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“Preparation of Development Plan for
Benapole-Jessore Highway Corridor” Project

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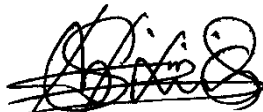
Bangladesh

Subject: **Submission of the Draft Report**

Dear Madam,

In compliance with the terms of agreement, I am submitting the Draft Report for necessary action at your end. Utmost care has been taken to make the report a complete one as per terms of reference. Any further suggestions will be solicited later.

Thanking you very much in anticipation of your kind and sincere cooperation in future.



Dr. Kazi Saiful Islam

Attachment(s): Draft Report

GOVERNMENT OF THE PEOPLE’S REPUBLIC OF BANGLADESH

MINISTRY OF HOUSING AND PUBLIC WORKS



URBAN DEVELOPMENT DIRECTORATE

**“Preparation of Development Plan for Benapole-
Jessore Highway Corridor” Project**

DRAFT REPORT

SUBMITTED BY -

KAZI SAIFUL ISLAM, DR. ENGG.

REGIONAL PLANNER

“Preparation of Development Plan for Benapole-Jessore Highway Corridor” Project

Urban Development Directorate (UDD)
Ministry of Housing and Public Works
Government of the People's Republic of Bangladesh



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Abbreviations and Acronyms

ADP	: Annual Development Programme
Approx.	: Approximately
BDT	: Bangladesh Taka
BBS	: Bangladesh Bureau of Statistics
BIT	: Bangladesh Institute of Technology
BM	: Bench Mark
BNBC	: Bangladesh National Building Code
BNSB	: Bangladesh National Society for the Blind
BR	: Bangladesh Railway
BRTA	: Bangladesh Road Transport Authority
BSCIC	: Bangladesh Small and Cottage Industries Corporation
BTCL	: Bangladesh Tele-communication Company Limited
BTM	: Bangladesh Transverse Mercator
BWDB	: Bangladesh Water Development Board
CBO	: Community Based Organization
cm	: Centimeter
DAP	: Detailed Area Plan
DEM	: Digital Elevation Model
DGPS	: Differential Global Positioning System
EIA	: Environmental Impact Assessment
EPZ	: Export Processing Zone
Ft	: Foot
GCP	: Ground Control Point
GDP	: Gross Domestic Product
GNP	: Gross National Product
Ghat	: Nodal point on rivers / canals
GIS	: Geographic Information System
GOB	: Government of Bangladesh
GPS	: Global Positioning System
Ha	: Hectare
HBB	: Herring Bone Bond

HBFC	: House Building Finance Corporation
HCO ₃	: Carbonic Acid
HQ	: Headquarters
Km	: Kilometer
Lac	: Hundred Thousand
LPG	: Liquid Petroleum Gas
m ³ /s	: Cubic meter per second
mm	: Millimeter
MSIP	: Multi Sectoral Investment Plan
MSL	: Mean Sea Level
MSP	: Municipal Services Project
MT	: Metric Ton
MW	: Megawatt
NCS	: National Conservation Strategy
NEMAP	: National Environment Management Action Plan
NHA	: National Housing Authority
NGO	: Non-government Organization
NMT	: Non-Motorized Transport
NO ₂	: Nitrogen dioxide
OD	: Origin and Destination
O & M	: Operation & Maintenance
PCE	: Passenger Car Equivalent
PCU	: Passenger Car Unit
PDB	: Power Development Board
PPA	: Population Per Acre
ppb	: Parts per billion
ppm	: Parts Per million
PPP	: Public Private Partnership
ppt	: Parts Per trillion
PRSP	: Poverty Reduction Strategy Paper
PWD	: Public Works Department
RCC	: Reinforced Cement Concrete
RDMS	: Relational Database Management System
REB	: Rural Electrification Board
RHD	: Roads and Highways Department

RL	: Reduced Level
ROW	: Right of Way
RS	: Revenue Survey
RTK-GPS	: Real Time Kinematic Global Positioning System
SFYP	: Sixth Five Year Plan
SME	: Small and Medium Enterprises
SMP	: Suspended Particle Matter
SO ₂	: Sulphur dioxide
SOB	: Survey of Bangladesh
SP	: Structure Plan
SPSS	: Statistical Package for Social Science
Sq. Km.	: Square Kilometer
STOL	: Short Take Off and Landing
SW	: Solid Waste
SWARMP	: Southwest Water Resources Management Project
SWD	: Social Welfare Department
TOR	: Terms of Reference
UDD	: Urban Development Directorate
UP	: Union Parishad

GLOSSARY OF TERMS

Ancillary Use	: A subsidiary use connected to the main use of a building or piece of land.
Bazaar	: Bazaar is a Market Place almost synonym of hat with some advanced facilities in comparison to hat. Generally, in a hat, there may not be any permanent business/trading house, shops. But in a bazaar there are some permanent trading houses, shops and these shops are open every day and buyers and sellers attend the bazaar from morning till late evening.
Buffer	: A zone of user-specified distance around a point, line or area.
Building Code	: Regulations established describing design, building procedures and construction details for new homes or homes undergoing rehabilitation.
Catchment (Drainage) Area	: The area contributing surface water to a point on a drainage or river system, which may be divided into sub-catchments.
Climate Change	: The slow variations of climatic characteristics over time at a given place. Usually refers to the change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is, in addition to natural climate variability, observed over comparable periods.
Community Service	: Community service covers a wide range of urban basic services, like, park, play field, eidghah, health and education services.
Contour	: The form of the land. Contour lines are map lines connecting points of the same ground elevation and are used to depict and measure slope and drainage. Spot elevations are points of a specific elevation.
Contour Interval	: Difference in elevation between two successive contour lines. The interval at which contours are drawn on a map depends on the amount of the relief depicted and the scale of the map.
Coordinates	: Pairs of numbers expressing horizontal distances along orthogonal axes, or triplets of numbers measuring horizontal and vertical distances.
Detailed Area Plan	: Detailed Area Plan is the last tier of the present plan package (Structure Plan, Master /Urban Area Plan and Detailed Area Plan)

adopted in Bangladesh which gives detailed development plan of an area at plot to plot level. It also provides a land use zoning plan superimposed on mouza map.

A detailed area plan is prepared for approximately three to five years, that is, the plan must be implemented during this period. Because, spatial changes in urban areas, particularly, in large cities takes place very rapidly. If the DAP is not implemented within five years it would turn obsolete, and a new plan will have to be prepared to accommodate new changes. So it should be executed as soon as possible.

A detailed area plan can be both, participatory or non-participatory. Participatory plans are those plans when it is prepared with direct participation of the local people.

Development Control :The process whereby a local planning authority decides whether a planning application meets the requirements of planning policy, particularly as set out in development plans.

The prime function of the Development Control section is to determine planning applications in the public interest, in accordance with planning legislation and the local plan that has been adopted by the plan approving authority.

Digital Elevation Model-DEM : The representation of continuous elevation values over a topographic surface by a regular array of z-values, referenced to a common datum. DEMs are typically used to represent terrain relief

Dispersed Urban development : Large plots of land situated in the countryside, often Green Belt, in proximity to an urban area and occupied by land uses that are urban in character and depend upon the nearby settlement. These may form the distal or outer advance zone of a fringe belt. They may also form a detached part of an arterial ribbon.

Drainage Basin :The area of land that drains water to a common outlet at some point along a stream channel.

Encroachments :A structure that extends over the legal property line of other people or public land.

EIA :It is a detailed study based on Environmental Assessment (EA) to determine the type and level of effects an existing facility is having, or a proposed project would have, on its natural environment.

Façade :Any front of a building given architectural treatment.

Flash Flood	:A rapid and short-lived increase in the amount of runoff water entering a stream resulting in a flood.
Geographic Information System—GIS	:A geographic information system merges information in a computer database with spatial coordinates on a digital map.
Global Positioning System-GPS	: System used to determine latitude, longitude, and elevation anywhere on or above the Earth's surface. This system involves the transmission of radio signals from a number of specialized satellites to a hand held receiving unit. The receiving unit uses triangulation to calculate altitude and spatial position on the Earth's surface.
Ground Water Table	: Surface of a body of underground water below which the soil or rocks are permanently saturated with water. It also is affected by withdrawing excessive amounts of water from wells or by recharging them artificially.
Growth Centre Market	: Hats and bazaars are the trading centers of the rural Bangladesh. Considering the importance of their economic role in national economy, government has decided to develop infrastructure facilities of some selected hats and bazaars in every upazila through LGED. The markets which are already provided with such extra infrastructure facilities are called growth centre market.
Hat	:The term 'hat' is very much known to all from time immemorial throughout the country which is a temporary rural market place. In rural Bangladesh farmers and other producers/manufactures used to sit with their surplus products in a suitable place having comparatively better communication system with surrounding villages to exchange these goods. This suitable place is called hat where generally on fixed days sellers and buyers get together and exchange goods and services. This gathering place is developed gradually by the local people at the beginning. The Hat is a rural trading centre.
Hazard Area	: A geographically identifiable area in which a specific hazard presents a potential threat to life and property.
Hazardous Waste	: A solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may: 1. cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible serious illness, or 2. pose a substantial presence or potential hazard to human health or the environment

when improperly treated, stored, transported, or disposed of, or otherwise managed.

Highway Corridor : A path through which certain types of traffic are permitted or a path enhance the flow of traffic, both commuter and commercial, along this increasingly congested highway system.

Household : Describes group of people who live in the same house and share food from the same kitchen . Household is similar to a family, except that household members may not have blood relationship.

Human-made Disaster : A disasters or emergency situation in which the major direct cause or causes are intentional or unintentional human actions that result in civilian populations suffering casualties, loss of property, basic services, and means of livelihood as a result of war, genocide, or civil strife.

Land Use Zoning : Land use zoning plan can be a single plan or it can be devised as a part of master plan. In land use zoning plan the entire area under planning is sub-divided into suitable use zones according to their potentiality for that particular use. Accordingly planning permits are given to developers. Land use helps a city grow maintaining environmental sanctity ensuring liveability.

Land Hari : Local Leasing System of Land for Shrimp Cultivation.

Land Development : Re-shaping land to make better use of it. All planned and unplanned development on land is called land development. This term is usually used for housing development in urban areas.

Line Services : Urban services that are provided in lines, like, water, gas, electricity, drain.

Local Level Road : That Roads are provided at local level to give access to houses and other establishments. It is the lowest level of road hierarchy.

Mahalla : Smallest identified area in municipalities with settlements of homogeneous group of people. For operational convenience statistical mahallas are delineated within wards.

Master Plan : It is the 2nd tier of the three level urban plan. It is prepare for the main city and its surroundings. Its development proposals are more detailed and prepared in map and report forms. It also contains a land use zoning map.

Mauza : Mauza is the smallest unit of Land Survey System with a unique number called Jurisdiction List Number (J.L.No).

Mode of Transport	: Four ways are included in the mode of transport. They are Roadway or Highway, Railway, Waterway, and Airway.
Nasimon	: It is a vehicle locally developed by modifying diesel motors used by low lift irrigation pumps mostly used for both passengers and goods for short distance.
National Highway	: A highway is a public road, especially a more major road connecting two or more destinations. National Highways are the primary long-distance roadways. Connect national capital with state capital, major port towns, border areas etc. Most are maintained by the Government. Connecting the neighbouring countries is also called the National Highway.
Node	: Node is a hub or centre of activity where two or more systems intersect. Transportation nodes are points where several transport systems converge.
O-D Survey	: This survey is carried out to collect factual information about desired lanes to provide the most efficient transportation system for the traffic. The purpose of this study is to get the information on the purpose, time, destination and mode of travel.
On Street Parking	: In this system vehicles are parked on the road sides, designed for this purpose. This type of parking is very convenient for the people who could find suitable place to park near the place of their business. It may lead to traffic congestion which may cause of several accidents. So adequate capacity should be needed while planning.
Paurashava	:Paurashava is the local name of the municipality. The incorporated area administered by the government as urban area under the Paurashava Ordinance 2008 is considered as the paurashava
PCU	:It stands for Passenger Car Unit. It is the method of expressing various types of vehicles having different characteristics in a common equivalent unit. Different vehicles having different vehicular and operational characteristics are also expressed in terms of standard unit is called Passenger Car Unit.
Planning Permit	: Initial permit for development given before submission of the actual building plan. This also called land use permission given to an applicant intending to develop a structure for housing or other purpose in a certain land. This permission is based on land use zoning prepared as a part of the master plan. After getting this

	permission the applicant can proceed for designing the structure and submit it for approval.
Population Projection	:Make future estimation of population using well established and scientifically developed formula.
Provider to Facilitator	:When KDA provides serviced land (land with services) it is a housing provider, though directly housing. But when it develops road, drain school, bazaar, etc. In any area it helps the land owners to develop their own houses. So KDA is facilitating people's housing.
Right of Way	:The entire space reserved for use of road. Initially road is developed in a part of the space, but gradually with the pace of urbanisation the entire reserved space is used for road and footpath.
Road Hierarchy	:The hierarchy of roads categorizes roads according to their functions and capacities.
Site and Services Project	:A housing project where site and services are provided. Site is the plot and services include road, drain, water supply, etc.
Shoulder	:Shoulders are strips provided on both the sides of the carriage way. It serves as parking place for vehicles which have developed some defect and need parking.
Skyline	:Outline of building, hills, etc. against the sky.
Sluggish Economic Growth	:Slow economic growth.
Solid Waste	:Non-liquid waste materials that have been discarded. It may be classified by point of origin (such as agricultural waste, industrial waste, domestic waste or construction waste) or by the kind of waste involved (such as rubbish, ashes, garbage, special waste).
Spontaneously Developed Area	:An area that develops naturally with public and community intervention. Almost all our settlements developed spontaneously. The opposite of Spontaneously Developed Area is planned developed area.
Structure Plan	:Structure Plan is the 1st tier plan of the three level plan currently prepared for urban centres in Bangladesh. It is a policy plan and not a plan in maps. Future urban development policies are written down in the plan report that serve as the framework for subsequent lower level plans,like, master plan/urban area plan and detailed area plan. Major development locations may be symbolically indicated in structure plan.

Traffic Volume	:Number of vehicles passing a particular road per unit time at a specified time is called Traffic volume.
UNCHS	:United Nations Centre for Housing and Settlement.
Upazilla/Thana	: Sub-District administrative area.
Union	:Smallest local administrative unit of rural area which is composed of Mauzas and villages.
Urban Fringe Area	: Outskirt areas of an urban centre. These areas are usually being developed. They low density of population and structure and lack physical infrastructure, particularly road.
Upper Level Plan	: Upper level plan is the higher level plan, like, structure plan or master plan/urban area plan that serve as framework of the lower level plan.
Ward	: For the operational convenience, Municipalities are divided into three or more wards. The ward boundaries are specified by gazette notification.

Unit of Equivalence

1 lakh	= 1,00,000
1 million	= 10,00,000
1 crore	= 1,00,00,000
1 katha	= 0.05 bighas = 1.65 dec. = 66.9 sq.m. = 720 sq. ft.
1 bigha	= 20 kathas = 33 dec = 0.33 ac.
1 acre (ac)	= 3 bighas = 4000 sq. m. = 60.50 kathas = 100 dec
1 hectare (ha)	= 2.47 ac. = 7.5 bighas = 10,000 sq. m.
1 square metre (sq. m.)	= 1.20 sq. yards = 10.76 sq. ft.
1 square kilometre (sq. km.)	= 247.1 ac. = 100 ha.
1 square mile (sq. ml.)	= 259 ha. = 640 ac. = 2.59 sq. km.
1 yard	= 3 feet = 0.9m
1 metre	= 3.281 feet
1 kilometre	= 1000m. = 0.62 miles
1 mile	= 1760 yards = 1.61 km.
1MW	= 1000 KW = 10 ⁶ watts
1 Nautical mile	= 1.854 mile

SETTING THE CONTEXT

1.1 Introduction

The Corridor Plan usually integrates several elements to produce an integrated highway based solution. This process identifies transportation services, determines competing demands for different kinds of land uses, and integrates the findings into a common vision for the entire project area that will expedite overall development of the project area maintaining cohesiveness with the national development agenda and vision.

Corridor planning is relatively less emphasized part of the development planning process of Bangladesh. Usually this approach of planning considers multi-modal transport system with respect to the surrounding land uses that respects and enhances our natural and human environments.

While planning is a systematic method of achieving optimum mix of activities to ensure livable and sustainable living environment for the people, planning is often very complex. Among many reasons, some are (1) it demands sophisticated technology intensive survey and analytical methods, (2) conflict minimization among different stakeholders is often easier said than done, (3) finding environmentally sound, economically viable and pragmatic solution is tough to find.

Preparation of Development Plan for Jessore-Benapole Corridor is even more challenging because of its importance in the national development, dichotomy in terms of current economic condition and its future prospect, depth of complexity of problems, lack of awareness of the people about physical planning, lack of coordination among the organizations involved in development activities etc.

There are so many priorities and purpose in planning corridors. Benapole-Jessore corridor will essentially boost up the economy of Bangladesh through reducing indo-Bangladesh trade imbalance. Thus the whole plan is developed keeping the newly emerged concept of “Economic Corridor” in mind. Introducing the term in 1998, Asian development Bank (ADB) defined it as important networks or connections between economic agents along a defined geography, which link the supply and demand sides of markets (Octaviano, 2014) . Economic corridors are integrated networks of infrastructure within a geographical area designed to stimulate economic development (

Wikipedia contributors, 2015; Developing Economic Corridors In Africa: Rationale for the Participation of the African Development Bank, 2013).

1.2 Background

The Government of People's Republic of Bangladesh funded the current the project with Urban Development Directorate, under the Ministry of Housing and Public Works as the executing agency. The project is managed, monitored and evaluated by UDD at the field level. The Technical Management Committee (TMC) at Organization level is responsible for looking into the technical and coordination aspects, where the Inter-ministerial Steering Committee is responsible for guiding the project towards its goal. The activities of the project are expected to be completed by June 2016.

Bhatiapara-Norail-Jessore-Benapole National Highway (Corridor road) project has been at the national priority list since 2007 which is to be constructed by Roads and Highways Department. Importance of this road in terms of national development and regional connectivity is immense. This road (N706) is a part of a far bigger plan.

The Asian Highway network comprises over 141,000 km of roads passing through 32 member countries of UN ESCAP. The network extends from Tokyo in the east to Kapikule, Turkey in the west and from Torpynovka, Russian Federation, in the north, to Denpasar, Indonesia in the south. Asian Highway 1 (AH1) is the longest route of the Asian Highway Network (Source: <http://www.unescap.org/our-work/transport/asian-highway/about> accessed at May 31, 2016).

The 20,557 kilometer long Asian Highway 1 will be started from Japan and pass through Korea, china, Hong Kong, Vietnam, Thailand, Cambodia, Myanmar; then through India it will enter into Bangladesh using this corridor (N706 Road).



Figure 1.1: Asian Highway Network (Source: <https://en.wikipedia.org/wiki/AH1>)

This highway will connect our country with some of the countries that has highest strategic importance to Bangladesh. National importance of this road cannot be neglected as well. Being a part of AH1, this corridor will also be connected with the AH41 (Myanmar-Teknaf-Dhaka-Mongla) and AH2 (Banglabandha-Dhaka-Tamabil). It is envisioned that these road network will together open up the door of regional connectivity for Bangladesh. Once established, freight movement will

significantly increase through Bangladesh providing an economic boom. It is a challenge for the nation to cope with the sudden influence incurred by this road network. Not only at the national level, but also at the local level, the local community needs to be prepared to cope with it.

Because of the establishment of these corridors, intensity of the land use will suddenly increase. Rightly the report states “Because of commercial importance of the roads and easy access to Asian Highway via major roads, roadside developments are expected to get faster pace with the construction of the project. The expected roadside developments are industries, markets/growth centers/shops, housing areas, etc.” (Bangladesh Bridge Authority, 2010, p. 7)

The report has also identified some potential negative impact e.g. (1) Loss of seasonal floodplain, (2) Deterioration in surface water quality (3) Deterioration in groundwater quality (4) Waste generation (5) Land acquisition and resettlement (6) Loss of agricultural lands and last but most importantly (7) Change in landuse. This will create external diseconomy incurring several land use conflicts. Main challenge for this plan will be to minimize this external diseconomy and propose a land use plan such that the harmony among the land uses can be maintained properly thus minimizing the negative impact.



1.3 Objectives of the Assignments

Comprehensive planning approach is a hierarchical approach where structure plan acts as a policy plan providing flexibility to the plan, Master Plan is a rigid plan developed following the policies of the structure plan and Detailed Area Plan (DAP) acts as the local level plan detailing the policies of structure plan and Master Plan. Action Area Plan (AAP) basically deals with the development projects on priority basis.

Corridor plan usually do not deal with this kinds of planning approach. Instead it usually develops a single tier of plan where transport plan and relevant strategies gets highest priority. In a nutshell, primary purpose of a corridor plan is to make traffic circulation as smooth as possible and use the benefit of increased economic activities for development. The perseverance of the Benapole-Jessore Corridor Development Plan is to formulate a framework for the physical development. The plan is intended to guide future growth and development in the corridor for next 20 years. One of the key functions of this plan is to strike a balance between growing traffic and highway expansion, and the preservation of those qualities that make the corridor unique. To fulfill this purpose, following objectives need to be achieved.

- Creating a transportation system, that will ensure an efficient flow of goods, services, and travelers while ensuring healthy and sustainable living environment;
- Propose landuse that will be compatible for the proposed transportation system.
- Allocate space for different kinds of services and facilities required to serve the people for the next 05 (five) years.
- Directing new growth that is consistent with the future land uses, future roadways, and vehicular access points.
- Identify anticipated impact of the Jessore-Benapole corridor
- Find out potential ways to harness the potentials and minimize the negative impact of the corridor and manifest the solutions on space.
- Providing clarity and security with regard to future development for inhabitants and investors,
- Providing guideline for development considering the opportunity and constraints of future development through Govt. Private and Non Govt. Initiatives,
- Providing planned development to ensure sustainable environment.

1.4 Understanding of Scope of Services

The scope of the Development Plan is to formulate land use development proposal in such details as appropriate to the policies of the Structure Plan (SP).

- Land use plan has to be developed for different scale.
- The proposed plan is expected to comprise of an integrated package of amenities and other uses like development of water bodies, open spaces, playgrounds, recreational and community services.
- Allocating the zones where public utilities, institutions and civic services will be established. Moreover zones of urban deferred areas, for future development, expanded areas and areas for new development have to be considered.
- To establish and integrated development plan for primary, secondary and tertiary roads. To design traffic circulation pattern, utilities and services network etc.
- To ensure planning principles/ standards, gross/ net densities, guideline for future development and development control.
- To exercise control over architectural features, elevations, frontage of building and structures including zoning regulations to regulate locations, preservation of heritage, floor area ratio (FAR) and type of buildings within each zone along with allowable deviations.
- To prepare environmental impact analysis for the component of all AAP proposal

1.5 Description of the Planning Area

According to DPP, total are of the project is about **324 sq. km.** connecting from Benapole Land Port to Jessore District Town where the areas of urban and rural parts are 130 sq.km and 194 sq.km respectively. The project area is composed of twelve unions under three different Upazila named as Sharsha, Jhikargachha and Jessore Sadar. The detailed of the administrative units are given below in the following tables.

Table-1.1: Name of Upazila & Unions at the project with corresponding planning area

S/N	Thana Name	Union Name	Area (ac.)	Area (Ha.)	Area(sq.km)
1	Sharsha	Sharsha	7631.82	3088.50	30.89
2	Sharsha	Benapole	7399.96	2994.67	29.95
3	Sharsha	Ulashi	8782.44	3554.14	35.54
Subtotal: 3 administration units of Sharsha Upazila			23814.22	9637.31	96.37
4	Kotwali	Arabpur	5691.60	2303.32	23.03
5	Kotwali	Diara	8405.64	3401.66	34.02
6	Kotwali	Jessore	6129.07	2480.36	24.80
7	Kotwali	Upasahar	1337.88	541.42	5.41
8	Kotwali	Chanchra	7285.86	2948.49	29.48
Subtotal: 5 administration units of Jessore Sadar Upazila			28850.05	11675.25	116.75
9	Jhikargachha	Jhikargachha	7946.84	3215.98	32.16
10	Jhikargachha	Gadkhali	6455.76	2612.57	26.13
11	Jhikargachha	Panisara	6738.35	2726.93	27.27
12	Jhikargachha	Nabharan	6289.08	2545.11	25.45
Subtotal: 4 administration units of Jhikargachha Upazila			27430.03	11100.59	111.01
Grand total: 12 administration units of Project area			80094.30	32413.14	324.13

Source: DPP, 2015

The DPP has further divided the whole project area into four categories, namely Sub-Regional Planning Level, Structure Planning Level, Urban & Detailed Planning Level and Rural hinter land Planning Level. Details of these planning areas are provided in **Table 1.2**. In general, structure planning approach is a hierarchical approach where the structure plan plays the most vital role. It is usually developed for about 20 years. It is a policy plan developed for the whole project area. Master plan is the second tier which is very rigid in nature. master plan only covers the urbanized part along with the urban expansion zone. Detailed Area Plan and Action Area Plan are local level plan. Urban and Rural plans are usually developed separately or integrated under the broader umbrella of structure plan and master plan. However, the consultant proposes to combine these plans under the umbrella of structure plan and master plan. This provides certain advantages over the other separate process-

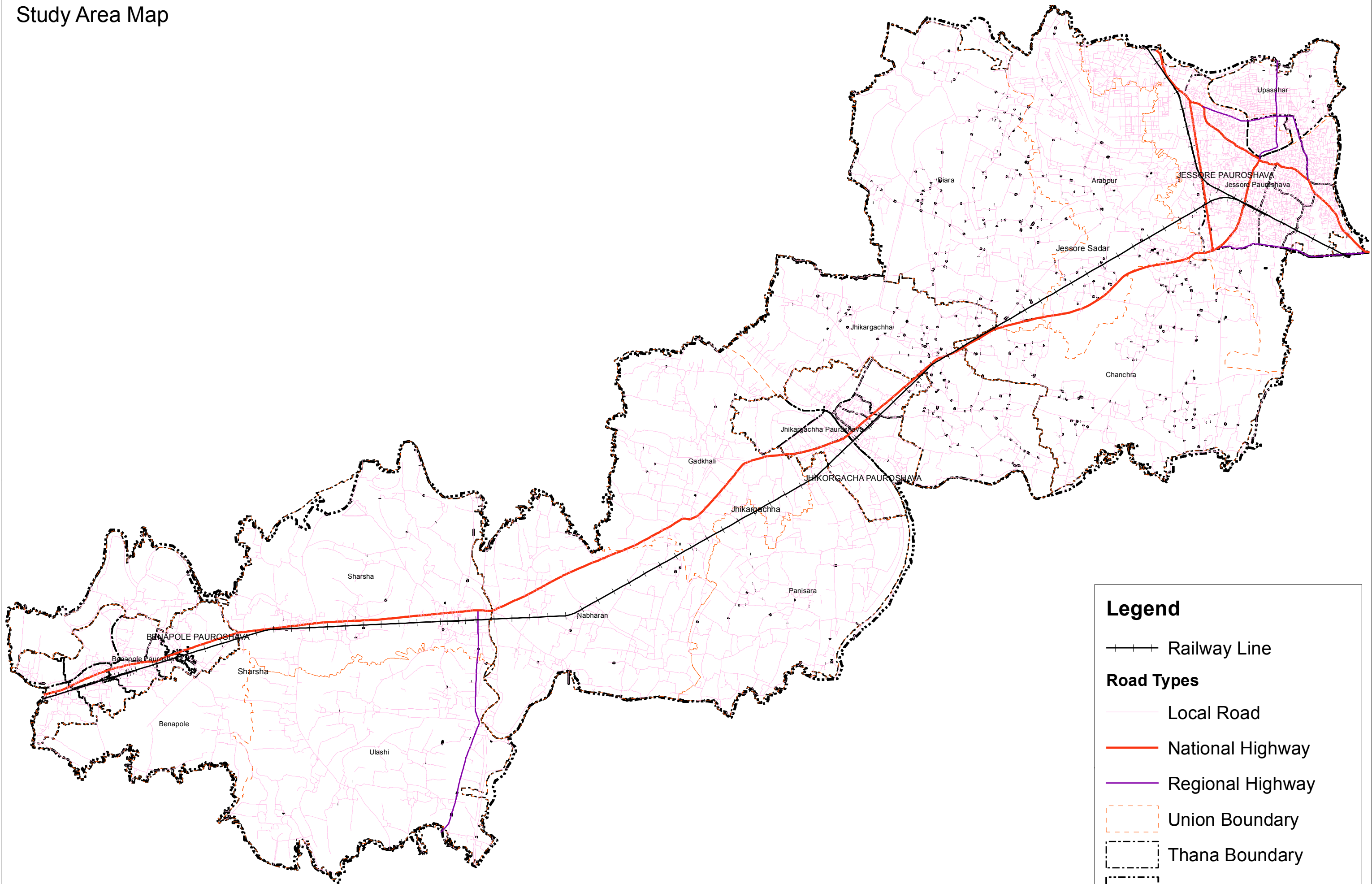
- many of the policies remain same for both urban and rural areas. Through combining these plans, it would be possible for us to avoid the redundancy of policies.
- many infrastructures cannot be bound by any administrative boundary. For example, drainage network, road network etc. Different policy will create differential impact on these infrastructures.
- large and divided plans makes things difficult to interpret for the people at the grassroots level.
- the need of rural and urban areas can be easily addressed in both structure and master plan. However the local level plans considers local circumstances

Table-1.2: Different Planning Boundary of the Benapole-Jessore Development Corridor Planning Area

S/N	Level of Planning	Name of Unions/growth centers	Planning Area (sq. km.)
1	Sub-Regional Planning Level	Abhaynagar, Bagher para, Chaugachha, Jhikargachha, Keshabpur, Jessore Sadar Manirampur and Sarsha Upazila	2585
2	Structure Planning Level	Sharsha, Benapole, Ulashi, Arabpur, Diara, Jessore, Upashahar, Chanchra, Jhikargachha, godkhali, Panisaras, Nabharan Union Parishad	324
3	Urban & Detailed Planning Level	Jessore paurashava, Jessore Upashahar, Arabpur, Chanchra, Jhikargacha, Nabharan, Sharsha, Benapole paurashava, Benapole-Jessore National Highway Corridor	130
4	Rural hinter land Planning Level	Entire rural area except urban growth centers	194

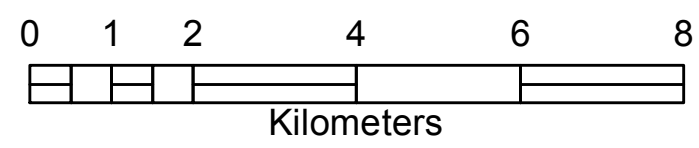
Source: DPP, 2015

Study Area Map



Legend

- +—+— Railway Line
- Road Types**
- Local Road
- National Highway
- Regional Highway
- - - Union Boundary
- - - Thana Boundary
- - - Paurashava Boundary
- · - · - Project Area



INTRODUCTION

3.1 Introduction

Although the project title “Preparation of Development plan for Beanpole-Jessore Highway Corridor” yields no message about the structure of the plan. Nevertheless, the ToR clearly indicated the stratum of the plan. The ToR proposed to follow the typical structure planning approach for the said plan. Accordingly, planning report contains three parts, (i) Structure plan, (ii) Urban and Rural Area Plan, and (iii) Detailed Area Plan. Apart from these components, the document will also contain Action Area Plan. In other words, the plan has followed the typical “Rational Comprehensive Planning” Approach.

This planning report is formed following a series of activities, which were designed to ensure stakeholder’s participation to an optimum level (preceding chapter briefs about stakeholder’s participation). This report is accompanied by the maps showing land use and different services proposal.

Before producing this report, each of the individual consultants produced a series of working papers and the survey consultant conducted through survey of the project site and submitted the survey report. At least one PRA session was conducted for each of the wards of Paurashavas and unions. Each of the consultants visited the project site repeatedly. After getting a clear picture of the project area, planning activities started.

Structure Plan (SP) is the highest stratum of the planning package. It lays down sectoral policies keeping the future development agenda in mind. Through these policies, it ensures flexibility to other strata of the plan.

Following the ToR, although all the strata of plan is prepared, but SP and the Master Plan (MP) have been prepared with extra priority. Because typically the corridor development plan emphasizes on these two plans combined within one volume.

Following the increasing friendly political ties with India, it is expected that the bilateral trade, economic activities of the project area, industrialization and cross-border activities will increase significantly. This will create tremendous impact on the project area. Among many expected impacts, following can be easily comprehended-

- per capita income will increase,
- new employment opportunities will be created,
- migration pressure will emerge,
- rapid land use change along the major roads coupled with environmental deterioration will be very rampant,
- intensity of the land use will suddenly increase
- pressure on the existing utilities and services will become quite severe,
- traffic congestion and traffic related causality and pollution may increase and most importantly
- the current inhabitants of the project area may find it difficult to cope with sudden change.

Not many studies can be found on the negative impact of the future corridor development. However, the EIA report of the Padma Bridge rightly states, “Because of commercial importance of the roads and easy access to Asian Highway via major roads, roadside developments are expected to get faster pace with the construction of the project. The expected roadside developments are industries, markets/growth centers/shops, housing areas, etc.” (Bangladesh Bridge Authority, 2010p.7) The report has also identified some potential negative impact e.g. (1) Loss of seasonal floodplain, (2) Deterioration in surface water quality (3) Deterioration in groundwater quality (4)Waste generation (5) Land acquisition and resettlement (6) Loss of agricultural lands and last but most importantly (7) Change in landuse.

All these changes will create external diseconomy incurring several land use conflicts. One of the main challenges for this plan will be to minimize this external diseconomy and propose a land use plan such that the harmony among the land uses can be maintained properly thus minimizing the negative impact. Another challenge of this plan is to prepare the area so that it can cope with the rapid change to be incurred by the increased corridor activities. To face these challenges, the SP envisioned to **make the corridor livable and economically vibrant for the years to come**. SP will help achieving this objective through -

- Transformation of National policies for the project area.
- Formulation and Integration of different sectoral strategies.
- Spatial interpretation of sectoral strategies.

3.2 Area coverage of the structure plan

According to DPP, total are of the project is about **324 sq. km**. connecting from Benapole Land Port to Jessore District Town where the areas of urban and rural parts are 130 sq.km and 194 sq.km

respectively. The project area is composed of twelve unions under three different Upazila named as Sharsha, Jhikargachha and Jessore Sadar. The detailed of the administrative units are given below in the following tables.

Table-2.1: Name of Upazila & Unions at the project with corresponding planning area

SN	Thana Name	Union Name	Area (ac.)	Area (Ha.)	Area(sq.km)
1	Sharsha	Sharsha	7631.82	3088.50	30.89
2	Sharsha	Benapole	7399.96	2994.67	29.95
3	Sharsha	Ulashi	8782.44	3554.14	35.54
Subtotal: 3 administration units of Sharsha Upazila			23814.22	9637.31	96.37
4	Kotwali	Arabpur	5691.60	2303.32	23.03
5	Kotwali	Diara	8405.64	3401.66	34.02
6	Kotwali	Jessore	6129.07	2480.36	24.80
7	Kotwali	Upasahar	1337.88	541.42	5.41
8	Kotwali	Chanchra	7285.86	2948.49	29.48
Subtotal: 5 administration units of Jessore Sadar Upazila			28850.05	11675.25	116.75
9	Jhikargachha	Jhikargachha	7946.84	3215.98	32.16
10	Jhikargachha	Gadkhali	6455.76	2612.57	26.13
11	Jhikargachha	Panisara	6738.35	2726.93	27.27
12	Jhikargachha	Nabharan	6289.08	2545.11	25.45
Subtotal: 4 administration units of Jhikargachha Upazila			27430.03	11100.59	111.01
Grand total: 12 administration units of Project area			80094.30	32413.14	324.13

Source: DPP, 2015

3.3 Duration and Amendment of the structure plan

The SP will remain valid for 20 years from the time of the approval of the same that is upto 2037. SP can be amended at every fifth year. Meaning SP can be amended thrice during its lifetime. However, after each of the amendment, SP must be approved by the Corridor Development Authority proposed by this plan and UDD. Each of the amendment should be followed by the public hearing for at least two weeks.

3.4 Format of the structure plan

The SP contains the written document and indicative or symbolic major development locations presented in the maps and diagrams as a part of the map.

CRITICAL PLANNING ISSUES

4.1 Introduction

Main purpose of the structure plan is not only to prepare the corridor for the future but also to provide policy direction to resolve the existing problems. Sole purpose of this chapter is to critically review the existing situation so that the challenges for the planning can be identified and addressed through different strata of the plan.

4.2 Demography and population growth

In 2001, population of the project area was 5,41,471. In 2011, this figure rose to 5,59,938. Using the data of 2001 and 2011, population of the whole corridor is projected for the year 2015, 2020, 2025 and 2030 (Please see **Appendix 01**). According to the population projection, the project area has total population of 5,90,440 (for the year 2015). This figure is 6,31,434; 6,75,884 and 7,24,108 for the year 2020, 2025 and 2030 respectively.

It is to be noted here that 10 (ten) percent additional population has been added with the projected population. This is because sudden growth of population cannot be comprehended by the typical linear projection. Moreover, in case such sudden growth of population is observed, the project area will be prepared for the same. If it doesn't happen, planning intervention will be such that the resource will not be wasted or underutilized.

As usual, Jessore being the biggest urban center of the project area, it contains the highest number of households, which is followed by Sharsha and Chanchara. Contrary to this situation, Jessore upashaha has the highest density of households (2987 households/sq.km.) followed by Arabpur, Jessore paurashava, Chanchara and Sharsha. Benapole, Ulashi and panisara unions has the lowest population density.

It is noticeable that the household size of Jessore Paurashava is 4.1. Field survey reveals that 52% households of Jessore Paurashava has less than four (04) family members. According to the Census data (2011), household size is usually smaller for more urbanized and affluent areas. Jessore

paurashave has the lowest average household size. For Upashar, jhikargacha Union, Ulashi Union, Nabharon Union, Gadkhi Union this figure is 4.1. For relatively less developed areas, this figure increases until 4.3. From this situation, it can be clearly concluded that the average household size will continue reducing with the economic development of the project area. Increase of population size and decrease of household size will certainly create pressure on the supply of housing units.

The field survey reveals that about 87.9% of the households are permanent residents of the project area. Rests of the households are staying in the project area as tenants for employment purpose. However, after gaining full functionality of the Belapole Land port, economic activity of the project area will gain significant momentum. This will lead to increase of commuting. Percentage of temporary population will also increase significantly in this area.

4.3 Land use

Land use dynamics is one of the most important information for urban planners. Land use dynamics provides necessary information related to trend of land use change. However, from the survey report it is difficult to extract any information related to the same. Land use composition of the project area is portrayed in **Table 3.1**. Evidently, the project area is dominated non-urban land uses (agricultural and Group of Trees or Forest). About 67 percent land of the project area is dedicated for these land uses. This depicts the rural characteristics of the project area.

Surprisingly only 1.82% land is allocated for circulation network and transport/communication. Meaning the area lack in communication facilities. This is one of the major hindrances of development. Perhaps because of lack of communication facilities, employment generating activities are also not playing expected role. Only 0.59% land is used for industrial purpose.

Less than 15% land is allocated for residential purpose. It is also to be mentioned here that residential density in these areas are very low. With the increase of economic activities of the corridor, more and more people will migrate to the project area. Consequently, land use intensity will increase significantly, residential area will expand and density will increase, more demand for commercial and manufacturing activities will be created, more and more residential land use will be converted to mixed and commercial land use. These changes will be coupled with the increase environmental pollution, increased congestion and deteriorating living environment. It is also expected that the situation will not be constant for all the project area. Change will be drastic in the existing urban centers and the process will be slower in the rural areas.

Table 3.1. Land use composition of the project area

Sl. No.	Land use Type	Area (Sq.m.)	%
1	Agriculture	187083791	56.81
2	Circulation Network	5864620	1.78
3	Commercial	850171	0.26
4	Community Service	10237	0.003
5	Education and Research	1107963	0.34
6	Government Services	1861376	0.57
7	Group of Trees / Forest	39697825	12.05
8	Health Services	68500	0.02
9	Manufacturing and Processing Activities	1936619	0.59
10	Miscellaneous	6632	0.002
11	Mixed Use	2934234	0.89
12	Non-Governmental Services	38642	0.01
13	Recreational Facilities	208655	0.06
14	Religious	192906	0.06
15	Residential	48199225	14.63
16	Restricted Area	7751716	2.35
17	Service Activity	59226	0.018
18	Transport and Communication	143684	0.04
19	Vacant Land	374098	0.11
20	Water Body	30947460	9.39

Source: GIS Database

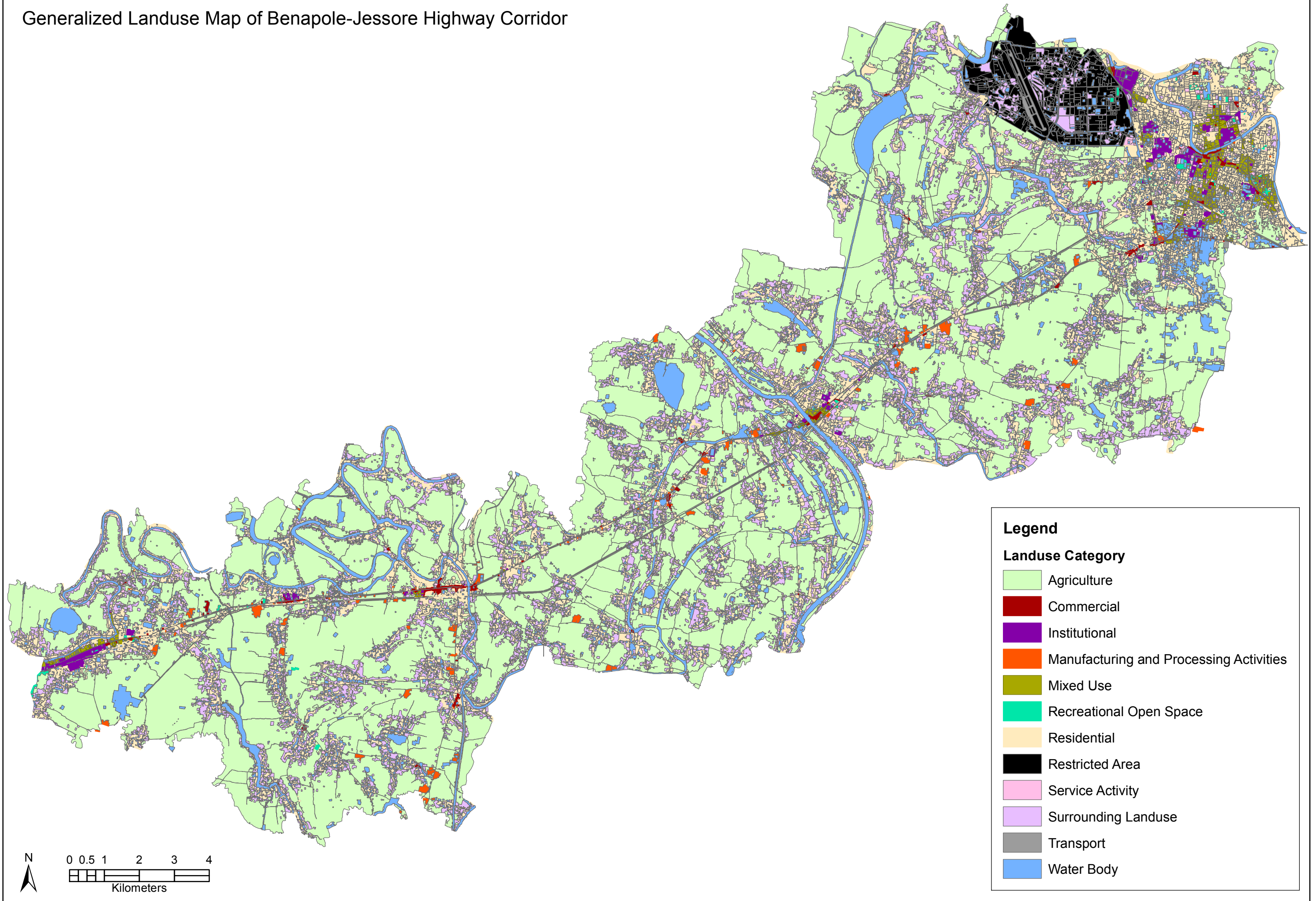
4.4 Transportation and other infrastructures

Benapoe-Jessore highway (N706) corridor connects Benapole, the largest land port in Bangladesh with Jessore city hence the whole country. So, its importance is spread to the whole nation. Being the only connector to the port, N706 remains busy by freight carrying vehicles. However, the vast area on either side of the highway has scattered rural settlements and small urban centers. Most of them do not have any direct regular dependency with the Benapole port but they are also dependent on this highway segment. As a result, this highway serves many stakeholders with varying in transport mode, speed, size and behavior.

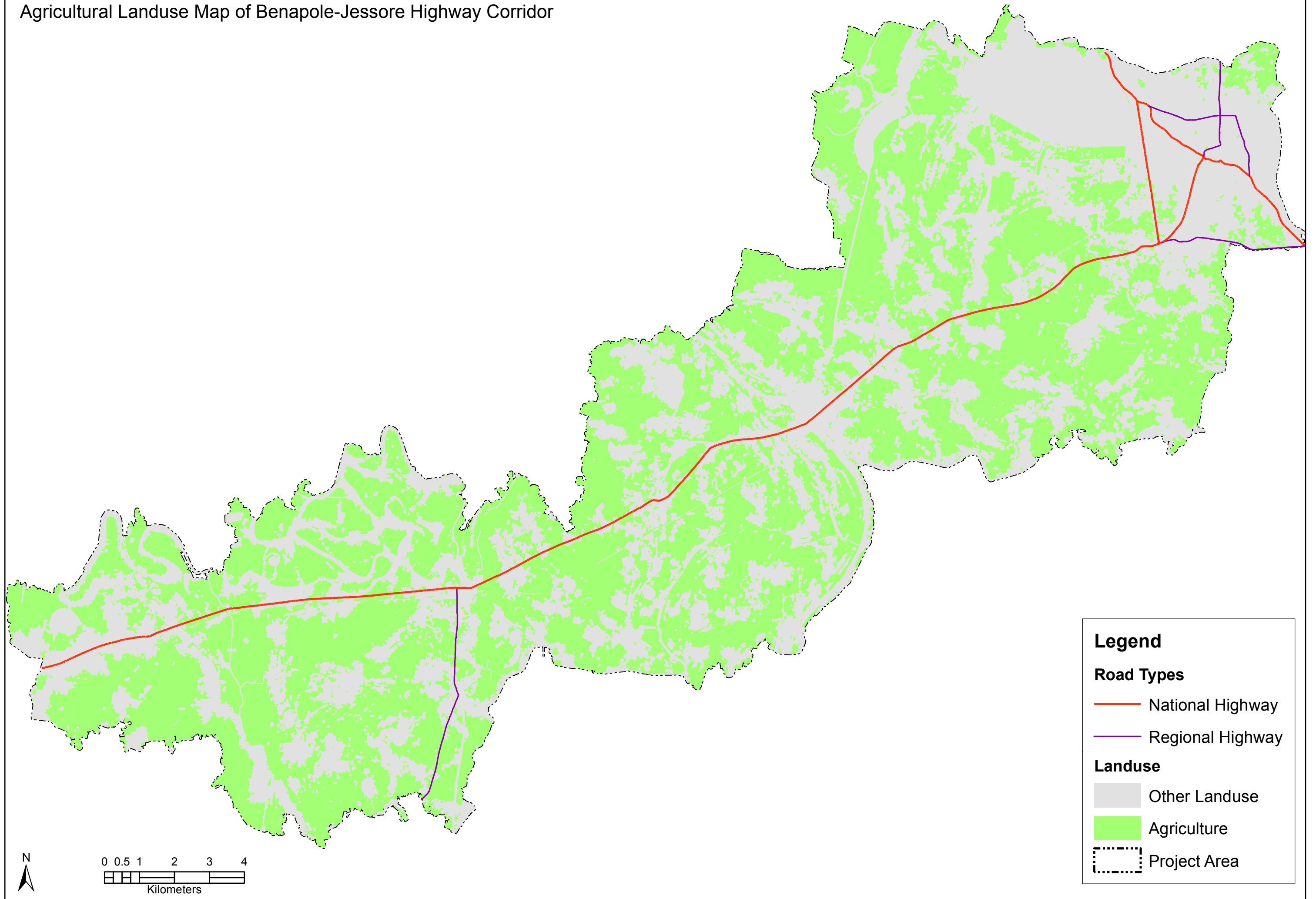
The upcoming increasing port utilization requires increase in highway capacity. To address this demand, RHD has planned to improve the highway to a four-lane by 2021 (RHD Master Plan 2009). It is to recognize that although the port utilization is going high, the non-port user of the highway are significant in number, which needs to address in the plan.

For local agriculture commodity transport generally smaller truck, sometimes even locally made vehicles are used. On the contrary, export-import items from port used heavy duty large truck. Again, there is a heterogeneous mix of passengers' vehicles including NMT. All these traffic mix creates a slow flow on the road. Figure 5 clearly shows that most settlements are clustered beside the road, which is a common scenario for any unplanned area. The same trend can be used as a guiding principle for area development. It is found that without much development control a road can be a good trigger for development. Development refers here construction of buildings for residential or commercial purposes. So it is suggested that zoning must be defined as a corner stone

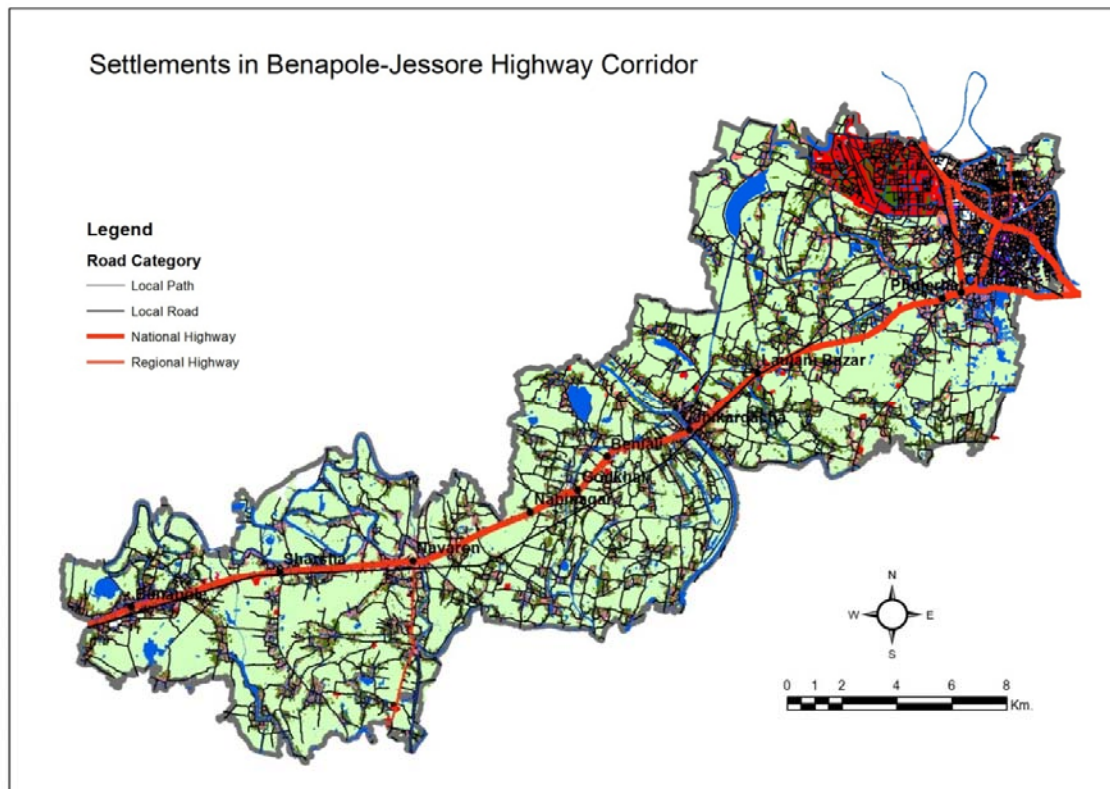
Generalized Landuse Map of Benapole-Jessore Highway Corridor



Agricultural Landuse Map of Benapole-Jessore Highway Corridor



of urban development strategy for this area. These zones are then connected to each other and a hierarchy of transport network is established.



Every day, about 120 trips are made by public buses between Jessore and Benapole with an interval of 07 minutes. Fare is 1.25 BDT/km. There are 14 stoppages in this route.

Public transport connecting Benapole-Jessore highway is vulnerable in terms of public facility. However, it is functional with attributes like delays, irregular, crowded etc. Improvement of the facility will enhance its share by many folds. Visitors to India are important travellers. So that needs to be maintained when any improvement plan is made. For example, travellers do carry baggage. The current buses do not have comfortable arrangements for such. The boarding time is generally high that accumulates to a delay in stop. So, improvement in infrastructure and management can improve this boarding time significantly. At the same time, other smaller modes like Mohindar and Auto-Rickshaw are operating on this road. They are sometimes also operating as paratransit and serving the middle and low income who cannot afford private vehicles. Separate management guidelines are required for their operation specially to improve their safety issues. In places, management plans are required to ensure that these public transports do not make an obstacle on the major roads and flow of freight and passenger-carrying vehicles.

4.5 Housing and associated public utilities and services

House is not only a place to sleep. It is a place where all sorts of services and facilities are readily available to make our living comfortable. A house should have source of safe drinking water, electricity connection, healthy toilet facilities, and all other amenities.

Typically, tenancy is also related to the level of urban agglomeration. Higher level of urban agglomeration lead to higher proportion of rented households. BBS (2011) also proves this argument. Highest percentage of rented households can be seen in Jessore Paurashava and Upashahar. Other unions are mainly dominated by the self-owned house. About 19 percent households of Benapole Union do not pay anything as house rent. It can be assumed that these households live on either government properties or properties of some sorts of institutions (in other wards in slums and squatters). Percentage of rent-free households is not that different in other unions.

Currently lowest average household size is 4.0. Family size will continue reducing responding to the socio-economic change. But this change takes a long time to manifest its impact. Assuming that the average family size will be 3.9, total number of required housing units will be **204236**. By the year 2030, total deficit of housing units will be $(204236 - 126679) = 77557$. This many housing units will need to be created mostly in the already urbanized areas. Fortunately, most of the residential areas of the project area have very low density. Meaning the existing residential areas would be able to consume more people in the next couple of years providing enough time to be prepared for the future.

In terms of drinking water, more than 93% households of the project area use deep tube well. Very insignificant amount of people have access to tap water. Comparatively higher proportion of people of Jessore paurashava (6.34%) enjoy tap water. Other sources contribute very insignificant portion. Evidently too much dependence on the ground water will create tremendous pressure on the same lowering the ground water table risking the drinking water security. The situation didn't improve even after 10 years. BBS (2011) shows that significant portion of the households are still dependent on the tube wells. Percentage of households enjoying tap water did not increase that much compared to 2001. Seems that other than Jessore paurashava and upashahar, tap water is not available anywhere.

According to the BBS (2001), about half of the households used sanitary toilet. A significant portion of the households (15.62%) do not have any access in any kind of toilet facilities. About 33 percent households have access to unhygienic toilet facilities. Households of Jessore paurashave enjoys better toilet facilities compared to other unions followed by chanchara and Nabharan Unions. Households of all these areas have relatively higher or better access to sanitary toilet facilities. Contrary to this situation Ulashi and Panisara Unions have relatively higher percentage of households who doesn't have access to any kind of toilet facilities. Comparison between the situations of 2001 and 2011 using BBS data is almost impossible. Because the latrine type is reclassified in 2011. However, according to BBS (2011), in terms of usages of water-sealed sanitary toilet facilities Jessore Paurashave and Upashahar are at a better condition followed by Arabpur, Diara, Benapole and Nabharon Unions. Non-water-sealed sanitary toilet facilities are very popular in Benapole, Arabpur, Diara and Nabharon Unions.

Highest number of households of Jessore Paurashava and Upashahar enjoyed electricity connection in 2001. Sharsha, Benapole, Arabpur, Diara, Chancra and Gadkhali unions were at the same level in terms of accessibility to electricity. All other unions were at a marginal condition. However, the condition significantly improved in 2011 compared to 2001. In some of the unions, household's access to electricity increased significantly. Forexample, in Panisara union 33.34% more households ensured their access in electricity between 2001 to 2011. This figure is 28.66%, 28.71%, 25.57%, 24.66% respectively for Sharsha, Ulashi, Arabpur and Chanchara Unions. (please see **Table 12** for details)

4.6 Environment, Drainage and Disaster management

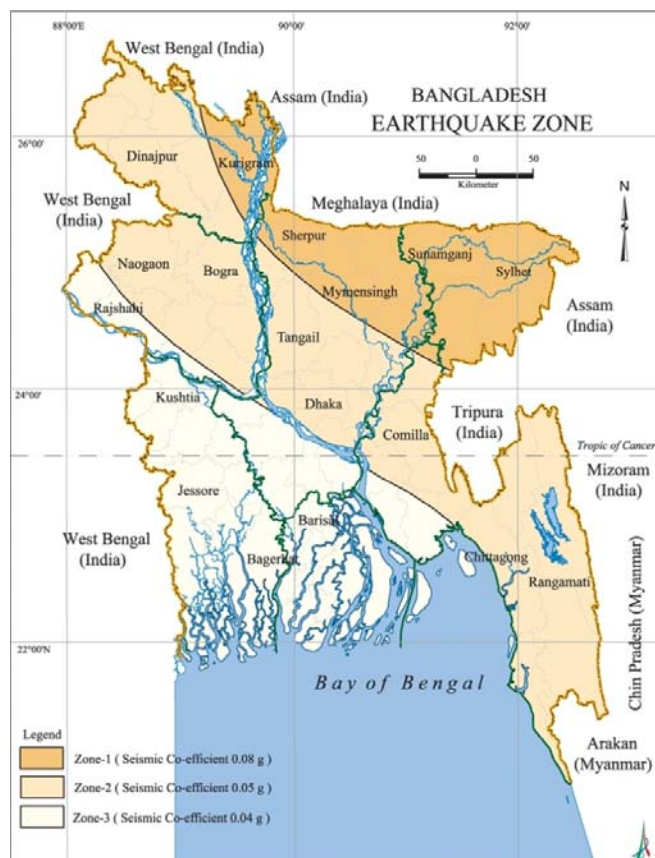
The project area is not really a highly disaster prone area.

4.6.1 Earthquake

Bangladesh lies in a region with low to high seismic hazard that increases in the northern and eastern parts of the country. Major clustering of seismicity has been observed around the Dauki Fault and scattering of other events along other major fault systems of Bangladesh. However, based on intensity (Mercalli intensity scale) of earthquake, Department of Disaster Management of the Ministry of Disaster Management and Relief has divided Bangladesh into three zones. The project area is located in the southern part of the country, the least active region, where the maximum intensity is not likely to exceed VII (maximum scale is XII), is in the Zone-III (with 0.04g Bask co-efficient).

The project area is located in the Bengal Foredeep (precisely in Faridpur Trough). This Trough is bounded by the Barisal Gravity High in the east and southeast and a hinge zone in the west. In the northeast it finds its continuation in the Sylhet Trough. The Faridpur Trough is characterized by a general gravity low trending northeast. The basement is deeply buried here (about 8 to 10 Km. below mean sea level). Historically majority of the earthquakes are shallow depth in Bangladesh. Therefore, probability of earthquake incidence in the project area is comparatively lower.

Being convinced about the safety of the project area from the earthquake hazard, UDD has decided to drop this portion from the DPP. Instead, UDD feels



Map 2.1 : Earthquake zones of Bangladesh

that this money should be invested in the planning phase to make it a better one.

4.6.2 Cyclone

Unlike the coastal areas of Bangladesh, cyclone is not a very big threat for the project area. The list of the major cyclones are stated below-

Cyclone 1909 (October 17): Following the cyclone, 11" rainfall was reported in Jessore and Jhinedah. 446906 houses was totally destroyed because of this cyclone. 1157 nos. of boats were sunk. Total reported death was 27.

Cyclone 1961: A total of 90 families became homeless and about 160 houses were devastated. Sandanda was the most highly affected village due to this cyclone.

Cyclone 1967 (May 04): About 40% of the Katcha houses were destroyed by this cyclone. As a result about 400 people became homeless. Highest destruction were reported at Kamlapur (Narail Thana), Dhondagram, Nolchi (Lohagara), Brommondanga, Shathazari, debigram, Kolabari and Rampur (Khalia thana).

Cyclone 1970: About 70,00,000 people died because of this devastating cyclone. Compared to national destruction, Jessore was at a safer condition. No clear cut statistics is available about this cyclone.

Cyclone 1988 (November 29): It is also reported that between the years 1970 to 1995, about 15 tornado/cyclone crossed the study area. Among these cyclones, only one (29th November, 1988) devastated the livelihood of the people remarkably. A total of 583610 people and 22460 acre agricultural land, 78073 housing units, 444 educational institutes was totally massacred by this devastating cyclone.

4.6.3 Flood

As Jessore lies in the South-Western region of Bangladesh and adjacent to Bhairab River, the project area has low risk of natural disasters like cyclone, flood and earthquake, as the area is in a geographically elevated area. The area is low flood risk zone as per the records of 1988 & 1998 flood level. The communication never disrupted or stopped during the high flood. The national highway is above the high flood level. The area faces no river flooding.

ECONOMY & EMPLOYMENT

5.1 Indo-Bangladesh Trade

After its emergence, Bangladesh signed “Treaty of Friendship, Cooperation and Peace” with India on March 19, 1972 for 25 years. Afterwards, Bangladesh signed many agreements with India that determines the depth and dimension of Indo-Bangladesh Trade largely. The economic relations between the two countries have been multifaceted, embracing trade transactions, credit arrangements, joint ventures, transit facilities and transport development.

Bangladesh, Bhutan, India and Nepal (BBIN) Motor Vehicle Agreement signed at June 2015 has taken this economic tie one step further. This agreement is to promote safe, economical efficient and environmentally sound road transport in the sub-region and will further help each country in creating an institutional mechanism for regional integration. BBIN countries will be benefited by mutual cross border movement of passenger and goods for overall economic development of the region (<http://pib.nic.in/newsite/PrintRelease.aspx?relid=122416>, accessed at December 15, 2015). This treaty will incur tremendous impact on Benapole land port and also Benapole-Jessore corridor.

According to Bangladesh Bureau of Statistics (2013), India is one of the most important trading partners of Bangladesh. However, trade between these two countries is heavily tilted in favor of India. In 2011-12, India’s total exports to Bangladesh reached the level of 5.84 billion dollars. If illegal trade is considered, this volume would be between 14 to 15 billion dollar per annum. On the contrary Bangladesh exports a marginal percentage to India. The percentages in 2007-08 and 2008-09 were 8.8 and 9.11 respectively. Fortunately this percentage is increasing slowly. In the year 2011-12, Bangladesh’s exports to India reached the level of 584.64 million dollars. Yet trade deficit between these two countries was remarkably high (3.2 billion dollars per annum) in favor of India in 2011-13.

5.2 Importance of Benapole land port

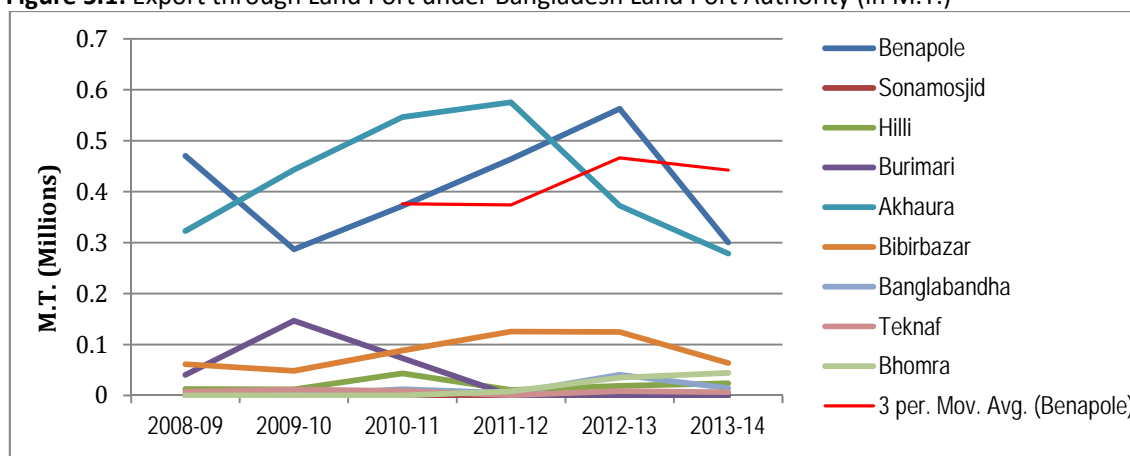
Bangladesh Land Port Authority is the central administrative body controlling all the land ports of Bangladesh. It mainly controls eight land ports of Bangladesh, namely, Benapole Land Port, Sonamosjid Land Port, Hilli Land Port, Burimari Land Port, Akhaura Land Port, Bibirbazar Land Port, Banglabandha Land Port, Teknaf Land Port, Bhomra Land Port. Among these land ports, Akhaura and Benapole land ports are the most important ones in terms of both import and export.

Over the years, importance of Benapole land port is increasing day by day. Although the port has seen many ups and down in its lifecycle, the port's importance in the national economy of Bangladesh and India is increasing day by day. In 2009-10 financial year, total export using Benapole land port was 4,70,332 M.T. This value for 2013-14 was 3,00,274 M.T. This figure may be deceptive. To get a clear idea about the trend of export from Bangladesh using Benapole Land Port a curve of three year's moving average has been added in the **Figure 01**, which clearly shows the upward trend of export using Benapole Land port.

It is really difficult to accurately project the export from Bangladesh using Benapole Land Port. However, based on the agreements signed by both the countries it can be easily said that the economic ties between India and Bangladesh will be more strong day by day. Additionally BBIM agreement will also foster the activities of the Benapole land port.

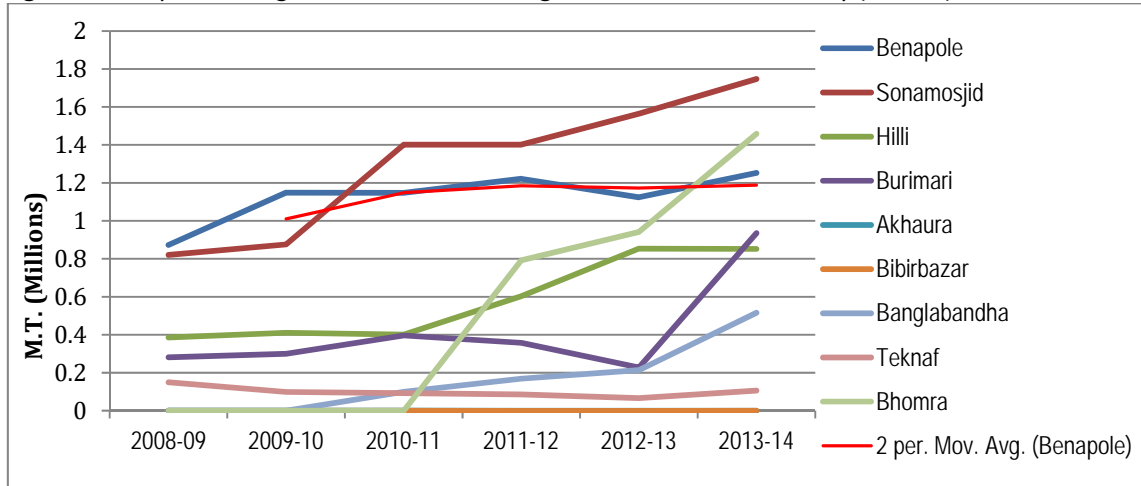
In terms of import, importance of Benapole land port is worth mentioning. Although Sonamosjid and Bhomra land ports are the getting more importance. Two year's moving average also shows an upward trend in this regard. Please see **Figure 02** for more information. From total volume of trade's point of view, Benapole still holds its significant position. Please see **Appendix 01** for detailed database.

Figure 5.1: Export through Land Port under Bangladesh Land Port Authority (in M.T.)



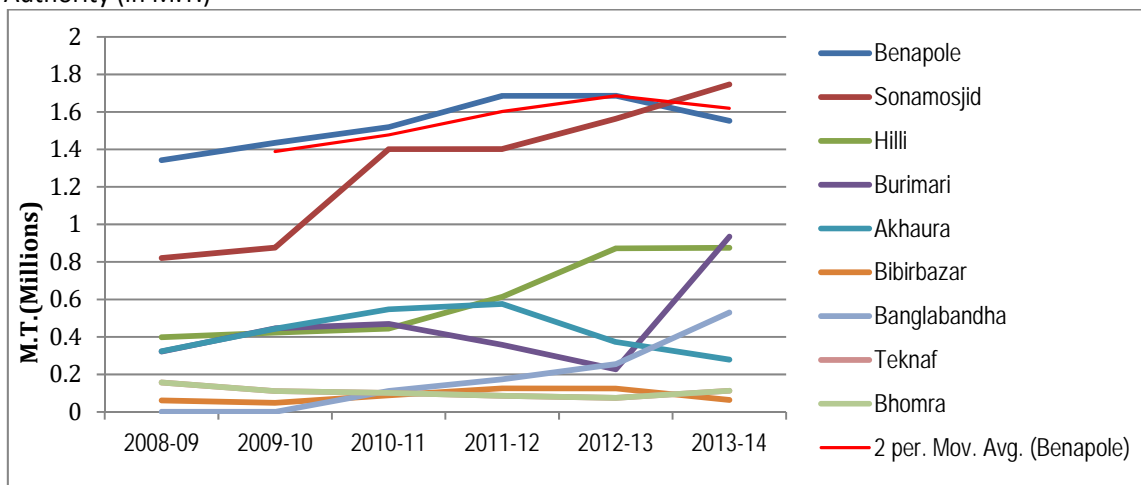
Source: Bangladesh Land Port Authority, 2015

Figure 5.2: Import through Land Port under Bangladesh Land Port Authority (in M.T.)



Source: Bangladesh Land Port Authority, 2015

Figure 5.3: Total volume of Import and Export through Land Port under Bangladesh Land Port Authority (in M.T.)



Source: Bangladesh Land Port Authority, 2015

5.3 Feasibility of the corridor

Because of geographic location of Bangladesh, both Kolkata and Chittagong are the gateway ports for South Asia, under the South Asia Sub-regional Economic Cooperation (SASEC), includes only North-east Indian states plus the states directly connected to them: Nepal, Bangladesh, Bhutan, Uttar Pradesh, Bihar, and West Bengal (Asian Development Bank Institute, 2014). Indian goods originating from the Kolkata region could reach the Southeast region by land through Bangladesh or

through the Chicken Neck (Siliguri Corridor, a narrow strip of Indian Territory connecting the northeastern states to the rest of India) and the Assam highway. The comparative distances are:

- Kolkata to the Myanmar border, Moreh BCP, through Bangladesh, 1,112 km (through Benapole, Dhaka, and Argatala); and
- Kolkata to the Myanmar border, Moreh BCP, through the Chicken Neck/Assam highway, 1,558 km through Siliguri, Guwahati, Shillong, and Silchar, and 1,713 km through Siliguri, Nagaon, and Silchar.

Again, the distance by road from Dhaka to Kolkata is 494 kilometers (km); 413 km (84%) from Dhaka to the Benapole border area; and 81 km (16%) from the Indian border city of Petrapole to Kolkata in West Bengal, India. This is the major road corridor between Bangladesh and India (see Map 2). An alternative to the previous option is more southerly road corridor linking Dhaka and Kolkata through the customs posts of Bhomra (Bangladesh) and Ghojadanga (India). This corridor is 536 km long, 40 km longer than via Benapole-Petrapole. Moreover, the roads on either side of the Benapole - Petrapole are in far better condition. Additionally, a weak bridge in India leads to transshipment of goods onto smaller trucks instead of bigger trucks carrying 40 MT.

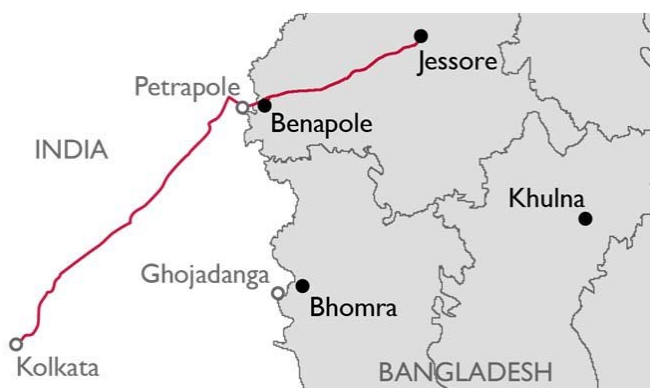
Traditionally different ports of Bangladesh are used for transshipment of different kinds of goods. Benapole border is mainly used for shipment of white fish and cleaning products made from coir. Approximately 250 trucks transit from India to Bangladesh along the Petrapole-Benapole corridor each day and approximately 90% of the total imports from India arrive through Benapole. On the contrary, only about 125 trucks move in the opposite direction. Most of the trucks officially carry 10–15 MT, whereas the international norm is a tractor-trailer carrying 40 MT. The corridor lacks systematic and effective checks to weigh trucks traveling on its roads.

Increased flow of goods largely dependent on the political will of the ruling parties of both India and Bangladesh, and improvement in both road infrastructure and trade facilitation. Among other factors Customs clearance processes, legal constraints on cross-border trucking, logistical shortcomings, and testing for standards enforcement are important ones.

The under construction Padma multi-purpose bridge at Mawa point will reduce the distance between Kolkata and Dhaka by about 200 km. Additionally, the Government of Bangladesh has declared that all national highways will be widened to 04 (four) lanes. After signing Bangladesh, Bhutan, India and Nepal (BBIN) Motor Vehicle Agreement at June 2015, motor vehicles of both countries now can cross border without much hassle to deliver exports to a destination in the other country. Previously trucks carrying exports stop at the border and transfer their contents onto a truck from the other country for onward shipment. USAID has identified couple of issues related to inefficiencies of Benapole land port-

1. Cross-border freight is rarely containerized. Containers are more efficient than bulk shipping because customs in one country can affix a seal that border officials in another should not have to break.
2. Many Bangladeshi trucks headed to the border travel empty because of the trade imbalance between the two countries.

Benapole-Jessore Highway Corridor Development Plan



Map 5.2 – Road between Jessore and Kolkata.

USAID has summarized the problems of Benapole land port and their subsequent way-out (please see **Table 5.1** For details).

Table 5.1: Current problems of Benapole Land port and releveant interventions identified by USAID

CURRENT SITUATION	INTERVENTION
ROADS	
Traffic congestion at land borders without evidence that would allow for the proposal of viable solutions.	Document the length of processes at the borders to establish the causal factors that generate waste and inefficiencies.
Overloaded trucks damage the roads and bridges on the two corridors between Kolkata and Dhaka.	Develop practical protocols to conduct a risk-managed sample of trucks weighed at various points along the corridor and enforce fines and offloading of surplus cargo.
Road-side corruption on the Bangladeshi and Indian sides of the border leads to excess road transportation costs and time delays.	Work with the Ministry of Communication, truckers' associations and export traders to document the frequency and financial impact of roadside hassles and corruption.
CUSTOMS	
ADB is undertaking a project at Benapole to improve the efficiency of port and customs procedures. But it is not funding work at Petrapole, on the Indian side of the border.	Facilitate a replication of the efficient parts of the ADB project at Bhomra- Ghojadanga.
	Support work (via donors in India) in Petrapole and Ghojadanga to expedite border clearance procedures affecting priority Bangladeshi exports
Limited border opening hours contribute to traffic congestion, especially trucks loaded with export	Analyze the costs and benefits of extending the opening hours at border posts, including a 24/7 schedule.
STANDARDS	
Absence of mutual recognition of SPS certification with India applied efficiently to facilitate swift border	Facilitate the negotiation of an SPS agreement to accelerate exports of agricultural products, particularly from Bangladesh to India.
Lack of targeting of large shipments of fresh agricultural products to high-value world markets from the SSW.	Identify companies in the SSW that might competitively supply developed-economy supermarkets with fresh produce. Design a program to facilitate their entry into these markets, possibly in collaboration with PRAN.

5.4 Existing condition of Benapole Land Port

Responding to higher trade volume with the neighboring nations through land routes, the government of Bangladesh established Bangladesh Land Port Authority under the Ministry of Shipping in 2001. Out of 14 land ports, only Benapole port is operated by the Government directly. Benapole is the major land port adjacent to and international border crossing with India and facilities occupy an area of approximately 24.36 hectares (60.2 acres) to the west of Benapole Municipality. The facilities have been developed since the inception in 1978. The Benapole Land Port area is approximately 1200 m long and varies from 250 m to 100 m in width. The port has two Import Truck Terminals (ITT) with parking capacity for 1000 trucks and one Export Truck Terminal (ETT) with parking capacity for 150 vehicles. There are 45 warehouses and 4 open stacking yards a transshipment yard. The total storage capacity at any time is about 40,000 tons.

The existing main Jessore to Kolkata road outside the Benapole Land Port yards encounters severe traffic congestion caused by high numbers of vehicles approaching the Benapole Land Port yards and the border. This frequently results in complete blockage of the west bound (southern side) of the roads. There are also conflicting pedestrian and non-motorized transport (NMT) movements. There are numerous intersections of the main Jessore to Kolkata road with other smaller feeder roads and tracks (some narrow, some wide) and there are several entrances that lead in to the land port yards. Roadside trading is quite common in the area.

A project titled 'Modernization of Benapole Land Port (1st phase)' for infrastructural development and extension is being implemented at a cost of TK 24.43 crore. The infrastructural development work includes construction of four warehouses, open stack yards, export and passenger terminals and acquisition of 6 acres of land including development. After the completion of the project, the warehousing capacity of Benapole Land Port will increase from 27,000 MT to 28,600 MT.

Moreover steps have been taken to automate the Benapole Land Port for efficient and transparent port operation. It has been decided by the Government that all ports except Benapole Land Port will be operated through private port operators on BOT (Build, Operate and Transfer) basis. Improvement of land ports will result in increased volume of trade, prevention of smuggling and reduction of evasion of customs duty. It would also promote and expand the area of co-operation between government and private sector in different areas of development. Private investment in the peripheral area of the country will increase which will also augment government revenue income.

5.5 Best corridor planning practices

No universal definition of economic corridor can be found anywhere in the scholarly literatures. This term was first coined by ADB in 1998. Corridor can be defined from many perspectives to serve many purposes. Traditionally corridors are defined for transportation planning. The concept of using transport corridors as a means to develop the regions around the corridors is known as the economic corridor concept or the development corridor concept.

Economic corridors are integrated networks of infrastructure within a geographical area designed to stimulate economic development (Hans-Peter Brunner (August 2013), "What is Economic Corridor

Development and What Can It Achieve in Asia's Sub-regions?", ADB Working Paper Series on Regional Economic Integration, no 117, Asian Development Bank, Metro Manila, Philippines). Economic corridors refer to transport networks that support and facilitate not only the movement of goods and services but also of people as well as the exchange of information. Economic corridors are not limited to hard infrastructure such as highway systems, rail lines or ports but also include soft infrastructure such as trade facilitation and trade capacity building (<http://research.bworldonline.com/popular-economics/story.php?id=350&title=Economic-corridors-boost-markets,-living-conditions>).

Economic corridors connect economic agents along a defined geography. They provide connection between economic nodes or hubs, usually centered on urban landscapes, in which large amount of economic resources and actors are concentrated. They link the supply and demand sides of markets. This term is often synonymously used for trade corridor. Although many authors use "economic corridor" and "development corridor" interchangeably, others describe development corridors as an ingredient necessary for achieving economic corridors.

An economic corridor, as described by the ADB and AfDB, has the following characteristics (<http://research.bworldonline.com/popular-economics/story.php?id=350&title=Economic-corridors-boost-markets,-living-conditions>):

- covers smaller and defined geographic space, straddling a central transport artery;
- highlights bilateral rather than multilateral initiatives, mainly at border crossings between two countries; and
- stresses physical planning of the corridor and its surrounding area for focused infrastructure development that will yield maximum benefits.

Corridor planning allows the communities to work collaboratively, using accurate, updated, corridor-wide data to improve local land use planning and transportation decision-making so as to support the long term success of the region as a whole (Androscoggin Valley Council of Governments, Maine's Best Practices for Development of Multi-Modal Corridor Management Plans, December 2007; www.hcpcme.org/transportation/.../CorridorPlanningGuide121207.pdf).

The economic corridor approach looks at regional transport routes not only as a means of transporting goods and services, but also as a tool for stimulating social and economic development in the areas surrounding the route. Economic corridors accomplish this by creating industry and social facilities in conjunction with transport infrastructure. In doing so, they develop rural and border areas, increase the earnings of low-income groups, and create employment.

ADB argues that South Asia is one of the least economically integrated regions in the world, with comparatively high barriers to trade and investment. Political boundaries cease to be economic boundaries and spatial- economic regional planning takes the lead. In short, the economic corridor approach transforms transport corridors into engines of socioeconomic development. Generally characteristics of economic corridors can be summarized as (Gadzeni Mulenga, NEPAD, Regional Integration and Trade Department - No. 1. April, 2013, Developing Economic Corridors in Africa: Rationale for the Participation of the African Development Bank):

- A smaller, defined geographic space, usually the area straddling a central transport artery such as a road, a rail line, or a canal;
- Bilateral rather than multilateral initiatives focusing on strategic nodes, particularly border crossings between two countries, principally to promote a sense of ownership;

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- An emphasis on physically planning the corridor and its surrounding area, to concentrate infrastructure development and maximize benefits; and
- Strong public-private partnerships, which promote sustainability.

Usually corridor development follow a sequence of stages for transformation (Gadzeni Mulenga, NEPAD, Regional Integration and Trade Department - No. 1. April, 2013, Developing Economic Corridors in Africa: Rationale for the Participation of the African Development Bank). These sequences provide essential insight for this plan. These stages are summarized below-

- *First stage (Physical development)*: Priority of this phase is development of physical facilities needed for efficient and effective transportation and trade by establishing and revamping transport links; improving the quality of infrastructure, increasing carrying capacity, and dealing with related safety issues; upgrading infrastructure associated with priorities such as rural agriculture, agroindustry, and tourism; encouraging multimodal structures; and upgrading border areas.
- *Second stage (Logistics development)*: At the second phase logistical support is provided to harmonize corridor policies, regulations and institutions, moving people and goods more efficiently and facilitating storage, warehousing, trucking, insurance and freight management, and related services. It is also important to implement cross-border trade agreements; simplifying, standardizing and harmonizing immigration and quarantine procedures; promoting information and communication technologies; and establishing a logistics center.
- *Third Stage (Economic and social development)*: This stage promotes investments in areas such as agroindustry and manufacturing, natural resource-based enterprises, small-scale industries, trade, schooling, and health facilities, all located near the corridor.
- *Fourth Stage (Integration of crosscutting issues)*: This stage addresses environmental and institutional capacity concerns and other social issues.

A good corridor plan should have following characteristics-

- Comprehensive, based on a full understanding of the dynamics of transportation and all interacting influences within the corridor;
- Proactive, seeking to identify and address transportation-related problems before they arise, rather than after they have grown to the point of being intolerable;
- Visionary in nature, meaning that the recommended strategies for the corridor arise from a shared vision for the corridor established by local communities and state agencies with jurisdiction over the corridor; and
- Collaborative, meaning that transportation agencies, local governments, stakeholders and the national government.

As stated earlier, most of the corridor plans concentrate primarily on the transport network. Then land use plan is reoriented to minimize conflict. For example, Cache Valley South Corridor Development Plan has been developed to (1) create a transportation system which produces an efficient flow of goods, services, and travelers while sustaining business and industry; (2) Provide opportunities for the full participation of all government entities within the corridor to manage future growth along the corridor; and (3) Direct new growth in a manner that is consistent with the principles of the Envision Cache Valley process and which identifies future land uses, roadways, and vehicular access points. The plan also laid down some challenges and proposals. Some of these issues are stated below-

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- Limiting development to “clustered nodes” at existing and future intersections.
- Establishing 300’ and 500’ open space buffers along both sides of the highway, depending on the proximity to the clustered nodes.
- Prohibiting new residential uses within the open space buffers, helping eliminate the need for sound walls, berms and other obtrusive buffering techniques.
- Encouraging residential, commercial, mixed-use and industrial uses within the existing cities
- Prohibiting strip development along the highway.
- Encouraging better property maintenance and upkeep.
- Prohibiting commercial advertising signs along the highway.
- Adjusting of land earmarked for commercial uses to match realistic market projections.

STRUCTURE PLAN STRATEGIES & POLICIES

6.1 Introduction

As stated in the preceding chapter, SP usually sets forth the policy directions providing flexibility to the other tiers of the plan. The current chapter of the report sets forth strategies and policies for the master plan. The strategies and policies have been prepared on sectoral basis.

6.2 Sector wise Planning Policies

6.2.1 Demography and population growth

The project area has immense potentiality to be developed. Jessore paurashava has not yet touched the peak of development. On the other hand, Benapole Land port has immense potentiality to contribute in the national development. These two areas are located at the two ends of the project area. Because of their connectivity, the growth potentiality of the project area has also increased significantly. Apart from the same, being a part of the regional corridor development plan, this area carries enough significance.

With the increase of economic activities of the corridor, migration will increase. This will be coupled with the unplanned development, slum formation, environmental pollution, deteriorating living environment etc. Although, the SP recognizes that less concentration of population in the corridor would be better for ensuring health and sustainable living environment. Nevertheless, the above-mentioned reality cannot be overlooked. The project area is likely to be observing unprecedented growth in the coming decades, if all the economic predictions remain constant. Urban agglomeration through agglomeration of population is always better for economy and inversely related to environmental sustainability.

The working paper on Demography has suggested adding additional 10% population with the originally projected population. Apart from the same, it also suggested to consider commuters who will be traveling from outside of the project area, work inside the project area throughout the day and go back at the dawn. It is also to be noted here that most of the migrated population are rural poor. Providing employment, shelter, amenities etc. will be challenging for the proposed corridor

authority. To avoid such overwhelming concentration of population (given that economic and manufacturing activities will increase tremendously), the government also need to focus on the regional growth centers and the rural areas, increase employment opportunities, and services and facilities.

Bangladesh Population Policy 2012 suggests treating the population as a resource not as a burden. The policy envisioned to develop a healthier, happier and wealthier Bangladesh through planned development and control of the nation's population.

Policy:

Item	Executing Agency
<p>Pop/1:To ensure equitable development for all the unions to avoid the unwanted concentration of population in any area.</p>	<ul style="list-style-type: none"> ✓ Local Governments (Union Parishads / Paurashavas) ✓ Proposed corridor authority
<p>Justification: Employment opportunity, living standard cannot be ensured for every of the unions at similar level. However, placement of population should be such that a balance can be maintained and the provided amenities can sufficiently serve the population.</p>	
<p>Pop/2: To promote compact urban development</p>	<ul style="list-style-type: none"> ✓ Ministry of Planning,
<p>Justification: Compact development comes with so many benefits, e.g. less travel cost (time, money etc.), lesser expense for service provision, conservation of agricultural land and open space etc.</p>	<ul style="list-style-type: none"> ✓ Local Governments (Union Parishads / Paurashavas) ✓ Proposed corridor authority ✓ Ministry of Planning
<p>Pop/3: To develop Capacity of the migrated folks.</p>	<ul style="list-style-type: none"> ✓ Ministry of Planning,
<p>Justification: From the experience, it can be said that the migrated population do not usually have the required skill set. As a result often these people remain unemployed or underemployed.</p>	<ul style="list-style-type: none"> ✓ Ministry of Education ✓ Ministry of ICT ✓ Local Governments (Union Parishads / Paurashavas) ✓ Proposed corridor authority
<p>Pop/3: To ensure healthy living environment for the people.</p>	<ul style="list-style-type: none"> ✓ Local Governments (Union Parishads / Paurashavas)
<p>Justification: Healthy living environment is one of the major determinants for economic productivity. If it cannot be ensured, slumization will start in the project area resulting deteriorated residential environment.</p>	<ul style="list-style-type: none"> ✓ Proposed corridor authority ✓ LGED ✓ NGOs/CBOs
<p>Pop/3: To ensure development activities sensitive to the poor</p>	<ul style="list-style-type: none"> ✓ Local Governments (Union Parishads / Paurashavas)
<p>Justification: Usually the poor are the most vulnerable and most un heard of community in any geography. Only through mainstreaming these people in the development agenda, sustainable development can be achieved.</p>	<ul style="list-style-type: none"> ✓ Proposed corridor authority ✓ LGED ✓ NGOs/CBOs

6.2.2 Housing and associated public utilities and services

With the increase of volume of trade and economic ties with India and surrounding nations, volume of traffic will also increase, more employment will be generated, more opportunity for industrialization will be emerged, more commuting will happen and most importantly more population will gather in this corridor to enjoy economic benefit and better living standard. With the increase of population, more demand will be created for housing. Obviously, the migrated population will seek their lodge in the prominent urban centers as most of the urban services and facilities will be available as a response towards emerging demand. Linear population projection cannot comprehend these kinds of sudden change in population growth. Again demand forecasting for housing is also difficult because of uncertainties about family size. Nowadays, average family size is declining and the joint families are fragmenting. Nuclear families require smaller house but per head living space requirement is usually high. Higher number of nuclear families means higher number of housing units as well.

Demand for housing can increase very rapidly. On the other hand, supply of the same usually increases very slowly. This creates a sheer difference in the equilibrium resulting in the form of massive slums and squatters. To avoid such messy situation, the government should be prepared in a planned manner. Fortunately, most of the residential areas of the project area have very low density. Meaning the existing residential areas would be able to consume more people in the next couple of years providing enough time to be prepared for the future.

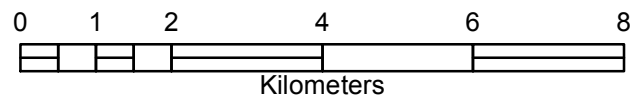
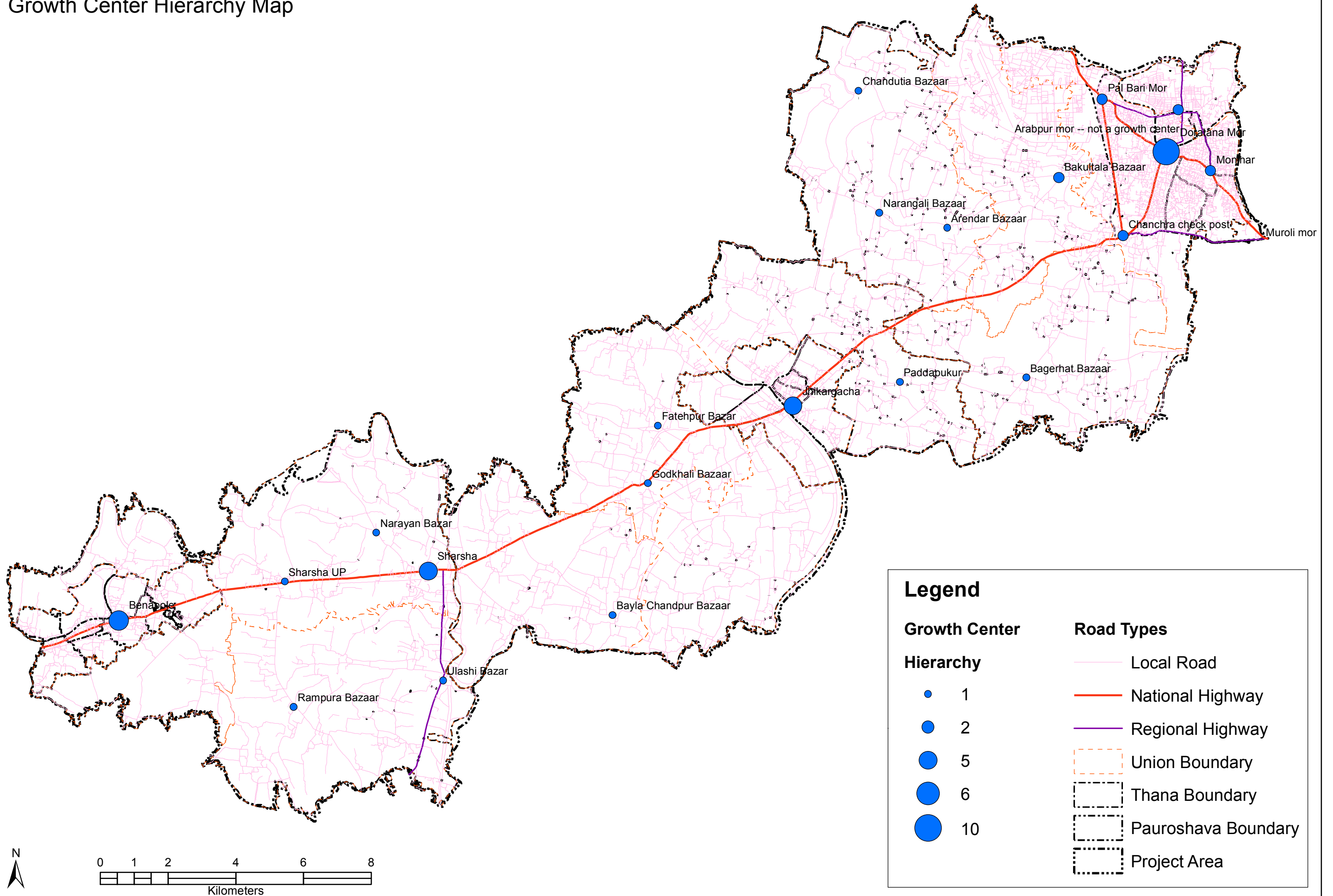
According to the population projection, the project area has total population of 5,90,440 (for the year 2015). This figure is 6,31,434; 6,75,884 and 7,24,108 for the year 2020, 2025 and 2030 respectively. By the year 2030, total deficit of housing units will be (Future demand **(204236)** – Existing stock **(126679)**)= 77557. This many housing units will need to be created mostly in the already urbanized areas.

Policy :

Item	Executing Agency
Policy House/1: <i>Prepare the existing urban centers to accommodate additional pressure of population.</i>	- Ministry of LGRD
Justification: economic development will lead to concentration of more population in the project area. Obviously, these people will prefer the existing urban centers for their living. Land use of the existing urban centers should be declared such that all these people can be easily accommodated and all the services and facilities can be made easily available for the people.	
House/2: <i>To ensure simple and accessible housing finance for middle and lower income groups.</i>	- Ministry of LGRD
Justification: The data clearly shows that although most of the people of the project area have their own land but because of lack of finance, their housing condition is poor. Several studies can be conducted to identify the people who are in need of housing finance, their capacity to pay back, type of loan they need etc. Based on this study proper mechanism can be	

devised to specially target the lower and middle-income group.	
House/2: <i>Prepare the project area to facilitate commuting and the commuters.</i>	
Justification: With the increase of economic activities, pressure of commuting will also increase. The increasing number of commuters will require temporary shelters and all other utilities and services. All services projected for 20 years should not be allocated from the very beginning of the plan. Instead, location and space requirement should be determined for five years. Otherwise, lots of resource will be wasted and common people will face problem.	
House/2: <i>Ensure and increase physical housing supply for the poor.</i>	
Justification: Because of high overhead cost, poor's access to housing units are often limited. Because of the same reason, private sectors also do not come forward to provide shelter for the poor. It requires long-term public-private partnership to increase the number of housing units. The concept of social housing may be used in this regard.	
House/2: <i>Improve living condition of the poor people.</i>	
Justification: From the construction material's point of view, the project area is in bad shape. Although the area is not highly prone to natural disaster, the miserable condition faced by the inhabitants during rainy season can be easily comprehended. Local Government Institutions, NGOs, BHBFC and NHA can take appropriate action to improve the living condition. Secondary data has also revealed that the in terms of source of drinking water, toilet facilities etc., the area is also in distress. The issue can be addressed temporarily by local government institutions. However, for integrated and holistic measures, an organization like WASA can be created to better serve the area.	
Policy House/1: Provide all necessary services and facilities to promote housing at private sector.	- Ministry of LGRD
Justification: It is more difficult to provide housing on public sector initiatives as it involves funding, land acquisition, takes long time. By providing infrastructure and services general people can be enables to build their own houses.	

Growth Center Hierarchy Map



6.2.3 Land use

The corridor is still dominated by rural land use. Land used for industrial and manufacturing purpose is negligible. From the land use distribution, evidently, communication system of the project area is also very poor. Agricultural land use is still dominating the project area. Although the whole situation do not portray the picture of a economically vibrant area, it also comes with some potentialities. The area has quite a lot of vacant space for providing urban services and facilities. Existing urban areas are surrounded by quite livable vacant/open space where additional population can be accommodated.

Item	Executing Agency
<p><u>Policy-LU/1:</u> Conserve the agricultural areas and water bodies.</p> <p>Justification: The project site is still dominated by agro-based economy. Majority of the land is still used for agriculture purpose. To ensure food security and to avoid increase of unemployment rate, conservation of agricultural land is a must</p>	- Ministry of LGRD
<p><u>Policy-LU/2:</u> Procure land for open space facilities as quick as possible</p> <p>Justification: When land value will be higher cost of providing the facilities will also be very high. Besides, with the growth of population vacant land will disappear gradually, so no land will be available at strategic locations for providing open space facilities.</p>	- Ministry of LGRD
<p><u>Policy-LU/2:</u> develop necessary infrastructures to promote agricultural activities and increased productivity.</p> <p>Justification: Agriculture is always considered less productive compared to other economic sectors. However, through providing irrigation, storage and other facilities, it would be possible to increase agricultural productivity.</p>	
<p><u>Policy-LU/2:</u> Restrict residential development in the waterlogged areas or flood prone areas</p> <p>Justification: With the increase of population pressure, marginalized people will start seeking cheap place to live. Often these places deprives urban amenities and vulnerable to different natural and man-made disasters.</p>	
<p><u>Policy-LU/2:</u> Restrict development activities in the designated flood plain areas.</p> <p>Justification: Although incidence of flood in the corridor is not all notable. However, after revival of the river, the inhabitants will enjoy tidal flow of the same. To minimize adverse hydraulic effect, and to maintain</p>	
<p><u>Policy-LU/2:</u> Restrict ribbon development around the Jessore-Benapole road</p> <p>Justification: As it is assumed that the said road will be playing a vital role in economic development of the area. Ribbon development by this road will hamper free flow of the vehicles increasing congestion and environmental pollution and cost..</p>	

6.2.4 Governance and institutional arrangements

Within the corridor, a number of administrative units exists, e.g. Jessore, Jhikargacha and Benapole Paurashavas, a number of unions etc. These administrative units have different roles, responsibilities and capacity. Integration among these administrative unites will be a challenge.

Policy:

Item	Executing Agency
<p>Policy-GOV/1: Establishment of Jessore-Benapole Highway Corridor Development Authority</p>	<p>- Ministry of LGRD</p>
<p>Justification: Within Jessore-Benapole highway corridor, a number of urban local government institutions such as Jessore Paurashava, Benapole Paurashava and Jigorghacha Paurashava and also rural local government institutions are existed. Among these local government institutions, Jessore and Benapole Paurashava have been responsible for implementing and in limited scale, planning of urban development. However, Jigorghacha Paurashava and other rural government institutions do not capacity in terms administrative, work force and institutional arrangements to implement physical development planning. In addition, institutional coordination problems will be arisen between the urban and rural local government institutions in charge of implementing corridor development plan particularly in control of land and responsibility for planning and monitoring physical development in the Jessore-Benapole Highway Corridor areas. Thus, it is necessary to establish a 'Corridor Development Authority'. The situation will be changed with the establishment of separate 'Jessore-Benapole Highway Corridor Development Authority' having responsibility for planning and controlling physical development.</p>	
<p>Policy-GOV/2: Urban planning regulations place much emphasis on control rather than on guidance of urban development.</p>	<p>- Ministry of LGRD</p>
<p>Justification: Planning legislations in form of land use plans, zoning, subdivision regulations, building codes, and other public policies shape and guide development. These regulations are normally adopted to help protect the urban and natural environment, gear infrastructure investments with development, and maintain and enhance property values. They are never meant to restrict or decelerate development but rather to direct and enhance it. Most planning regulations and standards in Bangladesh have been considered to be too static and inflexible like some existing development control codes, the building and zoning regulations. The various acts and statutes for regulating urban development are too rigid and outdated and not conforming to the countries' current social, economic and political circumstances.</p>	
<p>Policy-GOV/2: Policy 3: Upgrading of existing status of Jessore Paurashava</p>	

<p>Justification: The elevation of local government institution like Jessore Municipality into a Municipal/City Corporation with enhanced development and service responsibilities retained much of the influence of the City Corporation in comprehensive city development. It is necessary as Jessore Paurashava can therefore be termed as the most important stakeholders of the city's development.</p>	
<p>Policy-GOV/4: Strengthening urban and rural local government institutions</p>	
<p>Justification: In order to carry out the future responsibility, both urban local government institutions such Benapole and Jigorghacha Paurashavas and rural local government institutions should be further strengthen in terms legal provisions.</p>	
<p>Policy-GOV/5: Mobilization of Resources</p>	
<p>Justification: This can be achieved through both central governments support and easy legal provision for urban local government institutions to implement income-earning projects with their own initiatives. However, adequate transparency arrangements are pre-conditions for such projects. Greater effort should be made both by corridor development authority, urban local government institutions and other rural local government institutions with the power to tax or impose fee towards optimum resource mobilization.</p>	
<p>Policy-GOV/6: Increase quality and quantity of human resources</p>	
<p>Justification: Urban local government strengthening also demands both quantitative and qualitative strength of relevant personnel in such bodies. There are serious deficiencies in municipal human resources, particularly in availability of professional urban planners and other technical people. The system of providing bureaucrats and technical persons to the Pourashavas by the central government is also not very welcome by the Pourashava authorities since they involve additional financial burdens to the Pourashavas.</p>	
<p>Policy-GOV/7: Increase People's participation in plan implementation</p>	
<p>Justification: Citizen participation needs to be increased in plan implementation process. The Pourashava Act of 2009 has ensured greater participation of citizens through several Standing Committees, the Town Level Coordination Committee and the Ward Level Committee. Thus, it is necessary to ensure the participation of representatives of Standing Committees, the Town Level Coordination Committee and the Ward Level Committee in plan implementation.</p>	
<p>Policy-GOV/8: Quality of leadership is also important for Corridor Development Plan Implementation</p>	
<p>Justification: Quality of Pourashava leadership is also a very important issue in improving Pourashava governance. Since such leadership evolves through the election process, there is need for campaign for choosing good leaders. Both the government and non-government organizations can</p>	

conduct such campaigns.	
Policy-GOV/9: Awareness building of planning activities and public participation	
Justification: The extent to which people are aware of the existence of planning activities and regulations is important because it partly determines the extent to which people will comply with these regulations. Lack of public participation and awareness of urban development plans and planning legislations lowers the chance of successful implementation of the plan and the degree of compliance with the required regulations.	

6.2.5 Economic Development and Employment Generation

Economic development of any place is associated with generation of employment. And generation of employment depends on the rate of investment in various sectors of an economy. An economy of any town starts building up with investment in the basic sector that leads to the building up of the non-basic sector. Investment in basic sector is not very bright in the project area. Main strategy for economic sector is to promote basic sector investment climate and lead the local economy forward through promotion of Small and medium Enterprise (SME). Additionally to attract national and international investment.

Item	Executing Agency
<p><u>Econ/1:</u> Provide bank loans on easy terms to attract prospective investors in the SME sector.</p>	<p>✓ Ministry of Industries. ✓ Ministry of Commerce.</p>
<p>Justification: Easy loans would encourage and attract prospective investors for investment in small scale industries.</p>	
<p><u>Econ/2:</u> Take measures to channelize remittance to value adding productive sectors.</p>	<p>✓ Ministry of Industries. ✓ Ministry of Commerce.</p>
<p>Justification : Larger amount of remittance is being diverted to land purchase, which is considered as the safest investment. This huge capital may be channelized to productive sectors to help create more employment.</p>	
<p><u>Econ/3:</u> Arrange entrepreneurship training programmes for prospective investors.</p>	<p>✓ Ministry of Industries. ✓ Ministry of Commerce.</p>
<p>Justification: There are many potential investors who are ignorant of the ways and means of investment and operating an enterprise, The training can help them get educated in these lines.</p>	

6.2.6 Utility Services

Utility services are the most essential parts of urban life. To make an urban centre livable there must be adequate provision for utility services. Utility services include water supply, solid waste management, power supply, sanitation and drainage. Except power supply, the rest are the responsibilities of the Pourashava.

Item	Executing Agency
<p><u>Policy-Utility/1:</u> Exploration of alternative sources of water to ensure sustainable supply.</p>	- LGED,
<p><u>Justification:</u> Amid constant rise of urban population, it is time to explore alternative sources of water, like, rain water harvesting and surface water supply.</p>	
<p><u>Policy-Utility/2:</u> Involve beneficiary participation in solid waste management.</p>	- NGO and CBO
<p><u>Justification:</u> Involvement of beneficiaries in solid waste management will make the operation more effective and reduce financial responsibility of the local government.</p>	
<p><u>Policy-Utility/3:</u> Exploring re-use and recycling of waste materials to extract resources.</p>	- NGO and CBO
<p><u>Justification:</u> Re-use and recycling of waste materials will produce resources and reduce cost of waste management.</p>	
<p><u>Policy-Utility/4:</u> Publicity on the benefits of hygienic sanitation to motivate people and enable people to have easy access to sanitary materials.</p>	- LGED, - NGO and CBO
<p><u>Justification:</u> Motivation will encourage people to adopt healthy sanitation and reduce health risks.</p>	
<p><u>Policy-Utility/4:</u> Protection of natural drainage system and preparation of hierarchical drainage network.</p>	- LGED,
<p><u>Justification:</u> Natural drainage systems are being grabbed and filled up, which increases the risk of waterlogging. Well planned hierarchical drainage network help smooth drainage of storm and waste water.</p>	

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Appendix 3.1

Population Projection

Union Name	Population (2001)	Population (2011)	Growth Rate (GR)	Adjusted GR	Population (2015)	Population (2020)	Population (2025)	Population (2030)
Sharsha	39583	44805	0.01	1.01	47217	50414	53829	57474
Benapole	48812	36524	-0.03	1.00	36524	36524	36524	36524
Ulashi	30499	33607	0.01	1.01	34998	36818	38733	40747
Arabpur	33471	41361	0.02	1.02	45401	51010	57313	64394
Diara	32469	36789	0.01	1.01	38786	41436	44267	47291
Jessore Paurashava	176655	201796	0.01	1.01	213531	229164	245942	263948
Upasahar	14305	16546	0.02	1.02	17607	19031	20569	22231
Chanchra	35807	44239	0.02	1.02	48556	54548	61281	68844
Jhikargachha	27834	26056	-0.01	1.00	26056	26056	26056	26056
Gadkhali	23760	26892	0.01	1.01	28338	30256	32303	34489
Panisara	19843	21828	0.01	1.01	22715	23874	25092	26372
Nabharan	26776	29495	0.01	1.01	30711	32303	33976	35737
	541471	559938			590440	631434	675884	724108

Appendix 5.1

Trend of Export-Import through the land ports of Bangladesh

Export through Land Port under Bangladesh Land Port Authority

Year	Land ports								
	Benapole	Sonamosjid	Hilli	Burimari	Akhaura	Bibirbazar	Banglabandha	Teknaf	Bhomra
2008-09	470332	0	12705	40309	322800	61323	0	7170	0
2009-10	286700	0	11940	146831	442965	48236	0	11731	0
2010-11	371798	0	43296	73210	546523	88200	12442	8810	0
2011-12	464040	0	10721	0	575550	125431	4553	633	8320
2012-13	562616	0	18691	0	372381	124689	40790	8391	35129
2013-14	300274	0	23870	0	278377	63596	14513	6504	44299

Import through Land Port under Bangladesh Land Port Authority

Year	Land ports								
	Benapole	Sonamosjid	Hilli	Burimari	Akhaura	Bibirbazar	Banglabandha	Teknaf	Bhomra
2008-09	872819	820645	385600	281671	680	39	0	149968	0
2009-10	1148468	876295	410391	299222	557	31	0	99039	0
2010-11	1147972	1401586	400833	396333	335	15	99639	92538	0
2011-12	1221470	1401922	603204	357539	172	0	168728	85519	792849
2012-13	1124126	1563717	853380	227219	60	0	214268	66352	941775
2013-14	1252250	1746993	851759	935141	251	24	515700	105755	1458413

Total Import-export through Land Port under Bangladesh Land Port Authority

Year	Land ports								
	Benapole	Sonamosjid	Hilli	Burimari	Akhaura	Bibirbazar	Banglabandha	Teknaf	Bhomra
2008-09	1343151	820645	398305	321980	323480	61362	0	157138	157138
2009-10	1435168	876295	422331	446053	443522	48267	0	110770	110770
2010-11	1519770	1401586	444129	469543	546858	88215	112081	101348	101348
2011-12	1685510	1401922	613925	357539	575722	125431	173281	86152	86152
2012-13	1686742	1563717	872071	227219	372441	124689	255058	74743	74743
2013-14	1552524	1746993	875629	935141	278628	63620	530213	112259	112259



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