container depot (ICD) near Dhirasram Railway Station, and (iv) construction of a high-speed railway.

Table 6.2: Identified Rail Infrastructure Projects

Type	Project Title	Outline of Project	Project Cost ($ million)	Implementing Agency	Status / Remark
Existing Railway	Enhancement of the Existing Railway along the Dhaka–Chittagong Corridor	This project upgrades the existing railway along the Dhaka–Chittagong Corridor by installing fully dual gauged and double truck, electrifying the network, and strengthening maintenance practice.	1,000 – 1,125	Bangladesh Railway	Some sections are under implementation with the assistance of ADB, JICA, EDCF, etc., whilst financers of the remaining sections are undetermined.
New Railway	SASEC Chittagong–Cox's Bazar Railway Project	This project improves transport systems in the Chittagong–Cox's Bazar corridor, through the construction of a new 102 km railway line between Dohazari and Cox's Bazar including nine stations, and the strengthening of BR capacity in project implementation.	300 (Phase 1, Tranche 1)	Bangladesh Railway	Under implementation with ADB assistance.
New Railway	Construction of Connecting Line to Matarbari Seaport	This project constructs a new railway line that connects the deep seaport in Matarbari to the Dohazari–Cox's Bazar line.	90	Bangladesh Railway	Proposed.
Inland Container Depot	Construction of a New Inland Container Depot (ICD) near Dhirasram Railway Station	This project constructs a new ICD near Dhirasram Railway Station at Gazipur district to increase container handling capacity in Dhaka.	150	Bangladesh Railway	PPP is considered, but the scheme is yet to be finalized.
High-Speed Railway	Construction of Dhaka–Chittagong via Comilla/Laksam High-Speed Railway	This project develops a high-speed (or semi high-speed) railway on the Dhaka–Comilla–Laksam–Chittagong route to shorten the existing detour route.	3,500 – 10,000	Bangladesh Railway	EOI for the FS and D/D for this project has been issued in July 2017. PPP is considered, but the scheme is yet to be finalized.
High-Speed Railway	Construction of Chittagong–Cox's Bazar High-Speed Railway	This project extends the high-speed (or semi high-speed) railway on the Dhaka–Chittagong route to Cox's Bazar.	3,000	Bangladesh Railway	Proposed.

Abbreviations: ADB = Asian Development Bank, D/D = Detailed Design, EDCF = Economic Development Cooperation Fund, F/S = Feasibility Study, ICD = Inland Container Depot, JICA = Japan International Cooperation Agency, PPP = Public Private Partnership, SASEC = South Asia Sub-Regional Economic Cooperation
Source: JICA Study Team

6.3.2   High-Speed Railway

The Dhaka–Chittagong corridor is the most important trunk line connecting Bangladesh's capital to the country's second largest city. Along with economic growth, it is expected that the passenger demand between the two cities will increase. In response to this, Bangladesh Railway is considering introducing a high-speed railway in this corridor as mentioned in Subsection 2.3.2.

This subsection examines and compares four potential options of the (semi) high-speed railway for the Dhaka–Chittagong corridor. These options include (i) high-speed + viaduct (i.e., Option 1. See Table 6.3), (ii) high-speed + embankment (i.e., Option 2. See Table 6.4), (iii) semi high-speed + whole construction (i.e., Option 3. See Table 6.5), and (iv) semi high-speed + partial construction (i.e., Option 4. See Table 6.6).

Table 6.3: High-Speed + Viaduct (Option 1)

Item	Value
Construction Section	Dhaka–Comilla–Chittagong (Approx. 260 km)
Maximum Speed	300 km/h
Schedule Speed	220 km/h
Civil Structure Type	Viaduct
Track Type	Concrete Slab
Level Crossing	None
Required Time	1 hour 10 minutes (Dhaka–Chittagong)
Passenger Volume	6,000 per hour (6 times per hour, 10-car formation)
Implementation Cost	10,000 ($ million) (Including land acquisition cost)
Notes	• Shinkansen (Japanese Bullet Train) Type. • The entire line is dedicated for the new high-speed railway. • The track is very stable by using concreate slab and viaduct. Therefore, maintenance cost will be low for a long time. • There are no level-crossings, in order to maintain safety in super high-speed running.

Source: JICA Study Team

Table 6.4: High-Speed + Embankment (Option 2)

Item	Value
Construction Section	Dhaka–Comilla–Chittagong (Approx. 260 km)
Maximum Speed	300 km/h
Schedule Speed	220 km/h
Civil Structure Type	Embankment (Bridges are required to cross rivers, etc.)
Track Type	Ballast
Level Crossing	None
Required Time	1 hour 10 minutes (Dhaka–Chittagong)
Passenger Volume	6,000 per hour (6 times per hour, 8-car formation)
Implementation Cost	8,500 ($ million) (Including land acquisition cost)
Notes	• Shinkansen (Japanese Bullet Train) Type. • The entire line is dedicated for the new high-speed railway. • The track is not very stable, because of its track structure with ballast and embankment. Therefore, maintenance cost will be high for a long time. • There are no level-crossings, in order to maintain safety in super high-speed running.

Source: JICA Study Team

Table 6.5: Semi High-Speed + Whole Construction (Option 3)

Item	Value
Construction Section	Dhaka–Comilla–Chittagong (Approx. 260 km)
Maximum Speed	160 km/h
Schedule Speed	120 km/h
Civil Structure Type	Embankment (Bridges are required to cross rivers, etc.)
Track Type	Ballast
Level Crossing	Exist
Required Time	2 hours 10 minutes (Dhaka–Chittagong)
Passenger Volume	4,000 per hour (4 times per hour, 10-car formation)
Implementation Cost	6,000 ($ million) (Including land acquisition cost)
Notes	• High-Speed Train Type. • The entire line is dedicated for the new semi high-speed railway. • The track is not very stable, because of its track structure with ballast and embankment. Therefore, maintenance cost will be high for a long time.

Source: JICA Study Team

Table 6.6: Semi High-Speed + Partial Construction (Option 4)

Item	Value
Construction Section	Dhaka–Comilla (Civil Construction: Approx. 100 km) Dhaka–Chittagong (Electrification and track renovation: Approx. 260 km)
Maximum Speed	160 km/h
Schedule Speed	100 km/h
Civil Structure Type	Embankment (Bridges are required to cross rivers, etc.)
Track Type	Ballast
Level Crossing	Exist
Required Time	2 hours 40 minutes (Dhaka–Chittagong)
Passenger Volume	2,000 per hour (2 times per hour, 10-car formation)
Implementation Cost	3,500 ($ million) (Including land acquisition cost)
Notes	• High-Speed Train Type. • While a new line is constructed on the Dhaka–Comilla section, the existing line is utilized on the Comilla–Chittagong section. • The track is not very stable, because of its track structure with ballast and embankment. Therefore, maintenance cost will be high for a long time. • Passenger volume is the smallest among the four options, as the Comilla–Chittagong track is shared with the existing trains (both passenger and freight).

Source: JICA Study Team

As described above, four options were considered for the High-Speed (Semi High-Speed) railway. It is not possible to determine the best option within this small study because each option has pros and cons. Therefore, it is necessary to carefully examine every aspect in the later stage.

6.3.3 Supply-Demand Balance

As is the case described in Subsection 6.2.2, the Study Team estimated the future supply of transport services under the situation where the railway will be constructed following the project identified in Table 6.2 above.
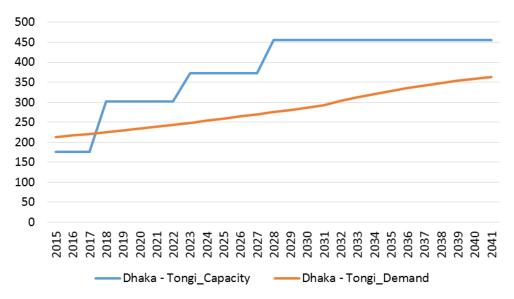
(1) Railway

The capacity of rail transport service is determined by multiplying the number of rail tracks, frequency of the train services per track, and number of passengers or the wagon load of cargo

per train. The capacity of each section of rail was estimated as described in Subsection 5.3.3. The number of daily train services was planned to be expanded as shown in Table 5.10.
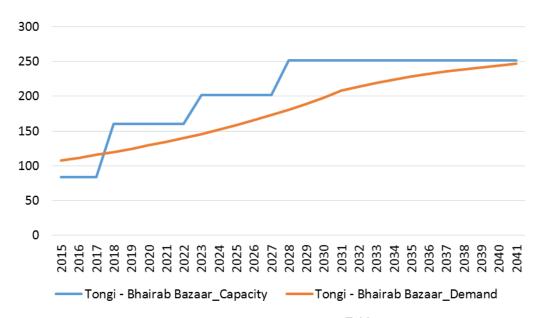
The planned supply of transport service and forecasted transport demand are compared in Figure 6.10 (for Dhaka–Tongi), Figure 6.11 (for Tongi–Bhairab Bazaar), Figure 6.12 (Bhairab Bazaar–Akhaura), Figure 6-13 (for Akhaura–Comilla), Figure 6.14 (for Comilla–Feni), and Figure 6.15, (for Feni–Chittagong), indicating that Figure 6.10the quadruple tracked section of Dhaka–Tongi would have a sufficient service capacity in the long term. These also indicate that the Tongi–Bhairab Bazar and Comilla–Chittagong sections, which will be double tracked and dual gauged, would provide enough transport capacity compared with the forecasted demand of passengers and cargos. However, the service capacity on the Bhairab Bazaar–Comilla–Feni section is estimated not to meet the traffic demand.

One of the measures to solve the service shortage is to increase the capacity per train. According to the Information Book 2015 (that summarizes 2014-2015 statistics), despite a passenger train being composed of around 30 coaches, the average number of passengers in 2015 was around 500 people per train, which seems to indicate that there is much room for improvement. Note that the JICA Study Team expected the number of passengers or wagon load of cargo per train as follows. The number of passengers per train would increase from 500 in 2015 to 1,000 by 2041, while the volume of cargo per train would increase from 200 metric tons in 2015 to 500 tons by 2041.
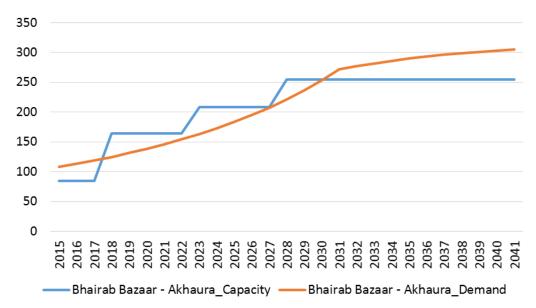
Note that the capacity expansions of train services are summarized in **Table 6.7**
Source: JICA Study Team and Railway Master Plan (2013)

Figure 6.10: Planned Supply of Train Service and Forecasted Transport Demand Comparison on the Dhaka–Tongi Section (trains/day)
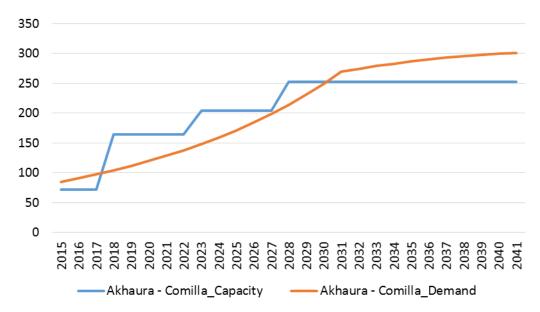
Note that the capacity expansions of train services are summarized in **Table 6.7**
Source: JICA Study Team and Railway Master Plan (2013)

Figure 6.11: Planned Supply of Train Service and Forecasted Transport Demand Comparison on the Tongi–Bhairab Bazaar Section (trains/day)
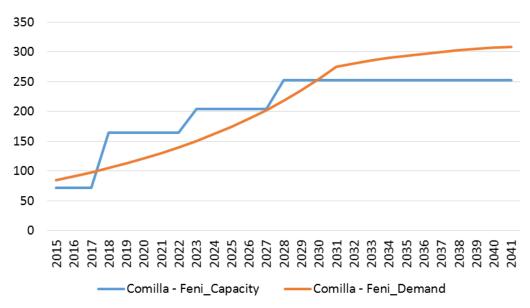
Note that the capacity expansions of train services are summarized in **Table 6.7**
Source: JICA Study Team and Railway Master Plan (2013)

Figure 6.12: Planned Supply of Train Service and Forecasted Transport Demand Comparison on the Bhairab Bazaar–Akhaura Section (trains/day)
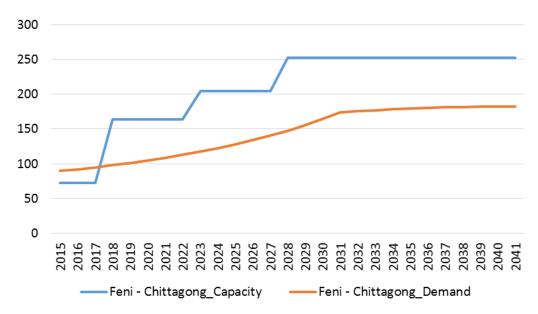
Note that the capacity expansions of train services are summarized in **Table 6.7**
Source: JICA Study Team and Railway Master Plan (2013)

Figure 6.13: Planned Supply of Train Service and Forecasted Transport Demand Comparison on the Akhaura–Comilla Section (trains/day)

Note that the capacity expansions of train services are summarized in **Table 6.7**
Source: JICA Study Team and Railway Master Plan (2013)

Figure 6.14: Planned Supply of Train Service and Forecasted Transport Demand Comparison on the Comilla–Feni Section (trains/day)

Note that the capacity expansions of train services are summarized in **Table 6.7**
Source: JICA Study Team and Railway Master Plan (2013)

Figure 6.15: Planned Supply of Train Service and Forecasted Transport Demand Comparison on the Feni–Chittagong Section (trains/day)

Table 6.7: Planned Capacity Expansions of Rail Service for Each Sections (Train Services per Day)

Section	Year	Passenger			Freight Train	Container Train
		Inter City	Mail/Express	Local		
Dhaka - Tongi	2006	38	28	2	18	4
	2009	44	29	2	21	4
	2013	55	32	2	25	6
	2018	74	38	2	31	6
	2023	97	43	3	37	6
	2028	127	49	3	43	6
Tongi - Bhairab Bazaar	2006	16	12	0	14	4
	2009	19	12	0	16	4
	2013	23	14	0	19	6
	2018	31	16	0	24	9
	2023	41	18	0	29	13
Bhairab Bazaar - Akhaura	2006	16	14	2	12	4
	2009	19	15	2	14	4
	2013	23	16	2	17	6
	2018	31	19	2	21	9
	2023	41	22	3	25	13
	2028	53	24	3	29	18
Akhaura - Chittagong	2006	14	10	4	16	4
	2009	16	10	4	19	4
	2013	20	12	4	22	6
	2018	27	13	5	28	9
	2023	36	15	5	33	13
	2028	47	17	6	38	18

Source: Railway Master Plan 2013

(2) High-Speed Railway

The demand of high-speed railway (HSR) was forecast under the situation where the HSR is expected to be opened in 2030, operated at 120 km/hour, and utilized at the fare of 3,000 Taka (present value). The Study Team conducted the forecast of the HSR demand with the expected level of the HSR service corresponding to option 3 in 6.3.2. This analysis was conducted to forecast the HSR demand when the HSR service is provided with the semi high-speed operation and the newly constructed track. Note that it does not propose option 3 as a reasonable standard for HSR.

The methodology of demand forecast of HSR was described in Chapter 5 in detail. First, the total of future traffic demand between Dhaka and Chittagong was estimated based on both the current traffic demand and the assumed economic growth. Then, the future transport mode choice was estimated. The mode choice model based on the results of the users' preference survey distributed the total volume into the different modes, and determined how much of the passengers of passenger car, bus, present rail, and aviation, choose the high-speed railway. Details are described in Section 4.5.

The demand by section is shown in Figure 6.16 (for Dhaka–Comilla), Figure 6.17 (for Comilla–Feni), and Figure 6.18 (for Feni–Chittagong). The demand between Dhaka and Comilla was estimated at 60,000 passengers per day, which is equivalent to the service capacity by the operation with two times per hour and 10-car formation. However, the demand between Comilla and Feni would account for only 50% of capacity, and that between Feni and Chittagong for 75%. These results indicate that it would be better to operate the additional train service only between Dhaka and Comilla.

This analysis was conducted based on the result of the interview survey to the passengers using a variety of modes of transport. A higher proportion of the users of passenger cars and airlines was estimated to shift their mode of transport to HSR under the given conditions. The result of interviews showed that the mode choice behavior was sensitive to the time and cost of their movements. If the fare of HSR is raised from 3,000 Taka to 3,500 Taka, the estimated HSR passengers will be reduced to 76% in 2031 (Figure 6.19).

If a low-cost carrier (LCC) service is introduced in about 15% of the total airline service between Dhaka and Chittagong, the HSR passengers will be reduced by 2%. The impact of LCC service introduction on the number of HSR is limited, because the number of airline passengers is relatively small in 2031 compared to that of the expected HSR passengers.

Source: JICA Study Team
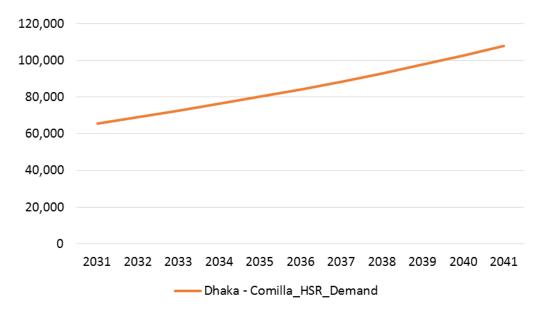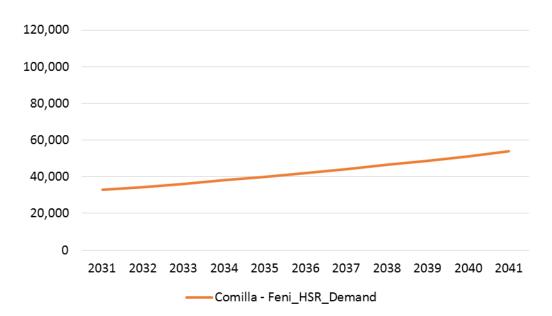
Figure 6.16: Forecasted Demand on HSR on the Dhaka–Comilla Section (passengers/day)

Source: JICA Study Team

Figure 6.17: Forecasted Demand on HSR on the Comilla–Feni Section (passengers/day)

Source: JICA Study Team
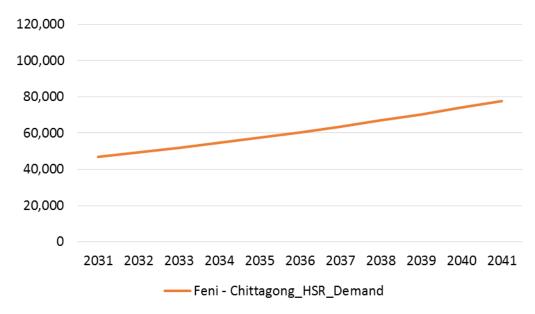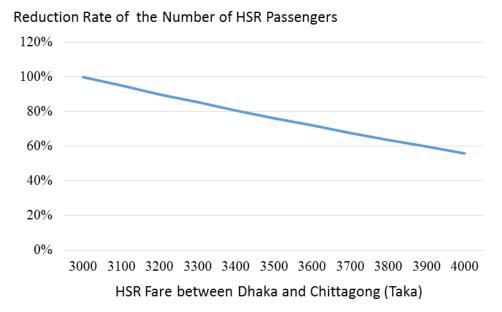
Figure 6.18: Forecasted Demand on HSR on the Feni–Chittagong Section (passengers/day)

Source: JICA Study Team

Figure 6.19: Impacts of Raising Fare on the Demand on HSR on the Dhaka–Chittagong Section

6.3.4　Major Implementation Issues

Major implementation issues related to the rail infrastructure projects include land acquisition and personnel skills, with details summarized as follows:

- Railway construction projects require continuous land from starting point to ending point. Even if one part of the whole line could not be acquired, the railway system could not operate. Therefore, land acquisition takes time, which is an important factor during the construction period. In order to address this issue, prompt land acquisition is essential. As detailed acquisition site information can be a cause of corruption, thorough information control is needed.

- High-speed railway projects require many skilled personnel throughout the planning and operational phase. As these projects are special, unlike ordinary and traditional railways, adoption of technical and operational standards for high-speed railway is essential. Because of this, it is important to hire consultants with sufficient experience of high-speed railway in the planning and design phase, while also obtaining instructions from a railway operator with experience of high-speed railway.

6.4　Inland Water Transport

6.4.1　Identification of Projects

Table 6.8 summarizes inland water infrastructure projects, identified through stakeholder consultation and a review of existing studies. These projects include (i) development of infrastructure including waterway, quay wall, terminal, and associated facilities, (ii) procurement of vessels including passenger transfer crafts, and (iii) others including installation of a vessel tracking system. Note that these focus on infrastructure, and recommendations on policy and institution are described in Subsection 6.4.4.

Table 6.8: Identified Inland Water Infrastructure Projects

Type	Project Title	Outline of Project	Project Cost ($ million)	Implementing Agency	Status / Remark
Infrastructure	Construction of Terminal facilities at Sashan Ghat Area under Dhaka River Port	Construct quay wall and associated facilities for passenger and cargo	17.5	BIWTA	Under implementation
Infrastructure	Bangladesh Regional Inland Water Transport Project-I: Chittagong-Dhaka-Ashuganj Corridor	Develop safe navigation route, develop 20 terminals, develop institutional capacity	400	BIWTA	Under implementation
Vessel	Construction of Passenger Vessels for Chittagong-Sandwip-Hatiya-Barisal Coastal Route	Replaces existing age-old and rickety vessels	6.5	BIWTC	Under implementation
Vessel	Procurement of two new passenger vessels for Dhaka-Barisal-Khulna route	Two passenger vessels for use in Dhaka-Barisal-Khulna route	9.1	BIWTC	Under implementation
Infrastructure	Construction of Walkway and Bank Protection of River Port Foreshore of Buriganga, Sitalakhya & Turag rivers	Illegal occupation is removed and port areas turned into more secured & environment-friendl y places	106.3	BIWTA	Awaiting Planning Commission approval
Infrastructure	Construction of Inland Container River Terminal (ICT) at Khanpur, Narayanganj	Construct ICT for container vessels. Terminal also caters to cargo vessels under protocol between Bangladesh and India.	17.2	BIWTA	Awaiting Govt. decision on implementation
Infrastructure	Development and Improvement of facilities at Inland Ports and Terminals	Improve BIWTA's 23 river ports and launch stations & BIWTC's berths (none covered by WB)	87.4	BIWTA BIWTC	Proposed
Vessel	Procurement of Vessels, Improvement of Port Operation and Enhancement of Passenger Safety	Procure vessels for D-C Corridor, Provide for port operation personnel and Enhance safety of passengers in coastal belt.	102.3	BIWTA BIWTC	Proposed

Abbreviations: BIWTA = Bangladesh Inland Water Transport Authority, BIWTC = Bangladesh Inland Water Transport Corporation, (1 USD = 0.0125 BDT)
Source: JICA Study Team

6.4.2   Supply-Demand Balance

(1)   Passengers

The increase in passenger movement is about 3%. This does not call for augmentation of already provided infrastructure (i.e., those which are proposed in this JICA Study). Proper management and rescheduling of vessel sailing and berthing times are measures that would suffice. However, proper and regular maintenance work would be necessary to sustain the development works; and for this purpose, adequate resources should be made available in BIWTA's annual revenue budgets.

(2)   Cargos

With regard to cargo movement, the major portion of the sea-borne traffic destined inland lies in the private sector. Moreover, such cargo is handled at private jetties that belong to industrial and commercial establishments located along the river. The dominance of this practice is expected to continue in coming years. The private entrepreneurs are expected to meet future challenges in their own interest by procuring more vessels and resorting to other necessary actions. There is not much that the government or BIWTA can contribute other than extending positive support and patronization.

It is expected that an urgent need to transport containers more and more by waterways shall appear even during the medium term. That need shall become acute in the long term. The inland container river terminal (ICT) at Khanpur may therefore be constructed with support from governmental aid, and actual construction works started in the long term.

Presently almost 90% of containers are transported by roads, the major portion of which use open trucks after getting de-stuffed at different ICDs in the Chittagong Port area. The remaining 10% are moved by railways and cleared at Kamlapur (Dhaka) ICD. Inland water transport with an ICT developed recently at Pangaon (Dhaka) has just begun to transport containers, although the numbers are negligible. Some container handling river terminals (ICT) are being developed. Along with the facilities at Pangaon (Dhaka), which is in operation in the public sector, there are a few others in the private sector. The principal ones are Rupayan Group, A.K Khan Group, Summit Alliance Port Limited (SAPL), Kumidini, and Ananda.

SAPL has partly completed construction and is now engaged in transporting containers, mainly from Chittagong to Dhaka; Rupayan and A.K.Khan plan to go into operation in 2018. Kumidini and Ananda have yet to initiate their construction. All this indicates an expected total handling capacity of around 0.8 million TEU in 2041 (Table 6.9).

Table 6.9: Expected Capacity of Private ICTs (TEU)

Name of ICT	2021	2031	2041
SAPL	60,000	120,000	120,000
Rupayan	50,000	200,000	375,000
A.K.Khan	140,000	210,000	330,000
Total	**250,000**	**530,000**	**825,000**

Source: Potential Multimodal Transport in Bangladesh and Relative Obstacles, Rahaman and Hasan, Journal, April 2015; and own guesstimate.

6.4.3   Major Implementation Issues

Major implementation issues related to the inland water infrastructure projects include design, institutional capacity, and political interference, with details summarized as follows:

- The components of each project must be designed properly and good specification of works formulated. Designing marine structures is a specialized job, and consultants who have little or no experience in the field may create undue risk.

- BIWTA, the implementing agency, has dedicated engineers and technical personnel with the ability to supervise works. However, its Civil Engineering Department, which was formed many years ago, needs to be overhauled and restructured. Additional engineers and support staff also must be inducted to cope with the gradually increasing work volume and high-profile projects. This is an issue that would generally receive the least attention, but it is an essential one to guarantee quality of works.

- Undue pressure created by political individuals may create obstacles in efficient management of works. Influential persons living in the vicinity of the work-site also may interfere.

6.5 Prioritization of Projects

6.5.1 Criteria for Project Prioritization

Among the projects identified in the preceding subsections, those in the planning and proposed stage were prioritized based on common criteria applied across individual projects in different transport sectors. The four indicators used for evaluation include (i) urgency, (ii) (potential) effect, (iii) implementability, and (iv) environmental and social considerations. These are of importance to select the projects that will cost-effectively achieve the sustainable development of the Dhaka–Chittagong corridor. For each indicator, a score of 1, 2, or 3 was given to the projects based on the evaluation criteria specified in Table 6.10.

Table 6.10: Evaluation Criteria for Project Prioritization

Indicator	Score		Criteria
Urgency	High	3	Projects that should be implemented immediately to address the bottleneck in terms of traffic demand, and/or are a prerequisite for other projects to be urgently implemented.
	Medium	2	Projects whose implementation is relatively less urgent in terms of traffic demand, and/or cases where there are other related projects that should be implemented first.
	Low	1	Projects that will address a long-term issue rather than a short- or medium-term issue in terms of traffic demand, and thus are judged not particularly urgent.
(Potential) Effect	High	3	Projects that will contribute cost-effectively to transport development of the Dhaka–Chittagong corridor, or projects that are deemed to be cost-effective with a relatively small investment requirement.
	Medium	2	Projects that are relatively less cost-effective, and/or projects for which alternative measures (e.g., alternative routes) are available.
	Low	1	Projects that are the least cost-effective among the planned and proposed projects, and/or projects whose feasibility is deemed to be very uncertain.
Implementability	High	3	Projects that would involve no major difficulty or constraints in terms of project cost, budget security, funding possibility, capacity of implementing/operating agencies, and implementing possibility by PPP.
	Medium	2	Projects that may involve some difficulty or constrains in terms of project cost, budget security, funding possibility, capacity of implementing/operating agencies, and implementing possibility by PPP.
	Low	1	Project that are likely to face major difficulty or constraints in terms of project cost, budget security, funding possibility, capacity of implementing/operating agencies, and implementing possibility by PPP.
Environmental and social considerations	High	3	Project that is considered unlikely to have significant and undesirable impact on environment and society.
	Medium	2	Project that is considered less likely to have significant and undesirable impact on environment and society.
	Low	1	Project that is considered highly likely to have significant and undesirable impact on environment and society.

Source: JICA Study Team

6.5.2   Scoring of Planned and Proposed Projects

The scoring of the planned and proposed projects is presented in Table 6.11 (for roads), Table 6.12 (for rail), and Table 6.13 (for inland water). An overall score was calculated as a weighted average of the scores for the four indicators with the weight being 0.3 for urgency and effect (potential) and 0.2 for implementability and environmental and social considerations, taking into account that the first two indictors should be relatively more important. Projects with an overall score equal to or more than 2.4 are selected for priority projects.

Table 6.11: Scoring of Planned and Proposed Roads Infrastructure Projects

Project Title	Criteria				Overall Score	Priority Project
	Urgency	Effect	Implement ability	Env., Social		
Dhaka–Chittagong Expressway Dhaka–Chittagong Multimodal Transport Corridor (Elevated Expressway)	3	3	2	2	**2.6**	✓
Chittagong–Cox's Bazar Expressway	2	2	2	1	1.8	
East West Elevated Expressway	3	3	2	1	**2.4**	✓
Chittagong–Cox's Bazar N1 Widening	2	3	2	1	2.1	
Development of Access Roads to the Dhaka–Chittagong Expressway	3	3	2	2	**2.6**	✓
Development of Regional Highways and Zila Roads	2	3	2	1	2.1	
Construction of Resting Places along N1	2	3	2	2	2.3	

Note: Overall Score=Urgency*0.3+Effect*0.3+Implementability*0.2+Environmental and Social Considerations*0.2
Source: JICA Study Team

Table 6.12: Scoring of Planned and Proposed Rail Infrastructure Projects

Project Title	Criteria				Overall Score	Priority Project
	Urgency	Effect	Implement ability	Env., Social		
Enhancement of the Existing Railway along the Dhaka–Chittagong Corridor	3	3	3	3	**3.0**	✓
Construction of Connecting Line to Matarbari Seaport	3	3	3	1	**2.6**	✓
Construction of a New Inland Container Depot (ICD) near Dhirasram Railway Station	3	3	3	3	**3.0**	✓
Construction of Dhaka–Chittagong via Comilla/Laksam High Speed Railway	3	3	2	1	**2.4**	✓
Construction of Chittagong–Cox's Bazar High-Speed Railway	2	2	1	1	1.6	

Note: Overall Score=Urgency*0.3+Effect*0.3+Implementability*0.2+Environmental and Social Considerations*0.2
Source: JICA Study Team

Table 6.13: Scoring of Planned and Proposed Inland Water Infrastructure Projects

Project Title	Criteria				Overall Score	Priority Project
	Urgency	Effect	Implement-ability	Env., Social		
Construction of Walkway and Bank Protection of River Port Foreshore of Buriganga, Sitalakhya & Turag rivers	3	3	3	3	**3.0**	✓
Development of Inland Container River Terminal (ICT) at Khanpur, Narayanganj	3	3	2	3	**2.8**	✓
Development and Improvement of facilities at Inland Ports and Terminals	3	3	3	3	**3.0**	✓
Procurement of Vessels, Improvement of Port Operation and Enhancement of Passenger Safety	2	3	2	3	**2.6**	✓

Note: Overall Score=Urgency*0.3+Effect*0.3+Implementability*0.2+Environmental and Social Considerations*0.2
Source: JICA Study Team

6.6   Phased Development Plan

As presented in Chapter 5, the Dhaka–Chittagong corridor has overall high transport demand especially on the Dhaka side, but also faces many issues, in both transport infrastructure and services. Some of these issues need to be tackled urgently, and others in the medium to long term. Therefore, it is desirable that phased-development based on a long-term perspective be sought from the viewpoint of budget security, feasibility, steady capacity development, etc. While noting this point, the phased development plan was formulated following the careful evaluation of the planned and proposed projects.

Table 6.14 provides a comprehensive view of the development plan summarized into four development items. These items consist of (i) roads transport development, (ii) rail transport development, (iii) inland water transport development, and (iv) relevant development that would largely affect traffic demand and transport development along the corridor. These development items include development strategy (described in the "Development Item" column) with the short-term, medium-term, and long-term primary development initiatives and projects. These initiatives indicate major elements of the projects to be implemented in each phase, while the projects are those identified and evaluated in the previous sections and described concisely under the development initiatives.

Table 6.14: Phased Multimodal Transport Development Plan on the Dhaka–Chittagong Corridor

Development Item	Short Term (2017-2021)	Medium Term (2022-2031)	Long Term (2032-2041)
Roads ✓ Urgent major capacity expansion and removal of major bottlenecks in short term and move towards capacity expansion ✓ Introduce Dhaka–Chittagong expressway with access control ✓ Consider intercity as well as intracity transport network	**Primary Development Initiatives** ✓ **Urgent major capacity expansion along the corridor** ✓ **Removal of major bottlenecks** ✓ **Urgent accessibility development** • Construction of Dhaka–Chittagong Expressway • Development of Access Roads to the Dhaka–Chittagong Expressway • Kanchpur, Meghna, and Gumti 2nd Bridges Construction and Existing Bridge Rehabilitation Project (Ongoing) • Construction of Multi-Lane Tunnel under the River Karnaphuli (Ongoing)	**Primary Development Initiatives** ✓ **Continued capacity expansion along the corridor** ✓ **Continued accessibility development** ✓ **Connectivity enhancement and user-friendly measures** • Continued Construction of Dhaka–Chittagong Expressway • Continued Development of Access Roads to the Dhaka–Chittagong Expressway • Chittagong–Cox's Bazar N1 Widening • Development of Regional Highways and Zila Roads • Construction of Resting Places along N1	**Primary Development Initiatives** ✓ **Continued capacity expansion along the corridor** ✓ **Network expansion through the construction of new routes** ✓ **Continued connectivity enhancement** • Construction of Chittagong–Cox's Bazar Expressway • Continued Chittagong–Cox's Bazar N1 Widening • Continued Development of Regional Highways and Zila Roads
Rail ✓ Urgent major capacity expansion in short term and move towards electrification ✓ Introduce high-speed railway with phasing ✓ Integration of multimodal transport system through the construction of a new ICD	**Primary Development Initiatives** ✓ **Urgent major capacity expansion along the corridor** ✓ **Integration of multimodal transport system** ✓ **Preparation for high-speed railway development** • Enhancement of the Existing Railway along the Dhaka–Chittagong Corridor (Fully Dual Gauged, Double Truck) • Construction a new ICD near Dhirasram Railway Station • Preparation for Construction of Dhaka–Chittagong via Comilla/Laksam High-Speed Railway • SASEC Chittagong–Cox's Bazar Railway Project (Ongoing)	**Primary Development Initiatives** ✓ **Electrification along the corridor** ✓ **Enhancement of maintenance capacity** ✓ **Rail connection development to Matarbari seaport** ✓ **High-speed railway development** • Enhancement of the Existing Railway along the Dhaka–Chittagong Corridor (Electrification) • Construction of Connecting Line to Matarbari Seaport • Construction of Dhaka–Chittagong via Comilla/Laksam High-Speed Railway • SASEC Chittagong–Cox's Bazar Railway Project (Ongoing)	**Primary Development Initiatives** ✓ **High-speed railway network expansion** ✓ **Continued Enhancement of maintenance capacity** • Enhancement of the Existing Railway along the Dhaka–Chittagong Corridor (Maintenance Practice) • Construction of Chittagong–Cox's Bazar High-Speed Railway
Inland Water ✓ Urgent major capacity expansion and removal of major bottlenecks in short term and move towards capacity expansion ✓ Implement ongoing projects steadily in short term and move towards implementation of priority projects ✓ Introduce Vessel Tracking System (VTS) with phasing	**Primary Development Initiatives** ✓ **Urgent major capacity expansion along the corridor** ✓ **Removal of major bottlenecks** ✓ **Steady implementation of ongoing projects** • Establishment of Terminal Facilities at Shashan Ghat, Area under Dhaka River Port (Ongoing) • Bangladesh Regional Inland Water Transport Project 1 (Ongoing) • Construction of BIWTC Passenger Vessels for providing efficient services in Chittagong-Sadwip-Hatiya-Barisal route (Ongoing) • Procurement of Two New Passenger Vessels for Dhaka–Barisal–Khulna River Route (Ongoing) • Construction of Walkway and Bank Protection on Evicted Foreshore Land of Rivers Buriganga, Sitalakhya, and Turag • Preparation for Development and Improvement of Facilities at Inland Ports and Terminals, Procurement of Vessels, and Improvement of Port Operation and Enhancement of Passenger Safety	**Primary Development Initiatives** ✓ **Continued capacity expansion along the corridor** ✓ **Implementation of priority projects** ✓ **Preparation for Vessel Tracking System (VTS) as a Pilot Project** • Preparation for the Construction of Inland Container River Terminal (ICT) at Khanpur, Narayaganj • Development and Improvement of facilities at Inland Ports and Terminals • Procurement of Vessels, Improvement of Port Operation, and Enhancement of Passenger Safety	**Primary Development Initiatives** ✓ **Continued capacity expansion along the corridor** ✓ **Enhancement of regular repair and maintenance capacity** ✓ **Expansion of VTS along the corridor** • Construction of ICT at Khanpur, Narayaganj • Continued Development of Inland Ports and Terminals (Regular Repair and Maintenance) • Evaluation of the VTS Pilot Project and its extension in entire Bangladesh in order to enhance safety and security of vessels and passengers
Relevant Development ✓ Urgent major capacity expansion in short term and move towards capacity expansion ✓ Develop Matarbari seaport with phasing ✓ Implement ongoing projects steadily in short to medium term and move towards handling efficiency improvement ✓ Consider the development of peripheral infrastructure, while developing economic zones	**Primary Development Initiatives** ✓ **Urgent major capacity expansion along the corridor** ✓ **Steady implementation of ongoing projects** ✓ **Preparation for Matarbari seaport development development** Seaport • Implementation of Matarbari Ultra Super Critical Coal-fired Power Project (Ongoing) • Preparation of Matarbari Seaport Development Project (Ongoing) Cross-border Transport • Implementation of Bangladesh Regional Connectivity Project (Ongoing) • Implementation of Cross-border Road Network Improvement Project (Ongoing) Air • Hazrat Shahjalal International Airport Expansion Project (Ongoing) • Preparation for the Construction of Bangabandhu International Airport (Ongoing) • Upgrading of Cox's Bazar Airport to an International Airport (Ongoing) Economic Zones • Preparation for the Development of Economic Zones (Ongoing)	**Primary Development Initiatives** ✓ **Continued capacity expansion along the corridor** ✓ **Continued implementation of ongoing projects** ✓ **Implementation of Matarbari seaport development project** Seaport • Measures to increase capacity of the existing seaports • Implementation of Matarbari Seaport Development Project Cross-border Transport • Continued implementation of Bangladesh Regional Connectivity Project (Ongoing) Air • Measures to increase capacity of the existing airports • Construction of Bangabandhu International Airport Economic Zones • Development of Economic Zones (and Peripheral Infrastructure) along the Corridor	**Primary Development Initiatives** ✓ **Continued capacity expansion along the corridor** ✓ **Handling efficiency improvement at the existing seaports and air ports** Seaport • Measures to improve handling efficiency at the existing seaports Cross-border Transport • Measures to improve cross-border transport Air • Measures to improve handling efficiency at the existing airports Economic Zones • Continued Development of Economic Zones (and Peripheral Infrastructure) along the Corridor
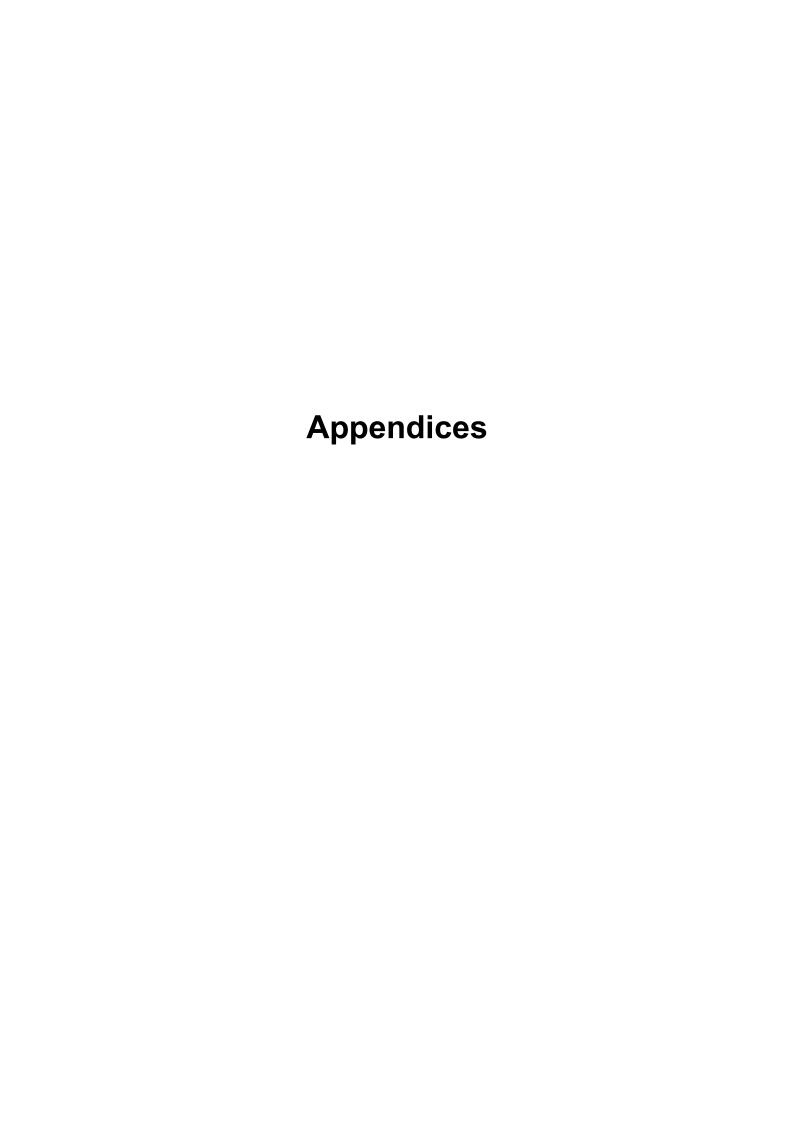
Source: JICA Study Team

Appendices

Appendix 1 List of Organizations Visited

Table 1: First Field Survey, 30 January 2017–9 February 2017

Date	Time	Organization	Type
30-Jan	3:30 p.m.	JICA Bangladesh Office	
31-Jan	10:00 a.m.	Mitsui & Co. (Asia Pacific) PTE ltd.	Private Company
31-Jan	3:00 p.m.	Ministry of Shipping	Government Agency
1-Feb	9:00 a.m.	Bangladesh Bridge Authority	Government Agency
1-Feb	11:00 a.m.	Bangladesh Road Transport Corporation	Government Agency
1-Feb	3:00 p.m.	Bangladesh Inland Water Transport Authority	Government Agency
2-Feb	10:00 a.m.	Roads and Highways Department	Government Agency
2-Feb	12:00 p.m.	Bangladesh Freight Forwarders Association	Others
2-Feb	2:00 p.m.	Ministry of Planning	Government Agency
5-Feb	10:00 a.m.	Chittagong Port Authority	Government Agency
6-Feb	4:00 p.m.	JICA Bangladesh Office	
7-Feb	11:30 a.m.	Kamigumi	Private Company
7-Feb	2:00 p.m.	Bangladesh Railway	Government Agency

Source: JICA Study Team

Table 2: Second Field Survey, 27 February 2017–10 March 2017

Date	Time	Organization	Type
27-Feb	3:50 p.m.	JICA Bangladesh Office	
28-Feb	3:00 p.m.	Bangladesh Truck & Covered Van Owners Association	Others
1-Mar	3:30 p.m.	Bangladesh Garments Manufacture and Export Association	Others
2-Mar	9:30 a.m.	Nippon Express Bangladesh	Private Company
2-Mar	11:00 a.m.	Capital Logistics	Private Company
2-Mar	3:30 p.m.	Public Private Partnership Authority	Government Agency
5-Mar	11:30 a.m.	Chittagong Development Authority	Government Agency
6-Mar	10:00 a.m.	Civil Aviation Authority of Bangladesh	Government Agency
6-Mar	12:00 p.m.	World Bank	Development Partner
6-Mar	3:00 p.m.	JICA Bangladesh Office	
7-Mar	9:30 a.m.	Yusen Logistics (Bangladesh)	Private Company
7-Mar	3:00 p.m.	Bangladesh Inland Water Transport Corporation	Government Agency
8-Mar	11:00 a.m.	Bangladesh Land Port Authority	Government Agency

Source: JICA Study Team

Table 3: Third Field Survey, 2 April 2017–14 April 2017

Date	Time	Organization	Type
2-Apr	4:00 p.m.	JICA Bangladesh Office	
4-Apr	10:00 a.m.	Bangladesh Railway	Government Agency
5-Apr	10:00 a.m.	Roads and Highways Department	Government Agency
5-Apr	3:30 p.m.	Brisk Logistics	Private Company
9-Apr	10:00 a.m.	Public Private Partnership Authority	Government Agency
9-Apr	11:30 a.m.	Nib Trans Lines	Private Company
10-Apr	10:00 a.m.	Asian Development Bank	Development Partner
11-Apr	11:00 a.m.	Amerex Group	Private Company
12-Apr	4:00 p.m.	Ministry of Railway	Government Agency
13-Apr	9:00 a.m.	JICA Bangladesh Office	

Source: JICA Study Team

Table 4: Forth Field Survey, 19 April 2017–2 May 2017

Date	Time	Organization	Type
19-Apr	4:00 p.m.	JICA Bangladesh Office	
20-Apr	11:00 a.m.	M.I. Cement Factory Ltd.	Private Company
22-Apr	11:00 a.m.	Trade Services International	Private Company
23-Apr	3:00 p.m.	Bangladesh Cargo Vessel Owners Association	Others
		Water Transport Cell	Others
24-Apr	3:30 p.m.	Bangladesh Bridge Authority	Government Agency
25-Apr	11:00 a.m.	Bangladesh Knitwear Manufacturers & Exporters Association	Others
26-Apr	10:30 a.m.	Navana Limited	Private Company
27-Apr	9:30 a.m.	Dhaka Transport Coordination Authority	Government Agency
30-Apr	9:30 a.m.	JICA Bangladesh Office	
30-Apr	2:00 p.m.	Bangladesh Export Processing Zones Authority	Government Agency

Source: JICA Study Team

Table 5: Fifth Field Survey, 9 July 2017–19 July 2017

Date	Time	Organization	Type
9-Jul	8:30 a.m.	JICA Bangladesh Office	
10-Jul	11:00 a.m.	Public Private Partnership Authority	Government Agency
11-Jul	10:30 a.m.	Roads and Highways Department	Government Agency
12-Jul	10:30 a.m.	Bangladesh Inland Water Transport Corporation	Government Agency
12-Jul	2:30 p.m.	Ministry of Railway	Government Agency
		Bangladesh Railway	Government Agency
13-Jul	11:00 a.m.	Bangladesh Bridge Authority	Government Agency
16-Jul	9:00 a.m.	Chittagong Port Authority	Government Agency
16-Jul	3:00 p.m.	Chittagong Development Authority	Government Agency
17-Jul	1:30 p.m.	Ministry of Planning	Government Agency
18-Jul	11:30 a.m.	Ministry of Road Transport and Bridges	Government Agency
18-Jul	3:00 p.m.	Bangladesh Inland Water Transport Authority	Government Agency
19-Jul	11:00 a.m.	Asian Development Bank	Development Partner
19-Jul	2:00 p.m.	Ministry of Shipping	Government Agency

Source: JICA Study Team

Table 6: Sixth Field Survey, 20 August 2017–28 August 2017

Date	Time	Organization	Type
20-Aug	4:00 p.m.	JICA Bangladesh Office	
21-Aug	10:00 a.m.	Roads and Highways Department	Government Agency
22-Aug	10:00 a.m.	Asian Development Bank	Development Partner
23-Aug	10:00 a.m.	Bangladesh Inland Water Transport Authority	Government Agency
23-Aug	2:00 p.m.	Ministry of Road Transport and Bridges	Government Agency
27-Aug	10:00 a.m.	Bangladesh Railway	Government Agency
28-Aug	11:00 a.m.	Bangladesh Bridge Authority	Government Agency
28-Aug	5:30 p.m.	JICA Bangladesh Office	

Source: JICA Study Team

Table 7: Seventh Field Survey, 2 October 2017–11 October 2017

Date	Time	Organization	Type
2-Oct	4:00 p.m.	JICA Bangladesh	
3-Oct	10:30 a.m.	Asian Development Bank	Development Partner
		Ministry of Railway	Government Agency
4-Oct	09.30am	Bangladesh Railway	Government Agency
4-Oct	2:00 p.m.	Ministry of Shipping	Government Agency
4-Oct	3:30 pm	Ministry of Planning	Government Agency
4-Oct	5:30 p.m.	JICA Bangladesh	
5-Oct	15.00pm	Bangladesh Inland Water transport Corporation	Government Agency
5-Oct	16.30pm	Road and Highway	Government Agency
8-Oct	10.30am	Chittagong Port Authority	Government Agency
9-Oct	1100am	Bangladesh Bridge Authority	Government Agency
9-Oct	1200 noon	World Bank	Development Partner
10-Oct	10.30am	Bangladesh Inland Water Transport Authority	Government Agency
10-Oct	1200 noon	Ministry of Road Transport and Bridges	Government Agency
11-Oct	0900am	JICA Bangladesh	

Source: JICA Study Team

Appendix 2 Population by Upazila in Chittagong and Dhaka

Table 8: Population by Upazila in Chittagong

Zone	District	Upazila	Population (2011)
10101	Bandarban	Alikadam	49,317
10102	Bandarban	Bandarban Sadar	88,282
10103	Bandarban	Lama	108,995
10104	Bandarban	Naikhongchhari	61,788
10105	Bandarban	Rowangchhari	27,264
10106	Bandarban	Ruma	29,098
10107	Bandarban	Thanchi	23,591
10201	Brahmanbaria	Akhaura	145,215
10202	Brahmanbaria	Banchharampur	298,430
10203	Brahmanbaria	Brahmanbaria Sadar	521,994
10204	Brahmanbaria	Kasba	319,221
10205	Brahmanbaria	Nabinagar	493,518
10206	Brahmanbaria	Nasirnagar	309,011
10207	Brahmanbaria	Sarail	315,208
10208	Brahmanbaria	Ashuganj	180,654
10209	Brahmanbaria	Bijoynagar	257,247
10301	Chandpur	Chandpur Sadar	465,919
10302	Chandpur	Faridganj	396,683
10303	Chandpur	Haim Char	109,575
10304	Chandpur	Hajiganj	330,477
10305	Chandpur	Kachua	382,139
10306	Chandpur	Matlab Dakshin	210,050
10307	Chandpur	Matlab Uttar	63,784
10308	Chandpur	Shahrasti	229,118
10401	Chittagong	Anowara	259,022
10402	Chittagong	Banshkhali	431,162
10403	Chittagong	Boalkhali	223,125
10404	Chittagong	Chandanaish	233,017
10405	Chittagong	Fatikchhari	526,003
10406	Chittagong	Hathazari	431,748
10407	Chittagong	Lohagara	279,913
10408	Chittagong	Mirsharai	398,716
10409	Chittagong	Patiya	528,120
10410	Chittagong	Rangunia	339,004
10411	Chittagong	Raozan	322,840
10412	Chittagong	Sandwip	278,605
10413	Chittagong	Satkania	384,806
10414	Chittagong	Sitakunda	387,832
10415	Chittagong	Chittagong City	2,581,643
10501	Comilla	Barura	405,118
10502	Comilla	Brahmanpara	204,691
10503	Comilla	Burichang	301,825
10504	Comilla	Chandina	350,273
10505	Comilla	Chauddagram	443,648
10506	Comilla	Daudkandi	349,910
10507	Comilla	Debidwar	431,352

Zone	District	Upazila	Population (2011)
10508	Comilla	Homna	206,386
10509	Comilla	Laksam	294,719
10510	Comilla	Muradnagar	523,556
10511	Comilla	Nangalkot	373,987
10512	Comilla	Comilla Adarsha Sadar	532,419
10513	Comilla	Meghna	112,453
10514	Comilla	Titas	184,617
10515	Comilla	Manoharganj	244,943
10516	Comilla	Comilla Sadar Dakshin	427,391
10601	Cox's Bazar	Chakoria	474,465
10602	Cox's Bazar	Cox's Bazar Sadar	459,082
10603	Cox's Bazar	Kutubdia	125,279
10604	Cox's Bazar	Maheshkhali	321,218
10605	Cox's Bazar	Ramu	266,640
10606	Cox's Bazar	Teknaf	264,389
10607	Cox's Bazar	Ukhia	207,379
10608	Cox's Bazar	Pekua	171,538
10701	Feni	Chhagalnaiya	187,156
10702	Feni	Daganbhuiyan	254,402
10703	Feni	Feni Sadar	512,646
10704	Feni	Parshuram	101,062
10705	Feni	Sonagazi	262,547
10706	Feni	Fulgazi	119,558
10801	Khagrachhari	Dighinala	103,392
10802	Khagrachhari	Khagrachhari Sadar	111,833
10803	Khagrachhari	Lakshmichhari	25,994
10804	Khagrachhari	Mahalchhari	50,757
10805	Khagrachhari	Manikchhari	61,589
10806	Khagrachhari	Matiranga	126,477
10807	Khagrachhari	Panchhari	62,198
10808	Khagrachhari	Ramgarh	71,677
10901	Lakshmipur	Lakshmipur Sadar	684,425
10902	Lakshmipur	Roypur	275,160
10903	Lakshmipur	Ramganj	285,686
10904	Lakshmipur	Ramgati	261,002
10905	Lakshmipur	Kamalnagar	222,915
11001	Noakhali	Begumganj	549,308
11002	Noakhali	Noakhali Sadar	525,934
11003	Noakhali	Chatkhil	233,253
11004	Noakhali	Companiganj	250,579
11005	Noakhali	Hatiya	452,463
11006	Noakhali	Senbagh	282,894
11007	Noakhali	Sonaimuri	327,194
11008	Noakhali	Subarnachar	289,514
11009	Noakhali	Kabirhat	196,944
11101	Rangamati	Baghaichhari	96,899
11102	Rangamati	Barkal	47,523
11103	Rangamati	Kawkhali	59,578
11104	Rangamati	Belai Chhari	28,525
11105	Rangamati	Kaptai	59,693

Zone	District	Upazila	Population (2011)
11106	Rangamati	Jurai Chhari	27,786
11107	Rangamati	Langadu	81,548
11108	Rangamati	Naniarchar	43,616
11109	Rangamati	Rajasthali	26,083
11110	Rangamati	Rangamati Sadar	124,728

Source: Bangladesh Bureau of Statistics, Statistical Year Book Bangladesh 2015

Table 9: Population by Upazila in Dhaka

Zone	District	Upazila	Population (2011)
20101	Dhaka	Dhamrai	412,418
20102	Dhaka	Dohar	226,439
20103	Dhaka	Keraniganj	794,360
20104	Dhaka	Nawabganj	318,811
20105	Dhaka	Savar	1,385,910
20106	Dhaka	Dhaka city	6,970,105
20201	Gazipur	Gazipur Sadar	1,820,374
20202	Gazipur	Kaliakair	483,308
20203	Gazipur	Kaliganj	265,276
20204	Gazipur	Kapasia	342,162
20205	Gazipur	Sreepur	492,792
20301	Gopalganj	Gopalganj Sadar	344,008
20302	Gopalganj	Kashiani	207,615
20303	Gopalganj	Kotalipara	230,493
20304	Gopalganj	Muksudpur	289,406
20305	Gopalganj	Tungipara	100,893
20401	Kishoreganj	Austagram	152,523
20402	Kishoreganj	Bajitpur	248,730
20403	Kishoreganj	Bhairab	298,309
20404	Kishoreganj	Hossainpur	183,884
20405	Kishoreganj	Itna	164,127
20406	Kishoreganj	Karimganj	287,807
20407	Kishoreganj	Katiadi	314,529
20408	Kishoreganj	Kishoreganj Sadar	414,208
20409	Kishoreganj	Kuliar Char	182,236
20410	Kishoreganj	Mithamain	122,026
20411	Kishoreganj	Nikli	133,729
20412	Kishoreganj	Pakundia	250,060
20413	Kishoreganj	Tarail	159,739
20501	Madaripur	Rajoir	228,710
20502	Madaripur	Madaripur Sadar	345,764
20503	Madaripur	Kalkini	273,258
20504	Madaripur	Shib Char	318,220
20601	Manikganj	Daulatpur	167,026
20602	Manikganj	Ghior	146,292
20603	Manikganj	Harirampur	139,318
20604	Manikganj	Manikganj Sadar	309,413
20605	Manikganj	Saturia	171,494
20606	Manikganj	Shibalaya	171,873
20607	Manikganj	Singair	287,451

Zone	District	Upazila	Population (2011)
20701	Munshiganj	Gazaria	157,988
20702	Munshiganj	Lohajang	159,242
20703	Munshiganj	Munshiganj Sadar	383,263
20704	Munshiganj	Serajdikhan	288,107
20705	Munshiganj	Sreenagar	259,887
20706	Munshiganj	Tongibari	197,173
20901	Narayanganj	Araihazar	376,550
20902	Narayanganj	Bandar	312,841
20903	Narayanganj	Narayanganj Sadar	1,323,600
20904	Narayanganj	Rupganj	534,868
20905	Narayanganj	Sonargaon	400,358
21001	Rajbari	Baliakandi	207,086
21002	Rajbari	Goalanda	112,732
21003	Rajbari	Pangsha	243,285
21004	Rajbari	Rajbari Sadar	331,631
21005	Rajbari	Kalukhali	155,044
21101	Shariatpur	Bhedarganj	253,234
21102	Shariatpur	Damudya	109,003
21103	Shariatpur	Gosairhat	157,665
21104	Shariatpur	Naria	231,644
21105	Shariatpur	Shariatpur Sadar	210,259
21106	Shariatpur	Zanjira	194,019
21201	Faridpur	Alfadanga	108,302
21202	Faridpur	Bhanga	259,032
21203	Faridpur	Boalmari	256,658
21204	Faridpur	Char Bhadrasan	63,477
21205	Faridpur	Faridpur Sadar	469,410
21206	Faridpur	Madhukhali	204,492
21207	Faridpur	Nagarkanda	197,898
21208	Faridpur	Sadarpur	186,254
21209	Faridpur	Saltha	167,446
21301	Tangail	Gopalpur	252,331
21302	Tangail	Basail	159,870
21303	Tangail	Bhuapur	189,913
21304	Tangail	Delduar	207,278
21305	Tangail	Ghatail	417,939
21306	Tangail	Kalihati	410,293
21307	Tangail	Madhupur	296,729
21308	Tangail	Mirzapur	407,781
21309	Tangail	Nagarpur	288,092
21310	Tangail	Sakhipur	277,685
21311	Tangail	Dhanbari	176,068
21312	Tangail	Tangail Sadar	521,104
21401	Narsingdi	Narsingdi Sadar	707,525
21402	Narsingdi	Belabo	190,086
21403	Narsingdi	Manohardi	275,112
21404	Narsingdi	Palash	212,612
21405	Narsingdi	Roypura	535,796
21406	Narsingdi	Shibpur	303,813
21501	Jamalpur	Islampur	298,429

Zone	District	Upazila	Population (2011)
21502	Jamalpur	Jamalpur	615,072
21503	Jamalpur	Dewanganj	258,133
21504	Jamalpur	Bakshiganj	218,930
21505	Jamalpur	Madarganj	263,608
21506	Jamalpur	Melandaha	313,182
21507	Jamalpur	Sarishabari	325,320
21601	Netrokona	Atpara	144,624
21602	Netrokona	Barhatta	180,449
21603	Netrokona	Durgapur	224,873
21604	Netrokona	Khaliajuri	97,450
21605	Netrokona	Kalmakanda	271,912
21606	Netrokona	Kendua	304,729
21607	Netrokona	Madan	154,479
21608	Netrokona	Mohanganj	167,507
21609	Netrokona	Netrokona Sadar	372,785
21610	Netrokona	Purbadhala	310,834
21701	Sherpur	Jhenaigati	160,452
21702	Sherpur	Nakla	189,685
21703	Sherpur	Nalitabari	251,361
21704	Sherpur	Sherpur Sadar	497,179
21705	Sherpur	Sreebardi	259,648
21801	Mymensingh	Bhaluka	430,320
21802	Mymensingh	Dhobaura	196,284
21803	Mymensingh	Fulbaria	448,467
21804	Mymensingh	Gaffargaon	430,746
21805	Mymensingh	Gauripur	323,057
21806	Mymensingh	Haluaghat	290,043
21807	Mymensingh	Ishwarganj	376,348
21808	Mymensingh	Mymensingh Sadar	775,733
21809	Mymensingh	Muktagachha	415,473
21810	Mymensingh	Nandail	402,727
21811	Mymensingh	Phulpur	601,766
21812	Mymensingh	Trishal	419,308
21813	Mymensingh	Tara Khanda	-

Source: Bangladesh Bureau of Statistics, Statistical Year Book Bangladesh 2015

Appendix 3 Collected Data of Transport Survey

Available upon request to admin@padeco.co.jp with a permission by JICA.

Appendix 4 Questionnaire for Interview Survey

Questionnaire to Passenger

Time   (   )   Location   (   )
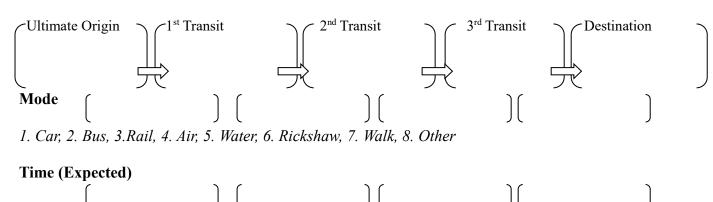
Questions
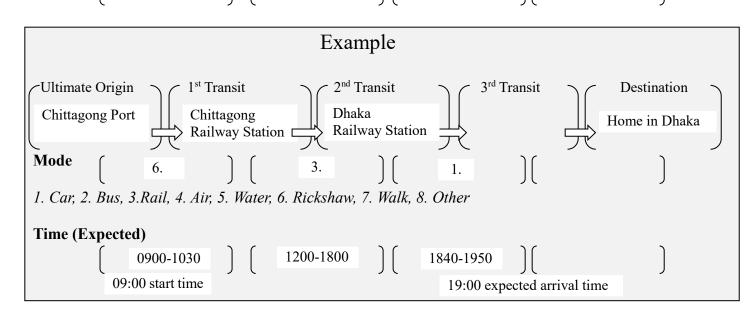
Q 0.1   Address (City-level), Sex, Age

Q.0.2 Monthly Salary

~50,000 BDT   50,000~100,000 BDT   100,000~200,000BDT   200,000 BDT ~

Q1.1.   Please describe details of route and transport modes from Origin to Destination.

Ultimate Origin   1st Transit   2nd Transit   3rd Transit   Destination

Mode   (   ) (   ) (   ) (   )

1. Car, 2. Bus, 3.Rail, 4. Air, 5. Water, 6. Rickshaw, 7. Walk, 8. Other

Time (Expected)

(   ) (   ) (   ) (   )

Example

Ultimate Origin   1st Transit   2nd Transit   3rd Transit   Destination

| Chittagong Port | Chittagong Railway Station | Dhaka Railway Station | | Home in Dhaka |

Mode   (6.   ) (3.   ) (1.   ) (   )

1. Car, 2. Bus, 3.Rail, 4. Air, 5. Water, 6. Rickshaw, 7. Walk, 8. Other

Time (Expected)

(0900-1030   ) (1200-1800   ) (1840-1950   ) (   )

09:00 start time   19:00 expected arrival time

Q1.2. What is the purpose of the trip?

Business, Leisure, School, Others

Q1.3. How frequent is this transport made?

one way trips per month

Q2.1 Do you fix your transport route/mode or can you change to other option for this transport?

       1. I always **<u>fix</u>** the transport route and mode for this kind of transport. ☐

       2. I can always **<u>choose</u>** some other route and mode. ☐

Tick for only one

Q2.2 If you choose "fix" for Q2.3, what is the reason why you fix the route?

Tick for all applicable

- This route/mode can minimize the time. ☐
- This route/mode can minimize the cost. ☐
- This route/mode has less uncertainty of time and cost. ☐
- We have transit points. ☐
- Other reason [　　　　　　　　　　　　　　　　　　　　]

Q3. If you make a trip between Dhaka and Chittagong, which combination of mode/route do you choose?

Q3.1 Please tick for all applicable combination of the mode and route of your choice

1. Private Car
2. Bus
3. Rail
4. Air
5. Water
6. Others　[　　　　　　　　　　　　　　　　　　　　]

Q3.2 Please fill out the time and cost in detail as much as you know for your selected in Q3.1

Mode Alternatives	Total transport average time (between Dhaka and Chittagong)	(Days or Hours)			Total transport average cost (between Dhaka and Chittagong)	(in USD or BDT)	
		Transshipment time between road and rail/ waterway in %	Delay due to the road congestion in %	Time Uncertainty in %		Terminal Charge in USD or BDT	Cost Uncertainty in %
1. Truck/Trailer		✕				✕	
2. Waterway + Truck/Trailer							
3. Rail + Truck/Trailer							

written in hours   written in USD? or BDT?

Q3.3 What is your final choice among the routes?

Tick for only one
1. Private Car

2. Bus

3. Rail

4. Air

5. Water

6. Others [   ]

Q3.4 Why do you choose the route as the final choice?
Tick for all applicable
- This route/mode can minimize the time. ☐

- This route/mode can minimize the cost. ☐

- This route/mode has less uncertainty of time and cost. ☐

- We have transit points. ☐

- Other reason [   ]

Q3.5 If you chose the routes of Road transport as the final choice above Q3.3, what kind of improvement is necessary to choose the railway?

Tick for all applicable
- Total rail transport time should be less. ☐

- Total rail transport cost should be cheaper. ☐

- Frequency of the rail transport operation must be improved. ☐

- Reliability of the rail transport must be improved. ☐

- Other reason [   ]

Q3.6 If you chose the routes of Road transport as the final choice above Q3.3, what kind of improvement is necessary to choose the waterway?

Tick for all applicable
- Total water transport time should be less. ☐

- Total water transport cost should be cheaper. ☐

- Frequency of the water transport operation must be improved. ☐

- Reliability of the water transport must be improved. ☐

- Other reason [   ]

4. If you chose the routes of private car transport as the final choice above Q3.3, and if the rail transport services were improved in near future as shown below, which service do you choose?

Q4.1

Running time (between stations)	**3.6 hours**
Fare	**30 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Private Car

Q4.2

Running time (between stations)	**2.6 hours**
Fare	**30 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Private Car

Q4.3

Running time (between stations)	**1.3 hours**
Fare	**30 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Private Car

Q4.4

Running time (between stations)	**3.6 hours**
Fare	**50 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Private Car

Q4.5

Running time (between stations)	**2.6 hours**
Fare	**50 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Private Car

Q4.6

Running time (between stations)	**1.3 hours**
Fare	**50 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Private Car

Q4.7

Running time (between stations)	**3.6 hours**
Fare	**15 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Private Car

Q4.8

Running time (between stations)	**2.6 hours**
Fare	**15 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Private Car

Q4.9

Running time (between stations)	**1.3 hours**
Fare	**15 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Private Car

Q4.10 How much would you pay for the new Rail transport service?

1.3 hours _____ USD   2.3 hours _____ USD   3.6 hours _____ USD

Q4.11 If you have any necessary criteria for the Rail transport service improvement, please describe.

4. If you chose the routes of bus as the final choice above Q3.3, and if the rail transport services were improved in near future as shown below, which service do you choose?

Q4.1

Running time (between stations)	3.6 hours
Fare	30 USD

I will choose …. *Tick for only one*

□ New Rail
□ Bus

Q4.2

Running time (between stations)	2.6 hours
Fare	30 USD

I will choose …. *Tick for only one*

□ New Rail
□ Bus

Q4.3

Running time (between stations)	1.3 hours
Fare	30 USD

I will choose …. *Tick for only one*

□ New Rail
□ Bus

Q4.4

Running time (between stations)	3.6 hours
Fare	50 USD

I will choose …. *Tick for only one*

□ New Rail
□ Bus

Q4.5

Running time (between stations)	2.6 hours
Fare	50 USD

I will choose …. *Tick for only one*

□ New Rail
□ Bus

Q4.6

Running time (between stations)	1.3 hours
Fare	50 USD

I will choose …. *Tick for only one*

□ New Rail
□ Bus

Q4.7

Running time (between stations)	3.6 hours
Fare	15 USD

I will choose …. *Tick for only one*

□ New Rail
□ Bus

Q4.8

Running time (between stations)	2.6 hours
Fare	15 USD

I will choose …. *Tick for only one*

□ New Rail
□ Bus

Q4.9

Running time (between stations)	1.3 hours
Fare	15 USD

I will choose …. *Tick for only one*

□ New Rail
□ Bus

Q4.10 How much would you pay for the new Rail transport service?

1.3 hours   USD   2.3 hours   USD   3.6 hours   USD

Q4.11 If you have any necessary criteria for the Rail transport service improvement, please describe.

4. If you chose the routes of Air as the final choice above Q3.3, and if the rail transport services were improved in near future as shown below, which service do you choose?

Q4.1

Running time (between stations)	3.6 hours
Fare	30 USD

I will choose …. *Tick for only one*
☐ New Rail
☐ Air

Q4.2

Running time (between stations)	2.6 hours
Fare	30 USD

I will choose …. *Tick for only one*
☐ New Rail
☐ Air

Q4.3

Running time (between stations)	1.3 hours
Fare	30 USD

I will choose …. *Tick for only one*
☐ New Rail
☐ Air

Q4.4

Running time (between stations)	3.6 hours
Fare	50 USD

I will choose …. *Tick for only one*
☐ New Rail
☐ Air

Q4.5

Running time (between stations)	2.6 hours
Fare	50 USD

I will choose …. *Tick for only one*
☐ New Rail
☐ Air

Q4.6

Running time (between stations)	1.3 hours
Fare	50 USD

I will choose …. *Tick for only one*
☐ New Rail
☐ Air

Q4.7

Running time (between stations)	3.6 hours
Fare	15 USD

I will choose …. *Tick for only one*
☐ New Rail
☐ Air

Q4.8

Running time (between stations)	2.6 hours
Fare	15 USD

I will choose …. *Tick for only one*
☐ New Rail
☐ Air

Q4.9

Running time (between stations)	1.3 hours
Fare	15 USD

I will choose …. *Tick for only one*
☐ New Rail
☐ Air

Q4.10 How much would you pay for the new Rail transport service?

1.3 hours	USD	2.3 hours	USD	3.6 hours	USD

Q4.11 If you have any necessary criteria for the Rail transport service improvement, please describe.

4. If you chose the routes of Water as the final choice above Q3.3, and if the rail transport services were improved in near future as shown below, which service do you choose?

Q4.1

Running time (between stations)	**3.6 hours**
Fare	**30 USD**

I will choose …. *ick for only one*

☐ New Rail
☐ Water

Q4.2

Running time (between stations)	**2.6 hours**
Fare	**30 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Water

Q4.3

Running time (between stations)	**1.3 hours**
Fare	**30 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Water

Q4.4

Running time (between stations)	**3.6 hours**
Fare	**50 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Water

Q4.5

Running time (between stations)	**2.6 hours**
Fare	**50 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Water

Q4.6

Running time (between stations)	**1.3 hours**
Fare	**50 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Water

Q4.7

Running time (between stations)	**3.6 hours**
Fare	**15 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Water

Q4.8

Running time (between stations)	**2.6 hours**
Fare	**15 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Water

Q4.9

Running time (between stations)	**1.3 hours**
Fare	**15 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Water

Q4.10 How much would you pay for the new Rail transport service?

1.3 hours   USD   2.3 hours   USD   3.6 hours   USD

Q4.11 If you have any necessary criteria for the Rail transport service improvement, please describe.
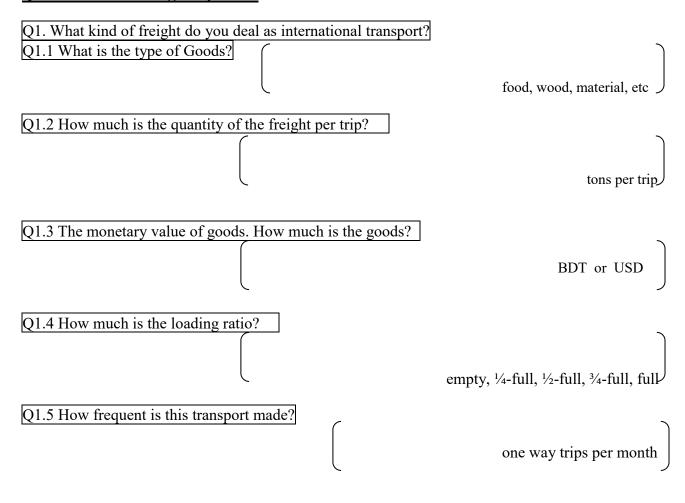
4. If you chose the routes of Other transport as the final choice above Q3.3, and if the rail transport services were improved in near future as shown below, which service do you choose?

Q4.1

Running time (between stations)	**3.6 hours**
Fare	**30 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Same one

Q4.2

Running time (between stations)	**2.6 hours**
Fare	**30 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Same one

Q4.3

Running time (between stations)	**1.3 hours**
Fare	**30 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Same one

Q4.4

Running time (between stations)	**3.6 hours**
Fare	**50 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Same one

Q4.5

Running time (between stations)	**2.6 hours**
Fare	**50 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Same one

Q4.6

Running time (between stations)	**1.3 hours**
Fare	**50 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Same one

Q4.7

Running time (between stations)	**3.6 hours**
Fare	**15 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Same one

Q4.8

Running time (between stations)	**2.6 hours**
Fare	**15 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Same one

Q4.9

Running time (between stations)	**1.3 hours**
Fare	**15 USD**

I will choose …. *Tick for only one*
☐ New Rail
☐ Same one

Q4.10 How much would you pay for the new Rail transport services?

1.3 hours	USD	2.3 hours	USD	3.6 hours	USD

Q4.11 If you have any necessary criteria for the Rail transport service improvement, please describe.

4. If you chose the routes of rail transport as the final choice above Q3.3, and if the rail transport services were improved in near future as shown below, which service do you choose?

Q4.1

Running time (between stations)	**3.6 hours**
Fare	**30 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Current Rail

Q4.2

Running time (between stations)	**2.6 hours**
Fare	**30 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Current Rail

Q4.3

Running time (between stations)	**1.3 hours**
Fare	**30 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Current Rail

Q4.4

Running time (between stations)	**3.6 hours**
Fare	**50 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Current Rail

Q4.5

Running time (between stations)	**2.6 hours**
Fare	**50 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Current Rail

Q4.6

Running time (between stations)	**1.3 hours**
Fare	**50 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Current Rail

Q4.7

Running time (between stations)	**3.6 hours**
Fare	**15 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Current Rail

Q4.8

Running time (between stations)	**2.6 hours**
Fare	**15 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Current Rail

Q4.9

Running time (between stations)	**1.3 hours**
Fare	**15 USD**

I will choose …. *Tick for only one*

☐ New Rail
☐ Current Rail

Q4.10 How much would you pay for the new Rail transport service?

1.3 hours   2.3 hours   3.6 hours
                    USD   USD   USD

Q4.11 If you have any necessary criteria for the Rail transport service improvement, please describe.
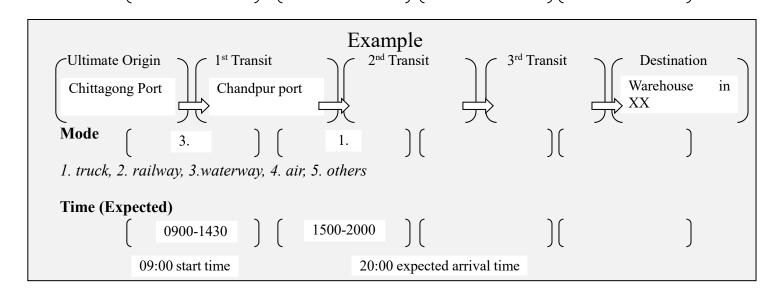
Questionnaire to Freight Operator

Q1. What kind of freight do you deal as international transport?

Q1.1 What is the type of Goods?

food, wood, material, etc

Q1.2 How much is the quantity of the freight per trip?

tons per trip

Q1.3 The monetary value of goods. How much is the goods?

BDT or USD

Q1.4 How much is the loading ratio?

empty, ¼-full, ½-full, ¾-full, full

Q1.5 How frequent is this transport made?

one way trips per month

Q2. From where to where do you transport the goods?

Q2.1 Please describe details of route and transport modes from Origin to Destination?

| Origin | 1st Transit | 2nd Transit | 3rd Transit | Destination |

Mode

[   ] [   ] [   ] [   ] [   ]

1. truck, 2. railway, 3.waterway, 4. air, 5. others

Time (Expected)

[   ] [   ] [   ] [   ] [   ]

Example

| Ultimate Origin | 1st Transit | 2nd Transit | 3rd Transit | Destination |
| Chittagong Port | Chandpur port | | | Warehouse in XX |

Mode

[3.   ] [1.   ] [   ] [   ] [   ]

1. truck, 2. railway, 3.waterway, 4. air, 5. others

Time (Expected)

[0900-1430   ] [1500-2000   ] [   ] [   ] [   ]

09:00 start time   20:00 expected arrival time

Q2.3 Do you fix your transport route/mode or can you change to other option for this transport?

- I always **fix** the transport route and mode for this kind of goods ☐

- I can always **choose** some other route and mode. ☐

Tick for only one

Q2.4 If you choose "fix" for Q2.3, what is the reason why you fix the route?

Tick for all applicable

- This route/mode can minimize the time ☐
- This route/mode can minimize the cost ☐
- This route/mode has less problem about security ☐
- This route/mode has less uncertainty of time and cost. ☐
- We have transit points or other clients on this route ☐
- Other reason [   ]

Q3. If you transport the goods between Dhaka and Chittagong, which combination of mode/route do you choose?

Q3.1 Please tick for all applicable combination of the mode and route of your choice

7. Truck/Trailer
8. Waterway + Truck/Trailer
9. Rail + Truck/Trailer
10. Others [   ]

Q3.2 Please fill out the time and cost in detail as much as you know for your selected in Q3.1

Mode Alternatives	Total transport average time (between Dhaka and Chittagong)	(Days or Hours)			Total transport average cost (between Dhaka and Chittagong)	(in USD or BDT)	
		Transshipment time between road and rail/ waterway in %	Delay due to the road congestion in %	Time Uncertainty in %		Terminal Charge in USD or BDT	Cost Uncertainty in %
4. Truck/Traile r		✕				✕	
5. Waterway + Truck/Trailer							
6. Rail + Truck/Trailer							

written in hours   written in USD? or BDT?

Q3.3 What is your final choice among the routes?

Tick for only one
1. Truck/Trailer

2. Waterway + Truck/Trailer

3. Rail + Truck/Trailer

Q3.4 Why do you choose the route as the final choice?
Tick for all applicable
- This route/mode can minimize the time ☐

- This route/mode can minimize the cost ☐

- This route/mode has less problem about security ☐

- This route/mode has less uncertainty of time and cost. ☐

- We have transit points or other clients on this route ☐

- Other reason [   ]

Q3.5 If you chose the routes of Road transport as the final choice above Q3.3, what kind of improvement is necessary to choose the railway?

Tick for all applicable
- Total rail transport time should be less. ☐

- Total rail transport cost should be cheaper. ☐

- Frequency of the rail transport operation must be improved. ☐

- Reliability of the rail transport must be improved. ☐

- Security of the rail transport must be improved. ☐

- Other reason [   ]

Q3.6 If you chose the routes of Road transport as the final choice above Q3.3, what kind of improvement is necessary to choose the waterway?

Tick for all applicable
- Total water transport time should be less. ☐

- Total water transport cost should be cheaper. ☐

- Frequency of the water transport operation must be improved. ☐

- Reliability of the water transport must be improved. ☐

- Security of the water transport must be improved. ☐

- Other reason [   ]

4. If you chose the routes of road transport as the final choice above Q3.3, and if the rail transport services were improved in near future as shown below, which service do you choose?

Q4.1

| Total rail transport time | **33%** | faster than now |
| Total rail transport cost | **50%** | higher than now |

I will choose …. *Tick for only one*

☐ Rail
☐ Road

Q4.2

| Total rail transport time | **50%** | faster than now |
| Total rail transport cost | **33%** | higher than now |

I will choose …. *Tick for only one*

☐ Rail
☐ Road

Q4.3

| Total rail transport time | **25%** | faster than now |
| Total rail transport cost | **25%** | higher than now |

I will choose …. *Tick for only one*

☐ Rail
☐ Road

Q4.4

| Total rail transport time | **33%** | faster than now |
| Total rail transport cost | **20%** | higher than now |

I will choose …. *Tick for only one*

☐ Rail
☐ Road

Q4.5

| Total rail transport time | **20%** | faster than now |
| Total rail transport cost | **33%** | higher than now |

I will choose …. *Tick for only one*

☐ Rail
☐ Road

Q4.6 If you have any necessary criteria for the Rail transport service improvement, please describe.
(Ex. Service Frequency, Policy, Rules/Regulations, Terminal procedure, and etc.)

4. If you chose the routes of road transport as the final choice above Q3.3, and if the water transport services were improved in near future as shown below, which service do you choose?

Q4.1

| Total water transport time | **33%** | faster than now |
| Total water transport cost | **50%** | higher than now |

I will choose ….   *Tick for only one*

☐ Water
☐ Road

Q4.2

| Total water transport time | **50%** | faster than now |
| Total water transport cost | **33%** | higher than now |

I will choose ….   *Tick for only one*

☐ Water
☐ Road

Q4.3

| Total water transport time | **25%** | faster than now |
| Total water transport cost | **25%** | higher than now |

I will choose ….   *Tick for only one*

☐ Water
☐ Road

Q4.4

| Total water transport time | **33%** | faster than now |
| Total water transport cost | **20%** | higher than now |

I will choose ….   *Tick for only one*

☐ Water
☐ Road

Q4.5

| Total water transport time | **20%** | faster than now |
| Total water transport cost | **33%** | higher than now |

I will choose ….   *Tick for only one*

☐ Water
☐ Road

Q4.6 If you have any necessary criteria for the Water transport service improvement, please describe.
(Ex. Service Frequency, Policy, Rules/Regulations, Terminal procedure, and etc.)

Appendix 5 OD Tables

Passenger OD Table in 2031 (Passenger per annum, excluding Inland waterway Passenger) (1 of 4)

		10100	10200	10300	10400	10500	10600	10700	10800	10900	11000	11100	20100	20200	20300	20400	20500	20600
Bandarban	10100	0	194,816	236,271	0	380,463	0	101,511	0	184,917	335,665	0	301,046	96,177	549	30,667	8,502	10,969
Brahmanbaria	10200	194,816	0	2,153,743	4,004,369	0	1,182,944	0	307,984	1,685,623	3,059,777	298,985	7,846,006	2,604,118	4,017	335,358	15,529	238,161
Chandpur	10300	236,271	2,153,743	0	4,856,448	4,206,118	1,434,660	1,122,226	373,519	0	0	362,605	3,150,355	1,031,298	3,125	205,925	3,107	127,831
Chittagong	10400	0	4,004,369	4,856,448	0	7,820,270	0	2,086,510	0	3,800,892	6,899,453	0	6,878,528	1,976,873	11,289	630,344	174,750	225,463
Comilla	10500	380,463	0	4,206,118	7,820,270	0	2,310,212	0	601,473	3,291,912	5,975,543	583,898	15,322,735	5,085,672	7,845	654,932	30,326	465,113
Cox's Bazar	10600	0	1,182,944	1,434,660	0	2,310,212	0	616,383	0	1,122,834	2,038,190	0	1,827,983	583,995	3,335	186,212	51,623	66,605
Feni	10700	101,511	0	1,122,226	2,086,510	0	616,383	0	160,478	878,308	1,594,322	155,789	4,088,227	1,356,898	2,093	174,741	8,091	124,096
Khagrachhari	10800	0	307,984	373,519	0	601,473	0	160,478	0	292,334	530,651	0	475,922	152,045	868	48,481	13,440	17,341
Lakshmipur	10900	184,917	1,685,623	0	3,800,892	3,291,912	1,122,834	878,308	292,334	0	0	283,793	2,465,621	807,144	2,446	161,167	2,432	100,047
Noakhali	11000	335,665	3,059,777	0	6,899,453	5,975,543	2,038,190	1,594,322	530,651	0	0	515,146	4,475,643	1,465,143	4,439	292,554	4,415	181,607
Rangamati	11100	0	298,985	362,605	0	583,898	0	155,789	0	283,793	515,146	0	462,016	147,603	843	47,064	13,048	16,834
Dhaka	20100	301,046	7,846,006	3,150,355	6,878,528	15,322,735	1,827,983	4,088,227	475,922	2,465,621	4,475,643	462,016	0	1,391,974	1,229,120	4,672,618	1,544,769	5,173,475
Gazipur	20200	96,177	2,604,118	1,031,298	1,976,873	5,085,672	583,995	1,356,898	152,045	807,144	1,465,143	147,603	1,391,974	0	412,192	1,414,144	518,497	1,742,182
Gopalganj	20300	549	4,017	3,125	11,289	7,845	3,335	2,093	868	2,446	4,439	843	1,229,120	412,192	0	3,086	716,421	0
Kishoreganj	20400	30,667	335,358	205,925	630,344	654,932	186,212	174,741	48,481	161,167	292,554	47,064	4,672,618	1,414,144	3,086	0	3,069	169,730
Madaripur	20500	8,502	15,529	3,107	174,750	30,326	51,623	8,091	13,440	2,432	4,415	13,048	1,544,769	518,497	716,421	3,069	0	0
Manikganj	20600	10,969	238,161	127,831	225,463	465,113	66,605	124,096	17,341	100,047	181,607	16,834	5,173,475	1,742,182	0	169,730	0	0
Munshiganj	20700	7,836	187,644	69,922	161,074	366,456	47,583	97,773	12,389	54,724	99,336	12,027	7,894,455	2,650,014	1,416	74,723	48,635	82,607
Narayanganj	20900	68,820	2,149,575	810,847	1,414,577	4,197,980	417,885	1,120,054	108,798	634,608	1,151,954	105,619	326,651	43,310	356,707	1,225,454	448,782	1,508,950
Rajbari	21000	492	3,597	2,798	10,108	7,025	2,986	1,874	777	2,190	3,975	755	1,790,399	601,384	120,239	2,763	159,483	79,266
Shariatpur	21100	541	3,960	15,423	11,129	7,734	3,288	2,064	856	12,071	21,911	831	308,231	102,104	358,211	3,042	3,451,842	0
Faridpur	21200	896	6,555	5,098	18,419	12,801	5,441	3,415	1,417	3,990	7,243	1,375	2,280,833	765,275	277,216	5,035	394,949	158,531
Tangail	21300	23,164	351,382	196,294	476,117	686,226	140,651	183,091	36,619	153,629	278,871	35,549	7,430,862	2,510,182	6,144	663,638	6,110	959,480
Narsingdi	21400	56,253	1,606,921	624,542	1,156,266	3,138,212	341,576	837,300	88,931	488,797	887,274	86,332	715,567	455,898	258,885	977,382	325,750	1,095,793
Jamalpur	21500	20,784	239,456	143,010	427,207	467,641	126,203	124,770	32,857	111,927	203,172	31,897	4,565,729	1,499,069	7,055	276,753	7,016	133,636
Netrokona	21600	20,213	232,872	139,079	415,462	454,785	122,733	121,340	31,954	108,850	197,586	31,020	4,440,204	1,457,855	6,861	269,144	6,823	129,962
Sherpur	21700	12,314	141,869	84,728	253,105	277,060	74,770	73,922	19,467	66,312	120,372	18,898	2,705,026	888,143	4,180	163,966	4,157	79,175
Mymensingh	21800	46,327	533,737	318,764	952,227	1,042,353	281,301	278,108	73,238	249,480	452,861	71,098	10,176,814	3,341,360	15,724	616,870	15,638	297,870
Joypurhat	30100	2,483	11,854	7,215	51,047	23,151	15,080	6,177	3,926	5,647	10,250	3,811	1,287,456	419,857	10,135	21,772	10,123	3,880
Bogra	30200	9,243	44,119	26,853	189,987	86,162	56,125	22,989	14,612	21,016	38,149	14,185	4,791,671	1,562,630	37,722	81,030	37,674	14,439
Naogaon	30300	7,067	33,732	20,530	145,256	65,876	42,911	17,576	11,172	16,068	29,167	10,845	3,663,498	1,194,718	28,841	61,952	28,804	11,039
Natore	30400	4,638	22,140	13,476	95,342	43,239	28,165	11,536	7,333	10,547	19,144	7,119	2,404,622	784,180	18,930	40,664	18,906	7,246
Nawabganj	30500	4,478	21,373	13,008	92,038	41,740	27,189	11,137	7,079	10,181	18,481	6,872	2,321,279	757,001	18,274	39,254	18,251	6,995
Pabna	30600	6,858	32,733	19,922	140,956	63,925	41,640	17,056	10,841	15,592	28,303	10,524	3,555,040	1,159,348	27,987	60,118	27,951	10,713
Sirajganj	30700	8,419	40,183	24,457	173,039	78,476	51,118	20,938	13,309	19,141	34,746	12,920	4,364,216	1,423,231	34,357	73,802	34,313	13,151
Rajshahi	30800	7,124	34,004	20,696	146,429	66,407	43,257	17,718	11,262	16,198	29,402	10,933	3,693,075	1,204,363	29,073	62,452	29,037	11,129
Dinajpur	40100	3,766	20,269	20,395	77,400	39,584	22,865	10,561	5,953	15,962	28,974	5,779	2,368,119	759,867	29,426	27,519	29,388	14,864
Gaibandha	40200	2,996	16,128	16,228	61,588	31,497	18,194	8,404	4,737	12,701	23,055	4,598	1,884,320	604,629	23,414	21,897	23,384	11,827
Kurigram	40300	2,606	14,027	14,114	53,564	27,394	15,823	7,309	4,120	11,046	20,051	3,999	1,638,821	525,855	20,364	19,044	20,337	10,286
Lalmonirhat	40400	1,582	8,515	8,567	32,515	16,629	9,605	4,437	2,501	6,705	12,172	2,428	994,804	319,207	12,361	11,560	12,345	6,244
Nilphamari	40500	2,333	12,558	12,636	47,954	24,525	14,166	6,543	3,688	9,889	17,951	3,581	1,467,200	470,786	18,231	17,050	18,208	9,209
Panchagarh	40600	1,244	6,695	6,736	25,565	13,075	7,552	3,488	1,966	5,272	9,570	1,909	782,194	250,985	9,719	9,089	9,707	4,910
Rangpur	40700	3,665	19,725	19,847	75,324	38,522	22,252	10,278	5,793	15,534	28,197	5,624	2,362,132	739,479	28,636	26,780	28,599	14,465
Thakurgaon	40800	1,751	9,423	9,481	35,982	18,402	10,629	4,910	2,767	7,420	13,469	2,687	1,100,884	353,245	13,679	12,793	13,662	6,910
Barguna	50100	2,230	0	0	45,828	0	13,538	0	3,525	0	0	3,422	337,491	113,651	67,044	0	158,307	0
Barisal	50200	2,652	0	12,343	54,508	0	16,102	0	4,192	9,660	17,535	4,070	2,211,981	744,891	198,727	0	556,938	84,328
Bhola	50300	4,437	0	0	91,206	0	26,944	0	7,015	0	0	6,810	671,668	226,186	133,429	0	315,059	0
Jhalokati	50400	0	0	0	0	0	0	0	0	0	0	0	244,071	82,192	80,193	0	119,048	0
Patuakhali	50500	3,836	0	0	78,838	0	23,290	0	6,064	0	0	5,886	580,587	195,514	115,336	0	272,336	0
Pirojpur	50600	6,564	0	0	134,920	0	39,857	0	10,377	0	0	10,074	599,853	202,002	357,145	0	157,904	0
Bagerhat	60100	4,014	10,155	7,899	82,506	19,833	24,373	5,292	6,346	6,182	11,222	6,160	1,404,881	454,275	757,043	23,643	200,635	83,493
Chuadanga	60200	1,062	7,768	6,042	21,827	15,169	6,448	4,047	1,679	4,729	8,583	1,630	1,354,847	441,852	83,173	5,634	83,157	0
Jessore	60300	10,751	19,947	14,942	220,986	38,954	65,282	10,393	16,997	11,694	21,228	16,500	2,063,120	659,156	179,386	14,985	284,547	118,898
Jhenaida	60400	1,666	12,186	9,479	34,245	23,799	10,116	6,350	2,634	7,419	13,466	2,557	1,243,051	396,013	203,918	25,116	123,699	0
Khulna	60500	8,832	154,513	12,531	181,542	301,753	53,630	80,510	13,963	9,808	17,803	13,555	3,587,607	1,100,750	1,718,747	11,687	361,852	0
Kushtia	60600	14,959	13,394	10,418	307,479	26,158	90,833	6,979	23,649	8,154	14,801	22,958	3,247,961	1,068,934	204,381	9,716	201,871	0
Magura	60700	864	7,777	4,915	17,756	15,188	5,245	4,052	1,366	3,847	6,982	1,326	966,443	313,741	123,955	4,583	121,460	0
Meherpur	60800	3,242	4,509	3,507	66,639	8,806	19,686	2,349	5,125	2,745	4,983	4,976	1,385,087	458,075	40,586	3,271	40,576	0
Narail	60900	679	4,965	3,862	13,952	9,696	4,122	2,587	1,073	3,023	5,487	1,042	773,479	251,269	159,809	3,602	548,356	0
Satkhira	61000	4,494	13,663	10,628	92,363	26,683	27,285	7,119	7,104	8,318	15,098	6,896	1,072,098	335,707	1,040,305	9,911	401,215	0
Habiganj	70100	50,595	656,470	343,374	1,039,957	1,282,044	307,217	342,059	79,985	268,741	487,824	77,648	2,429,971	795,855	2,378	502,673	2,365	110,172
Moulvibazar	70200	46,479	603,067	315,441	955,357	1,177,750	282,225	314,233	73,478	246,879	448,140	71,331	2,232,295	731,113	2,185	461,781	2,173	101,209
Sunamganj	70300	59,773	775,561	405,666	1,228,616	1,514,620	362,950	404,113	94,495	317,494	576,321	91,734	2,870,794	940,231	2,810	593,864	2,794	130,158
Sylhet	70400	84,007	1,089,989	570,131	1,726,721	2,128,676	510,096	567,948	132,806	446,212	809,973	128,925	4,149,777	1,321,419	3,949	834,628	3,927	182,927
Benapole Land Port	99001	2,626	0	0	53,968	0	15,943	0	4,151	0	0	4,030	623,322	209,905	121,530	0	7,444	0
Bhomra Land Port	99002	0	68,516	0	0	133,807	0	35,701	0	0	0	0	44,120	14,858	0	0	0	0
Mongla Sea Port	99003	2,626	0	0	53,968	0	15,943	0	4,151	0	0	4,030	66,181	22,287	0	0	0	0
Hilli Land Port	99004	2,626	0	0	53,968	0	15,943	0	4,151	0	0	4,030	242,663	81,717	0	0	0	0
Dhaka Airport	99005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	99006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	99007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Payra Sea Port	99008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Matarbari Sea Port	99009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Akhaura Land Port	99010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bibir Bazar Land Port	99011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ramgarh border crossing	99012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teknaf border crossing	99013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Passenger OD Table in 2031 (Passenger per annum, excluding Inland waterway Passenger) (2 of 4)

		20700	20900	21000	21100	21200	21300	21400	21500	21600	21700	21800	30100	30200	30300	30400	30500	30600	30700	30800
Bandarban	10100	7,836	68,820	492	541	896	22,171	56,253	20,784	20,213	12,314	46,327	2,269	8,446	6,457	4,238	4,092	6,266	7,692	6,509
Brahmanbaria	10200	187,644	2,149,575	3,597	3,960	6,555	344,124	1,606,921	239,456	232,872	141,869	533,737	10,288	38,288	29,273	19,214	18,548	28,407	34,873	29,510
Chandpur	10300	69,922	810,847	2,798	15,423	5,098	190,648	624,542	143,010	139,079	84,728	318,764	5,996	22,317	17,063	11,199	10,811	16,558	20,326	17,200
Chittagong	10400	161,074	1,414,577	10,108	11,129	18,419	455,720	1,156,266	427,207	415,462	253,105	952,227	46,644	173,602	132,728	87,119	84,100	128,799	158,115	133,800
Comilla	10500	366,456	4,197,980	7,025	7,734	12,801	672,051	3,138,212	467,641	454,785	277,060	1,042,353	20,091	74,774	57,169	37,524	36,224	55,477	68,104	57,631
Cox's Bazar	10600	47,583	417,885	2,986	3,288	5,441	134,626	341,576	126,203	122,733	74,770	281,301	13,779	51,284	39,210	25,736	24,844	38,049	46,709	39,526
Feni	10700	97,773	1,120,054	1,874	2,064	3,415	179,309	837,300	124,770	121,340	73,922	278,108	5,360	19,950	15,253	10,012	9,665	14,802	18,171	15,376
Khagrachhari	10800	12,389	108,798	777	856	1,417	35,050	88,931	32,857	31,954	19,467	73,238	3,588	13,352	10,208	6,701	6,468	9,906	12,161	10,291
Lakshmipur	10900	54,724	634,608	2,190	12,071	3,990	149,211	488,797	111,927	108,850	66,312	249,480	4,693	17,466	13,354	8,765	8,461	12,959	15,908	13,462
Noakhali	11000	99,336	1,151,954	3,975	21,911	7,243	270,850	887,274	203,172	197,586	120,372	452,861	8,519	31,705	24,241	15,911	15,359	23,523	28,877	24,436
Rangamati	11100	12,027	105,619	755	831	1,375	34,026	86,332	31,897	31,020	18,898	71,098	3,483	12,962	9,910	6,505	6,279	9,617	11,806	9,990
Dhaka	20100	7,894,455	326,651	1,790,399	308,231	2,280,833	7,201,245	715,567	4,565,729	4,440,204	2,705,026	10,176,814	1,251,137	4,656,498	3,560,151	2,336,787	2,255,796	3,454,752	4,241,101	3,588,893
Gazipur	20200	2,650,014	43,310	601,384	102,104	765,275	2,431,272	455,898	1,499,069	1,457,855	888,143	3,341,360	410,405	1,527,453	1,167,822	766,527	739,960	1,133,249	1,391,192	1,177,251
Gopalganj	20300	1,416	356,707	120,239	358,211	277,216	4,897	258,885	7,055	6,861	4,180	15,724	9,663	35,963	27,496	18,047	17,422	26,682	32,755	27,718
Kishoreganj	20400	74,723	1,225,454	2,763	3,042	5,035	658,370	977,382	276,753	269,144	163,966	616,870	20,635	76,800	58,718	38,541	37,205	56,980	69,949	59,192
Madaripur	20500	48,635	448,782	159,483	3,451,842	394,949	4,870	325,750	7,016	6,823	4,157	15,638	9,653	35,925	27,467	18,028	17,403	26,653	32,720	27,688
Manikganj	20600	82,607	1,508,950	79,266	0	158,531	959,480	1,095,793	133,636	129,962	79,175	297,870	3,880	14,439	11,039	7,246	6,995	10,713	13,151	11,129
Munshiganj	20700	0	2,295,629	8,861	1,396	2,311	94,172	1,666,095	69,315	67,409	41,067	154,500	2,084	7,756	5,930	3,892	3,757	5,754	7,064	5,978
Narayanganj	20900	2,295,629	0	520,602	88,136	662,329	1,869,907	23,423	997,888	970,453	591,212	2,224,249	323,297	1,203,252	919,953	603,832	582,904	892,717	1,095,912	927,380
Rajbari	21000	8,861	520,602	0	120,239	1,356,860	4,385	377,921	6,317	6,143	3,742	14,080	13,433	49,994	38,223	25,089	24,219	37,092	45,534	38,532
Shariatpur	21100	1,396	88,136	120,239	0	237,972	4,828	63,852	6,955	6,764	4,120	15,502	9,636	35,865	27,421	17,998	17,375	26,609	32,666	27,642
Faridpur	21200	2,311	662,329	1,356,860	237,972	0	7,991	480,729	11,511	11,194	6,820	25,657	10,713	39,872	30,484	20,009	19,316	29,582	36,315	30,731
Tangail	21300	96,704	1,878,220	5,501	6,057	10,024	0	1,359,571	563,210	547,726	333,681	1,255,371	113,055	420,768	321,701	211,156	203,837	312,177	383,232	324,298
Narsingdi	21400	1,666,095	23,423	377,921	63,852	480,729	1,354,424	0	885,335	860,995	524,528	1,973,373	238,580	887,952	678,888	445,604	430,160	658,790	808,739	684,369
Jamalpur	21500	69,315	997,888	6,317	6,955	11,511	550,805	885,335	0	0	0	0	20,991	78,126	59,732	39,206	37,848	57,963	71,157	60,214
Netrokona	21600	67,409	970,453	6,143	6,764	11,194	535,662	860,995	0	0	0	0	20,414	75,978	58,090	38,128	36,807	56,370	69,200	58,559
Sherpur	21700	41,067	591,212	3,742	4,120	6,820	326,332	524,528	0	0	0	0	12,437	46,287	35,389	23,228	22,423	34,341	42,158	35,675
Mymensingh	21800	154,500	2,224,249	14,080	15,502	25,657	1,227,721	1,973,373	0	0	0	0	46,789	174,140	133,140	87,389	84,360	129,198	158,605	134,215
Joypurhat	30100	2,614	330,482	13,856	10,102	11,484	113,055	239,548	23,094	22,459	13,682	51,475	0	0	0	0	0	0	0	0
Bogra	30200	9,730	1,229,993	51,569	37,599	42,742	420,768	891,554	85,951	83,588	50,923	191,581	0	0	0	0	0	0	0	0
Naogaon	30300	7,439	940,398	39,427	28,747	32,679	321,701	681,643	65,714	63,908	38,933	146,475	0	0	0	0	0	0	0	0
Natore	30400	4,883	617,252	25,879	18,869	21,449	211,156	447,412	43,133	41,947	25,555	96,142	0	0	0	0	0	0	0	0
Nawabganj	30500	4,713	595,858	24,982	18,215	20,706	203,837	431,905	41,638	40,493	24,669	92,810	0	0	0	0	0	0	0	0
Pabna	30600	7,219	912,557	38,260	27,896	31,711	312,177	661,462	63,769	62,016	37,781	142,138	0	0	0	0	0	0	0	0
Sirajganj	30700	8,862	1,120,268	46,969	34,245	38,929	383,232	812,020	78,284	76,131	46,380	174,491	0	0	0	0	0	0	0	0
Rajshahi	30800	7,499	947,990	39,746	28,979	32,943	324,298	687,146	66,245	64,424	39,248	147,657	0	0	0	0	0	0	0	0
Dinajpur	40100	6,803	581,852	28,706	29,328	33,300	67,703	421,607	39,652	38,562	23,492	88,382	20,525	76,392	58,406	38,336	37,007	56,677	69,577	58,877
Gaibandha	40200	5,413	462,981	22,842	23,337	26,497	53,871	335,474	31,551	30,684	18,693	70,326	16,332	60,785	46,474	30,504	29,447	45,098	55,363	46,849
Kurigram	40300	4,708	402,662	19,866	20,296	23,045	46,853	291,767	27,440	26,686	16,257	61,164	14,204	52,866	40,419	26,530	25,610	39,222	48,150	40,745
Lalmonirhat	40400	2,858	244,425	12,059	12,320	13,989	28,441	177,110	16,657	16,199	9,869	37,128	8,622	32,091	24,535	16,104	15,546	23,809	29,228	24,733
Nilphamari	40500	4,215	360,494	17,785	18,171	20,632	41,946	261,212	24,567	23,891	14,555	54,758	12,717	47,330	36,186	23,752	22,928	35,115	43,107	36,478
Panchagarh	40600	2,247	192,187	9,482	9,687	10,999	22,362	139,258	13,097	12,737	7,760	29,193	6,780	25,232	19,292	12,662	12,224	18,720	22,981	19,447
Rangpur	40700	6,621	566,239	27,936	28,541	32,407	65,886	410,295	38,588	37,527	22,862	86,011	19,975	74,342	56,839	37,307	36,014	55,156	67,710	57,297
Thakurgaon	40800	3,163	270,490	13,345	13,634	15,481	31,473	195,995	18,433	17,926	10,921	41,087	9,542	35,513	27,151	17,822	17,204	26,348	32,345	27,371
Barguna	50100	0	98,436	25,273	108,814	24,746	0	71,484	0	0	0	0	0	0	0	0	0	0	0	0
Barisal	50200	0	645,169	80,995	318,966	120,239	0	468,520	0	0	0	0	5,885	21,903	16,746	10,992	10,611	16,250	19,949	16,881
Bhola	50300	0	195,906	50,298	216,560	49,250	0	142,266	0	0	0	0	0	0	0	0	0	0	0	0
Jhalokati	50400	0	71,188	38,856	80,193	41,337	0	51,697	0	0	0	0	2,023	7,530	5,757	3,779	3,648	5,587	6,858	5,804
Patuakhali	50500	0	169,340	43,477	187,194	42,571	0	122,974	0	0	0	0	0	0	0	0	0	0	0	0
Pirojpur	50600	0	174,959	38,856	119,048	80,193	0	127,055	0	0	0	0	7,728	28,764	21,992	14,435	13,934	21,340	26,198	22,169
Bagerhat	60100	3,412	354,923	81,201	122,890	125,407	62,906	257,266	27,071	26,327	16,039	60,340	30,774	114,533	87,567	57,477	55,485	84,975	104,316	88,274
Chuadanga	60200	2,610	353,224	163,054	41,794	162,768	48,114	256,145	10,904	10,604	6,460	24,305	56,512	210,326	160,806	105,548	101,890	156,045	191,563	162,104
Jessore	60300	46,088	498,016	283,816	49,018	93,022	118,993	360,754	27,793	27,029	16,467	61,951	78,289	291,377	222,774	146,223	141,155	216,178	265,384	224,572
Jhenaida	60400	4,095	296,754	322,477	123,659	522,680	75,486	214,929	29,922	29,100	17,728	66,696	82,118	305,626	233,668	153,373	148,058	226,750	278,362	235,555
Khulna	60500	5,414	892,253	125,775	283,311	248,059	99,795	647,193	22,616	21,994	13,399	50,410	56,012	208,468	159,385	104,616	100,990	154,667	189,871	160,672
Kushtia	60600	4,501	875,006	956,990	162,971	720,196	82,967	634,796	18,802	18,286	11,140	41,910	328,972	1,224,372	936,101	614,431	593,135	908,387	1,115,148	943,658
Magura	60700	2,123	247,762	359,316	82,583	676,910	119,159	179,627	8,870	8,626	5,255	19,771	35,744	133,031	101,710	66,760	64,446	98,699	121,164	102,531
Meherpur	60800	1,515	379,640	81,742	40,561	83,016	147,960	275,481	6,330	6,156	3,750	14,109	27,955	104,044	79,547	52,213	50,403	77,192	94,762	80,190
Narail	60900	40,909	198,790	81,899	120,927	122,157	30,755	144,127	6,970	6,778	4,129	15,535	21,019	78,227	59,809	39,257	37,896	58,038	71,249	60,292
Satkhira	61000	4,591	238,917	284,129	323,459	57,336	84,634	172,858	19,180	18,653	11,364	42,752	95,342	354,845	271,298	178,073	171,901	263,267	323,190	273,489
Habiganj	70100	63,734	636,292	2,129	2,345	3,880	228,939	495,275	411,232	399,926	243,640	916,619	5,061	18,837	14,402	9,453	9,126	13,976	17,157	14,519
Moulvibazar	70200	58,549	584,530	1,956	2,154	3,565	210,315	454,985	377,779	367,393	223,820	842,053	4,650	17,305	13,231	8,684	8,383	12,839	15,761	13,337
Sunamganj	70300	75,296	751,722	2,516	2,770	4,584	270,471	585,123	485,834	472,477	287,839	1,082,904	5,980	22,255	17,015	11,168	10,781	16,511	20,269	17,152
Sylhet	70400	105,822	1,056,485	3,536	3,893	6,443	380,125	822,343	682,801	664,029	404,534	1,521,934	8,404	31,277	23,913	15,696	15,152	23,205	28,487	24,106
Benapole Land Port	99001	39,240	181,805	0	0	116,567	0	132,026	0	0	0	0	0	0	0	0	0	0	0	0
Bhomra Land Port	99002	0	12,869	0	0	0	0	9,345	0	0	0	0	0	0	0	0	0	0	0	0
Mongla Sea Port	99003	0	19,303	0	0	0	0	14,018	0	0	0	0	0	0	0	0	0	0	0	0
Hilli Land Port	99004	0	70,778	0	0	0	0	51,398	0	0	0	0	0	0	0	0	0	0	0	0
Dhaka Airport	99005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	99006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	99007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Payra Sea Port	99008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Matarbari Sea Port	99009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Akhaura Land Port	99010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bibir Bazar Land Port	99011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ramgarh border crossing	99012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teknaf border crossing	99013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Passenger OD Table in 2031 (Passenger per annum, excluding Inland waterway Passenger) (3 of 4)

		40100	40200	40300	40400	40500	40600	40700	40800	50100	50200	50300	50400	50500	50600	60100	60200	60300	60400	60500	60600
Bandarban	10100	3,203	2,549	2,217	1,346	1,985	1,058	3,117	1,489	2,230	2,652	4,437	0	3,836	6,564	3,732	846	10,218	1,328	8,385	14,588
Brahmanbaria	10200	16,157	12,856	11,181	6,787	10,010	5,337	15,723	7,511	0	0	0	0	0	0	8,095	6,192	16,049	9,714	151,244	10,677
Chandpur	10300	17,196	13,683	11,900	7,224	10,654	5,680	16,735	7,994	0	12,343	0	0	0	0	6,297	4,816	11,911	7,556	9,989	8,305
Chittagong	10400	65,845	52,393	45,567	27,660	40,795	21,749	64,078	30,610	45,828	54,508	91,206	0	78,838	134,920	76,716	17,399	210,035	27,298	172,358	299,843
Comilla	10500	31,553	25,107	21,836	13,255	19,549	10,422	30,707	14,668	0	0	0	0	0	0	15,809	12,092	31,343	18,971	295,370	20,851
Cox's Bazar	10600	19,452	15,478	13,461	8,171	12,051	6,425	18,930	9,043	13,538	16,102	26,944	0	23,290	39,857	22,663	5,140	62,047	8,064	50,917	88,578
Feni	10700	8,419	6,699	5,826	3,537	5,216	2,781	8,193	3,914	0	0	0	0	0	0	4,218	3,226	8,363	5,062	78,807	5,563
Khagrachhari	10800	5,064	4,030	3,505	2,127	3,138	1,673	4,928	2,354	3,525	4,192	7,015	0	6,064	10,377	5,900	1,338	16,154	2,100	13,256	23,062
Lakshmipur	10900	13,459	10,709	9,314	5,654	8,338	4,445	13,097	6,257	0	9,660	0	0	0	0	4,928	3,769	9,322	5,914	7,818	6,500
Noakhali	11000	24,430	19,439	16,907	10,263	15,136	8,069	23,775	11,357	0	17,535	0	0	0	0	8,945	6,842	16,921	10,734	14,191	11,798
Rangamati	11100	4,916	3,912	3,402	2,065	3,046	1,624	4,784	2,285	3,422	4,070	6,810	0	5,886	10,074	5,728	1,299	15,682	2,038	12,869	22,388
Dhaka	20100	2,279,999	1,814,203	1,577,839	957,787	1,412,603	753,087	2,276,376	1,059,919	337,491	2,211,981	671,668	244,071	580,587	599,853	1,360,496	1,320,898	1,979,160	1,189,788	3,517,193	3,189,421
Gazipur	20200	737,821	587,087	510,598	309,946	457,127	243,704	718,024	342,996	113,651	744,891	226,186	82,192	195,514	202,002	443,147	433,340	638,106	382,660	1,083,096	1,054,257
Gopalganj	20300	28,030	22,304	19,398	11,775	17,366	9,258	27,278	13,031	67,044	198,727	133,429	80,193	115,336	357,145	756,253	82,569	177,891	202,969	1,717,493	203,338
Kishoreganj	20400	24,537	19,524	16,981	10,308	15,202	8,105	23,879	11,407	0	0	0	0	0	0	22,149	4,491	12,158	23,323	9,316	7,745
Madaripur	20500	28,000	22,280	19,377	11,762	17,348	9,248	27,249	13,017	158,307	556,938	315,059	119,048	272,336	157,904	199,849	82,556	283,060	122,756	360,605	200,834
Manikganj	20600	14,864	11,827	10,286	6,244	9,209	4,910	14,465	6,910	0	84,328	0	0	0	0	83,493	0	118,898	0	0	0
Munshiganj	20700	5,423	4,315	3,753	2,278	3,360	1,791	5,277	2,521	0	0	0	0	0	0	2,720	2,081	44,778	3,264	4,315	3,588
Narayanganj	20900	578,234	460,103	400,158	242,906	358,253	190,992	562,719	268,808	98,436	645,169	195,906	71,188	169,340	174,959	353,102	351,832	494,572	294,569	889,365	872,605
Rajbari	21000	27,457	21,847	19,001	11,534	17,011	9,069	26,720	12,764	25,273	80,995	50,298	38,856	43,477	38,856	80,493	162,513	282,477	321,627	124,652	956,056
Shariatpur	21100	27,953	22,242	19,344	11,742	17,318	9,233	27,203	12,994	108,814	318,966	216,560	80,193	187,194	119,048	122,111	41,198	47,543	122,723	282,074	161,943
Faridpur	21200	31,023	24,685	21,469	13,032	19,221	10,247	30,191	14,422	24,746	120,239	49,250	41,337	42,571	80,193	124,117	161,781	90,582	521,132	246,012	718,494
Tangail	21300	67,703	53,871	46,853	28,441	41,946	22,362	65,886	31,473	0	0	0	0	0	0	62,906	48,114	118,993	75,486	99,795	82,967
Narsingdi	21400	419,169	333,534	290,080	176,085	259,702	138,452	407,922	194,862	71,484	468,520	142,266	51,697	122,974	127,055	256,041	255,208	358,437	213,459	645,250	633,180
Jamalpur	21500	33,656	26,780	23,291	14,138	20,852	11,117	32,753	15,646	0	0	0	0	0	0	24,179	8,692	22,323	26,452	18,028	14,988
Netrokona	21600	32,730	26,044	22,651	13,749	20,279	10,811	31,852	15,216	0	0	0	0	0	0	23,514	8,453	21,709	25,724	17,532	14,576
Sherpur	21700	19,940	15,866	13,799	8,376	12,354	6,586	19,405	9,270	0	0	0	0	0	0	14,325	5,150	13,225	15,672	10,681	8,880
Mymensingh	21800	75,017	59,691	51,915	31,513	46,478	24,778	73,004	34,874	0	0	0	0	0	0	53,894	19,374	49,756	58,960	40,183	33,407
Joypurhat	30100	20,525	16,332	14,204	8,622	12,717	6,780	19,975	9,542	0	5,885	0	2,023	0	7,728	30,774	56,512	78,289	82,118	56,012	328,972
Bogra	30200	76,392	60,785	52,866	32,091	47,330	25,232	74,342	35,513	0	21,903	0	7,530	0	28,764	114,533	210,326	291,377	305,626	208,468	1,224,372
Naogaon	30300	58,406	46,474	40,419	24,535	36,186	19,292	56,839	27,151	0	16,746	0	5,757	0	21,992	87,567	160,806	222,774	233,668	159,385	936,101
Natore	30400	38,336	30,504	26,530	16,104	23,752	12,662	37,307	17,822	0	10,992	0	3,779	0	14,435	57,477	105,548	146,223	153,373	104,616	614,431
Nawabganj	30500	37,007	29,447	25,610	15,546	22,928	12,224	36,014	17,204	0	10,611	0	3,648	0	13,934	55,485	101,890	141,155	148,058	100,990	593,135
Pabna	30600	56,677	45,098	39,222	23,809	35,115	18,720	55,156	26,348	0	16,250	0	5,587	0	21,340	84,975	156,045	216,178	226,750	154,667	908,387
Sirajganj	30700	69,577	55,363	48,150	29,228	43,107	22,981	67,710	32,345	0	19,949	0	6,858	0	26,198	104,316	191,563	265,384	278,362	189,871	1,115,148
Rajshahi	30800	58,877	46,849	40,745	24,733	36,478	19,447	57,297	27,371	0	16,881	0	5,804	0	22,169	88,274	162,104	224,572	235,555	160,672	943,658
Dinajpur	40100	5,520	4,392	3,820	2,319	3,420	1,823	5,372	2,566	1,547	14,718	3,078	7,752	2,661	22,324	32,356	85,209	79,010	60,540	221,434
Gaibandha	40200	4,392	3,495	3,040	1,845	2,721	1,451	4,274	2,042	1,231	11,711	2,450	6,168	2,117	17,763	25,746	41,632	67,801	62,869	48,172	176,195
Kurigram	40300	3,820	3,040	2,644	1,605	2,367	1,262	3,717	1,776	1,070	10,185	2,130	5,364	1,841	15,449	22,392	36,208	58,967	54,678	41,896	153,240
Lalmonirhat	40400	2,319	1,845	1,605	974	1,437	766	2,257	1,078	650	6,183	1,293	3,256	1,118	9,378	13,592	21,979	35,795	33,191	25,432	93,020
Nilphamari	40500	3,420	2,721	2,367	1,437	2,119	1,130	3,328	1,590	958	9,119	1,907	4,803	1,649	13,831	20,047	32,416	52,792	48,952	37,508	137,192
Panchagarh	40600	1,823	1,451	1,262	766	1,130	602	1,774	848	511	4,861	1,017	2,560	879	7,374	10,687	17,282	28,145	26,097	19,996	73,140
Rangpur	40700	5,372	4,274	3,717	2,257	3,328	1,774	5,228	2,497	1,505	14,323	2,996	7,544	2,590	21,725	31,488	50,917	82,922	76,890	58,915	215,492
Thakurgaon	40800	2,566	2,042	1,776	1,078	1,590	848	2,497	1,193	719	6,842	1,431	3,604	1,237	10,378	15,042	24,323	39,612	36,730	28,144	102,939
Barguna	50100	1,547	1,231	1,070	650	958	511	1,505	719	0	1,135,529	0	335,029	0	233,373	133,281	25,023	74,766	50,046	150,585	91,403
Barisal	50200	14,718	11,711	10,185	6,183	9,119	4,861	14,323	6,842	1,135,529	0	2,259,907	4,164,215	1,953,454	869,714	434,857	41,337	86,007	119,048	397,455	157,904
Bhola	50300	3,078	2,450	2,130	1,293	1,907	1,017	2,996	1,431	0	2,259,907	0	666,768	0	464,454	265,254	49,800	148,797	99,600	299,691	181,908
Jhalokati	50400	7,752	6,168	5,364	3,256	4,803	2,560	7,544	3,604	335,029	4,164,215	666,768	0	576,352	630,277	235,740	0	119,048	38,471	199,241	38,471
Patuakhali	50500	2,661	2,117	1,841	1,118	1,649	879	2,590	1,237	0	1,953,454	0	576,352	0	401,472	228,284	43,047	128,620	86,094	259,052	157,240
Pirojpur	50600	22,324	17,763	15,449	9,378	13,831	7,374	21,725	10,378	233,373	869,714	464,454	630,277	401,472	0	4,271,955	79,399	432,375	156,341	1,620,379	158,798
Bagerhat	60100	32,356	25,746	22,392	13,592	20,047	10,687	31,488	15,042	133,281	434,857	265,254	235,740	229,284	4,271,955	0	79,399	748,184	235,740	5,524,164	197,269
Chuadanga	60200	52,321	41,632	36,208	21,979	32,416	17,282	50,917	24,323	25,023	41,337	49,800	0	43,047	79,399	79,399	0	828,376	2,595,592	276,953	2,982,758
Jessore	60300	85,209	67,801	58,967	35,795	52,792	28,145	82,922	39,612	74,766	86,007	148,797	119,048	128,620	432,375	748,184	828,376	0	3,745,881	3,086,112	1,579,041
Jhenaida	60400	79,010	62,869	54,678	33,191	48,952	26,097	76,890	36,730	50,046	119,048	99,600	38,471	86,094	156,341	235,740	2,595,592	3,745,881	0	634,098	3,492,709
Khulna	60500	60,540	48,172	41,896	25,432	37,508	19,996	58,915	28,144	150,585	397,455	299,691	199,241	259,052	1,620,379	5,524,164	276,953	3,086,112	634,098	0	512,568
Kushtia	60600	221,434	176,195	153,240	93,020	137,192	73,140	215,492	102,939	91,403	157,904	181,908	38,471	157,240	158,798	197,269	2,982,758	1,579,041	3,492,709	512,568	0
Magura	60700	36,317	28,898	25,133	15,256	22,501	11,996	35,343	16,883	33,712	80,193	67,092	38,471	57,994	79,399	117,870	471,479	2,089,128	3,615,492	354,664	745,690
Meherpur	60800	27,244	21,678	18,854	11,445	16,879	8,999	26,513	12,665	8,689	38,856	17,292	0	14,947	38,471	38,471	1,934,215	276,953	514,864	119,048	1,101,756
Narail	60900	27,229	21,666	18,843	11,438	16,870	8,994	26,498	12,658	33,712	80,193	67,092	38,471	57,994	158,798	235,740	156,341	3,755,807	394,537	952,388	235,740
Satkhira	61000	162,944	129,655	112,763	68,450	100,954	53,821	158,572	75,749	276,295	476,194	549,876	197,269	475,311	1,022,357	1,693,562	550,878	6,020,209	1,299,024	6,746,907	904,487
Habiganj	70100	12,371	9,844	8,561	5,197	7,665	4,086	12,039	5,751	0	0	0	0	0	0	4,651	3,558	8,799	38,019	7,379	54,791
Moulvibazar	70200	11,365	9,043	7,865	4,774	7,041	3,754	11,060	5,283	0	0	0	0	0	0	4,273	3,268	8,083	34,926	6,779	50,334
Sunamganj	70300	14,616	11,630	10,115	6,140	9,055	4,828	14,224	6,795	0	0	0	0	0	0	5,495	4,203	10,395	44,916	8,718	64,731
Sylhet	70400	20,541	16,345	14,215	8,629	12,727	6,785	19,990	9,549	0	0	0	0	0	0	7,723	5,907	14,609	63,126	12,252	90,974
Benapole Land Port	99001	0	0	0	0	0	0	0	0	0	7,444	0	0	0	0	0	0	0	0	0	0
Bhomra Land Port	99002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mongla Sea Port	99003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hilli Land Port	99004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dhaka Airport	99005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	99006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	99007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Payra Sea Port	99008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Matarbari Sea Port	99009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Akhaura Land Port	99010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bibir Bazar Land Port	99011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ramgarh border crossing	99012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teknaf border crossing	99013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Passenger OD Table in 2031 (Passenger per annum, excluding Inland waterway Passenger) (4 of 4)

		60700	60800	60900	61000	70100	70200	70300	70400	99001	99002	99003	99004	99005	99006	99007	99008	99009	99010	99011	99012	99013
Bandarban	10100	689	3,117	541	4,115	50,595	46,479	59,773	84,007	2,626	0	2,626	2,626	0	0	0	0	0	0	0	0	0
Brahmanbaria	10200	6,495	3,594	3,958	10,891	656,470	603,067	775,561	1,089,989	0	68,516	0	0	0	0	0	0	0	0	0	0	0
Chandpur	10300	3,918	2,796	3,078	8,472	343,374	315,441	405,662	570,131	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong	10400	14,154	64,068	11,122	84,574	1,039,957	955,357	1,228,616	1,726,721	53,968	0	53,968	53,968	0	0	0	0	0	0	0	0	0
Comilla	10500	12,685	7,019	7,729	21,270	1,282,044	1,177,750	1,514,620	2,128,676	0	133,807	0	0	0	0	0	0	0	0	0	0	0
Cox's Bazar	10600	4,181	18,927	3,285	24,984	307,217	282,225	362,950	510,096	15,943	0	15,943	15,943	0	0	0	0	0	0	0	0	0
Feni	10700	3,384	1,873	2,062	5,675	342,059	314,233	404,113	567,948	0	35,701	0	0	0	0	0	0	0	0	0	0	0
Khagrachhari	10800	1,089	4,928	855	6,505	79,985	73,478	94,495	132,806	4,151	0	4,151	4,151	0	0	0	0	0	0	0	0	0
Lakshmipur	10900	3,066	2,188	2,409	6,630	268,741	246,879	317,494	446,212	0	0	0	0	0	0	0	0	0	0	0	0	0
Noakhali	11000	5,566	3,972	4,373	12,035	487,824	448,140	576,321	809,973	0	0	0	0	0	0	0	0	0	0	0	0	0
Rangamati	11100	1,057	4,784	830	6,315	77,648	71,331	91,734	128,925	4,030	0	4,030	4,030	0	0	0	0	0	0	0	0	0
Dhaka	20100	938,827	1,365,380	751,779	1,012,381	2,429,971	2,232,295	2,870,794	4,149,777	623,322	44,120	66,181	242,663	0	0	0	0	0	0	0	0	0
Gazipur	20200	306,817	453,134	245,828	320,735	795,855	731,113	940,231	1,321,419	209,905	14,858	22,287	81,717	0	0	0	0	0	0	0	0	0
Gopalganj	20300	123,463	40,235	159,423	1,039,241	2,378	2,185	2,810	3,949	121,530	0	0	0	0	0	0	0	0	0	0	0	0
Kishoreganj	20400	3,654	2,607	2,871	7,900	502,673	461,781	593,864	834,628	0	0	0	0	0	0	0	0	0	0	0	0	0
Madaripur	20500	120,971	40,227	547,971	400,157	2,365	2,173	2,794	3,927	7,444	0	0	0	0	0	0	0	0	0	0	0	0
Manikganj	20600	0	0	0	0	110,172	101,209	130,158	182,927	0	0	0	0	0	0	0	0	0	0	0	0	0
Munshiganj	20700	1,692	1,208	40,570	3,660	63,734	58,549	75,296	105,822	39,240	0	0	0	0	0	0	0	0	0	0	0	0
Narayanganj	20900	246,629	378,832	197,900	236,468	636,292	584,530	751,722	1,056,485	181,805	12,869	19,303	70,778	0	0	0	0	0	0	0	0	0
Rajbari	21000	358,876	81,428	81,553	283,176	2,129	1,956	2,516	3,536	0	0	0	0	0	0	0	0	0	0	0	0	0
Shariatpur	21100	82,098	40,215	120,546	322,410	2,345	2,154	2,770	3,893	0	0	0	0	0	0	0	0	0	0	0	0	0
Faridpur	21200	676,107	82,443	121,526	55,601	3,880	3,565	4,584	6,443	116,567	0	0	0	0	0	0	0	0	0	0	0	0
Tangail	21300	119,159	147,960	30,755	84,634	232,448	213,538	274,616	385,951	0	0	0	0	0	0	0	0	0	0	0	0	0
Narsingdi	21400	178,864	274,937	143,528	171,210	495,275	454,985	585,123	822,343	132,026	9,345	14,018	51,398	0	0	0	0	0	0	0	0	0
Jamalpur	21500	7,071	5,046	5,556	15,289	411,232	377,779	485,834	682,801	0	0	0	0	0	0	0	0	0	0	0	0	0
Netrokona	21600	6,876	4,907	5,403	14,869	399,926	367,393	472,477	664,029	0	0	0	0	0	0	0	0	0	0	0	0	0
Sherpur	21700	4,189	2,989	3,292	9,058	243,640	223,820	287,839	404,534	0	0	0	0	0	0	0	0	0	0	0	0	0
Mymensingh	21800	15,760	11,246	12,384	34,079	916,619	842,053	1,082,904	1,521,934	0	0	0	0	0	0	0	0	0	0	0	0	0
Joypurhat	30100	35,744	27,955	21,019	95,342	5,941	5,458	7,019	9,865	0	0	0	0	0	0	0	0	0	0	0	0	0
Bogra	30200	133,031	104,044	78,227	354,845	22,113	20,314	26,124	36,716	0	0	0	0	0	0	0	0	0	0	0	0	0
Naogaon	30300	101,710	79,547	59,809	271,298	16,907	15,531	19,974	28,071	0	0	0	0	0	0	0	0	0	0	0	0	0
Natore	30400	66,760	52,213	39,257	178,073	11,097	10,194	13,110	18,425	0	0	0	0	0	0	0	0	0	0	0	0	0
Nawabganj	30500	64,446	50,403	37,896	171,901	10,712	9,841	12,656	17,787	0	0	0	0	0	0	0	0	0	0	0	0	0
Pabna	30600	98,699	77,192	58,038	263,267	16,406	15,071	19,382	27,240	0	0	0	0	0	0	0	0	0	0	0	0	0
Sirajganj	30700	121,164	94,762	71,249	323,190	20,140	18,502	23,794	33,440	0	0	0	0	0	0	0	0	0	0	0	0	0
Rajshahi	30800	102,531	80,190	60,292	273,489	17,043	15,657	20,135	28,298	0	0	0	0	0	0	0	0	0	0	0	0	0
Dinajpur	40100	36,317	27,244	27,229	162,944	14,738	13,539	17,412	24,471	0	0	0	0	0	0	0	0	0	0	0	0	0
Gaibandha	40200	28,898	21,678	21,666	129,655	11,727	10,773	13,855	19,472	0	0	0	0	0	0	0	0	0	0	0	0	0
Kurigram	40300	25,133	18,854	18,843	112,763	10,199	9,370	12,050	16,935	0	0	0	0	0	0	0	0	0	0	0	0	0
Lalmonirhat	40400	15,256	11,445	11,438	68,450	6,191	5,688	7,314	10,280	0	0	0	0	0	0	0	0	0	0	0	0	0
Nilphamari	40500	22,501	16,879	16,870	100,954	9,131	8,388	10,788	15,161	0	0	0	0	0	0	0	0	0	0	0	0	0
Panchagarh	40600	11,996	8,999	8,994	53,821	4,868	4,472	5,751	8,083	0	0	0	0	0	0	0	0	0	0	0	0	0
Rangpur	40700	35,343	26,513	26,498	158,572	14,343	13,176	16,945	23,814	0	0	0	0	0	0	0	0	0	0	0	0	0
Thakurgaon	40800	16,883	12,665	12,658	75,749	6,851	6,294	8,094	11,376	0	0	0	0	0	0	0	0	0	0	0	0	0
Barguna	50100	33,712	8,689	33,712	276,295	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barisal	50200	80,193	38,856	80,193	476,194	0	0	0	0	7,444	0	0	0	0	0	0	0	0	0	0	0	0
Bhola	50300	67,092	17,292	67,092	549,876	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jhalokati	50400	38,471	0	38,471	197,269	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Patuakhali	50500	57,994	14,947	57,994	475,311	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pirojpur	50600	79,399	38,471	158,798	1,022,357	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bagerhat	60100	117,870	38,471	235,740	1,693,562	5,835	5,361	6,894	9,689	0	0	0	0	0	0	0	0	0	0	0	0	0
Chuadanga	60200	471,479	1,934,215	156,341	550,878	4,463	4,100	5,273	7,411	0	0	0	0	0	0	0	0	0	0	0	0	0
Jessore	60300	2,089,128	276,953	3,755,807	6,020,209	11,038	10,140	13,040	18,327	0	0	0	0	0	0	0	0	0	0	0	0	0
Jhenaida	60400	3,615,492	514,864	394,537	1,299,024	39,440	36,231	46,595	65,485	0	0	0	0	0	0	0	0	0	0	0	0	0
Khulna	60500	354,664	119,048	952,388	6,746,907	9,257	8,504	10,937	15,371	0	0	0	0	0	0	0	0	0	0	0	0	0
Kushtia	60600	745,690	1,101,756	235,740	904,487	56,353	51,768	66,576	93,567	0	0	0	0	0	0	0	0	0	0	0	0	0
Magura	60700	0	156,341	315,138	709,676	3,631	3,335	4,289	6,028	0	0	0	0	0	0	0	0	0	0	0	0	0
Meherpur	60800	156,341	0	79,399	238,196	18,810	17,280	22,222	31,231	0	0	0	0	0	0	0	0	0	0	0	0	0
Narail	60900	315,138	79,399	0	750,603	2,853	2,621	3,370	4,737	0	0	0	0	0	0	0	0	0	0	0	0	0
Satkhira	61000	709,676	238,196	750,603	0	7,851	7,212	9,275	13,035	0	0	0	0	0	0	0	0	0	0	0	0	0
Habiganj	70100	2,894	18,284	2,274	6,258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moulvibazar	70200	2,659	16,797	2,089	5,749	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunamganj	70300	3,419	21,601	2,687	7,393	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sylhet	70400	4,805	30,358	3,776	10,391	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Benapole Land Port	99001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bhomra Land Port	99002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mongla Sea Port	99003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hilli Land Port	99004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dhaka Airport	99005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	99006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	99007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Payra Sea Port	99008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Matarbari Sea Port	99009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Akhaura Land Port	99010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bibir Bazar Land Port	99011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ramgarh border crossing	99012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teknaf border crossing	99013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Passenger OD Table in 2041 (Passenger per annum, excluding Inland waterway Passenger) (1 of 4)

		10100	10200	10300	10400	10500	10600	10700	10800	10900	11000	11100	20100	20200	20300	20400	20500	20600
Bandarban	10100	0	327,140	396,751	0	638,883	0	170,459	0	310,517	563,656	0	477,162	153,909	715	46,907	14,071	18,419
Brahmanbaria	10200	327,140	0	3,616,615	6,724,231	0	1,986,427	0	517,174	2,830,538	5,138,049	502,063	12,967,744	4,317,360	5,233	529,573	24,572	399,926
Chandpur	10300	396,751	3,616,615	0	8,155,062	7,063,013	2,409,114	1,884,468	627,222	0	0	608,895	5,128,789	1,688,582	4,071	319,685	4,048	214,658
Chittagong	10400	0	6,724,231	8,155,062	0	13,131,982	0	3,503,717	0	6,382,546	11,585,724	0	10,967,621	3,163,547	14,706	964,158	289,218	378,603
Comilla	10500	638,883	0	7,063,013	13,131,982	0	3,879,363	0	1,010,007	5,527,856	10,034,273	980,496	25,325,153	8,431,521	10,221	1,034,221	47,987	781,029
Cox's Bazar	10600	0	1,986,427	2,409,114	0	3,879,363	0	1,035,045	0	1,885,489	3,422,577	0	2,897,376	934,554	4,344	284,825	85,439	111,844
Feni	10700	170,459	0	1,884,468	3,503,717	0	1,035,045	0	269,478	1,474,876	2,677,223	261,604	6,756,951	2,249,596	2,727	275,938	12,803	208,385
Khagrachhari	10800	0	517,174	627,222	0	1,010,007	0	269,478	0	490,895	891,081	0	754,343	243,315	1,131	74,155	22,244	29,119
Lakshmipur	10900	310,517	2,830,538	0	6,382,546	5,527,856	1,885,489	1,474,876	490,895	0	0	476,551	4,014,039	1,321,566	3,186	250,201	3,168	168,001
Noakhali	11000	563,656	5,138,049	0	11,585,724	10,034,273	3,422,577	2,677,223	891,081	0	0	865,045	7,286,362	2,398,932	5,783	454,169	5,751	304,959
Rangamati	11100	0	502,063	608,895	0	980,496	0	261,604	0	476,551	865,045	0	732,302	236,205	1,098	71,989	21,594	28,268
Dhaka	20100	477,162	12,967,744	5,128,789	10,967,621	25,325,153	2,897,376	6,756,951	754,343	4,014,039	7,286,362	732,302	0	1,813,384	2,057,057	7,642,472	2,587,140	8,687,421
Gazipur	20200	153,909	4,317,360	1,688,582	3,163,547	8,431,521	934,554	2,249,596	243,315	1,321,566	2,398,932	236,205	1,813,384	0	690,482	2,366,001	869,001	2,925,514
Gopalganj	20300	715	5,233	4,071	14,706	10,221	4,344	2,727	1,131	3,186	5,783	1,098	2,057,057	690,482	0	4,020	1,203,031	0
Kishoreganj	20400	46,907	529,573	319,685	964,158	1,034,221	284,825	275,938	74,155	250,201	454,169	71,989	7,642,472	2,366,001	4,020	0	3,998	285,015
Madaripur	20500	14,071	24,572	4,048	289,218	47,987	85,439	12,803	22,244	3,168	5,751	21,594	2,587,140	869,001	1,203,031	3,998	0	0
Manikganj	20600	18,419	399,926	214,658	378,603	781,029	111,844	208,385	29,119	168,001	304,959	28,268	8,687,421	2,925,514	0	285,015	0	0
Munshiganj	20700	12,762	312,189	115,153	262,311	609,685	77,490	162,669	20,175	90,124	163,595	19,585	13,234,496	4,445,725	1,845	122,945	81,138	138,715
Narayanganj	20900	114,440	3,601,392	1,355,196	2,352,278	7,033,283	694,894	1,876,535	180,918	1,060,642	1,925,298	175,632	425,542	56,421	597,649	2,050,073	752,271	2,533,864
Rajbari	21000	641	4,686	3,645	13,168	9,151	3,890	2,442	1,013	2,853	5,178	983	3,000,293	1,008,354	201,908	3,600	267,808	133,105
Shariatpur	21100	705	5,159	24,739	14,498	10,076	4,283	2,688	1,115	19,362	35,146	1,083	510,777	169,800	601,516	3,964	5,796,414	0
Faridpur	21200	1,167	8,539	6,642	23,996	16,676	7,089	4,449	1,846	5,198	9,436	1,792	3,818,755	1,282,325	465,507	6,560	663,207	266,209
Tangail	21300	37,055	576,579	319,145	761,655	1,126,022	225,003	300,432	58,580	249,778	453,402	56,869	12,051,970	4,068,721	8,003	1,104,620	7,959	1,611,181
Narsingdi	21400	91,283	2,675,123	1,030,657	1,876,276	5,224,341	554,277	1,393,895	144,308	806,642	1,464,232	140,092	932,200	593,918	433,810	1,602,695	546,097	1,840,082
Jamalpur	21500	32,553	384,926	226,788	669,117	751,735	197,666	200,569	51,463	177,495	322,193	49,959	7,172,489	2,365,261	9,190	360,538	9,140	224,405
Netrokona	21600	31,658	374,343	220,553	650,721	731,068	192,232	195,055	50,048	172,616	313,335	48,586	6,975,298	2,300,234	8,938	350,625	8,888	218,236
Sherpur	21700	19,287	228,055	134,364	396,427	445,376	117,110	118,830	30,490	105,160	190,888	29,599	4,249,436	1,401,330	5,445	213,605	5,415	132,952
Mymensingh	21800	72,560	857,984	505,501	1,491,434	1,675,586	440,589	447,060	114,709	395,630	718,155	111,358	15,987,171	5,272,066	20,485	803,623	20,372	500,190
Joypurhat	30100	3,773	16,998	9,854	77,549	33,197	22,909	8,857	5,964	7,712	13,999	5,790	2,094,528	687,494	16,142	34,450	16,126	6,515
Bogra	30200	14,042	63,265	36,675	288,624	123,553	85,263	32,965	22,199	28,704	52,103	21,550	7,795,441	2,558,725	60,079	128,218	60,017	24,246
Naogaon	30300	10,736	48,370	28,040	220,669	94,463	65,189	25,203	16,972	21,945	39,836	16,476	5,960,047	1,956,287	45,934	98,030	45,886	18,538
Natore	30400	7,047	31,749	18,405	144,841	62,003	42,788	16,543	11,140	14,404	26,147	10,815	3,912,015	1,284,054	30,150	64,344	30,119	12,168
Nawabganj	30500	6,802	30,648	17,767	139,821	59,854	41,305	15,970	10,754	13,905	25,241	10,440	3,776,427	1,239,550	29,105	62,114	29,075	11,746
Pabna	30600	10,418	46,938	27,210	214,136	91,666	63,259	24,457	16,470	21,296	38,656	15,988	5,783,599	1,898,371	44,574	95,127	44,528	17,989
Sirajganj	30700	12,789	57,621	33,403	262,877	112,531	77,657	30,024	20,218	26,143	47,455	19,628	7,100,026	2,330,466	54,720	116,780	54,663	22,083
Rajshahi	30800	10,822	48,760	28,266	222,451	95,226	65,715	25,407	17,109	22,123	40,157	16,609	6,008,165	1,972,081	46,305	98,821	46,257	18,687
Dinajpur	40100	5,280	26,405	28,312	108,529	51,568	32,061	13,759	8,347	22,158	40,222	8,103	3,813,074	1,235,076	46,823	40,677	46,773	24,960
Gaibandha	40200	4,201	21,011	22,528	86,357	41,033	25,511	10,948	6,642	17,631	32,005	6,448	3,034,076	982,754	37,257	32,367	37,218	19,861
Kurigram	40300	3,654	18,273	19,593	75,106	35,687	22,187	9,521	5,777	15,334	27,835	5,608	2,638,780	854,716	32,403	28,150	32,369	17,273
Lalmonirhat	40400	2,218	11,092	11,893	45,591	21,663	13,468	5,780	3,507	9,308	16,896	3,404	1,601,804	518,833	19,669	17,088	19,649	10,485
Nilphamari	40500	3,271	16,360	17,541	67,241	31,949	19,864	8,524	5,172	13,728	24,920	5,021	2,362,440	765,208	29,010	25,202	28,979	15,464
Panchagarh	40600	1,744	8,722	9,351	35,847	17,033	10,590	4,545	2,757	7,319	13,285	2,677	1,259,464	407,947	15,466	13,436	15,449	8,244
Rangpur	40700	5,138	25,697	27,552	105,617	50,184	31,201	13,390	8,123	21,564	39,143	7,886	3,807,407	1,201,936	45,566	39,586	45,518	24,290
Thakurgaon	40800	2,455	12,275	13,161	50,453	23,973	14,904	6,396	3,880	10,301	18,698	3,767	1,772,611	574,158	21,767	18,910	21,744	11,603
Barguna	50100	3,744	0	0	76,956	0	22,734	0	5,919	0	0	5,746	566,723	190,846	112,581	0	265,833	0
Barisal	50200	4,453	0	20,726	91,531	0	27,039	0	7,040	16,221	29,445	6,834	3,714,410	1,250,838	333,708	0	935,223	141,605
Bhola	50300	7,451	0	0	153,155	0	45,244	0	11,779	0	0	11,435	1,127,881	379,817	224,057	0	529,055	0
Jhalokati	50400	0	0	0	0	0	0	0	0	0	0	0	409,851	138,018	134,662	0	199,909	0
Patuakhali	50500	6,441	0	0	132,387	0	39,109	0	10,182	0	0	9,885	974,935	328,312	193,674	0	457,313	0
Pirojpur	50600	11,022	0	0	226,561	0	66,929	0	17,425	0	0	16,916	1,007,287	339,207	599,727	0	265,156	0
Bagerhat	60100	6,218	13,230	10,290	127,802	25,837	37,754	6,894	9,829	8,054	14,619	9,542	2,276,742	742,178	1,269,778	36,929	335,452	140,203
Chuadanga	60200	1,383	10,119	7,871	28,436	19,762	8,400	5,273	2,187	6,160	11,182	2,123	2,212,091	726,172	138,545	7,340	138,523	0
Jessore	60300	17,065	26,263	19,466	350,762	51,289	103,620	13,684	26,978	15,235	27,654	26,190	3,308,633	1,067,806	298,454	19,916	475,058	199,657
Jhenaida	60400	2,170	15,876	12,349	44,612	31,004	13,179	8,272	3,431	9,665	17,543	3,331	1,988,519	640,214	340,663	38,848	205,967	0
Khulna	60500	14,002	253,396	16,325	287,806	494,866	85,022	132,034	22,136	12,777	23,193	21,489	5,893,724	1,815,644	2,883,832	15,225	605,317	0
Kushtia	60600	24,430	17,449	13,572	502,156	34,077	148,344	9,092	38,622	10,622	19,282	37,493	5,345,418	1,767,743	341,266	12,657	337,063	0
Magura	60700	1,125	10,681	6,403	23,131	20,859	6,833	5,565	1,779	5,011	9,096	1,727	1,571,625	513,992	207,235	5,971	203,050	0
Meherpur	60800	5,212	5,874	4,569	107,131	11,472	31,648	3,061	8,240	3,576	6,491	7,999	2,289,300	760,041	67,501	4,261	67,489	0
Narail	60900	884	6,468	5,031	18,176	12,632	5,369	3,370	1,398	3,938	7,148	1,357	1,258,574	411,840	267,638	4,692	920,098	0
Satkhira	61000	6,842	17,800	13,845	140,643	34,762	41,548	9,275	10,817	10,836	19,669	10,501	1,689,473	535,943	1,744,931	12,912	671,767	0
Habiganj	70100	81,710	1,078,591	558,113	1,679,524	2,106,417	496,154	562,009	129,176	436,806	792,900	125,401	3,971,958	1,308,328	3,098	839,842	3,081	185,003
Moulvibazar	70200	75,063	990,848	512,711	1,542,896	1,935,061	455,792	516,290	118,667	401,272	728,398	115,200	3,648,842	1,201,896	2,846	771,521	2,831	169,953
Sunamganj	70300	96,534	1,274,258	659,361	1,984,208	2,488,543	586,161	663,963	152,609	516,048	936,740	148,150	4,692,513	1,545,673	3,660	992,198	3,640	218,565
Sylhet	70400	135,670	1,790,867	926,678	2,788,644	3,497,447	823,803	933,146	214,480	725,263	1,316,513	208,213	6,788,241	2,172,318	5,144	1,394,455	5,116	307,175
Benapole Land Port	99001	4,409	0	0	90,624	0	26,772	0	6,970	0	0	6,766	1,046,697	352,478	204,076	0	12,501	0
Bhomra Land Port	99002	0	115,053	0	0	224,692	0	59,950	0	0	0	0	74,088	24,949	0	0	0	0
Mongla Sea Port	99003	4,409	0	0	90,624	0	26,772	0	6,970	0	0	6,766	111,132	37,424	0	0	0	0
Hilli Land Port	99004	4,409	0	0	90,624	0	26,772	0	6,970	0	0	6,766	407,485	137,222	0	0	0	0
Dhaka Airport	99005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	99006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	99007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Payra Sea Port	99008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Matarbari Sea Port	99009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Akhaura Land Port	99010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bibir Bazar Land Port	99011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ramgarh border crossing	99012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teknaf border crossing	99013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Passenger OD Table in 2041 (Passenger per annum, excluding Inland waterway Passenger) (2 of 4)

		20700	20900	21000	21100	21200	21300	21400	21500	21600	21700	21800	30100	30200	30300	30400	30500	30600	30700	30800
Bandarban	10100	12,762	114,440	641	705	1,167	35,762	91,283	32,553	31,658	19,287	72,560	3,494	13,003	9,942	6,526	6,299	9,647	11,843	10,022
Brahmanbaria	10200	312,189	3,601,392	4,686	5,159	8,539	567,124	2,675,123	384,926	374,343	228,055	857,984	14,957	55,669	42,562	27,937	26,968	41,302	50,703	42,906
Chandpur	10300	115,153	1,355,196	3,645	24,739	6,642	311,790	1,030,657	226,788	220,553	134,364	505,501	8,267	30,766	23,523	15,440	14,904	22,826	28,022	23,713
Chittagong	10400	262,311	2,352,278	13,168	14,498	23,996	735,084	1,876,276	669,117	650,721	396,427	1,491,434	71,814	267,278	204,349	134,129	129,480	198,299	243,435	205,999
Comilla	10500	609,685	7,033,283	9,151	10,076	16,676	1,107,555	5,224,341	751,735	731,068	445,376	1,675,586	29,211	108,718	83,121	54,558	52,667	80,660	99,019	83,792
Cox's Bazar	10600	77,490	694,894	3,890	4,283	7,089	217,154	554,277	197,666	192,232	117,110	440,589	21,215	78,957	60,367	39,624	38,250	58,580	71,914	60,855
Feni	10700	162,669	1,876,535	2,442	2,688	4,449	295,504	1,393,895	200,569	195,055	118,830	447,060	7,794	29,007	22,177	14,557	14,052	21,521	26,419	22,356
Khagrachhari	10800	20,175	180,918	1,013	1,115	1,846	56,537	144,308	51,463	50,048	30,490	114,709	5,523	20,557	15,717	10,316	9,959	15,252	18,723	15,844
Lakshmipur	10900	90,124	1,060,642	2,853	19,362	5,198	244,022	806,642	177,495	172,616	105,160	395,630	6,470	24,079	18,410	12,084	11,665	17,865	21,931	18,559
Noakhali	11000	163,595	1,925,298	5,178	35,146	9,436	442,953	1,464,232	322,193	313,335	190,888	718,155	11,744	43,709	33,418	21,935	21,174	32,429	39,810	33,688
Rangamati	11100	19,585	175,632	983	1,083	1,792	54,885	140,092	49,959	48,586	29,599	111,358	5,362	19,956	15,258	10,015	9,668	14,806	18,176	15,381
Dhaka	20100	13,234,496	425,542	3,000,293	510,777	3,818,755	11,752,839	932,200	7,172,489	6,975,298	4,249,436	15,987,171	2,047,213	7,619,345	5,825,413	3,823,644	3,691,119	5,652,950	6,939,639	5,872,443
Gazipur	20200	4,445,725	56,421	1,008,354	169,800	1,282,325	3,965,921	593,918	2,365,261	2,300,234	1,401,330	5,272,066	675,181	2,512,898	1,921,250	1,261,057	1,217,349	1,864,371	2,288,727	1,936,761
Gopalganj	20300	1,845	597,649	201,908	601,516	465,507	6,380	433,810	9,190	8,938	5,445	20,485	15,527	57,788	44,182	29,000	27,995	42,874	52,633	44,539
Kishoreganj	20400	122,945	2,050,073	3,600	3,964	6,560	1,097,756	1,602,695	360,538	350,625	213,605	803,623	32,970	122,707	93,816	61,578	59,444	91,039	111,760	94,573
Madaripur	20500	81,138	752,271	267,808	5,796,414	663,207	6,345	546,097	9,140	8,888	5,415	20,372	15,513	57,738	44,144	28,975	27,971	42,837	52,587	44,500
Manikganj	20600	138,715	2,533,864	133,105	0	266,209	1,611,181	1,840,082	224,405	218,236	132,952	500,190	6,515	24,246	18,538	12,168	11,746	17,989	22,083	18,687
Munshiganj	20700	0	3,851,057	14,403	1,819	3,010	154,392	2,795,344	110,456	107,419	65,441	246,201	2,715	10,104	7,725	5,070	4,895	7,496	9,202	7,787
Narayanganj	20900	3,851,057	0	873,007	146,678	1,110,010	3,127,695	30,514	1,657,147	1,611,588	981,799	3,693,710	542,888	2,020,529	1,544,806	1,013,969	978,826	1,499,072	1,840,281	1,557,278
Rajbari	21000	14,403	873,007	0	201,908	2,278,472	5,712	633,795	8,229	8,003	4,875	18,342	21,931	81,621	62,404	40,960	39,541	60,556	74,340	62,908
Shariatpur	21100	1,819	146,678	201,908	0	399,608	6,290	106,319	9,060	8,811	5,368	20,195	15,493	57,660	44,085	28,930	27,933	42,779	52,517	44,440
Faridpur	21200	3,010	1,110,010	2,278,472	399,608	0	10,410	805,757	14,995	14,583	8,884	33,424	16,849	62,708	47,944	31,469	30,379	46,525	57,114	48,331
Tangail	21300	157,690	3,138,524	7,166	7,890	13,059	0	2,273,472	922,735	897,367	546,687	2,056,737	168,463	626,988	479,367	314,644	303,738	465,176	571,056	483,237
Narsingdi	21400	2,795,344	30,514	633,795	106,319	805,757	2,266,766	0	1,412,729	1,373,889	836,990	3,148,912	399,198	1,485,740	1,135,931	745,594	719,753	1,102,301	1,353,200	1,145,102
Jamalpur	21500	110,456	1,657,147	8,229	9,060	14,995	906,575	1,412,729	0	0	0	0	32,139	119,616	91,453	60,028	57,947	88,746	108,946	92,192
Netrokona	21600	107,419	1,611,588	8,003	8,811	14,583	881,651	1,373,889	0	0	0	0	31,256	116,328	88,939	58,377	56,354	86,306	105,950	89,657
Sherpur	21700	65,441	981,799	4,875	5,368	8,884	537,112	836,990	0	0	0	0	19,041	70,868	54,183	35,564	34,331	52,579	64,546	54,620
Mymensingh	21800	246,201	3,693,710	18,342	20,195	33,424	2,020,716	3,148,912	0	0	0	0	71,637	266,620	203,846	133,799	129,161	197,811	242,835	205,491
Joypurhat	30100	3,406	552,248	22,482	16,100	17,854	168,463	400,459	34,878	33,919	20,664	77,742	0	0	0	0	0	0	0	0
Bogra	30200	12,675	2,055,365	83,673	59,920	66,448	626,988	1,490,433	129,810	126,241	76,908	289,341	0	0	0	0	0	0	0	0
Naogaon	30300	9,691	1,571,441	63,973	45,812	50,803	479,367	1,139,519	99,247	96,519	58,800	221,218	0	0	0	0	0	0	0	0
Natore	30400	6,361	1,031,451	41,990	30,070	33,346	314,644	747,950	65,143	63,352	38,595	145,201	0	0	0	0	0	0	0	0
Nawabganj	30500	6,140	995,702	40,535	29,027	32,190	303,738	722,026	62,885	61,156	37,257	140,169	0	0	0	0	0	0	0	0
Pabna	30600	9,404	1,524,918	62,079	44,456	49,299	465,176	1,105,783	96,309	93,661	57,059	214,668	0	0	0	0	0	0	0	0
Sirajganj	30700	11,544	1,872,010	76,209	54,574	60,520	571,056	1,357,475	118,230	114,980	70,047	263,530	0	0	0	0	0	0	0	0
Rajshahi	30800	9,769	1,584,128	64,489	46,182	51,213	483,237	1,148,719	100,048	97,298	59,275	223,004	0	0	0	0	0	0	0	0
Dinajpur	40100	8,863	970,346	45,885	46,696	51,693	102,828	703,448	55,457	53,932	32,856	123,612	32,071	119,363	91,259	59,900	57,824	88,558	108,715	91,996
Gaibandha	40200	7,052	772,108	36,511	37,156	41,133	81,820	559,736	44,127	42,914	26,144	98,358	25,519	94,977	72,615	47,663	46,011	70,466	86,505	73,202
Kurigram	40300	6,133	671,513	31,754	32,315	35,774	71,160	486,811	38,378	37,323	22,738	85,544	22,194	82,603	63,155	41,453	40,016	61,285	75,234	63,665
Lalmonirhat	40400	3,723	407,625	19,276	19,616	21,715	43,196	295,506	23,297	22,656	13,802	51,927	13,472	50,142	38,336	25,163	24,291	37,201	45,669	38,646
Nilphamari	40500	5,491	601,191	28,429	28,931	32,027	63,708	435,831	34,359	33,415	20,357	76,585	19,870	73,953	56,541	37,112	35,826	54,867	67,356	56,997
Panchagarh	40600	2,927	320,507	15,156	15,424	17,074	33,964	232,350	18,318	17,814	10,852	40,829	10,593	39,426	30,144	19,785	19,099	29,251	35,909	30,386
Rangpur	40700	8,625	944,310	44,654	45,443	50,306	100,069	684,573	53,969	52,485	31,975	120,295	31,211	116,160	88,811	58,293	56,273	86,181	105,798	89,528
Thakurgaon	40800	4,120	451,092	21,331	21,708	24,031	47,802	327,017	25,781	25,072	15,274	57,464	14,909	55,489	42,424	27,846	26,881	41,168	50,539	42,767
Barguna	50100	0	165,296	42,439	182,724	41,555	0	120,038	0	0	0	0	0	0	0	0	0	0	0	0
Barisal	50200	0	1,083,384	136,008	535,616	201,908	0	786,749	0	0	0	0	9,882	36,780	28,120	18,457	17,818	27,288	33,499	28,347
Bhola	50300	0	328,969	84,462	363,653	82,701	0	238,896	0	0	0	0	0	0	0	0	0	0	0	0
Jhalokati	50400	0	119,541	65,247	134,662	69,414	0	86,810	0	0	0	0	3,397	12,645	9,667	6,345	6,126	9,381	11,517	9,745
Patuakhali	50500	0	284,360	73,008	314,340	71,486	0	206,501	0	0	0	0	0	0	0	0	0	0	0	0
Pirojpur	50600	0	293,796	65,247	199,909	134,662	0	213,353	0	0	0	0	12,978	48,301	36,929	24,239	23,399	35,835	43,992	37,227
Bagerhat	60100	4,445	592,616	135,040	204,914	208,192	81,950	429,734	40,091	38,989	23,753	89,362	43,000	160,037	122,357	80,312	77,528	118,735	145,760	123,345
Chuadanga	60200	3,400	590,558	272,800	69,075	271,492	62,681	428,385	14,205	13,815	8,416	31,663	88,260	328,486	251,146	164,845	159,132	243,710	299,182	253,173
Jessore	60300	74,961	829,890	474,106	79,576	151,677	155,017	601,487	36,519	35,515	21,636	81,399	115,053	428,205	327,387	214,888	207,440	317,694	390,006	330,030
Jhenaida	60400	5,335	494,262	539,934	205,915	874,823	98,339	358,185	43,806	42,601	25,953	97,641	127,482	474,466	362,756	238,103	229,851	352,016	432,140	365,684
Khulna	60500	7,052	1,492,933	209,120	473,447	412,749	130,007	1,083,175	29,463	28,653	17,456	65,672	80,293	298,837	228,478	149,967	144,769	221,714	272,179	230,322
Kushtia	60600	5,863	1,464,874	1,605,267	271,757	1,206,212	108,085	1,062,966	24,495	23,821	14,512	54,598	540,974	2,013,406	1,539,361	1,010,395	975,375	1,493,788	1,833,794	1,551,788
Magura	60700	2,766	413,946	602,555	137,776	1,135,194	185,360	300,219	11,555	11,238	6,846	25,756	54,623	203,298	155,433	102,022	98,486	150,831	185,162	156,687
Meherpur	60800	1,974	636,000	136,680	67,470	138,340	237,942	461,585	8,246	8,019	4,885	18,380	43,051	160,376	122,616	80,482	77,692	118,986	146,069	123,606
Narail	60900	68,067	332,161	136,884	202,356	203,959	40,066	240,910	9,080	8,830	5,380	20,239	31,053	115,574	88,362	57,999	55,989	85,746	105,263	89,076
Satkhira	61000	5,981	396,650	475,348	541,213	93,060	110,257	287,209	24,987	24,300	14,804	55,695	148,427	552,419	422,355	277,223	267,614	409,851	503,139	425,765
Habiganj	70100	105,424	1,064,107	2,774	3,054	5,055	379,250	816,005	681,379	662,646	403,692	1,518,765	7,197	26,787	20,480	13,443	12,977	19,874	24,398	20,646
Moulvibazar	70200	96,848	977,543	2,549	2,806	4,644	348,398	749,623	625,949	608,740	370,852	1,395,214	6,612	24,608	18,814	12,349	11,921	18,257	22,413	18,966
Sunamganj	70300	124,549	1,257,148	3,277	3,609	5,972	448,050	964,036	804,988	782,857	476,926	1,794,285	8,503	31,647	24,196	15,881	15,331	23,479	28,824	24,391
Sylhet	70400	175,044	1,766,820	4,606	5,071	8,394	629,698	1,354,875	1,131,346	1,100,242	670,281	2,521,722	11,950	44,477	34,005	22,320	21,546	32,998	40,509	34,280
Benapole Land Port	99001	65,893	305,291	0	0	195,742	0	221,701	0	0	0	0	0	0	0	0	0	0	0	0
Bhomra Land Port	99002	0	21,609	0	0	0	0	15,693	0	0	0	0	0	0	0	0	0	0	0	0
Mongla Sea Port	99003	0	32,414	0	0	0	0	23,539	0	0	0	0	0	0	0	0	0	0	0	0
Hilli Land Port	99004	0	118,851	0	0	0	0	86,309	0	0	0	0	0	0	0	0	0	0	0	0
Dhaka Airport	99005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	99006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	99007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Payra Sea Port	99008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Matarbari Sea Port	99009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Akhaura Land Port	99010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bibir Bazar Land Port	99011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ramgarh border crossing	99012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teknaf border crossing	99013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Passenger OD Table in 2041 (Passenger per annum, excluding Inland waterway Passenger) (3 of 4)

		40100	40200	40300	40400	40500	40600	40700	40800	50100	50200	50300	50400	50500	50600	60100	60200	60300	60400	60500	60600
Bandarban	10100	4,548	3,619	3,147	1,910	2,818	1,502	4,426	2,114	3,744	4,453	7,451	0	6,441	11,022	5,851	1,103	16,371	1,730	13,420	23,946
Brahmanbaria	10200	21,048	16,748	14,566	8,842	13,041	6,952	20,484	9,785	0	0	0	0	0	0	10,546	8,066	21,186	12,655	249,138	13,909
Chandpur	10300	24,145	19,212	16,709	10,143	14,959	7,975	23,497	11,224	0	20,726	0	0	0	0	8,203	6,274	15,517	9,843	13,013	10,819
Chittagong	10400	93,476	74,379	64,688	39,267	57,914	30,875	90,967	43,455	76,956	91,531	153,155	0	132,387	226,561	120,259	22,667	336,495	35,562	275,840	492,208
Comilla	10500	41,106	32,708	28,447	17,268	25,468	13,577	40,003	19,109	0	0	0	0	0	0	20,595	15,753	41,374	24,714	486,551	27,163
Cox's Bazar	10600	27,614	21,972	19,110	11,600	17,109	9,121	26,873	12,837	22,734	27,039	45,244	0	39,109	66,929	35,526	6,696	99,405	10,505	81,487	145,405
Feni	10700	10,967	8,727	7,590	4,607	6,795	3,623	10,673	5,098	0	0	0	0	0	0	5,495	4,203	11,039	6,594	129,816	7,247
Khagrachhari	10800	7,189	5,721	4,975	3,020	4,454	2,375	6,996	3,342	5,919	7,040	11,779	0	10,182	17,425	9,249	1,743	25,881	2,735	21,215	37,857
Lakshmipur	10900	18,897	15,036	13,077	7,938	11,708	6,242	18,390	8,785	0	16,221	0	0	0	0	6,420	4,910	12,144	7,704	10,185	8,467
Noakhali	11000	34,302	27,294	23,738	14,410	21,252	11,330	33,382	15,946	0	29,445	0	0	0	0	11,654	8,913	22,044	13,984	18,488	15,370
Rangamati	11100	6,979	5,553	4,830	2,932	4,324	2,305	6,792	3,245	5,746	6,834	11,435	0	9,885	16,916	8,979	1,692	25,124	2,655	20,596	36,751
Dhaka	20100	3,698,276	2,942,731	2,559,336	1,553,579	2,291,316	1,221,546	3,695,689	1,719,244	566,723	3,714,410	1,127,881	409,851	974,935	1,007,287	2,218,919	2,167,865	3,199,254	1,919,132	5,801,992	5,269,154
Gazipur	20200	1,206,356	959,901	834,840	506,768	747,414	398,461	1,173,987	560,807	190,846	1,250,838	379,817	138,018	328,312	339,207	727,681	715,084	1,040,383	622,817	1,792,645	1,748,622
Gopalganj	20300	45,005	35,810	31,145	18,906	27,883	14,865	43,797	20,922	112,581	333,708	224,057	134,662	193,674	599,727	1,268,748	137,757	296,506	339,427	2,882,199	339,908
Kishoreganj	20400	36,793	29,277	25,462	15,456	22,796	12,153	35,806	17,104	0	0	0	0	0	0	34,982	5,851	16,233	36,512	12,136	10,089
Madaripur	20500	44,965	35,779	31,118	18,889	27,859	14,852	43,759	20,903	265,833	935,223	529,055	199,909	457,313	265,156	334,428	137,740	473,142	204,738	603,692	335,712
Manikganj	20600	24,960	19,861	17,273	10,485	15,464	8,244	24,290	11,603	0	141,605	0	0	0	0	140,203	0	199,657	0	0	0
Munshiganj	20700	7,065	5,621	4,889	2,968	4,377	2,333	6,875	3,284	0	0	0	0	0	0	3,544	2,710	73,255	4,252	5,622	4,674
Narayanganj	20900	965,633	768,358	668,252	405,645	598,271	318,950	939,724	448,901	165,296	1,083,384	328,969	119,541	284,360	293,796	590,245	588,744	825,404	491,417	1,489,170	1,461,747
Rajbari	21000	44,257	35,216	30,628	18,592	27,420	14,618	43,070	20,574	42,439	136,008	84,462	65,247	73,008	65,247	134,118	272,095	472,362	538,828	207,656	1,604,051
Shariatpur	21100	44,904	35,730	31,075	18,863	27,821	14,832	43,699	20,875	182,724	535,616	363,653	134,662	314,340	199,909	203,899	68,299	77,655	204,696	471,836	270,418
Faridpur	21200	48,727	38,772	33,721	20,469	30,190	16,095	47,420	22,652	41,555	201,908	82,701	69,414	71,486	134,662	206,512	270,207	148,498	872,807	410,083	1,203,996
Tangail	21300	102,828	81,820	71,160	43,196	63,708	33,964	100,069	47,802	0	0	0	0	0	0	81,950	62,681	155,017	98,339	130,007	108,085
Narsingdi	21400	700,272	557,209	484,613	294,172	433,863	231,301	681,482	325,540	120,038	786,749	238,896	86,810	206,501	213,353	428,138	427,165	598,468	356,270	1,080,643	1,060,861
Jamalpur	21500	47,646	37,912	32,973	20,015	29,520	15,737	46,367	22,149	0	0	0	0	0	0	36,324	11,323	29,392	39,284	23,486	19,525
Netrokona	21600	46,336	36,870	32,066	19,465	28,708	15,305	45,093	21,540	0	0	0	0	0	0	35,325	11,012	28,584	38,204	22,840	18,989
Sherpur	21700	28,228	22,461	19,535	11,858	17,489	9,324	27,471	13,123	0	0	0	0	0	0	21,520	6,709	17,414	23,275	13,914	11,568
Mymensingh	21800	106,200	84,504	73,494	44,613	65,798	35,078	103,351	49,370	0	0	0	0	0	0	80,964	25,239	65,513	87,563	52,349	43,521
Joypurhat	30100	32,071	25,519	22,194	13,472	19,870	10,593	31,211	14,909	0	9,882	0	3,397	0	12,978	43,000	88,260	115,053	127,482	80,293	540,974
Bogra	30200	119,363	94,977	82,603	50,142	73,953	39,426	116,160	55,489	0	36,780	0	12,645	0	48,301	160,037	328,486	428,205	474,466	298,837	2,013,406
Naogaon	30300	91,259	72,615	63,155	38,336	56,541	30,143	88,811	42,424	0	28,120	0	9,667	0	36,929	122,357	251,146	327,387	362,756	228,478	1,539,361
Natore	30400	59,900	47,663	41,453	25,163	37,112	19,785	58,293	27,846	0	18,457	0	6,345	0	24,239	80,312	164,845	214,888	238,103	149,967	1,010,395
Nawabganj	30500	57,824	46,011	40,016	24,291	35,826	19,099	56,273	26,881	0	17,818	0	6,126	0	23,399	77,528	159,132	207,440	229,851	144,769	975,375
Pabna	30600	88,558	70,466	61,285	37,201	54,867	29,251	86,181	41,168	0	27,288	0	9,381	0	35,835	118,735	243,710	317,694	352,016	221,714	1,493,788
Sirajganj	30700	108,715	86,505	75,234	45,669	67,356	35,909	105,798	50,539	0	33,499	0	11,517	0	43,992	145,760	299,182	390,006	432,140	272,179	1,833,794
Rajshahi	30800	91,996	73,202	63,665	38,646	56,997	30,386	89,528	42,767	0	28,347	0	9,745	0	37,227	123,345	253,173	330,030	365,684	230,322	1,551,788
Dinajpur	40100	9,269	7,375	6,415	3,894	5,743	3,062	9,020	4,309	2,597	24,715	5,169	13,017	4,468	37,487	50,556	84,970	135,940	128,144	95,668	366,855
Gaibandha	40200	7,375	5,869	5,104	3,098	4,570	2,436	7,178	3,429	2,067	19,666	4,113	10,357	3,556	29,829	40,228	67,611	108,168	101,965	76,123	291,908
Kurigram	40300	6,415	5,104	4,439	2,695	3,974	2,119	6,242	2,982	1,798	17,104	3,577	9,008	3,092	25,942	34,987	58,802	94,075	88,680	66,205	253,877
Lalmonirhat	40400	3,894	3,098	2,695	1,636	2,412	1,286	3,789	1,810	1,091	10,382	2,172	5,468	1,877	15,748	21,238	35,694	57,106	53,831	40,188	154,109
Nilphamari	40500	5,743	4,570	3,974	2,412	3,558	1,897	5,589	2,670	1,609	15,313	3,203	8,065	2,768	23,226	31,323	52,644	84,223	79,393	59,272	227,290
Panchagarh	40600	3,062	2,436	2,119	1,286	1,897	1,011	2,979	1,423	858	8,163	1,707	4,299	1,476	12,382	16,699	28,066	44,901	42,326	31,599	121,173
Rangpur	40700	9,020	7,178	6,242	3,789	5,589	2,979	8,778	4,193	2,528	24,052	5,031	12,667	4,348	36,481	49,200	82,690	132,292	124,706	93,101	357,012
Thakurgaon	40800	4,309	3,429	2,982	1,810	2,670	1,423	4,193	2,003	1,207	11,489	2,403	6,051	2,077	17,427	23,502	39,501	63,195	59,571	44,474	170,543
Barguna	50100	2,597	2,067	1,798	1,091	1,609	858	2,528	1,207	0	1,906,807	0	562,589	0	391,885	223,809	42,019	125,548	84,038	252,866	153,486
Barisal	50200	24,715	19,666	17,104	10,382	15,313	8,163	24,052	11,489	1,906,807	0	3,794,888	6,992,648	3,280,285	1,460,443	730,222	69,414	144,425	199,909	667,415	265,156
Bhola	50300	5,169	4,113	3,577	2,172	3,203	1,707	5,031	2,403	0	3,794,888	0	1,119,653	0	779,922	445,421	83,625	249,864	167,251	503,248	305,464
Jhalokati	50400	13,017	10,357	9,008	5,468	8,065	4,299	12,667	6,051	562,589	6,992,648	1,119,653	0	967,823	1,058,376	395,859	0	199,909	64,601	334,571	64,601
Patuakhali	50500	4,468	3,556	3,092	1,877	2,768	1,476	4,348	2,077	0	3,280,285	0	967,823	0	674,161	385,020	72,285	215,981	144,571	435,006	264,042
Pirojpur	50600	37,487	29,829	25,942	15,748	23,226	12,382	36,481	17,427	391,885	1,460,443	779,922	1,058,376	674,161	0	7,173,568	133,328	726,055	262,531	2,720,978	266,657
Bagerhat	60100	50,556	40,228	34,987	21,238	31,323	16,699	49,200	23,502	223,809	730,222	445,421	395,859	385,020	7,173,568	0	133,328	1,256,367	395,859	9,276,305	331,258
Chuadanga	60200	84,970	67,611	58,802	35,694	52,644	28,066	82,690	39,501	42,019	69,414	83,625	0	72,285	133,328	133,328	0	1,391,029	4,358,579	465,065	5,008,718
Jessore	60300	135,940	108,168	94,075	57,106	84,223	44,901	132,292	63,195	125,548	144,425	249,864	199,909	215,981	726,055	1,256,367	1,391,029	0	6,290,171	5,182,273	2,651,563
Jhenaida	60400	128,144	101,965	88,680	53,831	79,393	42,326	124,706	59,571	84,038	199,909	167,251	64,601	144,571	262,531	395,859	4,358,579	6,290,171	0	1,064,792	5,865,038
Khulna	60500	95,668	76,123	66,205	40,188	59,272	31,599	93,101	44,474	252,866	667,415	503,248	334,571	435,006	2,720,978	9,276,305	465,065	5,182,273	1,064,792	0	860,716
Kushtia	60600	366,855	291,908	253,877	154,109	227,290	121,173	357,012	170,543	153,486	265,156	305,464	64,601	264,042	266,657	331,258	5,008,718	2,651,563	5,865,038	860,716	0
Magura	60700	58,635	46,656	40,578	24,632	36,328	19,367	57,062	27,258	56,609	134,662	112,663	64,601	97,385	133,328	197,930	791,719	3,508,113	6,071,219	595,560	1,252,180
Meherpur	60800	44,071	35,068	30,499	18,513	27,305	14,557	42,889	20,488	14,590	65,247	29,037	0	25,100	64,601	64,601	3,247,979	465,065	864,571	199,909	1,850,094
Narail	60900	43,877	34,913	30,364	18,432	27,184	14,493	42,699	20,397	56,609	134,662	112,663	64,601	97,385	266,657	395,859	262,531	6,306,839	662,516	1,599,272	395,859
Satkhira	61000	268,539	213,677	185,838	112,808	166,377	88,699	261,333	124,837	463,960	799,636	923,365	331,258	798,153	1,716,766	2,843,868	925,047	10,109,277	2,181,352	11,329,565	1,518,836
Habiganj	70100	17,273	13,744	11,954	7,256	10,702	5,705	16,810	8,030	0	0	0	0	0	0	6,060	4,635	11,462	61,741	9,613	89,697
Moulvibazar	70200	15,868	12,626	10,981	6,666	9,831	5,241	15,442	7,377	0	0	0	0	0	0	5,567	4,258	10,530	56,719	8,831	82,400
Sunamganj	70300	20,407	16,238	14,122	8,573	12,643	6,740	19,859	9,487	0	0	0	0	0	0	7,159	5,476	13,542	72,942	11,357	105,969
Sylhet	70400	28,680	22,821	19,848	12,048	17,769	9,473	27,911	13,333	0	0	0	0	0	0	10,061	7,696	19,032	102,514	15,961	148,931
Benapole Land Port	99001	0	0	0	0	0	0	0	0	0	12,501	0	0	0	0	0	0	0	0	0	0
Bhomra Land Port	99002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mongla Sea Port	99003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hilli Land Port	99004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dhaka Airport	99005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	99006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	99007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Payra Sea Port	99008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Matarbari Sea Port	99009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Akhaura Land Port	99010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bibir Bazar Land Port	99011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ramgarh border crossing	99012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teknaf border crossing	99013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Passenger OD Table in 2041 (Passenger per annum, excluding Inland waterway Passenger) (4 of 4)

		60700	60800	60900	61000	70100	70200	70300	70400	99001	99002	99003	99004	99005	99006	99007	99008	99009	99010	99011	99012	99013
Bandarban	10100	897	5,049	705	6,349	81,710	75,063	96,534	135,670	4,409	0	4,409	4,409	0	0	0	0	0	0	0	0	0
Brahmanbaria	10200	9,011	4,682	5,156	14,189	1,078,591	990,848	1,274,258	1,790,867	0	115,053	0	0	0	0	0	0	0	0	0	0	0
Chandpur	10300	5,104	3,642	4,010	11,036	558,113	512,711	659,361	926,678	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong	10400	18,439	103,782	14,489	130,496	1,679,524	1,542,896	1,984,208	2,788,644	90,624	0	90,624	90,624	0	0	0	0	0	0	0	0	0
Comilla	10500	17,598	9,144	10,069	27,709	2,106,417	1,935,061	2,488,543	3,497,447	0	224,692	0	0	0	0	0	0	0	0	0	0	0
Cox's Bazar	10600	5,447	30,659	4,280	38,550	496,154	455,792	586,161	823,803	26,772	0	26,772	26,772	0	0	0	0	0	0	0	0	0
Feni	10700	4,695	2,440	2,687	7,393	562,009	516,290	663,963	933,146	0	59,950	0	0	0	0	0	0	0	0	0	0	0
Khagrachhari	10800	1,418	7,982	1,114	10,037	129,176	118,667	152,609	214,480	6,970	0	6,970	6,970	0	0	0	0	0	0	0	0	0
Lakshmipur	10900	3,994	2,850	3,139	8,637	436,806	401,272	516,048	725,263	0	0	0	0	0	0	0	0	0	0	0	0	0
Noakhali	11000	7,251	5,174	5,697	15,679	792,900	728,398	936,740	1,316,513	0	0	0	0	0	0	0	0	0	0	0	0	0
Rangamati	11100	1,377	7,749	1,082	9,743	125,401	115,200	148,150	208,213	6,766	0	6,766	6,766	0	0	0	0	0	0	0	0	0
Dhaka	20100	1,535,648	2,263,626	1,230,304	1,611,677	3,971,958	3,648,842	4,692,513	6,788,241	1,046,697	74,088	111,132	407,485	0	0	0	0	0	0	0	0	0
Gazipur	20200	504,972	753,604	404,752	516,439	1,308,328	1,201,896	1,545,673	2,172,318	352,478	24,949	37,424	137,222	0	0	0	0	0	0	0	0	0
Gopalganj	20300	206,594	67,044	267,135	1,743,545	3,098	2,846	3,660	5,144	204,076	0	0	0	0	0	0	0	0	0	0	0	0
Kishoreganj	20400	4,760	3,397	3,740	10,292	839,842	771,521	992,198	1,394,455	0	0	0	0	0	0	0	0	0	0	0	0	0
Madaripur	20500	202,413	67,034	919,597	670,389	3,081	2,831	3,640	5,116	12,501	0	0	0	0	0	0	0	0	0	0	0	0
Manikganj	20600	0	0	0	0	185,003	169,953	218,565	307,175	0	0	0	0	0	0	0	0	0	0	0	0	0
Munshiganj	20700	2,205	1,573	67,626	4,768	105,424	96,848	124,549	175,044	65,893	0	0	0	0	0	0	0	0	0	0	0	0
Narayanganj	20900	412,470	634,948	331,001	393,460	1,064,107	977,543	1,257,148	1,766,820	305,291	21,609	32,414	118,851	0	0	0	0	0	0	0	0	0
Rajbari	21000	601,982	136,270	136,433	474,107	2,774	2,549	3,277	4,606	0	0	0	0	0	0	0	0	0	0	0	0	0
Shariatpur	21100	137,144	67,019	201,859	539,847	3,054	2,806	3,609	5,071	0	0	0	0	0	0	0	0	0	0	0	0	0
Faridpur	21200	1,134,148	137,593	203,137	90,799	5,055	4,644	5,972	8,394	195,742	0	0	0	0	0	0	0	0	0	0	0	0
Tangail	21300	185,360	237,942	40,066	110,257	383,821	352,597	453,450	637,287	0	0	0	0	0	0	0	0	0	0	0	0	0
Narsingdi	21400	299,226	460,876	240,129	285,062	816,005	749,623	964,036	1,354,875	221,701	15,693	23,539	86,309	0	0	0	0	0	0	0	0	0
Jamalpur	21500	9,211	6,573	7,238	19,918	681,379	625,949	804,988	1,131,346	0	0	0	0	0	0	0	0	0	0	0	0	0
Netrokona	21600	8,958	6,392	7,039	19,370	662,646	608,740	782,857	1,100,242	0	0	0	0	0	0	0	0	0	0	0	0	0
Sherpur	21700	5,457	3,894	4,288	11,801	403,692	370,852	476,926	670,281	0	0	0	0	0	0	0	0	0	0	0	0	0
Mymensingh	21800	20,531	14,651	16,133	44,396	1,518,765	1,395,214	1,794,285	2,521,722	0	0	0	0	0	0	0	0	0	0	0	0	0
Joypurhat	30100	54,623	43,091	31,053	148,427	8,344	7,665	9,857	13,854	0	0	0	0	0	0	0	0	0	0	0	0	0
Bogra	30200	203,298	160,376	115,574	552,419	31,054	28,528	36,688	51,562	0	0	0	0	0	0	0	0	0	0	0	0	0
Naogaon	30300	155,433	122,616	88,362	422,355	23,743	21,811	28,050	39,422	0	0	0	0	0	0	0	0	0	0	0	0	0
Natore	30400	102,022	80,482	57,999	277,223	15,584	14,316	18,411	25,875	0	0	0	0	0	0	0	0	0	0	0	0	0
Nawabganj	30500	98,486	77,692	55,989	267,614	15,044	13,820	17,773	24,979	0	0	0	0	0	0	0	0	0	0	0	0	0
Pabna	30600	150,831	118,986	85,746	409,851	23,040	21,165	27,219	38,255	0	0	0	0	0	0	0	0	0	0	0	0	0
Sirajganj	30700	185,162	146,069	105,263	503,139	28,284	25,983	33,415	46,962	0	0	0	0	0	0	0	0	0	0	0	0	0
Rajshahi	30800	156,687	123,606	89,076	425,765	23,934	21,987	28,276	39,740	0	0	0	0	0	0	0	0	0	0	0	0	0
Dinajpur	40100	58,635	44,071	43,877	268,539	20,357	18,701	24,049	33,800	0	0	0	0	0	0	0	0	0	0	0	0	0
Gaibandha	40200	46,656	35,068	34,913	213,677	16,198	14,880	19,136	26,894	0	0	0	0	0	0	0	0	0	0	0	0	0
Kurigram	40300	40,578	30,499	30,364	185,838	14,087	12,941	16,643	23,391	0	0	0	0	0	0	0	0	0	0	0	0	0
Lalmonirhat	40400	24,632	18,513	18,432	112,808	8,551	7,856	10,103	14,199	0	0	0	0	0	0	0	0	0	0	0	0	0
Nilphamari	40500	36,328	27,305	27,184	166,377	12,612	11,586	14,900	20,941	0	0	0	0	0	0	0	0	0	0	0	0	0
Panchagarh	40600	19,367	14,557	14,493	88,699	6,724	6,177	7,944	11,164	0	0	0	0	0	0	0	0	0	0	0	0	0
Rangpur	40700	57,062	42,889	42,699	261,333	19,810	18,199	23,404	32,893	0	0	0	0	0	0	0	0	0	0	0	0	0
Thakurgaon	40800	27,258	20,488	20,397	124,837	9,463	8,693	11,180	15,713	0	0	0	0	0	0	0	0	0	0	0	0	0
Barguna	50100	56,609	14,590	56,609	463,960	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barisal	50200	134,662	65,247	134,662	799,636	0	0	0	0	12,501	0	0	0	0	0	0	0	0	0	0	0	0
Bhola	50300	112,663	29,037	112,663	923,365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jhalokati	50400	64,601	0	64,601	331,258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Patuakhali	50500	97,385	25,100	97,385	798,153	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pirojpur	50600	133,328	64,601	266,657	1,716,766	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bagerhat	60100	197,930	64,601	395,859	2,843,868	7,602	6,983	8,981	12,622	0	0	0	0	0	0	0	0	0	0	0	0	0
Chuadanga	60200	791,719	3,247,979	262,531	925,047	5,814	5,341	6,869	9,654	0	0	0	0	0	0	0	0	0	0	0	0	0
Jessore	60300	3,508,113	465,065	6,306,839	10,109,277	14,380	13,210	16,988	23,876	0	0	0	0	0	0	0	0	0	0	0	0	0
Jhenaida	60400	6,071,219	864,571	662,516	2,181,352	63,592	58,419	75,128	105,587	0	0	0	0	0	0	0	0	0	0	0	0	0
Khulna	60500	595,560	199,909	1,599,272	11,329,565	12,060	11,079	14,248	20,024	0	0	0	0	0	0	0	0	0	0	0	0	0
Kushtia	60600	1,252,180	1,850,094	395,859	1,518,836	91,731	84,269	108,372	152,308	0	0	0	0	0	0	0	0	0	0	0	0	0
Magura	60700	0	262,531	529,188	1,191,704	4,730	4,345	5,588	7,853	0	0	0	0	0	0	0	0	0	0	0	0	0
Meherpur	60800	262,531	0	133,328	399,985	30,610	28,120	36,163	50,825	0	0	0	0	0	0	0	0	0	0	0	0	0
Narail	60900	529,188	133,328	0	1,260,431	3,717	3,414	4,391	6,171	0	0	0	0	0	0	0	0	0	0	0	0	0
Satkhira	61000	1,191,704	399,985	1,260,431	0	10,228	9,396	12,083	16,982	0	0	0	0	0	0	0	0	0	0	0	0	0
Habiganj	70100	3,770	29,925	2,963	8,153	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moulvibazar	70200	3,464	27,491	2,722	7,490	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunamganj	70300	4,454	35,354	3,500	9,632	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sylhet	70400	6,260	49,688	4,919	13,537	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Benapole Land Port	99001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bhomra Land Port	99002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mongla Sea Port	99003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hilli Land Port	99004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dhaka Airport	99005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	99006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	99007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Payra Sea Port	99008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Matarbari Sea Port	99009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Akhaura Land Port	99010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bibir Bazar Land Port	99011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ramgarh border crossing	99012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teknaf border crossing	99013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Cargo OD Table in 2031 (Ton per annum) (1 of 4)

		10100	10200	10300	10400	10500	10600	10700	10800	10900	11000	11100	20100	20200	20300	20400	20500	20600
Bandarban	10100	0	3,307	3,858	20,802	6,679	2,556	2,109	1,250	2,183	3,201	5,182	59,307	7,424	1,654	3,639	3,994	2,028
Brahmanbaria	10200	3,322	0	15,565	77,140	27,123	9,458	8,245	4,501	8,617	13,301	21,319	242,525	30,549	6,772	15,219	16,273	8,282
Chandpur	10300	3,869	15,538	0	89,631	31,314	11,005	9,591	5,239	10,361	14,981	24,111	277,266	34,555	7,743	17,016	18,632	9,480
Chittagong	10400	20,808	76,799	89,395	0	154,821	59,280	48,909	28,229	50,591	74,549	119,845	1,389,320	174,954	38,299	84,288	92,425	46,996
Comilla	10500	6,697	27,076	31,311	155,222	0	19,018	16,591	9,055	17,342	26,132	42,085	483,800	60,394	13,493	29,666	32,495	16,529
Cox's Bazar	10600	2,557	9,414	10,976	59,283	18,970	0	5,999	3,482	6,218	9,078	14,607	167,970	20,926	4,696	10,310	11,287	5,744
Feni	10700	2,113	8,224	9,583	48,996	16,578	6,010	0	2,861	5,425	7,944	12,805	147,109	18,381	4,101	9,018	9,882	5,025
Khagrachhari	10800	1,250	4,479	5,224	28,222	9,030	3,481	2,856	0	2,960	4,319	6,953	79,963	9,964	2,233	4,907	5,373	2,734
Lakshmipur	10900	2,189	8,599	10,357	50,706	17,338	6,232	5,428	2,967	0	8,291	13,349	153,538	19,137	4,287	9,422	10,318	5,250
Noakhali	11000	3,232	13,374	15,088	75,261	26,316	9,170	8,007	4,363	8,354	0	23,107	245,776	31,097	7,064	15,337	16,971	8,360
Rangamati	11100	5,235	21,460	24,306	121,077	42,422	14,764	12,917	7,028	13,462	23,137	0	394,452	49,946	11,055	24,698	26,700	13,485
Dhaka	20100	59,429	241,958	277,033	1,392,605	483,449	168,279	147,125	80,124	153,468	243,962	391,138	0	574,052	125,462	274,354	302,404	153,935
Gazipur	20200	7,446	30,513	34,564	175,574	60,413	20,988	18,402	9,994	19,149	30,914	49,595	574,509	0	15,641	34,628	37,843	19,236
Gopalganj	20300	1,661	6,771	7,755	38,458	13,515	4,715	4,111	2,243	4,296	7,023	10,983	125,763	15,661	0	7,672	8,814	4,300
Kishoreganj	20400	3,658	15,234	17,060	84,719	29,743	10,364	9,049	4,934	9,449	15,267	24,559	275,269	34,703	7,680	0	18,494	9,407
Madaripur	20500	4,011	16,272	18,659	92,799	32,546	11,332	9,905	5,396	10,337	16,878	26,531	303,087	37,889	8,813	18,476	0	10,358
Manikganj	20600	2,032	8,262	9,471	47,081	16,515	5,753	5,025	2,739	5,247	8,295	13,369	153,928	19,218	4,289	9,375	10,334	0
Munshiganj	20700	2,448	9,990	11,428	56,766	19,924	6,942	6,060	3,305	6,329	10,024	16,115	185,600	23,148	5,176	11,308	12,452	6,337
Narayanganj	20900	7,476	30,448	34,773	178,159	60,800	21,123	18,518	10,057	19,263	30,925	49,312	584,145	74,589	15,738	34,485	38,039	19,360
Rajbari	21000	5,932	24,466	27,670	137,520	48,244	16,816	14,679	8,004	15,324	27,114	43,166	449,028	56,669	12,921	28,132	31,061	15,336
Shariatpur	21100	1,941	8,248	9,112	45,244	15,890	5,541	4,830	2,634	5,039	8,587	13,630	146,995	18,522	4,111	9,512	9,847	5,013
Faridpur	21200	2,761	11,242	12,870	63,971	22,441	7,818	6,828	3,722	7,128	11,848	18,539	209,026	26,099	6,083	12,738	14,624	7,139
Tangail	21300	2,024	8,371	9,446	46,924	16,469	5,743	5,011	2,733	5,230	9,040	15,876	153,050	19,305	4,300	9,597	10,339	5,230
Narsingdi	21400	3,361	14,038	15,692	78,781	27,377	9,535	8,330	4,539	8,692	13,897	22,233	256,515	32,580	7,065	15,890	17,009	8,661
Jamalpur	21500	2,885	12,038	13,477	66,975	23,495	8,191	7,147	3,898	7,463	12,648	20,236	218,832	27,604	6,103	14,081	14,673	7,468
Netrokona	21600	4,770	19,760	22,240	110,451	38,772	13,516	11,797	6,433	12,318	20,874	35,140	359,632	45,352	10,067	22,963	24,236	12,293
Sherpur	21700	4,854	20,010	22,642	114,934	39,529	13,763	12,032	6,552	12,545	21,769	34,613	377,087	48,288	10,256	23,055	24,713	12,591
Mymensingh	21800	6,631	27,617	30,915	153,656	53,905	18,782	16,401	8,941	17,123	28,528	45,810	499,114	62,969	13,916	32,386	33,517	17,046
Joypurhat	30100	1,583	6,578	7,402	36,767	12,907	4,499	3,926	2,140	4,097	7,150	11,663	119,903	15,122	3,398	7,519	8,161	4,095
Bogra	30200	5,035	20,787	23,469	116,747	40,941	14,259	12,458	6,786	12,994	22,439	37,004	380,738	48,110	10,680	23,849	25,718	13,004
Naogaon	30300	3,439	14,341	16,099	79,959	28,073	9,788	8,538	4,655	8,908	15,723	25,354	260,676	32,865	7,458	16,348	17,886	8,899
Natore	30400	2,307	9,594	10,794	53,591	18,819	6,562	5,724	3,121	5,974	10,609	16,821	174,833	22,037	5,038	10,965	12,084	5,971
Nawabganj	30500	2,230	9,176	10,380	51,628	18,106	6,307	5,511	3,002	5,749	10,144	16,188	168,376	21,276	4,841	10,549	11,654	5,754
Pabna	30600	1,504	6,205	7,006	34,849	12,221	4,259	3,719	2,026	3,879	6,691	11,746	113,551	14,348	3,187	7,116	7,677	3,881
Sirajganj	30700	2,345	9,788	10,955	54,286	19,085	6,658	5,804	3,170	6,069	9,377	15,095	171,812	21,639	4,798	10,786	11,548	5,875
Rajshahi	30800	2,084	7,439	8,678	46,861	15,014	5,761	4,744	2,819	4,913	7,191	11,613	133,201	16,664	3,715	8,172	8,961	4,555
Dinajpur	40100	4,414	18,269	20,598	102,388	35,921	12,522	10,930	5,957	11,403	19,715	34,587	333,818	42,137	9,374	20,924	22,545	11,403
Gaibandha	40200	2,822	11,658	13,172	65,420	22,964	8,006	6,986	3,810	7,294	12,609	21,218	213,609	26,940	5,998	13,391	14,424	7,298
Kurigram	40300	2,688	11,070	12,534	62,246	21,850	7,619	6,648	3,627	6,943	11,979	21,123	203,267	25,635	5,708	12,745	13,737	6,949
Lalmonirhat	40400	1,384	5,692	6,448	32,027	11,241	3,919	3,421	1,866	3,572	6,158	10,861	104,561	13,191	2,936	6,556	7,069	3,575
Nilphamari	40500	3,977	15,674	18,470	92,234	31,524	11,329	9,870	5,393	10,460	15,121	24,311	279,240	34,826	7,797	17,138	18,758	9,543
Panchagarh	40600	2,109	8,585	9,836	48,815	17,145	5,978	5,216	2,846	5,449	8,904	13,945	159,556	19,888	4,659	9,733	11,408	5,455
Rangpur	40700	2,902	11,800	13,512	67,170	23,564	8,238	7,171	3,908	7,484	12,592	19,726	219,284	27,399	6,557	13,376	15,351	7,495
Thakurgaon	40800	12	48	55	283	97	33	30	16	31	50	87	901	119	25	55	62	31
Barguna	50100	1,131	4,613	5,281	26,198	9,203	3,210	2,800	1,528	2,925	4,783	7,483	85,630	10,668	2,502	5,224	6,122	2,928
Barisal	50200	3,880	15,755	18,060	89,758	31,495	10,972	9,585	5,223	10,005	16,339	25,665	293,153	36,618	8,543	17,879	20,942	10,022
Bhola	50300	2,330	9,489	10,871	53,925	18,943	6,610	5,763	3,146	6,022	9,842	15,404	176,220	21,949	5,150	10,754	12,602	6,027
Jhalokati	50400	1,095	4,465	5,110	25,360	8,907	3,110	2,710	1,478	2,830	4,629	7,246	82,871	10,330	2,446	5,056	5,923	2,833
Patuakhali	50500	1,815	7,391	8,467	42,019	14,758	5,162	4,490	2,449	4,690	7,773	12,161	137,327	17,119	4,117	8,377	9,818	4,695
Pirojpur	50600	1,408	5,736	6,568	32,633	11,451	3,991	3,484	1,900	3,638	6,143	9,593	106,663	13,309	3,106	6,500	7,465	3,643
Bagerhat	60100	2,555	10,408	11,919	59,158	20,777	7,268	6,321	3,448	6,602	10,952	17,132	193,325	24,102	5,798	11,794	13,626	6,610
Chuadanga	60200	1,493	6,074	6,951	34,588	12,124	4,224	3,690	2,010	3,850	6,683	10,443	112,888	14,119	3,290	6,881	7,894	3,855
Jessore	60300	5,034	20,424	23,387	116,574	40,813	14,238	12,426	6,763	12,955	21,994	34,515	380,267	47,658	11,252	23,166	26,577	12,981
Jhenaida	60400	2,498	10,184	11,649	57,890	20,312	7,080	6,180	3,369	6,451	11,092	17,308	189,066	23,605	5,521	11,528	13,229	6,459
Khulna	60500	6,323	25,677	29,393	146,842	51,298	17,916	15,617	8,499	16,281	27,024	42,413	479,344	60,157	14,236	29,115	33,404	16,318
Kushtia	60600	3,004	12,216	13,967	69,596	24,375	8,483	7,420	4,038	7,735	13,478	21,091	226,938	28,435	6,582	13,873	15,858	7,748
Magura	60700	1,118	4,555	5,214	25,900	9,091	3,168	2,766	1,508	2,888	4,886	7,634	84,617	10,558	2,465	5,160	5,924	2,892
Meherpur	60800	842	3,423	3,923	19,482	6,839	2,384	2,081	1,135	2,173	3,789	5,914	63,633	7,941	1,860	3,892	4,458	2,176
Narail	60900	906	3,690	4,227	20,973	7,368	2,569	2,241	1,223	2,342	3,927	6,134	68,560	8,543	2,003	4,183	4,804	2,344
Satkhira	61000	1,290	5,258	6,022	29,866	10,495	3,659	3,192	1,742	3,335	5,453	8,528	96,746	12,163	2,851	5,957	6,986	3,339
Habiganj	70100	2,507	10,683	11,800	58,457	20,561	7,175	6,247	3,411	6,526	10,228	16,261	184,801	23,240	5,169	11,605	12,371	6,302
Moulvibazar	70200	2,596	11,198	12,266	60,777	21,379	7,462	6,493	3,544	6,777	10,728	16,939	191,927	24,126	5,375	12,057	12,827	6,537
Sunamganj	70300	4,924	20,568	22,995	114,061	40,077	13,973	12,190	6,651	12,736	19,726	31,758	360,939	45,509	10,075	22,647	24,262	12,338
Sylhet	70400	5,342	22,029	24,924	124,396	43,469	15,144	13,226	7,209	13,804	23,399	37,443	406,792	51,491	11,286	25,356	27,171	13,828
Benapole Land Port	90001	567	3,814	3,584	10,841	7,455	2,943	1,965	947	2,585	4,203	909	613,428	181,963	55,015	138,119	55,516	71,510
Bhomra Land Port	90002	541	3,640	3,421	10,346	7,115	2,809	1,875	904	2,467	4,011	868	585,452	173,664	52,506	131,820	52,984	68,249
Mongla Sea Port	90003	0	0	0	0	0	0	0	0	0	0	0	796,448	236,252	71,429	179,327	72,080	92,846
Hilli Land Port	90004	0	0	0	0	0	0	0	0	0	0	0	1,376,985	408,459	123,494	310,040	124,619	160,522
Dhaka Airport	90005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	90006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	90007	343,509	2,311,178	2,172,165	6,569,890	4,518,139	1,783,778	1,190,739	573,754	1,566,720	2,546,959	551,042	14,870,645	4,411,119	1,333,661	3,348,255	1,345,815	1,733,548
Payra Sea Port	90008	0	0	0	0	0	0	0	0	0	0	0	643,900	191,002	57,748	144,980	58,274	75,063
Matarbari Sea Port	90009	28,798	193,755	182,101	550,780	378,774	149,541	99,824	48,100	131,344	213,522	46,196	1,246,666	369,802	111,806	280,698	112,825	145,330
Akhaura Land port	90010	1,773	11,928	11,210	33,906	23,318	9,206	6,145	2,961	8,086	13,145	2,844	95,932	28,457	8,604	21,600	8,682	11,183
Bibir Bazar Land Port	90011	827	5,563	5,229	15,814	10,876	4,294	2,866	1,381	3,771	6,131	1,326	22,372	6,636	2,006	5,037	2,025	2,608
Ramgarh border crossing	90012	0	0	0	0	0	0	0	0	0	0	0	174,812	51,855	15,678	39,360	15,821	20,379
Teknaf border crossing	90013	2,230	15,006	14,104	42,658	29,336	11,582	7,731	3,725	10,173	16,537	3,578	60,346	17,901	5,412	13,587	5,461	7,035

Cargo OD Table in 2031 (Ton per annum) (2 of 4)

		20700	20900	21000	21100	21200	21300	21400	21500	21600	21700	21800	30100	30200	30300	30400	30500	30600	30700	30800
Bandarban	10100	2,443	7,459	5,873	1,924	2,746	2,000	3,348	2,862	4,726	4,814	6,582	1,566	4,987	3,402	2,283	2,208	1,486	2,332	2,084
Brahmanbaria	10200	10,015	30,513	24,317	8,214	11,232	8,305	14,046	11,991	19,660	19,930	27,523	6,535	20,670	14,246	9,535	9,122	6,155	9,774	7,473
Chandpur	10300	11,440	34,796	27,457	9,058	12,838	9,356	15,676	13,404	22,091	22,516	30,763	7,342	23,300	15,966	10,709	10,302	6,939	10,921	8,702
Chittagong	10400	56,661	177,604	136,152	44,853	63,647	46,372	78,460	66,446	109,463	114,000	152,533	36,379	115,634	79,099	53,040	51,126	34,437	53,986	46,870
Comilla	10500	19,942	60,836	47,876	15,799	22,385	16,314	27,347	23,367	38,515	39,311	53,641	12,804	40,650	27,845	18,674	17,971	12,104	19,025	15,054
Cox's Bazar	10600	6,931	21,076	16,641	5,489	7,778	5,672	9,498	8,123	13,389	13,647	18,640	4,449	14,116	9,676	6,490	6,243	4,206	6,620	5,763
Feni	10700	6,061	18,513	14,556	4,798	6,805	4,960	8,314	7,102	11,710	11,956	16,308	3,891	12,360	8,461	5,675	5,466	3,681	5,782	4,753
Khagrachhari	10800	3,299	10,034	7,919	2,609	3,702	2,699	4,521	3,865	6,372	6,496	8,872	2,116	6,717	4,602	3,087	2,971	2,001	3,151	2,819
Lakshmipur	10900	6,333	19,268	15,200	5,007	7,108	5,178	8,679	7,419	12,231	12,470	17,032	4,062	12,895	8,830	5,925	5,703	3,840	6,048	4,925
Noakhali	11000	10,104	31,131	27,098	8,599	11,904	9,018	13,978	12,670	20,883	21,800	28,591	7,143	22,435	15,705	10,602	10,138	6,673	9,416	7,262
Rangamati	11100	16,257	49,701	43,198	13,667	18,643	15,860	22,387	20,298	35,197	34,707	45,968	11,668	37,047	25,361	16,833	16,200	11,731	15,175	11,735
Dhaka	20100	185,618	584,195	445,352	146,090	208,354	151,536	256,074	217,507	357,025	375,049	496,346	118,883	377,839	258,434	173,388	167,037	112,425	171,165	133,558
Gazipur	20200	23,171	74,644	56,288	18,433	26,044	19,143	32,557	27,474	45,087	48,104	62,703	15,015	47,809	32,630	21,887	21,137	14,226	21,585	16,715
Gopalganj	20300	5,189	15,773	12,839	4,093	6,078	4,265	7,068	6,079	10,015	10,213	13,868	3,376	10,619	7,407	5,005	4,811	3,161	4,791	3,731
Kishoreganj	20400	11,348	34,593	27,986	9,482	12,739	9,531	15,915	14,040	22,867	22,986	32,306	7,477	23,738	16,256	10,908	10,496	7,065	10,781	8,215
Madaripur	20500	12,482	38,119	30,870	9,807	14,610	10,259	17,018	14,618	24,115	24,617	33,409	8,109	25,578	17,768	12,009	11,585	7,616	11,532	8,998
Manikganj	20600	6,338	19,360	15,207	4,981	7,115	5,177	8,645	7,421	12,201	12,512	16,949	4,059	12,902	8,820	5,920	5,707	3,841	5,852	4,563
Munshiganj	20700	0	23,540	18,357	6,052	8,583	6,256	10,433	8,964	14,722	15,089	20,446	4,912	15,583	10,687	7,166	6,887	4,639	7,058	5,499
Narayanganj	20900	23,541	0	56,075	18,447	26,217	19,075	32,775	27,399	44,889	48,851	62,482	14,978	47,629	32,584	21,837	21,038	14,169	21,489	16,808
Rajbari	21000	18,516	56,502	0	15,659	21,767	16,835	25,523	23,210	38,677	39,705	52,431	13,425	41,871	29,488	19,816	19,406	12,452	17,277	13,323
Shariatpur	21100	6,091	18,554	15,627	0	6,822	5,361	8,512	8,007	12,648	12,764	17,749	4,243	13,317	9,293	6,194	5,854	3,965	5,737	4,368
Faridpur	21200	8,612	26,297	21,650	6,801	0	7,194	11,746	10,092	16,758	17,153	23,034	5,694	17,919	12,492	8,440	8,115	5,334	7,951	6,199
Tangail	21300	6,321	19,253	16,865	5,382	7,244	0	8,707	7,924	13,741	13,532	17,885	4,574	14,464	9,963	6,601	6,313	4,920	5,896	4,546
Narsingdi	21400	10,453	32,826	25,357	8,473	11,729	8,635	0	12,506	20,504	21,318	28,740	6,781	21,515	14,754	9,892	9,505	6,402	9,915	7,557
Jamalpur	21500	9,021	27,553	23,154	8,004	10,121	7,891	12,561	0	18,746	19,057	26,271	6,200	19,629	13,496	9,050	8,670	5,840	8,492	6,484
Netrokona	21600	14,834	45,193	38,639	12,661	16,828	13,704	20,619	18,771	0	31,385	42,812	10,384	32,927	22,580	15,067	14,471	10,132	13,973	10,710
Sherpur	21700	15,186	49,051	39,621	12,764	17,205	13,480	21,401	19,060	31,350	0	43,026	10,576	33,568	22,991	15,414	14,810	9,972	14,146	10,920
Mymensingh	21800	20,566	62,804	52,283	17,736	23,088	17,803	28,853	26,259	42,736	42,999	0	13,970	44,327	30,376	20,385	19,595	13,189	19,532	14,889
Joypurhat	30100	4,956	15,099	13,429	4,253	5,726	4,568	6,828	6,217	10,398	10,601	14,014	0	11,353	7,980	5,240	5,024	3,377	4,616	3,558
Bogra	30200	15,708	47,972	41,852	13,340	18,003	14,432	21,645	19,667	32,944	33,623	44,431	11,344	0	24,698	16,369	15,676	10,679	14,645	11,304
Naogaon	30300	10,783	32,849	29,502	9,317	12,564	9,950	14,857	13,535	22,614	23,050	30,476	7,981	24,720	0	11,541	11,034	7,353	10,036	7,733
Natore	30400	7,228	22,007	19,817	6,208	8,485	6,590	9,958	9,072	15,083	15,448	20,443	5,238	16,376	11,536	0	7,410	4,871	6,732	5,187
Nawabganj	30500	6,945	21,194	19,405	5,866	8,158	6,302	9,566	8,690	14,485	14,841	19,649	5,023	15,682	11,028	7,409	0	4,665	6,480	5,003
Pabna	30600	4,687	14,301	12,477	3,981	5,372	4,921	6,455	5,866	10,162	10,012	13,253	3,382	10,705	7,364	4,881	4,675	0	4,372	3,376
Sirajganj	30700	7,086	21,562	17,195	5,721	7,955	5,857	9,936	8,471	13,921	14,109	19,493	4,593	14,582	9,983	6,699	6,450	4,343	0	5,270
Rajshahi	30800	5,489	16,769	13,187	4,330	6,167	4,491	7,529	6,431	10,612	10,831	14,778	3,520	11,194	7,648	5,132	4,953	3,335	5,240	0
Dinajpur	40100	13,786	42,039	36,751	11,763	15,796	14,091	18,992	17,276	29,931	29,490	38,989	9,978	31,539	21,740	14,399	13,762	10,392	12,852	9,913
Gaibandha	40200	8,815	26,863	23,547	7,477	10,106	8,295	12,147	11,056	18,735	18,919	24,961	6,377	20,183	13,878	9,201	8,810	6,128	8,223	6,339
Kurigram	40300	8,385	25,536	22,399	7,070	9,616	8,263	11,551	10,511	18,271	18,000	23,753	6,052	19,183	13,157	8,731	8,381	6,097	7,829	6,036
Lalmonirhat	40400	4,313	13,134	11,516	3,631	4,947	4,246	5,940	5,404	9,394	9,252	12,217	3,110	9,862	6,760	4,487	4,310	3,134	4,028	3,107
Nilphamari	40500	11,526	35,093	27,682	9,186	12,933	9,444	15,798	13,516	22,260	22,686	30,994	7,420	23,517	16,153	10,823	10,389	7,004	10,991	8,949
Panchagarh	40600	6,581	20,024	16,281	5,185	7,706	5,410	8,965	7,709	12,706	12,960	17,595	4,279	13,471	9,386	6,343	6,103	4,012	6,078	4,736
Rangpur	40700	9,039	27,574	23,022	7,180	10,633	7,650	12,321	10,661	17,711	18,214	24,191	6,052	19,055	13,274	8,970	8,631	5,673	8,349	6,513
Thakurgaon	40800	37	117	92	29	42	32	50	44	74	75	102	25	79	53	35	35	25	35	27
Barguna	50100	3,533	10,745	8,743	2,791	4,137	2,906	4,813	4,140	6,821	6,956	9,445	2,300	7,235	5,048	3,410	3,277	2,155	3,263	2,541
Barisal	50200	12,081	36,840	29,883	9,505	14,141	9,933	16,464	14,151	23,340	23,806	32,330	7,853	24,755	17,213	11,631	11,212	7,372	11,161	8,706
Bhola	50300	7,271	22,102	17,996	5,736	8,515	5,982	9,904	8,521	14,044	14,315	19,442	4,732	14,887	10,380	7,014	6,745	4,435	6,718	5,233
Jhalokati	50400	3,419	10,404	8,460	2,703	4,002	2,813	4,658	4,007	6,602	6,731	9,142	2,227	7,005	4,887	3,300	3,172	2,086	3,157	2,460
Patuakhali	50500	5,664	17,236	14,214	4,466	6,632	4,721	7,717	6,636	11,011	11,238	15,146	3,735	11,754	8,194	5,538	5,326	3,499	5,231	4,077
Pirojpur	50600	4,395	13,411	11,228	3,496	5,232	3,727	5,994	5,194	8,618	8,891	11,756	2,950	9,279	6,472	4,375	4,205	2,761	4,058	3,163
Bagerhat	60100	7,975	24,267	20,023	6,293	9,336	6,652	10,864	9,344	15,507	15,829	21,324	5,264	16,562	11,548	7,804	7,504	4,931	7,364	5,739
Chuadanga	60200	4,650	14,219	12,213	3,806	5,527	4,055	6,344	5,652	9,376	9,671	12,792	3,210	10,098	7,042	4,764	4,576	3,005	4,295	3,351
Jessore	60300	15,646	47,973	40,200	12,531	18,573	13,359	21,356	18,627	30,921	31,899	42,221	10,566	33,305	23,164	15,652	15,081	9,915	14,455	11,288
Jhenaida	60400	7,795	23,781	20,267	6,328	9,271	6,730	10,628	9,377	15,551	16,030	21,209	5,330	16,754	11,700	7,906	7,590	4,985	7,196	5,610
Khulna	60500	19,671	60,715	49,336	15,529	23,004	16,408	26,920	23,059	38,268	39,378	52,678	12,978	40,917	28,455	19,216	18,515	12,183	18,164	14,184
Kushtia	60600	9,346	28,629	24,621	7,696	11,095	8,182	12,753	11,404	18,917	19,506	25,819	6,478	20,387	14,214	9,602	9,231	6,068	8,630	6,738
Magura	60700	3,489	10,634	8,930	2,785	4,152	2,965	4,755	4,132	6,856	7,063	9,351	2,347	7,383	5,151	3,481	3,346	2,197	3,221	2,511
Meherpur	60800	2,624	7,991	6,932	2,150	3,122	2,298	3,575	3,203	5,317	5,476	7,249	1,818	5,720	3,988	2,698	2,595	1,702	2,424	1,890
Narail	60900	2,828	8,602	7,181	2,235	3,339	2,383	3,853	3,322	5,528	5,674	7,561	1,886	5,933	4,138	2,798	2,689	1,766	2,612	2,035
Satkhira	61000	4,029	12,252	9,969	3,178	4,719	3,312	5,489	4,720	7,777	7,933	10,769	2,621	8,246	5,751	3,886	3,736	2,455	3,720	2,897
Habiganj	70100	7,655	23,300	18,613	6,442	8,572	6,387	10,737	9,194	15,017	15,206	21,006	5,053	15,869	11,065	7,375	6,978	4,728	7,734	5,649
Moulvibazar	70200	7,976	24,273	19,429	6,893	8,920	6,702	11,180	9,608	15,637	15,803	21,852	5,331	16,629	11,730	7,783	7,285	4,958	8,235	5,857
Sunamganj	70300	14,888	45,364	36,141	12,071	16,714	12,321	20,868	17,801	29,245	29,633	40,946	9,670	30,686	21,035	14,104	13,565	9,140	15,968	11,064
Sylhet	70400	16,688	51,540	42,811	14,081	18,729	14,573	23,112	20,930	34,175	35,553	47,278	11,440	36,277	24,881	16,696	16,031	10,788	15,564	12,003
Benapole Land Port	90001	68,971	148,760	52,435	54,576	92,510	191,572	105,237	124,038	105,494	75,176	254,394	32,283	115,412	87,284	56,416	47,646	78,626	95,160	84,351
Bhomra Land Port	90002	65,825	141,975	50,043	52,087	88,291	182,835	100,437	118,381	100,683	71,748	242,793	30,811	110,149	83,304	53,843	45,473	75,040	90,820	80,504
Mongla Sea Port	90003	89,548	193,143	68,079	70,859	120,112	248,729	136,635	161,045	136,969	97,605	330,295	0	0	0	0	0	0	0	0
Hilli Land Port	90004	154,821	333,926	117,702	122,509	207,662	430,029	236,229	278,432	236,807	168,751	571,049	144,935	518,141	391,861	253,278	213,905	352,991	427,217	378,690
Dhaka Airport	90005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	90006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	90007	1,671,976	3,606,210	1,271,113	1,323,029	2,242,627	4,644,063	2,551,139	3,006,903	2,557,383	1,822,410	6,166,999	156,521	559,562	423,188	273,526	231,005	381,210	461,370	408,963
Payra Sea Port	90008	72,397	156,149	55,039	57,287	97,106	201,088	110,465	130,199	110,735	78,911	267,032	0	0	0	0	0	0	0	0
Matarbai Sea Port	90009	140,168	302,323	106,562	110,915	188,008	389,330	213,872	252,081	214,396	152,780	517,004	13,122	46,910	35,478	22,931	19,366	31,958	38,678	34,285
Akhaura Land port	90010	10,786	23,264	8,200	8,535	14,467	29,959	16,458	19,398	16,498	11,757	39,784	0	0	0	0	0	0	0	0
Bibir Bazar Land Port	90011	2,515	5,425	1,912	1,990	3,374	6,987	3,838	4,524	3,847	2,742	9,278	0	0	0	0	0	0	0	0
Ramgarh border crossing	90012	19,655	42,393	14,943	15,553	26,363	54,593	29,990	35,348	30,063	21,423	72,496	0	0	0	0	0	0	0	0
Teknaf border crossing	90013	6,785	14,634	5,158	5,369	9,101	18,846	10,353	12,202	10,378	7,395	25,026	0	0	0	0	0	0	0	0

Cargo OD Table in 2031 (Ton per annum) (3 of 4)

		40100	40200	40300	40400	40500	40600	40700	40800	50100	50200	50300	50400	50500	50600	60100	60200	60300	60400	60500	60600
Bandarban	10100	4,361	2,793	2,659	1,369	3,967	2,099	2,883	8	1,126	3,862	2,318	1,090	1,805	1,400	2,541	1,481	4,997	2,479	6,289	2,980
Brahmanbaria	10200	18,125	11,587	10,994	5,653	15,709	8,582	11,773	33	4,611	15,750	9,486	4,463	7,381	5,727	10,395	6,049	20,358	10,149	25,650	12,166
Chandpur	10300	20,402	13,072	12,428	6,394	18,479	9,817	13,459	37	5,270	18,025	10,848	5,099	8,441	6,547	11,884	6,911	23,275	11,590	29,313	13,888
Chittagong	10400	101,181	64,769	61,582	31,687	92,029	48,594	66,745	209	26,080	89,359	53,676	25,241	41,790	32,447	58,838	34,312	115,742	57,456	146,090	69,039
Comilla	10500	35,584	22,790	21,665	11,147	31,537	17,109	23,471	65	9,184	31,432	18,901	8,887	14,712	11,414	20,715	12,056	40,617	20,209	51,159	24,237
Cox's Bazar	10600	12,366	7,922	7,534	3,876	11,304	5,950	8,184	22	3,195	10,922	6,579	3,095	5,133	3,968	7,227	4,189	14,132	7,025	17,821	8,412
Feni	10700	10,818	6,928	6,587	3,390	9,866	5,201	7,138	20	2,792	9,558	5,746	2,702	4,473	3,470	6,297	3,666	12,356	6,144	15,562	7,373
Khagrachhari	10800	5,883	3,770	3,585	1,845	5,379	2,832	3,882	11	1,520	5,199	3,130	1,471	2,435	1,888	3,428	1,993	6,711	3,342	8,453	4,004
Lakshmipur	10900	11,290	7,235	6,881	3,540	10,461	5,436	7,452	20	2,918	9,981	6,007	2,823	4,674	3,625	6,580	3,826	12,887	6,416	16,231	7,688
Noakhali	11000	19,667	12,602	11,962	6,149	15,237	8,951	12,634	36	4,809	16,424	9,894	4,653	7,807	6,168	11,001	6,692	22,043	11,117	27,142	13,495
Rangamati	11100	34,550	21,236	21,122	10,861	24,518	14,030	19,809	58	7,529	25,818	15,498	7,289	12,224	9,642	17,222	10,470	34,624	17,365	42,631	21,142
Dhaka	20100	330,535	211,867	201,432	103,622	279,165	159,108	218,289	684	85,392	292,365	175,705	82,627	136,812	106,245	192,615	112,190	378,266	187,991	477,871	225,548
Gazipur	20200	41,783	26,759	25,442	13,092	34,854	19,855	27,308	96	10,651	36,560	21,913	10,312	17,076	13,273	24,042	14,051	47,467	23,501	60,044	28,298
Gopalganj	20300	9,298	5,961	5,668	2,916	7,813	4,657	6,540	17	2,500	8,539	5,146	2,444	4,110	3,101	5,789	3,276	11,213	5,501	14,219	6,553
Kishoreganj	20400	20,779	13,323	12,668	6,517	17,191	9,738	13,357	37	5,227	17,889	10,758	5,058	8,374	6,496	11,789	6,860	23,112	11,500	29,108	13,829
Madaripur	20500	22,371	14,339	13,643	7,022	18,795	11,402	15,314	41	6,119	20,931	12,592	5,918	9,802	7,452	13,606	7,862	26,488	13,181	33,364	15,792
Manikganj	20600	11,287	7,236	6,884	3,542	9,539	5,439	7,460	21	2,919	9,994	6,008	2,824	4,677	3,628	6,584	3,831	12,910	6,421	16,262	7,699
Munshiganj	20700	13,645	8,740	8,306	4,273	11,521	6,561	8,996	25	3,523	12,046	7,248	3,408	5,642	4,377	7,944	4,620	15,559	7,749	19,603	9,285
Narayanganj	20900	41,652	26,658	25,322	13,025	35,090	19,973	27,460	104	10,719	36,751	22,047	10,377	17,178	13,362	24,187	14,137	47,745	23,655	60,562	28,468
Rajbari	21000	36,683	23,550	22,381	11,506	27,909	16,377	23,111	63	8,795	30,055	18,101	8,509	14,284	11,281	20,123	12,238	40,312	20,324	49,577	24,667
Shariatpur	21100	11,717	7,462	7,050	3,621	9,245	5,205	7,193	21	2,802	9,541	5,759	2,714	4,479	3,505	6,312	3,807	12,542	6,332	15,575	7,694
Faridpur	21200	15,686	10,054	9,558	4,917	12,972	7,709	10,617	28	4,139	14,148	8,517	4,004	6,628	5,228	9,332	5,509	18,528	9,246	22,998	11,058
Tangail	21300	14,091	8,312	8,271	4,250	9,539	5,451	7,693	22	2,929	10,007	6,028	2,834	4,753	3,751	6,697	4,070	13,420	6,760	16,516	8,212
Narsingdi	21400	18,837	12,069	11,466	5,897	15,823	8,957	12,287	38	4,809	16,450	9,895	4,653	7,702	5,981	10,845	6,315	21,280	10,586	26,883	12,696
Jamalpur	21500	17,203	11,030	10,477	5,387	13,597	7,736	10,677	30	4,155	14,199	8,550	4,020	6,652	5,206	9,368	5,650	18,635	9,380	23,117	11,398
Netrokona	21600	29,849	18,719	18,239	9,377	22,420	12,766	17,759	50	6,854	23,447	14,109	6,632	11,053	8,649	15,566	9,385	30,972	15,577	38,411	18,933
Sherpur	21700	29,378	18,880	17,947	9,225	22,824	13,007	18,246	64	6,982	23,891	14,367	6,755	11,269	8,913	15,873	9,670	31,923	16,040	39,493	19,502
Mymensingh	21800	38,808	24,893	23,667	12,173	31,162	17,646	24,213	69	9,473	32,421	19,497	9,167	15,175	11,776	21,366	12,781	42,217	21,206	52,783	25,795
Joypurhat	30100	9,963	6,380	6,049	3,109	7,484	4,306	6,078	17	2,315	7,901	4,761	2,240	3,755	2,964	5,292	3,217	10,599	5,347	13,047	6,492
Bogra	30200	31,467	20,176	19,158	9,849	23,699	13,542	19,118	54	7,273	24,883	14,965	7,041	11,805	9,317	16,634	10,114	33,380	16,791	41,093	20,416
Naogaon	30300	21,711	13,887	13,153	6,758	16,296	9,447	13,333	37	5,081	17,321	10,448	4,918	8,239	6,505	11,613	7,060	23,241	11,738	28,610	14,248
Natore	30400	14,373	9,202	8,725	4,483	10,914	6,381	9,006	24	3,431	11,700	7,056	3,320	5,566	4,396	7,845	4,770	15,697	7,929	19,313	9,620
Nawabganj	30500	13,736	8,811	8,374	4,307	10,472	6,138	8,664	24	3,296	11,275	6,783	3,189	5,352	4,225	7,540	4,585	15,121	7,611	18,603	9,247
Pabna	30600	10,394	6,142	6,105	3,138	7,075	4,043	5,706	17	2,171	7,428	4,469	2,102	3,523	2,779	4,964	3,017	9,961	5,009	12,265	6,091
Sirajganj	30700	12,768	8,185	7,786	4,006	11,030	6,084	8,341	23	3,266	11,172	6,724	3,159	5,231	4,057	7,365	4,283	14,426	7,181	18,167	8,605
Rajshahi	30800	9,794	6,274	5,970	3,073	8,928	4,714	6,470	18	2,529	8,666	5,208	2,448	4,053	3,144	5,707	3,323	11,205	5,567	14,108	6,683
Dinajpur	40100	0	18,107	18,001	9,249	20,812	11,884	16,773	48	6,385	21,821	13,139	6,180	10,360	8,175	14,599	8,874	29,268	14,739	36,032	17,910
Gaibandha	40200	18,072	0	11,029	5,669	13,291	7,603	10,730	30	4,084	13,958	8,404	3,952	6,630	5,235	9,341	5,680	18,720	9,432	23,032	11,454
Kurigram	40300	17,983	11,040	0	5,820	12,635	7,238	10,214	29	3,886	13,291	8,001	3,760	6,311	4,982	8,891	5,405	17,820	8,973	21,919	10,897
Lalmonirhat	40400	9,240	5,674	5,820	0	6,499	3,724	5,255	15	1,999	6,839	4,116	1,934	3,247	2,563	4,573	2,780	9,170	4,615	11,279	5,606
Nilphamari	40500	20,604	13,183	12,522	6,441	0	9,884	13,559	37	5,309	18,150	10,924	5,137	8,501	6,594	11,970	6,965	23,453	11,681	29,541	14,004
Panchagarh	40600	11,794	7,560	7,191	3,700	9,909	0	8,256	21	3,434	11,430	6,895	3,239	5,363	3,932	7,437	4,143	14,165	6,953	17,957	8,314
Rangpur	40700	16,679	10,691	10,167	5,231	13,619	8,273	0	30	4,441	15,181	9,140	4,341	7,297	5,423	10,279	5,913	20,247	9,926	25,286	11,761
Thakurgaon	40800	70	44	42	22	56	32	45	0	17	60	35	16	27	21	39	23	80	38	99	48
Barguna	50100	6,337	4,061	3,861	1,986	5,322	3,434	4,432	11	0	6,135	3,703	1,739	2,880	2,111	3,993	2,224	7,602	3,733	9,638	4,463
Barisal	50200	21,659	13,881	13,206	6,796	18,193	11,429	15,150	40	6,135	0	12,625	5,932	9,825	7,213	13,629	7,608	26,024	12,759	32,980	15,280
Bhola	50300	13,040	8,357	7,949	4,090	10,952	6,897	9,123	23	3,704	12,629	0	3,580	5,928	4,345	8,220	4,577	15,646	7,684	19,835	9,184
Jhalokati	50400	6,135	3,930	3,736	1,922	5,151	3,239	4,333	11	1,740	5,934	3,580	0	2,816	2,042	3,904	2,171	7,432	3,645	9,423	4,320
Patuakhali	50500	10,291	6,599	6,276	3,229	8,530	5,369	7,290	18	2,883	9,836	5,933	2,818	0	3,384	6,574	3,650	12,496	6,130	15,847	7,255
Pirojpur	50600	8,123	5,211	4,955	2,549	6,619	3,936	5,419	14	2,113	7,222	4,349	2,044	3,384	0	4,764	2,843	9,455	4,720	11,735	5,730
Bagerhat	60100	14,501	9,297	8,840	4,548	12,011	7,444	10,268	26	3,997	13,643	8,226	3,908	6,573	4,763	0	5,142	17,602	8,635	22,322	10,221
Chuadanga	60200	8,840	5,669	5,390	2,773	7,008	4,158	5,924	16	2,232	7,636	4,594	2,179	3,661	2,850	5,157	0	10,337	5,208	12,711	6,235
Jessore	60300	29,136	18,671	17,758	9,138	23,577	14,206	20,267	54	7,624	26,101	15,690	7,452	12,521	9,472	17,638	10,329	0	17,328	43,507	20,558
Jhenaida	60400	14,672	9,407	8,941	4,599	11,746	6,975	9,938	26	3,745	12,799	7,707	3,656	6,143	4,730	8,654	5,204	17,330	0	21,302	10,340
Khulna	60500	35,796	22,924	21,798	11,217	29,634	17,970	25,256	69	9,645	33,006	19,846	9,428	15,843	11,730	22,318	12,674	43,414	21,252	0	25,244
Kushtia	60600	17,845	11,435	10,869	5,591	14,091	8,346	11,783	32	4,480	15,338	9,219	4,336	7,277	5,745	10,252	6,236	20,577	10,349	25,319	0
Magura	60700	6,464	4,145	3,941	2,027	5,256	3,124	4,420	11	1,677	5,732	3,451	1,626	2,733	2,118	3,849	2,294	7,709	3,852	9,474	4,558
Meherpur	60800	5,007	3,215	3,059	1,573	3,952	2,350	3,347	9	1,261	4,313	2,596	1,231	2,069	1,618	2,915	1,791	5,838	2,944	7,173	3,535
Narail	60900	5,194	3,332	3,169	1,630	4,259	2,534	3,604	9	1,361	4,649	2,801	1,326	2,229	1,704	3,140	1,844	6,283	3,098	7,717	3,664
Satkhira	61000	7,220	4,629	4,401	2,264	6,067	3,688	4,942	13	1,980	6,760	4,076	1,915	3,171	2,408	4,399	2,536	8,532	4,258	10,751	5,089
Habiganj	70100	13,961	8,886	8,398	4,314	11,957	6,543	8,979	25	3,522	11,987	7,240	3,410	5,630	4,369	7,933	4,617	15,505	7,759	19,550	9,293
Moulvibazar	70200	14,676	9,293	8,745	4,489	12,484	6,800	9,341	27	3,667	12,442	7,530	3,552	5,853	4,543	8,253	4,809	16,123	8,090	20,339	9,694
Sunamganj	70300	26,873	17,206	16,356	8,415	23,173	12,776	17,530	49	6,859	23,471	14,118	6,637	10,987	8,523	15,469	9,005	30,337	15,094	38,204	18,106
Sylhet	70400	31,766	20,384	19,373	9,962	25,130	14,310	19,755	58	7,683	26,282	15,811	7,434	12,306	9,633	17,326	10,455	34,510	17,350	42,821	21,094
Benapole Land Port	90001	7,464	6,385	5,298	3,029	4,396	2,384	7,510	3,345	9,226	21,956	15,931	6,759	14,809	10,942	75,418	59,075	139,757	89,919	116,536	101,620
Bhomra Land Port	90002	7,124	6,094	5,056	2,891	4,196	2,275	7,168	3,193	8,805	20,955	15,205	6,451	14,134	10,443	71,978	56,381	133,383	85,818	111,221	96,985
Mongla Sea Port	90003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	195,838	153,401	362,909	233,493	302,610	263,877
Hilli Land Port	90004	167,554	143,329	118,928	67,990	98,685	53,508	168,586	75,092	0	0	0	0	0	0	0	0	0	0	0	0
Dhaka Airport	90005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	90006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	90007	542,848	464,360	385,305	220,275	319,723	173,358	546,190	243,286	335,475	798,383	579,310	245,790	538,493	397,894	274,240	214,813	508,196	326,970	423,757	369,518
Payra Sea Port	90008	0	0	0	0	0	0	0	0	96,841	230,467	167,228	70,951	155,445	114,859	79,164	62,010	146,700	94,386	122,325	106,668
Matarbari Sea Port	90009	45,509	38,929	32,302	18,467	26,804	14,533	45,789	20,396	28,124	66,932	48,566	20,606	45,144	33,357	22,991	18,009	42,604	27,411	35,525	30,978
Akhaura Land port	90010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bibir Bazar Land Port	90011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ramgarh border crossing	90012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teknaf border crossing	90013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Cargo OD Table in 2031 (Ton per annum) (4 of 4)

		60700	60800	60900	61000	70100	70200	70300	70400	90001	90002	90003	90004	90005	90006	90007	90008	90009	90010	90011	90012	90013
Bandarban	10100	1,111	835	900	1,284	2,493	2,579	4,897	5,305	113	108	0	0	0	0	29,588	0	5,761	355	165	0	446
Brahmanbaria	10200	4,544	3,408	3,683	5,258	10,674	11,184	20,541	21,967	763	728	0	0	0	0	199,074	0	38,762	2,386	1,113	0	3,002
Chandpur	10300	5,194	3,899	4,212	6,013	11,769	12,227	22,928	24,815	717	684	0	0	0	0	187,100	0	36,430	2,243	1,046	0	2,822
Chittagong	10400	25,732	19,321	20,845	29,743	58,131	60,392	113,445	123,536	2,169	2,070	0	0	0	0	565,898	0	110,187	6,783	3,164	0	8,534
Comilla	10500	9,055	6,798	7,341	10,478	20,508	21,314	39,959	43,279	1,491	1,423	0	0	0	0	389,171	0	75,776	4,665	2,176	0	5,869
Cox's Bazar	10600	3,147	2,364	2,553	3,644	7,132	7,409	13,894	15,037	589	562	0	0	0	0	153,646	0	29,917	1,842	859	0	2,317
Feni	10700	2,753	2,067	2,232	3,185	6,225	6,466	12,145	13,158	393	375	0	0	0	0	102,564	0	19,970	1,229	573	0	1,547
Khagrachhari	10800	1,498	1,125	1,215	1,734	3,391	3,520	6,613	7,157	189	181	0	0	0	0	49,420	0	9,623	592	276	0	745
Lakshmipur	10900	2,876	2,159	2,332	3,329	6,506	6,751	12,694	13,739	517	494	0	0	0	0	134,950	0	26,276	1,618	754	0	2,035
Noakhali	11000	4,902	3,794	3,942	5,485	10,276	10,774	19,809	23,464	841	802	0	0	0	0	219,383	0	42,716	2,630	1,226	0	3,308
Rangamati	11100	7,666	5,928	6,163	8,585	16,357	17,032	31,928	37,594	182	174	0	0	0	0	47,464	0	9,242	569	265	0	716
Dhaka	20100	84,219	63,210	68,261	97,436	184,235	191,296	359,665	404,793	122,720	117,123	0	275,473	0	0	1,280,885	128,816	249,402	19,192	4,476	174,812	12,073
Gazipur	20200	10,522	7,900	8,516	12,148	23,197	24,076	45,405	51,304	36,403	34,742	0	81,714	0	0	379,952	38,211	73,981	5,693	1,328	51,855	3,581
Gopalganj	20300	2,459	1,851	1,999	2,851	5,164	5,368	10,061	11,254	11,006	10,504	0	24,706	0	0	114,875	11,553	22,367	1,721	401	15,678	1,083
Kishoreganj	20400	5,153	3,879	4,178	5,964	11,607	12,055	22,640	25,311	27,631	26,371	0	62,025	0	0	288,402	29,004	56,155	4,321	1,008	39,360	2,718
Madaripur	20500	5,909	4,438	4,794	6,986	12,360	12,811	24,232	27,097	11,106	10,600	0	24,931	0	0	115,922	11,658	22,571	1,737	405	15,821	1,093
Manikganj	20600	2,878	2,161	2,334	3,331	6,282	6,514	12,292	13,756	14,306	13,654	0	32,113	0	0	149,319	15,017	29,074	2,237	522	20,379	1,407
Munshiganj	20700	3,472	2,606	2,815	4,019	7,630	7,948	14,832	16,600	13,798	13,169	0	30,973	0	0	144,016	14,483	28,041	2,158	503	19,655	1,357
Narayanganj	20900	10,587	7,941	8,567	12,225	23,234	24,199	45,218	51,311	29,760	28,403	0	66,804	0	0	310,621	31,239	60,481	4,654	1,085	42,393	2,928
Rajbari	21000	8,965	6,944	7,212	10,034	18,713	19,525	36,316	42,960	10,490	10,011	0	23,547	0	0	109,487	11,011	21,318	1,640	383	14,943	1,032
Shariatpur	21100	2,789	2,150	2,240	3,192	6,463	6,914	12,105	14,099	10,918	10,420	0	24,509	0	0	113,959	11,461	22,189	1,707	398	15,553	1,074
Faridpur	21200	4,145	3,111	3,335	4,724	8,573	8,918	16,709	18,694	18,507	17,663	0	41,544	0	0	193,169	19,427	37,612	2,894	675	26,363	1,821
Tangail	21300	2,982	2,306	2,398	3,339	6,433	6,747	12,402	14,649	38,325	36,577	0	86,030	0	0	400,017	40,229	77,888	5,994	1,398	54,593	3,770
Narsingdi	21400	4,742	3,558	3,843	5,486	10,723	11,162	20,829	23,038	21,053	20,093	0	47,259	0	0	219,743	22,099	42,786	3,292	768	29,990	2,071
Jamalpur	21500	4,138	3,201	3,328	4,739	9,223	9,635	17,846	20,953	24,814	23,683	0	55,702	0	0	259,000	26,047	50,430	3,881	905	35,348	2,441
Netrokona	21600	6,874	5,321	5,546	7,818	15,082	15,697	29,356	34,258	21,105	20,142	0	47,375	0	0	220,281	22,153	42,891	3,301	770	30,063	2,076
Sherpur	21700	7,075	5,474	5,686	7,965	15,256	15,851	29,714	35,595	15,039	14,354	0	33,759	0	0	156,974	15,786	30,564	2,352	548	21,423	1,479
Mymensingh	21800	9,359	7,241	7,572	10,806	21,062	21,902	41,031	47,308	50,893	48,572	0	114,241	0	0	531,195	53,421	103,429	7,959	1,856	72,496	5,007
Joypurhat	30100	2,357	1,822	1,895	2,639	5,082	5,360	9,720	11,483	6,458	6,164	0	28,995	0	0	13,482	0	2,625	0	0	0	0
Bogra	30200	7,408	5,728	5,955	8,293	15,948	16,706	30,820	36,384	23,089	22,036	0	103,657	0	0	48,198	0	9,385	0	0	0	0
Naogaon	30300	5,173	3,997	4,158	5,791	11,130	11,794	21,146	24,977	17,462	16,665	0	78,394	0	0	36,451	0	7,097	0	0	0	0
Natore	30400	3,495	2,703	2,810	3,912	7,415	7,822	14,173	16,754	11,286	10,772	0	50,670	0	0	23,560	0	4,587	0	0	0	0
Nawabganj	30500	3,358	2,600	2,701	3,759	7,015	7,320	13,629	16,085	9,532	9,097	0	42,793	0	0	19,898	0	3,874	0	0	0	0
Pabna	30600	2,210	1,708	1,777	2,475	4,762	4,991	9,202	10,847	15,730	15,012	0	70,618	0	0	32,836	0	6,393	0	0	0	0
Sirajganj	30700	3,218	2,417	2,610	3,726	7,739	8,236	15,971	15,543	19,037	18,169	0	85,467	0	0	39,740	0	7,738	0	0	0	0
Rajshahi	30800	2,494	1,874	2,022	2,885	5,616	5,819	11,002	11,919	16,875	16,105	0	75,759	0	0	35,226	0	6,859	0	0	0	0
Dinajpur	40100	6,501	5,026	5,226	7,279	14,061	14,775	27,051	31,932	1,493	1,425	0	33,520	0	0	46,758	0	9,104	0	0	0	0
Gaibandha	40200	4,161	3,220	3,346	4,658	8,934	9,339	17,288	20,453	1,277	1,219	0	28,674	0	0	39,998	0	7,788	0	0	0	0
Kurigram	40300	3,960	3,067	3,185	4,433	8,449	8,795	16,448	19,457	1,060	1,012	0	23,792	0	0	33,188	0	6,462	0	0	0	0
Lalmonirhat	40400	2,037	1,577	1,638	2,280	4,341	4,514	8,462	10,005	606	578	0	13,602	0	0	18,973	0	3,694	0	0	0	0
Nilphamari	40500	5,232	3,927	4,242	6,055	11,918	12,437	23,094	25,008	880	839	0	19,743	0	0	27,539	0	5,362	0	0	0	0
Panchagarh	40600	3,117	2,340	2,530	3,691	6,539	6,791	12,765	14,276	477	455	0	10,705	0	0	14,932	0	2,907	0	0	0	0
Rangpur	40700	4,420	3,340	3,606	4,954	8,991	9,349	17,550	19,747	1,502	1,434	0	33,727	0	0	47,046	0	9,160	0	0	0	0
Thakurgaon	40800	17	13	14	19	35	36	74	82	669	639	0	15,023	0	0	20,956	0	4,080	0	0	0	0
Barguna	50100	1,674	1,256	1,359	1,982	3,520	3,662	6,853	7,664	1,846	1,761	0	0	0	0	28,896	19,374	5,626	0	0	0	0
Barisal	50200	5,720	4,295	4,641	6,763	11,980	12,428	23,451	26,221	4,392	4,192	0	0	0	0	68,769	46,106	13,390	0	0	0	0
Bhola	50300	3,445	2,586	2,797	4,079	7,235	7,519	14,108	15,774	3,187	3,042	0	0	0	0	49,899	33,455	9,716	0	0	0	0
Jhalokati	50400	1,623	1,226	1,324	1,916	3,408	3,548	6,633	7,418	1,352	1,291	0	0	0	0	21,171	14,194	4,122	0	0	0	0
Patuakhali	50500	2,730	2,063	2,228	3,176	5,631	5,851	10,988	12,289	2,963	2,827	0	0	0	0	46,383	31,098	9,031	0	0	0	0
Pirojpur	50600	2,116	1,613	1,703	2,412	4,372	4,545	8,525	9,622	2,189	2,089	0	0	0	0	34,273	22,978	6,673	0	0	0	0
Bagerhat	60100	3,845	2,906	3,138	4,405	7,935	8,250	15,470	17,301	15,088	14,400	0	0	0	0	23,622	15,837	4,599	0	0	0	0
Chuadanga	60200	2,298	1,790	1,849	2,547	4,632	4,822	9,030	10,469	11,818	11,279	0	0	0	0	18,503	12,405	3,603	0	0	0	0
Jessore	60300	7,716	5,831	6,292	8,561	15,542	16,154	30,401	34,530	27,959	26,684	0	0	0	0	43,774	29,348	8,523	0	0	0	0
Jhenaida	60400	3,857	2,941	3,103	4,274	7,779	8,108	15,127	17,362	17,989	17,168	0	0	0	0	28,164	18,882	5,484	0	0	0	0
Khulna	60500	9,462	7,150	7,710	10,764	19,553	20,332	38,203	42,783	23,314	22,250	0	0	0	0	36,500	24,472	7,107	0	0	0	0
Kushtia	60600	4,566	3,535	3,672	5,111	9,324	9,723	18,160	21,125	20,330	19,402	0	0	0	0	31,828	21,339	6,197	0	0	0	0
Magura	60700	0	1,296	1,390	1,914	3,475	3,615	6,770	7,652	8,770	8,370	0	0	0	0	13,731	9,206	2,674	0	0	0	0
Meherpur	60800	1,299	0	1,046	1,439	2,606	2,706	5,093	5,933	7,084	6,761	0	0	0	0	11,091	7,436	2,159	0	0	0	0
Narail	60900	1,390	1,043	0	1,553	2,812	2,922	5,486	6,151	6,926	6,610	0	0	0	0	10,844	7,270	2,111	0	0	0	0
Satkhira	61000	1,909	1,433	1,550	0	4,009	4,167	7,812	8,739	20,014	19,102	0	0	0	0	31,335	21,009	6,101	0	0	0	0
Habiganj	70100	3,469	2,597	2,809	4,013	0	9,213	16,281	16,788	1,749	1,669	0	0	0	0	54,769	0	10,664	5,471	0	0	0
Moulvibazar	70200	3,611	2,698	2,920	4,173	9,216	0	17,379	17,488	1,606	1,533	0	0	0	0	50,296	0	9,793	5,024	0	0	0
Sunamganj	70300	6,762	5,077	5,482	7,823	16,290	17,381	0	32,657	1,958	1,869	0	0	0	0	61,318	0	11,939	6,125	0	0	0
Sylhet	70400	7,655	5,923	6,156	8,765	16,823	17,520	32,706	0	2,651	2,530	0	0	0	0	83,007	0	16,162	8,291	0	0	0
Benapole Land Port	90001	43,839	35,410	34,621	100,044	8,743	8,029	9,789	13,251	0	0	0	0	0	0	0	0	0	0	0	0	0
Bhomra Land Port	90002	41,839	33,795	33,042	95,482	8,344	7,663	9,342	12,647	0	0	0	0	0	0	0	0	0	0	0	0	0
Mongla Sea Port	90003	113,836	91,948	89,900	259,787	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hilli Land Port	90004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dhaka Airport	90005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	90006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	90007	159,410	128,759	125,891	363,790	635,853	583,917	711,887	963,687	0	0	0	0	0	0	0	0	0	0	0	0	0
Payra Sea Port	90008	46,016	37,169	36,341	105,014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Matarbari Sea Port	90009	13,364	10,794	10,554	30,498	53,306	48,952	59,680	80,790	0	0	0	0	0	0	0	0	0	0	0	0	0
Akhaura Land port	90010	0	0	0	0	27,346	25,113	30,616	41,446	0	0	0	0	0	0	0	0	0	0	0	0	0
Bibir Bazar Land Port	90011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ramgarh border crossing	90012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teknaf border crossing	90013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Cargo OD Table in 2041 (Ton per annum) (1 of 4)

		10100	10200	10300	10400	10500	10600	10700	10800	10900	11000	11100	20100	20200	20300	20400	20500	20600
Bandarban	10100	0	5,826	6,784	36,440	11,776	4,446	3,708	2,168	3,830	6,965	3,633	105,133	13,267	2,922	6,447	7,100	3,594
Brahmanbaria	10200	5,850	0	27,204	135,598	47,495	16,515	14,458	7,861	15,061	27,477	13,120	426,557	54,109	11,872	26,683	28,701	14,560
Chandpur	10300	6,802	27,162	0	157,287	54,780	19,180	16,787	9,134	18,011	32,218	15,250	487,737	61,298	13,576	29,915	32,867	16,669
Chittagong	10400	36,449	135,040	156,892	0	272,468	102,934	85,825	49,028	88,581	161,255	81,840	2,459,231	312,235	67,545	149,045	163,988	83,117
Comilla	10500	11,806	47,423	54,777	273,151	0	33,241	29,121	15,830	30,341	55,219	26,456	852,728	107,337	23,704	52,254	57,434	29,118
Cox's Bazar	10600	4,447	16,444	19,131	102,932	33,158	0	10,454	6,004	10,811	19,670	9,991	295,232	37,091	8,226	18,109	19,894	10,090
Feni	10700	3,715	14,424	16,773	85,970	29,098	10,472	0	4,987	9,473	17,242	8,329	259,638	32,710	7,214	15,906	17,490	8,864
Khagrachhari	10800	2,168	7,826	9,109	49,016	15,788	6,002	4,978	0	5,148	9,364	4,874	140,593	17,667	3,914	8,623	9,474	4,805
Lakshmipur	10900	3,838	15,032	18,004	88,768	30,331	10,834	9,477	5,160	0	18,194	8,609	270,103	33,949	7,517	16,564	18,202	9,231
Noakhali	11000	6,980	27,421	32,203	161,593	55,194	19,713	17,248	9,386	18,192	0	15,658	491,597	61,818	13,682	30,152	33,115	16,793
Rangamati	11100	3,633	13,065	15,210	81,826	26,389	9,989	8,314	4,874	8,590	15,624	0	235,564	29,695	6,545	14,433	15,881	8,045
Dhaka	20100	105,365	425,762	487,484	2,465,512	852,333	295,846	259,738	140,901	270,072	491,614	236,075	0	1,021,164	220,454	483,694	534,620	271,253
Gazipur	20200	13,307	54,062	61,324	313,352	107,382	37,204	32,752	17,722	33,978	61,878	29,785	1,021,835	0	27,712	61,478	67,447	34,178
Gopalganj	20300	2,934	11,873	13,598	67,821	23,743	8,260	7,232	3,931	7,532	13,711	6,572	220,923	27,745	0	13,478	15,450	7,550
Kishoreganj	20400	6,478	26,708	29,985	149,753	52,376	18,198	15,956	8,666	16,609	30,238	14,503	485,043	61,588	13,488	0	32,679	16,568
Madaripur	20500	7,128	28,705	32,917	164,634	57,523	19,972	17,530	9,513	18,237	33,181	15,944	535,673	67,520	15,449	32,655	0	18,298
Manikganj	20600	3,601	14,531	16,658	83,282	29,102	10,108	8,866	4,814	9,228	16,791	8,061	271,238	34,151	7,533	16,520	18,260	0
Munshiganj	20700	4,330	17,537	20,063	100,228	35,044	12,176	10,674	5,798	11,112	20,241	9,698	326,444	41,058	9,073	19,890	21,963	11,141
Narayanganj	20900	13,327	53,871	61,535	317,263	107,795	37,347	32,875	17,786	34,093	62,136	29,875	1,036,773	133,468	27,813	61,142	67,626	34,312
Rajbari	21000	2,493	10,080	11,543	57,675	20,162	7,006	6,142	3,336	6,394	11,640	5,583	187,799	23,630	5,424	11,444	13,115	6,411
Shariatpur	21100	2,278	9,219	10,559	52,670	18,437	6,410	5,615	3,052	5,849	10,646	5,103	171,570	21,549	4,966	10,465	12,217	5,863
Faridpur	21200	4,893	19,778	22,642	113,183	39,556	13,741	12,051	6,544	12,542	22,838	10,954	368,432	46,386	10,635	22,452	25,724	12,576
Tangail	21300	9,462	38,675	43,813	219,949	76,557	26,596	23,324	12,664	24,268	44,208	21,194	716,591	91,351	19,812	44,518	47,987	24,341
Narsingdi	21400	5,947	24,591	27,557	139,194	48,170	16,728	14,676	7,965	15,264	27,808	13,332	451,854	57,809	12,397	27,887	30,031	15,241
Jamalpur	21500	5,102	21,081	23,657	118,229	41,318	14,364	12,585	6,838	13,101	23,884	11,431	384,861	48,890	10,697	24,612	25,876	13,126
Netrokona	21600	4,244	17,538	19,670	98,123	34,346	11,942	10,461	5,686	10,895	19,841	9,506	317,838	40,303	8,848	20,524	21,413	10,861
Sherpur	21700	3,428	14,422	15,978	79,751	27,912	9,707	8,496	4,615	8,837	16,219	7,693	258,309	32,763	7,201	16,611	17,351	8,806
Mymensingh	21800	11,751	48,454	54,380	271,816	94,998	33,006	28,942	15,717	30,121	54,854	26,306	880,182	111,837	24,459	56,707	59,271	30,045
Joypurhat	30100	2,804	11,548	13,013	64,992	22,734	7,903	6,924	3,760	7,203	13,166	6,283	211,199	26,818	5,957	13,204	14,392	7,210
Bogra	30200	8,948	36,616	41,400	207,069	72,353	25,129	22,046	11,962	22,924	41,831	20,027	672,881	85,605	18,801	42,023	45,547	22,972
Naogaon	30300	6,086	25,153	28,281	141,215	49,404	17,177	15,044	8,171	15,650	28,643	13,643	458,772	58,231	13,050	28,686	31,484	15,655
Natore	30400	4,082	16,823	18,954	94,619	33,107	11,511	10,082	5,477	10,491	19,176	9,148	307,579	39,035	8,805	19,234	21,246	10,499
Nawabganj	30500	3,964	16,175	18,322	91,628	32,018	11,122	9,757	5,295	10,147	18,497	8,869	297,754	37,883	8,504	18,599	20,596	10,171
Pabna	30600	5,727	23,495	26,542	133,144	46,380	16,116	14,130	7,671	14,697	26,821	12,831	433,249	55,199	12,362	26,949	29,883	14,727
Sirajganj	30700	8,595	35,129	39,797	203,324	69,613	24,167	21,217	11,508	22,051	40,147	19,281	664,730	85,751	18,000	40,475	43,641	22,163
Rajshahi	30800	10,513	42,981	48,671	243,256	85,021	29,551	25,902	14,069	26,956	49,127	23,538	791,349	100,571	22,617	49,425	54,702	27,014
Dinajpur	40100	7,830	32,125	36,271	181,280	63,372	22,028	19,307	10,483	20,082	36,670	17,533	588,943	74,848	16,473	36,806	39,860	20,109
Gaibandha	40200	4,996	20,461	23,149	115,616	40,434	14,056	12,317	6,691	12,820	23,374	11,189	376,116	47,767	10,519	23,506	25,450	12,843
Kurigram	40300	4,761	19,438	22,037	110,052	38,487	13,382	11,726	6,371	12,207	22,231	10,660	358,046	45,474	10,015	22,380	24,448	12,233
Lalmonirhat	40400	2,453	10,004	11,346	56,672	19,818	6,890	6,039	3,280	6,285	11,445	5,490	184,338	23,419	5,156	11,523	12,489	6,300
Nilphamari	40500	4,207	17,148	19,443	97,222	33,971	11,804	10,353	5,620	10,770	19,618	9,413	316,056	40,202	8,832	19,741	21,411	10,797
Panchagarh	40600	2,675	10,939	12,369	61,857	21,615	7,511	6,587	3,575	6,849	12,499	5,986	200,849	25,551	5,616	12,550	13,607	6,861
Rangpur	40700	9,350	37,994	43,095	215,820	75,351	26,151	22,973	12,453	23,871	43,498	20,895	700,641	89,312	19,561	43,742	47,524	23,943
Thakurgaon	40800	3,586	14,704	16,616	82,991	29,023	10,092	8,842	4,803	9,200	16,790	8,031	269,724	34,257	7,548	16,863	18,259	9,213
Barguna	50100	2,000	8,092	9,265	46,225	16,177	5,626	4,928	2,678	5,132	9,343	4,479	150,511	18,909	4,360	9,183	10,714	5,143
Barisal	50200	6,888	27,766	31,828	159,077	55,609	19,317	16,946	9,199	17,633	32,087	15,411	517,594	65,191	14,958	31,569	36,817	17,686
Bhola	50300	4,117	16,645	19,068	95,124	33,290	11,582	10,141	5,514	10,563	19,225	9,220	309,679	38,899	8,974	18,898	22,050	10,585
Jhalokati	50400	1,938	7,841	8,974	44,791	15,673	5,457	4,774	2,594	4,971	9,052	4,339	145,809	18,329	4,263	8,896	10,376	4,982
Patuakhali	50500	3,731	15,075	17,272	86,207	30,163	10,487	9,189	4,993	9,568	17,413	8,353	280,699	35,283	8,128	17,123	19,982	9,592
Pirojpur	50600	3,212	12,981	14,870	74,222	25,969	9,061	7,911	4,299	8,238	14,993	7,192	241,648	30,377	7,162	14,742	17,201	8,258
Bagerhat	60100	4,523	18,284	20,938	104,513	36,568	12,759	11,140	6,053	11,599	21,115	10,126	340,242	42,775	10,089	20,758	23,915	11,627
Chuadanga	60200	2,654	10,716	12,264	61,370	21,432	7,446	6,532	3,544	6,793	12,374	5,938	199,565	25,164	5,767	12,165	13,929	6,812
Jessore	60300	8,975	36,141	41,393	207,460	72,368	25,181	22,061	11,961	22,930	41,757	20,065	674,290	85,190	19,744	41,078	47,035	23,008
Jhenaida	60400	4,429	17,919	20,497	102,437	35,808	12,446	10,909	5,924	11,353	20,683	9,915	333,305	41,958	9,650	20,323	23,274	11,381
Khulna	60500	11,264	45,401	51,979	261,140	90,885	31,665	27,705	15,020	28,794	52,442	25,193	849,369	107,460	24,945	51,584	59,069	28,898
Kushtia	60600	5,356	21,613	24,718	123,836	43,214	14,999	13,172	7,142	13,690	24,952	11,976	402,358	50,818	11,577	24,587	28,063	13,731
Magura	60700	1,981	8,011	9,170	45,806	16,018	5,566	4,880	2,650	5,079	9,250	4,436	149,087	18,758	4,307	9,092	10,417	5,093
Meherpur	60800	1,493	6,025	6,904	34,485	12,061	4,193	3,675	1,996	3,825	6,961	3,342	112,210	14,121	3,251	6,861	7,845	3,835
Narail	60900	1,602	6,478	7,421	37,028	12,959	4,505	3,948	2,145	4,111	7,482	3,588	120,578	15,152	3,493	7,356	8,432	4,121
Satkhira	61000	5,154	20,801	23,820	119,078	41,620	14,513	12,683	6,885	13,195	24,026	11,532	387,302	48,791	11,451	23,625	27,060	13,232
Habiganj	70100	4,402	18,571	20,568	102,454	35,905	12,496	10,923	5,942	11,377	20,855	9,889	323,856	41,005	9,029	20,275	21,739	11,040
Moulvibazar	70200	4,556	19,452	21,368	106,426	37,308	12,989	11,345	6,170	11,807	21,758	10,247	336,064	42,518	9,384	21,051	22,522	11,443
Sunamganj	70300	4,134	17,084	19,169	95,544	33,460	11,639	10,190	5,542	10,619	19,317	9,262	302,347	38,355	8,415	18,919	20,379	10,333
Sylhet	70400	8,701	35,975	40,323	201,164	70,413	24,478	21,446	11,655	22,335	40,668	19,488	636,479	80,822	17,707	39,809	42,902	21,746
Benapole Land Port	90001	1,061	7,139	6,709	20,293	13,955	5,510	3,678	1,772	4,839	7,867	1,702	1,148,281	340,618	102,983	258,545	103,921	133,861
Bhomra Land Port	90002	1,014	6,822	6,412	19,393	13,337	5,265	3,515	1,694	4,625	7,518	1,627	1,097,390	325,522	98,418	247,087	99,315	127,928
Mongla Sea Port	90003	0	0	0	0	0	0	0	0	0	0	0	951,300	282,187	85,317	214,193	86,094	110,898
Hilli Land Port	90004	0	0	0	0	0	0	0	0	0	0	0	2,581,589	765,784	231,528	581,267	233,637	300,949
Dhaka Airport	90005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	90006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	90007	346,297	2,329,934	2,189,793	6,623,207	4,554,805	1,798,253	1,200,402	578,410	1,579,435	2,567,628	555,514	14,991,325	4,446,916	1,344,484	3,375,427	1,356,736	1,747,617
Payra Sea Port	90008	0	0	0	0	0	0	0	0	0	0	0	718,082	213,006	64,401	161,682	64,987	83,710
Matarbari Sea Port	90009	168,558	1,134,079	1,065,866	3,223,799	2,217,019	875,287	584,287	281,537	768,779	1,249,775	270,393	7,296,921	2,164,505	654,418	1,642,965	660,382	850,640
Akhaura Land port	90010	3,321	22,346	21,002	63,523	43,685	17,247	11,513	5,548	15,148	24,626	5,328	179,728	53,313	16,119	40,467	16,266	20,952
Bibir Bazar Land Port	90011	1,549	10,423	9,796	29,628	20,375	8,044	5,370	2,587	7,065	11,486	2,485	41,914	12,433	3,759	9,437	3,793	4,886
Ramgarh border crossing	90012	0	0	0	0	0	0	0	0	0	0	0	183,717	54,496	16,476	41,365	16,627	21,417
Teknaf border crossing	90013	4,179	28,114	26,423	79,918	54,960	21,698	14,485	6,979	19,058	30,982	6,703	113,057	33,536	10,139	25,456	10,232	13,180

Cargo OD Table in 2041 (Ton per annum) (2 of 4)

		20700	20900	21000	21100	21200	21300	21400	21500	21600	21700	21800	30100	30200	30300	30400	30500	30600	30700	30800
Bandarban	10100	4,321	13,294	2,480	2,269	4,869	9,401	5,925	5,065	4,215	3,401	11,672	2,777	8,869	6,025	4,043	3,929	5,677	8,531	10,416
Brahmanbaria	10200	17,573	53,961	10,063	9,219	19,757	38,574	24,600	21,007	17,483	14,367	48,307	11,479	36,426	25,000	16,728	16,087	23,378	34,999	42,741
Chandpur	10300	20,076	61,557	11,508	10,543	22,587	43,638	27,528	23,540	19,581	15,893	54,140	12,916	41,128	28,067	18,819	18,197	26,371	39,595	48,332
Chittagong	10400	100,023	316,215	57,362	52,459	112,630	218,534	138,642	117,373	97,455	79,116	270,002	64,356	205,247	139,812	93,726	90,812	131,990	201,790	241,038
Comilla	10500	35,065	107,832	20,101	18,408	39,459	76,255	48,118	41,118	34,192	27,768	94,585	22,567	71,887	49,038	32,876	31,804	46,089	69,267	84,436
Cox's Bazar	10600	12,153	37,255	6,967	6,384	13,673	26,419	16,665	14,254	11,857	9,623	32,776	7,821	24,896	16,995	11,395	11,017	15,967	23,978	29,267
Feni	10700	10,672	32,856	6,119	5,602	12,012	23,214	14,648	12,514	10,406	8,444	28,795	6,867	21,886	14,920	10,003	9,685	14,029	21,095	25,705
Khagrachhari	10800	5,786	17,743	3,317	3,039	6,510	12,578	7,935	6,785	5,645	4,576	15,605	3,721	11,851	8,085	5,422	5,245	7,600	11,418	13,932
Lakshmipur	10900	11,115	34,089	6,372	5,838	12,506	24,161	15,242	13,031	10,841	8,785	29,977	7,146	22,764	15,525	10,412	10,074	14,596	21,929	26,758
Noakhali	11000	20,243	62,123	11,599	10,625	22,771	44,009	27,763	23,755	19,742	16,124	54,587	13,061	41,536	28,411	19,030	18,363	26,636	39,923	48,762
Rangamati	11100	9,678	29,802	5,552	5,083	10,899	21,057	13,282	11,347	9,440	7,631	26,128	6,221	19,848	13,505	9,060	8,789	12,717	19,135	23,318
Dhaka	20100	326,472	1,036,850	187,151	171,216	367,378	713,553	451,209	382,857	316,274	256,932	876,030	209,599	668,369	455,278	305,347	295,685	430,473	661,671	785,680
Gazipur	20200	41,091	133,547	23,573	21,525	46,298	91,066	57,777	48,693	40,152	32,627	111,438	26,648	85,132	57,861	38,801	37,666	54,918	85,478	99,980
Gopalganj	20300	9,094	27,868	5,416	4,967	10,626	19,764	12,403	10,661	8,822	7,175	24,390	5,922	18,707	12,971	8,754	8,458	12,300	17,936	22,490
Kishoreganj	20400	19,949	61,299	11,436	10,474	22,449	44,444	27,924	24,548	20,477	16,564	56,583	13,137	41,845	28,540	19,143	18,515	26,839	40,364	49,194
Madaripur	20500	22,009	67,749	13,096	12,217	25,701	47,875	30,045	25,794	21,353	17,291	59,111	14,309	45,328	31,300	21,130	20,489	29,739	43,494	54,407
Manikganj	20600	11,141	34,312	6,388	5,850	12,539	24,231	15,217	13,055	10,806	8,758	29,899	7,153	22,813	15,532	10,421	10,098	14,627	22,041	26,814
Munshiganj	20700	0	41,601	7,692	7,046	15,098	29,187	18,330	15,740	13,018	10,618	36,002	8,640	27,501	18,782	12,590	12,163	17,643	26,532	32,308
Narayanganj	20900	41,602	0	23,671	21,606	46,488	90,977	58,107	48,499	39,939	32,604	110,894	26,546	84,698	57,697	38,658	37,439	54,870	86,757	99,471
Rajbari	21000	7,720	23,747	0	4,212	9,151	16,918	10,542	9,121	7,491	6,135	20,719	5,167	16,325	11,318	7,642	7,383	10,744	15,605	19,641
Shariatpur	21100	7,062	21,647	4,205	0	8,251	15,347	9,632	8,278	6,850	5,571	18,939	4,598	14,526	10,071	6,797	6,567	9,551	13,931	17,464
Faridpur	21200	15,144	46,613	9,145	8,258	0	32,938	20,681	17,758	14,691	11,958	40,643	10,002	31,613	21,906	14,783	14,288	20,782	30,191	37,984
Tangail	21300	29,322	91,323	16,934	15,386	32,988	0	40,621	36,525	29,958	24,566	82,811	20,002	63,637	43,473	29,158	28,140	40,937	62,154	74,884
Narsingdi	21400	18,361	58,180	10,521	9,628	20,653	40,506	0	21,933	18,248	14,842	50,495	11,924	37,960	25,924	17,376	16,783	24,459	37,513	44,618
Jamalpur	21500	15,827	48,731	9,138	8,307	17,800	36,559	22,017	0	16,593	13,878	45,807	10,825	34,383	23,547	15,782	15,197	22,094	33,254	40,441
Netrokona	21600	13,086	40,121	7,502	6,871	14,720	29,975	18,313	16,586	0	11,206	38,201	8,864	28,192	19,266	12,923	12,470	18,099	27,204	33,174
Sherpur	21700	10,678	32,767	6,148	5,591	11,989	24,593	14,901	13,882	11,214	0	30,926	7,401	23,308	16,195	10,793	10,255	14,989	22,265	27,283
Mymensingh	21800	36,182	111,376	20,747	18,994	40,720	82,850	50,666	45,788	38,199	30,905	0	24,481	77,934	53,192	35,681	34,475	50,021	75,309	91,661
Joypurhat	30100	8,709	26,736	5,191	4,626	10,052	20,071	11,999	10,853	8,891	7,419	24,555	0	19,809	13,844	9,105	8,770	12,473	18,494	23,357
Bogra	30200	27,696	85,231	16,384	14,600	31,743	63,808	38,165	34,447	28,255	23,347	78,109	19,795	0	43,065	28,564	27,497	39,306	58,849	73,152
Naogaon	30300	18,933	58,111	11,370	10,133	22,018	43,626	26,087	23,610	19,326	16,235	53,356	13,845	43,099	0	20,019	19,225	27,379	40,181	51,222
Natore	30400	12,686	38,922	7,674	6,837	14,853	29,249	17,478	15,818	12,957	10,815	35,775	9,102	28,574	20,010	0	12,902	18,452	26,920	34,382
Nawabganj	30500	12,252	37,681	7,413	6,604	14,353	28,225	16,878	15,230	12,502	10,274	34,564	8,766	27,506	19,215	12,901	0	17,733	25,993	33,758
Pabna	30600	17,765	55,184	10,783	9,600	20,867	41,038	24,583	22,130	18,136	15,009	50,122	12,461	39,297	27,350	18,441	17,724	0	38,071	47,205
Sirajganj	30700	26,680	87,045	15,638	13,981	30,270	62,220	37,640	33,263	27,221	22,267	75,359	18,453	58,761	40,089	26,868	25,947	38,025	0	69,170
Rajshahi	30800	32,553	100,130	19,723	17,563	38,162	75,116	44,877	40,531	33,261	27,336	91,901	23,348	73,179	51,197	34,381	33,759	47,231	69,298	0
Dinajpur	40100	24,265	74,560	14,352	12,792	27,803	55,905	33,430	30,207	24,765	20,551	68,425	17,381	55,121	37,845	25,085	24,098	34,475	51,527	64,129
Gaibandha	40200	15,485	47,560	9,170	8,169	17,752	35,730	21,339	19,290	15,825	13,041	43,713	11,085	35,198	24,110	15,996	15,395	22,002	32,983	40,996
Kurigram	40300	14,735	45,233	8,731	7,777	16,899	34,002	20,299	18,346	15,062	12,337	41,613	10,524	33,465	22,866	15,185	14,650	20,911	31,390	39,010
Lalmonirhat	40400	7,586	23,285	4,495	4,004	8,701	17,499	10,448	9,440	7,753	6,342	21,422	5,413	17,220	11,758	7,810	7,541	10,759	16,149	20,074
Nilphamari	40500	13,000	39,981	7,698	6,859	14,909	29,964	17,911	16,163	13,272	10,872	36,689	9,266	29,483	20,130	13,369	12,911	18,425	27,654	34,353
Panchagarh	40600	8,272	25,428	4,892	4,361	9,480	19,040	11,392	10,283	8,436	6,974	23,320	5,907	18,759	12,853	8,525	8,208	11,731	17,540	21,830
Rangpur	40700	28,811	88,742	17,043	15,191	33,040	66,269	39,675	35,735	29,351	24,042	81,227	20,465	65,192	44,450	29,527	28,564	40,737	61,057	75,897
Thakurgaon	40800	11,114	34,112	6,577	5,861	12,737	25,617	15,309	13,840	11,350	9,394	31,353	7,960	25,250	17,324	11,487	11,042	15,790	23,615	29,394
Barguna	50100	6,196	18,995	3,689	3,446	7,237	13,467	8,451	7,266	6,011	4,894	16,620	4,037	12,752	8,843	5,967	5,764	8,382	12,222	15,324
Barisal	50200	21,281	65,410	12,663	11,817	24,850	46,280	29,039	24,944	20,648	16,741	57,144	13,844	43,827	30,291	20,446	19,810	28,761	42,017	52,614
Bhola	50300	12,748	39,064	7,591	7,093	14,892	27,711	17,387	14,950	12,372	10,057	34,203	8,303	26,234	18,183	12,271	11,861	17,243	25,147	31,536
Jhalokati	50400	6,002	18,409	3,572	3,337	7,009	13,047	8,187	7,039	5,823	4,745	16,102	3,912	12,359	8,570	5,781	5,584	8,121	11,839	14,844
Patuakhali	50500	11,550	35,429	6,877	6,424	13,492	25,107	15,756	13,540	11,206	9,101	30,989	7,518	23,766	16,460	11,110	10,745	15,617	22,791	28,562
Pirojpur	50600	9,944	30,502	5,920	5,530	11,615	21,616	13,565	11,658	9,648	7,840	26,681	6,553	20,709	14,350	9,687	9,365	13,615	19,751	24,901
Bagerhat	60100	14,002	42,952	8,335	7,684	16,354	30,438	19,101	16,418	13,585	11,050	37,571	9,236	29,182	20,227	13,653	13,194	19,185	27,822	35,082
Chuadanga	60200	8,201	25,274	4,995	4,467	9,708	18,424	11,202	9,933	8,156	6,685	22,564	5,628	17,782	12,326	8,321	8,041	11,699	16,988	21,384
Jessore	60300	27,679	85,527	16,671	15,061	32,723	61,084	37,828	32,909	27,033	22,117	74,868	18,623	58,952	40,756	27,507	26,641	38,708	56,333	70,765
Jhenaida	60400	13,709	42,157	8,275	7,473	16,238	30,504	18,716	16,455	13,507	11,096	37,355	9,331	29,455	20,447	13,800	13,317	19,388	28,115	35,430
Khulna	60500	34,771	108,180	20,666	18,919	40,569	75,772	47,650	40,784	33,726	27,434	93,427	22,919	72,564	50,160	33,837	32,772	47,658	69,696	87,026
Kushtia	60600	16,531	51,030	10,095	8,991	19,547	37,267	22,586	20,092	16,496	13,545	45,657	11,386	35,987	24,940	16,827	16,261	23,653	34,352	43,220
Magura	60700	6,133	18,841	3,704	3,345	7,267	13,461	8,370	7,260	5,961	4,889	16,489	4,114	12,996	9,012	6,084	5,876	8,549	12,401	15,630
Meherpur	60800	4,616	14,170	2,827	2,518	5,470	10,409	6,297	5,613	4,611	3,766	12,749	3,179	10,044	6,960	4,703	4,546	6,613	9,590	12,099
Narail	60900	4,963	15,215	2,976	2,709	5,838	10,811	6,769	5,831	4,815	3,921	13,314	3,303	10,434	7,234	4,885	4,720	6,865	9,953	12,556
Satkhira	61000	15,928	48,971	9,519	8,680	18,681	34,838	21,737	18,785	15,456	12,639	42,772	10,638	33,638	23,292	15,721	15,206	22,100	32,076	40,414
Habiganj	70100	13,383	41,043	7,649	7,011	15,022	29,372	18,738	16,049	13,313	11,221	36,737	8,839	27,855	19,339	12,888	12,259	17,906	26,607	32,594
Moulvibazar	70200	13,933	42,701	7,948	7,286	15,618	30,571	19,497	16,753	13,850	11,989	38,188	9,314	29,152	20,470	13,583	12,784	18,760	27,629	33,989
Sunamganj	70300	12,441	38,160	7,133	6,535	14,000	27,308	17,409	14,849	12,384	10,018	34,231	8,073	25,718	17,535	11,763	11,384	16,492	24,789	30,242
Sylhet	70400	26,192	80,438	15,016	13,751	29,477	57,496	36,641	31,268	26,059	21,175	72,053	17,031	54,226	37,017	24,812	23,988	34,765	52,172	63,693
Benapole Land Port	90001	129,107	278,464	98,153	102,162	173,171	358,605	196,994	232,187	197,476	140,723	476,203	60,431	216,041	163,388	105,606	89,189	147,181	178,130	157,897
Bhomra Land Port	90002	123,385	266,123	93,803	97,634	165,496	342,712	188,263	221,897	188,724	134,486	455,098	57,753	206,467	156,147	100,925	85,236	140,658	170,236	150,899
Mongla Sea Port	90003	106,959	230,695	81,315	84,636	143,465	297,088	163,201	192,357	163,600	116,583	394,513	0	0	0	0	0	0	0	0
Hilli Land Port	90004	290,260	626,049	220,669	229,682	389,327	806,223	442,885	522,007	443,970	316,376	1,070,610	271,725	971,417	734,666	474,849	401,032	661,791	800,952	709,973
Dhaka Airport	90005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	90006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	90007	1,685,545	3,635,476	1,281,428	1,333,766	2,260,827	4,681,751	2,571,842	3,031,305	2,578,137	1,837,200	6,217,046	157,791	564,103	426,622	275,746	232,880	384,303	465,114	412,282
Payra Sea Port	90008	80,737	174,139	61,380	63,887	108,293	224,255	123,191	145,199	123,492	88,002	297,795	0	0	0	0	0	0	0	0
Matarbari Sea Port	90009	820,427	1,769,542	623,726	649,201	1,100,442	2,278,809	1,251,826	1,475,466	1,254,890	894,244	3,026,103	76,804	274,573	207,655	134,217	113,353	187,057	226,391	200,675
Akhaura Land port	90010	20,208	43,585	15,363	15,990	27,105	56,128	30,833	36,342	30,909	22,026	74,535	0	0	0	0	0	0	0	0
Bibir Bazar Land Port	90011	4,713	10,164	3,583	3,729	6,321	13,090	7,191	8,475	7,208	5,137	17,382	0	0	0	0	0	0	0	0
Ramgarh border crossing	90012	20,656	44,552	15,704	16,345	27,706	57,374	31,518	37,148	31,595	22,515	76,189	0	0	0	0	0	0	0	0
Teknaf border crossing	90013	12,712	27,417	9,664	10,059	17,050	35,307	19,396	22,861	19,443	13,855	46,886	0	0	0	0	0	0	0	0

Cargo OD Table in 2041 (Ton per annum) (3 of 4)

		40100	40200	40300	40400	40500	40600	40700	40800	50100	50200	50300	50400	50500	50600	60100	60200	60300	60400	60500	60600
Bandarban	10100	7,743	4,950	4,714	2,429	4,167	2,645	9,262	3,546	1,991	6,858	4,098	1,929	3,714	3,195	4,499	2,634	8,913	4,397	11,206	5,315
Brahmanbaria	10200	31,888	20,348	19,316	9,941	17,042	10,857	37,767	14,596	8,089	27,753	16,639	7,836	15,068	12,964	18,260	10,675	36,028	17,860	45,348	21,531
Chandpur	10300	35,952	22,988	21,867	11,260	19,297	12,258	42,780	16,470	9,247	31,767	19,029	8,955	17,238	14,828	20,880	12,200	41,205	20,400	51,843	24,589
Chittagong	10400	179,288	114,558	108,975	56,122	96,290	61,174	213,804	82,083	46,025	158,400	94,711	44,588	85,834	73,837	103,974	60,915	206,059	101,716	259,856	122,918
Comilla	10500	62,822	40,157	38,194	19,668	33,719	21,425	74,810	28,772	16,146	55,503	33,223	15,639	30,104	25,895	36,465	21,322	72,042	35,640	90,651	42,993
Cox's Bazar	10600	21,772	13,920	13,244	6,819	11,685	7,423	25,894	9,976	5,601	19,233	11,529	5,431	10,440	9,012	12,691	7,388	25,004	12,355	31,502	14,882
Feni	10700	19,124	12,223	11,628	5,989	10,268	6,524	22,791	8,758	4,914	16,900	10,113	4,760	9,163	7,882	11,100	6,493	21,945	10,850	27,611	13,095
Khagrachhari	10800	10,361	6,626	6,305	3,247	5,563	3,533	12,329	4,748	2,666	9,158	5,488	2,581	4,970	4,275	6,019	3,517	11,875	5,880	14,942	7,086
Lakshmipur	10900	19,896	12,725	12,108	6,235	10,685	6,785	23,687	9,116	5,120	17,592	10,537	4,958	9,546	8,211	11,561	6,755	22,817	11,294	28,707	13,614
Noakhali	11000	36,330	23,201	22,049	11,352	19,462	12,382	43,161	16,634	9,321	32,012	19,178	9,029	17,372	14,944	21,046	12,304	41,548	20,575	52,281	24,811
Rangamati	11100	17,336	11,084	10,553	5,436	9,321	5,918	20,696	7,941	4,458	15,343	9,178	4,319	8,316	7,153	10,072	5,893	19,926	9,843	25,065	11,885
Dhaka	20100	583,731	373,421	355,201	182,883	313,627	199,050	695,461	267,327	150,151	516,391	308,916	145,435	280,020	240,855	339,144	198,480	671,120	331,625	847,088	400,203
Gazipur	20200	74,281	47,485	45,173	23,265	39,944	25,354	88,758	33,997	18,884	65,102	38,846	18,300	35,234	30,310	42,681	25,057	84,882	41,794	107,284	50,604
Gopalganj	20300	16,354	10,463	9,953	5,124	8,779	5,574	19,449	7,493	4,359	14,952	8,969	4,260	8,125	7,152	10,075	5,745	19,683	9,618	24,918	11,533
Kishoreganj	20400	36,568	23,397	22,258	11,460	19,637	12,466	43,517	16,754	9,186	31,580	18,904	8,898	17,129	14,734	20,748	12,130	40,983	20,275	51,565	24,515
Madaripur	20500	39,579	25,318	24,102	12,415	21,286	13,509	47,260	18,131	10,709	36,801	22,036	10,369	19,972	17,176	23,883	13,877	46,892	23,199	59,004	27,960
Manikganj	20600	19,925	12,748	12,133	6,249	10,711	6,797	23,760	9,128	5,130	17,643	10,557	4,969	9,568	8,229	11,587	6,774	22,893	11,321	28,809	13,654
Munshiganj	20700	24,041	15,369	14,612	7,523	12,895	8,194	28,588	11,011	6,180	21,227	12,714	5,985	11,519	9,909	13,954	8,154	27,539	13,636	34,664	16,437
Narayanganj	20900	73,945	47,243	44,902	23,115	39,699	25,216	88,133	33,830	18,955	65,274	38,983	18,367	35,353	30,413	42,827	25,148	85,166	41,961	107,950	50,779
Rajbari	21000	14,268	9,133	8,689	4,473	7,662	4,863	16,967	6,538	3,693	12,677	7,599	3,575	6,884	5,921	8,337	4,983	16,643	8,260	20,674	10,070
Shariatpur	21100	12,698	8,124	7,728	3,979	6,817	4,329	15,103	5,818	3,445	11,812	7,088	3,334	6,421	5,522	7,674	4,449	15,013	7,448	18,898	8,956
Faridpur	21200	27,628	17,672	16,809	8,655	14,832	9,419	32,878	12,656	7,241	24,863	14,898	7,011	13,499	11,610	16,348	9,680	32,651	16,199	40,561	19,490
Tangail	21300	55,634	35,623	33,870	17,432	29,853	18,944	66,029	25,493	13,496	46,373	27,768	13,072	25,159	21,641	30,476	18,400	61,044	30,483	75,872	37,217
Narsingdi	21400	33,180	21,216	20,167	10,380	17,797	11,305	39,431	15,194	8,445	29,015	17,372	8,179	15,742	13,541	19,069	11,157	37,702	18,649	47,588	22,496
Jamalpur	21500	30,085	19,248	18,291	9,412	16,116	10,239	35,633	13,785	7,288	25,017	14,995	7,059	13,580	11,682	16,453	9,929	32,913	16,457	40,869	20,081
Netrokona	21600	24,655	15,785	15,011	7,726	13,228	8,396	29,257	11,300	6,027	20,699	12,404	5,837	11,235	9,664	13,608	8,149	27,025	13,504	33,782	16,480
Sherpur	21700	20,473	13,016	12,305	6,326	10,844	6,946	23,980	9,359	4,912	16,796	10,094	4,761	9,132	7,860	11,078	6,684	22,128	11,101	27,502	13,541
Mymensingh	21800	68,121	43,602	41,472	21,350	36,569	23,211	80,966	31,215	16,662	57,279	34,287	16,139	31,065	26,722	37,630	22,544	74,840	37,342	93,573	45,612
Joypurhat	30100	17,356	11,090	10,521	5,411	9,263	5,898	20,459	7,949	4,060	13,920	8,351	3,934	7,560	6,584	9,280	5,640	18,675	9,357	23,027	11,409
Bogra	30200	55,000	35,188	33,427	17,201	29,452	18,714	65,125	25,196	12,813	44,027	26,358	12,414	23,877	20,788	29,295	17,807	59,063	29,513	72,838	36,032
Naogaon	30300	37,793	24,123	22,860	11,755	20,126	12,833	44,439	17,301	8,896	30,462	18,291	8,618	16,555	14,421	20,328	12,354	40,873	20,507	50,402	24,993
Natore	30400	25,039	15,998	15,174	7,804	13,360	8,508	29,506	11,467	5,999	20,553	12,338	5,811	11,170	9,731	13,715	8,337	27,574	13,834	33,986	16,855
Nawabganj	30500	24,053	15,396	14,639	7,535	12,902	8,191	28,543	11,022	5,793	19,907	11,921	5,612	10,799	9,404	13,250	8,054	26,700	13,348	32,906	16,286
Pabna	30600	34,393	21,992	20,884	10,745	18,403	11,700	40,687	15,753	8,422	28,891	17,324	8,157	15,690	13,668	19,260	11,713	38,778	19,424	47,837	23,678
Sirajganj	30700	51,345	32,924	31,308	16,107	27,585	17,474	60,908	23,532	12,263	42,149	25,230	11,876	22,865	19,798	27,890	16,987	56,366	28,128	69,873	34,345
Rajshahi	30800	64,010	41,000	38,980	20,059	34,328	21,785	75,843	29,342	15,405	52,882	31,700	14,919	28,711	25,009	35,236	21,422	70,930	35,515	87,395	43,291
Dinajpur	40100	0	31,454	31,126	16,008	27,374	17,979	60,339	24,285	11,229	38,542	23,101	10,878	20,916	18,212	25,666	15,597	51,698	25,861	63,756	31,555
Gaibandha	40200	31,392	0	19,121	9,836	16,824	10,674	37,112	14,393	7,167	24,605	14,747	6,942	13,355	11,631	16,389	9,962	33,001	16,515	40,675	20,141
Kurigram	40300	31,093	19,138	0	10,019	16,700	10,570	36,774	14,268	6,823	23,438	14,044	6,607	12,718	11,076	15,604	9,484	31,428	15,717	38,727	19,169
Lalmonirhat	40400	15,991	9,845	10,019	0	8,592	5,438	18,926	7,338	3,513	12,072	7,231	3,402	6,549	5,703	8,034	4,883	16,186	8,091	19,945	9,870
Nilphamari	40500	27,343	16,838	16,699	8,591	0	9,300	32,383	12,543	6,018	20,692	12,386	5,829	11,220	9,768	13,762	8,364	27,748	13,857	34,206	16,915
Panchagrh	40600	17,983	10,697	10,584	5,445	9,313	0	20,547	8,476	3,828	13,154	7,878	3,709	7,134	6,210	8,751	5,317	17,641	8,812	21,758	10,760
Rangpur	40700	60,271	37,142	36,772	18,925	32,383	20,519	0	27,634	13,331	45,913	27,435	12,918	24,863	21,637	30,485	18,527	61,574	30,677	75,943	37,505
Thakurgaon	40800	24,284	14,420	14,283	7,346	12,557	8,474	27,664	0	5,144	17,656	10,586	4,983	9,584	8,345	11,760	7,146	23,678	11,848	29,192	14,452
Barguna	50100	11,150	7,130	6,783	3,492	5,984	3,801	13,258	5,109	0	10,685	6,418	3,018	5,942	4,998	6,944	3,904	13,358	6,534	16,908	7,859
Barisal	50200	38,281	24,485	23,305	12,004	20,578	13,063	45,671	17,537	10,684	0	21,985	10,342	19,922	17,131	23,807	13,416	45,938	22,434	58,122	27,027
Bhola	50300	22,940	14,672	13,962	7,189	12,316	7,821	27,285	10,512	6,419	21,990	0	6,211	11,964	10,287	14,290	8,034	27,488	13,446	34,791	16,170
Jhalokati	50400	10,805	6,908	6,570	3,383	5,797	3,683	12,851	4,950	3,019	10,345	6,211	0	5,626	4,887	6,788	3,812	13,057	6,380	16,529	7,615
Patuakhali	50500	20,772	13,288	12,645	6,511	11,157	7,083	24,728	9,518	5,943	19,924	11,962	5,625	0	9,317	12,943	7,279	24,913	12,180	31,531	14,653
Pirojpur	50600	18,101	11,583	11,021	5,675	9,721	6,171	21,537	8,295	5,003	17,149	10,295	4,890	9,326	0	11,410	6,398	21,922	10,712	27,754	12,771
Bagerhat	60100	25,508	16,320	15,526	7,994	13,696	8,696	30,344	11,688	6,950	23,830	14,301	6,793	12,955	11,409	0	9,014	30,882	15,091	39,098	17,993
Chuadanga	60200	15,541	9,945	9,460	4,871	8,344	5,297	18,485	7,121	3,917	13,461	8,073	3,824	7,303	6,414	9,037	0	18,203	9,108	22,425	10,968
Jessore	60300	51,487	32,929	31,334	16,138	27,669	17,566	61,409	23,582	13,395	46,063	27,562	13,091	24,981	21,962	30,940	18,191	0	30,428	76,837	36,356
Jhenaida	60400	25,753	16,478	15,669	8,066	13,816	8,773	30,590	11,799	6,553	22,497	13,484	6,398	12,215	10,733	15,122	9,102	30,430	0	37,475	18,161
Khulna	60500	63,376	40,509	38,540	19,849	34,046	21,625	75,604	29,020	16,921	58,165	34,814	16,538	31,554	27,748	39,092	22,368	76,687	37,397	0	44,733
Kushtia	60600	31,447	20,110	19,124	9,847	16,878	10,720	37,424	14,403	7,886	27,117	16,225	7,640	14,704	12,803	18,039	10,969	36,380	18,173	44,848	0
Magura	60700	11,360	7,269	6,915	3,560	6,098	3,872	13,507	5,205	2,933	10,069	6,035	2,846	5,467	4,775	6,727	4,016	13,538	6,725	16,670	8,014
Meherpur	60800	8,777	5,623	5,352	2,755	4,717	2,991	10,439	4,024	2,208	7,583	4,543	2,155	4,116	3,617	5,095	3,125	10,253	5,135	12,623	6,200
Narail	60900	12,510	5,838	5,555	2,860	4,898	3,108	10,844	4,180	2,375	8,151	4,888	2,314	4,428	3,885	5,473	3,226	11,006	5,404	13,545	6,436
Satkhira	61000	29,394	18,803	17,890	9,212	15,788	10,024	35,004	13,466	7,766	26,668	15,980	7,590	14,479	12,739	17,946	10,386	35,590	17,381	44,452	20,741
Habiganj	70100	24,464	15,546	14,701	7,559	12,963	8,305	28,692	11,182	6,157	21,045	12,654	5,966	11,448	9,852	13,885	8,117	27,335	13,602	34,431	16,381
Moulvibazar	70200	25,683	16,242	15,296	7,859	13,488	8,697	29,850	11,719	6,405	21,825	13,152	6,209	11,888	10,235	14,433	8,445	28,390	14,169	35,779	17,065
Sunamganj	70300	22,480	14,382	13,687	7,048	12,076	7,666	26,761	10,301	5,732	19,697	11,799	5,551	10,687	9,192	12,943	7,563	25,547	12,644	32,141	15,242
Sylhet	70400	47,406	30,295	28,812	14,836	25,433	16,165	56,410	21,712	12,064	41,465	24,827	11,685	22,490	19,346	27,244	15,933	53,832	26,631	67,723	32,131
Benapole Land Port	90001	13,973	11,952	9,917	5,670	8,229	4,462	14,059	6,262	17,270	41,100	29,822	12,653	27,721	20,483	141,175	110,583	261,613	168,320	218,144	190,223
Bhomra Land Port	90002	13,353	11,423	9,478	5,418	7,865	4,264	13,435	5,985	16,504	39,278	28,500	12,092	26,492	19,575	134,918	105,682	250,018	160,860	208,476	181,792
Mongla Sea Port	90003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	233,915	183,226	433,469	278,891	361,446	315,183
Hilli Land Port	90004	314,133	268,714	222,967	127,468	185,016	100,318	316,067	140,784	0	0	0	0	0	0	0	0	0	0	0	0
Dhaka Airport	90005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	90006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	90007	547,253	468,128	388,432	222,062	322,318	174,764	550,622	245,261	338,198	804,862	584,011	247,784	542,863	401,123	276,466	216,556	512,320	329,624	427,196	372,517
Payra Sea Port	90008	0	0	0	0	0	0	0	0	107,997	257,018	186,493	79,125	173,354	128,092	88,284	69,153	163,600	105,259	136,417	118,957
Matarbari Sea Port	90009	266,372	227,858	189,067	108,087	156,886	85,065	268,012	119,379	164,615	391,761	284,263	120,607	264,235	195,244	134,568	105,407	249,368	160,442	207,935	181,320
Akhaura Land port	90010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bibir Bazar Land Port	90011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ramgarh border crossing	90012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teknaf border crossing	90013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Cargo OD Table in 2041 (Ton per annum) (4 of 4)

		60700	60800	60900	61000	70100	70200	70300	70400	90001	90002	90003	90004	90005	90006	90007	90008	90009	90010	90011	90012	90013
Bandarban	10100	1,969	1,482	1,593	5,122	4,379	4,528	4,113	8,657	183	174	0	0	0	0	17,623	0	29,003	571	267	0	719
Brahmanbaria	10200	7,992	6,001	6,465	20,754	18,557	19,430	17,062	35,933	1,228	1,174	0	0	0	0	118,570	0	195,133	3,845	1,793	0	4,837
Chandpur	10300	9,135	6,867	7,395	23,731	20,519	21,307	19,117	40,219	1,154	1,103	0	0	0	0	111,438	0	183,396	3,614	1,685	0	4,546
Chittagong	10400	45,523	34,221	36,811	118,362	101,922	105,799	95,065	200,172	3,492	3,337	0	0	0	0	337,054	0	554,697	10,930	5,098	0	13,751
Comilla	10500	15,957	11,995	12,914	41,466	35,822	37,208	33,369	70,233	2,401	2,295	0	0	0	0	231,793	0	381,467	7,517	3,506	0	9,457
Cox's Bazar	10600	5,531	4,159	4,478	14,423	12,425	12,902	11,578	24,352	948	906	0	0	0	0	91,513	0	150,605	2,968	1,384	0	3,734
Feni	10700	4,858	3,652	3,931	12,626	10,888	11,302	10,155	21,375	633	605	0	0	0	0	61,088	0	100,534	1,981	924	0	2,492
Khagrachhari	10800	2,633	1,980	2,132	6,841	5,909	6,131	5,512	11,594	305	291	0	0	0	0	29,435	0	48,442	955	445	0	1,201
Lakshmipur	10900	5,058	3,802	4,095	13,140	11,344	11,767	10,586	22,268	833	796	0	0	0	0	80,377	0	132,278	2,606	1,216	0	3,279
Noakhali	11000	9,210	6,920	7,452	23,926	20,793	21,681	19,255	40,544	1,354	1,294	0	0	0	0	130,666	0	215,040	4,237	1,976	0	5,331
Rangamati	11100	4,408	3,315	3,567	11,460	9,837	10,185	9,215	19,390	293	280	0	0	0	0	28,270	0	46,525	917	428	0	1,153
Dhaka	20100	148,459	111,556	120,102	385,736	323,036	335,143	301,420	634,647	197,577	188,820	0	444,196	0	0	762,905	123,555	1,255,530	30,924	7,212	183,717	19,453
Gazipur	20200	18,699	14,056	15,108	48,645	40,944	42,447	38,280	80,676	58,608	56,010	0	131,763	0	0	226,303	36,651	372,431	9,173	2,139	54,496	5,770
Gopalganj	20300	4,297	3,238	3,486	11,425	9,023	9,373	8,406	17,691	17,719	16,934	0	39,837	0	0	68,421	11,081	112,601	2,773	647	16,476	1,745
Kishoreganj	20400	9,079	6,839	7,348	23,591	20,280	21,050	18,913	39,802	44,486	42,515	0	100,015	0	0	171,775	27,820	282,694	6,963	1,624	41,365	4,380
Madaripur	20500	10,393	7,814	8,415	26,999	21,726	22,500	20,359	42,865	17,881	17,088	0	40,200	0	0	69,044	11,182	113,627	2,799	653	16,627	1,761
Manikganj	20600	5,070	3,812	4,104	13,175	11,010	11,409	10,300	21,680	23,033	22,012	0	51,782	0	0	88,936	14,403	146,364	3,605	841	21,417	2,268
Munshiganj	20700	6,106	4,588	4,942	15,859	13,347	13,892	12,400	26,111	22,214	21,230	0	49,943	0	0	85,777	13,892	141,165	3,477	811	20,656	2,187
Narayanganj	20900	18,767	14,094	15,159	48,792	40,948	42,594	38,057	80,231	47,913	45,790	0	107,720	0	0	185,009	29,963	304,473	7,499	1,749	44,552	4,717
Rajbari	21000	3,701	2,819	2,975	9,512	7,656	7,953	7,136	15,023	16,888	16,140	0	37,969	0	0	65,212	10,561	107,320	2,643	616	15,704	1,663
Shariatpur	21100	3,337	2,507	2,704	8,660	7,006	7,278	6,527	13,737	17,578	16,799	0	39,520	0	0	67,875	10,993	111,704	2,751	642	16,345	1,731
Faridpur	21200	7,257	5,452	5,832	18,656	15,027	15,619	13,998	29,477	29,796	28,476	0	66,989	0	0	115,053	18,633	189,345	4,664	1,088	27,706	2,934
Tangail	21300	13,464	10,393	10,816	34,846	29,431	30,625	27,346	57,581	61,703	58,968	0	138,721	0	0	238,253	38,586	392,099	9,658	2,252	57,374	6,075
Narsingdi	21400	8,347	6,270	6,752	21,682	18,719	19,472	17,381	36,587	33,895	32,393	0	76,204	0	0	130,880	21,197	215,393	5,305	1,237	31,518	3,337
Jamalpur	21500	7,268	5,610	5,839	18,805	16,095	16,801	14,883	31,341	39,951	38,180	0	89,818	0	0	154,262	24,983	253,873	6,253	1,458	37,148	3,933
Netrokona	21600	5,965	4,606	4,820	15,465	13,346	13,879	12,408	26,110	33,978	32,472	0	76,391	0	0	131,201	21,248	215,920	5,318	1,240	31,595	3,345
Sherpur	21700	4,895	3,765	3,928	12,658	11,255	12,022	10,044	21,230	24,213	23,140	0	54,437	0	0	93,495	15,142	153,866	3,790	884	22,515	2,384
Mymensingh	21800	16,498	12,735	13,326	42,796	36,825	38,267	34,293	72,190	81,937	78,306	0	184,212	0	0	316,384	51,240	520,680	12,825	2,991	76,189	8,067
Joypurhat	30100	4,130	3,185	3,316	10,678	8,887	9,362	8,112	17,115	10,398	9,937	0	46,754	0	0	8,030	0	13,215	0	0	0	0
Bogra	30200	13,033	10,055	10,467	33,734	27,984	29,279	25,822	54,447	37,173	35,525	0	167,145	0	0	28,707	0	47,244	0	0	0	0
Naogaon	30300	9,047	6,975	7,265	23,383	19,444	20,575	17,622	37,200	28,113	26,867	0	126,409	0	0	21,711	0	35,730	0	0	0	0
Natore	30400	6,104	4,711	4,903	15,775	12,952	13,646	11,816	24,924	18,171	17,365	0	81,704	0	0	14,033	0	23,094	0	0	0	0
Nawabganj	30500	5,895	4,553	4,737	15,254	12,318	12,840	11,433	24,092	15,346	14,666	0	69,003	0	0	11,851	0	19,504	0	0	0	0
Pabna	30600	8,573	6,620	6,887	22,163	17,984	18,835	16,556	34,899	25,324	24,202	0	113,870	0	0	19,557	0	32,186	0	0	0	0
Sirajganj	30700	12,418	9,586	9,971	32,122	26,690	27,709	24,852	52,308	30,650	29,291	0	137,814	0	0	23,670	0	38,954	0	0	0	0
Rajshahi	30800	15,682	12,119	12,603	40,549	32,755	34,145	30,375	63,976	27,168	25,964	0	122,160	0	0	20,981	0	34,529	0	0	0	0
Dinajpur	40100	11,418	8,807	9,170	29,545	24,630	25,848	22,621	47,704	2,404	2,298	0	54,051	0	0	27,850	0	45,833	0	0	0	0
Gaibandha	40200	7,293	5,631	5,859	18,863	15,623	16,317	14,444	30,428	2,057	1,965	0	46,236	0	0	23,823	0	39,206	0	0	0	0
Kurigram	40300	6,942	5,364	5,579	17,961	14,784	15,376	13,758	28,962	1,706	1,631	0	38,364	0	0	19,767	0	32,531	0	0	0	0
Lalmonirhat	40400	3,574	2,761	2,872	9,248	7,601	7,899	7,084	14,913	976	932	0	21,933	0	0	11,301	0	18,598	0	0	0	0
Nilphamari	40500	6,122	4,728	4,919	15,848	13,034	13,557	12,137	25,562	1,416	1,353	0	31,834	0	0	16,403	0	26,994	0	0	0	0
Panchagarh	40600	3,892	3,002	3,126	10,077	8,363	8,754	7,716	16,270	768	734	0	17,261	0	0	8,894	0	14,637	0	0	0	0
Rangpur	40700	13,557	10,461	10,888	35,131	28,848	30,003	26,893	56,689	2,419	2,312	0	54,384	0	0	28,021	0	46,115	0	0	0	0
Thakurgaon	40800	5,232	4,037	4,203	13,535	11,257	11,793	10,366	21,848	1,077	1,030	0	24,224	0	0	12,481	0	20,541	0	0	0	0
Barguna	50100	2,927	2,199	2,371	7,751	6,153	6,398	5,728	12,056	2,971	2,840	0	0	0	0	17,211	18,582	28,324	0	0	0	0
Barisal	50200	10,049	7,555	8,138	26,618	21,037	21,806	19,684	41,443	7,072	6,758	0	0	0	0	40,959	44,223	67,408	0	0	0	0
Bhola	50300	6,024	4,527	4,881	15,952	12,646	13,134	11,792	24,813	5,131	4,904	0	0	0	0	29,720	32,089	48,911	0	0	0	0
Jhalokati	50400	2,841	2,147	2,311	7,577	5,964	6,204	5,548	11,680	2,177	2,081	0	0	0	0	12,610	13,615	20,752	0	0	0	0
Patuakhali	50500	5,457	4,101	4,421	14,452	11,443	11,876	10,680	22,477	4,770	4,558	0	0	0	0	27,626	29,828	45,465	0	0	0	0
Pirojpur	50600	4,770	3,606	3,883	12,727	9,856	10,234	9,195	19,353	3,524	3,368	0	0	0	0	20,413	22,040	33,594	0	0	0	0
Bagerhat	60100	6,720	5,080	5,470	17,928	13,890	14,431	12,946	27,252	24,291	23,214	0	0	0	0	14,069	15,190	23,154	0	0	0	0
Chuadanga	60200	4,022	3,124	3,233	10,402	8,142	8,467	7,583	15,977	19,027	18,184	0	0	0	0	11,021	11,899	18,137	0	0	0	0
Jessore	60300	13,550	10,244	11,019	35,622	27,399	28,445	25,601	53,949	45,014	43,019	0	0	0	0	26,072	28,150	42,907	0	0	0	0
Jhenaida	60400	6,732	5,131	5,411	17,399	13,637	14,200	12,671	26,690	28,962	27,678	0	0	0	0	16,774	18,111	27,606	0	0	0	0
Khulna	60500	16,651	12,587	13,534	44,404	34,443	35,775	32,146	67,740	37,535	35,871	0	0	0	0	21,740	23,472	35,778	0	0	0	0
Kushtia	60600	8,027	6,200	6,449	20,775	16,433	17,114	15,284	32,221	32,730	31,280	0	0	0	0	18,957	20,468	31,198	0	0	0	0
Magura	60700	0	2,264	2,423	7,741	6,088	6,330	5,669	11,938	14,120	13,494	0	0	0	0	8,178	8,830	13,459	0	0	0	0
Meherpur	60800	2,268	0	1,823	5,862	4,570	4,742	4,270	8,989	11,405	10,899	0	0	0	0	6,606	7,132	10,871	0	0	0	0
Narail	60900	2,422	1,819	0	6,296	4,920	5,108	4,588	9,656	11,151	10,657	0	0	0	0	6,459	6,973	10,629	0	0	0	0
Satkhira	61000	7,740	5,852	6,298	0	15,791	16,404	14,730	31,023	32,223	30,795	0	0	0	0	18,663	20,151	30,715	0	0	0	0
Habiganj	70100	6,078	4,555	4,913	15,768	0	15,890	13,402	28,270	2,816	2,691	0	0	0	0	32,621	0	53,685	8,815	0	0	0
Moulvibazar	70200	6,322	4,728	5,104	16,389	15,895	0	14,228	30,083	2,586	2,471	0	0	0	0	29,957	0	49,300	8,095	0	0	0
Sunamganj	70300	5,662	4,257	4,584	14,712	13,410	14,229	0	27,661	3,153	3,013	0	0	0	0	36,522	0	60,105	9,869	0	0	0
Sylhet	70400	11,922	8,962	9,647	30,984	28,283	30,086	27,658	0	4,268	4,079	0	0	0	0	49,440	0	81,364	13,360	0	0	0
Benapole Land Port	90001	82,062	66,283	64,807	187,274	16,366	15,030	18,323	24,805	0	0	0	0	0	0	0	0	0	0	0	0	0
Bhomra Land Port	90002	78,425	63,346	61,935	178,974	15,641	14,364	17,511	23,705	0	0	0	0	0	0	0	0	0	0	0	0	0
Mongla Sea Port	90003	135,969	109,826	107,379	310,297	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hilli Land Port	90004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dhaka Airport	90005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Airport	90006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chittagong Sea Port	90007	160,703	129,804	126,912	366,742	641,014	588,655	717,664	971,508	0	0	0	0	0	0	0	0	0	0	0	0	0
Payra Sea Port	90008	51,318	41,451	40,527	117,113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Matarbari Sea Port	90009	78,221	63,181	61,774	178,509	312,009	286,524	349,318	472,875	0	0	0	0	0	0	0	0	0	0	0	0	0
Akhaura Land port	90010	0	0	0	0	51,233	47,048	57,359	77,648	0	0	0	0	0	0	0	0	0	0	0	0	0
Bibir Bazar Land Port	90011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ramgarh border crossing	90012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teknaf border crossing	90013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0